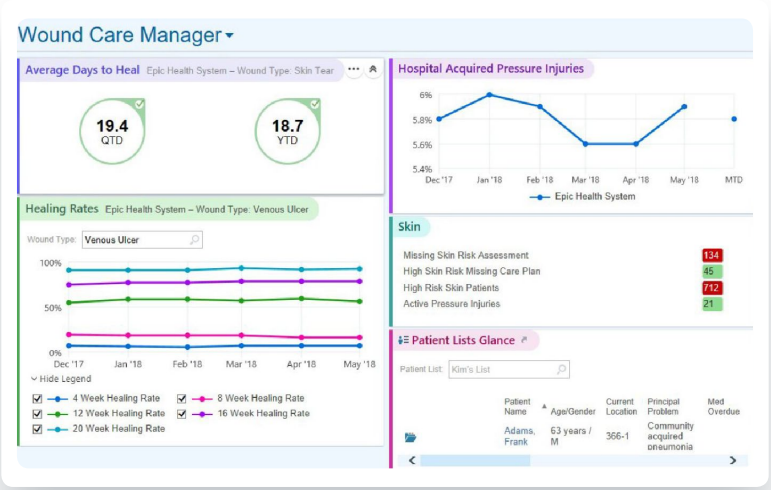
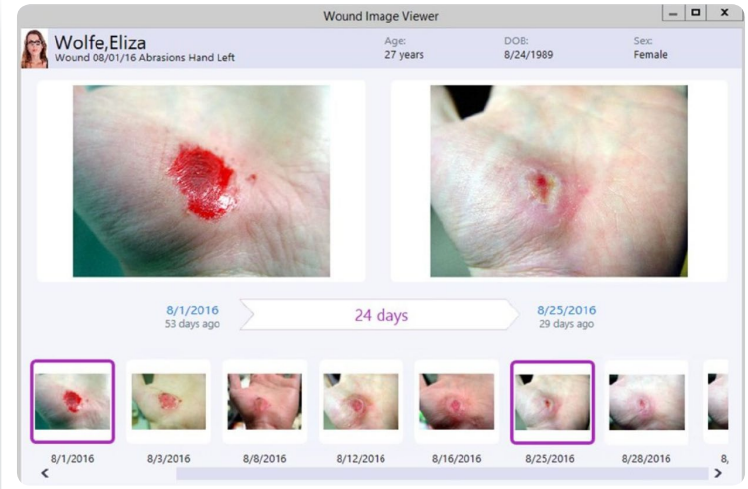
CURRENT STATE OF EPIC WOUND CARE

Patients with wounds are unique and the care provided for those patients is unique as well. Using current tools within Epic, you are able to piece together a wound care workflow for your patients. Unfortunately, this piecemealed workflow comes at the expense of accuracy, objectivity, and efficiency.

Epic's current paradigm for wound care documentation combines the use of Epic's mobile applications, Haiku, Canto, and/or Rover, with manual wound measurements and observations. This specifically requires clinicians to capture photos of patients' wounds using the mobile





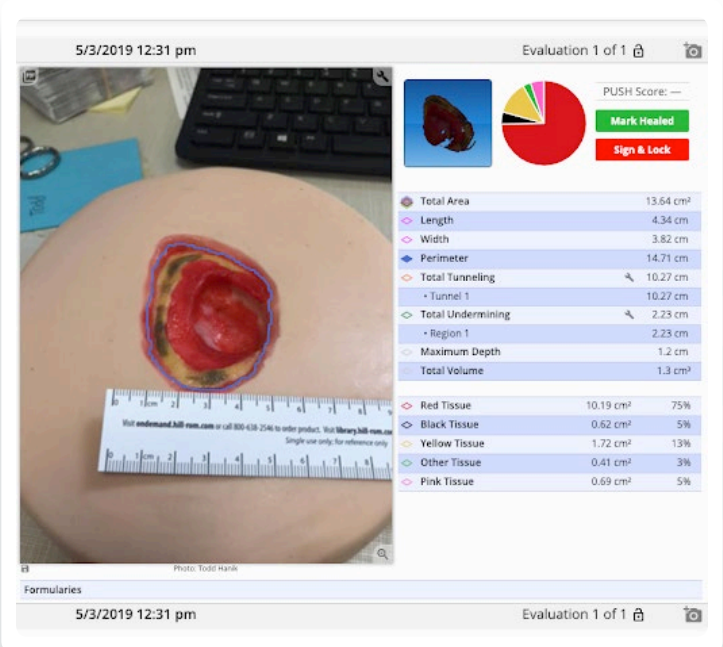
application at the point of care, manually measuring the wounds, and taking visual observations.

