Review of Options for the Future of Critical Care Facilities at Halton Hospital

Cheshire and Merseyside Critical Care Network
**Introduction**

In December 2004, Mr. Ian Dalton, chief executive of North Cheshire Hospitals NHS trust, asked the Cheshire and Merseyside Critical Care network to give an opinion on three options for the future of level three critical care at Halton Hospital. Mr. Dalton asked the network to comment on which option best matches the trust’s clinical strategy with regard to providing the best outcomes for the critically ill patient, which is most feasible in terms of recruitment, staffing and cost, and which is most sustainable in the long term.

The issue of what should be done with level three care at Halton has seriously divided senior clinical opinion and caused disquiet for the politicians and people served by Halton for some time. In preparing this report, we have had discussions with medical and nursing staff and managers from both sites of the trust (appendix A). We will review the background to the current situation, outline the existing guidelines for critical care services, and appraise each of the options in turn. We will refer to our discussions with staff, to current standards produced by learned bodies and to the current medical literature to inform our appraisal (Appendix B). (APPENDIX A and B LINK.)

The three effective options for future provision of care as presented to us are:

1. A return to the status quo ante: when two level three beds were provided at Halton, staffed by four anaesthetic consultant sessions per week. The unit ran as an ‘open’ ICU with input from physicians and anaesthetists as seen necessary.

2. Reopening two level three beds at Halton with 24/7 Intensivist cover. This is the usual UK model of a ‘closed’ intensive care unit, with primary responsibility for patient care resting with the intensivist, with relevant input requested from physicians and surgeons as required.

3. Centralising all level three care at the Warrington site, continuing to staff four level two beds to support medicine and surgery at the Halton site.

For information on definitions of levels of care, see appendix C.
Background

Halton Hospital was opened in 1985 as phases one and two of a proposed development of a larger district general hospital. However, the Regional Health Authority did not proceed to completion. Halton merged with Warrington District General Hospital, nine miles distant, to form the North Cheshire Hospitals NHS trust in 2001. Halton currently has 231 beds and Warrington, 655.

When it opened, Halton had an intensive care unit (ICU) with two level three beds (a level three bed is one where patients can have the full range of life support therapies such as mechanical ventilation and renal replacement therapy – see Appendix C) with a third bed able to ‘flex’ between providing level two and level three care. There were three to four level two beds (HDU beds) and two coronary care beds (CCU), which also qualify as level two beds.

Initially, there were three consultant surgeons, three physicians and three anaesthetists who provided senior medical staffing of the hospital. Between the three anaesthetists, there were four sessions weekly designated for intensive care cover. The sessions were provided flexibly, so that there generally was a senior presence accessible during the day for the unit. Formal ward rounds did not take place, although there was clearly co-operation between anaesthetists and physicians to manage patients, in an ‘open’ model of intensive care management (Appendix C: ‘closed’ units are run by consultant intensivists who determine day to day management and consult physicians and surgeons as necessary to manage patient care). There was no scheduled trainee or junior grade presence on the unit during the day. The consultant anaesthetists covered the hospital on call on a one in three rota, supported by junior trainees or staff grade anaesthetists who were responsible to both theatres and intensive care; when the consultant was on holiday, locum consultants were employed. It is not clear that these locums had equivalent intensive care interest to the substantive post holders.

The hospital had a minor injuries unit that accepted medical and surgical admissions. Obstetrics and gynaecology patients were referred to Whiston or the Countess of Chester hospitals, paediatrics to Alder Hey, renal patients to the Royal Liverpool etc. but the hospital managed the bulk of the emergency take in-house. The intensive care unit admitted 85 level three patients in 2002, the last year it worked to full capability. Generally, about 50% were medical patients, 25% surgical and 25% were transferred from other hospitals.

Two of the anaesthetists who had intensive care interest left the trust in March 2003, and there were no applicants when replacement posts were advertised. Although initially the Halton level three beds were covered by the Warrington site
anaesthetists and intensivists, this proved to be an expensive and in the long term unsustainable option. The clinical director of anaesthesia and intensive care closed the two level three beds in July 2003 without prior warning and to the dismay of the Halton consultant physicians and surgeons. In response, the acting chief executive commissioned a report from Dr. Robin MacMillan, medical director of St. Helen's and Knowsley Hospitals Trust and consultant intensivist (critical care specialist), to investigate whether beds could be reopened. He suggested that the beds be opened temporarily while a review of services was carried out but that transfers into Halton of level three patients from other hospitals not be accepted. This was not felt to be sustainable. Mr. Frank Burns, acting as temporary chief executive, attempted to reopen the beds but the staffing and clinical governance issues were not resolved. Clearly, discussions have taken place at many levels, but rarely directly between those most directly and passionately involved. These level three beds remain closed.

