

Intro Level SimEMR® Use Cases

3.2 HIGH SCHOOL PROGRAMS

Introduction

This lesson will introduce learners to basic components and procedures for charting in an electronic medical record system while reviewing and managing a patient case. The forms and documents within SimEMR®, a system designed exclusively for charting in a clinical simulation context, are a representation of charting elements included in real-world EMR systems.

Learning Objectives

- Navigate components of SimEMR®
- Perform basic documentation in an EMR

Resources Needed

- SimEMR® login
- Internet access
- Web capable device

Content

- Introduction to SimEMR®
- Patient case review

Teaching Strategies

- Tutorial review
- Review of information
- Hands on practice
- Documentation of clinical data

Time

- *15-20 minutes:* Administration: Patient Profile creation
- *20 minutes:* Learner practice
- *10-15 minutes:* Review & evaluate learner work

Patient Case & Scenario Overview

HIGH SCHOOL PROGRAMS

Patient Profile Name: Hugo Stone **DOB:** 05/19/1958

Scenario: This is a basic patient case that involves Mr. Hugo Stone, a 62-year-old male who was brought to the emergency room by his wife after multiple bee stings. Mr. Stone was working in his yard where he unknowingly disrupted a nest and was stung by wasps to multiple areas of his upper body. He has developed a growing rash, and started noting shortness of breath, at which point he called his wife for assistance. Mr. Stone has been otherwise healthy to this point.

Profile Overview: The following patient case includes an overview of the scenario, an overview of learner objectives, and administrative steps required to get started. As you review these materials, bear in mind some similar terms. Patient Profile refers to the electronic patient in SimEMR®. Patient case refers to your overall scenario that uses that patient profile.

Profile Objectives: Acclimate the High School learner to common documentation practices within an Electronic Medical Record, SimEMR®.

Applications for learners, will include, but are not limited to:

- a. Introduction to an EMR: Identifying the importance of using one as well as safety factors
- b. Navigate the components of SimEMR®
- c. Engage with common medical terminology in an EMR
- d. Complete basic documentation practices

Patient Profile - Hugo Stone

Getting Started

1. Review the Patient Kit Addendum on pages 13 – 15.
2. Create the Patient Profile in SimEMR®.

Refer to the How To: Create a Patient Profile guide for more detailed directions. Overview instructions to create a patient profile are as follows:

- a. At the SimEMR® login screen enter your username and password. Select **[LOGIN]**.
- b. On the dashboard, select either the **[PATIENT PROFILES]** button, or **[PATIENT PROFILES]** in the left side menu.
- c. Click **[+ CREATE NEW PATIENT PROFILES]** in the top right.
- d. Enter Hugo Stone information. Select **[CREATE]**.
- e. Navigate to your newly created patient, and select the **[⚙️]** on the patients row. Select **[👤 PERMISSIONS]** from the dropdown menu.

- f. Uncheck the *Locked* box. Select **[SAVE]**.
 - g. Navigate back to Hugo, and select the **[⚙️]** on the patient row. Select **[📄 EDIT]**.
 - h. Select **[+ ADD NEW FORM]** to add all forms according to Hugo's Patient Kit.
3. Identify learner objectives.
4. Create a course to assign the newly created profile to. If you are adding it to an existing course, move to step 5.

Refer to the SimEMR® Quick Start guide pages 2 – 4 for more detailed directions. Overview instructions to create a course are as follows:

- a. On the dashboard, select either the **[MANAGE COURSES]** button, or **[MANAGE COURSES]** in the left side menu.
 - b. Click **[+ CREATE NEW COURSE]** in the top right.
 - c. Enter relevant course information and select **[CREATE]**.
 - d. Navigate to the newly created course, and select the **[⚙️]** on the course row. Using this menu, you can add learners, instructors, and edit the course.
5. Assign the patient profile to learners.

Refer to the SimEMR® Quick Start guide pages 10 – 14 for more detailed directions. Overview instructions to assign a patient profile to learners are as follows:

- a. On the dashboard, select either the **[PATIENT ASSIGNMENTS]** button, or **[PATIENT ASSIGNMENTS]** in the left side menu.
 - b. Select the course you are assigning Hugo to. Click **[SELECT COURSE]**.
 - c. Locate Hugo and select **[CONTINUE TO NEXT STEP]**.
 - d. Select simulation time. Click **[CONTINUE TO NEXT STEP]**.
 - e. Add any additional goals and options to the profile. Click **[CONTINUE TO NEXT STEP]**.
 - f. Select **[CONFIRM ASSIGNMENT]**.
6. After learners have completed the assigned patient, review their work.

Refer to the SimEMR® Quick Start guide pages 17 – 18 for more detailed directions. Overview instructions to review learner work are as follows:

- a. On the dashboard, select either the **[LEARNER'S WORK]** button, or **[LEARNER'S WORK]** in the left side menu.
 - b. Click **[REVIEW BY PATIENT]** to review all learners in the course at once. Click **[REVIEW BY LEARNER]** to review individual learners.

