

From the Desk of R. Lewis Dark...

THE DARK REPORT

RELIABLE BUSINESS INTELLIGENCE, EXCLUSIVELY
FOR MEDICAL LAB CEOs/COOs/CFOs/PATHOLOGISTS

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Commentary & Opinion by...

R. Lewis Dark

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Managed Care's Next Evolutionary Step

MANAGED CARE IS IN THE MIDST OF SHIFTING from a volume-buying discount club to a value-added partner in healthcare. During the past two years, THE DARK REPORT has identified developments in the marketplace supporting this trend and provided these insights to our clients and regular readers.

Further proof of this shift in the business model of managed healthcare are the value-added initiatives underway at **UnitedHealth Group**, based in Minneapolis, Minnesota. At last month's *Executive War College* in Cincinnati, Dr. Richard Migliori "wowed" the crowd with his discussion of how United Health Group was using detailed clinical data sets to stimulate significant improvements in the quality of care provided to its 15 million beneficiaries. You can read his comments on pages 9-14 of this issue.

Dr. Migliori is Chief Clinical Strategist at **Ingenix**, a business division of UnitedHealth chartered with the task to develop new healthcare tools based on clinical information. Obviously laboratory test data plays an increasingly important role in this effort. In fact, Dr. Migliori closed his presentation with this comment: "Eventually the requirement that the clinical laboratory data be shipped to us in a usable format will be universal."

For years, both lab administrators and pathologists have regularly stressed that laboratory data, when properly gathered and studied, holds fantastic potential to radically improve the quality of care even as it contributes to a lowering of healthcare costs. Now, after 15 years of delivering that message, there are influential players in the healthcare community taking notice of this fact.

This sets up an interesting situation. As health insurers, health systems, and government health programs become increasingly willing to fund the development of new ways to gather, store, analyze, and use lab data, will lab administrators and pathologists be willing to invest in the resources necessary to deliver that data in a usable form?

It's time for the lab community to step to the plate and develop value-added services built upon lab test data. As demonstrated by UnitedHealth Group, the appetite of payers and health systems for useful information is growing rapidly. Reimbursement for these services will grow proportional to their value in improving healthcare outcomes.

TDR

LIS Sales Decline in 2000 As Labs Shift Emphasis

Health systems moving to integrate clinical systems and doctor access

CEO SUMMARY: *THE DARK REPORT's annual ranking of the Top Ten LIS Vendors reveals that sales of new LIS products declined for the second consecutive year. This is evidence that the influence of multi-hospital health systems is changing the way LIS is purchased and implemented. It is also evidence that LIS buyers are moving with caution, as they watch the growing influence of the Web and e-health services.*

SALES OF LIS SYSTEMS DECLINED again for the second straight year. However, despite all the hoopla about the Internet and Web-accessed healthcare services, most laboratories and hospitals are still devoting the majority of their time and resources to traditional laboratory information system (LIS) software and other clinical systems.

THE DARK REPORT has identified a fundamental shift in how laboratories are dealing with the current generation of LIS products compared to just a few years ago. During the 1990s, LIS conversions and upgrades were the dominant trend within the lab industry.

However, over the past 18 months, a new trend surfaced. It is the interfacing of various clinical systems within a

healthcare enterprise. These efforts are directed at creating an integrated suite of clinical applications that can be loosely described by the term electronic medical record (EMR).

Growing numbers of integrated healthcare networks (IHNs) are giving top priority to the integration of data flows from clinical systems such as radiology, laboratory, and pharmacy into a clinical data repository (CDR). Upgrades and conversions to LIS and other systems continue but at a lesser rate than just a couple of years ago.

This trend is confirmed by THE DARK REPORT's annual ranking of the Top Ten LIS Vendors. (*See pages 4-5 for this year's rankings.*) The number of new LIS sales has declined in each year since 1998. Between 1999 and

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2000, new hospital LIS sales declined 28.5%, from 634 to 456.

"Another factor which may be contributing to the decline in LIS unit sales is the slower purchase and implementation cycle of the growing numbers of large healthcare systems," stated Gary Braley, President of **Braley Consulting Services, Inc.**, based in Minneapolis, Minnesota. "Bigger organizations tend to take longer to evaluate a new software purchase, implement the conversion and train all the staff. This naturally slows down the replacement cycle.

Complex Issues

"I've seen this change in my consulting practice. As integrated healthcare networks (IHNs) become bigger, it requires correspondingly more effort to change any part of the informatics systems serving the IHN," added Braley. "Besides the complex issues that need resolution, there is also a larger group of users who legitimately have different needs.

"Not surprisingly, all these complications lead to a longer cycle of decision-purchase-implementation," he said. "For example, an LIS installation serving eight or ten hospitals is obviously going to be more complicated than one serving two hospitals."

Braley also believes LIS products are relatively better than other clinical systems and this contributes to a longer cycle of purchase and upgrade. "For all their quirks, LIS products are usually technology leaders within the healthcare informatics marketplace," he observed. "Traditionally, there are two reasons why this is true.

High Transaction Volume

"First, LIS software must support a high volume of transactions," he explained. "Second, pathologists and lab administrators are closely involved in all aspects of LIS functions. Once

an LIS conversion is completed, that is typically why such software often runs satisfactorily in a laboratory up to ten years or more.

"In contrast, I think most users would judge other software, such as scheduling, transcription, and the like to be less reliable than LIS software," noted Braley.

