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Using Simulation Training to Speed EHR Adoption

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THE UNIVERSITY OF TEXAS
MD Anderson
Cancer Center

Conflict of Interest

John Frenzel, MD, MS

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Conflict of Interest

Craig Owen

None

Agenda

- Background
- The Training Challenge
- Creating an EHR focused Simulation Lab
- How Sessions Work
- Results
- Lessons Learned
- Questions

Learning Objectives

- Describe the cognitive factors that humans use to learn new skills
- Contrast active and passive learning strategies
- Design a simulation based learning plan
- Evaluate learning strategies in the context of organizational readiness
- Integrate a simulation learning project into a overall institutional learning strategy

This session will include specific examples of the how this training platform can be used at scale to deliver an enhanced training experience and actionable insight into provider preparation.

Opportunity

- In 2016, M.D. Anderson Cancer Center successfully implemented an enterprise EHR
 - Due to the structure of the practice we committed to a single enterprise go-live
 - Moved the institution from HIMSS EMRAM level 2 to level 6 overnight
- Understanding the risks, we looked for innovative strategies to better prepare our medical staff
- Simulation training was seen as a cost effective way to improve provider skills, speed adoption and gain insight into their individual readiness at go-live

Background

- Medical education has undergone a revolution in the past decade with many new modalities of training including multimedia, simulation and virtual reality
 - Medical professionals routinely use simulation in dedicated spaces to learn technical skills, practice team work and qualify for board certifications.
 - While more accepted in the academic side of healthcare, simulation training can be used to help augment the learning cycle across the enterprise including training for EHR go-live.

Training Challenge

- Our training plan for the bulk of our 2000 prescriptive providers (Physicians / APNs) consisted of 16 – 24 hours of classroom instruction.
- Following completion of classroom instruction, physicians and MLPs were required to complete two-one hour simulation sessions

The Training Challenge

- Successful EHR implementation hinges on several factors with user training in the top rank.
 - Classroom training, while standard, is perceived as high cost and low value by many medical professionals.
- Industry analysis recognizes that training tends to be one of the more unsatisfactory experiences providers undergo prior to the implementation of an EHR.
 - Modern enterprise EHRs are complex and training is critical so that providers can successfully function within a complex new environment.
 - Well trained providers recover productivity more rapidly and the impact to patient care is less

The Institution

- MD Anderson is a deeply subspecialized cancer focused practice. Located in an EHR saturated market
 - Providers voiced concern of wasting time in generic training. Had to provide sub-specialty specific simulation scenarios for our providers
 - Created close to 50 separate subspecialty specific training sims.
 - Matched volunteer patients who had the disease with the sim of that disease.

Physical Space

- Created a temporary simulation lab in an unused ambulatory clinical space and hosted over 2,000 participants during a six week period.
- Sessions were 40 – 45 minutes long with a de-brief and profile personalization activity for the balance of the hour.
- Providers were asked to schedule 24 hours in advance, but we accommodated drop-ins.
- Utilized hospital volunteers as simulated patients and had EHR trained staff to proctor the exam.
 - Both the proctor and the “patient” scored the provider on several axis including facility with the application, patient engagement, communication skills and use of technology.

Creating the Materials

- We did not find any real history of others using simulation to augment EHR training on this scale.
 - A number of false starts in creating the training requirements and training materials
- Solicited cases from our network of superusers and built a template to abstract case information for sim sessions
 - In the EHR training environment we created a patient history, including Demographics, Allergies, History, Labs, Imaging and Pathology supporting elements
 - Created a “cheat sheet” for the Simulated (volunteer) patient that helped fill out the background and provide details consistent with elements the physician would discover during the simulation.

Materials

- Formed a team that abstracted key information from representative cases to build the simulated patient
 - De-identified and loaded into the simulation EHR
 - Proctors were primarily experts in the functioning of the EHR but had familiarity with medical terms and practice, but no deep knowledge.
- After the content was created, we could provide a fairly real sub-specialty experience within a walk-in environment.