Learner Assignment: Patient Profile - Hugo Stone

This lesson will introduce you to basic components and procedures for charting in an electronic medical record system while reviewing and managing a patient case. The forms and documents within SimEMR®, a system designed exclusively for charting in a clinical simulation context, are a representation of charting elements included in real-world EMR systems.

Learning Objectives

- Identify the importance of using an EMR
- Safety factors required of an EMR
- Navigate the components of SimEMR®
- Engage with common medical terminology in an EMR
- Perform basic documentation in SimEMR®

Resources Needed

- SimEMR® login
- Internet access
- Web capable device

GENERAL INFORMATION

ELECTRONIC MEDICAL RECORD

An Electronic Medical Record (EMR) is a compilation of clinical data based on the health history of a patient. All people (or in veterinary medicine, animals) have an ongoing medical record. Some facilities and locations use paper versions, but most have moved to electronic documentation and storage for many reasons, such as ease of use, legibility, safety, and ability of a care trajectory over time.

There are a many documents and forms that can comprise an EMR for the healthcare providers to evaluate a patient and transmit that information for future needs.

SimEMR® is a simulated electronic med record that provides a number of different healthcare learners the opportunity to investigate an EMR, locate information needed to care for a simulated patient, and practice clinical documentation based on their educational goals and activities assigned by the instructor.

EMR REQUIREMENTS

Patient safety and security of data are two key variables required in any EMR format.

The ability to maintain patient confidentiality is critical. The U.S. Congress enacted the Health Insurance Portability and Accountability Act (HIPAA) in 1996 in order to protect private healthcare and medical information for patients.

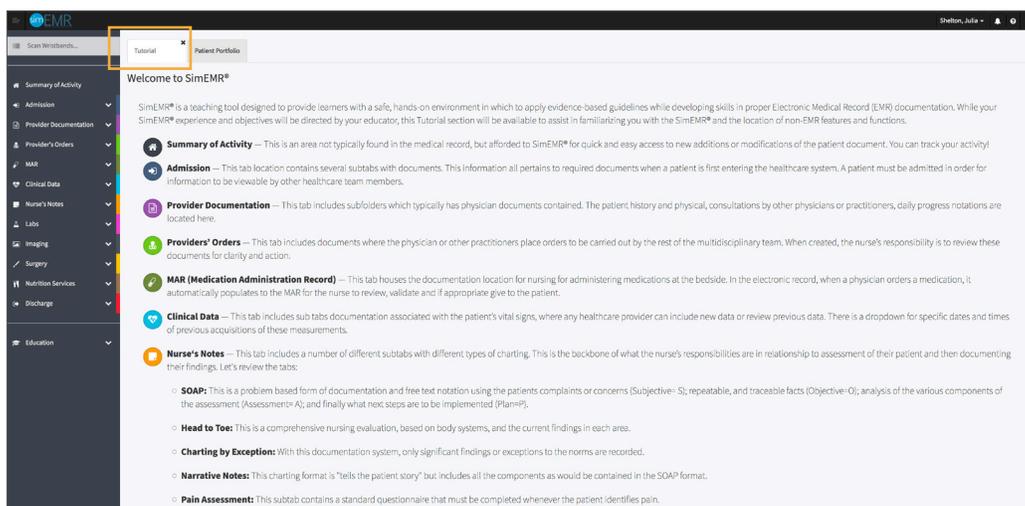
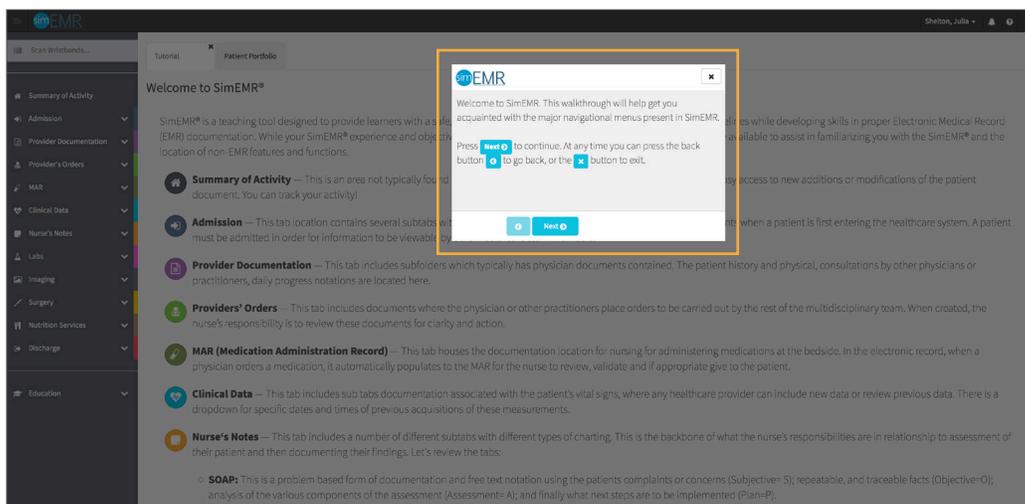
Some safety factors included in any EMR include access restrictions to the program, individual logins, and timeouts for inactivity in attempts to limit inappropriate access to a person's personal information.

These safety factors are required and abuses in EMR access by those who should not be involved in the patient chart have severe legal ramifications.

