

CliniComp | EHR Waves Application and ECG Tools Bring Nursing Workflow to New Levels of Efficiency and Value: A Case Study

LEXINGTON VA MEDICAL CENTER, LEXINGTON, KENTUCKY

of Inpatient Surgeries.....1,915

Annual inpatient admission.....5,788

Staffed beds.....199

Number of Veterans in Primary Service Area.....89,000

CliniComp's Critical Care solution installed. Customer since September 2018.

ROBLEY REX VA MEDICAL CENTER, LOUISVILLE, KENTUCKY

of Inpatient Surgeries.....1,116

Annual inpatient admission.....6,226

Staffed beds.....109

Number of Veterans in Primary Service Area.....57,446

CliniComp's Critical Care solution installed. Customer since September 2018.



Lexington VA Medical Center

The electrocardiogram (ECG) remains an important diagnostic tool to evaluate patients with cardiovascular disease giving nurses and physicians the ability to continuously observe and report on the electrical activity of a person's heart, supporting the management of cardiovascular disease. This is a standard of care for patients who are at risk for arrhythmias and other cardiac issues in acute, perioperative, and emergency units.

CliniComp debuted its enhanced **CliniComp | EHR Waves application** in 2020. The interoperable monitoring software integrates with hundreds of medical devices and offers convenient tools for seamlessly capturing, analyzing, and documenting cardiac rhythm along with capturing invasive blood pressure monitoring waveforms (graphic representations) in the patient chart. These tools contribute to a comprehensive electronic record of the patient's cardiac status.

This case study describes how two Veterans Affairs (VA) medical centers are using CliniComp's advanced ECG tools to streamline nursing documentation and improve workflow efficiencies. Within a few short weeks of adoption, the tools have proven significant to improving the accuracy and timeliness of cardiac rhythm data saved to a patient's health record.

Lexington VA Health Care System Decreases Time and Improves Efficiencies in Nursing Workflow

The **Lexington VA Health Care System** in Lexington, Kentucky is one of CliniComp's early adopters of the latest software release of the CliniComp | EHR Waves application and ECG tools in the ICU. The health system requires its critical care nurses to document the patient's cardiac rhythm, including intervals and rhythm interpretation. Physicians review the ECG rhythm and analysis to determine the patient's plan of treatment.

Previous nursing workflow managing ECG monitoring

Sarah Kearns Barker, MSN, RN PCS, Nursing Informatics/BCMA-C, Lexington VA, described the clinical workflow prior to the CliniComp | EHR implementation which included viewing cardiac rhythms from two separate monitors – one placed at the bedside and the other at the central monitoring station – neither of which was connected to the medical center's VistA EHR system. Barker summarized the prior nursing workflow in three steps:

1. A critical care nurse would analyze the patient's rhythm at the first monitor and then physically move to the second monitor to repeat the step.
2. The nurse would print the waveform strip and manually document their interpretation or analysis onto a piece of paper; however, the nurse's documentation work wasn't finished by a long shot.
3. The nurse would then duplicate the same workflow process by
 - a) typing their ECG documentation work that includes rhythm interpretation and interval measurement into the computer and
 - b) saving the information as a PDF to upload to the EHR application.

"The nursing workflow from beginning to end was the hardest part of the job," stated Barker. "The nurses were frustrated at repeating that type of complex workflow having to go back and forth between two monitors. What's more, the small size of the two monitor screens made measuring the waveforms with an electronic caliper nearly impossible."

New nursing workflow enabled with CliniComp ECG monitoring technologies

The Lexington VA Health Care System implemented the CliniComp | EHR Waves application and ECG tools in June 2020. The CliniComp | EHR Waves application, including its eCalipers tool, interfaced with the health care system's Philips bedside monitoring providing clinicians the ability to analyze, interpret, annotate and store the waveform data directly in the CliniComp | EHR software. Every patient's stored ECG data is accessible for viewing at any time in the EHR.

