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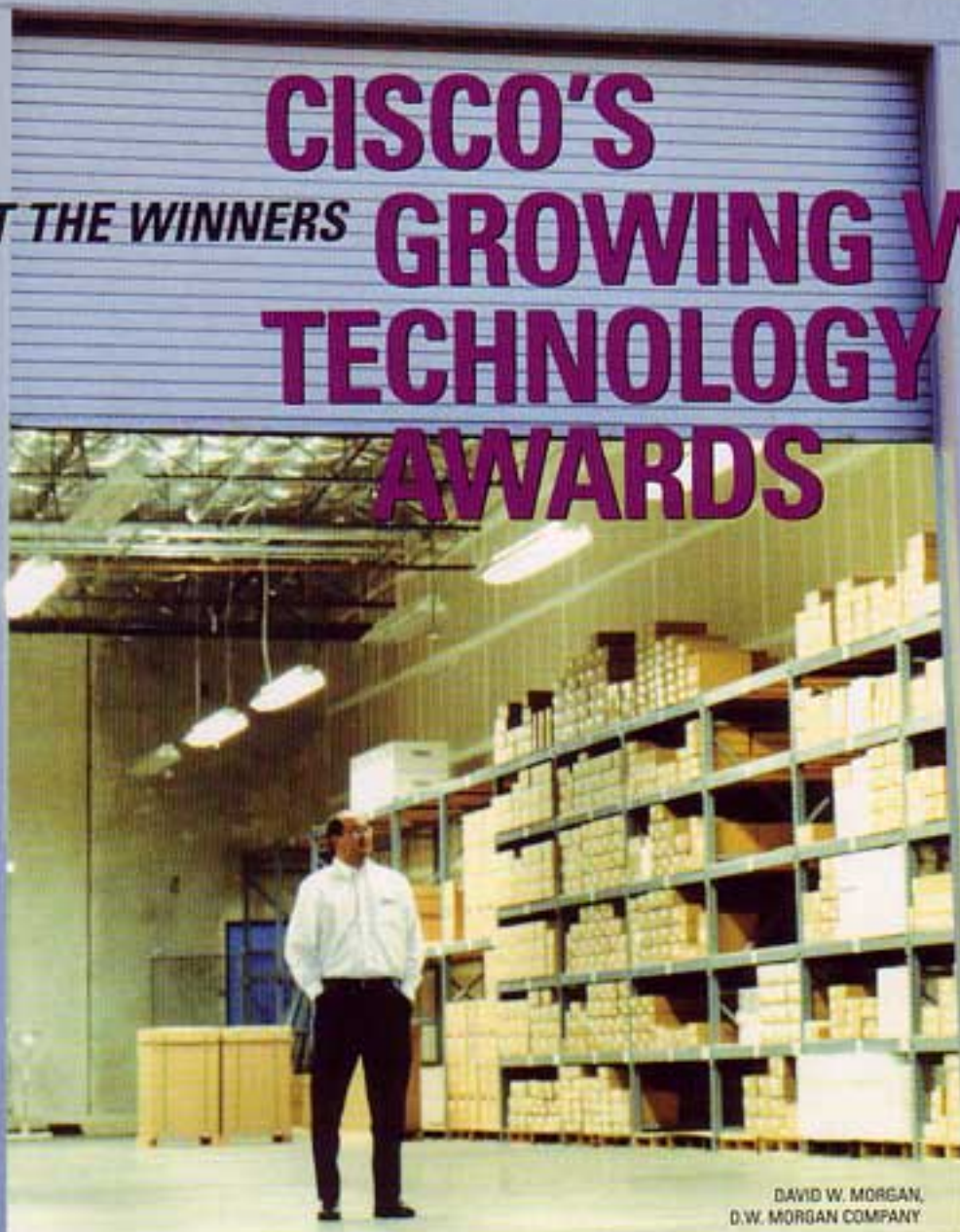


