Wait Times Task Force

Bridging General and Specialized Care

Overview

Industry:
Manitoba Health Care Industry

Customer Profile:
Manitoba eHealth, in partnership with Manitoba Health and Healthy Living (MHHL) and the Regional Health Authorities, works to improve and enable the transformation of healthcare delivery in Manitoba (pop. 1,119,583) through the use of information and communication technology. The BGSC initiative is led in partnership by Manitoba E-Health and MHHL's Wait Times Task Force.

Business Situation
Communication between family physicians and specialists needs to be improved. Needless appointments and unprepared patients are producing unacceptable wait times and over-booked specialists.

Solution
Imaginet was selected to produce a customized software product to guarantee the referral process in a web-based, multi-facility, user-friendly environment.

Value Provided

- Reduced misdiagnosis
- Reduced patient wait times
- Increased communication between physicians

"Working closely in a collaborative manner under our direction, Imaginet helped us transform our vision of improving the referral process between family physicians to specialists into reality. The Bridging General to Specialist Care Information System Solution (BGSC-ISS) streamlined the referral process with a state-of-the-art web-based solution that we hope will result in better communication between clinicians and more efficient patient care. Imaginet made this possible with their team of dedicated IT professionals and an agile approach to software development that provided us with many opportunities for feedback. Imaginet was able to deliver a functioning system into production in their hosting environment, from scratch, in just ten short weeks."- Brie DeMone, Director, Manitoba Health and Healthy Living Wait Times Task Force

Imaginet was engaged by the Manitoba eHealth and the Wait Times Task Force in January of 2009 to provide an application that would automate and reduce the wait times associated with the family physician-to-physician specialist referral. This project was called Bridging General and Specialized Care (BGSC).

Imaginet successfully developed a customized software application to improve interaction between family physicians (and/or other referring clinicians such as nurse practitioners) and specialist physicians to whom family physicians may refer patients for assessment and/or treatment. BGSC not only increases communication between these parties, but also reduces wait time and increases productivity and patient satisfaction.

BGSC facilitates agreements between specialists and family physicians with regard to such issues as what course of treatment family physicians should provide before considering a referral, what tests are required as a pre-requisite for a referral, and what preparation the specialist may need prior to treatment.

Facts

Time to Develop

Project Start: January 12

Development Complete: March 6

Production Live: March 16

Total time: 10 weeks

Team:

- 5 Full time developers
- 1 Part time project manager
- 1 Part time graphic designer
- 1 Part time writer/tester

Environment:

- Visual Studio Team Suite 2008
- Team Foundation Server 2008
- .NET Framework 3.5
- Silverlight 2.0
- Telerik Silverlight Controls
- C#
- SQL Server 2008
- IIS 7.0
- Express Blend 2.0
- Windows XP, Vista
- Windows Server 2008
- Entity Framework
- Enterprise Architect 7.0 from Sparx Systems
- JetBrains ReSharper

Statistical Achievements:

Delivered 30% more features within the initially estimated time period.

Situation

BGSC is a provincial project conducted by Manitoba's Wait Times Task Force (WTTF).

The project is aimed at facilitating agreements between specialists and family physicians with regard to such issues as: what course of treatment family physicians should provide before considering a referral, what tests are required as a pre-requisite for a referral, and what preparation the specialist may need prior to treatment.

The goals for BGSC were to:

- Improve communication between levels of care
- Improve communication between family physicians and patients
- Reduce inappropriate referrals
- Eliminate unnecessary lab and diagnostic Imaging tests
- Eliminate unnecessary specialist visits
- Reduce the number of patients seen ongoing in specialist practice
- Reduce costs through more efficient use of resources
- Reduce wait times for referrals to specialist consultations
- Reduce wait times for consultation, decision to treat, treatment, and discharge back to family physicians
- Assess the utilization of contracted specialist time for consultations beyond benchmark time as an appropriate recourse methodology

Solution

A high quality, feature rich and visually appealing web-based application was delivered to WTTF in 10 weeks.

The solution assists family physicians in diagnosing and assigning a specialist to a patient's care plan. By answering a number of sequential questions based on the initial diagnosis family physicians are now able to identify if a specialist is required as well as any necessary tests that must be performed prior to booking the specialist appointment.

If it is determined that as is required, the family physician selects the specialist and the specialist will automatically receive the request to see the patient. The specialist can accept or reject the referral. If accepted, an appointment is made. If the specialist is unable to see the patient, the request is rejected and another specialist can be referred.

