



Western Health

Evaluation of the ICU liaison nurse model in Victoria, Australia

This project will look at the feasibility of including an early warning alert system for referring unstable ward patients to the intensive care unit (ICU) liaison nurse (LN). Additionally, the project will identify essential qualifications, experience and skills required by ICU LN staff.

Anna Green



Acknowledgements

I would like to thank the Department of Human Services and the Victorian Quality Council for this wonderful experience to be able to travel overseas to explore innovative programs. The success of my trip would not have been as enjoyable if it wasn't for the generous people I met whose hospitality and openness to sharing information made this possible. I sincerely thank all the people I met with and I look forward to keeping you updated on my progress back here in Victoria.

Thank you

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1.0 Project information

Fellow's name	Anna Green
Title of project	Evaluation of the intensive care unit (ICU) liaison nurse (LN) model in Victoria
Fellow's study area	Workforce strategies and workplace culture
Fellow's organisation	Western Health
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Date of report	3 July 2008

2.0 Project summary

2.1 Rationale/purpose of the project

The purpose of this project was to identify best practice ICU liaison nurse model and to ascertain the professional requirements for the nurses in this role.

2.2 Top three outcomes

1. Discussion and documentation for points of differentiation between outreach services in the United Kingdom and the ICU liaison services in Australia, which will assist in not only improving the service at Western Health but also with identifying a best practice model.
2. Identification of essential and desirable attributes for staff working in this role, including qualifications.
3. Opportunity to attend a national outreach forum with a view to implement a similar network for the ICU liaison services in Victoria.

2.3 Main activities undertaken

- The project was submitted to the Western Health Office of Research and was approved as a quality assurance project.
- Review of the latest publications, conference presentations and advice from key contacts on relevant sites to visit. An additional six sites were identified from the original submission, bringing the total number of sites visited to ten.
- Approval obtained from my expert referee for the additional sites added to the original submission.

- Contacted and negotiated itinerary with key contacts. Need to allow four to five months as some sites required contracts to be signed and approved.
- Prior to travelling to the United Kingdom a survey was developed and distributed to key contacts to gain information on hospital descriptors, outreach staffing, outreach service provided and specific information relating to the outreach role (see attachment 1). A plain language statement was attached with the survey. This gave an overview of the type of information I wanted to collect.
- I confirmed site visits and details of where to meet with key contacts several days prior to visit.
- Compiled site visit reports and sent to key contacts for verification of accuracy and the ability to add information if required.
- Assessing and analysing interview notes, surveys and data collected.
- Recommendation for implementing value added changes to Western Health's ICU Liaison Service and a broader program to assist with the development of this service for the Victorian healthcare.

2.4 Major learnings

I visited ten hospital sites spread throughout the north, east and south of England. Part of my aim was to look for similarities between the outreach services that could support a best practice model for Victoria. I was also interested in variances and whether these variances were attributable to local issues or were worth considering on a broader scale.

During the site visits I had numerous scheduled meetings with other disciplines that were involved with the acutely ill patient on the ward. Some of these meetings highlighted improvement opportunities for Western Health that will involve 'buy in' from stakeholders in other departments.

All ten sites except one had an outreach service. The site that did not support an outreach service had implemented a new role titled 'advanced critical care nurse practitioner'. This role performed many of the functions of an outreach service, including but not limited to, use of an early warning system throughout the hospital, review of ward patients in crisis and follow up of ICU patients.

I have compiled a brief outline of the common findings that were duplicated in many of the sites visited and compared this to practices within Victoria:

<i>UK observation</i>	<i>Victorian practice</i>	<i>Discussion of differences/ comments</i>
<i>Position requirements / qualifications</i>		
The outreach teams have different classifications for the staff within the team from highest ranking to lowest ranking: nurse consultant, lead nurse, Band 7 down to Band 5. In the UK, a staff member may be qualified at a Band 7 level but cannot apply for that level unless a position becomes available.	ICU LNs have the same classification in the one organisation but differences exist between organisations, such as nurse consultant, clinical nurse specialist.	Consideration be given to the classification of staff in the ICU LN role.
Nurse consultant position must be at a masters level.	Nurse practitioner position is at the masters level.	Recommend masters qualification for nurse consultant/nurse practitioner positions.
The nurse consultant and the lead nurse position are recognised for their non-clinical components of the role. The majority have a 50 per cent non-clinical component.	Some ICU LNs are recognised for their non-clinical component of the role (20 per cent).	Highly recommend for non-clinical component to be recognised by employers.
Some of the sites visited had successfully trialled staff with qualifications other than ICU course, for example, coronary care, medical nurse practitioner.	To date all ICU LNs have a critical care/ICU qualification and have recently been working in ICU.	Would definitely consider employing staff from other areas, such as coronary care, recovery room, and emergency department.
<i>Hours of operation</i>		
The majority of services visited provided a 24-hour service seven days	Similar to the UK the hours of service is dependent on individual	The outreach teams that did not have over-night cover

<i>UK observation</i>	<i>Victorian practice</i>	<i>Discussion of differences/ comments</i>
per week. Many had two staff working simultaneously for the day shift and some had two staff rostered on for the night shift. Many services were at varying stages of putting together a business case for increasing to 24-hour service.	organisations and available funding.	relied on the site manager or the ICU registrar to respond to pagers/bleep. This is an innovative model that is being implemented world-wide to support ward staff in the management of the deteriorating ward patient. Careful consideration is needed to adequately fund these services.
<i>Scope of practice / key accountabilities</i>		
All of the models utilised extended practices including: ordering of diagnostic/radiological test, making referrals to medical specialists, use of patient group directives. A few outreach staff had undertaken a prescriber's course but was not prescribing in their organisation.	Only one ICU LN staff member in Victoria has been endorsed at the nurse practitioner level. Several ICU LNs are considering the nurse practitioner pathway.	It is clear that extended practices are required in the ICU LN role. Consideration should be given to supporting Victorian ICU LNs to progress towards nurse practitioner status.
Provide a nurse led rapid response service to the deteriorating ward patient – referred to as the 'patient at risk team'.	The ICU LN teams at Western and Sunshine hospitals provide a nurse led rapid response service. At other organisations the medical emergency teams (MET) provide this service.	Recommend the scope of practice of ICU LNs be expanded to incorporate a rapid response service.
Assist in external transfers of patients to other hospitals, including	The ICU LN teams do not provide this service. ICU and	Would not recommend the removal of ICU LNs

<i>UK observation</i>	<i>Victorian practice</i>	<i>Discussion of differences/ comments</i>
patients in emergency and ICU departments.	emergency nursing staff will if required go on external transfers.	from the hospital to attend external transfers, unless there were two ICU LNs on duty for the shift.
Resuscitation staff are members of the outreach team. All staff are responsible for basic life support (BLS)/advanced life support (ALS) training and the provision of ALERT or similar complex care courses.	Resuscitation coordinators are separate to the ICU LN teams. All of the ICU LNs provide complex care education +/- members of the CPR committee.	I would support the amalgamation of the resuscitation coordinator position to sit within the ICU LN department. This would allow for sick leave and other leave replacement as well as sharing the BLS/ALS training for all hospital staff.
Attend trauma calls within the emergency department.	At Western Health the ICU LN team has assisted the emergency department when workload demand is high.	Having the ICU LN assist in the emergency department removes this resource from the ward.
All of the sites had implemented an early warning system with the majority of sites using a weighted score model.	The MET and the ICU LN model at Western Health utilise a single parameter early warning system.	Some of the sites visited identified issues related to staff not recording all the vital signs and not adding up the score correctly. I found the weighted score model added another layer of complexity to identifying the deteriorating ward patient.
The threshold for calling for assistance to review the deteriorating ward	The ICU LN criteria utilised at Western Health has a lower	Lowering of the MET criteria threshold may result in an

<i>UK observation</i>	<i>Victorian practice</i>	<i>Discussion of differences/ comments</i>
patient is lower than that utilised by the MET model.	threshold for calling for assistance to review the deteriorating ward patient compared to the MET model.	increase in calls being made. At this stage I see no reason for changing the parameters utilised by the ICU LN.
Many of the sites visited reported only 20 per cent of patients had respiratory rate recorded. In the UK healthcare assistants not registered nurses undertake checking vital signs.	Have not noticed this to be an issue at Western Health. This could be an issue at other organisations.	I strongly recommend the continuation of registered nurses in checking vital signs.
One of the sites visited had a dedicated retrieval team that consisted of the 'floater' nurse in ICU.	At Western Health the ICU LN is the retrieval team for ward patients to ICU.	Using a ICU floater is an excellent initiative that enables the Outreach service to continue functioning.
Many sites had dedicated vascular access teams. These teams were implemented to reduce multiple failed attempts of cannulation and to reduce the risk of line related sepsis.	Not aware of vascular access teams in Victoria.	Worth considering for organisations that have a high incidence of line related sepsis.
A large number of services provided a follow up clinic for ICU patients to visit three months after discharge from hospital.	In Victoria I am aware of a few ICUs that send bereavement cards but not aware of any that provide a follow up clinic.	This is an unfunded service in the UK but deserves consideration as it has shown to be of psychosocial benefit for this group of patients.
<i>Evaluation</i>		
Outcome measures included but are not	The outcome measures are very similar to	Recommend a list of common

<i>UK observation</i>	<i>Victorian practice</i>	<i>Discussion of differences/ comments</i>
limited to: <ul style="list-style-type: none"> ▪ ICU readmission rates ▪ point prevalence study for adherence to early warning system ▪ signs of deterioration prior to cardiac arrest ▪ ICU mortality ▪ hospital outcome ▪ number of cardiac arrest calls ▪ number of 'do not attempt resuscitation' orders. 	those used at Western Health minus the point prevalence study for adherence to early warning system.	outcome measures be identified. This will allow for comparisons across different organisations.

There are numerous strategic and operational initiatives that I will be looking at implementing at Western Health to improve upon the existing ICU Liaison Service relating to, equipment, policies, flowcharts and implementing monthly team meetings.

A few key learning's involve the 'buy in' from stakeholders, +/- other health personnel to lead the initiatives. For these key learnings, individual meetings with key stakeholders will be organised to assess if process changes required.

Synthesis of the information will be ongoing post submission of this initial report. Recommendations may change as a result of stakeholder consultations.

2.5 Lessons for the Victorian healthcare system

The last hospital site I visited was in Newcastle. This was perhaps one of the most valuable learnings of the trip in assisting me with a vision for changing the Victorian healthcare system. I was fortunate to be invited to a national outreach forum. This is a monthly meeting where the outreach nurses meet and discuss the following activities:

- network and national updates
- outreach activity data
- rehabilitation after critical illness
- deteriorating patient and surviving sepsis update
- point prevalence study planning
- individual updates.

