



Screening Patients for Infectious Disease Using Technology... Ontario Air Ambulance

- Lenny Louis – Product Developer Tools, Microsoft Canada

Containing Ontario's Severe Acute Respiratory Syndrome (SARS) outbreak in early 2003 demanded quick decisions and innovative responses. To screen patient transfer requests, identify patients with SARS symptoms, and to prevent the disease from spreading among the province's 300 acute care hospitals and 1,500 long-term care facilities, Ontario assembled a dedicated organization—the Provincial Transfer Authorization Centre (PTAC), operated by Toronto EMS and Ontario Air Ambulance.

Ontario Air Ambulance provides medical oversight for all air ambulance patient transports in the province of Ontario, all critical-care patient transports in the greater Toronto area, and now manages all patient transfer requests passing through the Provincial Transfer Authorization Centre.

After the centre was created, PTAC needed a secure system to collect patient information, so that a transfer could be approved quickly or flagged for review by a doctor or paramedic as necessary. This system had to be easy to use for hospitals and long-term care facilities.

The initial fax- and phone-based process for managing patient transfers was cumbersome and labour-intensive. As many as 50 PTAC staff members worked around the clock, seven days a week, to process paper-based forms, which were arriving at a rate of as many as 1,200 requests per day. The province quickly recognized that it needed a way to process those requests more efficiently.

"Time is crucial when you're dealing with a potential infectious disease situation," said Dr. Chris Mazza, CEO of the Ontario Air Ambulance. "We needed to ensure the most efficient and accurate screening process was in place to protect the public."

To support the new screening process, Ontario Air Ambulance and DapaSoft, a Canadian-owned information technology consulting company located in Markham, worked together to implement a three-part solution, called the Provincial Transfer Authorization System (PTAS), built on the Microsoft .NET Framework.

The software that was developed includes an easy step-by-step process of entering the required information. This Web-based system collects and analyzes patient transfer requests, detecting any inquiries from hospitals that require quick transfers of patients due to potential infectious disease exposure.

The system also enables physicians to access the system through portable Pocket PCs or Web browsers, allowing them to identify and scrutinize transfer requests that pose infectious disease concerns.

DapaSoft's PTAS solution consists of three separate Microsoft ASP.NET-based Web applications that share a common database

How the PTAS System Works:

1. Healthcare facilities use PTAS to submit patient transfer requests to PTAC through a secure Web interface.
 - The dialogue-based screen flow guides users through a series of questions; a screening algorithm assesses the responses in real time and determines whether more information is needed. Simple transfers require minimal details; acute transfers require a comprehensive medical profile.
2. PTAC manages all requests through a secure back-office application based on ASP.NET and Microsoft SQL Server.
 - This PTAS application automatically approves most of the 1,200 requests it receives daily, but notifies PTAC when a transfer request has possible SARS implications. Designed for agility, the application includes user-maintained screening criteria, flexible notification processing (pager, Short Message Service [SMS], etc.), and integrated content management.
3. Paramedics at PTAC review the incoming transfer requests.
 - If a physician must review the request to assess possible SARS implications, the paramedics forward the request to a specialized physician.
4. PTAS can alert a physician of the incoming request using either a pager message or a mobile phone text message.
 - The physician can then access the transfer request information using the Web or a Pocket PC device, which enables the physician to approve the request or require that all necessary precautions and notifications are taken to ensure the safety of the sending and receiving facilities and the medical professionals involved in the patient transport. PTAS logs physician responses for audit and quality assurance.

running on Microsoft SQL Server 2000, part of the Microsoft Windows Server System integrated server software. DapaSoft developers built the solution using the Microsoft Visual Studio .NET 2003 Enterprise Developer and Visual Basic .NET 2003 development systems, as well as the Microsoft .NET Framework. The .NET Framework is an integral component of the Microsoft Windows operating system that provides a programming model and runtime for Web services, Web applications, and smart client applications.

The first release of the PTAS application was ready just three weeks from the project start date, thanks to the dedicated effort and long hours put in by all team members. During the peak of the SARS outbreak, new cases of the disease were identified every day, and more healthcare facilities and workers were affected, so every day that the team spent in development was critical.

DapaSoft accelerated the delivery of the solution by re-using components from an award-winning application that it had developed for Ontario Air Ambulance in 2002. The previous application was a mobile solution built with the .NET Framework that enables physicians to provide medical direction to paramedics in transit with patients.

The PTAS solution is now fully deployed and available for all acute-care hospitals and long-term care facilities in the Province of Ontario. The solution can also be configured to screen for infectious diseases in addition to SARS and to alert healthcare officials when a new potential cluster is detected.

"We are very pleased with the development of the PTAC solution," says Frank Kim, Director of Information Systems, Ontario Air Ambulance. "The challenge was to create a system that could be implemented quickly, when no such solution existed. DapaSoft's .NET-based solution optimizes a manual process, and it is

convenient and straightforward for users throughout the healthcare system. Most importantly, it is a part of the 'new normal' that helps save lives."

Using the new on-line system, PTAC requests now are approved in seconds, rather than the time consuming process to manually file and fax forms. Transfer requests with no SARS indications are automatically approved by the system, and healthcare workers receive a response within seconds.

PTAS has also made it possible for the 50 PTAC staff members who had been processing forms manually to return to their other responsibilities, putting health care resources back in the field, and lowered costs. As requests are now made electronically, through an intelligent application that checks field validity before submission, the quality of information moving through the organization has improved. The solution also increases the consistency and quality of the patient data collected, which in turn facilitates a more accurate evaluation of the patient's medical condition.

This new system assists with infectious disease containment, increases efficiency, saves money, and allows a much quicker response time. It is available to all healthcare facilities in Ontario. To date, 259 healthcare facilities are set up to use the Web-based system.

"With the PTAS system in place, we know that we are using the best available technology to ensure that we can respond quickly and effectively to any potential threat of infectious disease," said Mazza.



insIGHT
INFORMATION CO. PRESENTS

REGISTER TODAY FOR THIS SPECIAL EVENT!
Visit our website www.insightinfo.com for program details or
call us at 1 (888) 777-1707

TELETRIAGE AND CALL CENTRE HEALTHCARE

Becoming a Cornerstone in Healthcare Delivery

December 8 - 9, 2004 • Courtyard By Marriott Downtown • Toronto

PROGRAM CHAIR: Neil Stuart, Partner, IBM Business Consulting Services

Teletriage and call centre healthcare is rapidly becoming recognized as a critical tool in delivering healthcare quickly and effectively. Its full potential, however, has not yet been realized and before its greatest benefits can be gained, teletriage must be integrated with primary care. Attend this event and learn:

- What types of systems have now been set up across Canada and how they're being used by the public
- How some provinces have set up the framework for evaluating their services, including objectives, service enhancements and available results
- What the evaluation process of the UK's NHS Direct has revealed and what we can learn from this
- How the western provinces and territories have begun a new collaborative initiative around these services
- What lessons can or cannot be applied from other jurisdictions in establishing a business case for introducing a teletriage service
- The latest thinking on how teletriage and call centre healthcare can be integrated into primary care delivery
- What insights and best practices are emerging from the East York Telehomecare Project

and much more...

MARKETING PARTNERS

OFFICIAL PUBLICATION