Braley also observes that a couple of additional factors may act to restrain sales of new LIS systems in the near future. "First, I believe LIS vendors are having a difficult time keeping up with the changes occurring within the healthcare system," he observed.

"This includes many levels, from the consolidation of healthcare providers into IHNs to the swift introduction of new technology," said Braley. "Lab buyers are watching cautiously and taking care to buy LIS solutions they think are compatible with the next generation of healthcare technology.

Inadequate Implementation

"Second, administrators of these huge healthcare systems often don't appreciate the complexity of LIS and other clinical systems. As a result, conversion planning and implementation is woefully inadequate.

"If it costs \$1 million to acquire a system, the budget for selection, installation and operation should approach that same number," he explained. "To successfully install and implement an LIS requires a detailed plan, along with rigorous testing and extensive training of the staff. This certainly requires money and time to do properly."

Braley's observations reflect the LIS market as it is today. In recent months, two key meetings dealt with the topic of laboratory information and its evolution in the next few years. One was the special "Web-accessed Lab Test Ordering/Results Reporting" program im-

mediately following the *Executive War College* in Cincinnati on May 9-11. The most recent was the 19th annual "Automated Information Management in the Clinical Laboratory" (AIMCL) gathering in Ann Arbor, Michigan on May 30-June 1.

Experts at both meetings hit upon the same themes. LIS software used by labs today is going to evolve at a rapid rate over the next five years. It will become easier for LIS products to interface with other clinical systems and data repositories. The widespread deployment of "interface engines" which substitute for the arduous development of point-to-point interfaces is contributing to this greater efficiency.

New technologies, utilizing the Internet, will make it possible for lab customers to both order tests and review tests results. For example, labs can allow doctors to use wireless devices to access patient test results. The earliest attempts to introduce this type of service are happening in a handful of IHNs right now.

Recently-implemented standards for automated laboratory equipment and information systems will stimulate manufacturers to build compatibility into their diagnostic instruments and LIS products.

Selling EMR Products

Dr. Bruce A. Friedman, one of the leading thinkers in the field of laboratory information (and host of the annual AIMCL meeting) stated at his Ann Arbor program that "another challenge in the LIS space is that some vendors view the lab market as mature and want to sell an integrated EMR suite."

One consequence of this, according to Dr. Friedman, is that purchasing an LIS system is becoming more complex. Instead of picking an LIS vendor whose product optimally manages all lab functions and interfaces to the central IHN computers and the various lab analytic instruments, purchase of an EMR suite is now being handled by the enterprise CEO and CIO with the vendor-supplied LIS product bundled with the software suite. Because the selection of the prod-

TOP TEN LIS VENDORS RANKED BY:

Hospital Sales* (2000)				Hospital Installations* (2000)			
Rank	Company	New Sales 2000	Cumulative Per Cent	Rank	Company	New Sales 2000	Cumulative Per Cent
1	Cerner Corp	74	16.2%	1	Meditech	1,190	21.9%
2	Meditech	64	30.9%	2	Sunquest	1,044	41.2%
3	Sunquest	50	41.8%	3	Cerner Corp	749	55.0%
4	Fletcher Flora	48	52.3%	4	SCC Clinical Info Systems	242	59.5%
5	Healthcare Management	28	58.4%	5	Fletcher Flora	235	63.8%
6	SCC Clinical Info Systems	24	63.7%	6	Lab Soft	193	67.4%
7	CPSI	20	68.1%	7	CPSI	187	70.8%
8	Orchard Software	17	71.8%	8	SMS	153	73.6%
9	Triple-G	15	75.1%	9	Creative Computer Apps	147	76.3%
10	Lab Soft	12	77.7%	10	Healthcare Management	96	78.1%
Total Top Ten Vendors		352	77.7%	Total Top Ten Vendors		4,236	78.1%
Total All Vendors		456	100.00%	Total All Vendors		5,421	100.00%
(Total new sales in 1999: 634)				(Total installations in 1999: 5,317)			

*McKesson HBOC and Hex FF did not report
Provided by: R.L. Johnson & Associates

uct often hinges on the quality of the tools offered to clinicians, lab personnel may have little influence in the total suite selection despite the fact that the LIS choice may have a profound effect on lab operations.

Dr. Friedman further observed that efforts are already underway to expand LIS interaction with Web portals for order entry and results reporting, wireless connections to PDAs carried by physicians, and prescription ordering systems used in physicians' offices.

Taken together, all of these market forces demonstrate that the traditional purchase and replacement cycles for LIS are evolving. For legitimate reasons, LIS buyers are taking longer to acquire and implement upgraded systems. This directly leads to a decline in the total number of new LIS systems sold each year.

LIS Market Is Mature

THE DARK REPORT agrees with Dr. Friedman that one consequence of this development is that LIS vendors do

indeed consider the LIS market to be mature and offering limited potential. It's the reason why major IT vendors are shifting their product development emphasis to products which support the electronic medical record.

This is why lab administrators and pathologists should exercise caution when considering the near-term replacement or upgrade to their LIS software. The environment served by LIS is changing. IHNs want lab test data to flow throughout the health system in new ways. Vendors are scrambling to build this capability into their existing IT products.

In some cities, hospitals and IHNs are responding with integrated communications solutions. This is true of the Winona Project in Winona, Minnesota and **HealthBridge**, a multi-IHN clinical intranet repository serving 25 hospitals in Cincinnati, Ohio. **TDR**

Contact Gary Braley at 612-781-4434 and Bruce A. Friedman, M.D. at 734-764-8333.