Thoracic Surgery (submitted by Susan Knippel)

Scenario #1:	50 y.o. female with newly diagnosed lung cancer presents for treatment recommendations.
Orders:	<ul style="list-style-type: none">• CT Chest• PET/CT scan• MRI Brain• Pulmonary function studies• Medical Oncology consultation• Radiation Oncology consultation

Scenario #2:	64 y.o. male with newly diagnosed distal esophageal cancer presents for evaluation and treatment recommendations
Orders:	<ul style="list-style-type: none">• CT Chest/Abdomen• PET/CT• GI endoscopy – EUS with biopsy• GI Medical Oncology consultation• Thoracic Radiation Oncology consultation

Neurosurgery (submitted by Paula Demasi APRN)

Scenario #1:	52 y.o. male presents with pituitary tumor and visual deficit
Orders:	<ul style="list-style-type: none"> • MRI Sella w and w/o contrast • Full hormone blood panel • Endocrinology consult • Ophthalmology consult

Scenario #2:	34 y.o. female with peripheral nerve sheath tumor
Orders:	<ul style="list-style-type: none"> • MRI extremity w and w/o contrast • EMG • Neurology consultation • Pain service consultation • Genetics consultation

Neurosurgery Spine (submitted by Gisela Sanchez APRN)

Scenario:	50 y.o. male with sacral mass and associated severe pain and inability to sit, and episodes of incontinence. Presents for primary evaluation
Orders:	<ul style="list-style-type: none"> ● MRI Pelvis ● CT Chest/Abdomen/Pelvis ● Labs: CBC, CMP, PT/PTT ● Pain consultation ● Interventional Radiology consultation for biopsy ● Post-void residuals – straight <u>cath</u> in clinic

Appendiceal Surgical Oncology (submitted by Karen Beaty PA-C)

Scenario:	64 y.o. female with newly diagnosed well differentiated appendiceal cancer with known peritoneal disease
Orders:	<ul style="list-style-type: none">• CT Chest/Abdomen/Pelvis• Labs: CEA, CA 125, CA 19-9, CBC, CMP, albumin, pre-albumin, PT/PTT• IMPAC consultation• Urology consultation for cysto and stents• Wound ostomy consultation• Anesthesia Assessment Visit

Created the EHR “Record”

THE UNIVERSITY OF TEXAS
MD Anderson Cancer Center
Making Cancer History®

OneConnect
Simulation Lab

Medical Oncology – Colorectal

Hyperspace SIM Environment

Provider Login ID	TRN11011
Login Password	train
Login Department	Main Colorectal Med
Provider Name	Aida,Blaine

Scenario	Patient Name
Medical Oncology Office Visit	AbiesIrish,TeriSim
Inpatient Rounding	Abate,TeriSim
Inpatient Discharge	Adonis,TeriSim

Simulation Session

- Scheduled for 60 minutes
- The simulation followed a script of a typical new patient appointment and first visit. The provider was asked to review patient history, create a note, orders and complete the billing to close the encounter. (40 – 45 minutes)
- The provider was evaluated by the proctor and patient using a structured instrument
- Provider was given immediate verbal feedback following the sim (5 min)
- Handed off to support staff to work on personalization efforts (15 min)

LOGIN DEPARTMENT: Main Internal Med

Scenario: Claire is a 45-year-old female that has been recently diagnosed with "cancer of the left breast" and is here to consult with you. Make sure to introduce your self to the patient in the room and continue to engage them throughout the scenario. Please complete the following tasks:

- Log into the correct department using the information provided on your tent card. Find your patient and open the encounter.
- **Reviewing Patient Information:**
 - Assume a full range of diagnostic testing has been completed indicating this patient has breast cancer. Go to Chart review activity and locate the correct tab for this information.
- **Updating patient information:**
 - Use your preferred method (Chart review or Sidebar) to review patient information in the chart. Indicate that you have done so.
 - From the rooming activity, review the following information. Add any additional information provided by the patient:
 - Reason for visit
 - Vitals
 - Allergies
 - Home Medications
 - History
 - Indicate you have reviewed the information.
- **Review/Update Problem List:**
 - Go to Plan Activity and update patient's problem list with "Nausea "and add new problem to visit diagnosis.
 - Indicate you have reviewed information.