Observations and measurements can be recorded on the mobile devices, from where they will be sent into wound's lines, drains, and airways (LDA) flowsheet as an assessment. Observations and measurements can also be recorded in LDA flowsheets at a later time. A physician note template for the wound assessment will be generated based on the documentation in the assessment rows and the presence of the wound images.

Following, measurements and visual observations are recorded on scratch paper at the bedside. Manual measurements have shown to have a 44% rate of error and fail to measure the surface area, volume and perimeter of wounds. Proceeding, the data is manually transcribed into flowsheets and uploaded into Epic's Wound Care Manager.

The Wound Care Manager compiles ruler-measured data and displays healing rates over time. Additionally, Epic's program tracks average days to heal and provides patient information. In Epic's Wound Image Viewer, providers can view wounds over time; however, Epic's software cannot automatically or precisely calculate wound measurements.

Since Epic's current wound documentation strategy requires at least 5 to 10 minutes per patient, nurses spend at least 2.5 hours hours documenting rather than treating wounds. In a study of 22 distinct quad of wound measurements at Lancaster General Hospital that compared Tissue Analytics (TA) and ruler-based measurements, TA's software improved measurement accuracy by 5 to 10% compared to a ruler. Moreover, TA area measurements had an 18% improved consistency compared to human measurements. As a comprehensive tool, Epic's wound documentation process lacks objectivity, efficiency, and accuracy.