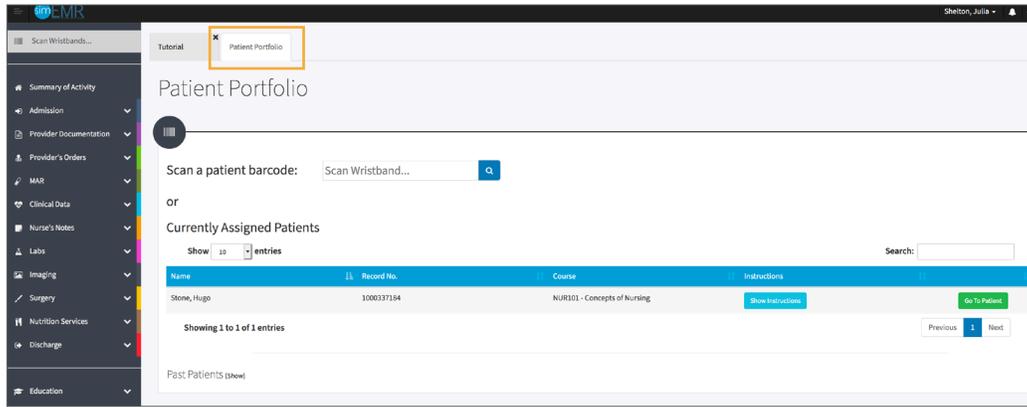
Learner Actions: Locating Information in an Electronic Medical Record

This lesson will introduce you to basic components and procedures for charting in an electronic medical record system while reviewing and managing a patient case. The forms within SimEMR®, a system designed exclusively for charting in a clinical simulation context, are a representation of charting elements included in real-world EMR systems.

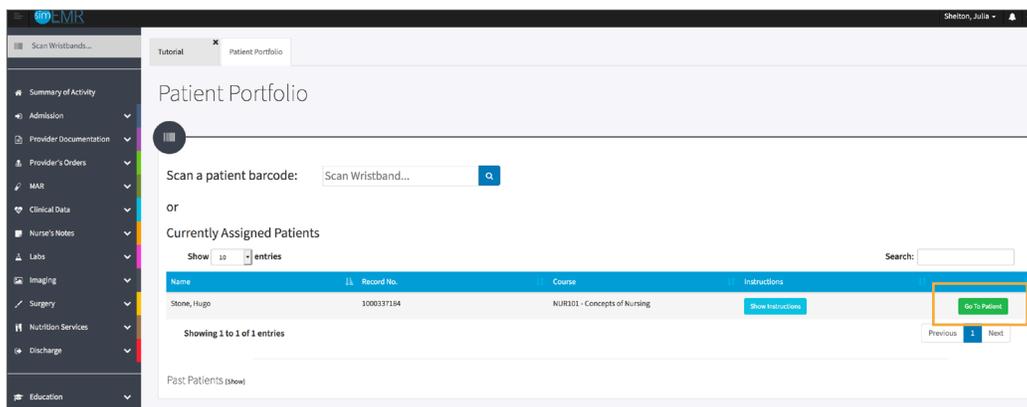
1. Open SimEMR® in a web browser.
2. At the login screen, enter your username and password. Select **[LOGIN]**.
3. If needed, review the tutorial options presented in the *Tutorial* tab.
4. Review and familiarize yourself with the tutorial options in the pop up as well as the *Tutorial* page.



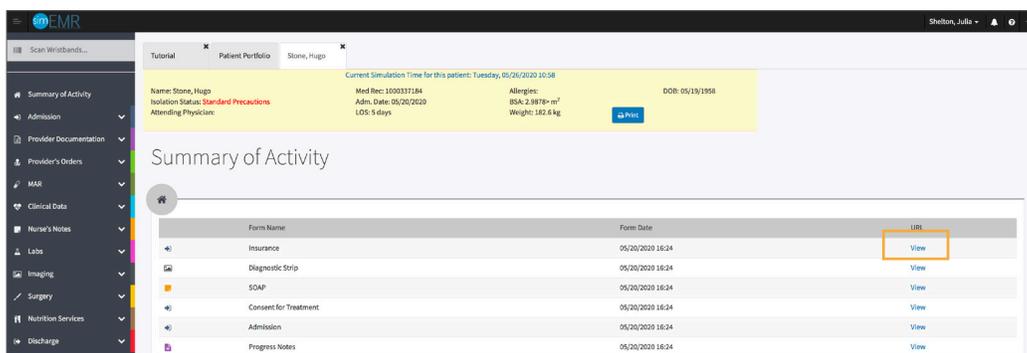
- Locate the *Patient Portfolio* tab. This will house any patient profile records assigned to you. Current assignments will be presented at the top of the page, any past completed assignments will be located at the bottom of the page for reference and review at any time.



- Locate Hugo Stone and select **[GO TO PATIENT]**.



- You will be redirected to the *Summary of Activity* page, which includes any recent changes or additions to the patient profile history. To review a new piece of data, click the **[VIEW]** hyperlink at the far right on any document listed.