TOP TEN LIS VENDORS RANKED BY:

Non-Hospital* Sales (2000)				Non-Hospital* Installations (2000)			
Rank	Company	New Sales 2000	Cumulative Per Cent	Rank	Company	New Sales 2000	Cumulative Per Cent
1	Fletcher Flora	71	25.9%	1	Lab Soft	675	29.2%
2	Schuyler House	60	47.8%	2	Fletcher Flora	354	44.5%
3	Orchard Software	46	64.5%	3	Schuyler House	264	55.9%
4	Lab Soft	27	74.4%	4	Orchard Software	192	64.2%
5	Dynamic Healthcare	11	78.4%	5	Creative Computer Apps	112	69.0%
6	Creative Computer Apps	8	81.3%	6	Sunquest	78	72.4%
7	Isys/Biovation	5	83.5%	7	SCC Clinical Info Systems	40	74.1%
8	Cerner	4	85.3%	8	Psyche Systems	20	75.0%
9	SCC Clinical Info Systems	3	86.4%	9	Cerner	19	75.8%
9	Triple-G	3	87.5%	10	Isys/Biovation	10	76.2%
Total Top Ten Vendors		238	87.5%	Total Top Ten Vendors		1,764	76.2%
Total All Vendors		274	100.0%	Total All Vendors		2,309	100.00%
(Total new sales in 1999: 338)				(Total installations in 1999: 1,669)			

*McKesson HBOC and Hex FF did not report
Provided by: R.L. Johnson & Associates

Lab Industry Briefs

ESOTERIX, INC. LAUNCHES TEST REPORTS VIA WEB BROWSER

WEB-ACCESSED LAB TEST REPORTING is now available at **Esoterix, Inc.**, based in Austin, Texas.

The accomplishment represents a major milestone for the lab company. It now has a common lab test reporting capability that draws data from all its specialty testing divisions. Esoterix was formed several years ago when seven specialty lab companies agreed to merge into a single corporate entity.

Esoterix used **Stonebridge Technologies, Inc.** to develop the software code necessary to support a common, Web-accessed platform for lab test results reporting. The system is called MedtraX. It allows lab test reports to be viewed on-line and printed. If the lab customer prefers, results can also be delivered by fax, remote printer, special courier, or regular mail. Because the product was developed within the past 12 months, it was designed to be compliant with HIPPA regulations.

Esoterix hopes to go public in the near future. Enhanced lab information management capabilities are essential to its success because its individual testing laboratories are scattered across the United States. Last year Esoterix spent \$4.5 million on its information technology department. With annual revenues of \$60 million, it demonstrates Esoterix's commitment to enhanced lab information services.

BIG BATTLE SHAPING UP FOR DIABETES TESTING

ESTIMATES ARE THAT as many as 40% of American adults may have diabetes. That is a huge market and makes the

disease a high profile target for many healthcare companies.

During the last two weeks, major acquisitions have roiled the market for diabetes testing. **Johnson & Johnson** struck first. On May 23, the venerable healthcare giant announced the \$1.3 billion acquisition of the diabetes care products of **Inverness Medical Technology**.

Inverness already supplies Johnson & Johnson with blood sugar testing devices that J&J markets through its **Lifescan** division, located in Milpitas, California.

One competitor responded swiftly. Eight days later, on May 31, **Medtronic Inc.** disclosed that it would purchase **MiniMed, Inc.** and **Medical Research Group, Inc.** for a total of \$3.7 billion.

MiniMed sells an insulin pump and glucose monitor. Both are worn on a patient's belt and are used to treat Type I diabetes. Medical Research Group is developing an implantable insulin pump and an implantable glucose monitor. Its goal is to mimic the pancreas.

These major acquisitions reflect the increased potential of new technologies for glucose monitoring. With the incidence of diabetes growing steadily, it is a lucrative market. Expect to see further competitive moves among the companies offering diabetes testing products.

SMALL CALIFORNIA HOSPITALS CLOSING AT A STEADY RATE

BETWEEN 1995 and 2000, 23 hospitals in California closed their doors, an average of one every three months. Predictions are for more hospital closings later this year.

The closings represented only 3.3% of the total licensed beds in California.

As one would expect, 11 of the closed hospitals had less than 100 beds and only five had more than 200 beds. The largest hospital that closed was 278-bed **Long Beach Community Medical Center**.

These numbers come from a recently-released study by the Nicholas C. Petrakis Center at the **University of California at Berkeley**. However, there was no consensus on whether these closings were good or bad for the California health system.

Clients and regular readers of THE DARK REPORT know that hospital utilization rates in California are probably the lowest in the nation. The study's authors concluded that most closures related to poor finances, the cost of seismic retrofitting, and the continuing shift of inpatient procedures to outpatient settings.

Officials at the **Healthcare Association of Southern California** (HASC) showed concern about the hospital closings. HASC believes that inpatient capacity will be reduced by 26% during the next decade. "We can't afford to lose any more infrastructure," observed Jim Lott, HASC's Executive Vice President. Lott noted that hospitals in Los Angeles typically run at more than 75% capacity.

Authors of the study believe that continuing poor finances will account for many of the impending hospital failures, but seismic retrofits will contribute. Estimates are that California's remaining 475 acute care hospitals will need to spend as much as \$24 billion to meet new state earthquake standards.

GENETIC TESTING COMING OF AGE AT MYRIAD GENETICS

ONE BELLWETHER COMPANY to watch in the field of genomic and proteomic testing is **Myriad Genetics Inc.**, of Salt Lake City, Utah.