As part of the second stage of the travelling fellowship I will be convening a meeting of Victorian State ICU Liaison Nurses to identify scope of practice, classification, qualifications and outcome measures. The major advantage of convening a state ICU liaison nurse meeting is ownership of the documents and to provide support in establishing this role to meet the future needs of the Victorian healthcare system.

The development of a universal database for collecting relevant data to evaluate the ICU liaison service is recommended.

The development of an ICU liaison web address would provide a site for sharing of information both from a state, national and international perspective.

Inviting relevant departments within the Department of Human Services (the department) to participate and contribute to the Victorian State ICU Liaison Nurse meetings will be vital for its success. Some basic requirements would include use of a meeting room and equipment at the department; additionally, exploring the possibility of funding organisations for extending the scope of practice for ICU Liaison nurses to that of nurse practitioner.

The use of a PDA for the recording of observations and alerting relevant staff when parameters fall outside the normal limits was being trialled on a medical assessment unit at Portsmouth Hospital. Additionally, the PDA allowed direct access to biochemistry results and stored numerous protocols. The nursing staff on the medical assessment unit viewed the use of PDA compared to the traditional observation charts positively where it was being trial. Other sites are in the process of implementing this tool.

The follow up clinic service is currently not provided for in Victoria and is worthy of further consideration.

3.0 Description of the study itinerary

This report provides a comprehensive overview of each site visited using predetermined headings that include: hospital descriptors, ICU descriptors, outreach team staffing, outreach team service, key lessons learned and documents obtained.

3.1 The Royal Free Hospital (NHS Trust)

The Royal Free Hospital is located in Hampstead, approximately 30 minutes northwest from central London.

Date of visit

Tuesday 26 May 2008

Key contacts

Carol Ball	Nurse Consultant Critical Care – Strategic Lead, Outreach Team
Sarah Crawford	Lead Nurse, Patient at Risk and Resuscitation Team – Operational Lead for Outreach Team
Lauren Geddes	Physiotherapist Team Leader
Katherine Hopkins	Nurse Consultant Palliative Care

Activities undertaken during the visit:

- interview with key contacts
- review of the retrieval trolley.

The hospital and intensive care unit descriptors

1. Number of hospital beds: 650
2. Number of intensive care unit beds:

	<i>General ICU</i>	<i>HDU</i>	<i>Total no. beds</i>
Available beds	21	3	24

* Beds can be flexed up or down to meet the patient demands

3. Number of ICU admissions per annum: 1,000
4. Number of monitored beds external to the ICU:

<i>Ward type</i>	<i>Total no. monitored beds</i>
Thoracic Ward	4
CCU	4
Medical Assessment Unit	6

*NB: The thoracic ward accepts non-tracheostomy patients for BiPAP ventilation.

Key selection criteria

Essential:

- registered nurse
- acute care course, usually in intensive care, will consider coronary care
- masters of nursing for nurse consultant.

Desirable:

- physical assessment course (first degree/honours level). Will employ staff without this qualification and train when places become available.

Classification of outreach staff

Position	Classification	Reporting structure
Nurse consultant	Band 8c	Director of nursing
Lead nurse	Band 8a	Nurse consultant
Outreach nurses	Band 7	Lead nurse

The outreach team service

Total EFT (equivalent full time) employed into the outreach team service?	9.6 EFT
What are the current days of operation?	Monday to Sunday
What are the hours/shifts of operation?	24 hour service / 12.5 hour shifts
NB: Two outreach nurses on during the day and one on during the night	
NB: One staff member works as a resuscitation coordinator (Monday to Friday)	

Key accountabilities of the outreach team:

- follow up patients post ICU discharge
- lead patient at risk team
- responsible for resuscitation training
- attend trauma calls to assist anaesthetist
- attend cardiac arrest calls and support ward staff
- liaise with the palliative care team
- education including ALS/BLS training, tracheostomy management and continuous positive airways pressure (CPAP)
- manage ward patients on CPAP
- attend relevant committees
- clinical guideline writing
- audit outreach service activity.

Average number of patients assessed per day:

On average nine patients assessed per day (can be as high as 20). On a typical day:

- three patients discharged from ICU
- four patients referred via the patient at risk pathway
- two patients referred via the trauma call.

Early warning system utilised

Type of early warning system used is the single parameter model.

Extended practices:

- initiation of CPAP
- ordering pathology tests.

Outcome measures used in validating the service:

- ICU readmission rate reduced by six per cent
- survival to discharge from hospital for ICU patients, increased by six per cent
- cardiac arrest prior to the ICU admission decreased, but no evidence of improved survival after ICU admission
- severity of illness prior to ICU admission reduced but no impact demonstrated on length of stay or decreased case adjusted mortality
- point prevalence study for adherence to early warning system on one day for whole hospital, 99 per cent adherence demonstrated. Attributed to simplicity of early warning system and clear escalation system.

Biggest impact following implementation of the outreach service:

- reduction in cardiac arrests
- reduction in ICU readmission rates
- improved survival to discharge once transferred from ICU
- adherence to early warning system.

To improve on the current service, the need for the following extended practices was identified:

- perform arterial blood gasses (ABGs), analyse and initiate treatment
- prescribe IV fluids
- order and interpret chest x-rays (CXRs)

Key lessons learned

- **Long-term ventilation round** – a clear weaning plan is identified and adhered to and prevents rotating ICU consultants from setting their own weaning goals.

- **ICU tracheostomy weaning round** – weaning of patients with tracheostomy tubes commences in the ICU with the aim of decannulation prior to the patient being discharged to the ward.
- **Lane Fox Hospital** – the outreach nurse at this hospital will visit your hospital and offer advice for patients experiencing difficulty in weaning from the ventilator.
- **Emergency physiotherapy service after-hours** – after-hours physiotherapist on-call service between the hours of 17:00 hrs to 09:00 for the treatment of patients with respiratory deterioration.
- **Palliative care scope of practice** – combined community and hospital service that are referred 40 per cent of non-oncology patients. Works closely with outreach service in implementing ‘not for resuscitation’ orders and in caring for dying patients throughout the hospital.
- **Liverpool Care Pathway (LCP)** – for the dying patient provides evidence based framework for the delivery of appropriate care for dying patients and their relatives in a variety of care settings.
- **Patient at risk trolley** – a trolley that is used for retrieval and monitoring of patients in the ward whilst waiting for an ICU bed to become available.

Strategies that would maximise facilitators or mitigate barriers to introduction in your health service

Implementation of a patient at risk trolley would be of value as specialised equipment is often required to manage the patient in the ward until the ICU bed is available. Having all the equipment ready for use would save multiple trips to ICU to obtain the specialist equipment and would reduce delay in performing invasive procedures and implementing therapies. Cost and storage of the trolley may be an issue.

There are a number of initiatives identified that are reliant on stakeholder approval for successful implementation. Engagement of stakeholders in discussions about long-term ventilation round, ICU tracheostomy weaning round, palliative care scope of practice and LCPs is recommended. The approval and implementation of many of these initiatives is outside the scope of this project.

If the role of the ICU liaison nurse is to include remaining with a critically ill patient on the ward either escorting patient for a scan or specialising patient whilst waiting for an ICU bed to become available then this takes up all the resource. It is recommended that the ICU Liaison service has a back-up plan for these times. Consideration could be given to ICU staff providing the retrieval service or alternatively increasing the number of ICU Liaison staffing working per shift.

Documents obtained

Acutely ill patients in hospital	www.nice.org.uk/CG050
Understanding nice guideline	www.nice.org.uk/CG050
Acutely ill patients in hospital-	www.nice.org.uk/CG050

Quick reference guide	
Safer care for the acutely ill patient: learning from serious incidents	www.npsa.nhs.uk
End of Life national website	www.endoflife.nhs.uk
Liverpool Care Pathway	www.mcpil.org.uk
Trajectories of death modelling	www.goldstandardsframework.nhs.uk
Short clinical guideline scope	PDF
Point Prevalence Study	Document
PARRT Operational Policy	Document
Palliative Care Operational Policy	Document
Care of the dying pathway – hospital intensive care unit	Document
Patient At Risk Trolley	Document
Critical care minimum dataset	Chart
Patient at Risk Team and Resuscitation Team Algorithm	Chart
Patient at Risk Assessment and Actions to be considered	Chart
Patient at Risk Resuscitation Team Daily Sheet	Chart
PARRT/Cardiac Arrest Audit Form	Chart
In Hospital Trauma Audit Form	Chart
PARRT Follow-Up Assessment Sheet	Chart

3.2 Brighton and Sussex University and Princess Royal Hospitals

These hospitals are located in Sussex, which are southeast from London and approximately 1.5 hours via rail. The hospital sites are approximately 15 minutes apart.

Date of visit

Thursday 29 May 2008

Key contacts

Denise Hinge	Nurse Consultant – 50 per cent non-clinical (strategic, research, education)
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Activities undertaken during the visit:

- interview with key contact
- ICU and ward tour
- in the afternoon attended the monthly outreach team meeting.

The hospital and intensive care unit descriptors

1. Number of hospital beds at Brighton and Sussex: 500
Number of hospital beds at Princess Royal: 300
2. Number of intensive care unit beds at Brighton and Sussex University: patients requiring ICU at Princess Royal are transferred to Brighton and Sussex University.

	General ICU	HDU	Total no. beds
Available beds	10	4	14

* Beds can be flexed up or down to meet the patient demands.

3. Number of ICU admissions per annum: 750
4. Number of monitored beds external to the ICU:

Ward type	Total no. monitored beds
Cardiac HDU	8 (balloon pump + short term ventilated patients)
Coronary care unit	6 (balloon pumps + inotropes + CPAP)
Renal ward	4 (monitored beds only)

Key selection criteria

Essential:

- registered nurse
- post-basic qualification in critical care
- physical assessment course (master's module)

- nurse consultant requires master level or working towards it
- past experience in teaching either formal or informal presentations
- excellent communication skills.

Classification of outreach staff

<i>Position</i>	<i>Classification</i>	<i>Reporting structure</i>
Nurse consultant	Band 7	Nurse unit manager (NUM) /Matron of ICU
Outreach nurses	Band 7	Nurse consultant outreach

NB: The ICU manager is responsible for outreach service budget

The outreach team service

Total EFT employed into the outreach service?	Four EFT (three at Brighton and Sussex and one at Princess Royal)
What are the current days of operation for Brighton and Sussex?	Monday to Sunday
What are the current days of operation for Princess Royal Hospital?	Monday to Friday
What are the hours/shifts of operation at Brighton and Sussex?	Day time service / 9.5 hour shifts 8:00-18:00hrs
What are the hours/shifts of operation for Princess Royal Hospital	Day time service / 8 hour shifts 6:00-14:30 Monday and Thursday 1400-22:30 Tuesday and Friday 9:00-17:00 Wednesday

NB: Staff will work passed 18:00 hrs and take time in lieu when quiet.

