

Automating Your Critical Care Units

The decision to computerize the documentation in your critical care units is an investment in your staff and your patients. Electronic medical records can improve communications between caregivers, streamline workflow and improve patient safety. Legible, real-time, complete and accessible documentation are just some of the reasons that critical care units throughout the U.S. have made the choice to leave the paper behind and implement an electronic medical record. And with a goal for all Americans to have an electronic health record, the decision to implement today is really less about whether to computerize and more about what type of critical care solution is best suited to the demands of your workflow.

There are many considerations when exploring critical care documentation solutions including how well a system addresses the clinical requirements of your department, the technology platform of the documentation system, the support and service provided over the life of the system, and the system's total cost of ownership. Exercising due diligence in the vendor selection process requires a detailed analysis of each of these areas to ensure you make the right decision for your staff and patients.

At CliniComp, Intl. (CliniComp), our critical care documentation experience spans hospitals of all sizes with UCLA Health (Los Angeles), Swedish Medical Center (Denver) and Bellevue Hospital (New York City) as just a few of our longstanding critical care customers. And as the inpatient clinical documentation provider to the Military Health System (MHS), we are in the process of implementing electronic medical records throughout the over 60 acute care military treatment facilities worldwide. And for the past 15 years, we have supported critical care documentation within the Veterans Administration health system and have recently been selected by two regional VA health networks to implement critical care documentation in all their Veterans Administration Medical Centers.

As your facility plans its own move to computer based critical care documentation, be sure to consider the following "7 Components of Successful Critical Care Automation".

7 Components of Successful Critical Care Automation

Congratulations! You have made the decision to computerize documentation in your critical care department and your team has begun the process of selecting the best solution. In addition to the list of features and functions developed by your clinical and IT teams, make sure that your evaluation addresses the following seven components. The ability of your vendor to address the more than 65 individual key success factors within these components will significantly impact how effectively the system will improve your patient care and department management.

7 Components for Success

1. High availability system architecture
2. Medical device integration
3. Usability
4. Clinical surveillance
5. Global data repository
6. Deployment scope
7. 24/7 turnkey support

1. High Availability System Architecture

No matter how feature rich a clinical documentation system promises to be, patient care will be compromised if the underlying architecture upon which the system is built does not meet your needs for high availability. It is about having a system that is more than just reliable. It is about an architecture that is designed to never lose patient data, "go down", require scheduled downtime, or be vulnerable to failures from your other systems. Perhaps more than any other clinical area in a medical facility, a critical care unit demands this level of system performance.

Be sure to ask your vendor the following questions about their system architecture's design for reliability.

1. Does the system (servers, workstations, database or application software) require any scheduled downtime for maintenance? If so, what is the typical amount of downtime experienced?
2. Does the system require scheduled downtime for system updates/upgrades or configuration changes? How many hours? How often?

High Availability System Architecture (cont.)

3. Will the system be temporarily unavailable in the production environment when moving a software version from a test to production environment?
4. Can the system protect users from a single point of failure such as a server crash? How?
5. What is the methodology to insulate the ICU from HIS and hospital network downtime?
6. Does the proposed system include automatic failover as a standard component or is it an optional feature requiring an additional investment?
7. Are redundant servers offered? Which components are redundant? Who provides and maintains these services?
8. Has the system ever been down or lost patient data? If so, what were the circumstances?
9. Will the vendor contract to 99.99% uptime for the entire proposed system (all hardware and software) as well as sub-second response time?
10. What support mechanisms are included to address system failures?
11. How will your system be protected from outside threats?
12. Is the system compliant with the Department of Defense Information Assurance Certification and Accreditation Process (DIACAP) security requirements? – widely considered to be among the most stringent in all of health care and the “gold standard” for all hospitals.

2. Device Integration

The ease and extent of device integration with a critical care documentation system has a significant impact on usability, patient safety and workflow efficiency. To achieve the maximum benefit, a documentation system should be able to acquire, store, integrate and analyze patient data from all of your medical devices.

Consider the following aspects of device integration.

1. Can the system acquire both parameters and live waveforms?
2. Can the system acquire parameters and live waveforms from any monitor/brand?
3. Does the system require third-party technology to acquire data from physiological monitors, pumps and vents?
4. If a third-party device integration is proposed, who supports the interfaces and provides needed service?
5. Is the third-party integration covered under a single turnkey service contract?

Device Integration (cont.)

6. Does the system require bedside devices to be hardwired to the bedside workstation?
7. Can the system save only the validated data or is all granular device data saved?
8. Does the system continuously verify that key data is being acquired correctly?

3. Usability

The best intentioned features have no value if they go unused. Can your selected system integrate effectively into your caregivers' workflow?