The closure of these beds has led to immense frustration and inevitably bitterness amongst the consultants and nursing staff at Halton that has spilled into the political arena. Harsh words have been directed to and from all parties. It is clearly imperative that this issue be resolved so that North Cheshire Hospitals Trust can develop, the people of Halton and Warrington can be best served, and that the two level three beds which are lost to the whole population of Cheshire and Merseyside be reopened wherever they would be best used.

The Current Situation

Currently there are four level two beds and two coronary care beds open on the Halton site. There is a consultant intensivist ward round every morning, and one available for consultation at weekends, and there is a lead clinician for the unit who is an anaesthetist based at Warrington. Medical cover is provided at other times by a resident non-consultant career grade anaesthetist covered by an anaesthetic consultant on call for the Halton site.

The Commission for Health Improvement reported on North Cheshire Hospitals in 2002. They were concerned about the case mix presenting to the Admissions unit at Halton. Because of small numbers of surgical emergencies and difficulty with surgical cover, acute surgery moved from Halton onto the Warrington site with effect from 1 April 2004; patients requiring emergency surgery from either site are admitted to Warrington. There is an ongoing process of moving increasingly complex elective surgery to the Halton site, excluding those cases likely to require elective level three care peri-operatively. Out of hours surgical cover is provided by a surgical house officer overnight and a surgical senior house officer (SHO) who is on site until midnight, with back up from on call consultant surgeons.
North Cheshire differs from other merged trusts in Cheshire and Merseyside in that it continues to accept acute medical admissions on both sites because of difficulties with capacity on the Warrington site. There is an operational policy for the ambulance service to determine which patients can be triaged to the Halton site refined since the CHI report (Appendix D). There are now 6 consultant physicians, supported by specialist registrars and house officers. There are approximately 15 – 20 medical admissions per day (approximately 6000 per year) on the Halton site. Medical cover is provided by resident medical house officer, SHO and specialist registrar back up by an on call consultant. Mechanical ventilation is not provided on the critical care unit, although non-invasive ventilation and continuous positive airway pressure oxygen therapy is. Should a patient deteriorate to the point that level three care is required, he would be referred to the anaesthetist on site (after hours generally a staff grade) for intubation and mechanical ventilation, in consultation with the consultant anaesthetist on call for Halton. After stabilisation in the unit, the patient would be transferred to the nearest level three bed available, by preference in Warrington.

**Critical Care Nursing Staff**

The critical care nursing staff on both sites are committed to providing high quality care for their patients, but are increasingly frustrated and demoralized by the current situation. There are currently 79.8 whole time equivalent nurses, which would be sufficient to staff six level two beds at Halton, and four level two and six level three beds at Warrington. However, the vacancy rate is currently 14.5%, which is equivalent to staffing for two level three beds. The skill mix on the Warrington site especially needs addressing.

Staff, at Halton especially, feel that currently some patients are being transferred inappropriately (e.g. patients whose prognosis is clearly hopeless; patients who require only short term ventilation). There are differences between sites in the management of the stabilization bay and transfers. Staff from both sites feel there is increasing demand for insufficient capacity; they express feelings of frustration because of their perception of lack of policy, leadership or consistency in admission, discharge, transfer and end of life decisions. They express concern about the quality and quantity of medical cover at Halton. There is a strongly held perception that critical care nursing staff are not included or considered in operational decisions and that pressure to integrate the workforce on both sites is having a detrimental effect.
**Requirements for the Service**

Of 61 isolated medical services in England, Wales and Northern Ireland, 37% take unselected acute medical admissions and 12% do not have an ICU. Specialist services are increasingly concentrated in larger hospitals with smaller hospitals providing a range of services to their local communities. The Royal College of Physicians recommends that critical care services should be available where acutely ill medical patients are admitted. In the absence of an intensive care unit the College recommends that:

- Outreach critical care services are available
- Agreed protocols for transfer of sick patients for appropriate care are agreed
- There is a 24 hour on site resuscitation team
- There are explicit admission protocols
- Timely access to surgical opinion is available when required
- Arrangements are audited regularly.

The service model which is most common in the United Kingdom, and which the Intensive Care Society endorses, is of critical care units which are run by intensivists (most frequently in the UK intensivists have anaesthesia as their first specialty) as ‘closed’ units. This is endorsed by the findings of Doctor Peter Pronovost and his colleagues, who published a landmark metanalysis of 26 trials in the Journal of the American Medical Association, demonstrating that critical care units run by intensivists in a closed model have lower mortality rates and decreased length of stay for patients, compared to open units.