NB: After-hours site manager carries the pager and responds to referrals for outreach team. Planning for 24hr service (not funded yet).

Key accountabilities of the outreach team:

- follow up patients post ICU discharge
- lead patient at risk team
- attend cardiac arrest calls and support ward staff
- assist in the transfer of critically ill patients within the hospital
- will special patients in ICU and accident and emergency (A&E) department
- go on patient transfers to other hospitals (including A&E transfers)
- responsible for resuscitation training
- education including ALS/BLS training
- clinical risk
- audit/research work
- attends relevant committees.

Average number of patients assessed per day

On average 15 patients assessed per day. On a typical day:

- eleven patients on the caseload from ICU
- four to five patients referred via the patient at risk pathway.

Early warning system utilised

The type of early warning system used is the weighted score model (MEWS). This is currently being 'rolled out' throughout the hospital. The observation chart is colour coded to identify when parameters fall outside the range limits.

Extended practices:

- can order pathology and radiology tests but is not performed as medical staff order these tests
- have patient group directives for nurse administration of ventolin nebulisers
- do not have admitting rights to ICU/ high dependency unit (HDU) but may refer a patient to the ICU team (in collaboration with the parent team).

Key lessons learned

- **Junior medical staff** – only work to 24:00 hours as not enough support for them over-night. Interesting concept, recommend review of current practices at Western Health.
- **Frequency of vital signs** – determined by senior nursing staff, minimum standard 12 hourly.
- **Monthly meeting** – for outreach team members from both sites – discuss projects and set goals for the next month.
- **Multiple outreach services across different campuses** – staff do not rotate between the sites. This is different to Western Health where staff rotate between the two hospitals.
- **Level of acuity audit** – performed for all inpatients and given classification to look at number of high acuity patients on ward to determine unmet needs.
- **Short courses** – outreach team runs resuscitation course / alert course.
- **Resuscitation staff** – nurse consultant manages the resuscitation team of 4.6 staff.
- **MEWS score** – performed from A&E to the ward for all patients. Excellent idea in identifying patients at risk who are being transferred to the ward.
- **Colour coded observation charts** – give clear idea of vital signs that fall outside the normal parameters.
- **Site manager** – overnight the site manager responds to referrals for deteriorating ward patients. The site manager can certify death certificates for expected deaths only. Site manager leads cardiac

arrest and can cannulate. Greater clinical role component when comparing with after-hours supervisor role.

Strategies that would maximise facilitators or mitigate barriers to introduction in your health service

Monthly team meetings are essential in providing support for staff working in stressful autonomous positions. These meetings enable all staff to discuss projects they are working on. Highly recommend for implementation at Western Health. Will need approval from divisional director as it will involve 'double up of staff' and reduced service being provided whilst meeting in progress.

At Western Hospital the recovery staff refer all patients at risk of deterioration to the ICU Liaison Team for ongoing review when being discharged to the ward. This needs to be introduced into the emergency department.

Review of the observation chart. I have obtained many great examples of what should be included on the observation chart and on layout/design. I believe there should be a Victorian standardised observation chart (similar to the approach taken for the medication chart). This would need 'buy in' from major hospitals and from the department. Western Health has recently revised the observation chart. It would not be cost effective or well received to develop a new chart at this stage.

Some great examples for multi-skilled roles with the site manager over night acting as an outreach nurse and the amalgamation of the resuscitation team with the outreach service. I would have concerns with the site manager having the skills and knowledge to respond competently to the deteriorating patient. Additionally, responding to referrals can be problematic for site manager if high workload demands with site duties. This may be worth considering for smaller hospitals where workload demand is not as high as your major metropolitan hospitals.

Strongly recommend that the resuscitation coordinator position sits within the ICU liaison department. This would provide additional support for ALS/BLS training of all staff within Western Health. It would also enable two staff being available during the day to assist with high workload demands.

Would not recommend the use of ICU liaison service for escorting patients on external transfers as this removes this resource from the hospital. Additionally, the 'High Acuity Transport Service' provides a critical care nurse escort. This information will be reported back to the United Kingdom for consideration.

Rapid medical assessment unit is staffed by A&E and has seven monitored beds. The units were introduced to ensure the 4-hour time limit for patients in A&E department was not exceeded. Medical staff reluctant to move patients to the ward due to the higher level of monitoring provided.

Modified early warning score has increased the workload for ward medical staff. Important to have 'buy in' from medical staff if implementing an early warning system that utilises a weighted score model.

Documents obtained

Outreach Service – Operational guideline	Document
Competencies for recognising and responding to acutely ill patients in hospital	http://www.dh.gov.uk/publicatons
Epidural and MEWS observation chart	Chart
Neurological observation chart	Chart
Site where patients can discuss their ICU experience	www.dipex.org

3.3 Royal Berkshire NHS Foundation Trust

Royal Berkshire is located in Reading, 45 minutes from central London via rail.

Date of visit

Friday 30 May 2008

Key contacts

Mandy Odell	Consultant Nurse, Critical Care Clinical Lead for Outreach (50 per cent non-clinical)
Melanie Gager	Follow-up Sister, Intensive Care Unit

Activities undertaken during the visit:

- interview with key contacts
- went on some follow up visits
- attended ICU meeting
- attended follow up of ICU patients.

The hospital and intensive care unit descriptors

1. Number of hospital beds: 800
2. Number of intensive care unit beds:

	<i>General ICU</i>	<i>HDU</i>	<i>Total no. beds</i>
<i>Available beds</i>	9	2	11

*Beds can be flexed up or down to meet the patient demands. With high demand can utilise recovery for overflow.

3. Number of ICU admissions per annum: 600
4. Number of monitored beds external to the ICU:

<i>Ward type</i>	<i>Total no. monitored beds</i>
High monitoring unit (next to admissions)	Four – CPAP / Bi-level positive airways pressure (BiPAP)/ cardiac monitoring

Key selection criteria

Essential:

- registered nurse
- acute care course in critical care
- teaching
- masters for nurse consultant.

Classification of outreach staff

<i>Position</i>	<i>Classification</i>	<i>Reporting structure</i>
Nurse consultant	Band 8b	Divisional nurse and chief nurse
Outreach nurses (4 EFT)	Band 7	Outreach nurse manager / nurse consultant
Outreach nurses (2 EFT)	Band 6	As above

The outreach team service

Total EFT employed into the Outreach service?	6.0
What are the current days of operation?	Monday to Sunday
What are the hours/shifts of operation?	24 hours per day
NB: Two staff on at night (18:00-02:00) from October 2008	

Key accountabilities of the outreach team:

- assess acutely ill patients on general wards as referred by ward staff
- follow-up patients post ICU discharge
- do transfers out of ICU/accident and emergency
- attend paediatrics
- attend all code blues (member of the team)
- some self funding with teaching nurses in private sector
- audit and research work
- practice and policy development.

Average number of patients assessed per day

On a typical day ten patients referred via the patient at risk pathway.

Early warning system utilised

Type of early warning system used is the weighted score model.

Extended practices:

- initiation of CPAP / BiPAP
- insertion of laryngeal mask airway
- performing arterial blood gasses
- intravenous cannulation
- ordering pathology tests
- ordering radiological tests
- use of patient group directives for:
 - ◊ sodium chloride infusion
- referral to specialists.

Outcome measures used in validating the service:

- hospital outcome
- number of transfers to ICU/HDU (level 2/3)
- critical incidents.

Biggest impact following implementation of the outreach service:

- reduction in inappropriate admissions to ICU
- increased education and better ward performance
- increase in do not attempt resuscitation (DNAR) orders
- reduction in crash calls.

Key lessons learned

- **Patient diaries** – an overview of the patients stay in ICU is collated and given to the patient when attending the follow up clinic. Not achievable for all patients due to the extensive amount of time required to prepare the diaries.
- **Follow up clinic** – provides information for patients on their stay in ICU. Other health issues are identified at these clinics with referrals being made for other specialist involvement. Not funded by the National Health Service (NHS).
- **PDA** – in the process of implementing PDAs (personal digital assistance) for the documentation of observations.

Strategies that would maximise facilitators or mitigate barriers to introduction in your health service

Would recommend for patient diaries to be completed by ICU staff and relatives/friends on a daily basis. Would need ICU 'buy in' to implement this.

To my knowledge follow-up clinics are not undertaken in Australia. A nominated service should be funded to trial this innovative model.

Documents obtained

Patient observation chart	Chart
Fluid chart	Chart
Peripheral venous cannulation care plan	Chart
Consultant nurse job description	Document
Critical Care Outreach Operational Policy	Document
Questions about your health prior to your admission to ICU	Document
The traumatic screening questionnaire	Document
Guidelines for ward visit	Document
Resuscitation Status	Document
Decisions relating to cardiopulmonary resuscitation	Information booklet
Life after a critical illness	Booklet
Coping with traumatic experiences	Booklet

Odell M et al (2007) The effect of a critical care outreach service and an early warning scoring system on respiratory rate recording on the general wards. <i>Resuscitation</i> 74, 470-475	Article
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3.4 Queen Alexandra Hospital

Queen Alexander Hospital is located in Portsmouth, 1.5-2 hours from central London via rail.

Date of visit

Monday 2 June 2008

Key contacts

Sue Moore	Lead Nurse, Outreach Team (25 per cent non-clinical variable)
Dr Gary Smith	Consultant in Intensive Care Medicine

Activities undertaken during the visit:

- interview with key contacts
- review of the retrieval trolley
- meet with staff on the rapid assessment unit where they were using the PDAs for documenting observations. Live demonstration of the PDAs
- tour of the simulation laboratory and the ICU.

The hospital and intensive care unit descriptors

1. Number of hospital beds: 1000
2. Number of intensive care unit beds:

	<i>General ICU</i>	<i>HDU</i>	<i>Total no. beds</i>
<i>Available beds</i>	11	4	15

* Beds can be flexed up or down to meet the patient demands.

3. Number of ICU admissions per annum: 1100
4. Number of monitored beds external to the ICU:

<i>Ward type</i>	<i>Total no. monitored beds</i>
Surgical High Care	10
Respiratory High Care	5
Renal High Care	6
CCU	6
Medical Assessment Unit	59

*NB: The respiratory ward accepts non-tracheostomy patients for BiPAP ventilation.

Key selection criteria

Essential:

- registered nurse
- acute care course in critical care
- ALERT course
- have had two successful non ICU nurses in the role (medical nurse practitioner and resuscitation officer)
- diplomacy
- good communication skills
- time management and prioritising.