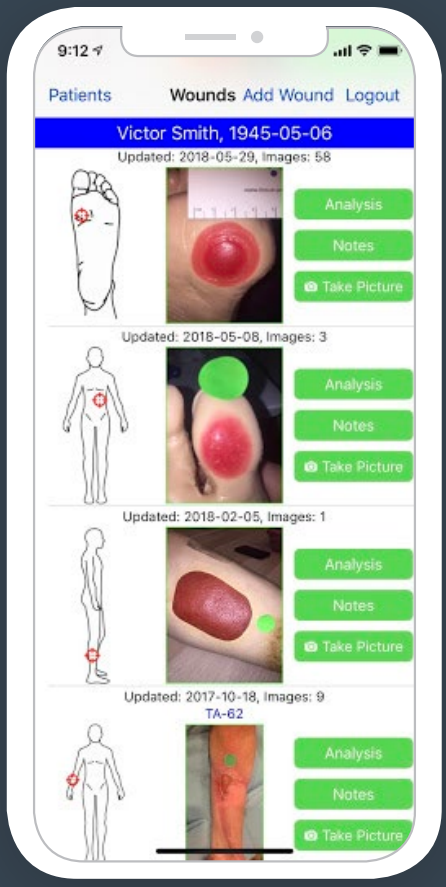
TISSUEANALYTICS

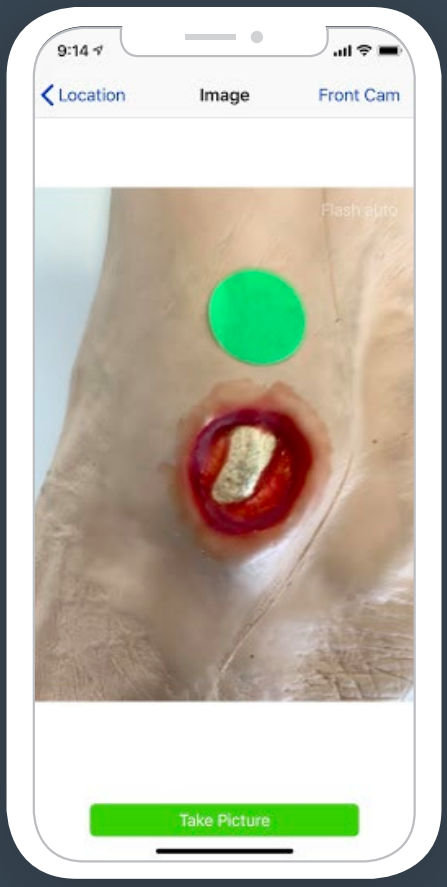
TISSUE ANALYTICS' PLATFORM

Tissue Analytics (TA) transforms the smartphone into a sophisticated platform for imaging and remotely evaluating chronic wounds. Hospital-acquired pressure injuries (HAPIs) affect more than 2.5 million people in the U.S. The cost of treating a single full-thickness pressure injury can be as high as $70,000, admitting the patient for an average of 8 to 9 more days. These costs barely accounts for the HAPI-related litigation, which averages at $250,000 per case.

TA automatically analyzes these images and sends them to a secure web application embedded in Epic's EMR using state-of-the-art integration frameworks. In addition to automatically measuring the wound's size and volume, Tissue Analytics provides tissue composition ratios. TA also automatically pulls a list of patients into its application from Epic and sends discrete wound data and images into patients' charts through its industry-leading integration. TA's use of Amazon Web Services' healthcare-grade cloud computing system preserves patient privacy according to HIPAA's standards.

By seamlessly integrating into the EMR, Tissue Analytics allows non-wound care specialists to promptly check for pressure injuries within 24 hours of admission, allowing doctors to track and treat pressure


