

# Programs a prescription to aid doctor's diagnosis

## Computers help sort medical data

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The doctor believes the patient needs major surgery -- and in this case, the patient is the medical profession.

Dr. Lawrence Weed is a veteran medical researcher and long-time critic of the way doctors diagnose and treat patients. He says the human brain simply can't consistently connect individual patients' symptoms to a vast body of medical knowledge and come up with correct diagnoses.

"It took me a long while to come to the conclusion we can't possibly do what we're doing," Dr. Weed says.

He founded PKC Corp. (Problem-Knowledge Couplers) to realize his vision of what physicians should do instead: Turn to computers and software for help. The Burlington, Vt.-based developer spent years developing software it calls "couplers," which ask questions about a patient's condition and suggest possible diagnoses.

It has taken time, but the technology seems to be finding some acceptance within the profession.

"There are a lot of ways that having the computer assist in medical diagnosis and treatment might benefit not just the patient but the whole system," says Dr. Ruth Collins-Nakai, president of the Canadian Medical Association.

Toronto physician Dr. Ken Gamble, for example, works with many patients who travel abroad for long periods, and he says it was often difficult to get information about their health from doctors overseas. He has started using PKC's couplers, and now patients complete PKC's on-line questionnaires before Dr. Gamble sees them when they return to Canada.

It's still a niche market, but PKC isn't the only company marketing diagnosis support software.

In spring 1999, three-year-old Isabel Maude was rushed to London's St. Mary's Hospital in Britain. Her family doctor and the emergency department had failed to recognize complications of chicken pox that indicated necrotizing fasciitis -- often called flesh-eating disease -- and toxic shock syndrome. She survived, though she needed extensive plastic surgery. Dr. Joseph Britto was the attending physician, and his discussions with Isabel's parents led to development of a diagnostic support tool named after the little girl. Isabel Healthcare Inc.'s Isabel software works somewhat like PKC's couplers, but rather than using a questionnaire, the doctor enters keywords like "nausea, vomiting, dehydration, fever". Isabel responds with a list of possible diagnoses to consider.

But despite the potential benefits of this type of technology, there are complications. Dr. Thomas Handler is a research director at information technology research firm Gartner Inc. and holds an M.D. "I really like Larry Weed's concept," he says, but also argues that most of today's diagnostic decision support tools are still too cumbersome and time-consuming for doctors dealing with large case loads.

Ottawa physician Dr. Jay Mercer, for example, uses technology extensively in his practice and

agrees diagnostic tools can be valuable. But he adds that, "if you wanted me to use Isabel in my practice today, the question is which five patients am I going to cancel?"

Howard Pierce, chief executive officer of PKC, acknowledges that selling the idea to the medical profession has been tough. Originally hoping to sell couplers directly to doctors, he says PKC has also started promoting them to companies as a tool for employees to use before going to a doctor.

Still, Dr. Britto says while older doctors are still hesitant about computer-aided diagnoses, younger practitioners are more receptive. New research showing the extent and consequences of incorrect diagnoses is also increasing interest in the technology.

And as the use of electronic health records grows, Dr. Handler says it will be easier for doctors to take advantage of diagnostic software. Until that happens, he forecasts, diagnostic-decision support tools will likely have trouble gaining widespread acceptance outside narrow specialties and teaching.