Myriad Genetics just announced that it has located a gene linked to high cholesterol levels and early-onset heart disease. It calls the gene CHD2, for coronary heart disease. However, it disclosed little data to support this claim.

One of the interesting business lines at Myriad Genetics is its BRCA1 test, used as a genetic screening test for breast cancer. Gregory Critchfield, M.D., president of **Myriad Diagnostics**, told lab executives at the *Executive War College's* Lab CEO SUMMIT that Myriad has performed more than 10,000 genetic breast cancer screens.

Candidates for the test first undergo assessment for family factors and other factors which would indicate they are likely to be at high risk for the disease. If they meet this criteria, they are given the option to take the test.

Cost of the test is about \$2,800. However, sensitivity and specificity levels of the test are at a high enough level that health insurers have not balked at reimbursing for this test, so long as the woman fits the profile of a high-risk individual.

Initial studies by payers indicate that the cost of genetic screening is at least offset by the reduced costs that result when early detection in those woman at highest risk for breast cancer allows effective medical intervention. Myriad Diagnostics says that any woman with the known genetic mutations has a 95% chance of having ovarian or breast cancer during her lifetime.

Myriad's experience with genetic breast screening reveals two important insights. First, consumers are willing to undergo a genetic screen—if they believe it is accurate and can help them achieve early detection of their potential disease. Second, health insurers are willing to pay for expensive genetic screening tests, if the downstream cost of care and improved outcomes support such testing. **TDR**

Trends In Lab Testing

Patients "Bypassing" Docs To Order Tests From Labs

FOR THE SECOND TIME IN eight weeks, the *Wall Street Journal* (WSJ) has printed a prominent story about trends in laboratory testing.

Last Friday, June 8, 2001, the WSJ's "Health Journal" column featured a story entitled "Patients Bypass Doctors to Get Medical Tests Directly From Labs." Trigger to this story was the fact that **Quest Diagnostics Incorporated** is rolling out a "direct-to-consumer" testing program in five states this week.

Columnist Tara Parker-Pope provided a reasonable overview of the pros and cons in the debate about whether consumers should be allowed to order lab tests directly, without consultation with a physician. She also included information about the cost of testing, giving prices charged by a number of labs willing to deal directly with consumers.

This column follows on the heels of one that Parker-Pope wrote on April 13, 2001, titled "Risk of Error May Justify Second Opinion On Pathology Reports." Taken together, the amount of coverage that the *Wall Street Journal* is willing to give to pathology and clinical lab testing services demonstrates its belief that this is a high-interest topic with its readers.

Consumer Demand Rising

Without question, consumers are becoming more involved in their healthcare. Just as their doctors rely on lab tests for diagnosis and monitoring, consumers are learning to pay close attention to their own test results. This

is a logical development, but one which clinical labs and pathologists have been slow to recognize.

The WSJ story mentioned a few Web-based lab test companies, such as **HealthCheckUSA.com**, **CompleteBloodwork.com**, and **HealthScreen-America.com**. This is another sign of rising consumer interest in self-directed lab testing. These companies would not have been created without consumer demand for these services.

Story On Pathology Errors

THE DARK REPORT recommends that clinical laboratories and pathology group practices should be responding to this developing trend in two ways.

First, every lab should have a Web strategy. It doesn't require much money and time to establish a simple Web presence. However, that immediately gives consumers a way to know that your business exists. Content and services can be added on an incremental basis. Second, labs and pathology groups should begin to identify ways to service consumers. This effort should lead to a specific strategy for responding to consumers that is part of every lab's strategic business plan.

Keep in mind that the competitive marketplace never stands still. The efforts in direct-to-consumer testing by Quest Diagnostics will soon be mirrored by **Laboratory Corporation of America** and other lab companies. Today, labs have a window of opportunity to establish their presence with consumers on favorable terms. **TDH**

Requires Labs To Provide Detailed Information

UnitedHealth Using Lab Data To Improve Health Outcomes

CEO SUMMARY: *Managed Care is shifting into a new operational model that places prime emphasis on using clinical information to drive improvements in the quality of healthcare. At UnitedHealth Group, one of the nation's largest health insurers, early efforts to analyze clinical data have stimulated worthwhile improvements in physician treatment patterns. Laboratory Corporation of America is feeding increasingly detailed lab test data sets to United Health as part of this effort. Here's a look at how and why United Health Group is pushing hard to develop these resources.*

EFFORTS ARE UNDERWAY to boost the value that UnitedHealth Group brings to its employer-customers, hospitals, providers and beneficiaries.

A key component of this effort is to pool laboratory test data with other clinical information and use the resulting knowledge to improve outcomes and bring about a higher standard of health.

This development will have great impact upon the clinical laboratory industry. UnitedHealth and other managed care companies (MCOs) are actively learning how to combine lab test data with other healthcare information. Their goal is to use this informa-

tion to improve the quality of care even as unnecessary costs are eliminated.

As these MCOs become more sophisticated in how they acquire and use laboratory test data, clinical laboratories will be required to upgrade the type of clinical test information they provide. Labs which fail to do so will be excluded as providers.

Improved Health Services

Based in Minneapolis, Minnesota, UnitedHealth Group is one of the nation's largest health insurers, with 15 million beneficiaries. Ingenix is the business division spearheading United's efforts to develop and apply improved

clinical information services to the healthcare industry.

At this year's *Executive War College* in Cincinnati, Richard J. Migliori, M.D., Chief Clinical Strategist at Ingenix, described the company's vision for using improved health information to drive clinical decision-making.