There are several documents (see appendix B) which outline the requirements for service provision to enable a sustainable, high quality of critical care.

To summarise recommendations from the Intensive Care Society, for provision of level three beds, the following are required:

- Clear operational policy;
- nurse:patient ratio 1:1
- 24 hr dedicated cover by medical staff;
- identified consultant as director;
- Rounds: morning, midday, late afternoon; to review progress and revise treatment. A unit should have a minimum of two consultant ward rounds per day; teaching rounds and weekly meetings for education/ audit case review must also be provided
- ability to support multiple organ failure;
- Trainees responsible only to unit; not cardiac arrest team; working time directive compliant
• explicit cover for transfers of critically ill patients;
• trainees resident within unit complex;
• written protocols and guidance available for common conditions
• sufficient case load to maintain skills and expertise
• multidisciplinary care and effective communication,
• adequate administrative technical and secretarial support;
• continuing education of medical and nursing staff;
• audit of activities: Halton ICU did not report to ICNARC although data was collected

Recommendations for HDU care:

• clear operational policy;
• average nurse:patient ratio 1:2, with additional nurse in charge;
• immediate availability of junior medical staff (from admitting specialty or ICU);
• continuous consultant cover (admitting or ICU);
• identifiable consultant as director;
• appropriate monitoring and equipment;
• continuing education, training and audit.

The optimum size of critical care units is difficult to ascertain. Very small (or very large) units are difficult to manage: there are no economies of scale and small units would not be recognized for training by the Intercollegiate Board for Intensive Care Medicine training (IBICM).

Consultants for critical care need to be specialists in acute medicine and resuscitation. Because of the complexity of the patients’ problems, critical care (level three) should be consultant led at all times, with a high proportion of direct consultant input into patient care and immediate consultant availability for advice or recall at other times. Each daytime session should be covered by a consultant with no other commitments. The minimum number of fixed consultant sessions allocated to intensive care should thus be 10. Minimum weekly allocation of consultant sessions to an ICU of 4 or more beds should be 15; a minimum of 7 consultant fixed daytime sessions dedicated exclusively to the practice of intensive care medicine is required to achieve training recognition.

Technicians and technical support is essential for maintenance of equipment operation out of hours, fault repair, and training and education of other staff. Other allied health professional staff required are: physiotherapists (24/7), radiographers (24/7), dietician/ nutrition team access, pharmacist, and audit and clerical support. Access to advanced diagnostic services is mandatory.

There are standards of care for critically ill patients who require transfer.
**Bishop Aukland Hospital**

In the House of Commons in December 2004, the MP for Runcorn entreated the Critical Care Network to look to the example of Bishop Aukland Hospital as a possible model for the Halton site.

Bishop Aukland serves a population of 125,000 in County Durham and Darlington. It is the smallest of three local hospitals, and was built as an early ‘private finance initiative’ (PFI) venture. At the time, it caused much controversy, and was seen by some as a ‘white elephant’ (Guardian article, see appendix B) because the hospital’s catchment area and caseload were too small to support and train the doctors needed for emergency care.

There is an accident and emergency department at Bishop Auckland which has nearly 30,000 attendances annually. Acute surgical and medical patients are admitted but patients presenting with upper gastrointestinal haemorrhage are transferred to a larger hospital; there are clear operational policies in place to deal with this. A Diagnostic and Treatment center is planned for the site, and the site will be developed as a specialist center for elective surgery, mainly orthopaedics, urology and some general surgery.

There is a combined ICU/ HDU/ CCU with medical cover from one ‘enthusiastic’ anaesthetic consultant supported by colleagues in Bishop Auckland and from neighbouring Darlington Hospital. Neither Bishop Aukland nor Darlington has 10 identified consultant sessions and the unit survives on good will and enthusiasm. The loss of a consultant or staff grade would be ‘a real problem’; there is however a lot of political pressure to keep the service going.
Options Appraisal

The Nework Team considered each option in turn, considering quality of care for patients and staff and considering sustainability and cost. We assessed the requirements to fulfill each option, and the advantages and disadvantages of each. Our option appraisal is based on service quality only and does not consider access targets or the financial recovery plan for North Cheshire.

1. ‘A return to the status quo ante’

This is, in our opinion, not a viable option for the Trust. As described above, critically ill patients need to be cared for by doctors trained in critical care, in units with clear operational policies, sufficient clinical material, two consultant ward rounds per day and 1:1 nursing with 24/7 access to medical staff whose critical care skills are current. Although there are isolated units that provide level three care with less than this level of input. The network does not believe it would be in the best interests of the patients of Halton to perpetuate this model. They are entitled to equity of access, to the same standard of care for critically ill patients enjoyed by any other North Cheshire resident. It is unlikely that consultants could be recruited to serve in such a unit with such a small number of admissions. A credible nursing workforce would not be sustainable in the long term.

