

**ADULT INTENSIVE
CARE SERVICES IN
NORTHERN IRELAND**



This booklet has been produced by CREST (the Clinical Resource Efficiency Support Team) which is a small team of doctors, established under the auspices of the Central Medical Advisory Committee, to promote clinical efficiency in the Health Service in Northern Ireland while ensuring that the highest possible standard of clinical practice is maintained.

CREST wish to thank all the hospital medical and nursing staff who took part in the surveys on Intensive Care and High Dependency Units in Northern Ireland. Special thanks are due to Dr Anne-Marie Telford for her role in conducting the survey and analysing the responses and for chairing the Sub-Group which was set up to develop the guidelines for Intensive Care and High Dependency Units.

CONTENTS

	Page
INTRODUCTION	3
TERMS OF REFERENCE	4
DEFINITION	5
THE SURVEY	6
RECOMMENDATIONS	8
GUIDELINES FOR INTENSIVE CARE/HIGH DEPENDENCY UNITS	10
GUIDELINES – INTENSIVE CARE UNITS	11
GUIDELINES – HIGH DEPENDENCY UNITS	19
REFERENCES	25
MEMBERSHIP OF WORKING GROUPS Appendices 1&2	26&27

Adult intensive care services in Northern Ireland

INTRODUCTION

1. Adult intensive care is provided by highly skilled multi-disciplinary teams for extremely ill patients who usually have actual or impending failure of one or more vital organ systems. Such care is becoming increasingly sophisticated and staff intensive and as a result increasingly expensive resources are being used by a relatively small group of patients. Advances in other specialties such as neurosurgery, cardio-thoracic surgery and vascular surgery have major implications for the provision of intensive care services. In addition the increasing number of elderly people in the population together with increased public expectations are adding additional pressures to already over stretched intensive care services. The recommendations of a NI Working Party on the Management of Major Trauma (1) will also have implications for intensive care services.
2. There are patients who, although not requiring full intensive care services, require a level of care which is not provided in an acute hospital ward. This intermediate level is referred to as high dependency care and its provision is also addressed in this report. The provision of intensive care services for coronary care patients is not included in the remit of this report.
3. The health service in Northern Ireland is entering a new era, with Boards and fundholding general practitioners contracting for services from directly managed hospitals and hospital trusts. It is for purchasers to identify the volume and quality of services they require for patients for whom they are responsible and for provider units in turn to decide if they can provide the services to meet this purchaser demand. Given the high cost of intensive care services it is important that discussions take place on these issues between purchasers and units who have provided intensive care services in the past or intend to provide such services in the future.

4. Because of these and other issues the Hospital Services Sub-Committee of the Central Medical Advisory Committee recommended that a working group should be established to examine and advise on the provision of adult intensive care services in Northern Ireland. It was agreed that the working group should be established under the auspices of the Clinical Resource Efficiency Support Team (CREST). A Committee was established in 1991 chaired by Dr P G McClements, the Convenor of CREST. The membership of the Working Group is given in [Appendix 1](#).

TERMS OF REFERENCE

The Working Group was given the following terms of reference:-

to examine the existing provision of intensive and high dependency care in Northern Ireland; and
to produce clinical guidelines on intensive and high dependency care.

1. The Working Group met on 5 occasions and work included commissioning a survey of Intensive and High Dependency Care Units in Northern Ireland, formulating clinical guidelines for intensive and high dependency care and making recommendations for the future organisation and provision of services. As part of the exercise the Working Group took evidence from specialties which are major users of intensive care services including general medicine, general surgery and neurosurgery.

2. CREST recognises the importance of evaluating the outcome of its initiatives and will therefore be asking the Working Group to reconvene in 2 to 3 years time to determine what effect if any this report has had on the provision of intensive care services. (Rec 4)

DEFINITION

The following definitions of intensive and high dependency care were agreed.

Intensive Care

1. Intensive care is usually reserved for patients with potential or established organ failure. An Intensive Care Unit (ICU) should offer the facilities for diagnosis, prevention and treatment of multiple organ failure. The most commonly supported organ is the lung but an ICU should offer a wide range of facilities for organ support. This will require a multi-disciplinary team approach and the highest possible standard of nursing and medical care. A nurse/patient ratio of 1:1 should be the minimum and the services of a full-time medical resident are essential.