Stored ECG Measurements	
Rhythm	Start Time
Normal Sinus R...	03:59:48 28 Aug
Sinus Tachycardia	23:59:48 27 Aug
Sinus Tachycardia	20:00:12 27 Aug
Sinus Tachycardia	03:59:48 27 Aug
Sinus Tachycardia	00:00:36 27 Aug
Sinus Tachycardia	19:59:48 26 Aug
Normal Sinus R...	16:00:35 26 Aug
Normal Sinus R...	12:00:30 26 Aug
Normal Sinus R...	08:00:18 26 Aug
Normal Sinus R...	04:43:35 26 Aug

"Nurses in the ICU credit CliniComp for eliminating the duplicate workload and significantly improving job satisfaction. The CliniComp | EHR Waves application and ECG tools saved nurses working a 12-hour shift an average of 15 to 20 minutes per monitored patient."

SARAH KEARNS BARKER, MSN, RN PCS | NURSING INFORMATICS/BCMA-C | LEXINGTON VA

“The less time nurses have to spend in front of a monitor or computer, the more time they can spend in direct patient care. The feedback was overwhelmingly positive. Nurses described the CliniComp tools as user friendly and easy to use. The solution provided lots of options on how to measure ECG waveforms, and I believe that unique feature was much appreciated.”

SARAH KEARNS BARKER, MSN, RN PCS | NURSING INFORMATICS/BCMA-C | LEXINGTON VA

Nurses in the ICU credit CliniComp for eliminating the duplicate workload and significantly improving job satisfaction. The CliniComp | EHR Waves application and ECG tools saved nurses an average of 15 to 20 minutes per monitored patient by allowing every patient's ECG data to be stored directly in and accessible for viewing at any time from the CliniComp | EHR software.

“The less time nurses have to spend in front of a monitor or computer, the more time they can spend in direct patient care,” Barker remarked. “The feedback was overwhelmingly positive. Nurses described the CliniComp tools as user friendly and easy to use. The solution provided lots of options on how to measure ECG waveforms, and I believe that unique feature was much appreciated.”

CliniComp's next-generation ECG monitoring tools boost quality of cardiac care

Clinicians can observe the waveform at a higher zoom level while using their cursor to move the CliniComp eCalipers onscreen. In the previous process, a nurse would upload the waveform at the unit's central monitor. Using the CliniComp eCalipers, Clinicians at VA Lexington now have the ability to capture and measure waveforms at a higher zoom level directly onscreen providing two major benefits –reduction of previous clinical workflow inefficiencies and increased accuracy of the ECG measurements. Collectively, these benefits allow the clinicians to better influence patient health outcomes.

Barker called out the new 'March Out' function that tracks and documents rhythm regularity in the patient's heart rhythm as a great new benefit. Armed with a mouse and laptop, nurses can position the electronic caliper onscreen from one wave to the other for a closer look. They can also move the caliper along the ECG strip to determine if the cardiac rhythm is regular or irregular, facilitating identification of heart blocks and other dysrhythmias.

“While we were able to calculate measurements in our former EHR system, we greatly appreciate this newly sophisticated and distinct ECG functionality used by 100 percent of our ICU nursing staff,” she remarked.



Robley Rex VA Medical Center

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Robley Rex VA Medical Center (Louisville VA Medical Center) Optimizes ECG Documentation and Care Continuity

Similar to the experience of their nurse colleagues at VA Lexington facility, ICU nurses at **Robley Rex VA Medical Center (Louisville VA Medical Center)** in Louisville, Kentucky struggled with maintaining a time-consuming and arduous workflow process monitoring, documenting and exporting the patient's cardiac rhythm data between two applications.

"We were doing double charting. Nurses had to actually go into a GE telemetry monitoring system to measure a patient's waveform. Then, they'd manually document and enter their analysis information into the CliniComp | EHR system," recalled David M. Jacobi, MNHP, RN, CNL, Nursing Informatics and ADPAC, BCMA Coordinator, CliniComp | EHR System Administrator, Louisville VA.

Seamless one-system workflow enhances patient's assessment

Robley Rex VA Medical Center has been enjoying for years the benefits of the CliniComp | EHR Waves application and further enhanced their experience going live with the ECG tools in July 2020. The technologies eliminate several minutes of manual steps transferring ECG waveform measurement data from a different patient monitoring system to the CliniComp | EHR. Nurses use CliniComp's eCalipers to automatically measure and store a patient's waveform data directly within the CliniComp | EHR system, ensuring the complete capture of interval and waveform measurement documentation.