"It's no secret that most people involved in healthcare recognize the need for serious reform," stated Dr. Migliori. "The many fragmented and inefficient components of the existing healthcare system have proved a hurdle to both innovation and the rapid intro-

duction of healthcare techniques that have proven worth.

"Among other things, during the past two decades of managed care, a 'siege mentality' emerged," he continued. "Providers found themselves fighting for access to patients while simultaneously dealing with the complexities of new technologies and new science.

Managed Care Restrictions

"On the consumer side, managed care became synonymous with restricted choices, restricted access, and increased control," noted Dr. Migliori. "The intimate privacy between patient and physician was interrupted. Consumers perceived that other people besides the physicians were making decisions about their care.

"What sets UnitedHealth Group apart from other insurers is how we define our role," explained Dr. Migliori. "United HealthCare is organized to establish an efficient market place between people who are looking for healthcare and people willing to offer it.

"We get to shop for 15 million Americans and our purchasing volume helps us get good prices for our employers and beneficiaries," he went on. "We also focus on eliminating waste from the provision of healthcare as well as its administration."

"It's important to understand that UnitedHealth Group has been building a brand for the past 14 years," Dr. Migliori said. "This is what sets our company apart from other healthcare firms. We want our patients to recognize that our brand of healthcare gives them individual choice to select their doctors, hospitals and, other providers.

Give Consumers Control

"Beyond choice, we also give them control," he added. "Why? Because we give them the information they need to make informed decisions. We want them to be better informed about their future and current health risks. And this is where laboratory test data plays an important role.

Gaps in Care Provide Major Opportunities

TWO YEARS AGO United Health abolished pre-approval for health services. "We said no more nurse-in-a-box, no more mother-may-I, no more pre-certification," explained Richard J. Migliori, M.D. Chief Clinical Strategist at Ingenix/UnitedHealth Group.

"It was an economic decision," he explained. "For all the phone calls we got from doctors saying, 'Can I do this to patients,' only 3% of the time would we ever say no. We were spending \$108 million dollars each year to aggravate our doctors and patients.

"At the same time, however, we observed some unsettling situations. In one city noted for outstanding outcomes and high HEDIS scores, we examined records for all the asthmatic kids in that community," recalled Dr. Migliori. "Of 1,400 asthmatic children, we found that 70% *didn't get a single prescription filled for an inhaler!* And that is the standard of care. We felt if we redirected the efforts of those nurses who were saying 'yes' to doctors to address this situation, we could have an impact.

"These asthmatic kids weren't getting their asthma medications and they were the ones ending up in ICUs and emergency rooms. We instituted a program to help physicians and patients address this situation. It reduced in-patient days and reduced the amount of money spent on health care services. We didn't have much influence on the ER rate but we did influence the number of kids who visited the ER and could then go right home," explained Dr. Migliori.

"The fascinating part is what happened in their lives," added Dr. Migliori. "We asked parents about what had changed. Parents told us their children woke up far less often at night suffocating from their disease. Kids missed less school; more importantly parents were missing work less often because

"We offer information which helps patients and physicians in three fundamental ways," stated Dr. Migliori. "First, we want to provide information which allows them to make better choices when they shop for medical services.

"Second is information about all available therapies. Patients should have no doubt that their doctors discussed every aspect and potential treatment of the clinical problem," he noted.

"Third, patients should have information about the clinical capabilities of the physician standing in front of them, as well as confidence in the quality, speed, and affordability of healthcare services," Dr. Migliori said.

Lab Test Data Is Crucial

"This is a total value equation, and the role of laboratory test information is crucial," he continued. "Our brand also makes a difference with physicians. Doctors recognize they can practice medicine without being distracted by us. Doctors also recognize that there is ready access to credible information about the same issues I just mentioned above.

"Now that I have explained the philosophy of UnitedHealth Group, I would like to specifically discuss the ways in which we are using information, including lab test data, to improve healthcare," offered Dr. Migliori.

"We use an engineering model to evaluate and improve both administrative and clinical practices," he noted. "For example, look at the cycle of events which starts when patients say 'I need a service,' either for prevention or to treat a specific symptom. They see a clinician, who then renders care at the clinician's discretion. Following that care, the physician codes the bill and submits a claim. Based on our contract, we take that coded bill, apply a discount, and effect reimbursement.

"These events are managed mathematically. Tracking these events on a flux diagram generates a series of ratios," Dr. Migliori observed, "These ratios describe patient demand as a function of that population, and the care provided is expressed as the services rendered for a given need. Any doctor doing too much will have a higher ratio than any doctor that does not do enough.

Higher Ratios

"Likewise, coding, over-coding, unbundling, and doing a number of fraudulent things will lead to a higher ratio compared to somebody who is a minimalist when it comes time to sending the bill," noted Dr. Migliori. "Finally, we study contracts, expressed in dollars per given code. If you simplify this math, it comes out to a PMPM (per member per month) expression of healthcare. This allows us at Ingenix, part of UnitedHealth Group, to apply a variety of products to either measure or influence those ratios.

"Now it's time to see how these business approaches directly contribute to better healthcare outcomes," said Dr. Migliori. "First, we must identify patient demand for health services. Our model says that if you involve yourself with only those people who need you, you provide greater value and stay out of the lives of the patients who would otherwise do the right thing on their own.