High Dependency Care

1. A High Dependency Unit (HDU) is an area offering a standard of care intermediate between the acute ward and full intensive care. The HDU should not manage patients with multi-organ failure but should provide monitoring and support to patients at risk of developing organ system failure. A HDU should be able to undertake short term resuscitative measures and may provide ventilator support for a short time (usually less than 24 hours) prior to transfer of the patient to an ICU.
2. The HDU does not need and should not provide a full range of support services. It would normally function with a nurse/patient ratio of 1:2 and does not require the exclusive services of a full-time resident doctor.

THE SURVEY

Early in its deliberations the Group identified a lack of information on the current provision of intensive and high dependency care services in Northern Ireland. It was known that several units have flexible operational policies whereby it is possible to provide both intensive and high dependency care depending on demand. It was felt that the first step should be to carry out a survey of hospitals in Northern Ireland to provide information on the current provision and pattern of services. A questionnaire survey was therefore sent to all hospitals in Northern Ireland providing either high dependency or intensive care. A full report of the survey including the questionnaire used is available from the CREST secretariat but a summary of the main findings is given below.

1. The response rate to the questionnaire was 93%.
2. 13 hospitals provide intensive care services, 11 of which provide both intensive and high dependency care. 2 units provide high dependency care only.
3. The percentage occupancy across the units ranges from 33% to 96%.
4. 872 patients were ventilated during 1991 (excluding figures from the single unit which did not respond). 73% of patients admitted to the Royal Victoria Hospital Intensive Care Unit were ventilated while the figure for Intensive/High Dependency Care Units in smaller hospitals was less than 10%.
5. 676 patients were ventilated for more than 24 hours, 296 of these being in the RVH unit.
6. 3 times as many patients required high dependency care as opposed to intensive care.
7. 9 units had designated Consultant Anaesthetists in charge; only 6 units had consultant sessions dedicated to intensive care.

8. In units with no dedicated daytime consultant sessions there are varying arrangements for consultant cover including cover from theatre, duty anaesthetists and from consultant surgeons and physicians.
9. Consultant cover outside normal working hours varies from unit to unit.
10. Only 2 units have dedicated junior doctor cover on a 24 hour basis.
11. The nurse/patient staffing ratio varies enormously between units.
12. In the 2 hospitals with HDUs none of the nursing staff had obtained the training certificate in intensive care.
13. Nursing staff are provided from:
 - (a) the Intensive Care or High Dependency Unit;
 - (b) the hospital nursing pool; or
 - (c) a bank or agency.

Most hospitals use at least 2 of these sources for nurse staffing.

14. Despite the use of overtime 5 hospitals had to refuse admissions because of inadequate resourcing of nursing establishments.
15. Almost all units transfer nursing staff to work in other hospital areas when workload in the Intensive Care/ High Dependency Unit permits.
16. 5 hospitals have a specialist nurse manager for intensive or high dependency care services.
17. The type and amount of secretarial, clerical and technical support available varies greatly between units. 10 units considered the level of administrative and clerical staffing was inadequate.
18. No standardised procedures are being used to collect data in Intensive Care or High Dependency Units.

19. 7 units use a patient scoring system of which 5 use the Apache II system.
20. Only 6 units carry out regular medical or clinical audit.
21. Only 3 units were deemed to provide good accommodation by the respondees.
22. Four hospitals have separate budgets for the High Dependency and/or Intensive Care Unit; in 3 of these the consultant in charge has control of the budget.

These and other findings of the survey were presented to the Working Group by Dr Anne-Marie Telford, who played a lead role in conducting the survey and analysing the responses. The Working Group discussed these findings in detail and as a result of these and other discussions with users of intensive care units the following recommendations were agreed.

RECOMMENDATIONS

1. All units should have written operational policies which incorporate the guidelines included in this report. This does not prevent units from exercising their own flexibility to produce local variations in policy.
2. The Group was impressed by the concept of running intensive and high dependency care services in parallel. This allowed patients to be discharged earlier from intensive care and resulted in savings in scarce resources such as medical and nursing personnel.
3. The average percentage occupancy rate for an intensive care unit should not exceed 70%. This should ensure that units could respond to emergencies and patients would be less likely to be refused admission.
4. Intensive care provision should be in the order of 2% of total acute beds, with additional and appropriate levels of supporting high dependency beds and taking into account the casemix. There should be a further review of intensive care provision including the percentage bed allocation in 3 years time.

