

7th

International Conference on Rapid Response Systems and Medical Emergency Teams

7-9 May 2012

Sydney Convention and Exhibition Centre
Darling Harbour, Sydney, Australia



Photo: Hamilton Lund, Tourism New South Wales

OFFICIAL 2012 PROGRAM

AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE

Australian Commission on Safety and Quality in Health Care

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PLATINUM



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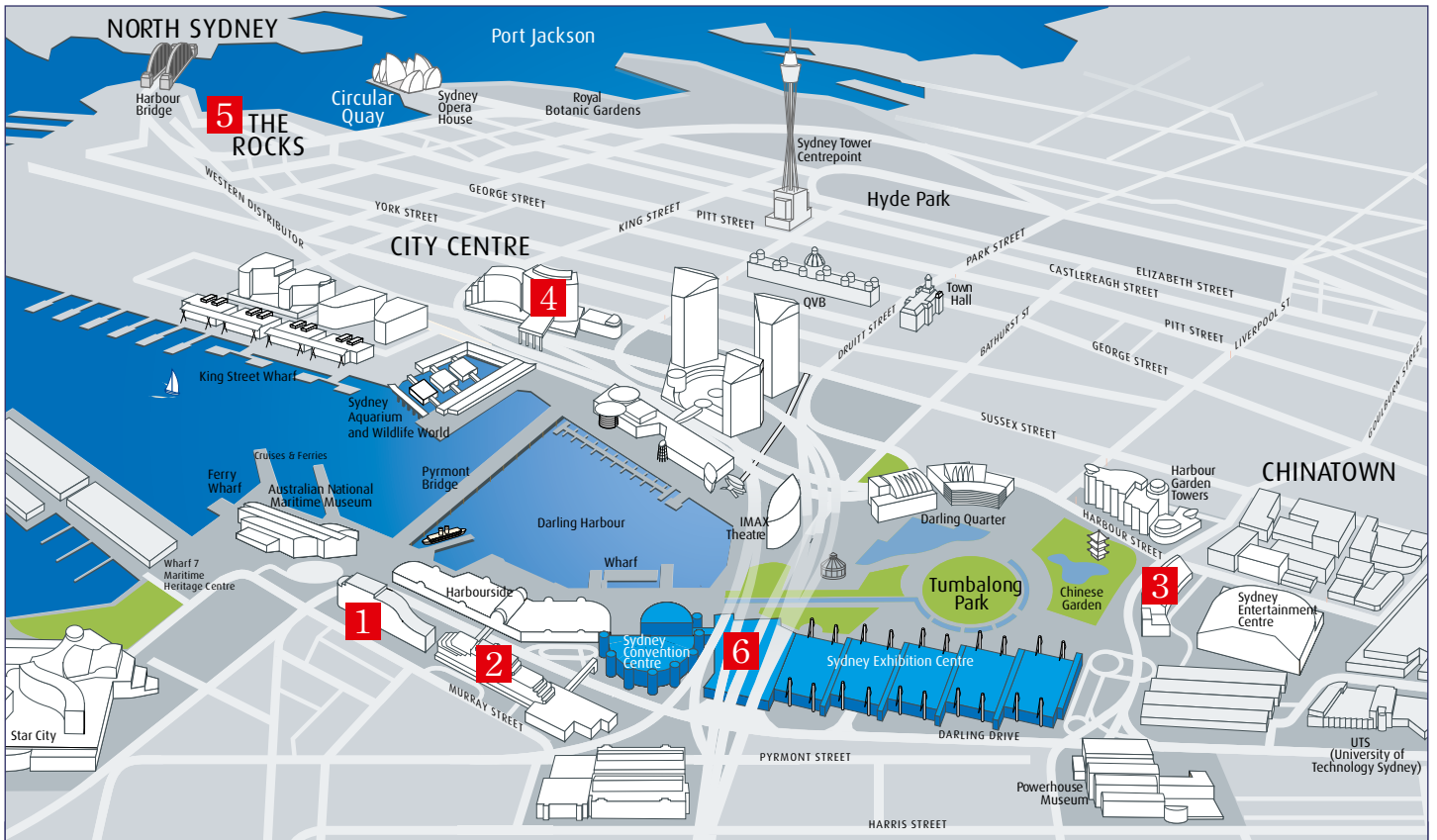
NSW
GOVERNMENT Health

SILVER

PHILIPS

BRONZE





ACCOMMODATION

- 1** IBIS HOTEL DARLING HARBOUR
- 2** NOVOTEL SYDNEY ON DARLING HARBOUR
- 3** HOLIDAY INN DARLING HARBOUR
- 4** FOUR POINTS BY SHERATON

RESTAURANT

- 5** WATERFRONT RESTAURANT

CONFERENCE

- 6** 2012 INTERNATIONAL CONFERENCE

SOCIAL PROGRAM

As part of your registration you are invited to attend all social events available to conference delegates (there is no extra charge to attend these events).

Welcome Drinks and Canapés

Monday 7th May 2012, 17:00 – 19:00

The Conference Welcome Reception will be held at the Parkside Foyer at The Sydney Convention and Exhibition Centre, Darling Harbour. The venue has stunning views across Darling Harbour and the Sydney City CBD Skyline. The function will give you the opportunity to network with delegates as well as partners and exhibitors from the conference.

Conference Dinner

The Waterfront Restaurant, 27 Circular Quay West, The Rocks.
Tuesday 8th May 2012, 19:00 – 22:30

The Conference Dinner will be held at the Waterfront Restaurant. Boasting awe-inspiring views of the Sydney Harbour Bridge and the world-famous Opera House, the Waterfront has the finest harbour front dining position in Sydney. The Waterfront is set in the historical Rocks area in original Campbell's Storehouses built in 1839 and exudes the grandeur and charm of the past, matched by its lavishly crafted cuisine.

We look forward to seeing you at what promises to be an exceptional event with opportunities to network with your industry colleagues as well as partners and exhibitors from the conference.



FLOOR PLAN

7th
7-9 May 2012

LEVEL 1

- 1** WELCOME DRINKS
- 2** REGISTRATION
- 3** PARKSIDE BALLROOM A
- 4** PARKSIDE BALLROOM B
- 5** PARKSIDE 110A
- 6** PARKSIDE 110B
- 7** POSTERS
- 8** OUR EXHIBITORS

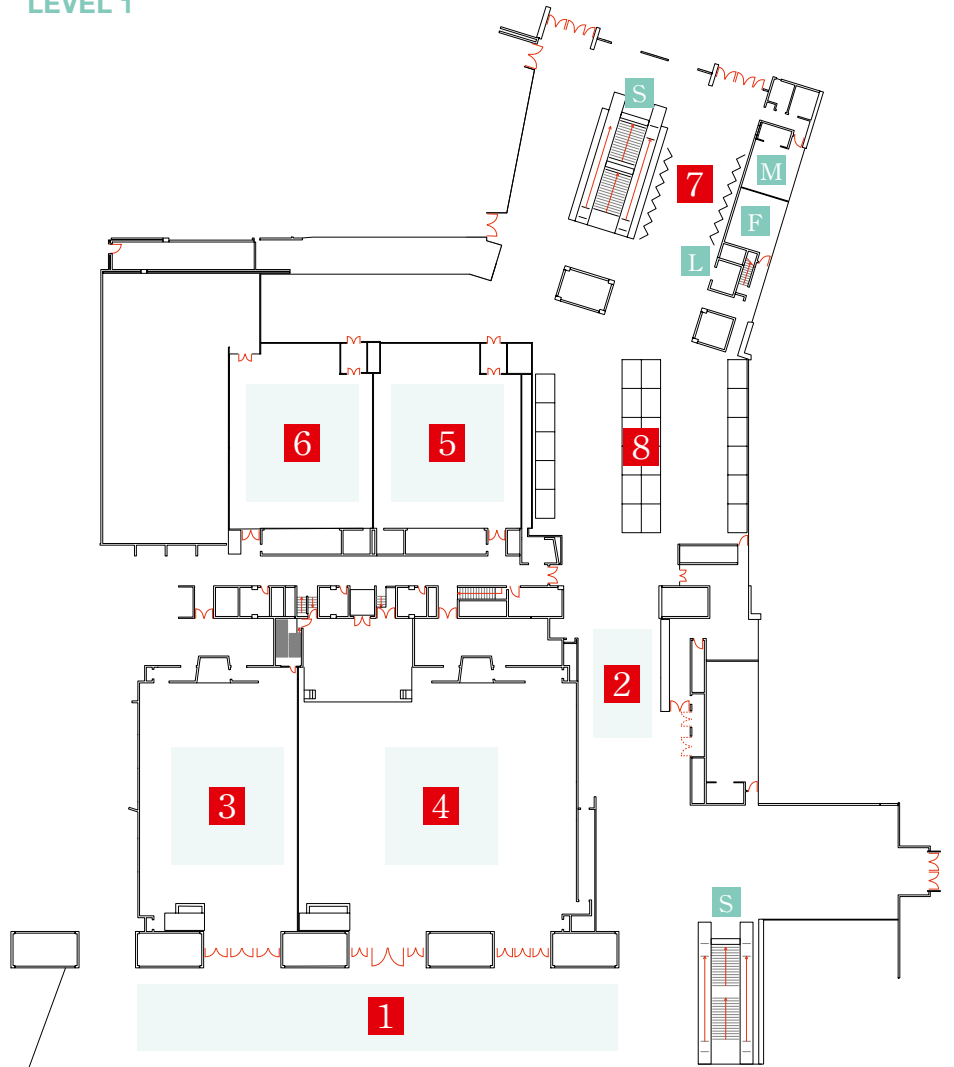
GROUND LEVEL

- 9** PARKSIDE G04
- 10** PARKSIDE G07
- 11** PARKSIDE FOYER GROUND

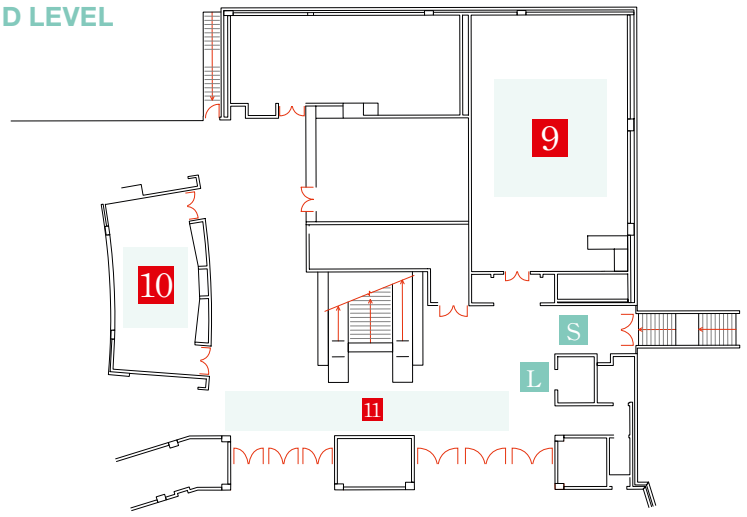
OTHER

- S** STAIRS
- L** LIFT
- F** FEMALE TOILETS
- M** MALE TOILETS

LEVEL 1



GROUND LEVEL



Earlier intervention in the general ward

Come see us at the 7th International Conference on Rapid Response Systems and Medical Emergency Teams in Sydney, Australia, May 7 through May 9, 2012. You'll have an opportunity to chat with a Philips Healthcare representative and learn how detecting signs of deterioration with Early Warning Scoring, combined with effective processes for emergency response, can help prevent adverse patient outcomes in the general ward. Visit us at booth number 18 and 19.



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A comprehensive guide designed to help health service providers identify strategies for successfully implementing robust recognition and response systems.

a guide to support implementation of the
national consensus statement:
essential elements for recognizing and responding to clinical deterioration

Pick up your hardcopy from the ACSQHC exhibition booth or download from:
www.safetyandquality.gov.au

AUSTRALIAN COMMISSION on SAFETY and QUALITY in HEALTH CARE

Recognising responding to clinical deterioration

NSQHS STANDARD



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The concept is simple – instead of waiting until patients die or have a cardiac arrest during their hospital stay, they are identified using the simple chart at the end of every patient's bed and a team of trained doctors responds urgently, exactly like, and in many cases replacing, the cardiac arrest teams.

Studies in Australia and overseas demonstrate that the death and cardiac arrest rate is reduced by about one third in hospitals that have a rapid response system. It's hard to imagine any other intervention that has had such an impact on patient safety.

Professor Ken Hillman
Conference Co-Director





WELCOME

It is with great pleasure that we welcome delegates to Sydney for the **7th International Conference on Rapid Response Systems and Medical Emergency Teams**, which is being hosted by the Australian Commission on Safety and Quality in Health Care.

The theme for the conference is *Revolutionising Rapid Response Systems – Past, Present and Future*. For the first time this international conference is being held in Australia, providing an opportunity to return to the place where the MET concept started more than 20 years ago. We will be looking at what is happening now in Australia and internationally to put in place systems for recognising and responding to clinical deterioration. We also want to move our thinking forward about how to ensure that people whose condition is deteriorating in hospital always receive the care that they need, and to tackle challenges that we still face, particularly regarding implementation and understanding of human behaviour.

We would like to thank the conference partners and exhibitors for their contribution to this important event. Our partners and exhibitors are a very important part of the conference as their support helps to deliver this opportunity for us all.

We would also like to thank the international and national speakers who are joining us for the conference. It is with their input that we are able to have such a comprehensive program. Consumers, clinicians, managers, researchers and policy makers will all contribute to what promises to be an inspiring three days. As well as plenary sessions, concurrent presentations and abstracts, the program includes a number of roundtable sessions that will allow for in depth discussion and debate.

We would like to acknowledge the assistance from the Organising and Program Committees is arranging this conference, and the hard work from staff at the Australian Commission on Safety and Quality in Health Care, Catalyst Events and Direct Edge. It is with their help that we have such an excellent conference.

Ken Hillman
Professor of Intensive Care
University of NSW

Nicola Dunbar
Australian Commission on Safety and Quality
in Health Care

	Parkside Ballroom A	Parkside Ballroom B
	9:00 – 9:15	WELCOME
	9:15 – 10:30	OPENING PLENARY Redefining Resuscitation Chair: Nicola Dunbar Ken Hillman
10:30 – 11:00		MORNING TEA
SESSION ONE	11:00 – 12:30	1.1 – PATIENT SAFETY AND ORGANISATIONAL CULTURE Chair: Bill Shearer Engaging clinical leaders in patient safety Jeffrey Braithwaite Engaging clinicians at the bedside John Wakefield Relationship between organisational culture and outcomes Hadis Nostrati Moving up the slippery slope Charles Pain
		1.2 – ROUNDTABLE: DO WE NEED TO PROVE RAPID RESPONSE SYSTEMS ARE NECESSARY STRATEGIES TO CARE FOR THE SERIOUSLY ILL? Chair: Rinaldo Bellomo Daryl Jones Jack Chen Anna Green Bradford Winters Christian Subbe Michael Buist
12:30 – 13:30		LUNCH
SESSION TWO	13:30 – 15:00	2.1 – ABSTRACTS PREDICTING OUTCOMES FOR DETERIORATING PATIENTS Felix Rockmann Alexandra Pavli Ben Darby
		2.2 – ABSTRACTS EVALUATION OF RECOGNITION AND RESPONSE SYSTEMS Wendy Chaboyer Stephen Lapinsky Andrew Dimech Imogen Mitchell Sophia Ang
15:00 – 15:30		AFTERNOON TEA
SESSION THREE	15:30 – 17:00	3.1 – VITAL SIGN ABNORMALITIES AS TRIGGERS TO ESCALATE CARE Chair: Daryl Jones Using laboratory tests to trigger rapid response systems Rinaldo Bellomo The accuracy of vital sign abnormalities as escalation triggers Gary Smith Is it possible to identify the 'right' triggers? Christian Subbe Using data-driven algorithms in RRS proactive rounding – the air traffic controller has arrived Edgar Jimenez
		3.2 – ROUNDTABLE: ADVANTAGES AND DISADVANTAGES OF DIFFERENT RESPONSE SYSTEM MODELS Chair: Ken Hillman MET/RRRT Bradford Winters ICU liaison nurse model Anna Green Nurse-led response team David Ryan Models external to the hospital George Cerchez & Sophie Legge Consultant-led models in the private sector Laven Padayachee
17:00 – 19:00		DRINKS AND CANAPES