Desirable:

- ideally, masters for Band 7.

Classification of outreach staff

Position	Classification	Reporting structure
Lead nurse	Band 7	NUM ICU
Outreach nurses	Band 7, 6, 5	Lead nurse of outreach

NB: ICU manager responsible for outreach budget

The outreach team service

Total EFT employed into the outreach service?	6.4 EFT
What are the current days of operation?	Monday to Sunday
What are the hours/shifts of operation?	1. AM and PM shifts / 7.25hr shifts 07:00 to 14:45 and 13:45 to 20:30 2. Long day shifts / 07:00 to 20:30
NB: Two outreach nurses on during the day and two on during the afternoon shift.	
Overnight cover provided by the ICU registrar – handover. AHA emailed re all sick patients.	

Key accountabilities of the outreach team:

- follow up patients post ICU discharge
- respond to ward referrals
- meet with ICU registrar daily to discuss Level 2 ward patients
- ICU Follow up clinic
- attend relevant committees (high care group / deteriorating patient group / tracheostomy group).

Average number of patients assessed per day:

On average ten patients assessed per day (can be as high as 20). On a typical day:

- five patients discharged from ICU
- five patients via ward referrals.

Early warning system utilised

Type of early warning system used is the weighted score model.

Extended practices:

- initiation of CPAP / BiPAP
- ordering pathology tests
- use of patient group directives for:
 - ◇ oxygen therapy
 - ◇ sodium chloride infusion
 - ◇ gelofusine infusion.
- identified the need to order and interpret CXRs.

Outcome measures used in validating the service:

- ICU readmission rate
- decrease cardiac arrest calls
- decreased ICU mortality.

Biggest impact following implementation of the outreach service

Support for ward staff.

Key lessons learned

- **Rotation of ICU staff onto outreach service** – Six month rotation from ICU. Advantage is that there is less division between ICU and Outreach staff. Allows Outreach Nurses to rotate into ICU
- **Two staff on for each shift** – Enables junior ICU nurses and non-ICU nurses to rotate into the outreach service. One of the outreach nurses on must be critical care trained.
- **Retrieval team** – One-day training post critical care course. Retrieval team is for internal admissions to the ICU and retrieval of patients from other two hospital sites. Advantage is that the outreach nurse is not removed from clinical service to monitor patients on the ward whilst waiting for ICU bed to become available.
- **Retrieval bed** – A bed is set up complete with monitor, syringe drivers and ventilation equipment for transferring patients within the hospital and in retrieval of patients. All of the equipment was permanently fixed underneath the bed (trolley).
- **Intravenous cannulation team** – Consists of three nurses for insertion of all peripheral cannulations.
- **Encourage ICU medical staff to spend one day with outreach team.**

- **Encourage ward staff to spend one day with outreach team** – Post this the ward staff are assessed on their competency in managing acutely ill patients.
- **ICU follow-up clinic** – Quality of life questionnaire sent to ICU patients and invited to attend clinic three months post discharge from hospital.
- **ALERT course** (acute life-threatening events, recognition and treatment) – One day training course for pre-registration house officers, nurses and other medical staff in the recognition of acute life threatening events. It provides a common pathway for the assessment and management of critically ill patients.

Strategies that would maximise facilitators or mitigate barriers to introduction in your health service

Rotation of ICU staff into the ICU liaison service has been recognised as advantageous for Western Health for many years. The main preventative factor has been obtaining 'buy in' from ICU manager who is already dealing with shortages of ICU staff.

ICU liaison services in Victoria would need to recognise the dramatic increase in workload if considering leading the patient at risk team. A potential solution would be employing two staff on for the day. This would enable support for junior ICU liaison nurses.

Potentially the 'team leader' position could provide assistance with retrieval of patients into ICU. This would provide the ICU staff with insight into the difficulties ward staff has with managing ICU patients on the ward whilst waiting for an ICU bed to become available. It could potentially assist with breaking down the 'silos' between departments.

An intravenous cannulation team would consolidate the one team being utilised. Currently, in Western Health, we have multiple teams that are called upon when ward staff have difficulty in cannulating patients, for example, ICU liaison service, acute pain management team, anaesthetists, ICU registrar. Additionally, the radiology department is utilised for the insertion of a peripherally inserted central catheter (PICC) lines and the ICU department for the insertion of CVC lines.

The ALERT course is worth considering. Currently, Dr Gary Smith is developing an on-line program for staff to complete. There is a cost involved in utilising the ALERT manual.

Documents obtained

ALERT manual	Manual
Patient Observation Chart	Chart
Tracheostomy Care and Suction Chart	Chart
Tracheostomy Quick Reference Guide	Document
Critical Care Outreach Referral Form	Form
Critical Care Outreach Follow Up Form	Form
Competency Statement: Assessing the Physical	Document

Well-being of an Adult Patient	
Competency Statement: Plan and intervene to address the immediate physical needs of the critically ill patient	Document
Patient Group Direction - Oxygen	Document
Patient Group Direction – Sodium Chloride Infusion	Document
Patient Group Direction – Gelofusine Infusion	Document
Follow Up Clinic Health Questionnaire	Document
Questions about your health prior to your admission to ICU	Document
Smith G et al (2006) Hospital wide physiological surveillance – a new approach to the early identification and management of the sick patient. <i>Resuscitation 71</i> , 19-28.	Article
Featherstone P et al (2005) Impact of a one-day inter-professional course (ALERT) on attitudes and confidence in managing critically ill adult patients. <i>Resuscitation 65</i> , 329-336.	Article
Smith G et al (2007) Review and performance evaluation of aggregate weighted 'track and trigger' systems. <i>Resuscitation 77</i> , 170-179.	Article
Smith G & Poplett N (2004) Impact of attending a 1-day multi-professional course (ALERT) on the knowledge of acute care in trainee doctors. <i>Resuscitation, 61</i> , 117-122.	Article

3.5 Southampton General Hospital

Located in Southampton, 1.5 hours from central London via rail.

Date of visit

Tuesday 3 June 2008

Key contacts

Maureen Coombs	Nurse Consultant Critical Care – Strategic Lead for Outreach Team
Tracy Richards (acting)	Acuity Practice Development Matron
Theresa Carey	Senior Sister Outreach
Penny Eames	MEWs Nurse
Isabella Lally	Senior Nurse for Education and Training Critical Care

Activities undertaken during the visit:

- interview with key contacts.

The hospital and intensive care unit descriptors

1. Number of hospital beds: 1000
2. Number of intensive care unit beds:

	<i>General ICU</i>	<i>HDU</i>	<i>Total no. beds</i>
<i>Available beds</i>	22		22

* Beds can be flexed up or down to meet the patient demands.

3. Number of ICU admissions per annum: 1058
4. Number of monitored beds external to the ICU:

<i>Ward type</i>	<i>Total no. monitored beds</i>
Cardiac	12 ICU beds
Neurological	7 ICU beds
Paediatrics ICU (PICU)	8 ICU beds
Surgical	8 monitored beds
Cardiothoracic	15 (will accept short term ventilated patients post op)
Medical	6 monitored beds
Neurological	6 monitored beds

NB: Outreach does not cover the cardiac, neurological or the paediatric ICUs.

Key selection criteria

Essential:

- registered nurse
- acute care course in critical care

- teaching
- masters for nurse consultant.

Classification of outreach staff

<i>Position</i>	<i>Classification</i>	<i>Reporting structure</i>
Nurse consultant	Band 8c	Director of nursing
Acuity practice development matron	Band 8a	Clinical role - 75 per cent; managerial - 25 per cent Professional accountability to specialist services divisional nurse and managerial responsibility to critical care manager.
Outreach senior sister	Band 7	Acuity practice development matron
Outreach nurses	Band 6	Acuity practice development matron

The outreach team service

Total EFT employed into the Outreach service?	Eight full time staff plus three part time staff working 22-30 hours.
What are the current days of operation?	Monday to Sunday
What are the hours/shifts of operation?	Monday to Thursday, 12 hours per day Friday to Sunday 24 hours per day
NB: Two staff on during the day and one staff on per night.	
Funded to provide 24 hour service, in the process of training staff.	

Key accountabilities of the outreach team:

- assessment, identification and implementation of timely necessary supportive treatment to acutely ill patients when referred by clinical areas
- communication liaison between wards and critical care staff
- clinical practice education of key acuity assessment skills to clinical staff on wards
- provide supportive assistance to staff and patients to reduce the acute patients need for intensive care treatment
- follow up patients post ICU discharge
- facilitate internal transfers
- occasionally will go on external transfers from A&E
- attend cardiac arrest calls and offer support for ward staff
- exclusion paediatrics
- attend relevant committees (committees allocated to team members)

- involved in education for the trust and divisional links (ALERT, acuity education, resuscitation training course – ALS)
- data collection
- conference presentations
- contribution to the hospital-at-night program.

Average number of patients assessed per day

On average ten patients assessed per day (maximum 20 patients). On a typical day:

- seven patients referred via the patient at risk pathway
- three ICU follow ups per day.

Early warning system utilised

Type of early warning system used is the weighted score model.

Extended practices:

- performing arterial blood gasses
- intravenous cannulation
- initiation of CPAP / BiPAP (ordered by medical officer and outreach must remain with patient)
- ordering pathology tests – interpretation/analysis
- ordering radiological tests (CXR) – identification of key clinical pathologies
- use of patient group directives for:
 - ◊ oxygen therapy
 - ◊ salbutamol
 - ◊ IV fluids
 - ◊ CXR
 - ◊ under consideration:
 - atropine
 - adrenaline
 - naloxone
- referral to ICU medical staff and allied health professionals
- influence admission/discharge of patients into and out of ICU.

Outcome measures used in validating the service:

- improved education for managing the deteriorating acutely ill ward patient for interdisciplinary ward staff
- timely management of the deteriorating patient
- improved DNAR orders
- swift escalation of treatment
- good follow up of ICU discharged patients.

Biggest impact following implementation of the outreach service:

- improved acuity education on wards throughout the Trust

- improved swift appropriate care for acutely ill deteriorating patients
- increase in the number of appropriate DNAR orders
- swift escalation of treatment
- good follow up of ICU discharged patients.

To improve the current service would like to increase the service to provide 24-hour coverage.

Key lessons learned

- **Paediatrics** – similar to Western Health paediatrics has been excluded from the scope of practice.
- **ICU Ward rounds** – not appropriate for the team to attend as the rounds are too long and the outreach service is too busy. Potential patient discharges are communicated between intensive care nurse coordinator and outreach nurses on a shift basis.