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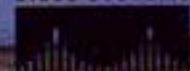
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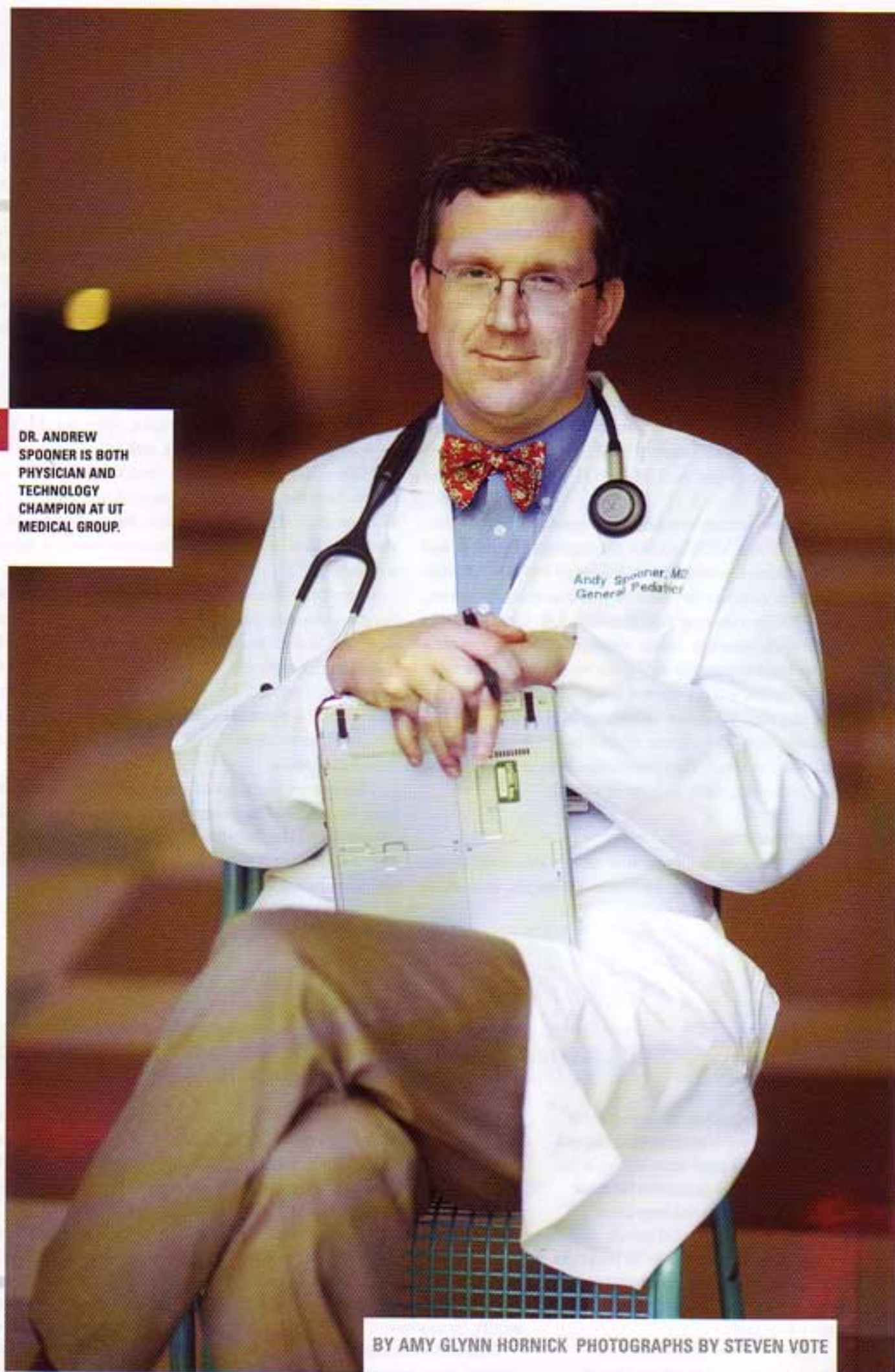


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**DR. ANDREW SPOONER IS BOTH PHYSICIAN AND TECHNOLOGY CHAMPION AT UT MEDICAL GROUP.**



**BY AMY GLYNN HORNICK PHOTOGRAPHS BY STEVEN VOTE**

# AUTOMATING HEALTHCARE

**IT'S NOT EVERY DAY** that a team of IT professionals receives a standing ovation—especially from a room full of physicians. In fact, to Chuck Fitch, CIO of UT Medical Group (UTMG), the organization's 350 clinicians often represent 350 points of veto. That is, until his IT team implemented an automated billing and charge application in UTMG's pediatrics department that revolutionized the way the organization billed patients for care.

Just three weeks after the project's launch, Fitch and Theresa Hill, UTMG's director of IT, were invited to a luncheon with the clinical chief of general pediatrics, Dr. Andrew Spooner, and his senior residents. "I've worked for UTMG for 10 years, and in IT for nearly 20," says Fitch. "I've never had a group of people—let alone a group of doctors—stand up and give me a round of applause for implementing an application."

UTMG is a multispecialty group practice with 350 clinicians, 600 medical residents from the University of Tennessee, and a support staff of nearly 500 people. As the private practice arm of the University of Tennessee Health Science Center, it serves the greater Memphis area with 45 clinic locations and 8 area hospitals. Like many medical organizations, UTMG was searching for a solution to

**UT Medical Group  
approaches patient care  
in a new way.**





## IN BRIEF

**GOALS:** UT Medical Group (UTMG) was in dire need of improving the accuracy and efficiency of its patient-billing process. It sought a technology solution that would help improve coding, eliminate unnecessary paper processes, reduce lag time from service to billing, and ultimately improve the patient experience.