9:12
Patients
Wounds
Add Wound
Logout
Victor Smith, 1945-05-06
Updated: 2018-05-29, Images: 58
Analysis
Notes
Take Picture
Updated: 2018-05-08, Images: 3
Analysis
Notes
Take Picture
Updated: 2018-02-05, Images: 1
Analysis
Notes
Take Picture
Updated: 2017-10-18, Images: 9
TA-62
Analysis
Notes
Take Picture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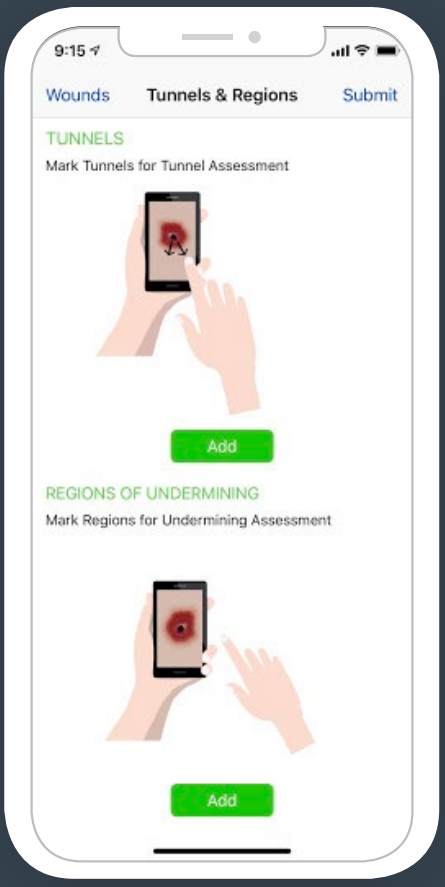
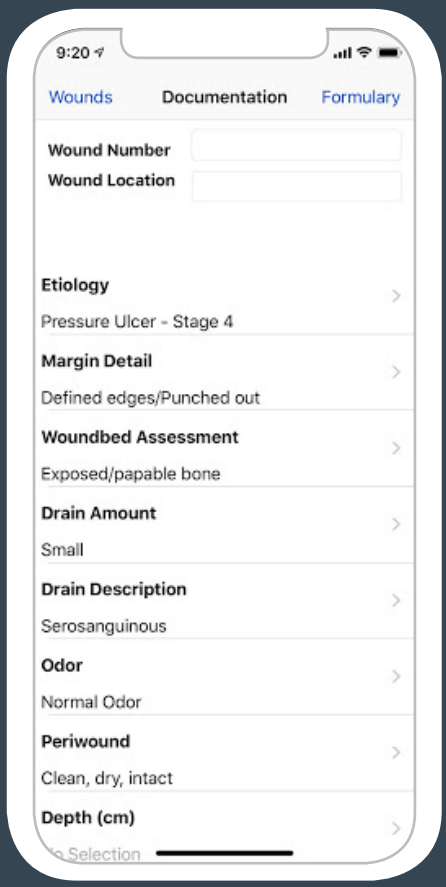
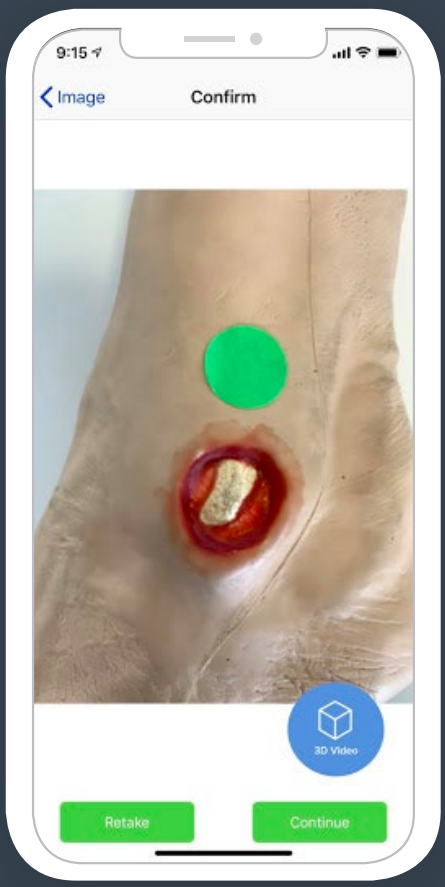
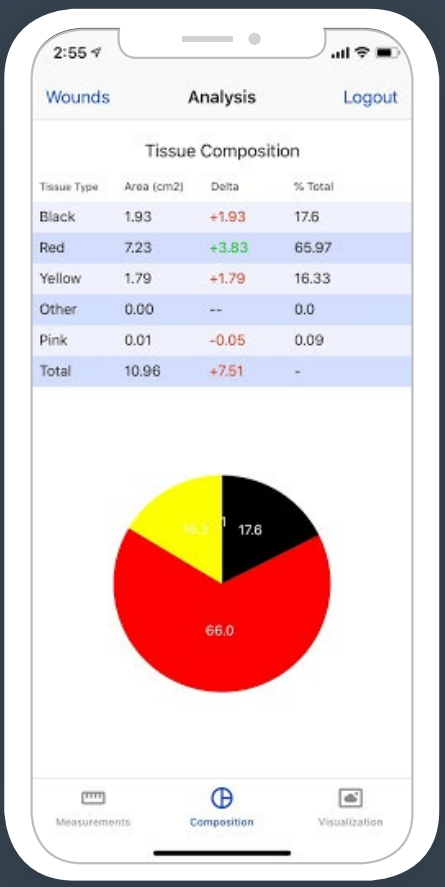
Location
Image
Front Cam
Flash auto
Take Picture


9:15
Wounds
Tunnels & Regions
Submit
TUNNELS
Mark Tunnels for Tunnel Assessment
Add
REGIONS OF UNDERMINING
Mark Regions for Undermining Assessment
Add


