

# Digitising ICU for clinical productivity & revenue gains

Return on IT investment via accurate information capture from patient monitoring devices



**Intensive Care Unit (ICU) patient populations increase every year. At the same time, pressure builds on bed availability, on nurses and clinicians providing the 24/7 care, and on the healthcare institution as a whole to resource and finance the department.**

A drive to become paperless in the critical care environment at University Hospitals of North Midlands NHS Trust has successfully improved time efficiencies and finances to put patient care firmly back at the heart of ICU management.

This UK Trust is a major trauma receiving centre for the local area and sees an increasing average of 3500 patients per year across 3 different ICU areas\*. Facing ever growing demands, a digital transformation project was rolled out to improve productivity of patient beds, rather than needing to build more bed capacity.

Within months of the installation of GE Healthcare's Centricity™ Critical Care Information System, financial income had increased and nursing staff had more time to focus on the patient. The following year the department was considered 'Outstanding' by the NHS Care Quality Commission (CQC) regulators.

\* Information provided by the UK Trust by the date of Aug. 2018

## CHALLENGES

- Growing ICU patient numbers year-on-year with increasing volume of data
- Designated major trauma receiving centre for the local area operating at high capacity
- Three ICU areas: 40 bed general ICU; 16 bed cardiothoracic ICU; 8 bed paediatric ICU
- Paper records at risk of human data input errors and misplacement
- Slow archive recall times for paperwork needed for audits or research

## KEY OUTCOMES

- Automatic digital recording of patient data from medical devices
- All patient data now available in one place for instant review
- 2 hours of nurse time saved every 24 hours
- Time saved is the equivalent of 17.5 whole time nurses each year\*
- Income up by £0.5 million from improved organ support data collection\*
- Reduction in human errors and elimination of handwriting illegibility issues
- Smoother shift handover processes and at-a-glance data interpretation
- Audits and research needs met more quickly and simply
- Outstanding department accolade awarded by external NHS inspector

Financial revenues are up resulting from more accurate data recording that feeds NHS reimbursement. Plus, valuable nursing staff time has been saved by the automatic collection of patient information. Hands on patient care is firmly back at the centre of the department.

In England, a Critical Care Minimum Data Set (CCMDS) is mandatory reporting by all NHS Trusts for patients receiving critical care. This data provides information on organ support care such as respiratory ventilation or cardiovascular intravenous intervention on a daily basis for each patient. The figures are submitted to the UK NHS by hospitals to gain financial reimbursement for activity.

Before the installation of GE Healthcare's Centricity™ Critical Care Information System for ICU Management, nurses filled out forms manually to collect organ support data and sometimes missed organ intervention that occurred for short time periods of time during a 24 hour period. Now, **the automatic collection of digital data is a much better reflection of the intensity of organ support and has boosted income received by £0.5 million in year one.** This improvement in finances has generated a profit for the department that can be reinvested to support the overall financial health of the institution.

The automatic collection of digital data from medical devices at the patient bedside, coupled with the capture of organisational and operational data at both patient and departmental levels, has also **freed up nurse time by approximately 5 mins every hour. This is equal to 2 hours over a 24 hour period, or 730 hours annually.** This time saving means that nurse tasks can be reallocated away from paper-based form filling and back to traditional patient care. This is better for the psychological welfare of the patient, their relatives and for nursing morale. More available time during the shift also means that more detailed tasks or actions can become the focus rather than routine observations.

The difficult interpretation of different handwriting on paper reports has also been removed by automatic data collection by the Centricity™ Critical Care Information System. This **enables clinicians to read everything associated with the patient case notes,** not skipping parts that are hard to decipher.

“Organ support data recorded electronically by GE’s Centricity Critical Care IT solution is more accurate than manual nurse collection in each 24 hour period. This has improved our reimbursement income by £500,000 in year one, giving an instant return on our IT investment and providing much needed profit to go back into our organisation.”

**Dr. Stephan Krueper, Critical Care Consultant  
University Hospitals of North Midlands NHS Trust**

“More efficient data capture is essential for quality and compliance improvements. This system represents a new era in patient data management where paper notes don’t get lost and records can instantly be reviewed for audit and reporting clarity.”

**Dr. Christopher Thompson,  
Consultant in Intensive Care & Renal Medicine  
University Hospitals of North Midlands NHS Trust**



