

Transforming Respiratory Care: Capacity Meets Quality

Salford Royal Hospital



Customer
Salford Royal Hospital

Location
Greater Manchester, UK

Solution
SV70 Non-Invasive Ventilator

Customer Profile

Salford Royal Hospital provides care services to the City of Salford and specialist services to Greater Manchester and beyond. Today it has 9,000 dedicated staff and more than 700+ in-patient beds including a 40-bed ICU, and 25 operating theatres. In 2024 the hospital opened a brand-new dedicated trauma centre which includes three 24-bed wards, an enhanced care unit, five theatres - including the new state-of-the-art RAPTOR theatre which is the first hybrid major trauma theatre in the UK - treatment rooms, scanning and X-ray areas. A helipad allows trauma patients to receive even faster access to highly specialised, life-saving treatment and recovery.

Introduction

In 2023, Salford Royal Hospital procured a new fleet of non-invasive ventilators to improve the speed and quality of ventilation outside of the respiratory support unit (RSU). The RSU provides enhanced respiratory support outside of the critical care environment. In the UK, COPD exacerbations are the second most common cause of emergency hospital admissions, accounting for 1 in 8 UK hospital admissions. A 40% increase in COPD prevalence is projected and an annual cost to the NHS of £2.5 billion by 2030 is predicted.¹

Challenges

- **COPD prevalence:** Respiratory disease affects one in five people and is the third biggest cause of death in England.² Salford deals with a higher proportion of COPD cases than the national average and ventilation is provided quickly. 26% of COPD patients received NIV within 2 hours of arrival, compared to the national average of 16% (2021-2022).³
- **Managing workload:** There has been sustained high demand on the RSU outreach team. They wanted to reduce user errors with ventilators and continue treating COPD patients quickly. In 2021-22, 86% of COPD patients were seen by a member of the respiratory team within 24hrs of admission compared to the national average of 60%.⁴
- **Versatile ventilation:** the ventilators would be used in a wide range of treatments in multiple departments so patients can be managed outside the RSU, where appropriate, to ensure spaces are used for the most critical cases.
- **Standardisation:** the ventilators needed to be compatible for digital integration, and to streamline internal training.

“ The SV70 has worked well in a wide range of scenarios. For instance, we've seen a lot of motor-neurone disease (MND) patients recently and the ventilators have synchronised with them easily. On the other end, where we've had to use high pressure to flush out CO2 for smokers' lung, intubation and synchronisation is just as easy.

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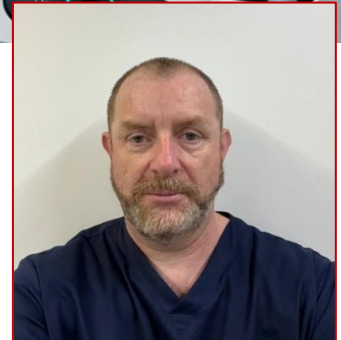
Gary Dawson, Respiratory Nurse Specialist





“ The trend data from the SV70 gives us much more insight into the patient’s status. We can pick up average pressures and review patient breathing through the night which is extremely useful for neuro-patients where we want to see how much breathing has been done by the machine. The SV70 provides the advanced data that specialists need but it’s equally as easy for a nurse to quickly check things like SpO2, EPAC, PEEP and plateau pressure. ”

Gary Dawson, Respiratory Nurse Specialist



The Solution

- **Increasing capacity:** Salford procured a new fleet of non-invasive ventilators to improve the speed and quality of ventilation outside of the respiratory support unit (RSU).
- **NIV on demand:** To reduce the risks of user error, the main menu has been configured to show the two most appropriate ventilation modes – ST (spontaneous timed) and CPAP (Continuous positive airway pressure).
- **Faster treatment, greater comfort:** Intuitive visualisation tools support faster treatment and reduce the number of manual interventions needed for patient comfort and treatment.
- **More insights for safer decision-making:** trend data supports comprehensive respiratory assessment. This is especially useful for assessing the levels of overnight machine breathing for neuro-patients in the morning when discussing cases with physios.
- **Responsive care:** Compatibility with the Mindray Central Stations means the SV70 will fit into Salford’s digitisation plans and make patients’ pressure and oxygen stats available to clinicians even when away from the bedside.

Conclusion

Following sustained pressure on respiratory services, Salford Royal Hospital have used the SV70 to administer NIV more effectively outside of the RSU. The new ventilator fleet has enabled higher patient throughput, faster treatment delivery outside critical care, and fewer user errors. Staff report greater confidence in adjusting treatments, while hospital mortality indicators show improved outcomes for respiratory patients.

The next phase planned at Salford wireless integration of the devices. Faster clinical decisions and reduced admin time will be achieved when patient data across ventilators, monitors, and electronic records is connected into the hospital systems. This digital integration will enable healthcare staff to access real-time patient information from any location, streamlining workflow and enhancing patient care delivery.

Outcomes

- **Higher throughput:** the RSU team have been able to cope with a higher number of patient referrals to the RSU within the last year. Although Summary Hospital-level Mortality Indicator (SHMI) data is not a direct indicator of quality of care, it shows that during June 23 – May 24 there were fewer deaths across the Northern Care Alliance for COPD, bronchitis and respiratory failure, than for the previous period.
- **The right treatment, faster:** ventilators are being used far more frequently outside of critical care, especially in A&E. Patients get the right treatment faster before going to the RSU.
- **Fewer errors:** the RSU outreach team have had fewer callouts to support ventilator set-up and correct user error, making more effective use of their time.
- **Streamlined care:** Standardising with Mindray has simplified training, and staff have found the SV70 easy to use. Nurses feel confident to change pressures or adjust masks if needed, delivering responsive care even outside the RSU.

References:

1. <https://transform.england.nhs.uk/key-tools-and-info/digital-playbooks/respiratory-digital-playbook/digital-service-to-manage-high-risk-chronic-obstructive-pulmonary-disease-copd-patients/>
2. <https://www.england.nhs.uk/ourwork/clinical-policy/respiratory-disease/>
3. <https://ncab.hqip.org.uk/reports/list/units/rm301/all/>
4. <https://ncab.hqip.org.uk/reports/list/units/rm301/all/> Data covering April 2021 - March 2022: from the Drawing Breath report 2023 published 12/01/2023. National aggregate for England & Wales. More up to date data may be available at: <https://www.nrap.org.uk/>