1. How extensive and configurable are the flowsheets and notes?
3. Do critical values (lab, vent settings, etc.) automatically populate notes and the medical administration record (MAR)?
4. Can multiple caregivers chart on more than one patient, flowsheet or note at a time?
5. Does the system support patient charting from mobile wireless carts or tablet PCs? How is data acquisition managed in these cases?
6. Can clinicians at one facility view and transfer patient data at/from another facility (permission-based)?
7. How well does the system address specialty ICU workflow needs?
8. Is a remote ICU solution provided? If so, what is the scope and how does it function?
9. Who is responsible for configuring the system to meet your specific needs? How long does it take and how much does it cost to configure? Is it included within the standard system cost?
10. Can users chart or access patient information from another workstation without requiring a web-based tool to provide non-bedside access to patient data?
11. How often do the workstations update the central server with patient data?

4. Clinical Surveillance

A comprehensive clinical documentation system is more than an electronic medical record in which patient care is recorded. A computerized clinical documentation system also has the ability to passively monitor patient conditions on a continuous basis – a significant added benefit. When unit-defined patient thresholds are exceeded, the system can automatically flag caregivers for timely response. This can even include sending alerts to mobile caregivers wherever they may be.

Clinical Surveillance (cont.)

1. Does the system offer clinical surveillance?
2. Does the system provide department and hospital-wide patient summary views?
3. Is the patient data limited to just the data from within the clinical documentation system?
4. Can the rules that trigger alerts be patient-centric?
5. Can alerts, streaming waveforms and pertinent patient data be sent to handheld devices?
6. Can the user click from the alert directly to that patient's medical record?

5. Global Data Repository (GDR)

One of the benefits of a clinical documentation system is the ability to save and later access patient data from previous encounters. Over time, a rich history of patient care across all your encounters can be data mined for insights on patient trends, standards of care, regulatory compliance, department utilization and much more.

A comprehensive documentation system for critical care should include robust and user-friendly analytics and reporting tools.

1. Are patient encounter data saved to the GDR as they occur on a transactional basis? If not, how frequently is data saved to the GDR?
2. Does the database aggregate data from all sources, both current and discharged patients, for viewing and reporting?
3. How extensive is the reporting module?
4. Are on-demand (templated) reports included? If so, how many and are they useful?
5. Can customized reports be generated?
6. Can reports be generated in real time?
7. Is the reporting module an integrated component of the core system or is a third-party tool required?
8. If a third-party tool is required for reporting, is the cost included in the standard system configuration or does it require an additional expense?
9. Does the reporting tool provide graphing?

6. Deployment Scope

Every health care facility has some unique characteristics and these differences extend into each individual department, and this can be especially true in critical care units. Therefore, the development and deployment of a clinical documentation system in a critical care unit – including the scope and timing of the deployment plan, the integration of the system within the hospital’s overall information system infrastructure and much more, must be customized to meet specific facility needs.

Consider the following factors in evaluating deployment options.

1. Is the system difficult to configure and install?
2. What feedback do other facilities have regarding their implementation?
3. How much work is needed and how many FTEs have been involved in prior setups?
4. How many FTEs have been required to run and maintain the system at other facilities?
5. Can the system scale beyond the ICU and high acuity departments to the entire facility?
6. Are installation fees based on only standard templates, configurations, databases, printouts, interfaces, reports, training and device drivers being used?

7. 24/7 Support

Deployment of your new critical care information system is just the beginning of what you hope will be a productive, long-term partnership with your vendor. Customer service and support are therefore essential factors when determining which vendor to select.

Learn how your vendor candidate manages client support before you purchase their system.

1. How many levels of support does the vendor offer? What does each cover (or not cover)? What are the annual costs? What are the responsibilities of the user and the vendor at each level?
2. Does the software support cover anything beyond the software upgrades and service packs?
3. Is support for database backups and report generation included as a standard item?
4. Is additional configuration support included per facility/per month at no additional charge?
5. Will the vendor support ongoing changes to the HIS interface after initial installation and acceptance?
6. Is sub-second response time provided as a contracted element?

24/7 Support (cont.)

7. What type of continuous or occasional system diagnostics monitoring is alerted and does it include problem alerting capability?
8. Does the vendor use any VPN-type support to monitor and resolve issues?
9. How many levels of service are offered and what are the differences?
10. Will the vendor be responsible for supporting third-party software and associated networks?
11. Does the proposal include vendor support for any hardware used in conjunction with their software?
12. Is onsite service for system problems offered and under what conditions? What is the guaranteed onsite service response time?
13. Will the client be charged for onsite service if there is disagreement about the need for an onsite visit?

These seven components of successful critical care automation, in addition to your own list of clinical and IT requirements, should help your facility make an informed and comprehensive assessment of the vendor and solution options available to you. For more information on CliniComp's *Essentris® Critical Care™* solution, please visit www.clinicomp.com or call (800) 350-8202.

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