



AMA Innovations in Medical Education Webinar Series: Implementing a Teaching Virtual EHR as a Clinical Learning Platform

Susan Skochelak, MD
Maya Hammoud, MD
Suzanne Rose, MD
Kathy Frank, RN, PhD, AGSF

April 24, 2017

Your **MISSION** is *Our* **MISSION**

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Today's Host



- Susan E. Skochelak, MD, MPH, Group vice president, Medical Education, American Medical Association
- Dr. Skochelak developed and leads the AMA's Accelerating Change in Medical Education initiative
- She previously served as the Senior Associate Dean for Academic Affairs at the University of Wisconsin School of Medicine and Public Health



Presenter



- Maya Hammoud, MD, Director, Medical Education Innovation, American Medical Association

Presenter



- Suzanne Rose, MD, MEd, Senior Associate Dean for Education, UConn School of Medicine

Presenter



- Kathy Frank, RN, PhD, AGSF, IU Geriatrics Program Administrator, Indiana University School of Medicine

Objectives

- Review the importance of integrating EHR learning platform into medical student education
- Review the use of the virtual EHR at two schools: U Conn School of Medicine and Indiana University School of Medicine
- Discuss the challenges and opportunities to integrating EHR learning platform into medical student education

Note: The Regenstrief EHR Clinical Learning Platform is an educational program, and the views expressed do not constitute an endorsement of any specific technology.

Question

- What is your primary responsibility in education?
 - UME
 - GME
 - CME
 - Allied Health Professions
 - Not for profit organization or society
 - For profit organization or company
 - Other



Medical Students and the EHR

- EHRs are used in more than 90% of practices
- Medical students are often restricted from utilizing the EHR and they can enter residencies without adequate preparation to use them effectively
- Students' EHR skills do not improve as they progress through their clinical year¹
- Students want more training and the ability to document in EHRs²

¹Biagioli FE, Elliot DL, Palmer RT, Graichen CC, Rdesinski RE, Ashok Kumar K, Galper AB, Tysinger JW. The Electronic Health Record Objective Structured Clinical Examination: Assessing Student Competency in Patient Interactions While Using the Electronic Health Record. *Acad Med.* 2017 Jan;92(1):87-91

²Rowlands S, Coverdale S, Callen J. Documentation of clinical care in hospital patients' medical records: A qualitative study of medical students' perspectives on clinical documentation education. *HIM J.* 2016 Dec;45(3):99-106.



Question

- What are your students allowed to do in the EHR?
 - View notes
 - Write notes
 - Enter orders
 - Receive feedback

EHR as a Clinical Learning Platform

- Training students on the EHR is not simply introducing them to the technology
- Effectively utilizing the EHR is a skill that students must learn and practice throughout medical school
- Presenting patients through an EHR platform can begin in the preclinical years

EHR as a Clinical Learning Platform

- The virtual EHR was developed by the Regenstrief Institute to ensure medical students and medical trainees gain real-world experience using EHRs during their training
- It includes over 11,000 real, de-identified patient records
- It enables learners to access patient data, enter individual/unique actions, see actions entered across practice settings, receive alerts, and pull logs and reports
- Enables learner assessment of knowledge application in patient & population care, critical thinking skills, clinical decision-making skills, and UME EPAs

Current Users

- Indiana University School of Medicine
- Eskenazi Health
- IU Health
- University of Connecticut School of Medicine
- Sidney Kimmel Medical College, Thomas Jefferson University
- University of Southern Indiana
- University of Idaho WWAMI Medical Education Program
- Heritage College of Osteopathic Medicine, Ohio University

Logon screen

IU School Of Medicine
Teaching Medical Record System (tEMR)

Welcome to Regenstrief Institute's Teaching EMR

Single Sign-On

Local Login

Let me authenticate with a different institution.


Information

Please use your institution username and passphrase.
If you are having trouble logging in, please contact support at:
temrfeedback-l@list.regenstrief.org.

You can also view tEMR video tutorials and documentation at:
<http://gopher.regenstrief.org/release/guide/temr.html>

Confidential Information

All Personally Identifiable Information has been changed. However, this information is still non-public and confidential, and must be treated as such.

 Regenstrief Center for Biomedical Informatics

Logo, name
appropriate for each
institution

Can use an institution's
network credentials

Or locally created
credentials

Plug ins, can be customized to user role, level of training, in this case an instructor

Patient list
Number, content of lists are customizable

Provider (instructor) landing page

The screenshot shows the iEMR Provider (instructor) landing page. The interface includes a top navigation bar with links for External Resources, Contact Support, iEMR Tutorials, and a user profile section showing '1, TEACHER at: Fast MED Center'. Below the navigation bar, there's a 'No Patient Selected' status and a 'Change' button. A tabbed interface shows 'Instructor Toolkit', 'Dashboard', 'Order Entry', 'View Chart', and 'Population Health'. The 'Dashboard' tab is active, displaying a search bar for MRN/Name and a table of recent patients. The table lists patient names, MRNs, and dates, with links to view details. On the right side, there's a 'Things to Sign' section showing '0 Verbal Orders', '0 Refill Requests', and '3 Unsigned Drafts'. Below that, an 'Announcements' section displays a welcome message. At the bottom right, a 'To-Do' section shows 'Cosign Notes (3)' and a 'Create New' link. Annotations with arrows point to the 'Change' button, the 'Things to Sign' section, the 'Announcements' section, and the 'To-Do' section.

Recent	My Lists
FRENCH, SHELLEY	3797794819
MARKOWSKI, ELIZABETH	2168440079
MALDONADO, CARMEN	978360668
RENNER, BOYD	1620144272
BERTRAM, JOSIAH	1949389323
MORTENSEN, ISRAEL	3684200657
HARNEY, PATSY	3614889937
HARDESTY, RAMONA	590455187
SQUIRES, WILLARD	281921349
DIXSON, ADRIAN	3765819700
SPANN, HARRISON	4271085617
CUATLACUATL, KRISTOPHER	2836586262

Clinical setting

Setting workflow

Online tutorials

Mis-identified patient identifiers

tEMR External Resources Contact Support tEMR Tutorials Help

10.234.122.170 Change Password Logout

1, TEACHER at Fast MED Center

Chart Search

Enter search term... Search

Filter options
Labs, Meds, Reports Any time

GT 75Gm 3H 73 mg/dL Outpatient
Mar 6, 2017 12:05

Insulin SerPI Qn 81 uIU/mL Outpatient
Mar 6, 2017 12:05 — INTERPRETIVE INFORMATION: Insulin, Random
This test reacts on a nearly equimolar basis with the anal...