Parkside 110A	Parkside 110B	Parkside G04
MORNING TEA		
<p>1.3 – IMPLEMENTATION IN PAEDIATRIC SETTINGS</p> <p>Chair: John Welch</p> <p>Escalation triggers for paediatric patients Kevin McCaffrey</p> <p>Minimum standards for paediatric responders James Tibballs</p> <p>Should triggers and responses be the same for children in specialist and general hospitals? Jonny Taitz</p>	<p>1.4 – DRIVING CHANGE WITH DATA</p> <p>Chair: Steven Webb</p> <p>Evaluation as an essential component of recognition and response systems Ken Hillman</p> <p>Initial indicator results for rapid response systems Jen Bichel-Findlay</p> <p>Beyond KPIs Arthas Flabouris</p> <p>Audit standards for rapid response systems Gary Smith</p>	<p>1.5 – IMPLEMENTATION IN MATERNITY SETTINGS</p> <p>Chair: Suellen Allen</p> <p>Early warning scores in maternity settings Scott Simmons</p> <p>An obstetric rapid response system Michael Nicholl</p> <p>Maternity crisis: The human factor element Pauline Lyon</p>
LUNCH		
<p>2.3 – ABSTRACTS</p> <p>RAPID RESPONSE MODELS</p> <p>Anna Green Jenny Lumsden Hansjorg Selter Brad Ceely</p>	<p>2.4 – ABSTRACTS</p> <p>EDUCATION ABOUT RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION</p> <p>Theresa Jacques Fenton O’Leary Richard Chalwin Sok Ying Liaw Fenton O’Leary</p>	<p>2.5 – ABSTRACTS</p> <p>RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION IN SPECIFIC CLINICAL SETTINGS</p> <p>Nicole Slater Janice Gullick Jane Sandall Kylie Oliver Karen Glaetzer</p>
AFTERNOON TEA		
<p>3.3 – ROUNDTABLE: FAMILY ESCALATION OF CARE</p> <p>Chair: Tracey Bucknall</p> <p>Patient / family perspective Alicia Wood</p> <p>Patient / family perspective Christine Meyer-Coyte</p> <p>Research perspective Suellen Allen</p> <p>Hospital perspective Heather McKay</p> <p>Jurisdictional perspective Karen Luxford</p>	<p>3.4 – EDUCATION: BASIC REQUIREMENTS</p> <p>Chair: Anne Lippert</p> <p>Basic education for frontline clinicians Theresa Jacques</p> <p>Assessment of competency in resuscitation training/education Susan Helmrich</p> <p>Multi-professional education for recognising and responding to clinical deterioration Imogen Mitchell</p>	<p>3.5 – ORGANISATIONAL GOVERNANCE</p> <p>Chair: Maureen Willson</p> <p>Clinical governance of recognition and response systems Bill Shearer</p> <p>Encouraging organisational ownership Vanessa Owen</p> <p>Good governance and recognition and response systems: Experience from Ontario Stuart Reynolds</p> <p>Challenges of introducing hospital systems across a health region Freddy Lippert</p>
DRINKS AND CANAPES		

	Parkside Ballroom A	Parkside Ballroom B
	9:00 – 9:15 9:15 – 10:30	WELCOME OPENING PLENARY – DAY 2 Intensive Care Sans Frontiers Chair: Alison McMillan John Welch Rinaldo Bellomo
	10:30 – 11:00	MORNING TEA
SESSION FOUR	11:00 – 12:30	4.1 – FAILURE OF IMPLEMENTATION Chair: Bernard Fikkers Afferent limb failure Arthas Flabouris Efferent limb failure Rinaldo Bellomo How to lose friends and alienate people: Medical emergency teams and organisational failure Alex Psirides
		4.2 – OBSERVATION CHARTS Chair: Jillann Farmer Human factors design and observation charts Melany Christofidis Lessons from usability and pilot testing of Australian Commission on Safety and Quality in Health Care observation charts Doug Elliott The politics of charts Charles Pain Putting the chart into perspective Imogen Mitchell
	12:30 – 13:30	LUNCH
SESSION FIVE	13:30 – 15:00	5.1 – ABSTRACTS EPIDEMIOLOGY OF THE DETERIORATING PATIENT Jessica Guinane Charles Coventry Emily Sansoni Paris Ramrakha David Brown
		5.2 – THE ROLE OF TECHNOLOGY IN SUPPORTING RECOGNITION AND RESPONSE SYSTEMS Chair: Gary Smith Short presentations from technology providers with review and commentary of products
	15:00 – 15:30	AFTERNOON TEA
SESSION SIX	15:30 – 17:00	6.1 – ROUNDTABLE: STRATEGIES FOR RAPID UPTAKE OF RECOGNITION AND RESPONSE SYSTEMS Chair: Jeffrey Braithwaite Rollout of Between the Flags Charles Pain Rollout of the ADDS chart in Queensland Jillann Farmer Implementation in rural Western Australia Jill Porteous Knowledge translation Tracey Bucknall
		6.2 – ROUNDTABLE: WHAT IS THE BEST TYPE OF TRACK AND TRIGGER SYSTEM? Chair: Imogen Mitchell Single parameter – one tier Rinaldo Bellomo Single parameter – two tier Rob Herkes Scoring systems – paediatrics Kevin McCaffrey Scoring systems – adult Gary Smith
	19:00 – 22:30	CONFERENCE DINNER – WATERFRONT RESTAURANT

Parkside 110A	Parkside 110B	Parkside G04
MORNING TEA		
<p>4.3 – THE ‘WORRIED’ CRITERION</p> <p>Chair: Julie Considine</p> <p>Impact of the worried criterion Ken Hillman</p> <p>Does the worried criterion empower nurses? John Welch</p> <p>The worried criterion: Challenging the hospital hierarchy? Jeffrey Braithwaite</p>	<p>4.4 – EDUCATION: ADVANCED TRAINING REQUIREMENTS</p> <p>Chair: Sara Quike</p> <p>Education for the high level responder Michael DeVita</p> <p>The role of simulators Anne Lippert</p> <p>Simulation in 18th century obstetric training: Recognising the deteriorating patient and the clinical handover Harry Owen</p>	
LUNCH		
<p>5.3 – ABSTRACTS</p> <p>USING QUALITATIVE METHODS TO EXAMINE THE PROCESSES OF RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION</p> <p>Nicola Mackintosh Imogen Mitchell Adrienne Hudson Melanie Greenwood Dot Hughes</p>	<p>5.4 – ABSTRACTS</p> <p>EVALUATION OF RECOGNITION AND RESPONSE SYSTEMS</p> <p>Sharon Kinney Matthew Shepherd Michael Haddad Chrissy Ceely Krishnaswamy Sundararajan</p>	<p>5.5 – ABSTRACTS</p> <p>PERCEPTIONS AND USE OF RECOGNITION AND RESPONSE SYSTEMS</p> <p>Christian Subbe Jeroen Ludikhuizen Lindy King Anne Miller</p>
AFTERNOON TEA		
<p>6.3 – DIFFERENT RESPONSE TEAMS</p> <p>Chair: Freddy Lippert</p> <p>Separate cardiac arrest and rapid response teams Christian Subbe</p> <p>Rapid response teams for different clinical conditions Michael DeVita</p> <p>Rapid response in the emergency department Julie Considine</p> <p>Clinical co-ordination in country WA: A role in patient deterioration systems? Justin Yeung</p>	<p>6.4 – RECOGNITION AND RESPONSE SYSTEMS AND END-OF-LIFE CARE</p> <p>Chair: Brian Robson</p> <p>Dying in hospital: The problem Ken Hillman</p> <p>Diagnosing dying by the rapid response system Daryl Jones</p> <p>End-of-life care and intensive care Anne Lippert</p> <p>An organisational-wide system to care for end-of-life patients Sue Hanson</p>	<p>6.5 – RECOGNITION AND RESPONSE AND MENTAL HEALTH</p> <p>Chair: Andrew Moors</p> <p>Monitoring the physical health of mental health patients Jonathan Laugharne</p> <p>Minimising psychological morbidity and maximising recovery after critical illness John Welch</p> <p>Recognising and responding to psychiatric deterioration Richard Newton</p>
CONFERENCE DINNER – WATERFRONT RESTAURANT		

	Parkside Ballroom A	Parkside Ballroom B
	9:00 – 9:15 9:15 – 10:30	WELCOME OPENING PLENARY – DAY 3 Patient-Centred Systems Chair: Rinaldo Bellomo Karen Luxford Michael Buist
	10:30 – 11:00	MORNING TEA
SESSION SEVEN	11:00 – 12:30	7.1 – BARRIERS TO THE EFFECTIVE OPERATION OF RECOGNITION AND RESPONSE SYSTEMS Chair: Bradford Winters Clinical futile cycles Michael Buist Are we dumbing down our hospitals? Bill Shearer Making it work in the real world Sara Quirke
		7.2 – EPIDEMIOLOGY OF THE DETERIORATING PATIENT Chair: Arthas Flabouris What are the characteristics of patients who deteriorate in hospital? Michael DeVita The epidemiology of the MET patient Daryl Jones How can we improve hospital patient outcomes? Steven Webb
	12:30 – 13:30	LUNCH
SESSION EIGHT	13:30 – 15:00	8.1 – CLINICAL JUDGEMENT AND DECISION-MAKING Chair: Stuart Reynolds Decision-making under duress Tracey Bucknall Multidisciplinary decision-making in action to achieve good outcomes Scott McDonnell Calling for help in the Netherlands: Do systems support clinical judgement? Bernard Fikkers
		8.2 – MOVING TO AUTOMATED SYSTEMS Chair: Gary Smith The inevitability of technology Ken Hillman Automated ward based monitoring Rinaldo Bellomo Automated rapid response systems John Lambert Automated early warning systems as part of a wider e-health initiative Brian Robson
	15:00 – 15:30	AFTERNOON TEA
	15:30 – 17:00	CLOSING PLENARY Where to now? Chair: Ken Hillman Tracey Bucknall Brian Robson Alison McMillan Michael DeVita

Parkside 110A	Parkside 110B	Parkside G04
MORNING TEA		
<p>7.3 – NATIONAL SAFETY AND QUALITY HEALTH SERVICE STANDARDS</p> <p>Chair: Jill Porteous</p> <p>What are the National Safety and Quality Standards and what is the new model of accreditation? Margaret Banks</p> <p>Overview of the Standard 9: Recognising and Responding to Clinical Deterioration Nicola Dunbar</p> <p>Implementation: The real challenge Maureen Willson</p>	<p>7.4 – INTERNATIONAL IMPLEMENTATION MODELS</p> <p>Chair: Charles Pain</p> <p>The Netherlands Bernard Fikkers</p> <p>Scotland Brian Robson</p> <p>Denmark Anne Lippert</p> <p>Ontario Stuart Reynolds</p>	<p>7.5 – RESPONSE SYSTEMS IN RURAL AND REMOTE AREAS</p> <p>Chair: George Cerchez</p> <p>Alice Springs Penny Stewart</p> <p>Greater western NSW Lynda McKenzie</p> <p>Links to retrieval services Leanne Smith</p>
LUNCH		
<p>8.3 – COST OF RECOGNITION AND RESPONSE SYSTEMS</p> <p>Chair: Alex Psirides</p> <p>What is the cost of quality? John Wakefield</p> <p>Cost of recognition and response failures Liz Cox</p> <p>The business case for recognition and response systems Jonathon Barratt</p>	<p>8.4 – WIDER INTEGRATION OF RECOGNITION AND RESPONSE SYSTEMS</p> <p>Chair: Michael DeVita</p> <p>Moving recognition and response upstream Daryl Jones</p> <p>Using RRS/MET criteria to predict mortality Christian Subbe</p> <p>Identifying and managing the at-risk ward patient before actual deterioration: Using the Ward Safety Checklist John Welch</p> <p>Which acute hospitals should not have a rapid response system? Imogen Mitchell</p>	<p>8.5 – RESEARCH UPDATE</p> <p>Chair: Anna Green</p> <p>Reviewing the reviews Jack Chen</p> <p>Research update and where to next Bradford Winters</p>
AFTERNOON TEA		

WELCOME: Monday 7TH May, 9:00 – 9:15

OPENING PLENARY DAY 1.

9:15 – 10:30

Parkside
Ballroom B

REDEFINING RESUSCITATION

CHAIR:

Dr Nicola Dunbar

SPEAKER:

Prof Ken Hillman

Professor of Intensive Care, University of New South Wales

SESSION 1: Monday 7TH May, 11:00 – 12:30

1.1

PATIENT SAFETY AND ORGANISATIONAL CULTURE

11:00 – 12:30

Parkside
Ballroom A

The implementation and use of recognition and response systems is a complex organisational and cultural process. While an observation chart that has a track and trigger system built into it is an important tool for identifying deterioration, and a medical emergency team is one option for providing a rapid response, these are not going to be fully effective if a hospital's culture does not support their use. The purpose of this session is to examine some of the cultural issues that affect the implementation of recognition and response systems. Presentations will cover issues relating to engagement of clinical leaders and frontline clinicians, the importance of teamwork and the relationship between organisational culture and outcomes for deteriorating patients.

CHAIR: **A/Prof Bill Shearer**

SPEAKERS:

ENGAGING CLINICAL LEADERS IN PATIENT SAFETY

Prof Jeffrey Braithwaite
Director, Australian Institute of Health Innovation

ENGAGING CLINICIANS AT THE BEDSIDE

Dr John Wakefield
Executive Director,
Queensland Health
Patient Safety and Quality
Improvement Service
Adjunct Professor Public
Health (QUT)

RELATIONSHIP BETWEEN ORGANISATIONAL CULTURE AND OUTCOMES

Dr Hadis Nosrati
Postdoctoral Research Fellow,
The Simpson Centre of Health
Service Research, Australian
Institute of Health Innovation

MOVING UP THE SLIPPERY SLOPE

Dr Charles Pain
Director, Health Systems
Improvement, Clinical
Excellence Commission, NSW

SESSION 1: MONDAY. 1.2 / 1.3

1.2

ROUNDTABLE: DO WE NEED TO PROVE RAPID RESPONSE SYSTEMS ARE NECESSARY STRATEGIES TO CARE FOR THE SERIOUSLY ILL?

11:00 – 12:30

Parkside
Ballroom B

Although recognition and response systems are being recommended as essential patient safety strategies around the world, concerns are still being raised about the evidence to support them. Most support for these systems initially came from before and after studies; while the only large randomised controlled trial did not find positive results. The implementation and use of recognition and response systems are now being seen as complex organisational and cultural processes, rather than as the introduction of single interventions, and the impact of them may need to be explored in different ways. This roundtable session will discuss the question of whether we still need to prove that recognition and response systems are necessary to improve care of patients whose condition is deteriorating.

CHAIR: Prof Rinaldo Bellomo**SPEAKERS:****A/Prof Daryl Jones**

Consultant Intensive Care Specialist, Austin Hospital, Melbourne

Ms Anna Green

Manager ICU Liaison Service, Western Health, Victoria

Dr Christian Subbe

Senior Clinical Lecturer, School of Medical Sciences, Bangor University, UK

A/Prof Jack Chen

Research Director, Simpson Centre for Health Services Research, Faculty of Medicine, University of New South Wales

Dr Bradford Winters

Johns Hopkins University, School of Medicine, Baltimore, USA

Prof Michael Buist

Director of Intensive Care, North West Regional Hospital, Burnie, Tasmania

1.3

IMPLEMENTATION IN PAEDIATRIC SETTINGS

11:00 – 12:30

Parkside
110A

While the recognition and response systems developed for adult patients can be applied to paediatric patients, there are some issues that are specific to this population. The purpose of this session is to consider how recognition and response systems need to be developed and applied for paediatric patients. One presentation will discuss escalation triggers for paediatric patients, with results coming from one of the largest validation studies of paediatric calling criteria. Another presentation will focus on the requirements and competencies that need to be present for paediatric rapid response providers. This session will also consider whether triggers and responses need to be the same for children in specialist versus general hospitals.

CHAIR: Mr John Welch**SPEAKERS:****ESCALATION TRIGGERS FOR PAEDIATRIC PATIENTS****Dr Kevin McCaffrey**

Senior Staff Specialist in Paediatric Intensive Care Medicine
Senior Medical Advisor, Patient Safety and Quality Improvement Service, Queensland Health

MINIMUM STANDARDS FOR PAEDIATRIC RESPONDERS**A/Prof James Tibballs**

Specialist in Intensive Care, Paediatric ICU, Royal Children's Hospital Melbourne

SHOULD TRIGGERS AND RESPONSES BE THE SAME FOR CHILDREN IN SPECIALIST AND GENERAL HOSPITALS?**Dr Jonny Taitz**

Assistant Director of Clinical Operations, Sydney Children's Hospital

1.4

DRIVING CHANGE WITH DATA

11:00 – 12:30

Parkside
110B

Regular review of, and action on, markers of quality of care is an integral part of quality improvement. To make sustainable improvements, it is important to establish processes that allow routine collection, review and action on timely and targeted data. This session will provide an overview of what is needed for effective evaluation, audit and feedback processes. Presentations will cover evaluation and indicators regarding recognition and response systems, as well as standards that are needed for audits of these systems.

CHAIR: Dr Steven Webb

SPEAKERS:

EVALUATION AS AN ESSENTIAL COMPONENT OF RECOGNITION AND RESPONSE SYSTEMS

Prof Ken Hillman
Professor of Intensive Care,
University of New South Wales

INITIAL INDICATOR RESULTS FOR RAPID RESPONSE SYSTEMS

Dr Jen Bichel-Findlay
Manager, Performance and Outcomes Service, Australian Council on Healthcare Standards

AUDIT STANDARDS FOR RAPID RESPONSE SYSTEMS

Prof Gary Smith
Visiting Professor, Centre of Postgraduate Medical Research & Education, Bournemouth University, UK

BEYOND KPIS

A/Prof Arthas Flabouris
Clinical Associate Professor, University of Adelaide, and Staff Specialist, Intensive Care Unit, Royal Adelaide Hospital

1.5

IMPLEMENTATION IN MATERNITY SETTINGS

11:00 – 12:30

Parkside
G04

Australia has very low rates of maternal mortality and by far the majority of Australian women and babies have well-managed, uncomplicated experiences of pregnancy and birth. Although rare, it is devastating when things go wrong during pregnancy, birth or the perinatal period. For those health services that provide acute maternal and perinatal care, there may be particular challenges with developing and implementing systems to ensure that recognition and response to clinical deterioration is both timely and appropriate. The purpose of this session is to discuss specific issues relating to recognition and response processes in maternity settings, and how training can be provided to responders when crises occur.