Identifying Source of Costs

"The power of this model comes from this fact: in any given year, 5% of the population is responsible for 45% of the healthcare costs that year," he noted. "The challenge is to identify those 45%, because, if you earmark them and follow them the next year, these same individuals only generate about 18% of the costs. That's logical, because most of them got well. They had their appendectomy or coronary

artery bypass and it has fully healed by the following year.

"Our challenge is to predict, each year, that 5%," he said. "We look at our claims data. It's got names, addresses, the doctors, the patients, the diseases, the procedures that were done, the time at which they're done, and so forth.

"When looking at individual patients, we know all their disease entities and the costs of their care in previous years," stated Dr. Migliori. "We also know what's called inter-vulnerability factors—places and gaps in care—that may be important to their ongoing health.

"This analysis allows us to identify people with high risk. Essentially, our nurses take the top 5% of the group we believe is at high risk and contact them to make sure they're getting enough utilization," he explained. "Our business risk for this high-risk group of patients is *not* getting enough utilization! I want to repeat that: Our business risk is when patients who need health services don't get the care they need that would mitigate catastrophe."

Building A "Care Portrait"

UnitedHealth Group follows a similar process with providers, including physicians, hospitals, and laboratories. "We build a 'care portrait' on every provider," said Dr. Migliori. "This reflects the quality, resource consumption, prescribing habits, fraud, billing practices, and patient satisfaction. It's an effort to determine the quality of services offered by each provider.

"This is an opportunity for clinical laboratories to participate with us in this effort, because currently we only use administrative claims data," he explained. "We examine patients for the application of ACE inhibitors or medication for congestive heart failure, anti-coagulation Coumadin for chronic defibrillation, beta-blockers

after MI, glycerinated hemoglobins in diabetics, mammography and potassium screening for patients on diuretics.

"Twice each year we send the doctor a report showing what percentage of their patients deserved the therapy and what percentage actually received the therapy," explained Dr. Migliori. "Additionally, the doctor also gets the names and addresses of the patients who deserve the therapy and didn't receive it. This allows the doctor to verify this fact about each so he/she can call to get them in for treatment. This is the way that UnitedHealth helps reduce the risk of under-utilization.

"As we work with this information, we recognize there is further opportunity, an opportunity for clinical laboratories to participate."

"These tools work in real life. Physicians in America are motivated to do the right thing. The problem is the absence of information. Let me illustrate. We undertook a project to study the generic prescribing habits of physicians in one market. After participation, these doctors had a 12% pharmacy trend at a time when people expect 20% pharmacy trends and the control group had a 16% trend. This is a very meaningful outcome," noted Dr. Migliori.

"We find willingness to respond to good information to be also true of laboratories and hospitals," he noted. "We have truly good partnerships.

"Likewise," he continued, "when studies are done on a variety of other healthcare resources being consumed, following the delivery of these reports, over time we see a marked decrease in the consumption of resources, largely because the doctors are focusing.

"There's no penalty, by the way. We've not fired a doctor. We've not penalized their pay. All we've done is

provide them with useful information. They use this information to take appropriate action," he said.

"Now you see why UnitedHealth Group wants to improve the data we collect and analyze," Dr. Migliori explained. "It allows us to store it in the way people buy healthcare, by episode. We then apply software applications to these data bases, allowing us to find outliers. Outliers can include patients with special needs and doctors who are different.

"We can profile the same data by looking at doctors, profiling medication use, profiling lab use, and profiling disease frequency in entities," he commented. "We then build intervention rules organized around evidence-based medicine.

"This knowledge is used in our contact management systems and transmitted to the health plans," noted Dr. Migliori. "They use it to contact doctors, patients, the laboratory, and other providers. As we work with this information, we recognize there is further opportunity, an opportunity for clinical laboratories to participate.

Project Teams

"Let's examine a case, for example, a heart attack, where a given set of events would occur in a normal episode," said Dr. Migliori. "However, when we pull up the data, we find there may be some extra physician visits and that the lab visit kicked out a potassium of 5½ and a creatine of 4.

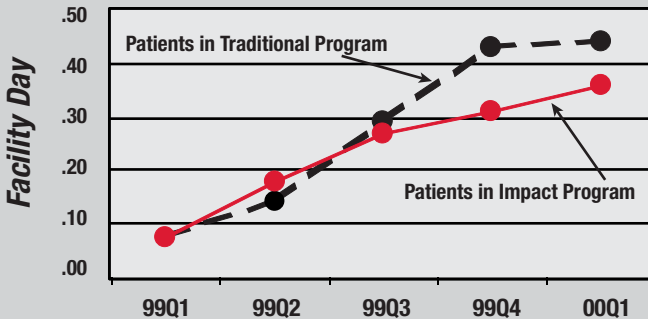
"Recall though, this was treatment of a heart attack," he observed. "Here is the ability to identify things that were done beyond exception, things that were missed. We didn't see a beta-blocker after their MI, so we can contact the doctor about that. Additionally, we can also respond to the patient's critical lab values. 'By the way, doctor, flash alert! You have a patient out there with imminent renal failure.'

MANAGING 5% OF HIGH-RISK PATIENTS CUTS COSTS

"UnitedHealth Group can look at the entire population," stated Richard J. Migliori, M.D., Chief Clinical Strategist at Ingenix. "This graph shows hospitals' utilization over time for a population of patients in Chicago, which are identified to be in the top 5%. Twenty percent of those patients were left in conventional

treatment. The red line represents the 80% of people who were put into the new program. This shows that our predictive model works. Over time, health-care expenditures do increase for this high-risk group but the intervention mitigates the expense that occurs with these patients."