GT 75Gm 2.0Hr 67 mg/dL Outpatient
Mar 6, 2017 11:05 — Diabetes Criteria: Fasting > 126 mg/dL 2-Hour > 200 mg/dL Impaired Glucose Tolerance: ...

GT 75Gm 1.0Hr 74 mg/dL Outpatient
Mar 6, 2017 10:05

Tech Note Outpatient
Mar 6, 2017 09:30
Author: SNOW, ROBYN (UCONN)

Dx & Complaints Outpatient
Mar 6, 2017 09:30 — Tech Note
Author: SNOW, ROBYN (UCONN)

GT-75Gm-Fast 71 mg/dL Outpatient
Mar 6, 2017 09:05

Medications

Medication	Dose	Frequency	Date
Acetaminophen 325 mg Tab	1 Tab	By Mouth Every 4 hours as needed for pain or fever, No more than 6 tablets each day, #80 Tab(s)	12-30-2016
Cephalexin 250 mg Tab	1 Tab	By Mouth Every 6 hours, #28 Tab(s) with no refills	12-30-2016
Ondansetron 4 mg Disint Tab	4mg SL q6h prn nausea, #12 Tab(s) with no refills		12-30-2016
Prenatal Vitamin	Tab 1 Tab	By Mouth Daily, #90 Tab(s) with 1 refill	10-14-2016

Problems (0)
Manage List Last Visit

Allergies (0)
Manage List Onset Date

Infopanel
Multiple use information panel
In this case, all recent results

Patient Landing page

Problem list

Medication list

Allergy list

Interprofessional Education Tool

tEMR External Resources Contact Support tEMR Tutorials Help 10.234.122.170 Logout

LOWRY, TROY (3048364137) Change DOB: 21-Oct-1945 (71 yrs) Male Chart Search TAKESUE, BLAINE at Green Day Clinic

Student Toolkit Dashboard Order Entry View Chart Population Health

Quick Orders Save for later Orders Notes Visit Details Observations Diagnoses Allergies Sign

Order All Active Orders Express

Medications eRx Express eRx All

Tests

Consults

Nursing / Other

Attention! 2 STUDENT is already writing Admitting Orders

Oops! Get me out of here. I know, Join the session.

Patient 3048364137

2 S also has this patient selected 11:09 AM

2 S Entered Quick Orders 11:10 AM

2 S Signed Quick Orders 11:11 AM

2 S Entered Admitting Orders 11:12 AM

BLAINE T HI Mike 11:12 AM

Chart Search

Enter search term... Search

Filter options Labs, Meds, Reports Any time

Medical Manager Note May 13, 2016 15:50 Author: ABNER RN, TRACI (CITY)

Epic Primary Care Note May 13, 2016 14:49

Multiple user alert

Infopanel as a communication area

Teaching Virtual EHR Applications

Doctoring
Courses

Basic Sciences

Clinical Sciences

Clinical Sciences-
Advanced

Population
Health

Teaching Virtual EHR Applications

Doctoring Courses

- EHR orientation
- Documentation and order entry
- Developing differential diagnosis
- Reflection notes
- Feedback
- Interprofessional Education

Basic Sciences

Clinical Sciences

Clinical Sciences-Advanced

Population Health

Teaching Virtual EHR Applications

Doctoring Courses	Basic Sciences	Clinical Sciences	Clinical Sciences-Advanced	Population Health
<ul style="list-style-type: none">• EHR orientation• Documentation and order entry• Developing differential diagnosis• Reflection notes• Feedback• Interprofessional Education	<ul style="list-style-type: none">• EHR introduction• Integration of clinical cases<ul style="list-style-type: none">• Case presentation in small or large groups• Use for PBL and TBL<ul style="list-style-type: none">• Longitudinal cases• Iterative case exposure			

Teaching Virtual EHR Applications

Doctoring Courses

- EHR orientation
- Documentation and order entry
- Developing differential diagnosis
- Reflection notes
- Feedback
- Interprofessional Education

Basic Sciences

- EHR introduction
- Integration of clinical cases
 - Case presentation in small or large groups
- Use for PBL and TBL
- Longitudinal cases
- Iterative case exposure

Clinical Sciences

- Standardization of clinical core case exposure
- Fill in clinical log gaps
- Clinical case conferences
- Case review for clinical topics
- Practice note and order entry
- Formative assessment
- Reflection notes
- Clinical decision support

Clinical Sciences-Advanced

Population Health

Teaching Virtual EHR Applications

Doctoring Courses

- EHR orientation
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- Clinical decision support

Clinical Sciences-Advanced

- Management of increasingly complex cases
- Formative assessment
- UME to GME transition
 - Residency preparatory courses
- Practice notes and order entry
- Milestone and EPA documentation

Population Health

Teaching Virtual EHR Applications

Doctoring Courses

- EHR orientation
- Documentation and order entry
- Developing differential diagnosis
- Reflection notes
- Feedback
- Interprofessional Education

Basic Sciences

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Clinical Sciences-Advanced

- Management of increasingly complex cases
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 - Residency preparatory courses
- Practice notes and order entry
- Milestone and EPA documentation

Population Health

- Quality measures
- Panel management
- Patient safety
- Health disparities
- Risk stratification
- Applied statistics

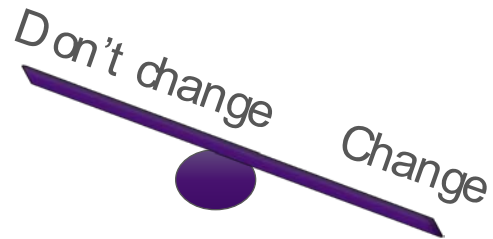




Using the Regenstrief EHR Clinical Learning Platform in the MDelta Curriculum

Suzanne Rose, MD, MEd
Senior Associate Dean for Education
Professor of Medicine
UConn School of Medicine

Your MISSION is *Our* MISSION



- Explosion of scientific information
- Change in health care systems
- A better understanding of adult learning theory
 - Active
 - Relevant



UME Curricular Reform:

Concepts Considered

- Technology in Education and in Medicine
- Partnership with the School of Dental Medicine and IPE
- Individualization and self-directed learning
- Shortened year one/two curriculum
- Integration of basic sciences with clinical medicine
- Simulation
- Patient-centered case based learning
- Team-based learning - Elimination of lectures
- Early clinical exposure
- Integration of public health, policy, and emerging trends
- Career exploration opportunities
- Discovery and scholarship