2. ‘Reopening two level three beds at Halton with 24/7 Intensivist cover’

Requirements:

- would require an increase in consultant staffing, since the JIBICM advises that even small units have seven consultant sessions per week for training recognition to allow two ward rounds per day, and the ICS recommends that all daytime sessions are covered
- dedicated junior staff (working time compliant)
- operational policies regarding admission and transfer criteria
- replacement and upgrading of equipment for level three patients
- staff to enable collection of audit data
- appropriately qualified and competent nursing staff to allow 1:1 nursing of level three patients
- education and training programme
- communication and effective liaison with Warrington site for out of hours cover and discussion re patient management and transfer
• designated staff and procedures for patients requiring level three care

Advantages

• population of Halton would have level three facilities available locally, and families would not have to travel to visit their critically ill relatives
• the loss of 25% of capacity of level three care for North Cheshire patients would be addressed
• Nursing staff on the Halton site would feel valued and would retain critical care skills

Disadvantages

• it is unlikely that consultants with critical care interest could be recruited to a two bed unit admitting 85 level three patients per year currently; critical care is a shortage specialty and recruitment is difficult
• Doesn’t address capacity issues across sites
• Equipment costs would be significant
• Clinical exposure (85 patients per year = 7 patients per month: fewer since relocation of surgery) unlikely to be sufficient to maintain skills for nursing staff
• Full range of services not immediately available e.g. surgical input after hours
• Would require staff to cover critical care at night on a separate rota; would be unlikely to fulfill Working Time Directive (WTD) without employing extra staff
• Difficulties with recruitment and retention of skilled nursing staff
• Cost

3. 'Centralising all level three care at the Warrington site, continuing to staff four level two beds to support medicine and surgery at the Halton site’

Requirements:

• clear protocols for admission to and transfer from Halton
• ODP support for the stabilization bay
• medical leadership which is positive, provides a consistent agreed operational policy, and reinforces the importance of the role of the Halton unit and integrates an inclusive service between the two
sites. This requires the expansion of level three provision at Warrington to accommodate Runcorn patients.

- regular consultant rounds on the Halton site with access to Warrington intensivist support outside these sessions and at weekends and holidays
- dedicated junior doctor cover on site from anaesthesia with support from medicine
- teaching sessions for staff covering patients on the Runcorn site
- improved communication between clinicians at the Halton site and the intensivists at Warrington so that patients’ best interests are taken into consideration with respect to location and treatment
- transfer of some nursing establishment from the Halton to the Warrington site
- nursing leadership which provides clear and effective operational policies and supports the development of staff at both sites
- equity in practice across both sites
- Audit of ongoing activity
- Outreach to support patient care when intensivists are not on site

Advantages:

- Allows continued medical admissions and a clear pathway for patients who are deteriorating
- Continued service to local Halton population
- Relative protection of elective surgical capacity at Halton site
- All critically ill patients requiring level three care will receive care from intensivists
- Training requirements for acute medicine on the Halton site will be maintained
- Beds will be available to the network if the 2 level three beds are opened on the Warrington site

Disadvantages:

- Acute medical admissions will require transfer out if they deteriorate to the point of requiring level three care
- Families have to travel to visit their critically ill relatives
- Sense of ‘downgrading’ of the hospital with potential loss of staff as a result
- Potentially decreased training opportunities for trainees based on the Halton site
- difficulty recruiting trainees, physicians to Halton site
- cost
Conclusion

It is the opinion of the network that option 3 is the only option which provides a viable means of developing the critical services for North Cheshire Hospitals.

Critically ill patients do better when they are cared for in specialist units that are staffed 24 hours by consultants with an interest in critical care. The safest and most sustainable option for high quality care for patients of the North Cheshire Hospitals Trust is to continue to develop services on the Halton site that do not require level three critical care facilities, to protect this capacity, and to plan to transfer patients who require mechanical ventilation to a level three unit, safely. There would be occasions when terminally ill patients may be ventilated in the short term (hours) at Halton; the success of this approach would be dependant on good communication between physicians and intensivists.

There are plans to develop the Halton site to provide more elective surgical services such as orthopaedics, urology and general surgery; there are also opportunities for development of high quality care of medical patients who are not likely to require critical care. The staff are dedicated but demoralized, and must be involved with developing a sustainable and satisfying service.

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