

## Liberate Your HIS Applications

The healthcare marketplace is facing a tight labor market, and hospitals are struggling with retaining qualified RNs, Pharmacists, and Radiology Staff. High employee turnover rates lead to magnified time and money costs of hiring and training new employees. In a setting where the end product is quality patient care, these challenges should be overcome at any cost. In an article published in Modern Healthcare in January 31, 2000, it is estimated that RN job opportunities are expected to grow 21% over the next 10 years, whereas other professions are growing at a rate of 14% nationally. In contrast to this high demand, the supply is decreasing with the problem to worsen in the coming years. Healthcare management also has to comply with state/federal government mandated quality standards, accreditation requirements, and quality assurance pressures. Documentation requirements are also on the rise. There is more and more to remember, and less room for errors. Hence, healthcare facilities need smart Information Technology (IT) tools that remind the users on requirements, prompt and guide the users every step of the way for better delivery of care.

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Healthcare institutions can no longer afford to run on archaic, error-prone systems and processes that rely solely on a user's ability to remember megabytes of facts and data. Mistakes can be costly, and this cost can run in millions if the medical facility is found at fault for not following procedural mandates. The November 1999 report by the Institute of Medicine found that most medical errors are a result of basic flaws in the way the health system is organized. Another report by the Institute for Safe Medication Practices found that errors could be reduced by 85% through the use of simple technologies like handheld scanners and bar codes.

Healthcare management is also faced with the mountain of regulations imposed by the Health Insurance Portability and Accountability Act of 1986 (HIPAA). Due to HIPAA, there is a growing urgency to get processes and systems compliant with the privacy, security and confidentiality requirements for medical records. The need for a technology-enabled infrastructure with efficient processes that support high performance, with minimum HR pressures of training and minimum reliance on rote memorization of facts for

fulfilling complicated procedural requirements, is imminent. The enigma for healthcare institutions becomes how to select IT systems that actually prevent, detect, minimize the likelihood of errors across all departments, and ensure compliance to state and federal imposed standards. Instinx PRO, an information technology (IT) tool that eliminates manual tasks, enhances access to information and improves patient care, is the complete solution for these challenges.

Instinx PRO is based on Software Robotics technology and Rule-based Reasoning. Software Robotics (SR) and Smart Agents represent the computer automation of the human mind (Cawley, 1998). SR technology embedded in Instinx PRO autonomously does the intellectual work of a human being, and performs critical tasks. This IT tool has the ability to learn or adapt through Rule-based Reasoning. The Instinx PRO system works by making the user smart, thereby decreasing the advent of errors. How can this technology benefit healthcare management who is juggling the mountain of regulations (JCAHO, HIPAA etc.) on one hand, and high employee turnover rates and high cost of medical errors on the other? Following is a case study of how a visionary healthcare facility is tackling these challenges using Instinx PRO, and setting up best practices.

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Merle West Medical Center (MWMC), a 176-bed capacity facility in Klamath Falls, Oregon, has identified the following strategic goals. First is to provide timely access to clinical reports to physicians. The second goal is to get the Nursing department online for clinical documentation, similar to the ancillary departments such as Lab, Pharmacy, and Radiology. MWMC management considers the centralization of cross-department communication for easy and quick access to clinical information crucial for quality patient care. The vision is to make the environment as paperless as possible and be completely on-line so patient information can be accessed in the right place at the right time across the continuum of care. The third strategic goal is to ensure JCAHO, HIPAA, and other state/federal mandated requirements are followed so procedural/medical errors are prevented. Finally, the strategic goal is to eliminate repetitive tasks so caregivers can focus on providing quality patient care.

What Merle West needs to achieve these strategic goals is an IT tool that thinks and acts like a human brain to automate routine tasks and create knowledge - software that captures corporate memory. The hospital has chosen Instinx PRO by The Shams Group, Inc., a knowledge management consulting and software company. Instinx PRO works with Merle West's MEDITECH HIS system to increase productivity and improve patient care. The system creates alerts and prompts to guide the users during procedural tasks, and significantly decreases the occurrence of errors/mistakes. Following is an example of how Instinx PRO's workflow automation system works. The IT tool automates the process of validating insurance requirements based on pre-defined criteria. For example, all hospitals have to follow specific insurance guidelines to be reimbursed by Champus Insurance (for U.S. military personnel), and one of these requirements/guidelines is that a patient has to be registered twice for different services. Consequently, if the user does not follow this guideline and does not discharge an ER patient and register him again for other inpatient services, the insurance claim will not be processed, causing the hospital to lose significant dollar amounts. Using built-in prompts, Instinx PRO makes it hard for the user to forget to discharge and readmit the patient. The accuracy and automation of this SR technology allows MWMC "to move their focus from correcting mistakes to preventing them, thereby saving valuable time and work hours spent in correcting mistakes by users," Jani Greene-Arnold, Clinical Coordinator, Information Systems, Merle West Medical Center.