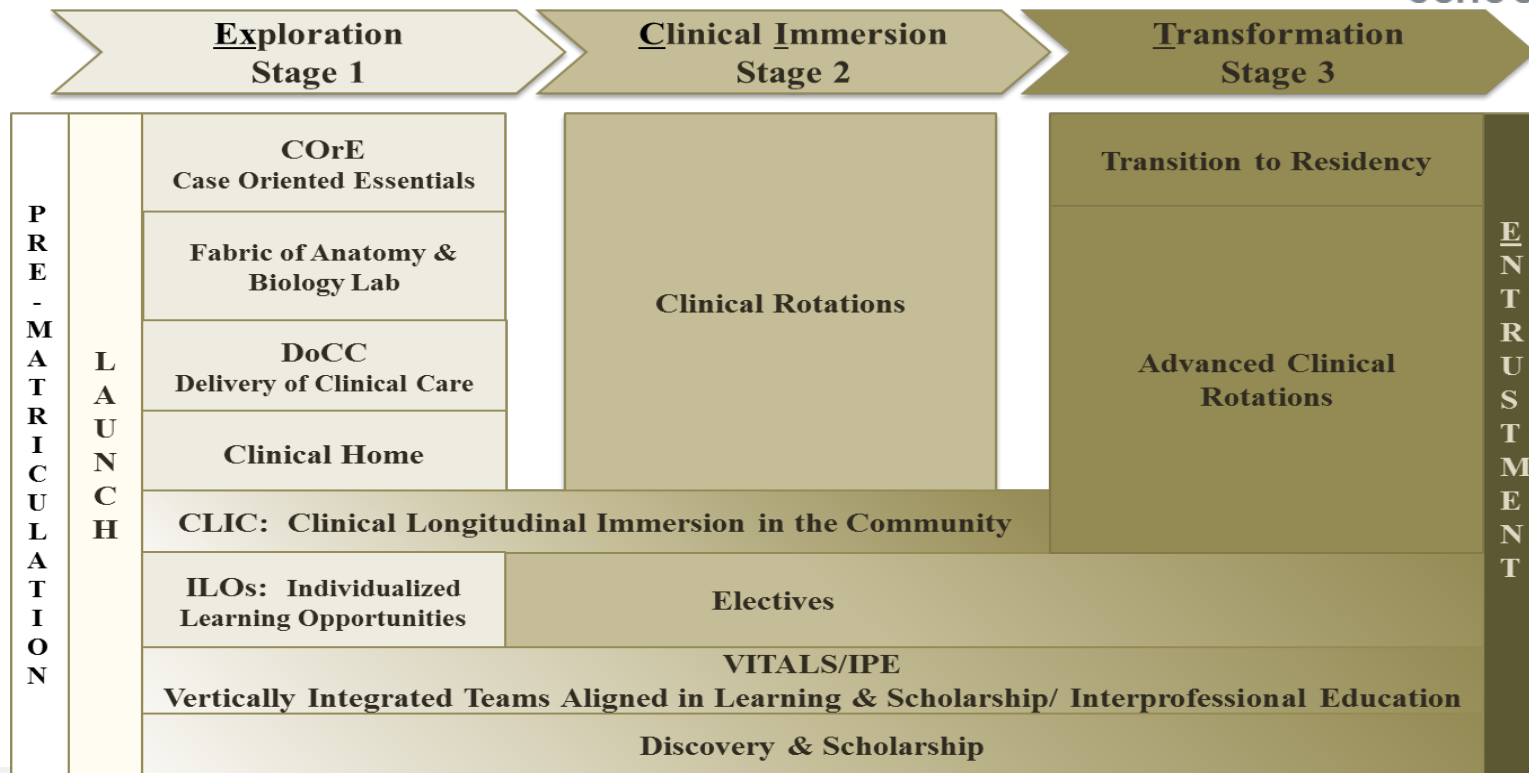


Stages of the

Curriculum:

UConn

SCHOOL OF MEDICINE



The University of Connecticut School of Medicine is enhancing the **teaching electronic medical record** created by founding members of the Accelerating Change in Medical Education Consortium. Students will meet required competencies by working with the medical records of diverse families. These de-identified records will be based on real patients and designed to meet specific learning objectives, requiring students to learn to prioritize and assess pertinent information.

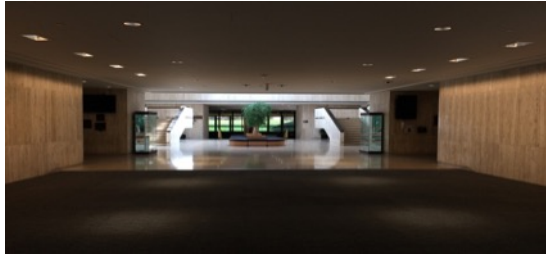
Principal investigator: Suzanne Rose, MD, MEd, senior associate dean, education

AMA: Change Med Ed

New schools joining the Accelerating Change in Medical Education Consortium

Twenty-one medical schools are joining the 11 founding members of the Accelerating Change in Medical Education Consortium to transform medical education. The new members were selected from more than 100 medical schools that applied.

Role of the the virtual EHR in MDelta



- Brings together:
 - Technology
 - Case-based presentations
 - Our interests in public health
- Promotes progressive levels of student engagement
- Two main uses:
 - CORe course: presentation of Cases for TBL
 - VITALS Course: Public Health
 - social determinants of health disparities

Virtual EHR

Collaboration with Indiana University & Regenstrief

Case Oriented Essentials: COrE

- Cases (based on 3 families) embedded in the EHR
- Mined the thousands of cases in the EHR to match family members with mis-identified patient in the database
- Cases introduce each unit in COrE and may be used in TBL application exercises
- Revisit family members over the continuum

Opportunities

- Add clinical context
- Help associate material with something that is relevant
- Make it more interesting
- Allow for prominence of psychosocial issues exploration as well as a view of disparities

Challenges

- Very difficult to be comprehensive
- Time consuming for faculty to make sure that there is consistency and memory

The student will be able to utilize the EHR to:

- identify clinical history
- access past visits
- review laboratory and imaging results