<ul style="list-style-type: none"> ● Place the following Orders using the SmartSets template "MDA AMB BRE NEW PATIENT" <ul style="list-style-type: none"> ○ Amb Ref to Rad Onc (choose MAIN RAD ONC for the dept.) ○ CBC with Diff ○ In the Additional Orders section <ul style="list-style-type: none"> ● Clinic Administered Influenza Vaccination (40840000298) ● Reorder Flonase 2 sprays each nostril daily ● Sign orders. 	
<ul style="list-style-type: none"> ● Create Consult Note: <ul style="list-style-type: none"> ○ Document your assessment for this visit by typing a consult note in the notes activity. Use the "MDA AMB CORE CONSLT" note template ○ Or create a Consult note using free text. Type "This is a Consult for Claire" and accept your note. 	
<ul style="list-style-type: none"> ● Wrapping up the Visit: <ul style="list-style-type: none"> ○ Go to wrap up activity to complete the patient's visit. Include patient instructions, LOS and preview the AVS. ○ Sign visit and address any required items if necessary. 	
FINAL SCORE:	COMMENTS:
ADDITIONAL TRAINING RECOMMENDED:	
E- Learning	
One-on-One Help	
Tip Sheets	
Other	

LOGIN DEPARTMENT: Main Thoracic Med

Scenario: Robert is a 53 y.o. male that has been recently diagnosed with lung cancer and is here to consult with you. Make sure to introduce yourself to the patient in the room and continue to engage them throughout the scenario. Please complete the following tasks:

- Log into the correct department using the information provided on your tent card. Find your patient and open the encounter.
- **Reviewing Patient Information:**
 - Assume a full range of diagnostic testing has been completed indicating this patient has lung cancer. Go to Chart review activity and locate the correct tab for this information.
- **Updating patient information:**
 - Use your preferred method (Chart review or Sidebar) to review patient information in the chart. Indicate that you have done so.
 - From the rooming activity, review the following information. Add any additional information provided by the patient.:
 - Reason for visit
 - Vitals
 - Allergies
 - Home Medications
 - History
 - Indicate you have reviewed the information.

- **Review/Update Problem List:**

- Go to plan activity and update the patient's problem list.
- Add Lung Cancer to the problem list and document this as the visit diagnosis.

- **Enter Staging information for the patient and sign:**

- Assume a full range of diagnostic testing has been completed indicating this patient has lung cancer.
- Enter Staging Information for patient and sign. (If Applicable)
(If completed by APP, a message will be sent to your InBasket to address.)

- **Document Oncology History:**

- Create Oncology History for the problem.
- Add an event (Historical): Lung Biopsy completed three months ago. Add any additional comments as needed and close.
- Create an oncology treatment summary using the appropriate template.
- Add your name to the Oncology Treatment Summary in the Providers section and save.
- Return to the problem list.

- **Place the following Orders using the SmartSets template "AMB Thoracic Lung Cancer New Patient"**

- CBC w/diff
- Amb Ref to Rad Onc (REF95) (choose MAIN RAD ONC for the dept.)

- **In the Additional Orders section**

- Clinic Administered Influenza Vaccination (40840000298)
- Flonase 2 sprays each nostril daily

- **Sign orders**

- **Wrapping up the Visit:**

- Go to wrap up activity to complete the patient's visit. Include patient instructions, LOS and preview the AVS.
- Sign visit and address any required items if necessary.

Scenario: Three weeks have passed and Robert has called to confirm he wants to move forward with surgery. Please complete the following tasks:

- **Managing Orders and Completing a Case Request:**

- Assuming you have created an orders only encounter and placed your pre procedure orders via the appropriate smartset.
- Navigate to the Prep for Surgery button located in the main toolbar and place the following orders for the procedure using the "IP General Surg Pre-op Clinic" orderset:
 - Create a case request for: Lobectomy (complete all hard stops)
 - Nursing intervention: Insert Foley Cath once pre-op
 - Other: lidocaine (already pre-checked)
 - Other: electrolyte-A (already pre-checked)
 - Assign the correct phase of care for each order.
- Sign and hold the orders.

<ul style="list-style-type: none"> ● Creating H&P Notes: <ul style="list-style-type: none"> ○ From within the prep for surgery navigator, create an H&P note using the “MDA IP CORE HP” template. ○ Or create an H&P note using free text. Type “This is a H&P for Robert” ○ Accept your note. 	
<ul style="list-style-type: none"> ● Close Encounter: <ul style="list-style-type: none"> ○ Sign Visit 	
FINAL SCORE:	COMMENTS:
ADDITIONAL TRAINING RECOMMENDED:	
E- Learning	
One-on-One Help	
Tip Sheets	
Other	