Results of Ingenix's Impact Program



"I would like to conclude by saying that the earliest forms of managed care were organized to serve a different set of needs," explained Dr. Migliori, "But ongoing evolution of the healthcare system in the United States requires managed care firms to respond to these new challenges. Whereas the emphasis might once have been primarily on managing costs, now the goal will be to partner with providers to improve patient care.

"We view our role very differently at UnitedHealth Group," noted Dr. Migliori. "We're going to have more fun and provide more value working as lifeguards at the deep end of the pool.

"There are three points to understand about this approach to health-care," concluded Dr. Migliori. "Number one, that old processes in managed care have ceased to provide value; at one time they may have eliminated untoward variation.

"Number two, the application of information is allowing us to make the reforms in healthcare that we've initiated. But there's plenty more to do!," he declared. "Number three, I want to stress that laboratories are key to the future. You hold the future because these tools require lab test data to work with maximum effectiveness.

Opportunity For Labs

"As we go forward, the experience UnitedHealth Group has had with **Laboratory Corporation of America** is the experience we expect with other laboratory providers. It may become a rule of our provider relationships with labs that, in order to render services, the laboratory must provide comprehensive lab test data. It is that data which enables UnitedHealth Group to provide added value to our employers, physicians, and beneficiaries." **TDR**
 Contact Richard J. Migliori, M.D., at 952-833-6516.

Dark Index

Investors Pump \$107 Million Into Unilab's Stock Offering

California laboratory company's shares open at \$16, then move rapidly to \$23

HERE'S ENCOURAGING NEWS for owners of independent regional laboratories: investors on Wall Street continue to like the laboratory business...*a lot!*

Latest confirmation of this fact came on June 6, when **Unilab Corporation** of Tarzana, California funded its initial public offering (IPO). Unilab sold 6.7 million shares at \$16 per share, raising a total of \$107.2 million.

Good Share Price

Unilab's \$16 share price at offering eclipses share prices generated last November by both **Dynacare Inc.** and **Specialty Laboratories, Inc.** at their IPOs (\$10 and \$17, respectively).

It demonstrates that the professional investment community continues to view the laboratory testing industry with favor. It also is a sign that investors are bullish on Unilab's future growth in revenues and net profits.

From an industry-wide perspective, Unilab's successful IPO will encourage at least two consequences. One, the investment community will continue to search for independent laboratories that can be acquired and used as a platform for regional and national growth. Because it takes some months to negotiate and close on such deals, there may be a quiet period before news of any additional laboratory acquisitions become public.

Two, Unilab will use its new capital infusion to expand its marketing. This will impact lab competitors in California, including hospital labs with outreach programs. Within the state, Unilab must pick up additional market share if it is to sustain investor interest.

However, because Unilab already has such a dominant competitive position within California, THE DARK REPORT predicts that Unilab will enter other regional markets. Phoenix and Tucson are the most likely targets, since these are a short plane flight from Los Angeles and have competitive advantages not found in, say, Las Vegas or Albuquerque.

Stock Split At IMPATH

Unilab is not the only public lab company which is actively courting investor favor. **Quest Diagnostics Incorporated** did a two-for-one stock split on June 1, 2001. Meanwhile, **Roche Holdings AG** is preparing to sell 5.5 million of its **Laboratory Corporation of America** shares, worth some \$756 million at the offered price. (*See TDR, May 21, 2001.*)

The booming finances of the public lab companies should not be ignored by regional lab executives or hospital-based lab outreach programs. During the past five years, public labs turned inward to solve operational problems. Now they are ready to turn outward and build market share.

TDR

U of Minn Pathologists Organize Tissue Archives

Over 100 years of autopsy reports, slides, and tissues going into electronic data base

CEO SUMMARY: *Pathologists at the University of Minnesota Medical School are working to create an electronic data base that covers the more than 100 years of autopsy cases that have been archived and stored. Their goal is to use this information to improve teaching and to further research into the evolving nature of many diseases.*

ACADEMIC PATHOLOGISTS at the University of Minnesota Medical School in Minneapolis are creating an electronic data base that will eventually include more than 100 years of autopsy reports, slides, and even tissues.

The pathology department expects this data base will be used for teaching and in consultative conferences. More intriguing, pathologists at the University of Minnesota (U.M.) believe the autopsy archives may have great value in a variety of research applications, including genomics.

Earliest Cases Date To 1899

"These archives consist of autopsy reports dating from 1899, glass slides dating from 1910, and paraffin blocks of tissue dating from 1940," stated James Coad, M.D., Professor of Pathology at U.M. "Essentially, we have a reasonably continuous record of autopsies extending back 102 years.

"More importantly, because U.M. is an academic center, these tissues represent cases referred here because

they were unusual, examples of a rare disease state, or undiagnosable to the referring physicians," he explained. "Some of these tumors are rare, with less than one or two cases referred here in a typical year.

"Starting six months ago, we embarked on a project to scan and enter the autopsy reports into an electronic data base," said Dr. Coad. "This permits us to do key word text searches of both the diagnosis and the entire report.

"Because medical terminology has changed over the decades, the key word search makes it easier and more accurate to locate the relevant cases for teaching purposes and research," he added.

"Until we finish scanning all the autopsy reports, it's tough to estimate the total number of cases in the archive," stated Ike Castrodale, the computer programmer supervising the project. "Since the turn of the last century, anywhere from 100 to 500 autopsy cases per year were archived. The total number may range from 25,000 to 35,000 individual cases.