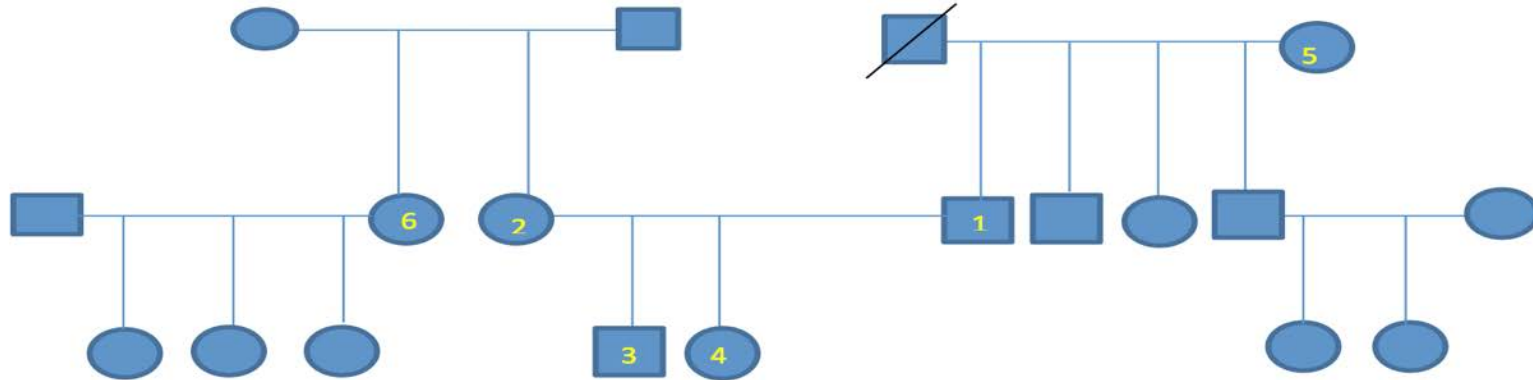
CORE CASES



- A1 Patient who wishes to lose weight
- A2 Patient with iron deficiency anemia
- A3 Patient with chronic myelogenous leukemia
- A4 Well baby check with vaccination
- A5 Adolescent with upper respiratory symptoms
- A6 Patient with ITP
- A7 Patient with shoulder pain: rotator cuff injury
- A8 Patient with carpal tunnel injury
- A9 Patient with back pain
- A10 Patient with knee injury
- B1 Young adult with motor vehicle collision (DUI)
- B2 Infant with Down syndrome and congenital heart disease
- B3 Adult with chest pain (acute MI)
- B4 Child with asthma
- B5 Adult with hyponatremia
- B6 Adult with hypertension (RAS)
- B7 Adult with congestive heart failure
- B8 Adult with upper abdominal pain
- B9 Patient with diarrhea
- B10 Patient with colon carcinoma
- C1 Couple with infertility
- C2 Pregnant patient with complication
- C3 Transgender man with breast cancer
- C4 Young adult with odontogenic infection
- C5 Patient with oral ulcers
- C6 Patient with head and neck carcinoma
- C7 Patient with meningitis
- C8 Patient with stroke
- C9 Patient with fatigue due to neuromuscular disorder
- C10 Patient with dementia

- D1 Patient with diabetes
- D2 Patient with goiter with complication of parathyroid resection
- D3 Patient with spinal compression fracture
- D4 Patient with hepatitis C
- D5 Patient with COPD complicated by pulmonary carcinoma
- D6 Patient with hematuria
- D7 Patient with SLE
- D8 Patient with HIV
- D9 Patient with melanoma
- D10 Young adult with psychotic break complicated by Hodgkin lymphoma
- E1 Hunter with 3rd degree AV block from Lyme
- E2 Young man with hemochromatosis
- E3 Elderly immigrant with CLL and ocular disorder
- E4 Elderly AA man with diverticular abscess found to have AAA on imaging, surgery complicated by sepsis/SIRS/ARDS with history of CAD, hypertension and DM
- E5 45 yo Latina with PCOS/metabolic syndrome/OSA/restrictive pulmonary disease complicated by endometrial carcinoma
- E6 Female prisoner with bipolar disease, substance abuse, sexual abuse, domestic violence, STD, cervical carcinoma
- E7 Toddler with atopy, eczema,
- E8 Elderly patient with multiple myeloma complicated by amyloidosis
- E9 Patient with pulmonary embolus secondary to pancreatic carcinoma
- E10 Elderly patient with polypharmacy


Latino Family



1. Carlos Rivera – 44 yo Puerto Rican Truck driver. HS grad. Obese.
2. Maria Rivera – 40 yo clerk at Stop and Shop. HS grad.
3. Rafael Rivera – 17 yo high school sophomore. Doing poorly in school. Hx of arrest for disorderly conduct while hanging out with friends.
4. Isabella Rivera - 16 yo high school sophomore engaging in unprotected sex with her 20 yo boyfriend.
5. Juanita Rivera – 62 yo early onset dementia. She lives with Carlos (Carlos) and Maria.
6. Ana Vasquez – 41 yo sister of Maria. HS graduate. Beautician

Credit for the Families: Dr. David Henderson
Associate Dean for Student Affairs, Multicultural & Community Affairs




tEMR

[External Resources](#)
[Contact Support](#)
[tEMR Tutorials](#)
[Help](#)

10.234.122.171 [Logout](#)

▼ **RIVERA, MARIA (422860427)** [Change](#)

DOB: 03-Feb-1972 (45 yrs) Female

[Chart Search](#)

ROSE, SUZANNE at [Fast MED Center](#)

[Instructor Toolkit](#)
[Dashboard](#)
[Order Entry](#)
[View Chart](#)
[Population Health](#)

[Abstract](#)
[Chart Search](#)
[Reports](#)
[Appointments](#)
[Pharmacy Orders](#)

☆ ▼
[Search](#)
?

[Enlarge Detail](#)

Filter options

[Labs, Meds, Reports](#)

[Any time](#)
[Reset](#)

Visit Note EMR
Aug 10, 2016 09:06
Author: AKERS MD, PAULINE (UCONN)

Primary Care Dx
Aug 10, 2016 09:06 — Visit Note EMR
Author: AKERS MD, PAULINE (UCONN)

GENERAL NOTE
Aug 10, 2016 09:06 — Visit Note EMR
Author: AKERS MD, PAULINE (UCONN)

Drug Allergies
Aug 10, 2016 09:06 — Visit Note EMR
Author: AKERS MD, PAULINE (UCONN)

PRENATAL VITAMIN 90 Tab(s) [Outpatient](#)
Aug 10, 2016 09:06 — 1 Tab By Mouth Daily, #90 Tab(s) with 1 refill
Ordered by: AKERS MD, PAULINE (UCONN)

Clotrimaz Cr 1% 1 1 % Tube(s) [Outpatient](#)
Aug 10, 2016 09:06 — 1 Application Topical 2 times daily , gently massage sufficient cream into affected area, #1 Tube(s) with 1 refill
Ordered by: AKERS MD, PAULINE (UCONN)

D/C Simethicone 60 80 MG Tab(s) [Outpatient](#)
Aug 10, 2016 09:06 — 80 mg PO QID (PC & HS), #60 Tab(s) with 1 refill

[1](#)
[2](#)
[3](#)
[4](#)
[5](#)
[Next](#)

REPORT:
MARIA RIVERA (153053067)