8. Validate Hugo Stone is the chart you are working in.

Note that Mr. Stone is being evaluated immediately after entry to the emergency department and he does not have a full healthcare record as of yet.

9. Click **[ADMISSION]** from the left menu and then select **[ADMISSION]**. Note the other forms presented under this section.

Admission form: Contains Demographic information specific to the patient. It also includes specific information such as why the patient is seeking health care, if there are any specific infection control concerns that clinicians need to be aware of, *Allergy Information*, *In Case of Emergency*, and others. Selecting the **[SHOW]** options next to each item will open or close the information available (image below).

Insurance form: Required information related to payment of any services for care that will be needed.

Consent to Treat form: Anyone admitted to any type of healthcare facility is required by law to complete a consent document, which permits the clinicians to carry out any care needed. If the patient is unable to sign the document, a substitute can do so or this can be deferred to within 24 hours in the case of a critical issue.

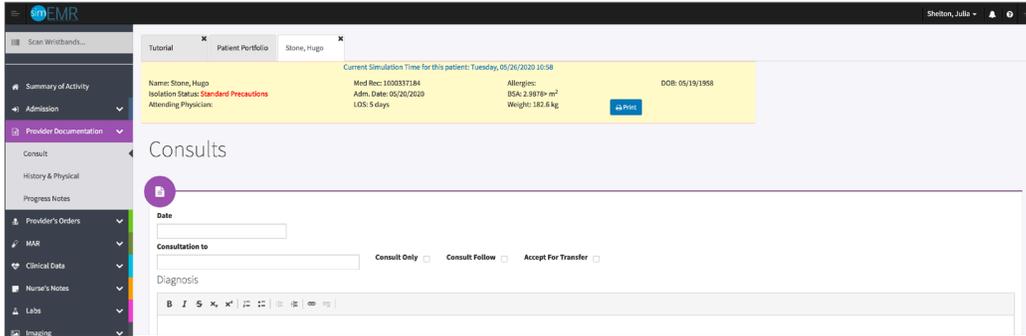
Advance Directives form: This document discusses the patient's desires if previously identified on care continuation or removal should he or she be unable to verbalize their wishes. Items such as *Living Will* questions are pertinent in this section, as well as providing the patient or family member with educational tools should more information be needed.

Admission Assessment form: This is a compilation of questions related to the patient's current and past health status, typically completed by the patient in the MD office setting or a nurse in the hospital setting as part of being admitted. It is a thorough investigation into patient complaints, medications, allergies, past medical and surgical history, social and cultural concerns.

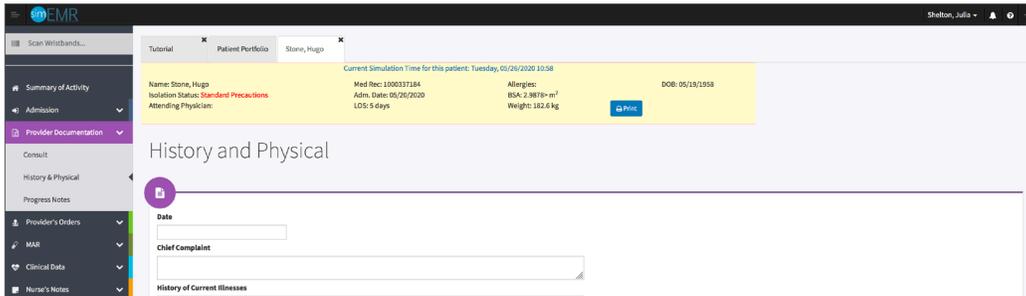
The screenshot shows the SimEMR interface for patient Hugo Stone. The left sidebar contains a navigation menu with options like 'Admission', 'Insurance', 'Consent for Treatment', 'Advance Directives', and 'Admission Assessment'. The main content area is titled 'Admission' and displays patient information: Name: Stone, Hugo; Med Rec: 1000337184; Allergies: BSA-2.8878* m²; Adm. Date: 05/20/2020; LOS: 5 days; Weight: 182.4 kg; DOB: 05/19/1958. Below this, there's a section for 'Admission Information' with fields for 'Department' (Emergency Room (ER)), 'LOS' (5 days), and 'Isolation Status' (Standard Precautions). There are also checkboxes for other isolation types like Airborne, Contact, C-DRP, ESBL, MRSA, and VRE. At the bottom, there are fields for 'ER / Admitting Physician' (J. Jones, RN-C), 'Attending Physician', 'Discharging Physician', 'Family Physician', and 'Other Physician' (Jason Miller, MD). There are also expandable sections for 'Patient Information (show)', 'Allergy Information (show)', and 'In Case Of Emergency (show)'.

10. Click **[PROVIDER DOCUMENTATION]** from the left menu and then select each form within that menu. These forms have been completed by a Physician or Physician-extender such as a Nurse Practitioner (NP) or Physician Assistant (PA).