CHAIR: Dr Suellen Allen

SPEAKERS:

EARLY WARNING SCORES IN MATERNITY SETTINGS

A/Prof Scott Simmons
Clinical Associate Professor, University of Melbourne & Department of Anaesthesia, Mercy Hospital for Women, Melbourne

AN OBSTETRIC RAPID RESPONSE SYSTEM

A/Prof Michael Nicholl
Clinical Director, Division of Women's Children's & Family Health, Royal North Shore Hospital, Sydney

MATERNITY CRISIS: THE HUMAN FACTOR ELEMENT

Ms Pauline Lyon
Director Women's and Newborn Simulation, Clinical Skills Development Service, Queensland Health

SESSION 2: Monday 7TH May, 13:30 – 15:00

2.1 – 5

ABSTRACTS

Parkside
Ballroom A**2.1 PREDICTING OUTCOMES FOR DETERIORATING PATIENTS**

PG 54

Felix Rockmann, Alexandra Pavli, Ben Darby

Parkside
Ballroom B**2.2 EVALUATION OF RECOGNITION AND RESPONSE SYSTEMS**

PG 57

Wendy Chaboyer, Stephen Lapinsky, Andrew Dimech, Imogen Mitchell, Sophia Ang

Parkside
110A**2.3 RAPID RESPONSE MODELS**

PG 62

Anna Green, Jenny Lumsden, Hansjorg Selter, Brad Ceely

Parkside
110B**2.4 EDUCATION ABOUT RECOGNISING AND RESPONDING
TO CLINICAL DETERIORATION**

PG 66

Theresa Jacques, Fenton O'Leary, Richard Chalwin, Sok Ying Liaw, Fenton O'Leary

Parkside
G04**2.5 RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION
IN SPECIFIC CLINICAL SETTINGS**

PG 71

Nicole Slater, Janice Gullick, Jane Sandall, Kylie Oliver, Karen Glaetzer

SESSION 3: Tuesday 8TH May, 15:30 – 17:00

3.1

VITAL SIGN ABNORMALITIES AS TRIGGERS TO ESCALATE CARE

15:30 – 17:00

Parkside
Ballroom A

Track and trigger systems have been recommended as important mechanisms for identifying deterioration, and ensuring that appropriate action is taken to escalate care. However systematic reviews have tended to show that the performance of most systems is imperfect, with questions raised about their validity and reliability. The purpose of this session is to examine the use of vital signs to trigger an escalation of care, and whether and how they can be optimised. Presentations will cover the accuracy of vital sign abnormalities as triggers and the potential for using additional markers, such as laboratory test results, to trigger an escalation of care.

CHAIR: A/Prof Daryl Jones

SPEAKERS:

USING LABORATORY TESTS TO TRIGGER RAPID RESPONSE SYSTEMS

Prof Rinaldo Bellomo
Professorial Fellow, Faculty of Medicine, University of Melbourne & Staff Specialist in Intensive Care, Department of Intensive Care, Austin Hospital, Melbourne

THE ACCURACY OF VITAL SIGN ABNORMALITIES AS ESCALATION TRIGGERS

Prof Gary Smith
Visiting Professor, Centre of Postgraduate Medical Research & Education, Bournemouth University, UK

IS IT POSSIBLE TO IDENTIFY THE 'RIGHT' TRIGGERS?

Dr Chris Subbe
Senior Clinical Lecturer, School of Medical Sciences, Bangor University, UK

USING DATA-DRIVEN ALGORITHMS IN RRS PROACTIVE ROUNDING – THE AIR TRAFFIC CONTROLLER HAS ARRIVED

Dr Edgar Jimenez
Head, Corporate Division of Critical Care Medicine, Orlando Health Physicians Group, Florida, USA

3.2

ROUNDTABLE: ADVANTAGES AND DISADVANTAGES OF DIFFERENT RESPONSE SYSTEM MODELS

15:30 – 17:00

**Parkside
Ballroom B**

The purpose of a rapid response system is to ensure that all patients who deteriorate receive an immediate and appropriate response. Several models for the provision of rapid emergency assistance are used internationally and in Australia. These include medical emergency teams, rapid response teams, critical care outreach teams and intensive care liaison nurses. The purpose of this roundtable session is to discuss the characteristics, advantages and disadvantages of these systems. Participants will examine different types of rapid response models, and issues discussed will include the triggers that escalate a response, the composition of different teams and the type of clinical care provided.

CHAIR: Prof Ken Hillman**SPEAKERS:****MET/RRT****Dr Brad Winters**

Johns Hopkins University,
School of Medicine,
Baltimore, USA

**ICU LIAISON
NURSE MODEL****Ms Anna Green**

Manager ICU Liaison Service,
Western Health, Victoria

**NURSE-LED
RESPONSE TEAM****Mr David Ryan**

Director Clinical & Support
Services, Bowral & District
Hospital, NSW

**MODELS EXTERNAL
TO THE HOSPITAL****Dr George Cercez**

Director, General Practice
and Primary Care Unit,
Department of Health and
Human Services, Tasmania

Ms Sophie Legge

Primary Health Coordinator
North Esk/Deputy Community
Recovery Coordinator,
Northern Area Health
Services, Tasmania

**CONSULTANT-LED
MODELS IN THE
PRIVATE SECTOR****Dr Laven Padayachee**

Senior Intensivist, Epworth
Healthcare, Victoria

3.3

ROUNDTABLE: FAMILY ESCALATION OF CARE

15:30 – 17:00

Parkside
110A

Investigations of adverse events have shown that appropriate treatment can be delayed even when families have identified and reported concerns about clinical deterioration to the healthcare team. Providing a process for patients, families and carers to escalate care directly provides an additional layer of safety, and recognises the role of patients, families and carers as part of the wider healthcare team. The purpose of this roundtable is to discuss the potential for family escalation processes to improve patient safety, and the development and establishment of family escalation systems. Participants will bring different perspectives to the discussion, including those of a patient and family member, a researcher who has interviewed people who have tried to have their concerns about deterioration heard, a project officer implementing a family escalation system in one hospital, and an expert in patient-based care who is looking to integrate these systems across a whole state.

CHAIR: Prof Tracey Bucknall

SPEAKERS:**PATIENT/FAMILY PERSPECTIVE****Ms Alicia Wood**

Consumer Representative
for Clinical Excellence
Commission, NSW
Patient/family perspective

Ms Christine Meyer-Coyte

Consumer Representative
for Clinical Excellence
Commission, NSW

RESEARCH PERSPECTIVE**Dr Suellen Allen**

Program Manager, Australian
Commission on Safety and
Quality in Health Care

HOSPITAL PERSPECTIVE**Ms Heather McKay**

Program Manager,
Early Recognition of the
Deteriorating Patient,
ACT Government Health

JURISDICTIONAL PERSPECTIVE**Dr Karen Luxford**

Director, Patient Based
Care, Clinical Excellence
Commission, NSW

3.4

EDUCATION: BASIC REQUIREMENTS

15:30 – 17:00

Parkside
110B

A lack of education and training is a significant factor that can lead to clinical deterioration going unrecognised, and may delay patients receiving appropriate and timely treatments. All clinicians need continuing education to help them identify the observations and assessments needed to detect clinical deterioration, the physiology associated with abnormalities and the importance of timely intervention. Education for rapid response providers must also be ongoing to ensure that appropriate emergency care is provided to patients. The purpose of this session is to discuss the basic requirements for education and training of clinicians regarding recognition and response systems. Presentations will cover the skills and knowledge needed by frontline clinicians, the assessment of competency in resuscitation training and the potential for delivery of multidisciplinary education.

CHAIR: Dr Anne Lippert**SPEAKERS:****BASIC EDUCATION FOR FRONTLINE CLINICIANS**

Dr Theresa Jacques
Director, Department of Intensive Care, The St George Hospital & Associate Professor, University of New South Wales, Sydney

ASSESSMENT OF COMPETENCY IN RESUSCITATION TRAINING/EDUCATION

Ms Susan Helmrich
Education Development Manager, Australian College of Critical Care Nurses

MULTI-PROFESSIONAL EDUCATION FOR RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION

A/Prof Imogen Mitchell
Director of Intensive Care, The Canberra Hospital

3.5

ORGANISATIONAL GOVERNANCE

15:30 – 17:00

Parkside
G04

Each hospital and healthcare facility is responsible for ensuring that its systems for recognising and responding to clinical deterioration are operational and effective. Incorporating recognition and response systems into existing organisational or clinical governance frameworks, or establishing new frameworks to govern these systems, helps to ensure this occurs systematically. The purpose of this session is to examine these governance frameworks in more detail. Presentations will examine some of the fundamental principles for developing effective clinical and organisational governance. There will also be the opportunity to learn from international experiences in governance and the establishment of recognition and response systems in Canada and Denmark.

CHAIR: Ms Maureen Willson**SPEAKERS:****CLINICAL GOVERNANCE OF RECOGNITION AND RESPONSE SYSTEMS**

A/Prof Bill Shearer
Medical Director, Critical Care Program, Southern Health, NSW

ENCOURAGING ORGANISATIONAL OWNERSHIP

Ms Vanessa Owen
Director of Nursing, Midwifery and Patient Care Services, Lyell McEwin Hospital, SA

GOOD GOVERNANCE AND RECOGNITION AND RESPONSE SYSTEMS: EXPERIENCE FROM ONTARIO

A/Prof Stuart Reynolds
Associate Professor of Critical Care Medicine, University of Alberta Hospital, Canada

CHALLENGES OF INTRODUCING HOSPITAL SYSTEMS ACROSS A HEALTH REGION

Dr Freddy Lippert
CEO, Emergency Medical Services in Copenhagen, Denmark

WELCOME: Tuesday 8TH May, 9:00 – 9:15

PLENARY DAY 2.

9:15 – 10:30

Parkside
Ballroom B

INTENSIVE CARE SANS FRONTIERS

CHAIR:

Ms Alison McMillan

SPEAKERS:

Mr John Welch

Consultant Nurse, Critical Care, University College London Hospitals, UK

Professor Rinaldo Bellomo

Professorial Fellow, Faculty of Medicine, University of Melbourne & Staff Specialist in Intensive Care, Department of Intensive Care, Austin Hospital, Melbourne

SESSION 4: Tuesday 8TH May, 11:00 – 12:30

4.1

FAILURE OF IMPLEMENTATION

11:00 – 12:30

Parkside
Ballroom A

To provide safe and high quality care to patients whose condition is deteriorating in hospital it is necessary to have effective systems to support timely recognition of deterioration, and provision of an appropriate response. However the existence of such systems alone is not sufficient to provide appropriate care; they also need to be implemented effectively. The purpose of this session is to examine the effects of “implementation failure” – what happens when recognition and response systems are not implemented and used effectively. The presentations will examine this issue from three perspectives – when systems for recognising deterioration fail, when systems for responding to deterioration fail, and when there is a failure of the organisational systems that are needed to support the provision of appropriate care.

CHAIR:

Dr Bernard Fikkers

SPEAKERS:

AFFERENT LIMB FAILURE

A/Prof Arthas Flabouris

Clinical Associate Professor, Acute Care Medicine Discipline, School of Medicine, University of Adelaide Staff Specialist, Intensive Care Unit, Royal Adelaide Hospital

EFFERENT LIMB FAILURE

Prof Rinaldo Bellomo

Professorial Fellow, Faculty of Medicine, University of Melbourne & Staff Specialist in Intensive Care, Department of Intensive Care, Austin Hospital, Melbourne

HOW TO LOSE FRIENDS AND ALIENATE PEOPLE: MEDICAL EMERGENCY TEAMS AND ORGANISATIONAL FAILURE

Dr Alex Psirides

Intensive Care Specialist, Wellington Hospital, New Zealand

SESSION 4: TUESDAY. 4.2 / 4.3

4.2

OBSERVATION CHARTS

11:00 – 12:30

Parkside
Ballroom B

Observation charts are tools for documenting, monitoring and communicating changes in vital signs and play a key role in recognising and responding to clinical deterioration. The purpose of this session is to present some of the latest research that is being done in Australia on this topic, and to stimulate discussion about charts and their role in broader recognition and response systems. One presentation will report on the latest research about the impact of human factors design principles on the performance of charts in simulation experiments, while another will report on research about the clinical usability of charts designed according to human factors principles.

CHAIR: Dr Jillann Farmer

SPEAKERS:**HUMAN FACTORS DESIGN AND OBSERVATION CHARTS**

Ms Melany Christofidis
PhD Candidate, School of Psychology, University of Queensland

LESSONS FROM USABILITY AND PILOT TESTING OF AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE OBSERVATION CHARTS

Prof Doug Elliott
Professor of Nursing, Faculty of Nursing, Midwifery and Health, University of Technology, Sydney

THE POLITICS OF CHARTS

Dr Charles Pain
Director, Health Systems Improvement, Clinical Excellence Commission, NSW

PUTTING THE CHART INTO PERSPECTIVE

A/Prof Imogen Mitchell
Director of Intensive Care, The Canberra Hospital

4.3

THE 'WORRIED' CRITERION

11:00 – 12:30

Parkside
110A

Patients may show signs of deterioration other than the observations and assessments commonly included in track and trigger systems. Signs of clinical deterioration may include increasing severity of pain, changes in colour and changes in perfusion. Recognition and response systems need to include the criteria for clinicians to escalate care based only on the fact that they are worried about the patient's condition. While vital signs are important, this 'worried' criterion allows clinicians to escalate care based on a more holistic assessment of the patient's condition. The purpose of this session is to examine the potential impact of this criterion, with a particular focus on the potential for this criterion to empower nurses in advocating for patients, and to challenge the traditional hierarchies within hospitals.

CHAIR: A/Prof Julie Considine

SPEAKERS:**IMPACT OF THE WORRIED CRITERION**

Prof Ken Hillman
Professor of Intensive Care, University of New South Wales

DOES THE WORRIED CRITERION EMPOWER NURSES?

Mr John Welch
Consultant Nurse, Critical Care, University College London Hospitals, UK

THE WORRIED CRITERION – CHALLENGING THE HOSPITAL HIERARCHY?

Prof Jeffrey Braithwaite
Director, Australian Institute of Health Innovation

4.4

EDUCATION: ADVANCED TRAINING REQUIREMENTS

11:00 – 12:30

Parkside
110B

As well as the core knowledge and skills that are required for all clinicians, there are specific education and training requirements for rapid response providers. The purpose of this session is to build on Session 3.4 and examine more advanced education and training issues regarding recognition and response systems. Presentations will cover education requirements for rapid response team members who provide emergency assistance, and the role of simulators in supporting education and training about rapid response systems. This session will also include a presentation that will show how education does and does not change – learning about the clinical deterioration in 18th century obstetric training.

CHAIR: Ms Sara Quike

SPEAKERS:**EDUCATION FOR THE
HIGH LEVEL RESPONDER****Dr Michael DeVita**

Staff Intensivist, St. Vincent's
Hospital, Connecticut, USA

**THE ROLE OF
SIMULATORS****Dr Anne Lippert**

Deputy Director, CHPE,
Danish Institute for Medical
Simulation, Denmark

**SIMULATION IN 18TH
CENTURY OBSTETRIC
TRAINING: RECOGNISING
THE DETERIORATING
PATIENT AND THE
CLINICAL HANDOVER****Prof Harry Owen**

Professor of Simulation,
Flinders University of
South Australia

SESSION 5: Tuesday 8TH May, 13:30 – 15:00

5.1 – 5

ABSTRACTS AND INDUSTRY SESSION

Parkside
Ballroom A**5.1 EPIDEMIOLOGY OF THE DETERIORATING PATIENT**

PG 66

Jessica Guinane, Charles Coventry, Emily Sansoni, Paris Ramrakha, David Brown

Parkside
Ballroom B**5.2 THE ROLE OF TECHNOLOGY IN SUPPORTING RECOGNITION AND RESPONSE SYSTEMS**

New technologies have the potential to improve all aspects of healthcare delivery, and can remove some of the human and environmental factors that can contribute to adverse events and delays in recognition and response to clinical deterioration. The purpose of this session is to provide an overview of current and new technologies including the science for, and function of the technology. As well as presentations from technology providers, there will be opportunities for debate among clinical experts.

Chair

Prof Gary Smith

Parkside
110A**5.3 USING QUALITATIVE METHODS TO EXAMINE THE PROCESSES OF RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION**

PG 81

Nicola Mackintosh, Imogen Mitchell, Adrienne Hudson, Melanie Greenwood, Dot Hughes

Parkside
110B**5.4 EVALUATION OF RECOGNITION AND RESPONSE SYSTEMS**

PG 86

Sharon Kinney, Matthew Shepherd, Michael Haddad, Chrissy Ceely, Krishnaswamy Sundararajan

Parkside
G04**5.5 PERCEPTIONS AND USE OF RECOGNITION AND RESPONSE SYSTEMS**

PG 91

Christian Subbe, Jeroen Ludikhuizen, Lindy King, Anne Miller

SESSION 6: Tuesday 8TH May, 15:30 – 17:00

6.1

ROUNDTABLE: STRATEGIES FOR RAPID UPTAKE OF RECOGNITION AND RESPONSE SYSTEMS

15:30 – 17:00

**Parkside
Ballroom A**

Over the last few years there has been significant progress in the systematic implementation of recognition and response systems in Australia. The purpose of this roundtable is to share experiences and lessons from these implementation processes. Participants will discuss the implementation of systems in New South Wales, Queensland and Western Australia. There will be a knowledge translation perspective within this session to examine what we can learn broadly about the processes of incorporating evidence into policy and practice from these examples.