5. Given the existing workload and the very high percentage occupancy (96%) the Group agreed that there should be an increase in the number of staffed beds in the regional Intensive Care Unit. The recommendation of the recent report on the Management of Major Trauma (1) that “all patients sustaining major trauma within a 15 mile radius of a hospital providing the necessary regional services should be taken direct to that hospital” would also further increase the workload of the regional unit and must be taken into account.
6. Units should be covered by trained nursing staff at all times. This would not prevent staff from working in other areas of the hospital when activity in the intensive care unit permits.
7. Adequate funding should be provided for the training of all nursing staff working in Intensive Care Units. The committee would strongly commend the Intensive Care Nursing Course for Nurses on Parts 1 and 8 of the Register.
8. A patient dependency scoring system should be used in all units in order to determine accurately the level of nursing resources required for each patient. The minimum nurse/patient staffing ratio for an ICU bed should be 1:1 and for a HDU bed 1:2. Accurate nurse staffing ratios can only be calculated when a suitable measurement tool is developed and the casemix is reflected in the exercise.
9. The Group supports the guidance of the Intensive Care Society that dedicated consultant sessions are required to staff an Intensive Care Unit. Consultant cover should be available at all times for all units.
10. All junior doctors in anaesthetics are exposed for short periods to training in intensive therapy. However there is need for an advanced training programme for a small number of doctors who have a particular interest in intensive therapy. It is recommended that 2 training posts providing a one year rotational programme which is open to all relevant disciplines should be established at the earliest opportunity.

11. All units should have technical, administrative and clerical support.
12. Equipment must be maintained in accordance with HEL/98(3), which requires the appointment of an Equipment Controller. Maintenance and replacement of expensive equipment must also be properly monitored and planned.
13. A common patient severity scoring system should be used in all units to enable accurate comparisons to be made between hospitals. The Working Group recommends that the Apache II/III System should be extended to all units.
14. Regular medical and clinical audit should be carried out by all units; to facilitate this standardised data sets should be introduced and units should have access to audit assistants to help collect, input and collate data.
15. Under the new contracting arrangements in the Health Service it is important that costing information is available in all units. This would enable accurate costings to be apportioned to in-house transfers and transfers from other hospitals.

GUIDELINES FOR INTENSIVE CARE/HIGH DEPENDENCY UNITS

The Working Group agreed that guidelines should be formulated which provide advice on admission to, treatment in and discharge from Intensive Care/High Dependency Units. A small Sub Group chaired by Dr Anne-Marie Telford was established to carry out this task. The membership of the Sub Group is given in Appendix 2. The Sub Group produced the following guidelines which were endorsed by the full Working Group.

Guidelines for Intensive Care Units

Guidelines for admission of patients to Intensive Care Units

1. Admission to an ICU should normally be agreed between the referring Consultant and the Consultant managing the ICU.
2. The following steps should be followed by the ICU doctor on each occasion when a request for intensive care is sought.

- (a) For patients being transferred within the hospital it would normally be appropriate for an ICU Consultant to see the patient prior to making a decision on admission.

In those cases where the patient's status is critical, a pre-admission assessment could delay management and would generally be inappropriate.

- (b) On seeing the patient the ICU Consultant, together with the referring Consultant, should decide whether the patient is likely to benefit from intensive care. It may be appropriate to admit for assessment and to monitor the initial response to therapy.
- (c) The ICU Consultant should check the available level of service which the ICU can offer both in terms of the number of beds and the number of nurses available in the current and subsequent shift.

- (d) If there is an agreed need for intensive care and ICU beds are unavailable in the hospital, it should be the shared responsibility of the referring clinician and the ICU Consultant to make efforts to arrange appropriate alternative care. The Unit General Manager or Trust Chief Executive should be informed of the difficulty and the resource implications.
 - (e) Where a Consultant in another hospital requests admission and transfer of a patient to an ICU but beds are unavailable, it remains the responsibility of the referring Consultant to arrange appropriate care. The Unit General Manager or Trust Chief Executive should be informed of the difficulty and the resource implications.
 - (f) When a severely ill patient has to be transferred to an Intensive Care Unit in another hospital it is essential that the patient should be accompanied by an experienced doctor with the appropriate skills in resuscitation.
3. The refusal of an admission to an ICU on clinical grounds should only be made by an ICU Consultant.
 4. Patients undergoing elective high-risk major surgery should be booked into an ICU giving as much notice as possible.
 5. Each hospital should have facilities for the maintenance and support of potential organ donors. Such patients could be admitted to Intensive Care Units provided that:
 - (a) they are not displacing those potentially capable of recovery;
 - (b) they are not currently being supported in another ICU/HDU; and
 - (c) the patient's relatives have been informed and have agreed to the transfer and subsequent organ retrieval.
 6. There is a need to ensure that close co-operation exists between the ICU and HDU so that the transfer of patients in either direction should proceed smoothly.