ENCOUNTER DATE:
08/10/2016

Dr ID:
PAULINE AKERS (3076063299)

Staff Doctor:
PAULINE AKERS (3076063299)

Encounter Site:
High Street Medical Group

Primary Care Dx:
Medical examinations/reports status (finding) (primary diagnosis)
I9C: V70.0
History of - diabetes mellitus (context-dependent category)
I9C: V12.21
Overweight (finding)
I9C: 278.02
IUD
I9C: V45.51
Tinea corporis (disorder)
I9C: 110.5

GENERAL NOTE:
CC: here for annual check up a/c and annual exam, wants IUD strings checked
HPI: 44yo Hispanic female. She had an copper T IUD placed 09/18/2015. She would like strings checked. No abd pain. Her menstruation is not regular she is now skipping some months. LMP is today She thinks she could improve her diet and increase her exercise. She is not currently exercising but plans to walk. She is drinking some sweetened drinks such as aqua fresca and also

[Instructor Toolkit](#) | [Dashboard](#) | [Order Entry](#) | [View Chart](#) | [Population Health](#)

[Abstract](#) | [Chart Search](#) | [Reports](#) | [Appointments](#) | [Pharmacy Orders](#)

Quick find... ▼ 1 document(s) [Return to Document Selection](#) [Print](#)

IUD
I9C: V45.51
Tinea corporis (disorder)
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ROS
no fever no chills appetite nl her weight is going up
no chest pain no dyspnea
cor no chest paain no palpitation no orthopnea
skin occ fungal areas on skin dry in winter

Chart Search

History of - diabetes mell × [Search](#)

Filter options
[Labs,Meds,Reports](#) ▼ [Any time](#) ▼

No results

Summary of EHR Use in COrE



- Present course material in the context of standardized virtual patients in three separate families that represent the diversity of the local population (with the exception of our Burmese family members)
- Teach clinical decision-making by providing a realistic context for students
- Explore past patient data inclusive of biomedical as well as psychosocial information to develop a holistic approach to clinical care
- Teach clinical documentation skills
 - Assessments and Plans (diagnosis and treatment decisions)
- Track student activity individually and in teams (during TBL sessions) to collect data to gain insight into the student learning process
- Provide more robust assessment of learners
- Evaluate the curriculum and the TBL pedagogy

VITALS: Population Health

Social Determinants of Health and Disparities



The students will be able to:

- Query the EHR to assess the health conditions and demographics of their “patient panel.”
- Identify
 - “How many other patients in the panel have this condition?”
 - “How are they the same or different by age, race, ethnicity, or zip code from my virtual patient?”
- Measure whether documented care of individual or groups of patients meets evidence-based guidelines
- Practice systematically planning future care of their virtual patients to promote better population health.

10.234.122.171

Logout

External Resources

Contact Support

tEMR Tutorials

Help

diabetes

1,830 Patients Found

Created by ROSE, SUZANNE

edit name and description

Criteria

All of the following...

1

Patient Age

>

50

Years

Group

X

and

2

Patient Gender

☒ Male ☐ Female

Group

X

Add another

10.234.122.171

Logout

External Resources

Contact Support

tEMR Tutorials

Help

RIVERA, MARIA (422860427)

Change

DOB: 03-Feb-1972 (45 yrs) Female

Chart Search

ROSE, SUZANNE at

Fast MED Center

Instructor Toolkit

Dashboard

Order Entry

View Chart

Population Health

back to query list

Description	Count
Total patient population	11854
Patient count matched to the criteria	1830
Matched patients vs Total population	15%

Chart Search

History of - diabetes mell X

Search

Filter options

Labs,Meds,Reports T

Any time T

No results

AMA Innovations in Medical Education Webinar Series

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AMA

Question

Regarding the use of the virtual EHR in UME:

- A. Has potential benefits to UME
- B. Too many barriers to justify the benefits of implementation
- C. Too advanced for UME level students
- D. Intriguing – need more information

THE
BEST
things
HAPPEN
unexpectedly



- Students become very involved with the virtual patients
- They advocate for the patients passionately
- The virtual EHR promotes adult learning: active, feedback, relevant, problem-centered
- Prepares students for their future clinical roles

Next Steps

- Fully implement the virtual EHR in these two courses
- Consider other uses for the virtual EHR in UME: Clinical Skills, Doctoring course, Clerkships
- Consider other uses of the virtual EHR across the continuum of medical education

SMALL STEPS
BIG CHANGES

Thanks to the UME Leadership Team ... AT:



- ◆ Suzanne Rose, MD, MEd, Senior Associate Dean for Education
- ◆ David Henderson, MD, Associate Dean for Student, Multicultural and Community Affairs
- ◆ Thomas Manger, MD, PhD, Director of Stage One and COrE
- ◆ Zita Lazzarini, JD, MPH, Director of Social and Behavioral Sciences
- ◆ Christine Thatcher, EdD, Associate Dean for Medical Education & Teaching Enhancement
- ◆ Ellen Nestler, MD, Assistant Dean for Medical Student Clinical Education
- ◆ John Harrison, PhD, Basic Science Principal and Director of the Human & Virtual Anatomy Labs
- ◆ Paige Dunion, MEd, Administrative Manager, Academic Educational Affairs
- ◆ TV Rajan, MD, PhD, Co-Chair of Curriculum Reform
- ◆ Ula Knapik, Officer, Academic Educational Affairs Officer

Education

UConn
SCHOOL OF MEDICINE

Curriculum

Making a Difference in Education, Learning and Teaching Across the Curriculum

our future is unfolding here





Using the Regenstrief EHR Clinical Learning Platform in Geriatrics Workforce Enhancement Program

Kathy Frank, RN, PhD, AGSF
IU Geriatrics Program Administrator
Indiana University School of Medicine

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2015-2016

- Quality Health Delivery course - M2's, used as an introduction to EHR's, geo-mapping (zip codes) health disparities, using EHR data to create differential diagnoses

2016-2017

- Introduction to Clinical Medicine – M1's, introduction to EHR's
- Global Longitudinal Inter-session Curriculum – M3's, Health systems science, IPE
- GWEP – elder patient vulnerabilities, IPE

2017-2018

- Foundations of Clinical Medicine 2 – M2's, Case presentations
- Phase 3 – M4's, an adjunct to clinical electives, subinternships

Use of the Virtual EHR in the Geriatrics Workforce Enhancement Program



Objective

Determine if the Virtual EHR tool could be used to deliver and evaluate the learners' ability to create a comprehensive care plan for geriatric patients established collectively by inter-professional learners.