CHAIR: Prof Jeffrey Braithwaite**SPEAKERS:****ROLLOUT OF BETWEEN THE FLAGS****Dr Charles Pain**

Director, Health Systems Improvement, Clinical Excellence Commission, NSW

ROLLOUT OF THE ADDS CHART IN QUEENSLAND**Dr Jillann Farmer**

Medical Director, Patient Safety and Quality Improvement Service, Queensland Health

IMPLEMENTATION IN RURAL WESTERN AUSTRALIA**Ms Jill Porteous**

Director Safety and Quality, Western Australia Country Health Service

KNOWLEDGE TRANSLATION**Professor Tracey Bucknall**

Professor of Nursing, Deakin University & Head, Cabrini-Deakin Centre for Nursing Research, Cabrini Health, Victoria

6.2

ROUNDTABLE: WHAT IS THE BEST TYPE OF TRACK AND TRIGGER SYSTEM?

15:30 – 17:00

**Parkside
Ballroom B**

Track and trigger systems provide an objective decision-making process for recognising and responding to altered physiological observations and assessments. There are large number of different track and trigger systems in place and it is difficult to compare them because they have been developed in different ways and have different physiological parameters and trigger points. The purpose of this roundtable is to discuss the different types of track and trigger systems that exist, and whether it is possible to answer the question of there being a “best” type of system.

CHAIR: **A/Prof Imogen Mitchell****SPEAKERS:****SINGLE PARAMETER
– ONE TIER****Prof Rinaldo Bellomo**

Professorial Fellow, Faculty of Medicine, University of Melbourne & Staff Specialist in Intensive Care, Department of Intensive Care, Austin Hospital, Melbourne

**SINGLE PARAMETER
– TWO TIER****Dr Rob Herkes**

Director, Intensive Care, Royal Prince Alfred Hospital, Sydney

**SCORING SYSTEMS
– PAEDIATRICS****Dr Kevin McCaffrey**

Senior Staff Specialist in Paediatric Intensive Care Medicine & Senior Medical Advisor, Patient Safety and Quality Improvement Service, Queensland Health

**SCORING SYSTEMS
– ADULT****Prof Gary Smith**

Visiting Professor, Centre of Postgraduate Medical Research & Education, Bournemouth University, UK

6.3

DIFFERENT RESPONSE TEAMS

15:30 – 17:00

Parkside
110A

Traditionally the rapid response team has been made up of doctors and nurses from intensive care who provide emergency assistance to patients on general wards. As these processes have become part of normal practice in hospitals they have also been extended so that there are now a much wider range of rapid response teams and models within hospitals. The purpose of this session is to examine some of the other types of rapid response teams that are being established and used. Presentations will cover the interface between rapid response and cardiac arrest teams, the use of rapid response teams developed for specific clinical conditions such as stroke, and the use of rapid response processes in the Emergency Department. In addition, one presentation will look at the extension of the rapid response team concept to coordination of care across healthcare settings.

CHAIR: Dr Freddy Lippert

SPEAKERS:

**SEPARATE CARDIAC
ARREST AND RAPID
RESPONSE TEAMS**

Dr Christian Subbe
Senior Clinical Lecturer,
School of Medical Sciences,
Bangor University, UK

**RAPID RESPONSE TEAMS
FOR DIFFERENT CLINICAL
CONDITIONS**

Dr Michael DeVita
Staff Intensivist, St. Vincent's
Hospital, Connecticut, USA

**RAPID RESPONSE
IN THE EMERGENCY
DEPARTMENT**

A/Prof Julie Considine
Senior Research Fellow,
Deakin University, Northern
Health Clinical Partnership,
Victoria

**CLINICAL CO-ORDINATION
IN COUNTRY WA:
A ROLE IN PATIENT
DETERIORATION
SYSTEMS?**

Dr Justin Yeung
Director of Medical Services,
Great Southern Region,
Western Australia Country
Health Service

6.4

RECOGNITION AND RESPONSE SYSTEMS AND END-OF-LIFE CARE

15:30 – 17:00

Parkside
110B

Patients may develop plans for their end-of-life care that become effective in situations when they are no longer able to communicate or make decisions. Although such advance care plans are becoming more common, there is increasing evidence that medical emergency teams are playing a major role in end-of-life care planning. The purpose of this session is to discuss end-of-life care in the context of the development and use of recognition and response systems in hospitals. Presentations will cover issues associated with end-of-life care and dying in hospitals, as well as the need for effective organisational systems to ensure that high quality care is always provided to patients at the end of their life.

CHAIR: Dr Brian Robson**SPEAKERS:****DYING IN HOSPITAL:
THE PROBLEM****Prof Ken Hillman**Professor of Intensive Care,
University of New South Wales**DIAGNOSING DYING BY
THE RAPID RESPONSE
SYSTEM****A/Prof Daryl Jones**Consultant Intensive Care
specialist, Austin Hospital,
Melbourne**END-OF-LIFE CARE AND
INTENSIVE CARE****Dr Anne Lippert**Deputy Director, CHPE,
Danish Institute for Medical
Simulation, Denmark**AN ORGANISATIONAL-WIDE
SYSTEM TO CARE FOR
END-OF-LIFE PATIENTS****Ms Sue Hanson**National Manager Palliative
Care Services, Little Company
of Mary Health Care,
Melbourne

6.5

RECOGNITION AND RESPONSE AND MENTAL HEALTH

15:30 – 17:00

Parkside
G04

Systems for recognising and responding to clinical deterioration have largely been developed in the context of deterioration in physical health of patients who are admitted in general medical or surgical wards. The purpose of this session is to extend the thinking about recognition and response systems to encompass issues associated with mental health. The presentations in this session will bring different perspectives to this topic. One presentation will examine issues associated with monitoring the physical health of mental health patients, and another will look at the psychological morbidity that can arise following severe physical illness. The final presentation will examine the processes of recognising and responding to deterioration in a patient's mental state.

CHAIR: Mr Andrew Moors**SPEAKERS:****MONITORING THE
PHYSICAL HEALTH
OF MENTAL HEALTH
PATIENTS****Dr Jonathan Laugharne**Associate Professor of
Psychiatry, University of
Western Australia**MINIMISING
PSYCHOLOGICAL
MORBIDITY AND
MAXIMISING RECOVERY
AFTER CRITICAL ILLNESS****Mr John Welch**Consultant Nurse, Critical
Care, University College
London Hospitals, UK**RECOGNISING
AND RESPONDING
TO PSYCHIATRIC
DETERIORATION****A/Prof Richard Newton**Medical Director, Mental
Health CSU, Austin Hospital,
Melbourne

WELCOME: Wednesday 9TH May, 9:00 – 9:15

PLENARY DAY 3.

9:15 – 10:30

Parkside
Ballroom B**PATIENT-CENTRED SYSTEMS****CHAIR:****Prof Rinaldo Bellomo****SPEAKERS:****Dr Karen Luxford**

Director, Patient Based Care, Clinical Excellence Commission, NSW

Prof Michael Buist

Director of Intensive Care, North West Regional Hospital, Burnie, Tasmania

SESSION 7: Wednesday 9TH May, 11:00 – 12:30

7.1

BARRIERS TO THE EFFECTIVE OPERATION OF RECOGNITION AND RESPONSE SYSTEMS

11:00 – 12:30

Parkside
Ballroom A

There are many factors that need to be in place to properly care for patients whose condition is deteriorating in hospital. Track and trigger systems built into observation charts, response and treatment protocols ongoing education programs are all necessary. However, even with these in place, there may be barriers that prevent patients getting the care that they need in a timely way. The purpose of this session is to examine some of these barriers. Issues discussed will include the hierarchies and structures embedded within hospitals that can delay and prevent timely care, as well as the impact that rapid response systems themselves have on the way in which clinical care is provided.

CHAIR:**Dr Bradford Winters****SPEAKERS:****CLINICAL FUTILE CYCLES****Prof Michael Buist**Director of Intensive Care,
North West Regional Hospital,
Burnie, Tasmania**ARE WE DUMBING DOWN
OUR HOSPITALS?****A/Prof Bill Shearer**Medical Director, Critical Care
Program, Southern Health,
Victoria**MAKING IT WORK IN THE
REAL WORLD****Ms Sara Quirke**Nursing Director, Medical
and Community Health, Hutt
Valley District Health Board,
Wellington, New Zealand

SESSION 7: WEDNESDAY. 7.2 / 7.3

7.2

EPIDEMIOLOGY OF THE DETERIORATING PATIENT

11:00 – 12:30

Parkside
Ballroom B

What is a 'deteriorating patient'? The more information that we have about patients whose condition deteriorates in hospital, the better we can target our recognition and response systems to ensure that these patients get the care they need. The purpose of this session is to discuss the characteristics of patients who deteriorate in hospital as well as patients who require a medical emergency team call. Ways in which this information can improve outcomes for patients are also explored.

CHAIR: A/Prof Arthas Flabouris

SPEAKERS:

WHAT ARE THE CHARACTERISTICS OF PATIENTS WHO DETERIORATE IN HOSPITAL?

Dr Michael DeVita
Staff Intensivist, St. Vincent's Hospital, Connecticut, USA

THE EPIDEMIOLOGY OF THE MET PATIENT

A/Prof Daryl Jones
Consultant Intensive Care Specialist, Austin Hospital, Melbourne

HOW CAN WE IMPROVE HOSPITAL PATIENT OUTCOMES?

Dr Steven Webb
Clinical Professor, University of Western Australia and Royal Perth Hospital

7.3

NATIONAL SAFETY AND QUALITY HEALTH SERVICE STANDARDS

11:00 – 12:30

Parkside
110A

The National Safety and Quality Health Service Standards provide the basis for a continuous quality improvement approach to improving patient care. The Standards provide explicit statements of the expected level of safety and quality of care to be delivered to patients by hospitals, as well as a means of assessing performance. Australian Health Ministers endorsed the Standards in 2011, and it will be mandatory for hospitals to be assessed against them after January 2013. The purpose of this session is to provide an overview of the Standards, and in particular Standard 9, which focuses on recognising and responding to clinical deterioration. Presentations will also include a discussion about some of the challenges of implementing the Standards.

CHAIR: Ms Jill Porteous

SPEAKERS:

WHAT ARE THE NATIONAL SAFETY AND QUALITY STANDARDS AND WHAT IS THE NEW MODEL OF ACCREDITATION?

Ms Margaret Banks
Senior Operations Manager, Australian Commission on Safety and Quality in Health Care

OVERVIEW OF STANDARD 9: RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION

Dr Nicola Dunbar
Program Manager, Australian Commission on Safety and Quality in Health Care

IMPLEMENTATION: THE REAL CHALLENGE

Ms Maureen Willson
Quality and Risk Consultant

7.4

INTERNATIONAL IMPLEMENTATION MODELS

11:00 – 12:30

Parkside
110B

The use of systematic processes to recognise and respond to clinical deterioration is now recommended internationally as an important approach to caring for patients whose condition deteriorates in hospital. Different models and methods are being used to implement these systems, reflecting the characteristics of health systems in different countries. The purpose of this session is to provide an overview of implementation processes for recognition and response systems internationally. Presentations will discuss approaches that have been used in the Netherlands, Scotland, Denmark and Ontario. There will be opportunities in this session to discuss what can be learnt from these approaches for Australia.

CHAIR: Dr Charles Pain

SPEAKERS:**THE NETHERLANDS**

Dr Bernard Fikkers
Intensivist, Radboud
University Nijmegen Medical
Centre, The Netherlands

DENMARK

Dr Anne Lippert
Deputy Director, CHPE,
Danish Institute for Medical
Simulation, Denmark

ONTARIO

A/Prof Stuart Reynolds
Associate Professor of Critical
Care Medicine, University of
Alberta Hospital, Canada

SCOTLAND

Dr Brian Robson
Executive Clinical Director,
Healthcare Improvement
Scotland

7.5

RESPONSE SYSTEMS IN RURAL AREAS

11:00 – 12:30

Parkside
G04

It is expected that all hospitals, irrespective of their size and location, will have systems in place to ensure that when a patient's condition deteriorates this is recognised promptly, and that action is taken to ensure that they receive the care they need. The actions taken in response to deterioration are likely to be different in rural hospitals compared to metropolitan hospitals because of differences in resources and staffing. The purpose of this session is to examine some of the models in place for providing an effective response to deterioration in rural and remote areas, including the involvement of retrieval services in ensuring timely care.

CHAIR: Dr George Cerchez

SPEAKERS:**ALICE SPRINGS**

Dr Penny Stewart
Director, Intensive Care,
Alice Springs, NT

GREATER WESTERN NSW

Ms Lynda McKenzie
Project Officer, Early
Recognition and Management
of Deteriorating Patients,
Western New South Wales
Local Health District

LINKS TO RETRIEVAL SERVICES

Ms Leanne Smith
Nursing Director, Retrieval
Services, Queensland Health

SESSION 8: Wednesday 9TH May, 13:30 – 15:00

8.1

CLINICAL JUDGEMENT AND DECISION-MAKING

13:30 – 15:00
Parkside
Ballroom A

Track and trigger systems are important tools to support the recognition of clinical deterioration. However these tools have variable success in predicting outcomes such as admission to intensive care, hospital mortality and cardiac arrest. These variable performances emphasise the importance of clinical judgement and effective decision-making in identifying deterioration and acting on this knowledge to ensure that timely care is provided. This session examines clinical judgement and decision-making in a number of different ways. One presentation looks at decision-making in the difficult circumstances that are often present when patients are deteriorating. Another presentation examines how effective decision-making can be supported. The final presentation will examine whether the design of response systems in the Netherlands, and the capacity the nurses have to call for help within these systems, supports the development and use of clinical judgement.

CHAIR: A/Prof Stuart Reynolds

SPEAKERS:

DECISION-MAKING UNDER DURESS

Prof Tracey Bucknall
Professor of Nursing, Deakin University & Head, Cabrini-Deakin Centre for Nursing Research, Cabrini Health

MULTIDISCIPLINARY DECISION-MAKING IN ACTION TO ACHIEVE GOOD OUTCOMES

Mr Scott McDonnell
Demand Manager, Campbelltown and Camden Hospitals, NSW

CALLING FOR HELP IN THE NETHERLANDS: DO SYSTEMS SUPPORT CLINICAL JUDGEMENT?

Dr Bernard Fikkers
Intensivist, Radboud University Nijmegen Medical Centre, The Netherlands

8.2

MOVING TO AUTOMATED SYSTEMS

13:30 – 15:00
Parkside
Ballroom B

Technological solutions have the potential to improve care provided to patients whose condition deteriorates in hospital by removing some of the human and environmental factors that contribute to the occurrence of adverse events and delays in recognition and response processes. The purpose of this session is to examine some of the automated systems that have been developed to support recognition and response systems. Presentations will cover automated early warning, monitoring and response systems, and how these systems can be integrated into wider e-health processes.

CHAIR: Dr Gary Smith

SPEAKERS:

THE INEVITABILITY OF TECHNOLOGY

Professor Ken Hillman
Professor of Intensive Care, University of New South Wales

AUTOMATED RAPID RESPONSE SYSTEMS

Dr John Lambert
Director, Intensive Care, Orange Base Intensive Care, NSW

AUTOMATED WARD-BASED MONITORING

Prof Rinaldo Bellomo
Professorial Fellow, Faculty of Medicine, University of Melbourne & Staff Specialist in Intensive Care, Department of Intensive Care, Austin Hospital, Melbourne

AUTOMATED EARLY WARNING SYSTEMS AS PART OF A WIDER E-HEALTH INITIATIVE

Dr Brian Robson
Executive Clinical Director, Healthcare Improvement Scotland, UK

8.3

COST OF RECOGNITION AND RESPONSE SYSTEMS

13:30 – 15:00

Parkside
110A

Recognition and response systems have been widely recommended as important patient safety initiatives. However there can be costs associated with their development and implementation. The purpose of this session is to examine issues associated with cost. The session will include a broad discussion about what we know about the costs of quality and safety initiatives generally, before looking more specifically at the costs associated with failures to recognise and respond appropriately to deterioration. These issues will also be considered in the third presentation which will focus on the development of a business case for recognition and response systems.

CHAIR: Dr Alex Psirides

SPEAKERS:**WHAT IS THE COST OF QUALITY?****Dr John Wakefield**

Executive Director,
Queensland Health
Patient Safety and Quality
Improvement Service

COST OF RECOGNITION AND RESPONSE FAILURES**Ms Liz Cox**

Manager, Clinical Risk,
Victorian Managed Insurance
Authority, Melbourne

THE BUSINESS CASE FOR RECOGNITION AND RESPONSE SYSTEMS**Dr Jonathon Barratt**

Deputy Director of Intensive
Care, Cabrini Hospital,
Melbourne

8.4

WIDER INTEGRATION OF RECOGNITION AND RESPONSE SYSTEMS

13:30 – 15:00

Parkside
110B

Generally, recognition and response systems have been focussed on efforts to improve the safety and quality of care for patients whose condition is already deteriorating. However, the principles of early recognition and timely action have wider relevance and can be applied in different ways to improve the safety and quality of care. The purpose of this session is to consider how recognition and response processes can be built into wider hospital systems. The presentations have a strong focus on identifying deterioration earlier, before a patient's condition deteriorates to the extent that an emergency response is needed.

CHAIR: Dr Michael DeVita

SPEAKERS:**MOVING RECOGNITION AND RESPONSE UPSTREAM****A/Prof Daryl Jones**

Consultant Intensive Care
Specialist, Austin Hospital,
Melbourne

USING RRS/MET CRITERIA TO PREDICT MORTALITY**Dr Christian Subbe**

Senior Clinical Lecturer,
School of Medical Sciences,
Bangor University, UK

IDENTIFYING AND MANAGING THE AT-RISK WARD PATIENT BEFORE ACTUAL DETERIORATION: USING THE WARD SAFETY CHECKLIST**Mr John Welch**

Consultant Nurse, Critical
Care, University College
London Hospitals, UK

WHICH ACUTE HOSPITALS SHOULD NOT HAVE A RAPID RESPONSE SYSTEM?**A/Prof Imogen Mitchell**

Director of Intensive Care,
The Canberra Hospital

8.5

RESEARCH UPDATE

13:30 – 15:00

Parkside
G04

The field of recognising and responding to clinical deterioration is a rapidly growing one, and a considerable evidence base is developing on this topic. The purpose of this session is to provide an overview of this growing body of literature. One presentation will examine the reviews that have been conducted in this area, and another will provide an overview of the latest research and new research directions.