9:20
Wounds
Documentation
Formulary
Wound Number
Wound Location
Etiology
Pressure Ulcer - Stage 4
Margin Detail
Defined edges/Punched out
Woundbed Assessment
Exposed/papable bone
Drain Amount
Small
Drain Description
Serosanguinous
Odor
Normal Odor
Periwound
Clean, dry, intact
Depth (cm)


9:15
Image
Confirm
3D Video
Retake
Continue


2:55
Wounds
Analysis
Logout
Tissue Composition
Tissue Type
Area (cm2)
Delta
% Total
Black 1.93 +1.93 17.6
Red 7.23 +3.83 65.97
Yellow 1.79 +1.79 16.33
Other 0.00 -- 0.0
Pink 0.01 -0.05 0.09
Total 10.96 +7.51 -
17.6
66.0
Measurements
Composition
Visualization

injuries sooner. By documenting pressure injuries within the 24-hour window, hospitals avoid HAPI-litigation and will be reimbursed from the Center for Medicaid and Medicare Services (CMS) for HAPI treatments . Some courts regard HAPIs as elder abuse and award judgements of over $10 million.

Through rapid and comprehensive documentation, hospitals can reduce their overall HAPI rates. Since pressure injuries fall under the CMS's Hospital-Acquired Conditions (HAC) Reduction Program, all hospitals with a total HAC score in the bottom quartile face reduced payments by 1% of the total hospital claims to CMS.

Through implementing a standard wound documentation system through Tissue Analytics, health networks gain access to an AI-based wound measurement system and standardized wound documentation across their entire health system. Using SMART on FHIR integration technology and an experienced team of API developers and project managers, Tissue Analytics is able to significantly reduce the time from contract signature to go-live.

THE BENEFITS OF TISSUE ANALYTICS AND EPIC'S INTEGRATION

Tissue Analytics (TA) is a developer partner of Epic through the App Orchard (AO). The AO allows TA to provide a turnkey integration for customers on Epic Hyperspace (2015 or greater). Tissue Analytics' customized wound care workflow installs seamlessly into the current EMR while being optimized for the wound care team. Patient demographic and department information is pulled into TA from Epic using a FHIR-based priming strategy, which allows patient demographic information to transfer into TA from a single click inside Hyperspace. This priming strategy, which is based on an OAuth handshake, also allows TA to pull user information into its application such that no manual user setup is required. TA is able to write discrete wound documentation back to flowsheets (or power forms) in Epic using AO web services. TA can write image data back to media manager using Open Epic web services. TA can also embed its web

PARTNERSHIP PROGRAM

TA is a developer partner with Epic through the App Orchard. This gives TA access to custom FHIR APIs and web services that can perform read and write services to allow for a seamless, end-to-end integration with Epic. For more information on the App Orchard, see: https://apporchard.epic.com/. For information on TA's involvement in the program, visit https://apporchard.epic.com/Gallery?id=53

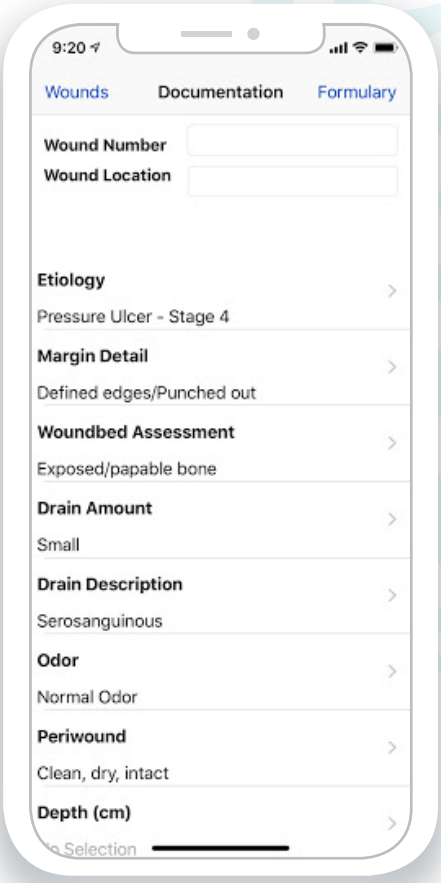
application directly in the patient's chart in Hyperspace as a sidebar. Finally, coming in May 2019, TA will be able to read wound data from and write wound data to the Lines, Drains and Airways (LDA) form for customers that use the LDA for wound documentation.