**STRATEGIES:** UTMG chose Allscripts TouchWorks software for its flexible, modular solution. Using its pediatrics department as a test bed, UTMG began by implementing the Allscripts TouchWorks Charge module to address its billing challenges and to gain an immediate return on investment. Dictation applications and others are being implemented companywide.

**RESULTS:** UTMG physicians now create electronic charge tickets in real time at the point of care, and patients leave with a printed bill outlining services rendered—improving their overall understanding and satisfaction. Physicians save an average of 30 minutes a day from the efficiency of using an electronic form. Time between time of service and charge entry has been reduced from six days to less than one day.

improve the accuracy and consistency of its billing processes for patient services.

Paper-based methods consistently failed to serve UTMG's busy clinicians, and the medical group was concerned that some service charges were being missed and simply not being paid. Staying current with the constantly changing coding rules and requirements was virtually impossible for the clinicians and support staff, not to mention the complications of training more than 600 medical residents each year. Rising costs associated with billing and collections management and the growing lag time from the point of service to charge entry only compounded the problem.

Moreover, patients often left the clinics without an itemized bill. Both patients and clinic staff encountered problems in understanding services rendered, associated costs, and collections. UTMG leaders wanted to reduce the number of rejected claims and the work related to reimbursement denials.

One final factor for change: a switch in TennCare (a statewide healthcare program that began in 1994 when Tennessee obtained a federal waiver to convert to a managed-care approach for providing these services) from a fee-for-service model to a managed-care model. UTMG's Medicaid reimbursements, which account for nearly 34% of the organization's payer mix, began to decrease. "This forced us to work on improving our front-end processes instead of simply chasing reimbursement dollars on the back end," says Fitch.

Charge capture, or automated tracking and billing of patient treatments, became a primary area of focus. "We saw that we

were losing money as a result of lost charges and charge-entry delays," says Spooner. "We desperately needed to gain control of our billing processes."

Spooner adds, "Because our physicians are salaried, we couldn't exactly say, 'If you code better, your income will be better.' And education only goes so far before people start to fall back into their old patterns. This left us with automation, which essentially meant establishing a consistent coding and billing protocol to create a successful and sustainable process."

### TURNING TO WIRELESS

One hurdle in the project surfaced early on. Many of UTMG's clinicians expressed concern over the prospect of needing to use a computer terminal to enter all of the information related to a patient visit. They wanted to avoid

putting desktop computers in the examination rooms because they felt the hardware would create a barrier between them and their patients.

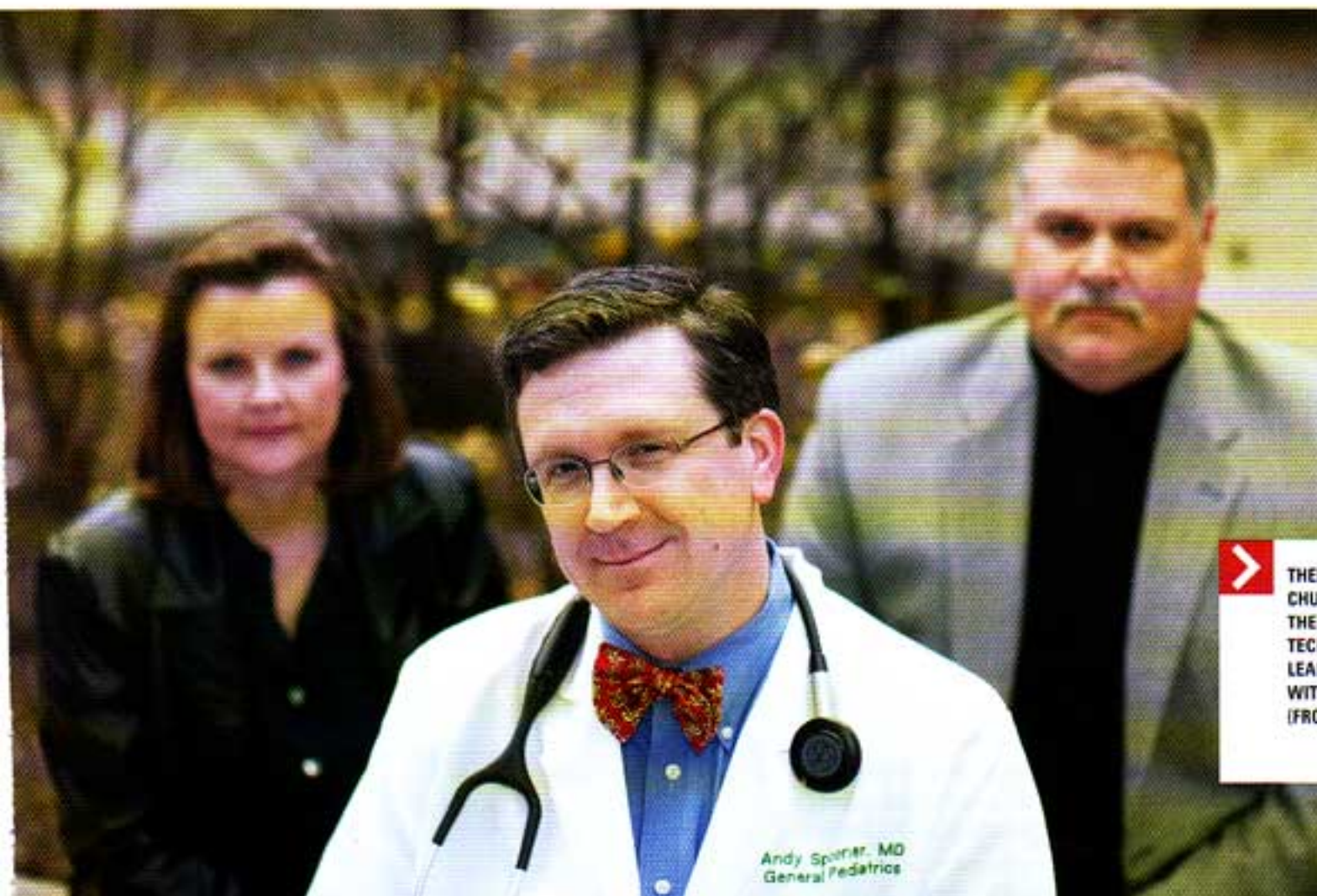
"We wanted a billing application and a device that would work well together in a wireless environment," says Fitch. "Having our clinicians enter their charges directly into a handheld computer connected to a wireless network was a great solution."