CHAIR: Ms Anna Green

SPEAKERS:**REVIEWING THE REVIEWS****A/Prof Jack Chen**

Research Director, Simpson
Centre for Health Services
Research, Faculty of
Medicine, University of
New South Wales

**RESEARCH UPDATE AND
WHERE TO NEXT****Dr Bradford Winters**

Johns Hopkins University,
School of Medicine,
Baltimore, USA

SESSION 9: Wednesday 9TH May, 15:30 – 17:00

CLOSING PLENARY DAY 3.

15:30 – 17:00

Parkside
Ballroom B**WHERE TO NOW?****Chair:****Professor Ken Hillman****Speakers:****Professor Tracey Bucknall**

Professor of Nursing, Deakin University & Head, Cabrini-Deakin Centre for Nursing Research,
Cabrini Health

Dr Brian Robson

Executive Clinical Director, Healthcare Improvement Scotland

Ms Alison McMillan

Chief Nurse and Midwifery Officer, Department of Health, Victoria

Dr Michael DeVita

Staff Intensivist, St. Vincent's Hospital, Connecticut, USA



CONFERENCE CO-DIRECTORS

PROFESSOR KEN HILLMAN

Professor of Intensive Care, University of New South Wales, Sydney

Ken Hillman is Professor of Intensive Care at the SWS Clinical School, University of New South Wales and is an actively practising clinician in Intensive Care at Liverpool Hospital. He graduated from Sydney University and trained at St Vincents Hospital in Sydney and St. Bartholomews hospital in London. He became the Director of Intensive Care at Charing Cross Hospital in London before returning to Australia to become Director of Anaesthetics, Intensive Care and Coronary Care at Liverpool Hospital in Sydney. He has over 150 peer-reviewed publications; approximately 55 chapters in textbooks; co-authored an intensive care textbook; co-edited several textbooks; and written a book – Vital Signs: Stories from Intensive Care and received over \$8 million in grants. He is the Director of the Simpson Centre for Health Services Research which is affiliated with the Australian Institute of Health Innovation at UNSW.



CONFERENCE CO-DIRECTORS

DR NICOLA DUNBAR

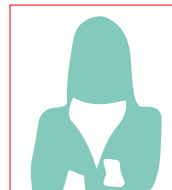
Program Manager, Australian Commission on Safety and Quality in Health Care, Sydney

Nicola Dunbar is a program manager at the Australian Commission on Safety and Quality in Health Care with responsibility for a range of program areas including the deteriorating patient, primary health care, and patient centred care. Dr Dunbar has a background in health research, program management and policy development and has worked for government, universities and non-government organisations at local, state and national levels. She has a PhD in neuropsychology and HIV infection, and a Masters in policy.

**MS EMILY ALLEN**

Program Manager, University of Technology, Sydney

Emily is a Clinical Nurse Consultant at Prince of Wales Hospital with significant experience in oncology and haematology nursing. She has a particular interest in safety and quality and is currently seconded to the University of Technology Sydney as Project Manager for the national observation and response chart (ORC) project. Since the ORC project commenced in November 2010 Emily has lead 10 participating trial sites through 2 stages of usability and pilot testing and is currently preparing data for analysis from the latter phase. The outcome and recommendations will provide the foundations for her doctoral research.

**DR SUELLEN ALLEN**

Program Manager, Australian Commission on Safety and Quality in Health Care, Sydney

Dr Suellen Allen manages the Clinical Communications program at the Australian Commission on Safety and Quality in Health Care. Suellen is a midwife with her research interests in safety and quality in health care, clinical communications and policy. Suellen's PhD examined the patient safety culture in a NSW Maternity Service. She is a Visiting Fellow in the Centre for Health Communication, UTS and was the Project Coordinator and researcher for the, Open Disclosure Research and Indicator Development including the '100 Patient Stories' Project.

**MS MARGARET BANKS**

Senior Operations Manager, Australian Commission on Safety and Quality in Health Care, Sydney

Margaret Banks joined the Australian Commission on Safety and Quality in Health Care at its inception in 2006 and currently holds the position of Senior Operations Manager. In this time she has worked with stakeholders, consumers and jurisdictions on the development of National Safety and Quality Health Service Standards and a program of systematic accreditation reform for the implementation of the Standards.

Prior to this appointment she worked with the Department of Health and Ageing, the Australian Health Workforce Advisory Committee and the NSW Health Department on matters relating to workforce. She has also worked for 9 years as a physiotherapist in Australia and Papua New Guinea.

**DR JONATHAN BARRETT**

Deputy Director of Intensive Care, Cabrini Hospital, Melbourne

Dr Jonathan Barrett is the Deputy Director of Intensive Care at Cabrini Hospital in Melbourne. He has an interest in Rapid Response Team models in the private sector and is currently completing a Masters in Public Health at Monash University.

**PROFESSOR RINALDO BELLOMO**

Professorial Fellow, Faculty of Medicine, University of Melbourne & Staff Specialist in Intensive Care, Department of Intensive Care, Austin Hospital, Melbourne, VIC

Rinaldo is Professor of Medicine with the University of Melbourne, Honorary Professor of Medicine with Monash University, Honorary Professor of Medicine with the University of Sydney and Concurrent Professor with the University of Nanjing, Principal Research Fellow, Howard Florey Institute, University of Melbourne, Director of Intensive Care Research and Staff Specialist in Intensive Care at the Austin Hospital, Melbourne. He is the Founding Chairman of the Australian and New Zealand Intensive Care Society Clinical Trials Group and the current Chair of the Australian and New Zealand Intensive Care Research Centre. His research interests include all aspects of critical care nephrology, sepsis, blood purification, acid-base physiology, resuscitation and critical illness prevention. He is editor in chief of Critical Care and Resuscitation, the official journal of the ANZ College of Intensive Care Medicine.

**DR JEN BICHEL-FINDLAY**

Manager, Performance and Outcomes Service, Australian Council on Healthcare Standards

Jen Bichel-Findlay manages the Performance and Outcomes Service within the Australian Council on Healthcare Standards, and is responsible for the clinical indicator program. She has qualifications in health science, mental health, public health, critical care, health science, and nursing education. She is an Associate Fellow of the Australian College of Health Service Management, and a Fellow of both the Australasian College of Health Informatics and the Royal College of Nursing, Australia. She has presented sessions at many national and international conferences on topics such as health informatics and measurement in health care. Jen has been employed in the health service industry for over 35 years, in a range of clinical, educative, managerial, and project roles throughout Australia. Her initial clinical exposure has led to a long standing interest in patient safety, clinician efficiency, evidence adaptive health care and, more recently, the positive influence of technology on these three areas.



**PROFESSOR
JEFFREY BRAITHWAITE**

Director, Australian Institute of Health Innovation

Professor Braithwaite is Foundation Director, Australian Institute of Health Innovation, Director, Centre for Clinical Governance Research and Professor, Faculty of Medicine, University of New South Wales, Australia. His research examines the changing nature of health systems, particularly patient safety, leadership and management, the structure and culture of organisations and their network characteristics, attracting funding of more than AUD\$45 million. He has published extensively (more than 500 total publications) and he has presented at international and national conferences on more than 500 occasions, including over 60 keynote addresses. His research appears in journals such as *Social Science & Medicine*, *BMJ Quality and Safety*, *International Journal of Quality in Health Care*, *Journal of Managerial Psychology*, *Journal of the American Medical Informatics Association*, *British Medical Journal*, *The Lancet* and many other prestigious journals. Professor Braithwaite has received numerous national and international awards for his teaching and research.



**PROFESSOR
TRACEY BUCKNALL**

Professor of Nursing, Deakin University

Head, Cabrini-Deakin Centre for Nursing Research, Cabrini Health

Tracey has held a variety of clinical, educational and research appointments in private and public hospitals, and in the tertiary sector. Her practice specialty was critical care for 13 years prior to concentrating on research. Based in a hospital, her research focuses on issues concerning patient safety, particularly identifying and managing deteriorating patients and improving inter-professional communication. Her research investigates how individuals make decisions routinely and in uncertainty. As a decision scientist she has successfully obtained competitive research funding, presented nationally and internationally and published in the top ranked critical care, pain and nursing journals. She is also a member of the Australian Commission on Safety and Quality in Health Care's *Recognising and Responding to Clinical Deterioration Advisory Committee*.



PROFESSOR MICHAEL BUIST

Director of Intensive Care, North West Regional Hospital, Burnie, Tasmania

Michael is a graduate of Otago Medical School in New Zealand (MB ChB 1983) and completed specialist training with the Royal Australasian College of Physicians in Intensive Care Medicine (FRACP 1991, FJFICM 2002). In 2007 he graduated Doctor of Medicine with the submission of his thesis to Monash University; "The epidemiology and prevention of in hospital cardiac arrests." He also has a graduate certificate in health economics from Monash University (2001). He is currently the Director of Intensive Care at the North West Regional Hospital in Burnie, Tasmania the Chair of Health Services at the School of Medicine, University of Tasmania.



DR GEORGE CERCEZ

Director, General Practice and Primary Care Unit, Department of Health and Human Services, Tasmania

Dr. George Cercez has worked for the Tasmanian Department of Health and Human Services for the past 15 years with responsibility for the clinical integration of general practice and the rural hospitals within the larger hospital system. His background includes the early development of the Tasmanian and National Divisions of General Practice Network. More recently he has become heavily involved in clinical governance across the system including his membership on the Advisory Committee of ACQSHC for Recognising and Responding to Clinical Deterioration.


A/PROFESSOR JACK CHEN
Research Director, Simpson Centre for Health Services Research, Faculty of Medicine, University of New South Wales

Professor Jack Chen has a medical degree, a PhD in epidemiology and biostatistics and a MBA (Executive). He has strong interests in quantitative research methodology in evaluating complex system intervention and has been a leader of research teams in designing and analysis of cluster randomised controlled trials, in large scale population data linkage studies, in analysing the best-designed longitudinal studies and in systematically rapid reviewing of policy-related evidence-base. He has published in all the major fields of health research (health promotion and public health, clinical epidemiology and biostatistics, clinical trials, health economics and health services research) with over 80 peer-reviewed papers, book-chapters and governmental commissioned reports. He also led and co-authored 16 peer-reviewed papers and book chapters on rapid response system and is currently the leading researcher for two NHMRC project grants on the topic.


MS MELANY CHRISTOFIDIS
PhD Candidate, School of Psychology, University of Queensland

Melany Christofidis is a PhD candidate at The University of Queensland's School of Psychology. The aim of her PhD project is to take an evidence-based approach to observation chart redesign to significantly improve detection rates of patient physiological decline by hospital staff. She employs human factors and cognitive psychology techniques, such as behavioural visual search experiments, to investigate her project's hypotheses.


A/PROFESSOR JULIE CONSIDINE
Senior Research Fellow, Deakin University, Northern Health Clinical Partnership

Professor Julie Considine leads the Deakin University-Northern Health Clinical Partnership in Victoria, Australia. In this joint appointment, Julie combines clinical practice, education and research in emergency care. Julie has been involved in patient safety research and education for almost 15 years and her work related to clinical decision making and recognising and responding to clinical deterioration is well recognised nationally and internationally. Julie is well published, has presented at numerous national and international conferences and has attracted over \$4M in research and project funding. She is a member of the Nursing Executive at Northern Health, Deputy Editor of the Australasian Emergency Nursing Journal, represents the College of Emergency Nursing Australasia on the Australian Resuscitation Council, and is a Fellow of the Royal College of Nursing, Australia.


MS LIZ COX
Manager, Clinical Risk, Victorian Managed Insurance Authority

Liz has a clinical background in ICU, Midwifery and Emergency Nursing and moved to hospital management roles and later Executive Officer/Director of Nursing of a rural hospital. Liz moved into statewide positions managing the interests of the private Aged Care Sector. She later spent six years in the not for profit sector developing and implementing Quality and Risk frameworks for a statewide not for profit community and aged provider before moving back into the acute care sector. Liz joined the VMIA in 2006 as a Risk Management Advisor and in 2009 became the Manager of Clinical Risk where she develops statewide interventions for reducing preventable adverse events. The Clinical Risk Management Strategy aims to work in partnership with other key stakeholders such as the Dept of Health, to achieve the strategy's objectives. Qualifications: Graduate Certificate Risk Management, Master of Health Science, Degree Health Science (nursing).

**DR MICHAEL DeVITA**

**Staff Intensivist, St. Vincent's Hospital,
Connecticut, USA**

Michael DeVita is a critical care physician who has spent the majority of his career at the University of Pittsburgh. He was appointed Chair of the "Code Committee" and became an Assistant Medical Director for quality in 1997. That confluence of responsibilities led Dr DeVita and his team to analyse the antecedents to cardiac arrest in the hospital, and embark on over a decade of sequential improvements including policy change, patient investigation, and simulation training. These improvements resulted in a 67% decrease in cardiac arrest rate at the university. In 2011, Dr DeVita received the Asmund Laerdal Award from the Society of Critical Care Medicine for resuscitation research. He is now a clinical intensivist at St. Vincent's Hospital in Bridgeport Connecticut, and a Professor of Medicine at the newly formed Frank Netter School of Medicine.

**PROFESSOR DOUG ELLIOTT**

**Professor of Nursing, Faculty of Nursing,
Midwifery and Health, University of Technology,
Sydney**

Professor Elliott is a leading and active critical care academic, with 25 years of experience in roles including Faculty Director of Research, Clinical Professor, Head of Department, and a conjoint hospital appointment as Assistant Director of Nursing – Research. His research focuses on the health-related quality of life (HRQOL) and illness experiences of individuals with critical and acute illnesses. He has published over 90 peer-reviewed articles and book chapters, and is co-editor for three textbooks – *ACCCN's Critical Care Nursing* (2007; 2012), *Nursing and Midwifery Research: Methods and Appraisal for Evidence-based Practice* (2007, 2003), and *Pathophysiology Applied to Nursing Practice* (2006). Professor Elliott was recognised as a Life Member of the *Australian College of Critical Care Nurses (ACCCN)* in 2006 for over 20 years of service to critical care.

**DR JILLANN FARMER**

**Medical Director, Patient Safety and Quality
Improvement Service, Queensland Health**

Jillann began her career as a doctor working as a bonded scholarship holder for Queensland Health. She ventured into General Practice in 1993, and in 1996 was awarded the Marion Sullivan and Maureen Duke medal by the College of General Practitioners. In 2001, Jillann was recruited to Medicare Australia, where she worked initially as a Medical Advisor. In 2005, Jillann was approached to take up a position of Director of Medical Services at the Caboolture Hospital, which was in a state of distress, being completely unable to recruit medical staff to its emergency department. Jillann successfully led the hospital through this crisis, with the department fully staffed and accredited for specialty training by the time she departed. In 2007, she was appointed to her current role as the Medical Director and Director of Clinical Safety in the Patient Safety and Quality Improvement Service, Queensland Health.

**DR BERNARD FICKERS**

**Intensivist, Radboud University Nijmegen Medical
Centre, the Netherlands**

Dr Bernard Fickers graduated from the Erasmus University Rotterdam in 1987, and finished his anaesthesia training in 1992 and ICU fellowship in 1994. Since then he has worked in the ICU of the Radboud University Nijmegen Medical Centre in the Netherlands. This is a 36 bed level III ICU. His main professional interests are percutaneous tracheostomy, the topic of his thesis in 2004, and Outreach. He has introduced the Medical Emergency Team in his hospital and has won two prizes for this. About four years ago, he introduced the ALERT™ course in the Netherlands and is responsible for its organisation, ten times yearly.



**A/PROFESSOR
ARTHAS FLABOURIS**

Clinical Associate Professor, University of Adelaide, and Staff Specialist, Intensive Care Unit, Royal Adelaide Hospital

Research interest based around quality and health services research relating to Rapid Response/Medical Emergency teams and systems, trauma, pre-hospital care and medical retrieval. Involved in medical education and assessment, ranging from undergraduate to basic and advanced vocational Intensive Care education. Soccer – follower, not quite retired player, occasional coach and referee.



MS ANNA GREEN

Manager ICU Liaison Service, Western Health

Anna Green qualified as a registered nurse in 1984 and has worked in critical care for 24 years. She has a Master of Nursing degree from the University of Melbourne and was endorsed as the first critical care Nurse Practitioner in Australia in 2004. She is currently the Manager of the ICU Liaison Department at Western Health. For the last 12 years she has been following up intensive care patients who have been discharged to the ward and provides consultations for other ward patients who are showing early signs of deterioration. In 2007 Anna was successful in obtaining a travelling fellowship to the United Kingdom to evaluate the critical care outreach role. She is the lead investigator for multi-site study evaluating the ICU Liaison role. Anna currently is the chair of the ACCCN SIG – ICU liaison and the chair of the ICN – INP/APN network.