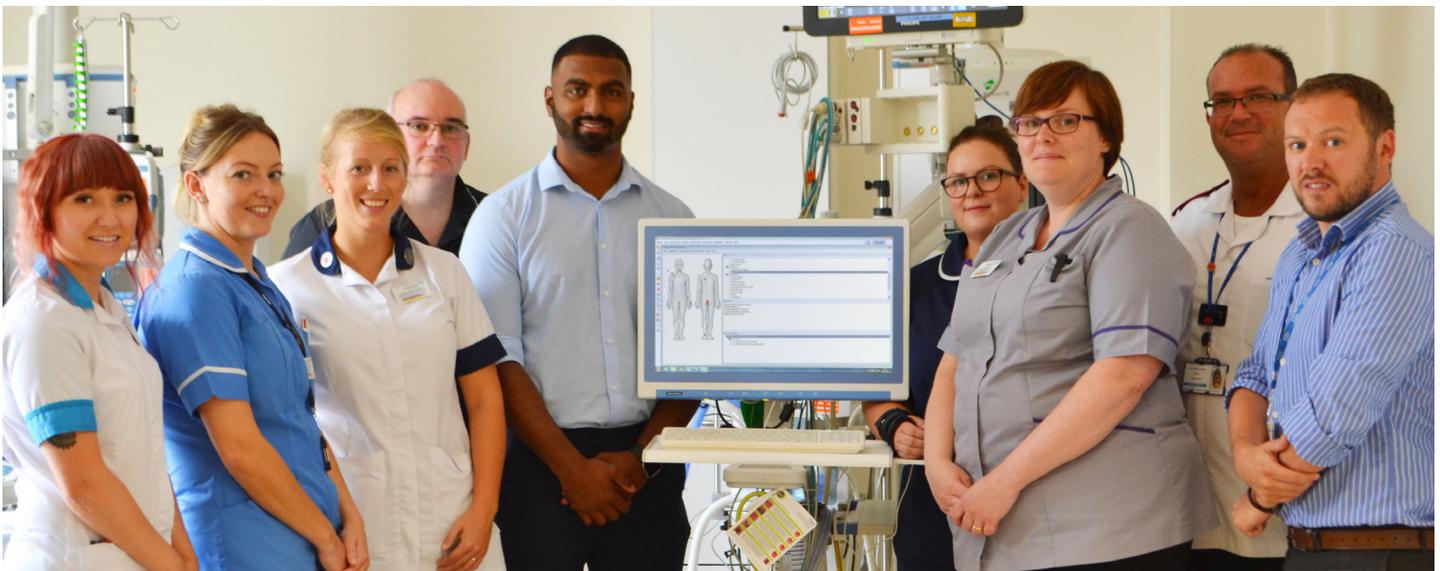
## Meeting ICU capacity challenges by improving patient throughput

Rather than facing the cost and disruption of construction to increase ICU capacity, the strategy at University Hospitals of North Midlands NHS Trust was to **make existing bed capacity more productive**.

“Our key motivator behind this ICU digital information management strategy was to gain a more efficient ICU. Patient demand was growing annually and rather than build more beds, our aim was to make our existing department more efficient,” states Stephen Joynson-Robbins, Transformation Programme Manager at University Hospitals of North Midlands NHS Trust. “The project has worked successfully and delivered benefits from both a business and clinical perspective. Our patient length of stay has reduced by 19% and patient discharge numbers increased by 23% meaning that patients are getting better quicker to be able to move on from ICU. Better data management has enabled this improvement by speeding up clinical intervention and rehabilitation care that patients receive.”

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**Stephen Joynson-Robbins**  
Transformation Programme Manager  
University Hospitals of North Midlands NHS Trust



## Instant patient data for smooth handovers, clinical meetings & reports

The instantly available data on patients has made our **patient handover sessions and review meetings much more detailed and efficient**,” states Dr. Stephen Krueper, Critical Care Consultant. “The intelligent ways of presenting data such as trends on graphs helps us get to know new patients much quicker and understand their case more in-depth. For example, **we can see in a split second if data indicates an upward or downward trend**.”

He continues, “Previously, if we needed historic patient information from archive stores for audits or research purposes we would have had to wait for a couple of weeks and then deal with a massive pile of paper that sometimes was not in good order. Now, we can instantly gain everything we need from the Centricity Critical Care Information System via simple searches and interrogations of the data. This has a positive impact on **improving the turnaround time of admin or reports** that we need to deliver.”

## An outstanding and well-led critical care department

The Centricity™ Critical Care Information System at University Hospitals of North Midlands NHS Trust's ICU has been an **enabler to help improve departmental ratings** from the Care Quality Commissioner (CQC), the independent regulator of all health and social care services in England. CQC assesses services across five key areas: safety, effectiveness, caring, responsiveness and well-led. The ICU went from 'needing significant improvements' before the project to 'outstanding' after the installation.

Claire Hughes, Matron for Critical Care states, “During its first visit three years ago, the CQC said that Critical Care needed to make 'significant improvements'. Now we are 'outstanding'. This is a fantastic result and is all down to the hard work of the team who are proud to care and very committed, going the extra mile to put patients and their families first.”

Dr. Christopher Thompson, Consultant in Intensive Care & Renal Medicine adds, “We wouldn't have been able to make efficient changes to our ICU rehabilitation programme without the new patient data management system. It has definitely enabled us to make some of the quality improvements associated with the outstanding CQC rating.”



## About GE Healthcare

GE Healthcare provides transformational medical technologies and services to meet the demand for increased access, enhanced quality and more affordable healthcare around the world. GE (NYSE: GE) works on things that matter - great people and technologies taking on tough challenges. From medical imaging, software & IT, patient monitoring and diagnostics to drug discovery, biopharmaceutical manufacturing technologies and performance improvement solutions, GE Healthcare helps medical professionals deliver great healthcare to their patients.

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Centricity Critical Care intended use: Centricity Critical Care (CCC) is a clinical information management system intended to support clinical documentation activities and clinical decision support in Intensive Care Units (ICU) and High Dependency Units (HDU). CCC allows trained clinical professional users to retrieve, enter, record, store, transfer, view and trend patient data in an efficient and structured manner as well as to plan for therapy. Class/Notified Body: I / N/A. Manufacturer: GE Healthcare. Last revision: November 20, 2017.

Always refer to the complete User's manual before use and carefully read all instructions to ensure the good use of your medical device.

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