<u>Smart Work – Healthcare/ER Demo Transcript</u>
Admission

Jane is on vacation in Portland when she suddenly starts having sharp intermittent abdominal pain
She takes a cab to the nearest hospital and enters the E/R.
Since incoming triage reveals that she is not in critical condition, Jane is directed to use the self-check-in kiosks.
Jane enters her preferred language name, date of birth, gender and chief complaint. The ER Patient Tracking System adds her name to the Waiting Room List.
The kiosk has a scanner for her driver's license and medical insurance card which stores these digital Images in her record.
The hospital's patient registration system determines eligibility and insurance coverage..
Once complete, the kiosk prints out a receipt, a copy of the hospital's privacy policy, Consent for Treatment forms, required authorization forms and a wrist band with Jane's medical record number and a personal information number (PIN).
The bracelet contains an embedded radio frequency identification (or RFID) tag which will track Jane's progress through the ER process. Through a secure login, Jane is able to give the hospital access to her personal medical records which are stored electronically by Google Health since the hospital's systems, Google Health and Jane's insurance provider use the HL7 standard,
Now the medical staff can view prior medical, clinical and surgical history allowing the medical staff to diagnose her condition.
Results from tests during this hospital visit will automatically be added to her personal medical record.
An electronic case file that will capture all of Jane's information and interactions during her visit is created in the hospital's systems.
Waiting room
Jane sits down in the Waiting Room. She notices a large monitor that displays PIN numbers and estimated wait times for treatment.
The queue is automatically updated as new patients come in and are prioritized.
While Jane does not like waiting, knowing the approximate wait time is comforting.
The hospital has also set wait time thresholds (Key Performance Indicators - KPIs) for different types of complaints.
If Jane is in the waiting room for longer than her threshold, a volunteer greeter is alerted and comes to check in on Jane and explain what is going on.
ER Administration
Paul views the ER wait time, ER arrival pattern and patient volumes on his hospital dashboard.
He can see remotely how much activity there is in each part of his hospital and can change staffing levels if necessary.
His dashboard also has views for financial performance where he can see if he is meeting his patient satisfaction goals and metrics on the clinical trials that the hospital is participating in.
Paul is also able to make changes directly from his dashboard – he can reassign resources to high-priority tasks as necessary.
His dashboard is connected to the local police and fire department so that he is alerted to emergencies that may cause a spike in activity for his E/R.
If an emergency occurs, automated business rules that Paul has defined can quickly start reassigning staff to the ER to handle the incoming cases and the scheduling system automatically opens up slots in labs and to delay non-critical patients
Examination
The ER nurse, Betty looks at her tablet PC and sees that Jane is next on her list and brings Jane her into the ER Treatment Room where she views vital signs first entered in the Triage Assessment Area and performs a more thorough nursing assessment.
All of Jane's information is fed directly into her case file from all the connected physiologic devices. The new information is instantly correlated with the previous information in her case file to provide early detection of potential emerging issues.
Dr. Gordon is next to see Jane.
He also has a connected tablet where he can see all of Jane's relevant information
After the initial examination, he enters orders on his tablet for a series of tests including x-rays, ultrasound, and blood work.
A message pops up on his tablet indicating the orders he has input for Jane's condition have matched a short list of the predetermined condition patterns in the Clinical Decision Intelligence System and suggests a revised blood test.
Gordon accepts the revised test and his orders are put into the work queue for the labs.
Testing
Resources in the hospital including labs, operating rooms, and staff are run on dynamic scheduling
Patients are booked into the schedule based on the importance or urgency of the need. ER patients as well as critical care unit patients have priority and are fast tracked through the diagnostic departments.
Henry, an orderly, brings a wheelchair to Jane's exam room to take her for her tests.

She is being routed to minimize the amount of time she has to wait for each test.

Henry receives information on where to take Jane from the centralized scheduling system which is optimizing between resource priorities and patient wait times.

For example, Jane's x-rays will be read by a radiologist. In this case, the hospital has contracted with a third-party medical service to handle overflows and Jane's x-rays are electronically transmitted to a radiologist who is sitting at home in Pune, India.

The radiologist is able to enter her reading of the x-rays into an e-form and electronically transmit it back to Portland.

After 2 hours, Jane has not returned to the ER, and an alert is automatically sent to Nurse Betty.

Betty looks at her tablet to check on Jane's progress and sees that Jane has completed all but one of the tests ordered but her RFID tag shows that she has been in the waiting room for the CT Scan for 45 minutes.

From her tablet, she can connect directly to Henry, the orderly, with a voice or text chat to get an update on the situation.

Betty checks with Colette, the CT supervisor to see if they can move up Jane's case since she has been waiting so long.

Colette looks at the queue and agrees. The supervisor is empowered to override the automated scheduling system.

After Jane is brought back to her ER treatment room and all the lab results have been entered into the system, Jane is automatically put back on Dr. Gordon's work queue for final diagnosis and disposition.

Analysis and Diagnosis

Dr. Gordon reviews the labs and notices something unusual on one of the blood tests – elevated alkaline phosphate enzyme levels.

Dr. Gordon decides he needs to consult with an expert in gastrointestinal (GI) disorders.

He searches the profiles in the hospital directory to find someone who is knowledgeable in this area and who is currently on call

He finds Dr. Katie, a gastroenterologist that is part of the hospital system

He creates a consult activity and sends Katie a message with an embedded link to Jane's case file which contains the lab results and other pertinent clinical information.

Since Jane's case does not appear to be severe, he can wait for a response.

If Jane's case was severe, he could have contacted Dr. Katie directly in real-time.

He leaves to go see another patient while he waits for Dr. Katie to respond.

A few minutes later Dr. Gordon receives an alert from Dr. Katie with a request to voice chat.

Notes regarding Dr. Gordon and Dr. Katie's conversation is automatically captured as part of the hospital's records for risk and compliance purposes.

She tells him that based on the results Jane could have Primary Biliary Cirrhosis (PBC), a disease of the liver.

She shares a bookmark with more information about the condition and possible treatment options.

A liver biopsy is ordered to confirm the diagnosis.

Patient Consultation

Dr. Gordon discusses the situation with Jane and schedules a referral to a specialist in Jane's hometown to confirm the diagnosis.

Dr. Gordon is able to electronically prescribe medicine to treat the symptoms.

His prescription is automatically checked against her personal medical record to make sure there are no potential adverse drug interactions and also filters for all the events that have occurred during Jane's visit to the hospital.

She is able to use a tablet to read information about different treatment options for PBC which include surgery, traditional medications, as was as a new experimental clinical trial for gene therapy.

Jane is also given an option to sign up for an online community related to PBC where other people with the disease and medical professionals share information and experiences.

Patient Release

Jane is now ready to leave the hospital.

Her personal medical record has been updated.

She receives patient instructions, prescription and advice for follow-up appointment.

Her liver specialist at home as been sent instructions and a follow up appointment has already been scheduled.

The outcome of her case has been added to the hospital's CDIS to further enhance the pattern database.

Finally, the billing for her E/R visit and treatment has already been coded and transacted in the hospitals billing system.

Items which can be automatically billed through the 'quick-claim' process are transmitted to her insurance company for processing while other items are sent to be audited first.

By the time Jane completes her vacation and arrives at home, her bill will have been processed

Final view:

The Smarter Healthcare scenario showed us how the combination of BPM, Collaboration and SOA and common standards across the value chain which enables us to:

Significantly improve the quality of patient care

Improve the agility of the ER processes to handle emergencies

Access the proper medical expertise regardless of the location

Make the ER experience more efficient and effective