MS SUE HANSON

National Manager Palliative Care Services, Little Company of Mary Health Care

Ms Hanson has held senior academic, management and policy positions in palliative care, nursing, education and standards development at state and national level, including a health service executive appointment in clinical governance. She has expertise in the areas of quality improvement, patient safety, change management and strategic planning. She is a Past President of Palliative Care NSW and has held positions on the Executive and Board of Palliative Care Australia. Sue is currently responsible for the development and implementation of a whole of organisation strategic approach to the care of people approaching and reaching the end of their life across LCMHC's public and private acute care hospitals, residential and community aged care services and community support services provided in five states and territories in Australia. This work incorporates strategies aimed at early recognition of patients approaching the end of life, as well as the recognition and appropriate response to those patients who are dying.



MS SUSAN HELMRICH

Education Development Manager, Australian College of Critical Care Nurses

Susan Helmrich is an experienced ICU nurse and clinical educator currently working as the Education Development Manager for the Australian College of Critical Care Nurses (ACCCN). She has developed and delivered post-graduate critical care education programs, and most recently has co-authored the ACCCN National Adult and Paediatric Advanced Life Support Programs, and ACCCN National Resuscitation Instructor Program. Susan is the state co-ordinator for advanced life support education for QLD and represents ACCCN on the Australian Resuscitation Council and is currently the Australian Resuscitation Council QLD branch education officer. She has previously worked as a project manager for the implementation of early warning score and recognition of the deteriorating patient, and has an interest in patient safety and improving standards in clinical care through simulation training of nursing and medical staff.

**DR ROB HERKES**

**Director, Intensive Care,
Royal Prince Alfred Hospital**

Robert is the Director of the Intensive Care Service, Royal Prince Alfred Hospital, Sydney, and Co-Chair of the NSW Critical Care Taskforce. Through his involvement in health system management, he has developed a keen interest in streamlining and enhancing the care of the critically ill patient within Australasia. He is particularly keen to improve the availability of tertiary and quaternary services to those in rural and remote locations. Within his own hospital, Dr Herkes contributed to the development and implementation of an alternate model of Clinical Emergency Response System.

**DR THERESA JACQUES**

**Director, Department of Intensive Care,
The St George Hospital & Associate Professor,
University of New South Wales**

Director of ICU The St George Hospital (SGH) for 23 years, former Chairman of the NSW Intensive Care Task Force, chief editor of the DETECT programme. DETECT followed on from the "SOCCER" study, one of the largest studies on signs of deterioration in the acute care setting. She was co-author, with the late Professor Don Harrison, of the GMCTT report on strategies for the Deteriorating Patient, endorsed by Commissioner Garling and informing the CEC deteriorating patient "BTF" strategy. Her Masters in Health Law, University of Sydney, focused on Government regulations, Health Policy and Ethics and legal matters surrounding death and end of life decision making. She is in full-time clinical practice at SGH and St George Private Medical Centre and runs DETECT courses at the SGH Clinical Skills Centre and travels throughout NSW training instructors and teaching in DETECT. Her current research interest is in evaluation of the DETECT programme.

**DR EDGAR JIMENEZ**

**Head, Corporate Division of Critical Care
Medicine, Orlando Health Physicians Group,
Florida, USA**

In the 1980's he co-developed the Emergency Medical System (EMS) in Costa Rica, and served in Central America as Medical Advisor for the US Agency for International Development (US AID), and Office of Foreign Disaster Assistance (OFDA). He was also consultant on Mass Casualty Incidents for the Pan American Health Organisation (PAHO) and the Red Cross. Since he moved to the US in 1990, he has been dedicated to teaching and research and the development of programs with the Society of Critical Care Medicine (SCCM) such as, the Fundamental Critical Care Support course (FCCS), and the Fundamental Disaster Management (FDM), ICU-USA, which are well-recognised nationally and internationally. He is an author and editor of multiple publications in Critical Care. Dr. Jimenez joined Orlando Regional Medical Centre in 2004 and has pioneered the use of Therapeutic Hypothermia, High Frequency ventilation, Ventilation Using Transpulmonary Pressures and robotic telemedicine in Florida.

**A/PROFESSOR DARYL JONES**

**Consultant Intensive Care specialist,
Austin Hospital**

Daryl Jones is an ICU specialist at Austin Hospital in Melbourne, and is also an adjunct research fellow at Monash University. He has a doctor of medicine in aspects of the Medical Emergency Team. The MD demonstrated a circadian variation of MET activation and cardiac arrest detection suggesting that detection of the deteriorating patient is not uniform over a 24 hr period, and is more likely to occur when caregivers visit the patient. He has recently commenced a PhD on the MET that will assess the characteristics and outcomes of the MET patient, predictors of requirement for MET review, and details of resource utilisation of the MET in ICU-equipped hospitals throughout Australia and New Zealand.

**DR JOHN LAMBERT**

Director, Intensive Care, Orange Base Intensive Care

John is an Intensive Care Specialist and the Director of Intensive Care at Orange Health Service in Western NSW, Australia. He is responsible for finding solutions to many critical care issues affecting part of rural NSW that in area is the size of Germany, but is called “home” by only 300,000 people, serviced by around 40 public hospitals. He has experience in electronic, hardware and software design and implementation that predates his involvement in medicine, which has allowed him to bridge these very different worlds, and tries to use technology to improve the clinician experience of technology, and also their performance in delivering clinical care that requires the use of technology. He is going to discuss the use of building automation and integration with clinical communication systems to improve rapid response performance in a brand new 400 bed regional referral hospital.

**DR JONATHAN LAUGHARNE**

Associate Professor of Psychiatry, University of Western Australia

Dr Jonathan Laugharne is Associate Professor of Psychiatry at the University of Western Australia and Consultant in Consultation-Liaison Psychiatry at Fremantle Hospital. He trained at St Mary’s Hospital Medical School, London and completed postgraduate training in Sheffield, UK. He has since worked as a Psychiatrist in various settings in the UK, USA, and Australia. His clinical and academic interests include improving the physical health of psychiatric patients, the role of psychological trauma in the aetiology of psychiatric disorders, and transcultural psychiatry including refugee mental health. He is co-author of the recently published “Clinical guidelines for the physical care of mental health consumers”.

**MS SOPHIE LEGGE**

Primary Health Co-ordinator North Esk/Deputy Community Recovery Coordinator, Northern Area Health Services

Line Manager for six rural and remote hospitals within North and N/East Tasmania (including Flinders and Cape Barron Island). The focus has been on clinical safety and quality improvement systems within Tasmanian rural inpatient facilities, the principles of the systems introduced are now being adopted by the larger base hospitals in Tasmania. Responsible for implementing and maintaining Consistent Clinical Goals across rural hospitals to trigger early recognition of patient deterioration and responsive action. Sophie also chairs various clinical management committees within the Tasmania, and is a member of various ACSQHC working Committees.

**DR ANNE LIPPERT**

Deputy Director, CHPE, Danish Institute for Medical Simulation, Denmark

Anne Lippert’s current position is Deputy Director of the Danish Institute for Medical Simulation, a position, which she has held full-time for the last 5 years. She is trained as a specialist in anaesthesiology with subspecialty in Intensive Care Medicine. Anne has worked with Rapid Response Systems for many years and has been the author of Guidelines for the introduction of RRS in Denmark as well as a member of the Regional board for RRS. Anne was chair of the organising committee for the 5th Symposium on Rapid Response Systems, which was held in Copenhagen in 2009. Anne is a co-author of the consensus paper from the 2nd consensus conference on Rapid Response Systems. She is now a member of the Steering Committee in the Capital Region of Denmark for the implementation of a regional Early Warning System.

**DR FREDDY LIPPERT**

CEO, Emergency Medical Services in Copenhagen, Denmark

Freddy is chair of the Resuscitation Committee in The Capital Region (9 hospitals and EMS). Freddy is also an associate professor at the Faculty of Health Sciences at the University of Copenhagen and special advisor on emergency care to the Danish National Board of Health. Freddy has more than 20 years of experience in trauma care, emergency medicine and resuscitation. Freddy has served the European Resuscitation Council as board member and member of the general assembly of the ERC for ten years and is also member of the ERC Guideline writing Group and the European Trauma Course Organising Committee.

**DR KAREN LUXFORD**

Director, Patient Based Care, Clinical Excellence Commission

Dr Karen Luxford is Director – Patient Based Care at the Clinical Excellence Commission, Sydney, Australia (CEC). In 2010, Dr Luxford founded the *Partnering With Patients* program at CEC to promote patients, family and carers as care team members and the role of patient-based care in improving patient safety and quality in health care services. In 2008-2009, Dr Luxford was a Harkness Fellow in Healthcare Policy & Practice, Harvard Medical School, Boston and studied exemplar patient-focused organisations in the USA and the role of leadership, patient engagement and patient feedback in improving service quality. Dr Luxford is the Convenor of the international 'Patient Centred Care Community' for the ISQua Knowledge portal of the International Society for Quality in Health Care. Dr Luxford was formerly General Manager of the National Breast and Ovarian Cancer Centre.

**MS PAULINE LYON**

Director Women's and Newborn Simulation, Clinical Skills Development Service, Queensland Health

Pauline has over 35 years of midwifery experience as a clinician, manager and educator, her primary focus is on the provision of quality, safe client care and supporting multi-disciplinary staff to deliver that care through simulated learning experiences. Pauline has established new services/units, participated in and conducted local and State-wide reviews into maternity services and is a consultant on midwifery matters to the Queensland Nursing Council and Queensland's Office of the Chief Nurse. Her prior experience and engagement with morbidity and mortality committees and state-wide clinical guidelines groups facilitate her role as the Simulation Program Director for Queensland Health's Clinical Skills Development Service, where she is the author of CSDS's Maternity Crisis Resource Management program.

**DR KEVIN McCAFFERY**

Senior Staff Specialist in Paediatric Intensive Care Medicine & Senior Medical Advisor, Patient Safety and Quality Improvement Service, Queensland Health

Kevin trained as a Paediatrician with subspecialty paediatric intensive care accreditation in the United Kingdom. During a year as a senior trainee in Melbourne Royal Children's Hospital PICU, an interest in the problem of the deteriorating patient was planted. Subsequent PICU Specialist posts in Glasgow and Brisbane allowed that seed to bloom into a fully-fledged obsession, and led to the development of the Children's Early Warning Tool.

**MR SCOTT McDONNELL**

Demand Manager, Campbelltown and Camden Hospitals

Scott McDonnell is a Senior Nurse Manager from NSW Australia, with a passion for improving the early recognition and response to the deteriorating patient. Scott's initial work focussed on the importance of senior nursing role models in the afterhours environment. This led to the development and implementation of the role of After Hours Clinical Nurse Consultant. This role represented landmark change in establishing the importance of clinical leadership and multidisciplinary collaboration between senior clinicians in the after hours environment. The After Hours Clinical Nurse Consultant role has now been successfully implemented in a number of Tertiary, Metropolitan and Rural hospitals throughout NSW, Australia. Scott will speak at the conference on why such a role can and does make a difference to patient safety through multidisciplinary decision making in the after hours context.

**MS HEATHER MCKAY**

Program Manager: Early Recognition of the Deteriorating Patient, ACT Government Health

Heather is the Program Manager for the Early Recognition of the Deteriorating Patient Program for the ACT Government. She has been a nurse for over 30 years and has a passion for improving care for patients. She has won numerous awards for her work in deteriorating patients including the Australian Institute of Project Management National Award for Community Service and Development. Her work with the ACT deteriorating patient team resulted in the development of the COMPASS program which is now being used nationally and internationally.

**MS LYNDA MCKENZIE**

Project Officer, Early Recognition and Management of Deteriorating Patients, Western NSW Local Health District

Lynda is the Project Officer for the Early Recognition and Management of Deteriorating Patients for the Western NSW Local Health District. She was responsible for the co-ordination of the Between the Flags Programme implementation throughout the former Greater Western Area Health Service. Lynda is based in the Western NSW Local Health District, Clinical Governance Unit at Orange.

**MS ALISON McMILLAN**

Chief Nurse and Midwifery Officer, Department of Health, Victoria

Alison has more than 25 years experience as both a clinician and an executive in the public healthcare sectors of the United Kingdom and Australia. In her new role as the Chief Nurse & Midwifery Officer for Victoria, Alison provides strategic leadership to the health sector and plays a pivotal role in collaborating with other state and territory counterparts on national issues and initiatives relating to nursing and midwifery. Alison's other professional interests relate to quality and safety within the health sector and health emergency management. She previously held the roles of Director, Quality, Safety & Patient Experience, Department of Health in Victoria and Chair of the Australian Commission on Safety and Quality in Health Care (ACSQHC) Inter-Jurisdictional Committee. She continues to be Chair of the recognising and responding to clinical deterioration committee of the ACSQHC and is an active member of the Australian Health Protection Committee (AHPC).



**A/PROFESSOR
IMOGEN MITCHELL**

Director of Intensive Care, The Canberra Hospital

Professor Imogen Mitchell is Director of Intensive Care at The Canberra Hospital and Associate Dean (Admissions) at the Australian National University. Originally trained in the United Kingdom but migrated to Australia to complete her intensive care training. Her research interests include recognising and responding to patient deterioration and the translation of research into clinical practice.



**A/PROFESSOR
RICHARD NEWTON**

**Medical Director, Mental Health CSU,
Austin Hospital**

Richard was appointed in February 2009 as the Medical Director of Mental Health at Austin Health. Clinical Director of BETRS (Body image, Eating disorders Treatment and Recovery Service), a regional community Eating disorders programme jointly run by Austin and St Vincent's, and Consultant Psychiatrist to the Specialist Eating Disorder In Patient Service, Austin Health. He trained in Edinburgh, Scotland, graduating from Medicine in 1985 and completing psychiatry training in 1989. After completing CBT training in The Cullen Centre, Edinburgh, he came to Australia in 1992. He continues to promote the training of all mental health clinicians in the use of structured psychotherapies providing a Masters level course on CBT through Monash University and the accredited advanced training programme in CBT for the RANZCP advanced certificate in psychotherapy. He has a wide range of research interests and has more than 50 publications on Deinstitutionalisation, Community Psychiatry, homelessness, substance abuse, cognitive impairment, eating disorders and Cognitive Therapy.



**A/PROFESSOR
MICHAEL NICHOLL**

**Clinical Director, Division of Women's Children's
& Family Health, Royal North Shore Hospital**

A medical practitioner for over 25 years, A/Prof Nicholl has experience as a senior obstetrics & gynaecology specialist in both the public and private sectors in NSW. In 2004, A/Prof Nicholl was appointed as the Clinical Director of the Division of Women's Children's & Family Health for the North Shore Ryde Health Service. In 2006 he was appointed as Chair of the Maternity, Neonatal & Women's Health Network for Northern Sydney Central Coast Area Health Service. In 2009, A/Prof Nicholl was appointed Obstetric Advisor to NSW Health. He holds the appointment of clinical associate professor with the Sydney Medical School in the discipline of Obstetrics, Gynaecology & Neonatology. Areas of expertise include service development, executive health services planning and management, organisational review, clinical process redesign, networks, adverse event investigation and management, and the safety and quality of maternity services.



DR HADIS NOSRATI

**Postdoctoral Research Fellow, The Simpson
Centre of Health Service Research, Australian
Institute of Health Innovation**

Hadis Nosrati received her PhD degree in 2008, from the School of Electrical Engineering, University of New South Wales, Australia. She is currently a research fellow at the Simpson Centre for Health Services Research affiliated with Australian Institute of Health Innovation, where she works on the effects of the organisational/clinical factors of various health care organisations on the success of Rapid Response System in improving the patient outcomes such as mortality rate and the number of cardiac arrest events. Her main research interests are Bayesian modelling, and statistical signal processing.

**PROFESSOR HARRY OWEN**

Professor of Simulation, Flinders University of South Australia

Harry Owen is Professor of Simulation in the School of Medicine at Flinders University in Adelaide. Harry and his team received a national citation for teaching excellence in 2012 for their simulation-based longitudinal program of acute and emergency care that is delivered in Adelaide and regional centres across SA. Harry has published research on teaching and learning acute care skills in both medical education and clinical discipline journals and presented at several national and international meetings. Harry's current R&D activity covers development of new simulation technology, improving transfer of training from simulation to clinical practice and systems for tracking training needs and performance assessment. Harry also has an interest in the history of simulation in healthcare professional education. Simulation has been used in medical education for a very, very long time and we can learn much from the early adopters.

**MS VANESSA OWEN**

Director of Nursing, Midwifery and Patient Care Services, Lyell McEwin Hospital

Vanessa Owen is currently the Director (Executive) of Nursing, Midwifery and Patient Care Services at Lyell McEwin Hospital (LMH). Vanessa has a history of involvement with safety and quality including leading organisations during ACHS accreditations in a number of jurisdictions – the most recent at LMH which saw the outstanding achievement of 9 Extensive Achievement's and 4 year accreditation. Vanessa currently sits on the SA Council on Safety and Quality in Health Care, and the SA Health Women in Leadership Committee. Vanessa has been a pivotal member of the redevelopment team at LMH including her role as Executive sponsor and also Co-Clinical Lead for the current \$202m Stage C redevelopment. In July/August 2009 Vanessa received a scholarship to the Wharton Fellows Program in Management for Nurse Executives at the University of Pennsylvania in the United States. Vanessa is only one of 23 Australian nurses to have received the scholarship.

**DR LAVEN PADAYACHEE**

Senior Intensivist, Epworth Healthcare

Dr Laven Padayachee is a Senior Intensivist at Epworth Healthcare Richmond and chairs the hospital's Rapid Response System Advisory Committee. He also has VMO appointments at the Epworth Eastern, Royal Melbourne and Maroondah Hospital Intensive Care Units in Melbourne. Over the last 4 years, he has led the creation, development and implementation of the Admitting Consultant Emergency (ACE) system at the Epworth Richmond campus. This unique cost effective RAMP up rapid response system services a 550 bed tertiary private hospital. It has similar activation triggers to RAMP down (e.g. MET) systems however utilises primarily non ICU personnel with quick escalation to involve ICU expertise if required. This system has very high activation rates, very low cardiac arrest rates and has won a national award from the Australian Private Hospital Associations teamwork category in 2011.