Another important benefit of Instinx PRO is the capability of generating notes/prompts for users in Admissions for filling in required information in the various MEDITECH fields. These pop-up notes and reminders educate the user on what to document, what kind of errors to avoid in documentation, and the reasons for collecting specific information. The capability provided by this technology is unlimited as very detailed and user defined/customized notes can be added and modified when changes in existing processes take place. This completely eliminates the human dependency on huge procedural manuals from which retrieval of relevant data/information is almost impossible in a timely manner. The system can display multiple notes for a patient, and can also tag notes confidential so that only users with the appropriate security clearance can access this information. "Instinx PRO

allows caregivers to provide quality care to the patient that is patient specific," Jani Greene-Arnold, IS Clinical Coordinator, Merle West Medical Center.

Imagine the possibilities when prompts are generated, based on pre-set rules, to aid caregivers in providing quality patient care. This is being implemented for the Nursing department at MWMC where patient-specific notes will be tagged as follow-up reminders or prompts on computer screens to warn/inform nurses and physicians if a patient is a "do-not- resuscitate" (DNR), or if a patient has an allergy to latex etc. (see Figure 1). Imagine the aftermath if valuable information like this is not made accessible in a timely manner to the caregiver, due to human error or procedural flaw, causing harm to the patient that can be avoided. This is just one example of the significant benefits associated with having clinical documentation on-line. MWMC is currently working toward the goal of having patient-specific information available across all departments of the facility. The management considers this goal an important milestone in retaining existing personnel, and increasing their job satisfaction.

Note	Confidential	Limit to Group	Created By	Created
The patient has an allergic reaction to latex gloves!	<input type="checkbox"/>		TSG	2/5/
*	<input type="checkbox"/>			

Figure 1: A sample pop-up screen that can be displayed in any MEDITECH module for any user, to provide valuable patient-specific information.

**"Instinx PRO allows caregivers to provide quality care to the patient that is patient specific," Jani Greene-Arnold, IS Clinical Coordinator, Merle West Medical Center.**

Process automation at Merle West Medical Center is an important strategic goal, specially in the area of scheduling and registration. Management at MWMC plans to remind users to complete certain tasks based on the field responses during the scheduling and registration process for insurance verification and compliance to state mandated guidelines. In order to comply with the state of Oregon's Health Maintenance Initiative to help prevent illness, MWMC plans to use Instinx PRO to automate the provision of care across different departments such as Admissions, Ordering, Pharmacy, and Nursing. For instance, the state mandates that all patients over 55 years of age get the Pneumovax vaccine. Consequently, when a new patient over the age of 55 is admitted, the user is prompted on the admission screen of MEDITECH to check whether the patient has had this vaccine. If not, the user is prompted to offer this service to the patient. When the

patient agrees to get the vaccine, this information is automatically made available to Pharmacy, where the pharmacist fills the order and ultimately, the vaccine is made available at the patient location so that the nurse can administer it to the patient. Another avid example of Instinx PRO's workflow automation technology is also evident in the Admissions/Scheduling department at MWMC. During the months of October to end of February, all new patients (over 18) are asked upon registration whether they have had the flu vaccine, and if not, whether they want one. If a patient agrees to have the vaccine, process automation results in the flu vaccine being ordered and administered by the caregiver to the patient at the same visit. The system also displays the reasons a flu shot should not be administered to a patient, making the user in Admissions more informed to make the right decision, offer the right care, and eliminate errors. As Jani Greene-Arnold, IS Clinical Coordinator stresses, "Instinx PRO maintains and enhances processes to a degree that improves workflow across departments."



that can allow hospital management to set policies and procedures in place NOW for compliance with HIPAA.

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Healthcare organizations are facing growing pressures to adopt intelligent technology to conquer business challenges, technology that works seamlessly with MEDITECH and other legacy Health Information Systems (HIS). Finding the right solution is not an easy task. Healthcare management must evaluate the business needs carefully, and adopt IT solutions that use best practice approach and have successful track records. As illustrated in this article, Instinx PRO's workflow automation system is an important and effective tool to deliver process automation, reduce end of shift overtime for fulfilling clinical documentation requirements, reduce the advent of procedural/medical errors, increase job satisfaction, retain qualified existing staff, provide accurate and timely access to patient information, and provide a robust strategy for HIPAA compliance. "When caregivers are able to do what they do best --- that is provide quality patient care -- - they are happier to come to work as they are making a difference," Jani Greene-Arnold, Merle West Medical Center.

Other strategic goals that Merle West Medical Center is accomplishing through Instinx PRO is in the area of reducing and eliminating repetitive tasks. In the Radiology module of MWMC's legacy Health Information System, modifiers must be used for CPT codes for ordered exams. In most instances, there are more than one CPT screens where the user must enter the same patient/exam related information across the board. This is where, with a single click of a button, patient/exam information is filled across multiple screens, which significantly reduces valuable time spent by users doing repetitive data entry.

In the area of compliance with the upcoming guidelines of the Health Insurance Portability and Accountability Act (HIPAA) for security, privacy, and confidentiality, there are two requirements that must be reckoned with: access to clinical information must be limited, and the right person must have access to clinical/patient information on a "need to know basis." To be HIPAA compliant, it is essential that whatever technology is adopted, it has audit trail feature capability. Instinx PRO fits these criteria due to its ability to allow healthcare management to monitor and track every single movement a user makes at every field level across all applications. It is important for healthcare institutions to be proactive, rather than reactive. Ignorance is not bliss anymore. The healthcare marketplace has technology

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