Strategies that would maximise facilitators or mitigate barriers to introduction in your health service

At Western Health we have identified issues with attending ward rounds due to high workload. However, we do encourage the ICU liaison service to consult with ICU nursing and medical staff for all potential discharges. They are also encouraged to perform their own evaluation and to discuss any concerns with the ICU team. The scope of practice will need to be reviewed to reflect this change in scope of practice.

Documents obtained

Critical care outreach service operational policy	Document
Critical care outreach shared mission statement	Document
Outreach team study days terms of reference	Document
Critical Care referral pathway	Flowchart
Guidelines for the introduction of outreach services	Document
Outreach senior sister job description	Document
SBAR communication tool	Tool
Adult medical & elderly care patient observation chart	Chart
Adult patient observation chart	Chart
Transfer sheet for adult patients with a tracheostomy tube	Tool
Outreach sister job description	Document
Expanded scope of practice – pathology tests	Document
Expanded scope of practice: Protocol for direct radial arterial blood gas sampling	Document
Patient group directive – Crystalloid fluid	Document
Patient group directive – oxygen administration	Document
Patient group directive for nebulised salbutamol	Document
Expanded scope of practice – Chest X-Ray	Document
Example of database	Document

MEWS activation sticker for medical records	Example
MEWS assessment sheet	Document
Competency statement: taking, recording of vital signs in adults using manual equipment.	Document
Adult short stay patient observation chart	Document
MEWS: Trauma and orthopaedics algorithm	Algorithm
MEWS: medical and elderly care directorate algorithm	Algorithm
MEWS: cancer care directorate algorithm	Algorithm
MEWS: Surgical care group algorithm	Algorithm
MEWS: Gynaecology algorithm	Algorithm
MEWS: Endoscopy / Internal radiology patients algorithm	Algorithm
MEWS: acute medical unit	Document
Algorithm for all patients following MEWS activation	Algorithm
NIV check list includes acuity score	Tool
Outreach overnight referral audit	Tool
Critical care outreach service	Document
Outreach retrieval trolley check list	Document
A guide: Assessment of the at risk & acutely ill patient	Workbook

3.6 Kingston Hospital

Located in Norbiton, 30 minutes from London via rail.

Date of visit

Wednesday 4 June 2008

Key contacts

John Welch	Consultant Nurse Critical Care (40 per cent non-clinical)
Linzi Balshaw	Outreach Nurse
Claire Walsh	Outreach Nurse
Sue Naidoo	Outreach Nurse
Rachael Harvey	Head of Improvement

Activities undertaken during the visit:

- Interview with key contacts.

The Hospital and Intensive Care Unit Descriptors

1. Number of hospital beds: 520
2. Number of intensive care unit beds:

	<i>General ICU</i>	<i>HDU</i>	<i>Total no. beds</i>
Available beds	8	2	10 (+2 CCU beds)

NB: Beds can be flexed up or down to meet the patient demands.

NB: Plus two coronary care beds within the unit

3. Number of ICU admissions per annum: 450
4. Number of monitored beds external to the ICU:

<i>Ward type</i>	<i>Total no. monitored beds</i>
Cardiac ward	Monitored bay

Key selection criteria

Essential:

- registered nurse
- acute care course in critical care (would employ from other areas, such as, medical nurse practitioner)
- masters for nurse consultant
- good communication skills.

Classification of outreach staff

<i>Position</i>	<i>Classification</i>	<i>Reporting structure</i>
Nurse consultant	8b	Surgical/critical care head nurse (similar to divisional director)
Outreach nurses	Band 7	Nurse consultant and just recently the ICU nurse unit manager

The outreach team service

Total EFT employed into the Outreach service	4 (includes nurse consultant)
What are the current days of operation	Monday to Sunday
What are the hours/shifts of operation	08:00-20:00 / 12 hour shifts
NB: Aim for two staff on per shift	
Hospital-at-night team cover overnight. Medical director would like 24 hour outreach cover, although benefits yet to be proven.	

Key accountabilities of the outreach team:

- follow up patients post ICU discharge
- external transfers
- part of a tracheostomy team
- follow up clinic provided
- participate in resuscitation course
- run ALERT course for medial officers and other staff
- instructors on the BLS/ALS courses
- attending relevant committees
- cover all areas of the hospital except paediatrics.

Average number of patients assessed per day

On average four patients assessed per day. On a typical day:

- two patients discharged from ICU
- two patients referred via the patient at risk pathway.

Early warning system utilised

Type of early warning system used is the weighted score model.

Extended practices:

- initiation of BiPAP
- ordering pathology tests
- ordering radiological tests

- performing arterial blood gasses
- insertion of mid-lines (not PICC)
- use of patient group directives for:
 - ◊ oxygen therapy
 - ◊ fluid challenge.

Outcome measures used in validating the service:

- ICU readmission rate
- number of patients not alerted to prior to ICU admission
- patients discharged to the ward after-hours
- any signs of deterioration prior to cardiac arrest.

Key lessons learned

- **Productive ward project** – measures how much time nursing staff spend with patients on the ward (found to be very low).
- **Hospital-at-night team** – not standardised, role description differs between Trusts. Night nurse practitioner appears to be chore driven, for example, administers IV drugs on wards, cannulates patients, performs ECG. Does not perform full assessment of patient.
- **Medical nurse practitioner** – employed onto the outreach team. Only issues identified with employing someone from outside of ICU is decreased level of confidence and knowledge relating to inotropes and ventilation.
- **Medical staff** – must attend a two-day training course on life support and ALERT course prior to commencing work in the hospital. Annual fee paid for ALERT course licence.
- **National Outreach Forum** – funded by NHS to establish guidelines for outreach services. There is a national policy on the acute management of patients in hospital, for example, every hospital should have an early warning scoring system.
- **Quality of life questionnaire** – sent to ICU patients and invited to attend clinic three months post discharge from hospital.

Strategies that would maximise facilitators or mitigate barriers to introduction in your health service

- **Staffing night shifts** – looking at providing 24-hour service. May be an issue in staffing night shifts with appropriately qualified staff wanting to do these shifts.
- **Succession planning** – an issue especially for the nurse consultant roles. Many of the nurse consultants have been in these roles for approximately eight years and will be looking at other career choices. There could be an issue with not enough experienced staff to step up into these roles.

Documents obtained

Department of health	www.dh.gov.uk
Standards for care of adult patients with temporary tracheostomies	www.ics.ac.uk
Intensive care national audit & research centre	www.icnarc.org
Quantitative evaluation of outreach services	www.icnarc.org
The impact of outreach services at the patient level	www.icnarc.org
Acute & critical care outreach audits 2004-2005	Report
Dr Christina Jones: Rehabilitation and Intensive Care Aftercare	PowerPoint
Draft policy and procedure for recording and reporting abnormal physiology	Document
Dependency scoring tool	Document
AUKUH Acuity/Dependency Tool. Implementation Resource Pack	Document
Competencies for recognising and responding to acutely ill patients in hospital	Document
Care of the Dying Liverpool care pathways	Document
Quality Critical Care. Beyond 'comprehensive critical care'. A report by the critical care stakeholder forum	Document
Outreach documentation form	Tool
McDonnell et al (2007) The provision of critical care outreach services in England: findings from a national survey. <i>Journal of Critical Care</i> 22 (3) 212-2108	Article
Browne A (2004) A review of nursing skill-mix to optimise care in an acute trust. <i>Nursing Times</i> 100 (6)	Article
Ryan H et al (2004) Setting standards for assessment of ward patients at risk of deterioration. <i>British journal of nursing</i> 13 (20) 1186-1190	Article
Clinical indicators for critical care outreach services	Article
Goldhill D & Welch J. Outreach	Article

3.7 University College London Hospital (UCLH)

Located in central London.

Date of visit

Friday 6 June 2008

Key contacts

Sheila Adams	Prior to becoming Director of Nursing (DON) was a Consultant Nurse
Jillian Hartin	Outreach Nurse
Susie Faber	Outreach Nurse
Claire Black	Senior ICU Physiotherapist

Activities undertaken during the visit:

- interview with key contacts.

The hospital and intensive care unit descriptors

1. Number of hospital beds at UCLH: 600 beds
Number of hospital beds at Neurological hospital: 200 beds
Number of hospital beds at Heart hospital: 100 beds
Note: there is no outreach service at the Heart Hospital.
2. Number of intensive care unit beds at UCLH:

	<i>General ICU</i>	<i>HDU</i>	<i>Total no. beds</i>
<i>Available beds</i>	35	Flexed	35

* Beds can be flexed up or down to meet the patient demands.

Number of intensive care unit beds at Neurological Hospital:

	<i>General ICU</i>	<i>HDU</i>	<i>Total no. beds</i>
<i>Available beds</i>	12	5	17

*Beds can be flexed up or down to meet the patient demands. Large number of patients on the ward with BiPAP.

3. Number of ICU admissions per annum 1700 (1/3 ICU and 2/3 HDU)
4. Number of monitored beds external to the ICU

<i>Ward type</i>	<i>Total no. monitored beds</i>
Acute admissions	14 (monitored beds)

Acute admission ward is a 60 bed ward with 14 monitored beds for cardiac and stroke related illnesses.

Key selection criteria

Essential:

- registered nurse
- intensive care course
- competent in acute life support
- teaching and assessing course
- leadership course
- Band 7's must have a degree
- nurse consultant must have a masters degree and be willing to undertake PhD, higher level leadership course
- clinical skills and expertise in assessing the sick patient
- good understanding of the needs of the patient post-ICU discharge
- ability to work multi-professionally both in a collaborative way and as a team leader
- assertiveness
- excellent interpersonal skills.

Classification of outreach staff

Position	Classification	Reporting structure
*Nurse consultant / DON (dual position)		15 hrs / week (includes follow-up clinic) Report to clinical director of ICU
Outreach nurses (0.6 EFT)	Band 7	Rosters, performance reviews; report to nurse consultant
Outreach nurses (2 EFT)	Band 6	Report to nurse consultant
Outreach nurses (2 EFT)	Band 5	Report to nurse consultant

*New position, prior to this was a one EFT nurse consultant only. The time of the nurse consultant role was divided into: 50 per cent clinical, 20 per cent education development, 20 per cent consulting and leadership role, 10 per cent research and audit.

NB: A Band 5 could have +10 yrs experience in ICU but cannot go for Band 6 until post becomes available.

The outreach team service

Total EFT employed into the Outreach service?	10
What are the current days of operation for UCLH?	Monday to Sunday
What are the current days of operation for Neurological Hospital?	Monday to Sunday
What are the hours/shifts of operation for UCLH	24 hours per

What are the hours/shifts of operation for Neurological Hospital

08:00-18:30 hours (10 hour shifts)

NB: Two staff on per day, one staff on per night, part of the hospital-at-night team.