**DR CHARLES PAIN**

Director, Health Systems Improvement, Clinical Excellence Commission

Dr Charles Pain is a public health physician and is currently Director for Health Systems Improvement at the Clinical Excellence Commission for NSW. He studied medicine at the University of Liverpool, in England, spent several years in hospital medicine, ending up working in cardiology and then trained in public health medicine in the North West of England, in Preston, Salford and Manchester. He is now a Fellow of the Australasian Faculty of Public Health Medicine and a Fellow of the Faculty of Public Health in the United Kingdom. He has 25 years experience of working in three public health systems, in the United Kingdom, New Zealand and in Australia. He has worked in a variety of positions including the Department of Health for England, the NSW Health Department and a number of regional and area health services. Immediately prior to his appointment at the Clinical Excellence Commission, he was the Director.

**MS JILL PORTEOUS**

**Director Safety and Quality, Western Australia
Country Health Service**

Jill is a Scot by birth and has lived in Australia for more than ½ her life. She trained as a nurse in Edinburgh and has worked in many health care setting in the UK and Australia with diverse career as a front line clinician, manager, and educator or as is often the case in Country health what ever was required on the day. She caught the Rural and Remote health “bug” when she moved to the Pilbara in the 90’s. She has worked in the area of Patient Safety and Quality for the last 10 years in a range of Country health setting and now holds the post of Director Safety and Quality for WA Country Health.

**DR ALEX PSIRIDES**

**Intensive Care Specialist, Wellington Hospital,
New Zealand**

Is an Intensive Care Specialist working in New Zealand who has been involved in implementing Rapid Response Systems in two different countries. His research interests include Medical Emergency Teams in end-of-life decision making, the graphic design of vital signs charts and factors that influence afferent response. Alex has worked on computerised systems to improve Rapid Response Systems and has an interest in developing a national (New Zealand) approach to emergency calling criteria. Alex strives for a system that would allow every in-patient’s vital signs and their corresponding calculated Early Warning Score to be viewed in realtime on an iPad.

**MS SARA QUIRKE**

**Nursing Director, Medical and Community Health,
Hutt Valley District Health Board, Wellington,
New Zealand**

Since starting her nursing career in 1986, Sara has worked mainly in intensive care. However in 2000 Sara took on the role of Lead Nurse Critical Care Outreach which entailed the development of a brand new critical care outreach service. Whilst in this role Sara’s interest in management of acutely unwell ward patients began. Since moving to New Zealand Sara has worked as an educator and as Director of Clinical Programmes at Victoria University with a specific interest in patient safety. Not surprisingly Sara’s recently completed PhD focussed on the factors that influence the care of acutely unwell ward patients, specifically organisational factors. In February 2012 Sara took on the position of Nursing Director of Medical and Community Health Directorate. Moving to the ‘dark side’ has given Sara an opportunity to influence organisational change in order to provide safer care for this patient group based on her PhD findings.

**A/PROFESSOR
STUART REYNOLDS**

**Associate Professor of Critical Care Medicine,
University of Alberta Hospital, Canada**

Is currently an Intensivist at the University of Alberta Hospital in Edmonton, Canada.

He is the Physician Lead for Quality and Patient Safety for Alberta Health Services, Critical Care Network.

Prior to this he was the Physician Lead for the Critical Care Response Team Project, Ministry of Health, Province of Ontario. And lead the design and implementation of a 28 hospital Rapid Response System Project.

**DR BRIAN ROBSON**

Executive Clinical Director, Healthcare Improvement Scotland, UK

A graduate of Glasgow University and Harvard School of Public Health, Brian has a background in General Practice, GP out of hours, telephone triage and latterly eHealth and Quality Improvement. He was a Health Foundation Quality Improvement Fellow (2008-9) with the Institute for Healthcare Improvement in Cambridge, Massachusetts where he was involved in leading a subcommittee of the IHI Board exploring the role of Health Information Technology in accelerating quality improvement. In 2009 he completed an MPH (Clinical Effectiveness) at Harvard School of Public Health. Healthcare Improvement Scotland supports NHS Boards to improve the quality of care for the citizens of Scotland. As Executive Clinical Director his responsibilities include clinical engagement, knowledge management, measurement, patient safety and eHealth. He continues a regular clinical session in General Practice in Glasgow which keeps him grounded in the realities of working at the frontline!

**MR DAVID RYAN**

Director Clinical & Support Services, Bowral & District Hospital

David Ryan is the Director of Clinical & Support Services at Bowral & District Hospital located approx 120k's south west of Sydney. Bowral is a 94 bed Acute facility providing general medical, surgical, obstetrics, orthopaedics, paediatrics, high dependency and emergency services to the local community. Nursing since 1980, David Ryans clinical background is critical care working in ICU and Emergency. He has a strong interest in disaster and emergency management is the Hospital Disaster Controller and Health Liaison to the Local Emergency Management Committee. Is a Senior Emergo Train System Instructor providing advice and leadership on disaster preparedness, testing and capabilities. Since 1995 Bowral Hospital has had an RN led MET. David Ryan has contributed greatly to the development and ongoing provision of MET services at Bowral. He provides training, skills update and reflective practice opportunities for the members of the Medical Emergency Team.

**A/PROFESSOR BILL SHEARER**

Medical Director, Critical Care Program, Southern Health

Associate Professor Bill Shearer is an anesthetist and currently the Medical Director of the Critical Care Program and Clinical Director of Quality at Southern Health in Melbourne. He is also a member of the Victorian Quality Council which advises government on issues of quality and safety. Bill's major interests are in the management and governance of quality and safety improvement with particular focus on measuring improvement in the care of the deteriorating patient.

**A/PROFESSOR SCOTT SIMMONS**

Clinical Associate Professor, University of Melbourne & Head of Department, Department of Anaesthesia, Mercy Hospital for Women

Born and educated in Adelaide and completing medical degrees and a BSc, I was a specialist anaesthetist at the Women's and Children's Hospital from 1993 to 2006, including Head of Women's Anaesthesia. I completed an MBA and have had management roles including Executive Director for Clinical Governance, Education and Research. I was an executive member of the OA SIG from 2000 to 2010 and Chair from 2004-07. I am a reviewer for the Cochrane Collaboration with systematic reviews pertaining to obstetric anaesthesia and analgesia. Following studies with the Institute for Healthcare Improvement in Boston I have undertaken several projects aimed at quality improvement through system redesign. I am currently the Director of Anaesthesia at the Mercy Hospital for Women and Clinical Associate Professor University of Melbourne with research interests which include the development of systems for delivery of critical care for high risk obstetrics.

**PROFESSOR GARY SMITH**

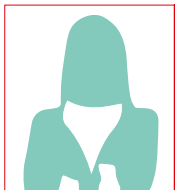
Visiting Professor, Centre of Postgraduate Medical Research & Education, Bournemouth University, UK

Professor Gary Smith graduated from Southampton University (1977) and was a Consultant in Critical Care at Portsmouth Hospitals (1986-2011). He is a Visiting Professor at Bournemouth University. Gary has a long-standing interest in the early recognition of, and the response to, patient deterioration. He was instrumental in educational initiatives by the UK Royal Colleges to improve ward staffs' knowledge and skills of recognising and managing deterioration. He has contributed to reports by UK bodies (NPSA, NICE, DH, Royal College of Physicians) regarding vital signs monitoring; acute care competencies and early warning scores. He also led the clinical team that developed a hand-held, computer-based system (VitalPAC) for the early recognition of patient deterioration, for which the team has won several awards. Data collected through VitalPAC has been used to develop NEWS – the UK's National Early Warning Score. Gary was named 'NHS Innovator of the Year' in the NHS Leadership Awards 2010.

**MS LEANNE SMITH**

Nursing Director, Retrieval Services, Queensland Health

Leanne is the Nursing Director with Retrieval Services Queensland, a service which provides centralised Statewide Aeromedical Retrieval Coordination. Leanne leads a specialist nursing retrieval coordination team and has strong links with government and non-government agencies across Queensland.

**DR PENNY STEWART**

Director, Intensive Care, Alice Springs, NT

**DR CHRISTIAN SUBBE**

Senior Clinical Lecturer, School of Medical Sciences, Bangor University, UK

Dr Chris Subbe is a Consultant in Acute, Respiratory and Critical Care Medicine and a Senior Clinical Lecturer at the School of Medical Sciences, Bangor University, UK. Dr Subbe has trained in Germany and the UK with fellowships in France and the US. He has worked as a volunteer with "Médecins sans Frontières" in Angola. Dr Subbe's research is focused around the recognition of critically ill patients on general wards. Observational and interventional trials have led to a number of publications in peer reviewed journals as well as involvements on a national level as member of the Royal College of Physicians (RCP) working party on Acute Medicine (2004), collaborator for the working party on the Interface of Acute and Critical Care Medicine, advisor for the National Confidential Inquiry into Patient Outcome and Death (NCEPOD) for their report "An Acute Problem" (2005) and as a Champion for the Welsh 1000 lives PLUS campaign.

**DR JONNY TAITZ**

**Assistant Director of Clinical Operations,
Sydney Children's Hospital**

Dr Jonny Taitz is a specialist Paediatrician and Associate Director of Clinical Governance at Sydney Children's Hospital, Randwick.

He has recently returned from a completing his Harkness fellowship in Health Policy and practice at Harvard medical School, Boston. His special interests are deteriorating paediatric patients and physician engagement. He is currently an Associate Editor of BMJ Quality and Safety.

**A/PROFESSOR
JAMES TIBBALLS**

**Specialist in Intensive Care, Paediatric ICU,
Royal Children's Hospital Melbourne**

Associate Professor Jim Tibballs has been a specialist paediatric Intensive care physician at the Royal Children's Hospital, Melbourne, since 1979. His research and academic interests include resuscitation and prevention of adverse events. Along with other physicians and nurses, he commenced a medical emergency team (MET) at that hospital in 2002 and observed that the incidence of preventable cardiac arrest and death on wards outside the intensive care environment decreased considerably. When combined with studies of outcomes of similar services in other paediatric hospitals, the reduction in cardiac arrest and death was significant. The MET service has maintained a strong presence in the hospital after a decade of operation and has become integrated into endeavours to improve care of the deteriorating patient. MET calling criteria have become integrated into ward nursing observation charts and patient monitoring devices. The service has recently adopted formal instruction to parents in activation of the service.

**DR JOHN WAKEFIELD**

**Executive Director, Queensland Health Patient
Safety and Quality Improvement Service**

John initially trained as a doctor in the United Kingdom. He came to Queensland for one year, and forgot to go home! For the last twenty years, he has had varied clinical and managerial roles across rural, regional and metropolitan Queensland. In 2004, He undertook a fellowship in the United States at the VA Patient Safety Centre, returning to set up the Patient Safety Centre. Working with a dedicated team, he is involved in driving patient safety improvement across Queensland.

**DR STEVEN WEBB**

**Clinical Professor, University of Western Australia
and Royal Perth Hospital**

Dr. Steven Webb is a Senior Staff Specialist in Intensive Care Medicine at Royal Perth Hospital and a Clinical Professor in the School of Medicine and Pharmacology and the School of Population Health at the University of Western Australia and a Clinical Professor in the Department of Epidemiology and Preventive Medicine, School of Public Health and Preventive Medicine, Monash University.

He is the current Chair of the Australian and New Zealand Intensive Care Society Clinical Trials Group. He has published over 70 manuscripts in peer-reviewed journals including manuscripts in *The New England Journal of Medicine*, *Journal of the American Medical Association* and the *British Medical Journal*. He is the Vice-Chair of the International Forum of Acute Care Trialists. He chairs the Human Research Ethics Committee at the University of Western Australia.

**MR JOHN WELCH**

Consultant Nurse, Critical Care, University College London Hospitals, UK

John has worked in critical care since 1988, focusing on set-up, operational, and strategic development of critical care outreach services since 2000. He is currently Consultant Nurse in Critical Care at University College London Hospitals.

John was first Chair of the UK National Outreach Forum, and is now co-lead of the UCL Partners deteriorating patient project, working to halve avoidable deaths across a network of 19 London hospitals.

**MS MAUREEN WILLSON**

Quality and Risk Consultant

Maureen Willson, MHM, BHSc, began her career as a nurse and has undertaken a number of management roles since her clinical work. These include roles such as CEO and Director of Nursing, government roles including leading the clinical risk management program for the Department of Human Services and the Victorian Managed Insurance Authority. Maureen headed up the Victorian Quality Council for a two and a half year period as well. Her desire to influence patient outcomes has been evident in each of these roles and was demonstrated successfully throughout her three year appointment at Epworth HealthCare as the Executive Director of the Quality & Risk division.

The national standards and the need for health services to demonstrate compliance to these Standards, continue to drive her work as a Consultant in quality and risk management in her own company, Maureen Willson Quality & Risk Consulting.

**DR BRADFORD WINTERS**

Johns Hopkins University, School of Medicine, Baltimore, USA

Brad Winters is a faculty member of the Armstrong Institute for Patient Safety and Quality at the Johns Hopkins University School of Medicine, an anaesthesiologist, an Intensivist in the Neurosurgical/Neurological and General Surgical ICUs and is Co-Chair of the hospital's Cardiopulmonary Resuscitation Committee which oversees the Rapid Response Systems and Cardiac Arrest teams for Johns Hopkins Hospital.

**MS ALICIA WOOD**

Organisation Consumer Representative: Clinical Excellence Commission

Ms Wood was the Chair of the Clinical Excellence Commission's Partnering with Patients Advisory Committee and a member of the Patient & Family Activated Rapid Response Working Group in 2011. Ms Wood developed the acronym REACH that was used in the implementation of the Patient & Family Activated Rapid Response program & she was also approved to work with the Clinical Management RCA Review Sub-Committee at the CEC. She is a long standing member of the Grace Centre for Newborn Care Parent Advisory Council at The Children's Hospital at Westmead and a member of the Grace Gala Ball Committee. She is active in quality improvements in other areas including the Radiology/Medical Imaging Network of the Agency for Clinical Innovation, the International reference group of the WINNER Centre for Newborn research at Westmead Hospital & also participated in the 100 Patient Stories project about open disclosure by the University of Technology (UTS).

**DR JUSTIN YEUNG****Director of Medical Services, Great Southern region, WA Country Health Service**

Justin Yeung is an Emergency Physician with 10 years of experience at Royal Perth Hospital, where he held roles as Head of the Emergency Department and as a Director of Clinical Training in Post Graduate Medicine. Mid way through 2010, Justin made the move from Perth to Albany to take up the position of Director of Medical Services for the Great Southern region of the WA Country Health Service. Most recently he has been appointed to a 12 month project to develop a clinically co-ordinated patient transfer model for WA country health.



PG NUMBER	TITLE
SESSION 2.1 Predicting outcomes for deteriorating patients	
54	2.1a An automated warning system in ED for the deteriorating patient is not feasible: results from a retrospective data analysis of 15000 admitted ED patients
55	2.1b The temporal relationship between the modified early warning scoring system and the medical emergency team system in detecting patients at risk of critical illness
56	2.1c Seagulls could save lives
SESSION 2.2 Evaluation of recognition and response systems	
57	2.2a Evaluating a new 2-tiered rapid response system
58	2.2b Evaluation of an electronic vital signs capture and alert system
59	2.2c Improving compliance with observation recording and detection of acute deterioration.
60	2.2d A qualitative study to understand behavioural changes with the multifaceted intervention
61	2.2e AEGIS (alert and escalation general ward information systems) – A novel strategy to improve recognition of deteriorating patients
SESSION 2.3 Rapid response models	
62	2.3a The uptake and caseload of ICU liaison nurses services in Australia
63	2.3b Use of an ICU liaison nurse system to follow icu referred patients at risk of deterioration on the ward
64	2.3c Structure and organisation of rapid response team at Thy-Mors Hospital Denmark
65	2.3d Nurse practitioners take the lead
SESSION 2.4 Education about recognising and responding to clinical deterioration	
66	2.4a Intern perceptions of the impact of a pre-intern blended learning program (DETECT) as preparation for intern year
67	2.4b Identifying incidents of suboptimal care during paediatric emergencies – an observational study utilising insitu and simulation centre scenarios
68	2.4c Impact of non-technical skills training on performance and effectiveness of a medical emergency team (impact): Study concept and protocol
69	2.4d Rescuing a patient in deteriorating situations (rapids): The teaching of life-saving mnemonics tools in a simulation program
70	2.4e Responding to the deteriorated child: resus4kids – Paediatric life support for healthcare rescuers
SESSION 2.5 Recognising and responding to clinical deterioration in specific clinical settings	
71	2.5a Area specific deteriorating patient education programs
72	2.5b Expansion of a medical emergency team system to a mental health facility
73	2.5c The role of the modified early warning scoring systems (MEOWS) in intrapartum care: Lessons from the frontline in the United Kingdom
74	2.5d Reducing risk of indigenous sepsis in the Kimberley
75	2.5e Paramedics and palliative care – an unlikely alliance



PG NUMBER TITLE

SESSION 5.1 Epidemiology of the deteriorating patient

- 76 5.1a Incidence with which patients fulfil hospital specific MET criteria during a complete admission
- 77 5.1b Rapid response team calls to patients with a pre-existing not for resuscitation order: Interventions and outcomes
- 78 5.1c Medical emergency team (MET) reviews: Factors influencing delay and hospital outcome
- 79 5.1d Comparing patient deterioration systems in unplanned intensive care admissions
- 80 5.1e Multiple MET reviews: Comparing patient characteristics and outcome with increasing number of medical emergency team reviews.

