At 73, Francine Blake sees her health-care provider on a regular basis. High blood pressure, high cholesterol and diabetes have long afflicted her, and arthritic knees have made her dependent on an aluminum cane festooned with bright stickers of flowers. She lives alone, and the nutritionist who has talked with her voices concern that she doesn’t always prepare nutritious meals for herself. Her only daughter died three months ago and despite a cheerful façade, she admits to feeling unhappy when she recalls her loss.

Tyree Jones is six years old. Within the past eight months, he has seen his uncle prone on the sidewalk bleeding from an abdominal wound after a drive-by shooting and his father sentenced to four years in prison for drug dealing. Tyree suffers from asthma and missed 17 days of school between September and November 2009 because of respiratory infections. His mother reports that he has started to act out in the classroom and his teachers are concerned about his ability to keep up.

Francine Blake’s well-being depends on a program of coordinated, carefully monitored care. Tyre and his mother, whose part-time jobs as a school cook and library aide keep her out of the house for long hours, could benefit from counseling to help them cope with their losses, and Tyree needs close monitoring to keep his asthma under control.

These stories highlight a major problem in modern healthcare: the need for coordination among providers. Often, patients from seeing must see several providers located in different places, and providers might not have access to records of diagnosis or treatment provided by another healthcare professional.

CNP’s nurse-managed health center at 11th Street offers coordinated care with an ever-growing range of services, from primary care to behavioral health counseling to nutrition and exercise consulting, in a single setting.

Since late 2008, a unique collaboration has teamed Center staff with information technology consultants from the School of Informatics at Drexel in a major project to address the need to share patient health records among providers. Their goal: a system that unites not only medical records but also copious other patient data in one resource available electronically at the point of care, wherever that point may be.

When the system is complete, any provider who sees Francine or Tyree— including nurse practitioners, behavioral health professionals, social workers and nutritionists—will have instant access to the information they need to provide effective, coordinated care.

And every provider will be able to expand that record with current changes and other details, using a set of templates designed by the 11th Street/School team.

Two years ago, the Center faced the electronic medical records problem head on. They needed a user-friendly information management system for patients and staff to enter data obtained from screening instruments, surveys and pre-post tests. The system also had to render data for program evaluation. Complicating the picture, the staff wanted a system that links to electronic medical records that have been generated at 11th Street over the last several years.

“Thinking across a phalanx of elliptical walkers and stationary bicycles, Center director Dr. Patricia Gerrity explains that the group huddled over laptops has been in place for only a few months. “A grant from the Pew Charitable Trusts got us started,” she recalls.

“We spent two years clarifying our needs, setting goals, and finding consultants who could fill in the gaps in our limited technological knowledge.”

Dr. Yuan An glances up to wave, then returns to his computer. An authority on the use of semantic mappings between different data representations, Dr. An leads the School consultant group.

“The clinicians [at 11th Street] have been gathering information from patient surveys, health histories, records of attendance at support groups . . . a lot of sources with limited common ground,” he says.

“We built the PWTracker [Patient Wellness Tracker] to assimilate those data in a comprehenisve bank that’s accessible from a laptop or a handheld computer.”

The goal: unite medical records with copious other patient data.
Complementing Dr. An’s expertise in conceptual modeling and data integration, Dr. Prudence Dalrymple and Dr. Michelle Rogers are melding this reservoir of data into a cohesive tool that maximizes its power and convenience. Dr. Dalrymple joined the iSchool after serving as a National Library of Medicine Fellow at the Johns Hopkins University School of Medicine. The experience honed her understanding of how information such as research evidence can best be disseminated to improve clinical practice. “My part of this project is to develop user-centered information behaviors. Historically, health informatics has been a landscape of well-intended efforts that failed because they were designed without enough input from the people who use the system. We want to make sure our solution works the way 11th Street needs it to work.”

WPT users will benefit from Dr. Rogers’ experience with similar projects. At the Veterans Administration, she studied how electronic medical records affected patient safety and clinicians’ workflow, applying cognitive work analysis to a scenario-based usability testing regimen. “If you understand the impact of IT on people’s work in complex settings, you’re better able to design a system that makes sense from their perspective,” she notes. “We’ve been working closely with Center staff since we first looked at this project, and we get regular feedback from them.”

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The group recommended using “tags” to enter into a patient’s record not only medical but also emotional, spiritual, and social factors that influence physical health and disease. “Providing this type of qualitative information about a patient will give providers a more complete understanding of their situation. Then we can customize treatment recommendations and decision-making in response to each patient’s preferences and beliefs.”

In the future, when Mrs. Blake sees any provider at the Center, tagged information will prompt each of them. When and what she is eating, whether she is engaged in exercise and healthy eating; children and adults take part in fitness sessions; students from Drexel nursing, physical therapy, public health and other programs conduct screenings and demonstrations; and the Center maintains a busy schedule of activities, many of them suggested by members of the community. These encounters give Center staff a plethora of opportunities to gather data on patients’ physical state, psychological well-being, day-to-day environment, concerns and other factors affecting health. The volume of such information presents a unique resource, with the concomitant challenge of compiling the data in a useful form.

The Patient Wellness Tracker is designed to accomplish this. At any encounter, clinicians or patients themselves can update and augment the files, creating a comprehensive longitudinal record with unprecedented potential benefits.

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