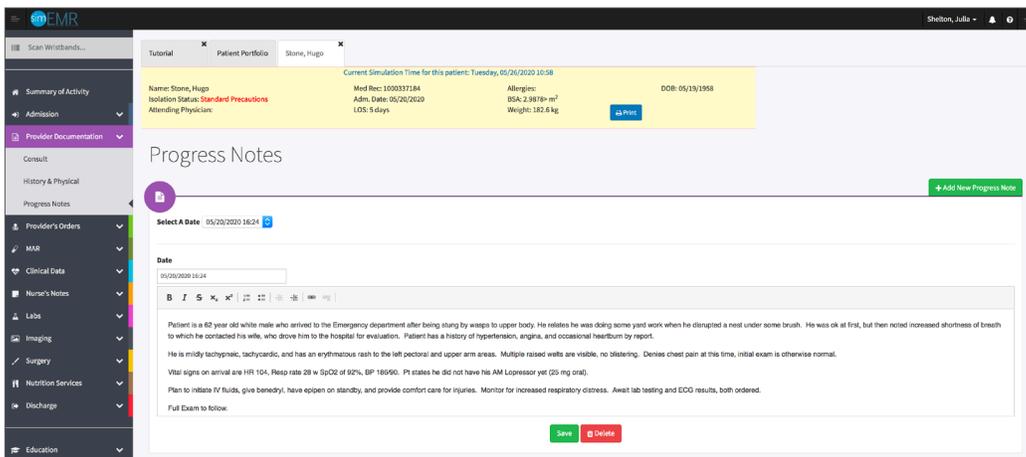
Consult form: Completed by a healthcare specialist that may not be directly involved in the patient care, but was asked to evaluate and offer treatment suggestions.



History and Physical form: A full health history created by the MD, NP or PA, which involves questioning the patient's current and past status as well as a physical exam.

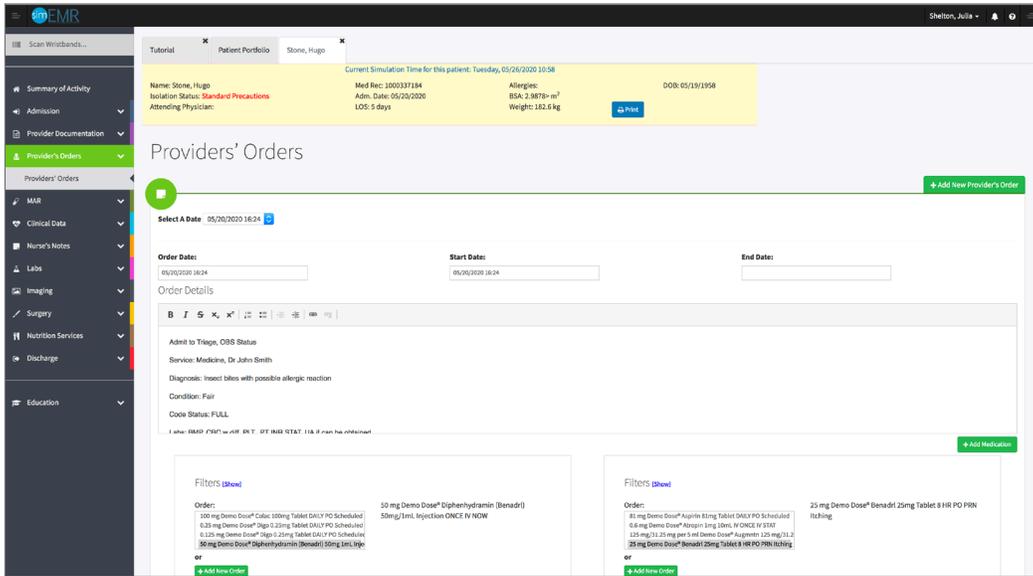


Progress Notes form: General communication document that is short in format, or can be used for daily updates as the patient care situation expands over days for ongoing communication of care and patient status.



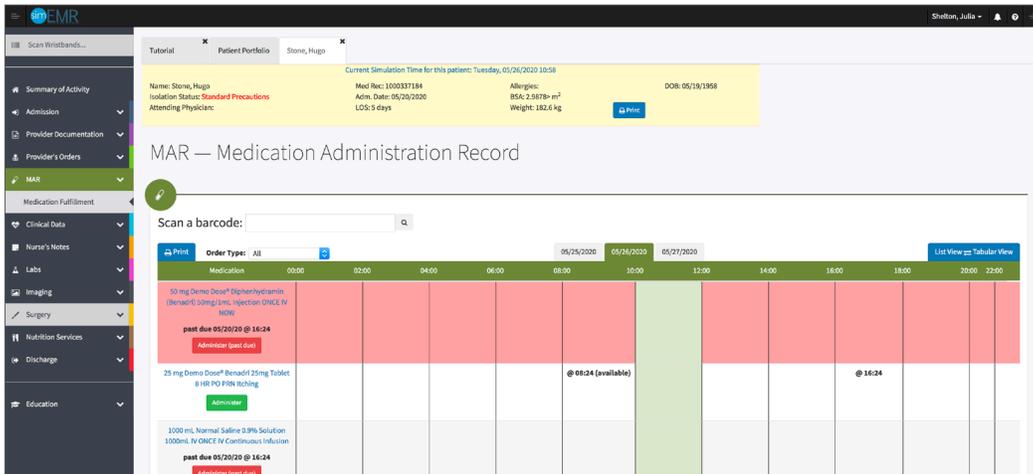
- Click **[PROVIDER'S ORDERS]** from the left menu and then select **[PROVIDERS' ORDERS]**.