But UTMG also needed the billing solution to work with its current system. One application, the Allscripts TouchWorks Charge, quickly emerged as a front-runner. "Three things made our decision clear," says Fitch. "The first was the Allscripts integration with our current system. The second was history—we had been evaluating ChannelHealth's Care Management Science product before ChannelHealth was sold to Allscripts, so that was an advantage. And the

## timelinē

JANUARY 2002	JULY 2002	AUGUST 2002
First Allscripts TouchWorks pilot project launched in UTMG-affiliated clinic in Memphis, Tennessee	Planning meeting held between IT department and Dr. Andrew Spooner, head of UTMG's pediatrics department, the test bed for the project	Hardware installed; wireless network built; and pediatrics physicians, nurses, and staff trained





➤ **THERESA HILL AND CHUCK FITCH WERE THE INFORMATION TECHNOLOGY LEADERS WORKING WITH SPOONER (FRONT).**

third was the knowledge that it could be run successfully in a wireless environment.”

According to Douglas A. Gentile, M.D., director of clinical consulting at Allscripts, the historical challenge associated with clinical automation is that electronic medical records improved patient quality of care—but tended to decrease clinician productivity. The Allscripts solution to clinical automation not only resolves this but markedly improves productivity. “In the case of organizations like

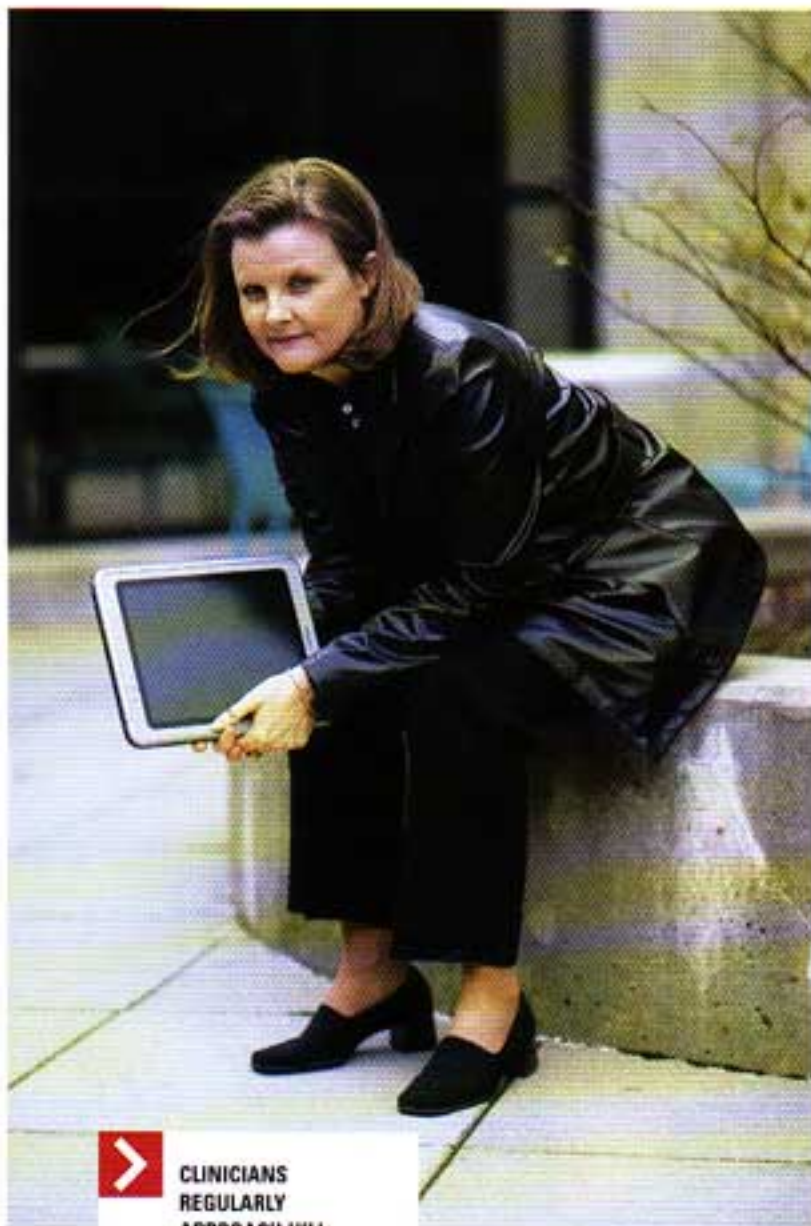
UTMG, Allscripts is making clinicians more productive by helping to improve quality of patient care and increase patient safety by reducing medical errors,” says Gentile.