Jacobi credits the CliniComp | EHR Waves application and ECG tools for creating cardiac care continuity for patients in addition to freeing up more time and improving work efficiencies for every ICU nurse.

"From a time standpoint, our nurses no longer have to deal with two different systems," he said. "The consolidation of tools supporting all cardiac electrical activities within the one CliniComp system enhances the continuity and completeness of the patient's assessment."

"Our nursing staff loves CliniComp's ECG features. Many share that CliniComp | EHR Waves application and ECG tools simplify their documentation tasks while significantly decreasing the amount of time spent reading strips. CliniComp gives them back valued time to spend with patients at the bedside," said Melissa Seacat, MSN, RN, Nurse Manager, Critical Care, Robley Rex VA Medical Center.

CliniComp's Newest Advances in Cardiac ECG Automation

The CliniComp | EHR, designed to automatically capture and document medical device data, gives clinicians the power to view streamed data for trends in patient health in relation to their treatment in real time and improves quality and efficiency of clinical workflows.

The CliniComp | EHR Waves application and ECG tools include:

"I credit the CliniComp | EHR Waves application and ECG tools for creating cardiac care continuity for patients in addition to freeing up more time and improving work efficiencies for every ICU nurse."

DAVID M. JACOBI, MNHP, RN, CNL | NURSING INFORMATICS AND ADPAC, BCMA COORDINATOR, SYSTEM ADMINISTRATOR | LOUISVILLE VA

Secure, Seamless Integration of Interfaced Waves Data

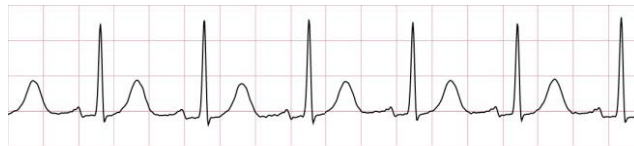


Wave information from interfaced physiologic monitoring devices displays in the CliniComp | EHR Waves application. Clinicians view live waves data as it streams into the CliniComp | EHR Waves application for capture, review, and permanent storage. Samples of waveforms can be saved and retrieved for analysis and annotation.

Convenient Electrocardiogram Measurement and Documentation Tools

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MELISSA SEACAT, MSN, RN | NURSE MANAGER | CRITICAL CARE | ROBLEY REX VA MEDICAL CENTER



The CliniComp | EHR Waves application offers waveform tools –PQRST Measurement and eCalipers –for bedside clinicians to select a lead, analyze the rhythm, and measure the intervals (PR interval, QRS complex, and QT interval), document rhythm interpretation, and store the segment with annotations. This cardiac data, along with associated EHR documentation (e.g., cardiac consults, labs), offers the clinician a comprehensive picture of cardiac health.

- Smooth, seamless workflow
- Capture live waveforms
- Zoom to enlarge strip for interpretation

PQRST Measurement Tool

The CliniComp | EHR Waves application offers waveform tools — PQRST Measurement and eCalipers — for bedside clinicians to select a lead, analyze the rhythm, and measure the intervals (PR interval, QRS complex, and QT interval), document rhythm interpretation, and store the segment with annotations.

This cardiac data, along with associated EHR documentation (e.g., cardiac consults, labs), offers the clinician a comprehensive picture of cardiac health.



When using the PQRST Measurement tool, the clinician can:

- Locate and adjust PQRST markers to measure the PR interval, QRS complex, and QT interval.
- Exclude the P-wave marker for atrial fibrillation.
- Measure distance between the markers and save to the medical record, shown as snapshot in lower left part of the screen view.

Calipers Tool



When using the Calipers tool, clinicians can:

- Use the calipers to measure the regularity of rhythm.
- March out: Replicate the caliper interval with equidistant vertical markers across the strip.
- Use to analyze the rhythm.

For more information on [CliniComp | EHR](https://www.clinicomp.com) Critical Care solutions to simplify clinical workflow, alleviate IT complexities, and promote fiscal vitality please contact us at:

1.800.350.8202

or visit us at:

www.clinicomp.com