Providers' Orders form: Specific care orders to be executed by other healthcare team members collaborating in the care of Mr. Stone. It includes why the patient was admitted, how often to perform a certain test, tests that are needed and medication orders. Nurses responsible for care of the patient review this information frequently during their shifts. Information can be added and validated as accurate before certain activities can proceed, in interest of patient safety.



- Click **[MAR]** from the left menu and then select **[MEDICATION FULFILLMENT]**.

MAR - Medication Administration Record form: When a MD/PA/NP add a medication order to the chart, it is added to the MAR for the nurse to provide a drug or treatment to a patient. Medication orders must be reviewed by a pharmacist and nurse for accuracy prior to the patient receiving a medication. This is a patient safety initiative.



13. Click **[CLINICAL DATA]** from the left menu and then select **[VITAL SIGNS]**.

Vital Signs form: Documentation of any measurements of the patient's physical statistics, such as *Pulse, Blood Pressure, Respirations Per Minute, Temperature, and Oximetry* (a noninvasive measurement of the patient's oxygen level in the blood stream). Any healthcare provider involved care of this patient can add new data at any time.

Vital Signs Trends: Note this is a quick reference to statistics of all measurements of the patient over time, so that providers can evaluate if the patient is doing well or not, if there was a physical change related to a therapy provided, and ease of data review.

The screenshot shows the Vital Signs form in the SimEMR interface. The left sidebar is open to 'Clinical Data' > 'Vital Signs'. The main content area displays patient information for Stone, Hugo, including Med Rec: 1000337184, Adm. Date: 05/20/2020, Allergies: BSA-2.9878 m², and Weight: 182.6 kg. The form includes fields for Date (05/20/2020 16:24), Temperature (37.8 °C), Temperature Method (Oral), Blood Pressure (186/92), Blood Pressure Method (NBP), Oxygen Saturation (95%), Oxygen Device (Room Air), and Respirations Per Minute (28). There are 'Save' and 'Delete' buttons at the bottom.

14. Click **[NURSE'S NOTES]** from the left menu and then select **[SOAP]**. There are a number of different documentation styles used in nursing. Organizations identify which formats are required of their nurses, which may be different regarding the care situation. The six forms available are a sample of many types of nursing documentation available in the clinical setting.

SOAP form: A short format note used to quickly identify the patient problem, provide physical assessment information obtained, to prepare a plan of care for this specific patient.

The screenshot shows the SOAP form in the SimEMR interface. The left sidebar is open to 'Nurse's Notes' > 'SOAP'. The main content area displays patient information for Stone, Hugo. The form includes a 'Subjective' section with the text: "I got stung by some wasps!" and an 'Objective' section with the text: "Patient arrived to ED with wife, ambulated into department. States was doing yardwork and accidentally dug into a wasp nest, when he was swarmed by several wasps. Received sting bites to upper left torso and arm. He retreated quickly, and within 30 minutes started noting a deep red rash and several itchy welts developing on his upper left arm and chest. He then started to become short of breath and summoned his wife to assist him. Patient is in mild respiratory distress, slightly diaphoretic, hypertensive and tachycardic. He noted he did not take his AM Lypressor dose yet."

15. Click **[LABS]** from the left menu and then select **[LABS]**. Mr. Stone has had lab tests and some of the results are available for the care team review.

Labs form: This is where all laboratory data obtained from the patient via blood or other body fluid sampling is located. There can be several pages of lab forms based on the testing required by the MD/NP/PA. These tests help guide the care team to changes in therapy that may be needed and if the patient is responding accordingly to treatments.

Reference ranges for normal values are provided for. It is important for common lab references to be memorized, so when a test result is not “normal” it can be quickly acted upon.

Lab Trends: Note this is an area in which a clinician can compare lab data over time.

Chemistry

HgA1C:		4.2% - 5.7%
Sodium:	139	135 mEq/L - 142 mEq/L
Potassium:	4.3	3.5 mEq/L - 5 mEq/L
Chloride:	100	95 mEq/L - 105 mEq/L
BUN:	11.1	8 mg/dL - 21 mg/dL
Creatinine:	1.2	0.6 mg/dL - 1.3 mg/dL
Glucose:	196	70 mg/dL - 105 mg/dL
Magnesium:	2	1.5 mg/dL - 2.4 mg/dL
Phosphorus:	3.2	3 mg/dL - 4.5 mg/dL