Aiming to provide a 24 hour service at the Neurological Hospital site.

Key accountabilities of the outreach team:

- follow up patients post ICU discharge
- facilitate ICU discharges
- provide follow up clinic
- case-manage all patients with tracheostomy tubes until decannulation
- attend trauma calls in A&E
- trawling the wards
- visit all level 1 bays (eight level 1 bays with four beds each)
- triage ward patients re need for ICU
- do internal transfers
- may go on external transfers with ICU registrar
- do not attend to paediatrics
- follow up of paediatrics from ICU done by ICU consultants
- attend all code blues to assist medical staff with airway
- attend weekly care review meetings
- run ALERT courses.

Average number of patients assessed per day

On average ten patients assessed per day. On a typical day:

- six patients referred via the patient at risk pathway
- two ICU follow up per day.

Early warning system utilised

Type of early warning system used is the single parameter model.

Extended practices:

- performing arterial blood gasses
- intravenous cannulation
- initiation of BiPAP
- ordering pathology tests
- ordering radiological tests (CXR)
- use of patient group directives for:
 - ◇ sodium chloride infusion
 - ◇ oxygen therapy
 - ◇ ventolin nebulisers
- referral to specialists (ICU and parent consultant only)
- change tracheostomy tubes weekly.

Outcome measures used in validating the service:

- reduction in cardiac arrests in in-patients
- audit of patient discharges and readmissions
- support for improved levels of patient observations, for example, respiratory rate
- review of cardiac arrests to assess if patient showed any signs of deterioration in the six hours prior
- run a monthly two-day course for ward nurses
- support for staff dealing with sick patients, increased awareness amongst staff for recognising the sick patient.

Biggest impact following implementation of the Outreach service:

- Support for staff dealing with sick patients
- Increased awareness amongst staff for recognition of the sick patient

Key lessons learned

- **Hospital-at-night team** – the team have an electronic hand over system. Outreach nurses put all patients at risk onto system for over-night review.
- **Rotation of ICU nurses** – movements into the outreach service brings fresh ideas.
- **Stickers for charts** – reminders for nursing staff to record respiratory rate and in identifying reportable limits for vital signs.
- **Flow charts for criteria** – identify escalation of treatment.

Issues identified

- One nurse has completed a prescribing course but is not allowed to prescribe.
- A large amount of paper work and documentation was identified as an issue for outreach nurses, due to duplication of notes and time management.

Strategies that would maximise facilitators or mitigate barriers to introduction in your health service

Hospital-at-night team – very impressed with the computer program for outreach staff and medical staff to enter in patients who require review overnight by the hospital-at-night team. There is a lot of interest in the hospital-at-night team model by Western Health.

The flow chart for management of abnormal vital sign parameters will be considered for use at Western Health.

Documents obtained

PERT Database chart	Chart
Non PERT / CPR Patient Data	Chart
ICU Chart – Outreach	Chart
Biochemistry Result Chart	Chart
PERT protocol for fluid challenge	Flow Chart
PERT algorithm for systolic <90mmHg	Flow Chart
PERT protocol for heart rate <50	Flow Chart
PERT protocol for heart rate >125	Flow Chart
PERT algorithm for systolic >200mmHg	Flow Chart
Acute asthma	Flow Chart
Acute dyspnoea	Flow Chart
Pneumothorax	Flow Chart
Managing the agitated patient	Flow Chart
Example of Hospital at night handover	Database tool

3.8 Royal Devon and Exeter NHS Foundation Trust

Located southeast of central London and takes approximately 2.5 hours via rail.

Date of visit

Thursday 12 June 2008

Key contacts

Professor Ruth Endacott	La Trobe University and University of Plymouth
Carole Boulanger	Nurse Consultant

Activities undertaken during the visit:

- interview with key contact
- BBQ organised with local area outreach nurses.

The hospital and intensive care unit descriptors

1. Number of hospital beds: 850 beds
2. Number of intensive care unit beds:

	<i>General ICU</i>	<i>HDU</i>	<i>Total no. beds</i>
<i>Available beds</i>	8	5	13

* Beds can be flexed up or down to meet the patient demands.

3. Number of ICU admissions per annum: 890
4. Number of monitored beds external to the ICU:

<i>Ward type</i>	<i>Total no. monitored beds</i>
Respiratory	4
Other	3

Key selection criteria for critical care nurse practitioner role

Essential:

- registered nurse
- intensive care course
- six month rotation into anaesthetics to learn how to intubate
- prescriber course
- ICU consultant tutorials.

Classification of staff

<i>Position</i>	<i>Classification</i>	<i>Reporting structure</i>
Nurse consultant / critical care nurse practitioner role	8b	ICU medical consultant 50 non-clinical
Vascular access nurse (one EFT)	Band 7	Nurse consultant
Vascular access nurse (two EFT)	Band 6	Nurse consultant

The senior critical care nurse practitioner role

This is a unique position where the nurse consultant (critical care nurse practitioner) replaces one ICU registrar position and comes under the ICU medical roster/budget. The hospital executive does not support an outreach service as there is no evidence to demonstrate improved patient outcomes. Although many aspects of an outreach service have been implemented and are being undertaken by the ICU medical/nurse consultant roles, for example:

- accept referrals for ward patients in crisis
- follow up patients post ICU discharge
- provided a follow up clinic for ICU patients
- implementation of early warning criteria tool.

Key accountabilities of the outreach team:

- follow up patients post ICU discharge
- responsible for patients in ICU (if issues, nurse refers to nurse consultant not ICU registrar – allocated own ICU patients to manage till the end of the shift)
- accept medical/nursing referrals for ward patients in crisis
- ward retrieval to ICU
- provide follow up clinic
- participates in the induction and training of trainee doctors offering a unique 'buddy role'
- advises trainee doctors regarding patient management and support with clinical skill acquisition
- manages vascular access team
- external transfers for ventilated patients (acts as the ICU registrar)
- manages airway for cardiac arrests (including intubation)
- attends trauma calls in A&E
- attends relevant committees.

Vascular access service

Total EFT employed into the Vascular Access Service?	3 (not including nurse consultant)
What are the current days of operation?	Monday to Friday
What are the hours/shifts of operation?	12 hours per day
NB: Two staff on per day. Looking at providing evening and weekend vascular access service.	
Aiming for one ICU nurse practitioner per shift	

Average number of patients assessed per day:

- responsible for patients in ICU
- receive six ward referrals per day
- review three to four post ICU discharged per day.
- the vascular access team inserts approximately six lines per day

Early warning system utilised

Type of early warning system used is the multiple parameter model.

Extended practices:

- performing arterial blood gasses
- intravenous cannulation
- central line insertion
- PICC line insertion
- arterial line insertion
- initiation of BiPAP
- ETT intubation
- laryngeal mask airway
- manages airway for percutaneous tracheostomy insertion
- insertion on intercostal catheters
- ordering pathology tests
- ordering radiological tests (CXR)
- independent prescriber
- referral to specialists.

NB: ICU consultants would like to train nurse consultant for inserting epidurals.

Outcome measures used in validating the service

Nurse consultant/senior critical care nurse practitioner role

- **Logbook** – every intervention is entered into logbook. Used to verify service delivery.

- **Transfer forms** – used for auditing critical incidents during transfer (nurse consultant came out favourably when compared to medial staff).
- **Satisfaction survey** – training ICU registrars did not feel it impacted on their training needs although expressed concerns with inserting intercostal catheters.

Vascular access team:

- antibiotics are given on time
- decrease in line related sepsis
- decrease in number of failed attempts
- increased line surveillance on the ward (daily inspections by team)
- early identification of insertion of central venous catheters (CVC), such as long term antibiotic use.

Implementation of early warning system:

- increase in peri arrest calls and decrease in cardiac arrest calls
- root cause analysis performed on patients where early warning system was not implemented
- track all patients vital signs pre cardiac arrest (84 per cent show deterioration prior to arrest).

Matron ward reports:

- ulcers
- risk assessment
- falls
- early warning score (EWS) compliance.

Key lessons learned

- The impetus for the nurse consultant/senior critical care nurse practitioner role was:
 - ◊ to explore new ways of managing ICU
 - ◊ identified shortage of ICU medical staff.
- This role was the most challenging role for me to come to terms with. As a nurse practitioner pioneer in Australia I fully support the expansion and extensions to practice, however the question I kept asking was how far is too far? The other dilemma I had was whether this was a nursing or a medical role. I believe the role perhaps falls between the two professions.
- The nurse consultant is paid at a nurse's wage although is performing many of the tasks of an ICU registrar and has replaced an ICU registrar position. Caution is required ensuring nurses are not taking on medical tasks at a reduced rate.
- ICU consultants have expressed an interest for the nurse consultant to undertake further extensions to practice, such as, epidural insertion. Clear scope of practice needs to be identified for new roles.

- Junior ICU medical staff work with experienced ICU nurses for approximately two to four weeks. Initially junior ICU medical staff did not like the experience, however, they found they obtained a lot of experience with the following:
 - ◇ learning how to communicate with stressed relatives
 - ◇ gain competency skills with non-invasive ventilation
 - ◇ improved communication skills.
- Future aspiration would be shared education between ICU nurses and ICU medical staff. Some benefits identified would be:
 - ◇ appreciation of each others' role
 - ◇ improved inter-professional communication 'talking the same language'.
- Introduction of a situation background assessment recommendation (SBAR) form and kept next to phone. Medical staff signs the SBAR form and then file in the medical notes.

Describe strategies that would maximise facilitators or mitigate barriers to introduction in your health service.

SBAR communication tool has been identified by the ICU liaison service at Western Health as a useful tool in guiding nursing staff on the ward in reporting the deteriorating patients condition to medical staff in order to obtain prompt review.

Documents obtained

The National Education and Competence Framework for Advanced Critical Care Practitioner	http://www.dh.gov.uk/
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3.9 Derriford Hospital

Located in Plymouth, approximately 3.5 hours from central London via rail.

Date of visit

Friday 13 June 2008

Key contacts

Sara Mahoney	Outreach Nurse
Julie Hendry	Follow up Clinic

Activities undertaken during the visit:

- interview with key contacts.

The hospital and intensive care unit descriptors:

1. Number of hospital beds: 900 beds (1100 beds across three sites)
2. Number of intensive care unit beds:

	<i>General ICU</i>	<i>HDU</i>	<i>Neurosurgical</i>	<i>Total no. beds</i>
<i>Available beds</i>	9	6	4	19

* Beds can be flexed up or down to meet the patient demands.