Patient information can only be entered via the family physician and viewed by the specialist. If the specialist accepts the referral, they may add additional information to the care plan. This allows the family physician to have immediate access to up to date information for the patient.

The health administrator can perform the same actions as both the family physician and the specialist. Additionally the health administrator can add and remove family physicians and specialists as well as maintain system rights.

Customer Benefit

"Among all provinces, Manitoba had the shortest wait time between referral by a GP and a consultation with a specialist, at 6.3 weeks; and the second-shortest wait time between specialist consultation and treatment, at 8 weeks." *Winnipeg Free Press*

Software

Imaginet developed the BGSC with Microsoft Silverlight 2.0, Microsoft SQL Server 2008, Microsoft Visual Studio 2008, Microsoft Team Foundation Server (TFS) and Telerik's Work Item Manager (WIM) and Dashboard. A number of these products are mature products and while Silverlight was newly released when development started, it performed remarkably well and was easily adopted by the developers. Microsoft's Silverlight 2.0 was selected due to its compatibility with the multiple web browser products used on Microsoft Windows and Mac OS X operating systems. Silverlight also provides a rich user experience so it has the traditional "Windows" look and feel with much of the functionality in familiar desktop applications, however, run within the browser.

Silverlight, coupled with other Microsoft products, provided Imaginet developers with the efficiencies needed to complete this project on time, on budget and with a high degree of quality and efficiency.

Imaginet's team of developers brought together people, processes and technology with our Application Lifecycle Management (ALM) methodologies to ensure a complete end to end solution and strategy for the BGSC application.

Process

The team followed an iterative delivery model over the 10 week fixed cost project

This Agile process framework, known as Scrum, allowed for thorough testing of all features while the application was built. This reassured the customer early and often, that the product was going to meet requirements and schedule.

The BGSC project had two senior team members perform the preliminary technology research. This research defined the path ahead for the team, fine-tuned the development environment and removed areas of risk via "spikes". A "spike" is a proof of concept that allows for a quick examination of problem and helps to validate technologies and processes.

When the project started, the team found themselves in a stable environment with a strong foundation for making the most out of the selected solution technologies. Because of the initial research, the learning curve for new team members was greatly diminished.

With Scrum projects, a high degree of client involvement is critical to ensure the requirements are met, features are developed in the correct order, and to review working software after the end of every iteration.

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Value

An open working relationship resulted in a high level of trust between WTTF and Imaginet. Direct contact between the WTTF and Imaginet minimized impacts of project issues that often result in delays. With Imaginet's continual process improvement methodology, the WRHA was able to provide almost instant feedback to either a development question or problem and the team was able to demonstrate ideas to the client and receive almost immediate feedback.

The BGSC application facilitates communication between family physicians and specialists, allowing patients to see specialists in a more timely manner. Family physicians can send their patients to specialists with the most information and the necessary test results for their continued treatment. Apecialists can review the case and determine if the diagnosis is correct, if the appropriate information has been supplied, and if they can meet the target appointment date to see the patient.

The Winnipeg Free Press notes that "Among all provinces, Manitoba had the shortest wait time between referral by a GP and a consultation with a specialist, at 6.3 weeks; and the second-shortest wait time between specialist consultation and treatment, at 8 weeks."

Innovations

Imaginet took advantage of Microsoft Silverlight to develop a robust user interface, a product not typically utilized for this type of engagement. In addition, the Imaginet team relied heavily on Telerik's Work Item Manager and Project Dashboard (a product developed by the Imaginet team) to enhance the development process and controls to assist with the end user experience.

An Agile process called Scrum was used for the BGSC project. This allowed product and team feedback to be gathered regularly, delivering this innovative fixed cost solution in just 10 weeks.

During the project the Imaginet team delivered what the WRHA needed on time, and within budget and schedule constraints.

Imaginet provided a development environment in its head office, and is also hosting BGSC in a secure hosting facility, eliminating upfront capital costs and on-going management and maintenance.

Due to the sensitivity of the information contained within this application Imaginet was required to comply with PHIA and FIPPA privacy standards. Additional security measures were taken within the application and environments to ensure compliancy.

Microsoft's innovative solutions allowed Imaginet to deliver a far superior application than the client originally requested and expected. Wait times have already been significantly reduced with the use of BGSC since its introduction in March of 2009.

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