**SIMULATING THE CLINIC**

Fitch and his team started the project in January 2002 by establishing a pilot test in a newly opened multispecialty clinic in Memphis. They spent nearly eight months getting to know the product inside and out and fine-tuning the solution.

SEPTEMBER 2002	DECEMBER 2002	JANUARY 2003	MARCH 2003	MAY 2003
<i>TouchWorks Charge goes live in pediatrics department, eliminating the need for paper billing</i>	<i>TouchWorks Charge rolls out to other UTMG departments</i>	<i>TouchWorks Rx<sup>+</sup> launches in pediatrics</i>	<i>TouchWorks Dictate and TouchWorks Document launch in pediatrics</i>	<i>TouchWorks Rx<sup>+</sup> and TouchWorks Dictate and TouchWorks Document roll out to other departments</i>





**CLINICIANS  
REGULARLY  
APPROACH HILL  
TO ADOPT THESE  
SOLUTIONS.**

savings for the organization. Pediatrics now boasts the fastest reimbursement turnaround time of all departments.

Other benefits include instant, around-the-clock access by clinicians and staff to schedules and patient-billing information, plus the ability for UTMG attending physicians to review and submit charges that were captured using this technology upon completion of the patient examination by the attending physician/resident team.

Beyond the technology, UTMG's deployment benefitted from the instrumental support of Spooner, who stepped forward as the physician liaison and technology champion.

"Without his enthusiasm and leadership, I don't think we could have expected to accomplish what we did in just a month and a half," says Fitch. "He said, 'This is the way we are going to practice medicine in this clinic'—and because he has the respect of his peers, many new champions were created."

It was also critical that the vendors provided a point person who would be responsible to provide technical support to

the clinic as part of the pilot program. "Providing the involvement of the support personnel on the front end pays off because you develop satisfied, self-sufficient practitioners," says Spooner.

#### **CREATING A COMPETITIVE EDGE**

Some of Spooner's staff naturally long for the days of paper. He reminds them that they have moved beyond simply substituting the paper-based process with computers and a wireless network. "With Allscripts, we are doing something fundamentally and dynamically different," he says. "And it has helped us achieve financial solvency."

In fact, UTMG has automated more than just the charge-and-billing processes. Using Allscripts TouchWorks WorkFlow, which uses tasking functions, UTMG has eliminated all paper forms, saving on the cost of expensive three-sheet charge tickets and resulting in improved processes for lab testing and results delivery. In many cases, the automated workflow system has reduced the need for nurses to pull patient charts and has provided immediate feedback in the event of missing information.

UTMG has also realized an increase in the quality of patient care through introducing tools such as the TouchWorks Pocket Library, which comprises specific learning modules that residents can store on their handhelds. They can look up information without leaving the examination room, which creates a better overall experience for the patient.

Additionally, the launch of Allscripts prescription application, TouchWorks Rx<sup>+</sup>, ensures that doctors correctly code prescribed medications and that the medications are part of the patient's specific insurance formulary. The application can automatically fax prescriptions to pharmacists, eliminating telephone callbacks to the pharmacists. Callbacks ceased the day UTMG launched TouchWorks Rx<sup>+</sup>, freeing up more time for nurses to spend with patients, Fitch reports.