3. Number of ICU admissions per annum: 1260
4. Number of monitored beds external to the ICU:

<i>Ward type</i>	<i>Total no. monitored beds</i>
Cardiac	6 (ventilated/balloon pump) 8 (HDU-level 2)
Neurosurgical	7 (HDU-level 2) use low dose adrenalin, arterial line, ventricular drains, ICP monitoring, CPAP, tracheostomy
Coronary care unit	9 (HDU-level 2 balloon pumps)
Respiratory	4 (BiPAP)

Key selection criteria

Essential:

- registered nurse
- acute care course in critical care
- minimum three to four years post ICU experience
- masters for nurse consultant position.

Classification of outreach staff

Position	Classification	Reporting structure
*Nurse consultant / DON (dual position)		15 hours/week (includes follow-up clinic) Report to clinical director of ICU
Outreach nurses (0.6 EFT)	Band 7	(rosters, performance reviews) Report to nurse consultant
Outreach nurses (2 EFT)	Band 6	Report to nurse consultant
Outreach nurses (2 EFT)	Band 5	Report to nurse consultant

NB: A Band 5 could have +10 years experience in ICU but cannot go for Band 6 until post becomes available.

* New position prior to this was one EFT as nurse consultant only. The nurse consultant role time was divided into: 50 per cent clinical, 20 per cent education development, 20 per cent consulting and leadership role and 10 per cent research and audit.

The outreach team service

Total EFT employed into the Outreach service?	5.6 (includes consultant nurse)
What are the current days of operation?	Monday to Sunday
What are the hours/shifts of operation?	24 hours per day / 07:30-20:00 and 19:30-08:00 (12 hour shifts)
NB: Occasionally two on per shift but if ICU is busy will work in ICU.	

Key accountabilities of the outreach team:

- follow up patients post ICU discharge
- Facilitate ICU discharges
- provide follow up clinic
- case-manage all patients with tracheostomy tubes until decannulation
- attend trauma calls in A&E
- trawling the wards
- visit all level one bays (eight level one bays with four beds each)
- triage ward patients re need for ICU
- do internal transfers
- may go on external transfers with ICU registrar
- do not attend to paediatrics
- follow up of paediatrics from ICU done by ICU consultants
- attend all code blues to assist medical staff with airway
- attend weekly care review meetings
- run ALERT courses
- attend relevant meetings / committees

- audit / research.

Average number of patients assessed per day

On average ten patients assessed per day. On a typical day:

- ten patients referred via the patient at risk pathway.

Early warning system utilised

Type of early warning system used is the single parameter model.

Extended practices:

- performing arterial blood gasses
- intravenous cannulation
- initiation of CPAP / BiPAP
- insertion of laryngeal mask airway during arrest situation but quite rare
- ordering pathology tests
- ordering radiological tests (CXR)
- use of patient group directives for:
 - ◊ sodium chloride infusion
 - ◊ oxygen therapy
 - ◊ ventolin nebulisers
- referral to specialists (ICU and parent consultant only)
- change tracheostomy tubes weekly.

Outcome measures used in validating the service:

- activity data
- tracheostomy audit
- follow up audit
- early warning system audit

Biggest impact following implementation of the outreach service:

- improved tracheostomy management
- empowering nurses to call for assistance earlier for patients showing signs of deterioration
- averting ICU admissions
- facilitating ICU discharges
- supporting ward staff.

Key lessons learned

- **Level 1 bays** – created for wards with increased complex patients. The outreach nurses visit the bays each shift. Advantage all complex patients in the one area.
- **Run short course** – on the care of the critical ill patient on the ward. The university recognises the course and awards 40 points towards degree.

- **Attend weekly care review meetings** – to review all discharges and deaths. Outreach provides update on patients on the ward – long term patients.
- **Review ICU Readmissions** – any controversial discharges are for case review this includes readmissions within 48hours.
- **Follow up clinic** – similar to other sites visited.

Documents obtained

Rapid response referral chart	Chart
Outreach activity report	Chart
Follow up front sheet	Chart
Follow up record	Chart
Prospective tracheostomy audit	Audit tool
Communication sheet for transferring patients with tracheostomies	Chart
Tracheostomy regime chart	Chart
Critical care follow up questionnaire	Survey
Relatives and visitors questionnaire	Survey
Glasgow outcome scale extended & modified ranking score	Tool
Hospital anxiety & depression questionnaire	Survey
Early warning of critical illness	Poster

3.10 Newcastle Upon Tyne Hospital Trusts

The Newcastle Upon Tyne is approximately 3.5 hours north of London. There are four ICU across three sites. The plan is to amalgamate all the ICUs onto two sites.

The Freeman Hospital specialises in general ICU and cardiothoracic ICU including heart, lung, renal, liver and pancreas transplantations.

The Royal Victoria Infirmary specialises in medicine and oesophagectomy, plastics and lower bowel surgery.

The Newcastle General Hospital has a trauma ICU.

Outreach services are established at the three sites. Outreach teams do not routinely rotate to other sites but are planning to in the future.

Date

Thursday 17 June 2008

Key contacts

Annette Richardson	Nurse Consultant (80 per cent non-clinical) Overseas ICU/HDU
Sharon Thompson	Matron – ICU Freeman Hospital
Joanne Kerr	Acting Nurse Consultant
Leslie Durham	Chair of National Outreach Forum Network Manager, Service Improvement Lead, Lead Nurse, North East & Cumbria Critical Care Network.

Activities undertaken during the visit:

- interview with key contacts
- attended local area meeting with outreach nurses.

The hospital and intensive care unit descriptors

1. Number of hospital beds at Freeman Hospital: 900 beds
Number of hospital beds at Newcastle General Hospital: 200 beds
Number of hospital beds at Royal Victorian Infirmary: 1000 beds
2. Number of intensive care unit beds at Freeman Hospital:

	<i>General ICU</i>	<i>HDU</i>	<i>Other ICU</i>	<i>Total no. beds</i>
<i>Available beds</i>	9	6	14	29

* Beds can be flexed up or down to meet the patient demands.

* Dedicated cardiac surgery beds / neurosurgical beds.

Number of intensive care unit beds at Newcastle General Hospital:

	<i>Other ICU</i>	<i>HDU</i>	<i>Total no. beds</i>
<i>Available beds</i>	8	13	21

* Beds can be flexed up or down to meet the patient demands.

* Other = cardiac surgery beds / neurosurgical beds.

Number of intensive care unit beds at Royal Victoria Infirmary:

	<i>Other ICU</i>	<i>HDU</i>	<i>Total no. beds</i>
<i>Available beds</i>	10	6	16

* Beds can be flexed up or down to meet the patient demands.

* Other = cardiac surgery beds / neurosurgical beds

3. Number of ICU admissions per annum for general ICU at Freeman Hospital: 2529

Number of ICU admissions per annum for cardiothoracic ICU at Freeman Hospital: 1347

Number of ICU admissions per annum for Newcastle General Hospital and Royal Victorian Infirmary: 2769

4. Number of monitored beds external to the ICU for Freeman Hospital:

<i>Ward type</i>	<i>Total no. monitored beds</i>
Cardiothoracic	6
Surgical ward	3
Cardiothoracic ward	5

Key selection criteria

Essential:

- registered nurse
- acute care course in intensive care
- history taking and physical assessment course (in-house)
- training for transfer
- advanced life support.

Classification of outreach staff

<i>Position</i>	<i>Classification</i>	<i>Reporting structure</i>
Nurse consultant	8b	Patient services
Outreach nurses (3 EFT)	Band 7	ICU matron day to day and nurse consultant for strategy and leadership
Outreach nurses (3.5 EFT)	Band 6	As above

The Outreach Team Service at Freeman Hospital

Total EFT employed into the Outreach service?	6.5 EFT for Band 7 and Band 6
What are the current days of operation?	Monday to Sunday
What are the hours/shifts of operation?	24 hour service / 12 hour shifts 7:30-20:00 and 19:30-08:00
Planning for two staff on together for the 24 hours	

Key accountabilities of the outreach team:

- follow up patients post ICU discharge that meet discharge follow up criteria
- lead patient at risk team
- significant education of ward staff
- attend network, trust-wide and site specific outreach meetings.

Average number of patients assessed per day

On average five referrals per day and approximately 14 patient visits per day (some patients require multiple visits).

Early warning system utilised

Type of early warning system used is the weighted score model.

Extended practices:

- intravenous cannulation
- initiation of BiPAP / CPAP
- patient group directives for:
 - ◇ oxygen therapy
 - ◇ arterial blood gasses
 - ◇ administration of fluid.

Outcome measures used in validating the service:

- ICU readmission rate.

Biggest impact following implementation of the outreach service:

- heightened awareness of critical illness
- reduced ICU readmissions
- better management of patient prior to ICU admission
- better relationships with rest of the hospital.

To improve the current service they would like to increase staff to cover sick leave and study leave. Develop training package for healthcare assistants to take observations.

Key lessons learned

- **Discharge follow-up criteria** – outreach service developed discharge follow-up criteria as time constraints with routinely following up all ICU discharges.
- **Use of an outreach transitional ladder** – that supports the transition into outreach. Similar to my findings, it takes on average 12 months to train staff member in all aspects of the service.
- **Staff rotation** – all Band 7 in ICU rotate into the outreach service for 18-24 months. ICU staff found this to be a big learning curve and were required to develop relationships with ward staff. Excellent for senior ICU staff in gaining an insight of the wards. Senior staff in ICU can support the Band 6 outreach staff. In the future looking at two permanent outreach staff with five rotating positions. A disadvantage with rotating outreach staff is no consistency.
- **Local area outreach meeting** – outreach staff from hospitals within the north met to discuss global, local and individual issues. As a group they collected data on the same key performance indicators and were able to compare and contrast.

Documents obtained

Band 6 job description	Document
Band 7 job description	Document
Guide for new staff	Document
Patient group directive – chest x-ray	Document
Patient group directive template	Document
Venepuncture & cannulation competency package	Document
Outreach follow up criteria	Document
Activity report	Document
Outreach transitional ladder	Document
Summary of the MEWS	Document
List of the type of patients and equipment that wards accept	Document
Adult observation chart	Chart
Critical care outreach course	Document
NORF position statement: Surviving sepsis campaign	Document
Point prevalence study	Tool

4.0 Improving the Victorian healthcare system

The travelling fellowship has provided a unique opportunity to evaluate the existing ICU Liaison role at Western Health in not only identifying improvement opportunities but also in identifying current aspects that are performed well.

Implementation of some of the key learning's by the ICU Liaison Service at Western Health include:

- set up monthly ICU liaison team meetings
- retrieval trolley for Western and Sunshine Hospital
- flowchart for escalating treatment for the patient at risk
- review clinical marker protocol
- review observation chart
- amalgamating the ICU liaison service with the resuscitator coordinator role
- evaluate the need for providing a follow up clinic
- rotating ICU nursing staff into the ICU liaison role
- improved communication and team work with night duty staff
- use of SBAR tool
- establishment of an intravenous cannulation team
- rotate both nursing and medical staff onto ICU liaison service
- revise the complex care course.