Geriatrics Workforce Enhancement Program (GWEP)



Purpose

*“The **Geriatrics Workforce Enhancement Program (GWEP)** supports the development of a health care workforce that improves health outcomes for older adults by integrating geriatrics with primary care, maximizing patient and family engagement, and transforming the healthcare system”*



Indiana IGETC Partners



- IU School of Medicine
 - Medical Students
 - Internal Medicine Residents
 - Med Peds Residents
 - Family Medicine Residents
- IU School of Nursing-Advanced Practice Nurse students
- IU School of Social Work-Master of Social Work students
- IU Inter-professional Practice and *Education Center*
- Eskenazi Health
- IU Health
- Richard L. Roudebush VA Medical Center
- CICOA Aging & In-Home Solutions
- Alzheimer's Association

Interprofessional Geriatrics Clinical Care Conferences with Medical Residents, APN Students, and MSW Students



INDIANA UNIVERSITY
SCHOOL OF MEDICINE

Each month the GWEP Fellows (5 ANP students and 5 MSW students) with the residents on the Geriatric Medicine rotation are sent an email with a geriatric case to review and prepare to discuss during the Face-to-Face session.

Geriatric Case Summary



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GWEP April Session ▾

Reflection Note

Objectives

Data Entered

Logins


Case Discussion (331871521)
April 5, 2017

Mr. Beasley is a 79yo African American male who has type 2 diabetes mellitus, glaucoma, history of cigarette smoking, chronic systolic heart failure, chronic obstructive lung disease, hypertensive chronic kidney disease stage 3, acute retention of urine with acute cystitis without hematuria, CAD with s/p angioplasty with stents, and implanted cardiac defibrillator.

Medications include: Breo 100mcg/25mcg, one puff daily, albuterol HFA 90 mcg/inh MDI prn, Tiotropium 18 mcg/inh daily capsule, aspirin 81mg, atorvastatin 80mg daily, cholecalciferol 2000 units, ferrous sulfate 325mg, furosemide 40mg, Metoprolol succinate 25mg daily, Pantoprazole 40 mg EC daily, hydrocodone bitartrate 5mg/acetaminophen 325mg prn, polyethylene glycol 3350 one tablespoon daily, prasugrel 10mg daily, Nicotine 21mg/day patch, travoprost 0.004% Ophth soln one drop in both eyes, and normal saline for catheter irrigation.

He was in the hospital 6/15-6/18 with worsening dyspnea and fatigue. He was discharged back home, where he lives with his grandson. He is followed by the GRACE (Geriatrics Resources for Assessment and Care of Elders) and has regular home visits.

Previous Feedback



You have not left feedback for this student on this lesson

Patient File in the EHR



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EMR External Resources Contact Support EMR Tutorials Help 10.234.122.170 Change Password Logout

BEASLEY, FELIX (331871521) Change DOB: 11-Mar-1937 (80 yrs) Male Chart Search

Instructor Toolkit Dashboard Order Entry View Chart Population Health

Patient Landing

Outpatient Inpatient ED

Outpatient Orders and Documentation

- Release Orders
- Note
- Quick Orders Draft
- Shared Note Shared

Reports

- View/Print Orders

Patient Profile

- Preferred Pharmacy

Active (16) Recent Outpatient Orders

Medications

	Date
Albuterol 90 mcg/inh MDI Inhale 2 puffs by mouth with spacer Q4h PRN cough or wheeze or shortness of breath, #1 Inhaler(s) with 3 refills for Chronic obstructive lung disease (disorder) (ICD10:J44.9) ⓘ Q	01-17-2016
Aspirin 81 mg EC Tab take 1 tablet (81 mg) by oral route once daily, #90 Tab(s) with 3 refills ⓘ Q	04-09-2016
Atorvastatin 80 mg Tab (Lipitor) 1 Tab By Mouth Daily, #90 Tab(s) with 3 refills for Coronary atherosclerosis (disorder) (ICD10:I25.10) ⓘ Q	06-20-2016
"breo ellipta" (Drug Order Other #1) 100mcg/25mcg, one puff inhaled daily, #1 Inhaler(s) with 3 refills for Chronic obstructive lung disease (disorder) (ICD10:J44.9), Comments to pharmacy: replaces Spiriva, please discontinue order for ***** ⓘ Q	03-09-2016
Cholecalciferol 2000 unit(s) Cap 2000 Units By Mouth Daily, #90 Cap(s) with 2 refills for Vitamin D deficiency (disorder) (ICD10:E55.9) ⓘ Q	01-17-2016
Ferrous sulfate 325 mg Tab 1 Tab By Mouth Daily, with AM meal, #90 Tab(s) with 3 refills for Anemia (disorder) (ICD10:D64.9) ⓘ Q	01-17-2016
Furosemide 40 mg Tab 1 Tab By Mouth Daily, #90 Tab(s) with 3 refills ⓘ	06-20-2016
HYDROcodone Bitartrate 5 mg / Acetaminophen 325 mg Tab 1 Tab By Mouth Every 6 hours as needed for pain, No early refills, #30 Tab(s) with no refills ⓘ Q	06-07-2016
Metoprolol Succinate 25 mg SR Tab (24 hr) (TOPROL XL) take 1 tablet (25 mg) by oral route once daily, #60 Tab(s) with 3 refills for Congestive heart failure (disorder) (ICD10:I50.20) ⓘ Q	06-20-2016
Normal Saline Irrigation Use 30-60ml of irrigation to flush catheter PRN if catheter not draining, #1 Liter(s) with 11 refills ⓘ Q	06-07-2016
Pantoprazole 40 mg EC Tab (Protonix) 40 MG By Mouth Daily, #90 Tab(s) with 3 refills ⓘ Q	03-09-2016
"Piston Syringe" (Syringe Other) 1 Syringe Irrigation Other as needed for catheter not draining, #2 Syringe(s) with 4 refills for Acute retention of urine ⓘ	06-07-2016

Problems (44)

Manage List	Last Visit
Abdominal pain (finding) ⓘ	05-16-2016
Acute lower urinary tract infection (disorder) ⓘ Q	05-20-2016
Acute retention of urine (disorder) ⓘ Q	06-07-2016
Acute-on-chronic renal failure (disorder) ⓘ Q	05-16-2016
Adenomatous polyp of colon (disorder) (285.9) ⓘ Q	07-17-2015
Anemia (disorder) ⓘ Q	05-17-2016
Asthenia (finding) ⓘ Q	05-16-2016
BPH ⓘ Q	06-25-2016
Cardiac defibrillator in situ (finding) ⓘ Q	04-05-2016
Central sleep apnea svndrome (disorder) ⓘ Q	08-24-2015

Allergies (1)