Although UTMG has accomplished a great deal since implementing these solutions, much of its progress has remained hidden from view. "Because doctors don't typically advertise, it's often difficult to let people know what we're up to," says Fitch.

Insurance companies, however, have learned of UTMG's technology upgrade and conversion to electronic medical records. "Our ability to practice safer medicine and produce



better patient outcomes could lead to larger contracts and more business down the road," says Fitch. Staying at the forefront of technology also boosts the University of Tennessee's residency program by attracting top residents, which in turn improves the local medical community.

Recently, clinicians from other departments approached Hill seeking to adopt some of the applications. "This is a real turning point for us," says Hill. "Until now we had to beg and plead with clinicians to get them to use new technologies."

UTMG continues to implement TouchWorks modules in all departments to create a common electronic patient record system across the organization. "Our hands will be

full for the next two years converting UTMG to a truly paperless organization," says Hill. A scanning solution will be the last module UTMG will need to complete the process.

Says Hill, "With the more widespread adoption of electronic medical records, we hope to see the improvement in quality of care for all patients in the Memphis area." ■

AMY GLYNN HORNICK IS A FREELANCE WRITER BASED IN SAN FRANCISCO.

## □ NEXT STEPS

Read more articles about how the healthcare industry is using Internet technology at [www.cisco.com/go/business/healthcare](http://www.cisco.com/go/business/healthcare).

## FROM CISCO

## NETWORKING SOLUTIONS IMPROVE PATIENT CARE

As the commercial marketing healthcare strategy lead at Cisco Systems, Kacey Carpenter manages solutions marketing for small and medium-sized healthcare customers.

**iQ: What are some of the biggest challenges healthcare organizations are dealing with?**

**Carpenter:** Healthcare organizations are focused on delivering the best possible patient care and service, reducing errors, improving patient care and safety, and enhancing organizational efficiencies to cut costs and increase profitability. They face challenges, including rising healthcare costs, reduced reimbursements, changing patient demographics, an increase in chronic health conditions among aging baby boomers, meeting federal privacy requirements—such as HIPAA—and dealing with severe staffing shortages. Many of the physicians who are 50 years of age or older are also planning to retire or reduce their practice hours in the next few years.

**iQ: How does the network help healthcare organizations address these challenges?**

**Carpenter:** The profitability of a medical group is very much a function of the clinician's time. By utilizing networking technology to optimize the workflow of the practice—from records and registration to

the patient encounter to check-out and billing—clinics see significant improvements in patient satisfaction, increased profitability, and compelling return on investment for technology expenditures. Clinicians have more time and energy to focus on taking care of their patients.

Clinicians are also using handheld wireless devices to input patient encounter forms, prescribe medication, capture charges, dictate, order lab results, view results, and more. And applications such as digital transcription reduce the need for traditional transcription services.

**iQ: Specifically, how do Cisco networking solutions help?**

**Carpenter:** Wireless technology is a hot solution for the medical space. It makes medical records available to clinicians and staff anywhere in the facility, providing the necessary tools and information at the point of care. Cisco network security capabilities—intrusion detection, access control, firewalls, and worm and computer virus protection—help ensure that all information is stored and transferred securely, whether in a wired or wireless environment.

Cisco advanced Internet Protocol (IP) communications products greatly improve communication between clinicians and their staff as well as with patients—another challenge facing the industry.

Unified messaging, Web integration, and the use of mobile IP phones shorten response time and increase reliability.

Finally, Cisco's scalable routers and switches provide the core networking foundation to enable the efficient deployment of healthcare applications and help ensure that they meet the high reliability and availability performance requirements demanded by the healthcare industry.

**iQ: What new technologies will create more competitive differentiation for healthcare organizations in the future?**

**Carpenter:** As medical groups transition from paper-based to digital network patient care, they will require more robust networking of electronic medical-record databases and more advanced and secure storage-networking capabilities. Remote patient monitoring, virtual consultations, and other forms of telemedicine will be available at an affordable cost for patients at remote locations and will continue to have a huge impact across the industry. The Internet will provide the backbone for networked virtual healthcare organizations with real-time information sharing and collaborative research. The real opportunity for the healthcare industry is to make advanced networking technology the rule rather than the exception.—A.G.H



## Physicians save an average of 30 minutes each day from the efficiency gained by using an electronic form.

"There were specific software enhancements that we needed to make," says Fitch, "and we wanted to test the security of the new wireless network."

Actively communicating to clinicians and staff that the team's goal was to create a complete electronic medical record—rather than just a standalone billing solution—was instrumental. Also important: developing and customizing all training sessions and documentation. Clinicians and residents required instruction, so the best approach turned out to be one-on-one training facilitated by the business analysts. Traditional classroom settings subsequently proved most efficient for training support staff.