Chemistry

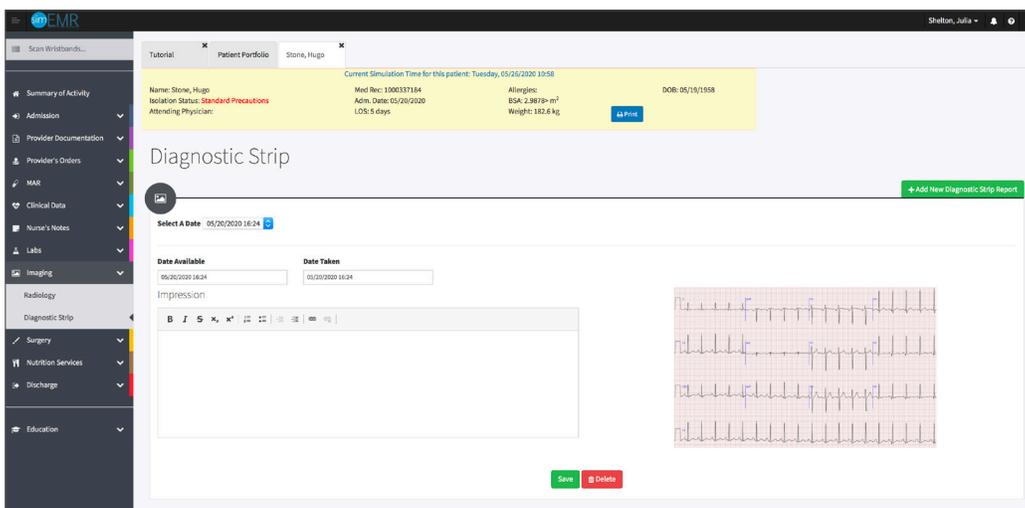
	Date:	05/20/2020 16:24	05/20/2020 16:24	05/20/2020 16:24
WCO2:	27mEq/L	-	-	-
Sodium:	139mEq/L	-	-	-
Magnesium:	2mg/dL	-	-	-
Calcium:	9mg/dL	-	-	-
Creatinine:	1.2mg/dL	-	-	-
Phosphorus:	3.2mg/dL	-	-	-
HgA1C:	%	-	-	-
Glucose:	196mg/dL	-	-	-
Potassium:	4.2mEq/L	-	-	-

16. Click **[IMAGING]** from the left menu and then select **[DIAGNOSTIC STRIP]**. The Imaging section includes report files to help with the care and diagnosis.

Diagnostic Strip report: Includes Electrocardiograms (ECG's) heart rhythm monitor strips, fetal monitor strips in the case of a pregnant mom, and other types of monitoring tests.

Mr. Stone has a history of heart problems, so an ECG was performed and is available on the for review. The *Impression* field is where a certified professional provides the results of what is seen in the image (in this case a cardiologist will review Mr. Stone's ECG and provide results).

Radiology report: Note this is where tests like X-rays, ultrasounds, and MRI's will be located.



The screenshot shows the SimEMR interface for patient Hugo Stone. The left sidebar contains a navigation menu with categories like Summary of Activity, Admission, Provider Documentation, Provider's Orders, MAR, Clinical Data, Nurse's Notes, Labs, Imaging, Radiology, Diagnostic Strip, Surgery, Nutrition Services, Discharge, and Education. The main content area is titled 'Diagnostic Strip' and includes a patient information header with details like Name (Stone, Hugo), Med Rec (100337184), Allergies, DOB (05/19/1958), and a 'Print' button. Below this, there are fields for 'Date Available' and 'Date Taken', both set to 05/20/2020 16:24. A large text area for 'Impression' is present, along with a grid of ECG waveforms. At the bottom of the form are 'Save' and 'Delete' buttons.

17. Review the other form sections (these do not pertain to Mr. Stone today as he just entered the healthcare facility).

Surgery forms: Any procedures or operational reports are located here, in addition to the consent for surgery and anesthesia forms.

Nutrition Services form: Information regarding the patient's nutrition status. Nutritionists, or Dietary Care practitioners document on this form, but it is helpful for all care providers to review to understand physical limitations that may be assisted by a nutrition expert.

Discharge form: Includes any medications, special wound care, follow-up testing or return visits. This form is completed by nurses as part of the patient's discharge instructions when being released from the hospital.

18. Close the patient chart by clicking the X on the *Hugo Stone* tab.
19. Logout by locating the dropdown with your name at the top right of the page, select *Sign Out*.

Patient Kit Addendum

HUGO STONE

Name: Hugo Stone **DOB:** 5/19/1958 **Gender:** M_x F__ **Age:** 62
Race: Caucasian **Weight:** 69 kg/137 lbs **Height:** 165 cm/5'5"
Religion: Catholic **CODE STATUS:** **Advance Directive:** Y__ N__
Major Support: Mary, wife **Phone:** 814-555-1212 **Isolation Status:** Std Precautions

Allergies & Reactions: None Known

Immunizations: Tetanus booster, 1985

Attending Physician/Team: Cardiologist: Jason Miller, MD

Primary Diagnosis: Insect stings with possible allergic reaction

History of Present Illness: Pt doing yard work at his home, disrupted a wasp nest accidentally and was stung multiple times to upper body. Initially no sequelae but noted reddened rash within 30-45 minutes and began having shortness of breath. Called to his wife for assistance.

PMH: Hypertension, Angina Pectoris, "heartburn sometimes that I take Pepcid for"

Surgeries/Procedures: NONE

Social History: Married to wife Mary Stone for 35 years, 3 children not living in the home. Denies tobacco use, but former heavy cigar smoker. Rare social alcohol use admitted, denies drug use other than those prescribed. Couple live in 2 story home in local area.