INBOUND PATIENT DEMOGRAPHIC DATA

The first step permission to in the TA-integrated Epic workflow is to "prime" a patient. Once a clinician has permission to use TA at their facility; the clinician simply needs to click on an embedded UI element within Epic. This will initiate an "OAuth Handshake" between Epic and TA, and will bring the patient demographic information (name, date, MRN and account number) into the TA application back-end. From here, users can interact with the patient information directly in the TA mobile application. Ta will also bring user information into its application so that, after an end user primes their first patient, they have credentials to log into TA's mobile application without manual setup.

OUTBOUND WOUND DOCUMENTATION

Once the clinician completes the mobile workflow, the data is sent to TA's cloud where wound images are analyzed and wound measurements are aggregated with other wound metadata. TA will insert this data into web objects and send it to the client using TCP IP over VPN. Specifically, TA will utilize the AddFlowsheetData call made available through the AO to perform this action. The client clinical resources will need to decide on which discrete items they would like to document through TA. For more information on this, see the client requirements section. At the same time, TA is able to use the scanned Doclink web service to post image data in JPEG format to media manager (the media tab). TA can use metadata about the wound to link image data to wound discrete data. TA will also use SMART on FHIR tools to embed its web application in Hyperspace. Clinicians can launch the web application, which presents a detailed view of the patient's wounds, by clicking on a UI element embed- ded in Hyperspace. In May 2019, TA will be able to utilize new FHIR APIs, based on the FHIR observation write object, to read discrete wound data from the LDA and write discrete wound data to the LDA. This integration will be TA's most streamlined.



TISSUEANALYTICS

TISSUE ANALYTICS AND EPIC FEATURE COMPARISON

Feature	Advantage	Explanation	Epic Current Wound Doc.	Tissue Analytics Platform
Automated Photo Capture with Measurements	Consistent/ accurate wound documentation.	Automation increases speed of wound care by 57%. Objective, automated measurements result in 34% more precise wound calculations and an avatar associated with wound location.	No	Yes in EPIC 2015
Scalable Wound-Tracking Module	Span the care continuum, allowing continuity of care throughout the health system.	Our work with large clients has been proven, making implementation and go-live easier to rollout to entire health system.	No	Yes in EPIC 2015
HIPAA Compliant	Patient information will NOT be shared with anyone beside a licensed user.	Patient data is safe. TA uses Amazon Web Services (AWS) for a healthcare-grade cloud computing system.	Yes	Yes in EPIC 2015
Customizable Workflow	Workflows and views can be customized for end-users to only view applicable patient metrics.	Clinicians can customize views based on users to enhance the rate of wound care. This allows for more actionable tasks to be completed for specific roles.	Yes	Yes in EPIC 2015

Feature	Advantage	Explanation	Epic Current Wound Doc.	Tissue Analytics Platform
Advanced Clinical Decision Support	Allows floor nurse to provide more timely care in a controlled environment.	This support improves patient outcomes with a sophisticated approach to wound care. It allows for point-of-care education and additional care training for nurses.	No	Yes in EPIC 2015
Automated Generation of Wound Healing Summaries	Allows clinicians/ admin to benchmark themselves to view what care curates the best practices.	Aggregates all data input into the system and shows a clean report of all metrics entered. Saves time from manual data.	Yes	Yes in EPIC 2015
Product Efficacy Report	Allows administrators to view what treatments/ products result in higher healing rates.	Automates the process for tracking product usage, resulting in time saved for manual reports and possible decreases in product usage from a high level reporting view.	Yes	Yes
Perimeter Change Rate Report	Quickly shows clinicians if a wound has begun healing.	In wound care, it is challenging to see if a wound has healed based off the naked eye. The automated analysis reports the wound's rate of change.	Yes	Yes
Integration into LDA	No latency of wound metric uploads. Error rate reduced with automation. Stored in centralized location.	All information flows into Epic directly from phone/ tablet. Data is uploaded automatically. Real-time insights to better manage wound care population.	Yes	Yes in Epic May 2019