"Physicians are used to the old 'see one, do one, teach one' model of medical education," says Spooner. "You have to apply the same approach with information training."

Following the pilot test, UTMG's business analysts spent a few weeks living and breathing the pediatrics department's business processes. Hill, director of IT, simultaneously worked with clinicians and staff to optimize the clinic workflow. "We did a good job of successfully duplicating and replacing paper-based processes and documents with electronic ones," she says.

Next, a planning meeting was held with Spooner, who was eager to integrate the new charge-and-billing solution into his teaching practice and begin training medical residents. It took just 45 days to order and install the necessary hardware, build the department's wireless network, and train all physicians and staff. The solution went live in September 2002, as scheduled. Since then, UTMG continues to implement new solutions from test to production throughout other departments in approximately 60 days.

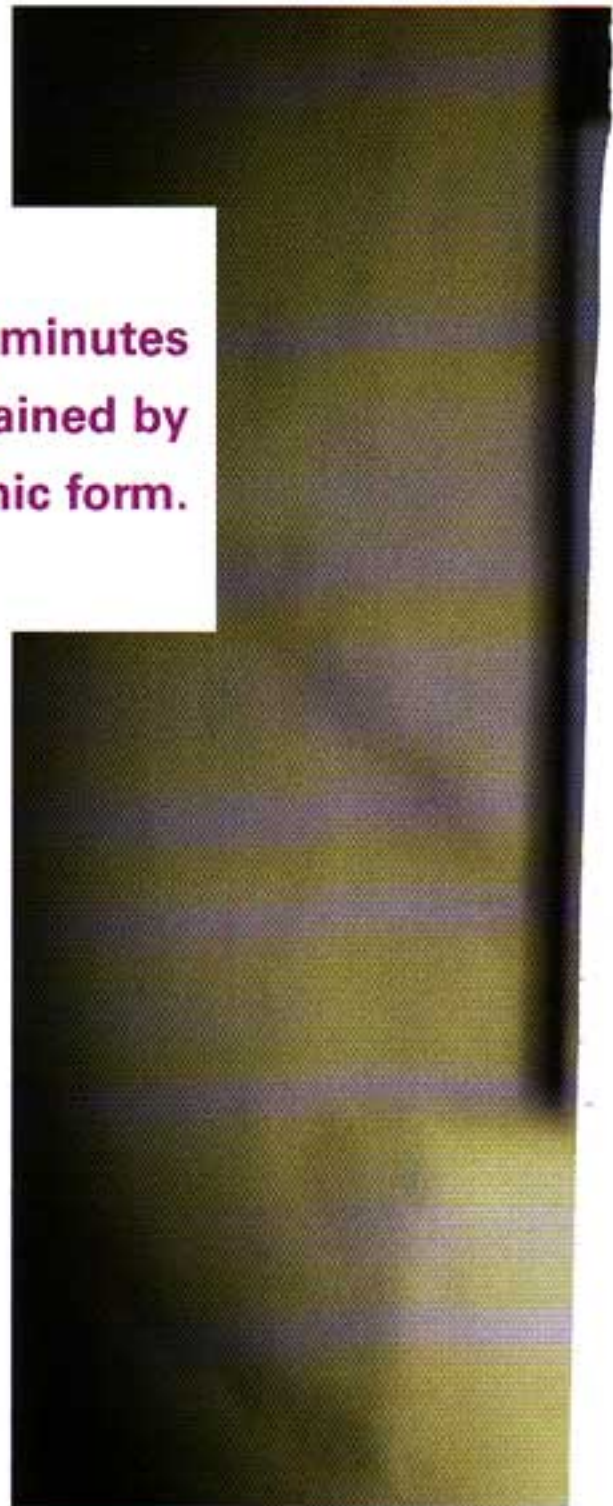
### **REALIZING SOLID RETURNS**

Today, 99 pediatric clinicians use the TouchWorks Charge application on handheld HP iPAQs with Cisco Systems Aironet wireless cards. At the conclusion of a patient visit, the clinician records the appropriate charges, taps on the submit button on the handheld's screen, and transmits the information from the handheld over the wireless network directly into UTMG's billing system.