Data: Blood pressure: 168/92, Heart Rate: 104, Respirations: 28, Temp: 37.8° C

Review of Systems:

CNS: PERRLA, follows commands. Denies visual or auditory changes recently. No fall history. Ambulation not tested but patient walked into triage on his own. Hand grasps and pedal pushes = in strength. Admits to some occasional elbow pain due to arthritis.

Cardiovascular: Regular rate and rhythm, no murmurs, rubs or gallops on auscultation. Tachycardia noted. Peripheral pulses equal throughout and full. No edema noted. Denies chest pain prior to event or current. Skin is erythematous to upper torso and arms, non-blistered. Mild diaphoresis noted.

Pulmonary: Lungs clear to auscultation with few inspiratory wheezes, no oxygen in use presently. Mild tachypnea noted. States occasionally difficulty to get full inspiration since event. SpO2 91+ %. 2 Liters nasal cannula applied.

Gastrointestinal: Abdomen flat, soft. Normoactive bowel sounds noted in all quads. Denies N/V/C/D. Denies difficulty with meals, but admits to post-prandial upper GI discomfort. Relieved with Pepcid OTC, prn.

Hepato/Renal: States voids without difficulty

Endocrine: No history of diabetes or thyroid issues

Hematologic: Non-contributory

Musculoskeletal: Hand grasps = and full strength, dorsi-plantar flexation is equal and full.

Integumentary: Dry skin, otherwise intact, Capillary refill WNL

Developmental: N/A, well developed male, behavior is appropriate to situation

Psychological: Noncontributory at present, pt in mild distress due to low-level insect bite reaction

Current Medications:

Patient verbalized medications

Medication (Generic/Trade)	Dose Available	Dose Ordered	Route	Frequency	Parameters/ Instructions	Provider Ordering
Metoprolol (LOPRESSOR)	25 mg	same	PO	2x Daily		Miller
Famotidine (PEPCID)	10 mg	OTC	PO	As Needed	When heartburn happens	Self
Nitroglycerine Patch (NitroDUR o.3%)	1 patch		TOP	Daily	Change at Night	Miller

Laboratory Values, Radiology, or Diagnostic Testing:

Arterial Blood Gas	Chemistry	Chemistry	Hematology	Microbiology	Toxicology
pH:	Na:	AST:	WBC:	Blood C/S:	Dig:
paO2:	K:	ALT:	Hgb:	Urine C/S	ETOH:
pcO2:	Cl:	Amylase:	Hct:	Sput C/S	Opioids:
HCO3:	Co2:	Lipase:	Platelets:	VRE:	Coc:
BE/D:	BUN:	Tot Prot:	ESR:	MRSA:	Amph/Meth:
Lactate:	Cr:	Albumin:	Other:	C-Diff:	PCP;
PA Sat:	Ca:	LDL:		GNR:	THC:
Coagulation	Mg:	HDL:	Other Tests	MDRO:	Lidocaine:
PT:	Phos:	Trig:	CBS:	VDRL:	MetHgb:
PTT:	Gluc:	CPK total:		GBS:	
INR:	HgA1C:	CPK MB:			
d-Dimer	Lactate:	Troponin:			

CXR:

CT/MRI:

US:

EEG:

ECG: Pending Order

Other:

SimEMR® Forms

Below contains an explanation of how the patient is entered into SimEMR®, as well as the reasoning behind each of the patient forms created as a part of that process.

LAB TIP



Simulation Start is the time the student first begins the encounter. This notation is part of SimEMR's innovative SimTime™ system. *Simulation Start* will be replaced in the patient's chart by whatever time the encounter begins, and all other dates are described relative to that time. For example, if an encounter begins 04/15/2017 at 13:00, an event with a time of 1 day before simulation start would display a date of 04/14/2017.

At Simulation Start

Purpose: All activities are designed to allow the learner to evaluate initial findings

Insurance

Description: All insurance information is documented including the patient name, address, employer and employer phone

Diagnostic Strip

Description: A Diagnostic Strip report is available

SOAP

Description: All *Subjective, Objective, Assessment, and Plan* fields are complete

Consent for Treatment

Description: Shows the patient and witness have signed the form

Admission

Description: Info selected include *Standard Precautions* check box under Isolation Status, the admitting physicians and diagnosis (*Insect stings w. possible allergic reaction*), as well as *Patient Information*

Progress Notes

Description: The patient's status is documented

Provider's Orders

Description: Order for 50 mg Demo Dose® Diphenhydramin (Benadr) 50mg/1mL Injection ONCE IV NOW, 25 mg Demo Dose® Benadr 25mg Tablet 8 HR PO PRN Itching, 1000 mL Normal Saline 0.9% Solution 1000mL IV ONCE IV Continuous Infusion

Labs

Description: Chemistry, Hematology, and Coagulation labs were all documented

Vital Signs

Description: Vital inputs for include *Temperature (37.8° C), Temperature Method (Oral), Blood Pressure (186/92), Blood Pressure Method (NIBP), Pulse (104), Pulse Location (Radial), Oxygen Saturation (91), Oxygen Device (Room Air), Respirations per Minute (28)*