Manage List	Onset Date
no known drug allergies ⓘ	

Chart Search

Enter search term... Search

Filter options
Labs,Meds,Reports Labs,Meds,Reports Any time

Basic Metabolic

Jun 25, 2016 15:21

Sodium	141 mmol/L (136-145)
SerPI Qn	
Potassium	4.4 mmol/L (3.5-5.5)
SerPI Qn	
Chloride	105 mmol/L (98-107)
SerPI Qn	
CO2-Tot	26 mmol/L (21-32)
SerPI Qn	
Anion Gap	10 mmol/L (7-16)
3	
BUN SerPI Qn	49 mg/dL ↑ (7-18)
Creatinine	2.01 mg/dL (0.67-1.17)
SerPI Qn	↑
GFR Est	
MDRD	39

Interprofessional Geriatrics Clinical Care Conferences with Medical Residents, APN Students, and MSW Students



- Each geriatric case has a template with a list of questions and notation of which note in the patient file to review
- Each student is responsible to complete a note with the template with their answers to help prepare them for the Face-to-Face session

Case Questions template with guide of which note to review



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GrEP April Session

Reflection Note Objectives Data Entered Logins

Note on 12/29/2015 14:31 ACE Consultation:

- Review results of MMSE, GDS, ADLs, and IADLs
MMSE 20/30 abn clock
GDS 2/15
ADLs - Ind
IADLs - Dep on most besides telephone
- When would you repeat the GDS or PHQ9? Why or why not?
Due to hospitalization, I would do another GDS a month after discharge.
- List potential causes for risk of falls.
Memory impairment, difficulty walking, rises easily

Note on 05/18/2016 15:20 ACE Social Worker:

- What do you think is an appropriate living setting for this patient? (describe the level of care you think he requires?)
ALF because he is dependent in IADLs and has a nurse and SO. Had reoccurring SOB and weakness.
- Does this patient have a designated caregiver? If yes, what would you like to know about the caregiver? If no, what would you ask the patient about qualities they would want in a caregiver.
- Does Mr. Beasley have a Living Will-what are his wishes?
I cannot find a living will on file.

Cardiology Note from 6/20/2016 15:20:

- Mr. Beasley's main complaint of fatigue-any etiology?
Unclear etiology at this time, may be deconditioning. Not clearly related to CAD (typically presents with angina) and is not volume overloaded. May be related to his severely reduced LV function but not clear.
- What recommendations would you make?
- Is Mr. Beasley using the Nicotine patches?
Added nicotine patches and counseled on use during this visit
- What other concerns should be considered?

Note on 6/15/2016 and 6/25/2016 labs:

- Any concerns about lab results?

Previous Feedback

You have not left feedback for this student on this lesson

Problem

UTI
Frequent

Chart Search

Enter search term... Search

Filter options

VisitProcedure Any time

GENERAL NOTE

Dec 30, 2015 12:26 — Daily Note

Author: RIGDON DO, DEAN (CITY)

GENERAL NOTE

Dec 30, 2015 11:07 — Staff Note

Author: SOMERS DO, AMOS (CITY)

GENERAL NOTE

Dec 29, 2015 18:11 — PT ASSESS NOTE

Author: TRIMBLE PT, SHELBY (CITY)

GENERAL NOTE

Dec 29, 2015 16:32 — Staff Note

Author: SOMERS DO, AMOS (CITY)

GENERAL NOTE

Dec 29, 2015 16:09 — Daily Note

Author: WILCHER MD, MELISA (CITY)

GENERAL NOTE

Dec 29, 2015 15:52 — OT ASSESS NOTE

Author: GATES OT, INDIA (CITY)

Write feedback...

Interprofessional Geriatrics Clinical Care Conferences with Medical Residents, APN Students, and MSW Students



- End of each Face-to-Face session the students complete an evaluation
- Ratings from students about IPE group session using teaching Virtual EHR have reported:

Very Useful (55%) or Useful (45%)

Development of a IPE activity in the teaching Virtual EHR: “Team Card template”



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- Created a second template called the shared “team card”
- Each trainee submits their answers in the same note and places their initials at the end.
- All the trainees can see the answers from the other trainees
- Discuss questions and answers during the Fact-to-Face session

EHR: “Team Card template”



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External Resources ▾ Contact Support iEMR Tutorials Help ▾

10.234.122.170 Change Password Logout

BEASLEY, FELIX (331871521) Change DOB: 11-Mar-1937 (80 yrs) Male Chart Search

ONE, TEACHER at Central Town Clinic

Instructor Toolkit Dashboard Order Entry View Chart Population Health

Shared Note Save for later Notes Sign

Visit Note EMR Insert Template Create New Template Recent Notes

As a member of the GWEP interprofessional trainee team, please help create goals that would improve the care plan for Mr. Beasley and enter your answers to the following question before you meet as a group. Please place your initials at the end of your entry as this will be a shared answer format.

What concerns do you have about Mr. Beasley and what are potential strategies to overcome these concerns and prevent future ER visits or hospitalizations?

From a social work perspective, I am concerned about the patient's cognition. Due to his frequent ED visits and recent UTI, I would be concerned with his risk for delirium. Unfortunately, the daughter wants to discontinue Home Health Services and HABC appointments. I would explain to the daughter the risks of discontinuing services. I would explain the benefits of both services. If delirium develops, it would be essential that HABC is involved as they are experienced in treating and monitoring delirium. HABC is also helpful in monitoring caregiver stress and providing resources to caregivers. HABC can also work with the family to understand the risks and benefits of ED visits. Nurses are on staff that the caregivers can contact to discuss concerns before taking the patient to the ED. Another goal would be to help the family and patient work with the agencies to coordinate a better schedule or decide what services they may no longer need if possible.

I'm concerned that the grandson is not aware of the severity of the grandfather's condition and how much assistance is actually needed by his grandfather. I would educate the grandson about what his grandfather will need assistance with and the best way to provide that assistance. For example, make sure his medications are prepared for him to take them everyday and is a location he would see them so they don't get forgotten. I would also work with them on a method that works for them to display his appointments, so there is a visual reminder. (RE)

Note saved at 9:57:01 AM

My Recent Notes

None

Favorite Templates

GWEP APRIL Session

GWEP APRIL Team Card

GWEP March Session

Patient Intake

test

Show All Templates...