Feature	Advantage	Explanation	Epic Current Wound Doc.	Tissue Analytics Platform
FHIR Integration	Longitudinal wounds showcase to clinicians to view trends directly into Epic.	Allows the TA portal to be embedded inside of Epic, showing trends in wounds - all while staying INSIDE the core EMR.	N/A	Yes in Epic 2015
24/7/365 Support	Clinicians can focus on clinically-relevant tasks, rather than wait on hold to log a ticket.	Our support team provides unparalleled support to all clients, in any care continuum.	Yes	Yes in Epic 2015
Patient-Facing Application	Allows patients to download a condensed application to be remotely monitored. Results in readmission rates due to pressure injury.	Rather than clinicians spending hours in a car to get to patient homes, the patient can download the TA app and be remotely monitored. Increase patient satisfaction scores, sets a new gold standard of wound care.	No	Yes in Epic 2015

Feature	Advantage	Explanation	Epic Current Wound Doc.	Tissue Analytics Platform
Avatar in LDA	The avatar provides easy visualizations of wound locations on a patient's body.	Wound care specialists can document wounds on an avatar that also shows the patients lines, drains, and airways. The visual representation of the body helps clinicians quickly see where a patient's wounds and are located, making it easier for them to select the one they want to review or document on. When clinicians select wounds, they can visualize how it is healing by interacting with a graph that shows trends in the wound dimensions alongside the treatments and procedures for the wound.	Yes in Epic 2018	No
File Flowsheet Data with Voice Recognition	Dictation allows clinicians to document on wounds through Rover.	To make it easier for wound care clinicians to document on wounds, clinicians can dictate flowsheet data into Rover on their mobile device. This feature requires an additional Nuance license, as well as some flowsheet setup.	Yes in Epic 2018	No

Feature	Advantage	Explanation	Epic Current Wound Doc.	Tissue Analytics Platform
Associate Wounds with Orders	Promotes convenience in billing and ordering within the hospital.	Providers can associate a patient's wounds with wound-related orders, such as debridement procedures, dressings, wound healing creams, and wound consult orders. Wound care clinicians reviewing a patient's wounds can then track the full treatment history for a wound to more easily see which treatments or procedures improved wound healing.	Yes	No
Wound Care Manager Dashboard	The Wound Care Manager visualizes wound trends and compares results to other Epic locations.	Wound care managers or providers to see trends in the wound care metrics that they care about on a Radar dashboard, such as healing rates, days to heal, or risk of pressure injuries. They can drill down to see how their location compares to others or drill into reports that you configure, such as a report showing patients who are overdue for skin reassessments or who had wounds present on admission.	Yes	No
Communicate with Colleagues through Secure Text	Provides secure communication.	Secure text lets users have conversations with a single recipient or with a group of colleagues securely on a mobile device using Haiku, Canto or Rover.	Yes in Epic 2018	No

Feature	Advantage	Explanation	Epic Current Wound Doc.	Tissue Analytics Platform
Wound Image Viewer	View images of wounds over time.	The wound image viewer allows provider to compare images of wounds that are taken over a period of time and see how the wound progresses.	Yes in Epic 2017	Yes in Epic 2015
Flowsheet Dictation in Rover	Easily dictate patient data.	Clinicians can voice dictate into Rover and data will populate over LDA	Yes in Epic 2018	No