Emergency Center Simulation

 <p>THE UNIVERSITY OF TEXAS MD Anderson Cancer Center Making Cancer History[®]</p>	 <p>OneConnect SIMULATION LAB</p>
EMERGENCY CENTER(EC) DISCHARGE TO HOME PROVIDER HANDOUT	
LOGIN DEPARTMENT: Main EC	
USER NAME: Alex "TOOL"	
LOGIN ID: TRN10010 - TRN100XX	
LOGIN PASSWORD: train	
EC DISCHARGE TO HOME PATIENT SCENARIO	
<p>Elaina's lab results have returned as normal. She is feeling better with a decreased fever and her nausea has subsided. You are ready to discharge her. Remember to ask the patient if they have any concerns or questions regarding their discharge. Complete the following tasks and answer your patient's questions:</p>	

OneConnect EC Discharge to Home

- **Using the Discharge navigator, enter a Disposition, Clinical Impression, complete Medication Review, prescribe a medication of your choice, referral to a specialist of your choice and add a follow-up to their PCP within a week.**
- **Free text discharge instructions to include diet considerations.**
- **Create a Work Excuse Letter for Elaina's Caregiver.**
- **Preview the After Visit Summary.**
- **Complete your ED Course in the Workup Tab.**
- **Finish your Note. Remember to complete the MDM to address billing.**
- **File the appropriate charges.**
- **Complete the chart.**

Move to EC Admit to Floor

Scoring and Evaluation

- For each session both the proctor and the simulated patient filled out a structured evaluation on the provider
 - Some overlapping questions, proctor focused more on the proficiency with the technology and the patient focused on the provider interaction
 - Evaluations were identified for normalization of scoring
 - Providers had the option of seeing scores following normalization with percentile rankings
- These scores were also used to stratify providers in preparation for go-live creating focus for our at-the-elbow support resources on those we knew would struggle.

Focusing at the Elbow Support

- We used the data gained from the proctor and patient evaluations to help deploy and focus our at the elbow support staff.
- Data was entered into our learning management tracking system. These scores were then used to stratify providers and during the go-live helped to target our at-the-elbow support resources.
 - Immediate post-live support is one of the largest single line expenses in implementation and tightly managing this is critical.
 - We were able to roll off support more aggressively and trim our immediate post live support expense by over 15%. We believe this was a direct result of the simulation experience.

Results

- Being able to provide a realistic experience for a provider to interact with the EHR in front of a patient in the safe confines of the simulation center was well received.
- We found it made real to providers that change was imminent and they needed to take the time to build competence in the system.
- Proctors found physicians to be very engaged in the personalization session that followed.

Outcomes Achieved

- Simulation is a valuable approach to both augment learning strategy and gain insight into the preparedness of providers.
- Survey data taken before and after our training program demonstrated providers found simulation the most useful component in their experience.



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Lessons Learned and Recommendations

Lessons Learned

- We should have offered several additional simulation activities
 - The experience would have been valuable for nursing as well.
 - We should have enabled teams to simulate together. We considered this in the planning phase, but felt it would have been logistically difficult. We believe the benefits of team training would have been worth the extra expense.
 - We should have used simulation for our MERIT emergency response team. Would have reduced the stress on the team with the new practice environment. Given the small size, the cost would not have been appreciable and easily absorbed in the project budget.

Lessons Learned

- Simulation proved extremely valuable to our providers.
 - It enabled them to use the new environment in a safe comprehensive way within the patient care context.
 - We gained an objective understanding of what our providers individually would likely need in the immediate post live environment.
 - The simulation training experience was rated highly by providers and was seen as a valuable activity.
 - Using the data immediately from the simulation environment to structure the personalization session that followed enabled the provider and support specialist to focus on those specific items which would be of the most benefit to that individual at that time.

Lessons Learned

- While simulation based training is widely accepted in re-credentialing and other specific medical activities, its penetration into EHR preparation is minimal.
 - Simulation can create a realistic learning experience helping the provider to critically think about how to adopt the electronic technology with useful feedback from a patient's perspective.
 - It enables the training support team to understand the types of post-live issues they will face and stratify providers so that support resources are objectively distributed by anticipated need.
 - Simulation enables the training team to deliver a highly customized training experience in an agile, scalable and cost effective way.

Conclusions

- While simulation based training is widely accepted in re-credentialing and other specific medical activities, its penetration into EHR preparation is minimal.
- Simulation can create a realistic learning experience helping the provider to critically think about how to adopt the electronic technology with useful feedback from a patient's perspective.

Questions

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