Family Hx

Problem

UTI frequent

Chart Search

Enter search term... Search

Filter options

Labs,Meds,Reports Any time

Basic Metabolic

Jun 25, 2016 15:21

Sodium 141 (136-145)

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SerPI Qn mmol/L

CO2-Tot 26 mmol/L (21-32)

SerPI Qn

Anion Gap 3 10 mmol/L (7-16)

BUN 49 mg/dL (7-18)

SerPI Qn ↑

Creatinine 2.01 (0.67-)

SerPI Qn mg/dL ↑ 1.17

GFR Est

Goals of the Team Card

- The trainees learn by reviewing the answers about the different disciplines roles/responsibilities
- The trainees as a team would develop the plan of care for the older adult
- The trainees have access to communicate with the other disciplines via a chat box in the virtual EHR

EHR: Chat box



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BEASLEY, FELIX (331871521) Change DOB: 11-Mar-1937 (80 yrs) Male Chart Search

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"breo ellipta" (Drug Order Other #1) 100mcg/25mcg; one puff inhaled daily, #1 Inhaler(s) with 3 refills for Chronic obstructive lung disease (disorder) (ICD10-J44.9), Comments to pharmacy: replaces Spiriva, please discontinue order for ***** ⓘ Q	03-09-2016
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Ferrous sulfate 325 mg Tab 1 Tab By Mouth Daily, with AM meal, #90 Tab(s) with 3 refills for Anemia (disorder) (ICD10-D64.0) ⓘ Q	01-17-2016
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HYDROcodone Bitartrate 5 mg / Acetaminophen 325 mg Tab 1 Tab By Mouth Every 6 hours as needed for pain, No early refills, #30 Tab(s) with no refills ⓘ Q	06-07-2016
Metoprolol Succinate 25 mg SR Tab (24 hr) (TOPROL XL) take 1 tablet (25 mg) by oral route once daily, #60 Tab(s) with 3 refills for Congestive heart failure (disorder) (ICD10-I50.20) ⓘ Q	06-20-2016
Normal Saline Irrigation Use 30-60ml of irrigation to flush catheter PRN if catheter not draining, #1 Liter(s) with 11 refills ⓘ Q	06-07-2016
Pantoprazole 40 mg EC Tab (Protonix) 40 MG By Mouth Daily, #90 Tab(s) with 3 refills ⓘ Q	03-09-2016
"Piston Syringe" (Syringe Other) 1 Syringe Irrigation Other as needed for catheter not draining, #2 Syringe(s) with 4 refills for Acute retention of urine (disorder) (ICD10-R33.8) ⓘ Q	06-07-2016
Polyethylene Glycol Pwd 17 Gram(s) Oral Pwd 1 Tablespoon Dy Mouth Daily, mix powder into 8 oz of liquid, take daily while taking pain meds, #236 Gram(s) with 1 refill ⓘ Q	06-07-2016

Problems (44)

Manage List	Last Visit
Abdominal pain (finding) ⓘ Q	06-16-2016
Acute lower urinary tract infection (disorder) ⓘ Q	05-20-2016
Acute retention of urine (disorder) ⓘ	06-07-2016
Acute-on-chronic renal failure (disorder) ⓘ Q	05-16-2016
Adenomatous polyp of colon (disorder) (285.9) ⓘ Q	07-17-2015
Anemia (disorder) ⓘ Q	05-17-2016
Asthenia (finding) ⓘ Q	05-16-2016
RPH ⓘ Q	06-26-2016
Cardiac defibrillator in situ (finding) ⓘ Q	04-05-2016
Central sleep apnea syndrome (disorder)	06-24-2015

Allergies (1)

Manage List	Onset Date
no known drug allergies ⓘ	

ONE, TEACHER at Central Town Clinic

Patient 331871521

KATHRYN F selected patient 331871521 02:27 PM
TEACHER O Hello, How is your day 02:28 PM

Chat

Chart Search

Enter search term Search

Filter options:
Labs, Meds, Reports T Any time T

No results

Instructor Toolkit

- Review each trainees completed answers for the individual case template
- Review the trainees answers in the Team Card
- Review comments in the chat box
- Know which students completed their work prior to the Face-to-Face session

EHR: Instructor Toolkit

▼ BEASLEY, FELIX (331871521) Change DOB: 11-Mar-1937 (80 yrs) Male Chart Search

Instructor Toolkit Dashboard Order Entry View Chart Population Health

TEST PRACTICE

BREHM, MICHAEL H

PROD, STUDENT TEST

STUDENT, 1

STUDENT, 2

Session 1

Reflection Note Objectives Data Entered Logins

BREHM, MICHAEL H has not written a reflection note for this lesson

Previous Feedback

You have not left feedback for this student on this lesson

Write feedback...

Submit Feedback

ONE, TEACHER at Central Town Clinic

Patient 331871521

KATHRYN F selected patient 331871521 02:27 PM

TEACHER O Hello, How is your day 02:28 PM

Chat Kathy

Chart Search

Enter search term...

Search

Filter options

Labs,Meds,Reports T Any time T

No results

Evaluation Comments from Students



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- Great opportunity to review case and learn what providers documented and ordered
- Great opportunity to work with other disciplines and get a more rounded perspective
- The interdisciplinary conversation was awesome & really helped to show how different services can come together to overcome the patient issues
- Learning about the other disciplines points of view
- Having clinicians from each discipline present that are already working with geriatric patients

Next Steps: Quality Improvement

- Next round of GWEP Fellows starts next August
- Plan to review feedback and determine next steps to improve the process
 - Revised the end of year evaluation tool to obtain more feedback about the virtual EHR from 1st GWEP Fellows
 - Review orientation handouts about the virtual EHR
 - Review email communications to students about virtual EHR activities
 - Revise the monthly evaluation forms with more specific questions about virtual EHR

Special Thanks to our team!

Jeff Warvel	Business Analyst
Michael Brehm	Lead Engineer
Josh Jones	Engineer
Haritha Mannam	Engineer
Kruti Patel	Engineer
Brian Stout	Sr Product Owner
Layla, Baker	Content / Curriculum

Rachel Gruber	Project Manager
Cindi Hart	Training
Lisa Gill	Communication
Debra Litzelman	Faculty
Blaine Takesue	Faculty





AMA Innovations in Medical Education Webinar Series: Implementing a Teaching Virtual EHR as a Clinical Learning Platform

Questions

Your MISSION is *Our* MISSION

Future Events

Continue the discussion

Please join us to ask questions of our panelists at:

ace.communities.ama-assn.org

- Implementation of the virtual EHR
- Use in curriculum
- Implications for the future of medical education

Future webinars

June 5 at 12 p.m. Central

Transforming Education: Leading Innovations in Health Professions Education

In association with Educause ELI

August 21 at 3 p.m. Central

Using Big Data to Learn about Population Health

ChangeMedEd 2017

Mark your calendars:



September 14-16 in Chicago

www.ama-assn.org/events/changemeded-2017-national-conference