Many key learning's relating to the care of the critically ill patient and will involve stakeholders from other departments. The success of the implementation of some of these initiatives will largely depend on openness to change, breaking down 'turf' territories and an acceptance/approval of the new initiatives.

Steps for implementation of the learnings include:

- approval from executive
- consultation with stakeholders and 'buy in'
- identify roles and responsibilities to be undertaken and by whom
- identify measurable outcomes post implementation
- report findings to Western Health Executive and stakeholders.

Each initiative will have a communication plan and an action plan with time-lines for completion.

5.0 Sharing and promoting the project

A key initiative to be implemented is the establishment of a state-wide ICU Liaison Network Forum. It is proposed that the forum meet at the Department of Human Services, Victoria at, quarterly intervals.

The forum will work on developing the following:

- key role description
- competency standards
- position classification
- qualifications (essential and desirable attributes)
- mandatory outcome measures
- development of a database
- development of flowcharts and other relevant tools
- development of website (may not be achievable in the next twelve months)

The recommendations from the state-wide ICU Liaison Network Forum will be shared with the Nurse Policy Branch at the department.

Relevant information will be shared with Australian College of Critical Care Nurses.

A long term vision, that extends past the Travelling Fellowship, would be the establishment of a National ICU Liaison Network Forum with the possibility of sharing information with the national outreach forum in the United Kingdom.

Information will be shared at relevant conferences with the prospect of publishing results in relevant journals.

6. 0 Project accountability requirements

List variations to the project methods and processes

The main areas of the *Phase 2 – Project* consist of:

- providing a report on the 24 hour ICU liaison service implemented at Sunshine Hospital
- send survey to Victorian ICU Liaison Nurses
- establishment of a state-wide ICU liaison network forum
- develop database
- develop website
- promote findings at relevant conferences
- publish results as appropriate.

Many of the items listed above will be commenced in the next 12 months, however some of the items will take longer than this to complete, such as the website and database, and will be reliant on obtaining appropriate funds to develop.

List of contacts

<i>Name of contact</i>	<i>Email address</i>
Carol Ball – Consultant Nurse	Carol.ball@royalfree.nhs.uk
Denise Hinge	Denise.Hinge@hsuh.nhs.uk
Mandy Odell – Consultant Nurse	Mandy.odell@rbbh-tr.nhs.uk
Theresa Carey	Theresa.Carey@suht.swest.nhs.uk
John Welch	John.Welch@kingstonhospital.nhs.uk
Sheila Adams	Sheila.adams@uclh.org
Prof. Ruth Endacott	ruth.endacott@plymouth.ac.uk
Joanne Kerr	Joanne.kerr@nuth.nhs.uk
Annette Richardson	Annette.richardson@nuth.nhs.uk
Sue Moorse	Sue.moorse@porthosp.nhs.uk



Attachment 1

Review of Critical Care Outreach Services in the United Kingdom

Please complete all details and email to anna.green@wh.org.au or submit at time of site visit with Anna Green

Please leave blank if unsure of question. Can be discussed at time of site visit.

Estimated time for completion of survey is 15minsutes.

Hospital Name:

Consultant Nurse:

Outreach Nurse:

Email Address:

Dear Colleague,

You are invited to participate in this travelling research project, which is being conducted by myself (Anna Green) Manger of the ICU Liaison Department at Western Health, Victoria, Australia. Your name and contact details have been recommended to me by a colleague(s) or obtained through publications/presentations that you have made.

The purpose of this study is to identify best practice ICU Liaison model(s) for Victoria Australia and to ascertain the professional requirements for nurses in this role. The Department of Human Services Victoria (DHS) through the Victorian Travelling Fellowship has funded me to attend the United Kingdom to explore the Critical Care Outreach Teams and to provide a report to assist DHS with future developments of the ICU Liaison service in Victoria. The project has been reviewed by the Western Health Office of Research and approved as a quality assurance project.

Should you agree to a site visit, you would be asked to contribute in two ways. First I would ask you (or other members of the team) to participate in an interview of about 60 minutes, so that I can get a more detailed understanding of the Critical Care Outreach service at your hospital. Second, I would request the possibility of observing your practice at work. I anticipate this will require ½ day, however, this can be changed depending on your availability at the time.

Following my return from the United Kingdom I will be required to submit a report to the DHS. A brief summary of the site visits and findings will be made available to you. It is also possible that the recommendations will be presented at relevant conferences and published in peer review journals. All sensitive information will be de-identified.

Should you require any further information, or have any concerns, please do not hesitate to contact: Anna Green +61 3 93310995 or via email anna.green@wh.org.au

Your participation and hospitality is greatly appreciated.

Kindest regards

Anna Green

HOSPITAL AND INTENSIVE CARE UNIT DESCRIPTORS

1. Hospital Type:

- Public/Government Hospital
- Private/Non Government Hospital
- Other (*specify*)

2. Number of hospital beds

3. ICU Type:

(Can tick more than one)

- General ICU (medical / surgical)
- Integrated high dependency beds
- Integrated cardiothoracic beds
- Integrated coronary care beds
- Other ICU (*specify type*)

4. Total number of ICU 'type' beds

(Please provide an 'average' breakdown of occupancy of beds)

- .. Number of ICU beds
- .. Number of high dependency beds
- .. Number of cardiothoracic beds
- .. Number of coronary care beds
- .. Number of other beds

5. Number of ICU admissions per annum

ICU LIAISON / OUTREACH STAFFING

6. When was the Outreach service first established at your site?

.....

7. Please specify EFT (*number of full time positions*) employed in the Outreach service. Example: 1 full time position is equivalent to 1 EFT.

.....

8. What are the current days and hours of operation of the service?
(*Specify hours e.g. 08:00 – 16:30*)

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

Sunday

9. Is there time allocated per week when the Outreach nurse(s) is able to attend to “non-clinical” work (*specify how many hours per week*).

.....

.....

.....

10. Does the Outreach service have its own budget?

Own budget

ICU budget

Other (*please specify*)

11. Does the Outreach service charge a fee for service? *(Please provide details)*

Yes

No

.....
.....
.....

12. Please state the classification/grade of the Outreach nurses.

.....
.....
.....

13. Please list the essential qualifications for Outreach nurses.

.....
.....
.....

14. Please list the essential qualifications for the Nurse Consultant role if different to above.

.....
.....
.....

15. Please list the essential selection criteria for Outreach nurses.
(Please send copy of the position description)

.....
.....

.....
.....
.....

16. Who does the Outreach service report through?

.....
.....

ICU LIAISON / OUTREACH SERVICE

17. Do you use an early warning alert system for when staff should call the Outreach service? *(Please supply protocols if available)*

- Yes
- No

18. If yes to question 17 what early warning alert system do you use?

- Single parameter model *(any one criteria alert team)*
- Multiple parameter model *(2 or more criteria alert team)*
- Weighted score model
- Other *(Please specify)*

.....
.....

19. How are you alerted to patients?
(You may select more than one answer)

- Phone
- Pager / Bleep
- Written referral

- Overhead announcement
- Other (*please specify*)

20. The Outreach nurses are alerted to patients by whom?
 (May select multiple choices)

- Ward nurses
- Ward doctors
- ICU doctors
- ICU nurses
- Physiotherapists
- Speech pathologists
- Other (*Please specify*)

.....

.....

21. What areas of the hospital do you attend?
 (Click on yes for drop down box to appear)

Areas of the hospital	Yes/No / Not Applicable
Medical wards	Yes
Surgical wards	Yes
Coronary Care Unit	Yes
Emergency Department	Yes
Recovery Room	Yes
Theatre	Yes
Day Procedure Unit	Yes
Radiology Department	Yes
Outpatient Departments	Yes
Children's wards	Yes
Maternity wards	Yes
Psychiatric wards	Yes
Other (<i>Please specify</i>)	

22. Is the Outreach nurse a member of the cardiac arrest team?

Yes

No

23. If not a member of the cardiac arrest team does the Outreach nurse attend cardiac arrest calls and offer assistance when required?

Yes

No

24. Are you planning on providing a 24-hour service?

Yes

No

25. If not a 24-hour service who provides your service when not on duty?

.....
.....
.....

26. What is the main barrier(s) to providing a 24-hour service?

.....
.....
.....

27. a) Do you have 'back fill' (replacement staff), for leave applications eg holiday relief, sick leave relief etc.?

Yes

No

b) If yes please provide details.

.....
.....

ICU LIAISON / OUTREACH ROLE

28. Please indicate which of the following tasks the Outreach nurses perform.

- Performing arterial blood gasses
- Intravenous cannulation
- Central line insertion
- PICC line insertion
- Initiation of Bipap
- Initiation of Cpap
- Other (*please specify*)

29. a) Have you undertaken a qualification to enable you to prescribe medications?
(*e.g. Nurse Practitioner*)

- Yes No

b) Please provide details

.....
.....

30. Please indicate which of the following extended practices the Outreach nurse orders. Select if practices are independent or require medical authorisation/approval.

Pathology Tests

- Independent Authorisation

.....

Radiological Tests

- Independent Authorisation

.....

Prescribing of Medications

Independent

Authorisation

.....

Referral to specialists

Independent

Authorisation

.....

Admitting/Discharge Privileges

Independent

Authorisation

.....

Other *(Please specify)*

.....

31. Do you have standing orders (also called guidelines, protocols) to enable you to prescribe medications for certain medical conditions?

(Please supply)

Yes

No

ICU LIAISON / OUTREACH EVALUATION

32. Do you use a documentation tool for when you assess patients? *(Please supply example)*

Yes

No

33. a) Do you have a database for the collation of information?

Yes

No

b) Please specify type eg access / excel etc.

.....

34. Please list outcome measures used that have assisted in validating the service.

.....
.....
.....
.....

35. Overall, what has been the biggest impact following implementation of the Outreach service?

.....
.....

36. What changes would you like to make to improve the current service you are providing?

.....
.....

ICU LIAISON / OUTREACH DOCUMENTATION

37. Please supply the following documentation if available.

- Position Description
- Documentation tools
- Standing orders
- Clinical algorithm
- Clinical Practice Guidelines /
- Protocols
- Procedures

Other (*please list*)

.....
.....
.....

38. A report on the Travelling Fellowship will be completed within 6 – 12 months from my return.

Would you like a copy of the report? (*Please provide email address on front cover*)

Yes

No

Thank you for your participation

Please return survey to:

Anna Green

Anna.green@wh.org.au

Any queries please email Anna Green or discuss at time of site visit.