"To this point, we've entered approximately 10 years worth of cases into the data base," commented Dr. Coad. "It's only been recently that we've begun to teach the pathologists how to work with the data base. Use of the data base is increasing and our pathologists are learning how to identify relevant cases with more speed and accuracy."

Decades-Old Tissues

The paraffin blocks of tissue represent one of the most intriguing resources in the archives. According to Dr. Coad, the University of Minnesota Medical school began to retain and archive paraffin blocks of tissue starting in 1940.

"Depending on the state of preservation, these paraffin blocks will allow us to do a limited analysis of genotypes and phenotypes," noted Dr. Coad. "These tissues offer us the potential to consider whether different lifestyles, diets, and environments of earlier decades might play a role in how diseases evolve over time.

"For example, can these tissues help us to learn whether the prostate cancer of 2001 is different from prostate cancer in 1920?" he asked.

Evolution Of Disease

"Moreover, these specimens would represent the effects of different modes of treatment," continued Dr. Coad. "For teaching purposes, we can show medical students advanced-stage tumors that now are seldom seen because of early detection and effective treatment. For research purposes, these tissues may help us identify how different treatment methods have shaped or altered diseases as we see them today."

Pathologists at the University of Minnesota seem to be among the pioneers at creating an electronic data base of autopsy archives that extend back many decades. Dr. Coad notes that a

handful of academic centers have put some data on-line, indexed by SNOMED codes. But more complete information on the indexed cases is generally not accessible from these sites.

"We are in the early stages of cataloging and mining data in raw form," he offered. "As we get more years' worth of cases into the data base, it will become increasingly useful and valuable. This data base will make it easier to utilize what are now secondary resources—the glass slides and tissues.

"Like many similar projects, as we learn more about how to use the data base, pathologists here are discovering new applications for this data," observed Dr. Coad. "It shows how a well-constructed data base contributes to better use of the component information. Instead of spending hours looking through microfiche or bound volumes of case reports, we can now sit at a computer and quickly identify the information we need."

Immense Value

THE DARK REPORT believes that the 100 years of clinical data contained in the U.M. autopsy archives represent immense value to the academic center pathology group. To its credit, it is willing to invest the resources necessary to digitize that data, making it accessible for study.

Even though this academic group is focused on its teaching mission, by digitizing its archives, it is taking the important first step to converting this raw data into information which has value to both the University and the healthcare community.

The interesting follow-up to this story will be how pathologists at the U.M. develop applications for these cases in fields such as genetics and molecular pathology.

TDR

Contact James Coad, M.D. at 612-273-5620; Ike Castrodale at 651-334-4136.

INTELLIGENCE

LATE & LATENT
Items too late to print,
too early to report



Here's a late-breaking story:
Tropical Storm

Allison hammered Houston and East Texas over the weekend. More than 30 inches of rain caused widespread flooding in the Houston Metropolitan Area. Hospitals in the Medical Center were hard hit. **Memorial Hermann Hospital** closed on Saturday and all 540 patients were moved. It was the first time since 1925 that Memorial Hermann Hospital had stopped all services. Memorial Hermann is one of only two Level I trauma centers in the city.

ADD TO: HOUSTON FLOODS

According to Edward O. Uthman, M.D., a pathologist at Memorial Hermann Hospital, more than 10 feet of water flooded the core lab, located in the basement. The laboratory was destroyed and none of the instruments can be salvaged. The laboratory is a total loss and will have to be rebuilt. More details will be provided as they become available.

DECODE GENETICS AND ROCHE FIND GENES INVOLVED IN DIABETES & STROKE

Here's an example of the intersection of genomics, therapeutics, and diagnostics. **Roche Holdings Ltd.** and **DeCode Genetics, Inc.** announced last month that they have identified two separate genes. One appears to be involved in triggering strokes, the other seems to be linked to adult-onset diabetes. Each disease is a major problem in both the United States and Europe. The most interesting aspect of this news is that Roche, a therapeutic and diagnostic company, is funding a \$200 million research effort by DeCode Genetics to identify useful genes. DeCode is studying the genetic variations in Iceland's population, a relatively closed society with genealogical records dating back almost 1,000 years.

MORE ON: ROCHE/DECODE

Researchers studied 3,000 Icelandic stroke patients and their families. They have identified a protein manufactured by the gene believed to be involved in

strokes. If this discovery proves to have therapeutic potential, it would be possible for Roche to develop both a drug to favorably act upon the protein and a diagnostic test to determine whether or not an individual carries this "stroke" gene and would benefit from drug therapy.

AIRLINES WANT TO ELIMINATE DRY ICE

THE DARK REPORT recently provided exclusive intelligence about Friobox, a new packaging system for frozen and chilled specimens that doesn't require dry ice. (See *TDR*, May 21, 2001.) Friobox has just been introduced into the United States. THE DARK REPORT has subsequently learned that the **International Air Transport Association (IATA)** has gone on public record that it intends to eliminate dry ice from shipping containers and believes shipping systems like Friobox will make that possible. Looks like a paradigm shift for shipping lab specimens is about to occur.

***That's all the insider intelligence for this report.
Look for the next briefing on Monday, July 2, 2001.***



UPCOMING...

- ***Operational Excellence: Secrets of Increased Productivity in Hospital Labs.***
- ***Diagnostics Companies Grapple with the Internet: Some Surprising Facts.***
- ***Why Industry Is Hiring Growing Numbers of Anatomic Pathologists.***