Guidelines on clinical management of patients in ICUs

1. While in most cases clinical management can be shared between the ICU Consultant and the referring Consultant one individual should have the final responsibility and this should be the ICU Consultant.
2. A patient dependency scoring system should be used to determine accurately the level of nursing resources required for each patient. The system used must be appropriate for ICU patients. (2)
3. Should the referring Consultant wish to make alterations to his/her patient's treatment this should be done in consultation with the Consultant in charge of the Intensive Care Unit. In this way it is hoped that any possible confusion will be avoided and full understanding and co-operation maintained.
4. Whereas a patient's general management will be agreed in consultation between the parent team and the staff of the Intensive Care Unit, the latter must be given the right to initiate and carry out any emergency treatment which may be necessary without prior discussion.
5. Each ICU must have written locally agreed guidelines for the management of potential organ donors and staff must be familiar with these guidelines.
6. The management and outcome of care should be the subject of regular systematic medical audit.
7. Clinical audit and joint audits between Intensive Care and referring clinicians should be encouraged. Medical and clinical audit will require agreed common databases and appropriate administrative support.

Guidelines on the withdrawal of treatment

1. A decision to withdraw medical treatment should only be reached following discussion between the referring Consultant, the Intensive Care Consultant, senior nursing staff in Intensive Care and the patient's immediate family. The patient's views, where expressed, should also be taken into account.
2. It may sometimes be appropriate to delay the implementation of the decision to withdraw treatment to allow relatives time to come to terms with the situation; this should be only for a limited period.

Guidelines on discharge of patients from ICUs

1. Assessment of the continuing appropriateness of intensive care should be made as soon as practicable after admission. Thereafter assessment should be carried out on a regular basis which should be at least daily.
2. It is essential that the referring Consultant is involved in the decision to discharge a patient from the Intensive Care Unit. The patient's relatives should then be informed that intensive care is no longer considered necessary.
3. While it is to be hoped that the decision can be reached as a result of agreement, one individual should have the final responsibility for discharge and this should be the Intensive Care Consultant.

4. The referring Consultant should make a bed available for transfer as soon as possible so that intensive care beds are not blocked. The availability of a separate High Dependency Unit on site greatly facilitates earlier discharge from an Intensive Care Unit and its further development should be encouraged.
5. A written discharge letter or note should accompany every patient who is being transferred out of the ICU either to another department within the hospital or to another hospital.

Guidelines for management of deaths in an ICU

1. The referring Consultant should be informed promptly of the death of the patient.
2. Should the referring Consultant wish to have a post-mortem undertaken, it is his/her responsibility to make the appropriate arrangements.
3. A photocopy of the patient's clinical summary which forms part of the post-mortem request form should be kept in the patient's chart.
4. The coroner or his deputy should be informed at the earliest opportunity where this is appropriate.
5. Staff in the Intensive Care Unit should inform the patient's general practitioner within 24 hours.
6. A written summary should be sent to the patient's general practitioner within 2 weeks of the death. Responsibility for this lies with the referring Consultant but the intensive care doctor may consider it appropriate to issue a separate summary.

Guidelines for High Dependency Units

Guidelines for admission of patients to High Dependency Units

1. Admission to a HDU should normally be agreed between the referring Consultant and the Consultant/Senior Registrar managing the HDU.
2. The following steps should be followed by the HDU doctor on each occasion when a request for high dependency care is sought.
 - (a) For patients being transferred from within the hospital it would normally be appropriate for a HDU Consultant/Senior Registrar to see the patient prior to making a decision on admission.

In those cases where the patient's status is critical, a pre-admission assessment could delay management and would generally be inappropriate.

- (b) On seeing the patient the HDU Consultant/Senior Registrar, together with the referring Consultant, should decide whether the patient is likely to benefit from high dependency care. It may be appropriate to admit for assessment and to monitor the initial response to therapy.
 - (c) The HDU Consultant/Senior Registrar should check the available level of service which the HDU can offer both in terms of the number of beds and the number of nurses available in the current and subsequent shift.
 - (d) If there is an agreed need for high dependency care and HDU beds are unavailable in the hospital, it should be the shared responsibility of the referring clinician and the HDU Consultant/Senior Registrar to make efforts to arrange appropriate alternative care. The Unit General Manager or Trust Chief Executive should be informed of the difficulty and the resource implications.