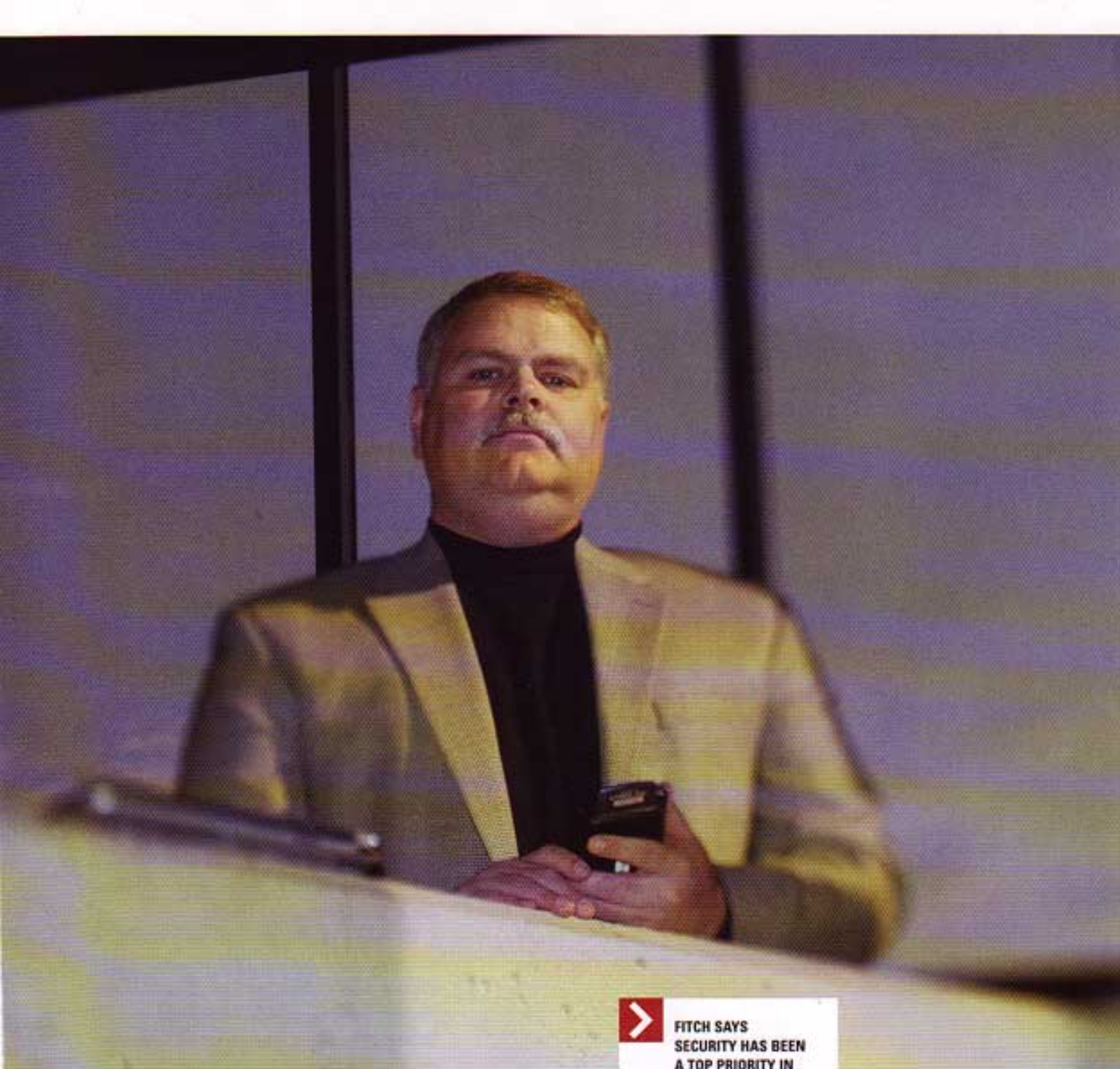
UTMG upgraded the pediatrics department's computers

to meet the demands of the new software applications and purchased iPAQs for each of the 12 attending physicians as well as 18 additional iPAQs to rotate among the 87 residents. The IT staff installed Cisco wireless access points to cover the 14 exam rooms, 3 consultation areas, resident research area, front desk, and check-in and check-out areas.

All along, security has been a top priority in mapping out UTMG's wireless network. "We have more than 1.5 million patients in our database and about 350,000 active patients,"







**> FITCH SAYS SECURITY HAS BEEN A TOP PRIORITY IN MAPPING OUT THE WIRELESS NETWORK.**

says Fitch. "We spend a lot of time and energy making sure that their information is protected."

Spooner and his department immediately realized a solid return on investment. Because TouchWorks Charge enables clinicians to efficiently document all patient services at the point of care, UTMG was able to redesign and improve the associated clinic workflow. Physicians save an average of 30 minutes each day from the efficiency gained by using an electronic form with conveniently bundled charge items.

Lost encounter forms and lost charges have been completely eliminated as well—and billing lag time from service to charge entry has been reduced from as many as six days to less than one day.

Now, patients leave with a printed bill and a clear understanding of all services rendered. According to Fitch, the pediatrics department has picked up an average of \$30 to \$40 per patient encounter by implementing TouchWorks Charge, amounting to more than \$350,000 in annual cost