- (e) Where a Consultant in another hospital requests admission and transfer of a patient to a HDU but beds are unavailable, it remains the responsibility of the referring Consultant to arrange appropriate care. The Unit General Manager or Trust Chief Executive should be informed of the difficulty and the resource implications.
3. The refusal of an admission to a HDU on clinical grounds should only be made by a HDU Consultant/Senior Registrar.
 4. Patients undergoing elective high-risk major surgery should be booked into a HDU giving as much notice as possible.
 5. There is a need to ensure that close co-operation exists between the ICU and HDU so that the transfer of patients in either direction should proceed smoothly.

Guidelines on clinical management of patients in HDUs

1. While in most cases clinical management can be shared between the HDU Consultant/Senior Registrar and the referring Consultant one individual should have the final responsibility and this should be the HDU Consultant.
2. A patient dependency scoring system should be used to determine accurately the level of nursing resources required for each patient. The system used must be appropriate for HDU patients. (2)
3. Should the referring Consultant wish to make alterations to his/her patient's treatment this should be done in consultation with the Consultant/Senior Registrar in charge of the High Dependency Unit. In this way it is hoped that any possible confusion will be avoided and full understanding and co-operation maintained.

4. Whereas a patient's general management will be agreed in consultation between the parent team and the staff of the High Dependency Unit, the latter must be given the right to initiate and carry out any emergency treatment which may be necessary without prior discussion.
5. The management and outcome of care should be the subject of regular systematic medical audit.
6. Clinical audit and joint audits between high dependency care and referring clinicians should be encouraged. Medical and clinical audit will require agreed common databases and appropriate administrative support.

Guidelines on discharge of patients from HDUs

1. Assessment of the continuing appropriateness of high dependency care should be made as soon as practicable after admission. Thereafter assessment should be carried out on a regular basis which should be at least daily.
2. It is essential that the referring Consultant is involved in the decision to discharge a patient from the High Dependency Unit. The patient's relatives should then be informed that high dependency care is no longer considered necessary.
3. While it is to be hoped that the decision can be reached as a result of agreement, one individual should have the final responsibility for discharge and this should be the High Dependency Care Consultant.
4. A written discharge letter or note should accompany every patient who is being transferred out of the HDU either to another department within the hospital or to another hospital.

Guidelines for management of deaths in a HDU

1. The referring Consultant should be informed promptly of the death of the patient.
2. Should the referring Consultant wish to have a post-mortem undertaken, it is his/her responsibility to make the appropriate arrangements.
3. A photocopy of the patient's clinical summary which forms part of the post-mortem request form should be kept in the patient's chart.
4. The coroner or his deputy should be informed at the earliest opportunity where this is appropriate.
5. Staff in the High Dependency Unit should inform the patient's general practitioner within 24 hours.
6. A written summary should be sent to the patient's general practitioner within 2 weeks of the death. Responsibility for this lies with the referring Consultant but the high dependency care doctor may consider it appropriate to issue a separate summary.

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2. Hayes E. Matching demands and resources in an intensive care environment. *Intensive Care Nursing* 1991, 7, 206-213.
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APPENDIX 1 Membership of Intensive Care Working Group

Dr P G McClements (Chairman)	Principal Medical Officer CREST Convenor
Dr J P Alexander	Consultant Anaesthetist Belfast City Hospital
Dr R Armstrong	Consultant Anaesthetist Ulster Hospital
Dr I M Bali	Consultant Anaesthetist Waveney Hospital
Dr R J T Carlisle	Consultant Anaesthetist Daisy Hill Hospital
Dr D L Coppel	Consultant Anaesthetist Royal Victoria Hospital
Dr G Furness	Consultant Anaesthetist Altnagelvin Area Hospital
Mrs E Hayes	Nurse Manager Royal Victoria Hospital
Dr J M F Maginness	Consultant Anaesthetist Tyrone County Hospital
Dr G R Mock	Senior Medical Officer DHSS
Dr W McCaughey	Consultant Anaesthetist Craigavon Area Hospital
Dr A M Telford	Consultant in Public Health Medicine Northern Board
Dr C H Watters	Consultant Anaesthetist Coleraine Hospital
Miss A M Lowry} Mr A V Walton}	CREST Secretariat

APPENDIX 2 - Membership of Sub Group on Guidelines for Intensive Care/High Dependency Units

Dr A M Telford (Chairman)	Consultant in Public Health Medicine Northern Board
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