SESSION 5.3 Using qualitative methods to examine the processes of recognising and responding to clinical deterioration

- 81 5.3a An ethnography of rescue work: relationships between organisational systems, department and individual level processes.
- 82 5.3b The human element of managing patient deterioration
- 83 5.3c The experience of nurses and doctors who care for a child who has had an unexpected acute life-threatening event (ALTE) in hospital?
- 84 5.3d 'Document and go': Acute care nurses use of vital signs
- 85 5.3e Nurses experiences of activating a rapid response system in rural general wards

SESSION 5.4 Evaluation of recognition and response systems

- 86 5.4a Life-threatening respiratory events in hospitalised children
- 87 5.4b "Drownings" between the flags; implementation of a colour-coded observation chart fails to impact on the detection of deteriorating patients
- 88 5.4c Impact of the introduction of a track & trigger system on PICU workload and patient outcomes in a tertiary children's hospital
- 89 5.4d Documenting events can go along way – using eMR to support evaluation and handover
- 90 5.4e The decision for a not for resuscitation order at the time of a rapid response team attendance

SESSION 5.5 Perceptions and use of recognition and response systems

- 91 5.5a "Things that go boom in the night": Response to abnormal physiology – when do nurses call for help and why not?
- 92 5.5b Rapid response system satisfaction as part of the multicentre comet trial
- 93 5.5c 'Putting the picture together': Factors impacting on graduate nurses' preparedness to recognise and respond to the deteriorating patient
- 94 5.5d Strengthening the afferent arm: implementing continuous monitoring in surgical units.

SESSION 2: Monday 8TH May, 13:30 – 15:00

2.1

PREDICTING OUTCOMES FOR DETERIORATING PATIENTS

2.1a

Parkside
Ballroom A**AN AUTOMATED WARNING SYSTEM IN ED FOR THE DETERIORATING PATIENT IS NOT FEASIBLE: RESULTS FROM A RETROSPECTIVE DATA ANALYSIS OF 15000 ADMITTED ED PATIENTS****FELIX ROCKMANN****Christian Pietsch, Tobias Weissgerber, Tanja Brännler**

Krankenhaus Barmherzige Brüder, Emergency Department, Germany

Objective

A retrospective data analysis of the full electronic record of all admitted ED patients was performed to compare patients directly admitted to an intensive care-like unit (ICU, High dependency unit (HDU), coronary care unit (CCU) and stroke unit (SU)) to patients who had been admitted within 24 hr after hospital admission ("missed" patients) to establish an automated warning flag in the electronic records.

Methods

We retrospectively analysed all patients admitted in 2011 via ED and compared extended vital signs, nursing scores and patient characteristics to those patients who were primarily transferred to ward beds and then admitted to ICU-like beds within 24h after hospital admission. We used our complete electronic database of ED documentation and data from the general hospital information system to gather the relevant information.

Results

From the 14999 admitted patients 2308 patients were directly admitted to ICU, HDU, CCU or SU. 420 patients were admitted within 24 hr after hospital admission. Mortality did not significantly differ within both groups (7.7% vs. 9.8%). Mean age was 66,4 vs. 67,8 years, female gender 45,1% vs. 43.8% respectively. Neither any vital sign on admission on its own (HR, BP, SaO₂, Temp, RR) nor in combination revealed any significant predictive value. We added GCS, need for oxygen supplementation, assigned speciality and the Braden Score as well as LOS in ED and Triage Score into the analysis but could not get any significant score to determine ICU admission on an automated basis.

Conclusion

No single or combination of standard parameters measured in ED is able to "automatically" (as a computed score) predict ICU admission within 24h after ED discharge in our non selected patient group. Besides mortality did not differ in our analysis between early and late ICU admission.

So clinical judgement of the treating physician remains the main cornerstone of detecting the possible deteriorating patient before transfer to the ward.

SESSION 2: Monday 8TH May, 13:30 – 15:00

2.1

PREDICTING OUTCOMES FOR DETERIORATING PATIENTS

2.1b
Parkside
Ballroom A**THE TEMPORAL RELATIONSHIP BETWEEN THE MODIFIED EARLY WARNING SCORING SYSTEM AND THE MEDICAL EMERGENCY TEAM SYSTEM IN DETECTING PATIENTS AT RISK OF CRITICAL ILLNESS****ALEXANDRA PAVLI¹****Imogen Mitchell²**¹ Student, Australian National University,² Senior Staff Specialist and Director of Intensive Care, The Canberra Hospital**Objective**

To determine the relationship between the Modified Early Warning Score (MEWS) and Medical Emergency Team (MET) systems including the incidence of a MEWS ≥ 4 prior to a MET review, their temporal relationship and associated hospital outcome.

Methods

This retrospective, observational study was conducted at The Canberra Hospital, an Australian university-affiliated tertiary hospital currently using both the MET and the MEWS systems to identify deteriorating patients. The study was conducted over one year from 1 July 2009 to 30 June 2010 and study participants were all consecutive adult patients who underwent a MET review during this period. The first MET review of a patient was analysed and data analysis was performed using the statistical software package *PASW 18* (SPSS version 18, Chicago, Illinois). The study was approved by the ACT Human Research Ethics Committee.

Results

Of 539 study participants, 181 (33.6%) had a MEWS ≥ 4 in the 24 hours prior to their MET review and this occurred at a median of 1 hour and 7 minutes (IQR: 15 minutes – 8 hours and 9 minutes) prior to the MET review. Patients who had a MEWS ≥ 4 prior to a MET review had a significantly higher mortality than those patients that did not (61/181 [33.7%] vs. 72/358 [20.1%], $p = 0.001$).

Conclusions

This is the first study in Australia in which the relationship between the MET and MEWS systems has been directly compared. In 33.6% of MET reviews there was a prior MEWS ≥ 4 and in this group of patients there was a significantly poorer hospital outcome compared to the larger proportion of patients (66.4%) who did not have a MEWS ≥ 4 prior to a MET review. These data suggest that patient deterioration is more commonly a sudden phenomenon, contrary to common belief, or that patient deterioration is not necessarily marked by deranged physiological signs. Interestingly, patients undergoing sudden deterioration had a better outcome and this may reflect the underlying disease process and co-morbidities. Those patients with a MEWS ≥ 4 prior to a MET who have a worse outcome may benefit from more aggressive intervention and so there is now a lower threshold to admit them to intensive care. Future research into the epidemiology of patient deterioration, and finding the perfect tool for its early prediction, is still needed.

SESSION 2: Monday 8TH May, 13:30 – 15:00

2.1

PREDICTING OUTCOMES FOR DETERIORATING PATIENTS

2.1c

Parkside
Ballroom A**SEAGULLS COULD SAVE LIVES****BEN DARBY****Imogen Mitchell, Heather McKay, Chris Van Leuvan, Alison Kingsbury**

ACT Government-Health Directorate

Objective

To evaluate the accuracy of the “seagull” sign (heart rate exceeding systolic blood pressure) in detecting patient deterioration.

Methods

A prospective cohort study was conducted in 886 randomly selected patients who were admitted to four medical and surgical wards at two public hospitals (A and B) during three, four month periods. Exclusion criteria included those less than 18 years of age, those admitted to the wards for palliation and those being readmitted to the four wards during the study. Data collected included patient demographics, vital signs throughout the patient’s stay, incidences of unplanned intensive care unit (ICU) admissions, unexpected hospital deaths and cardiac arrests. Sensitivity, specificity, negative and positive predictive values for the seagull sign were calculated for accuracy of prediction of these adverse events. Time from seagull sign to adverse event was also calculated.

Results

886 patients were studied, 565 (63.77%) were patients from hospital A. 479 (54.06%) were male and the average age was 60.23 years (19.77). 428 (48.31%) were medical admissions and 366 (41.31%) were surgical admissions.

26 (2.93%) adverse events (4/866 (0.45%) Cardiac Arrests, 18/866 (2.03%) Unplanned Admissions to ICU, 4/866 (0.45%) Unexpected Deaths) occurred during the study period. The seagull sign occurred in 137 patients (15.46%) and in 16 (61.54%) of the patients undergoing adverse events, 13 hrs 44 min (16 hrs 28 min) before the adverse event.

The seagull sign had a sensitivity, specificity, positive predictive value and negative predictive value of 61.54%, 85.93%, 11.68% and 98.66% respectively.

Conclusions

The new finding that the seagull sign has a similar accuracy to the MET calling criteria in the literature (*Sensitivity, specificity, positive predictive value and negative predictive value of 50.4%, 93.3%, 9.6% and 99.3% respectively*) for accurately predicting any adverse event in predicting those patients at risk of patient deterioration has important implications. The ease in which this sign can be detected visually and without recall of trigger values or other manoeuvres (summation of early warning scores) suggests that consideration for its inclusion in a patient deterioration track and trigger system and the continuation for blood pressure and heart rate to be recorded on the same axis.

SESSION 2: Monday 8TH May, 13:30 – 15:00

2.2

EVALUATION OF RECOGNITION AND RESPONSE SYSTEMS

2.2a

Parkside
Ballroom B

EVALUATING A NEW 2-TIERED RAPID RESPONSE SYSTEM

WENDY CHABOYER¹**Leanne Aitken^{1,2}, Elizabeth Burmeister², Amanda Vaux², Shannon Crouch²,
Michael Daly², Michelle Padget², Chris Joyce²**¹Griffith University,²Princess Alexandra Hospital**Objective**

The aim of this study was to assess the effect of a new 2-tiered ramp-up rapid response system (RRS) on unexpected ICU admissions originating from the wards and cardiac arrests in one large tertiary hospital.

Methods

A times series study was used to assess RRS implementation on study outcomes. The Princess Alexandra Hospital, a 750 bed tertiary referral hospital in Brisbane, Australia, was the study site, implementing the RRS September/October, 2009. The RRS was comprised of an ICU Outreach Nurse (ICUON) and a Rapid Response Team (RRT). The ICUON was a dedicated service from 0700 – 2300 with an ICU nurse available 2301 – 0659 to provide the service as required. Implementation activities undertaken included revising the RRS policies and the delivery of tailored in-service programs to all stakeholder groups. Posters, RRT calling criteria lanyards, and screensavers were used to reinforce the training program. Data were collected for 32 months pre (January, 2007- August, 2009) and 23 months post (November, 2009 – September, 2011) RRS implementation for unexpected ICU admissions from the wards and for 32 months pre (January, 2007 – August, 2009) and 13 months post (Nov 2009 – Nov 2010) RRS implementation for cardiac arrests. Shewhart C charts were used to identify monthly outcomes variation.

Results

Excluding the 2 months implementation, a total of 956 patients were unplanned admissions from the wards to ICU; 524 pre and 432 post RRS implementation, or an average of 16.4/month pre and 18.8 post. Shewart C charts indicated no special case variation (i.e. no process improvement). Excluding the 2 months implementation, a total of 330 patients had a cardiac arrest; 239 pre and 91 post RRS implementation, or an average of 7.5/month pre and 7.0 post. Shewart C charts indicated no special case variation (i.e. no process improvement). Participating in the RRT significantly increased Coronary Care Nurses workload (average time pre 12.33 mins/day, post 35.41 mins/day).

Conclusions

The aim of reducing cardiac arrests and unexpected ICU admissions from the wards was not achieved in this study, however a number of lessons were learned such as:

- Dedicated ICUON time for preparation and delivery of ongoing education and participation in various hospital meetings is needed.
- Relying on ICU nurses to provide ICUON coverage at night in addition to their workload is not feasible.
- Implementing RRS designed to help detect deterioration can increase the workload of RRT.

SESSION 2: Monday 8TH May, 13:30 – 15:00

2.2

EVALUATION OF RECOGNITION AND RESPONSE SYSTEMS

2.2b

Parkside
Ballroom B**EVALUATION OF AN ELECTRONIC VITAL SIGNS CAPTURE AND ALERT SYSTEM****STEPHEN LAPINSKY¹****Archana Gopal², Melanie Yeung², Brian H Cuthbertson³, John Granton⁴, Andrew Steel⁴, Joseph Cafazzo²**¹Mount Sinai Hospital, ²Centre for Global eHealth Innovation, ³Sunnybrook Health Sciences Centre, ⁴University Health Network – Toronto, Canada**Objective**

This study evaluated a point-of-care vital signs capture system with integrated alerting algorithm, as a means of reducing failure-to-rescue events and optimising utilisation of the Rapid Response Team (RRT).

Method

A point-of-care vital signs data entry tool was developed via a user-centred, iterative approach. Vital signs were transmitted wirelessly from an iPhone to an interfacing server with a rules engine, which could be used to generate automated alerts to the RRT. Vital signs data from the server populated the hospital electronic record.

We piloted this vital signs capture system on a 24-bed General Medicine unit in an academic hospital, for seven weeks. Nurses had the option of using this mobile system or conventional data entry into the electronic record. Live alerts were not generated, but the vitals signs database was retrospectively analysed using 4 different alerting algorithms, namely (i) RRT calling criteria, (ii) a discriminant function developed by Cuthbertson *et al.*, (iii) the Modified Early Warning Score (MEWS), and (iv) the VitalPAC Early Warning Score (ViEWS). The sensitivity, specificity and positive predictive value (PPV) of the algorithms were calculated. The criterion standard used was critical events, a composite of actual RRT calls, unanticipated ICU admissions and cardiac arrests.

Results

Average patient census during the study period was 21.3 patients. The point-of-care system captured 54% of the vital signs recorded, the remainder being entered by nurses directly into the electronic record, bypassing the alerting server. 149 alert events were identified (3.0 per day) involving 36 different patients. Concordance between algorithms was low: 96 sets of vital signs generated an alert by only one algorithm and only 8 sets simultaneously by all four algorithms. Seven critical events were recorded during the study period, all RRT calls with no direct ICU admissions or cardiac arrests.

	RRT criteria	Cuthbertson	MEWS	ViEWS
Cutoff	1 criterion	as published	≥ 5	≥ 7
No. of alerts	96	36	24	68
Sensitivity	20.0	40.0	30.0	50.0
Specificity	92.1	97.6	98.6	95.1
PPV	2.2	12.5	15.8	8.2

Conclusions

We demonstrated the feasibility of an automated vital signs alerting system, but identified significant limitations. The optional use of our mobile system resulted in almost half of vital signs not being captured through the alerting server. Significant physiological derangements occurred without staff initiating an RRT call, although no “failure-to-rescue” events were identified. Alerting algorithms require further refinement. Subsequent studies will evaluate an improved version of this system with real-time alerting.

SESSION 2: Monday 8TH May, 13:30 – 15:00

2.2

EVALUATION OF RECOGNITION AND RESPONSE SYSTEMS

2.2c
Parkside
Ballroom B**IMPROVING COMPLIANCE WITH OBSERVATION RECORDING AND DETECTION OF ACUTE DETERIORATION.****ANDREW DIMECH**

Clinical Nurse Specialist Cancer: Critical Care

Objective

The aim of the project was to improve observation recording, compliance with track and trigger system and communication regarding acute deterioration.

Methods

Monitoring patients and responding to acute deterioration is fundamental in the acute care setting. The use of recognised track and trigger tools, communication tools, a skilled workforce and the provision of adequate support response teams is essential in recognising and managing acute deterioration (DOH 2009, NICE 2007). Therefore minimising harm and or deterioration and cardiac arrest can be achieved (Resuscitation Council 2010).

The training and monitoring of compliance was redesigned in attempt to improve compliance with documentation and observations with the overall outcome of reducing risk, identifying acute deterioration and treating patients more rapidly. Several changes were incorporated including combined basic life support/acute deterioration training annually for all nursing staff (including track and trigger system), the introduction of a communication tool (SBAR) and monthly random audit of observation charts with feedback to all wards.

Results

Over a six (12) month period compliance with complete observations and observation bundles improved. A snapshot audit revealed compliance accurate observation recording at 40%. Compliance after interventions is consistently 100%. The combined basic life support/acute deterioration approach utilises simulated clinical scenarios where the nursing staff manage an acutely deteriorating patient, calculate the track and trigger score and commence care. Staff feedback at the combined training was positive with scenarios rated highly. Communication improved where SBAR tool was utilised and is monitored via the Critical Care Outreach Team. The results of the monthly audit are emailed to all wards and senior management.

Conclusion

A combined approach to annual mandatory nurse training incorporating a simulation style approach has shown to increase the compliance with observation recording and highlighted the importance of recognising acute deterioration promptly. Utilising a monthly reporting system to ward managers and senior executive has also shown to ensure that each areas performance can be seen and ownership taken to improve results.

DOH (2009). Competencies for Recognising and Responding to Acutely Ill Patients in Hospital, Department of Health, London.

NICE (2007), Acutely Ill Patients in Hospital: Recognition of and Response to Acute Illness in Adults in Hospital. National Institute for Health and Clinical Excellence, London.

Prytherch, D.R., Smith, G.B., Schmidt, P.E. and Featherstone, P.I. (2010), ViEWS – Towards a national early warning score for detecting adult inpatient deterioration. Resuscitation, 81, 932-937.

Resuscitation Council (2010) Resuscitation Guideline. Resuscitation Council (UK), London.

SESSION 2: Monday 8TH May, 13:30 – 15:00

2.2

EVALUATION OF RECOGNITION AND RESPONSE SYSTEMS

2.2d
Parkside
Ballroom B**A QUALITATIVE STUDY TO UNDERSTAND BEHAVIOURAL CHANGES WITH THE MULTIFACETED INTERVENTION****IMOGEN MITCHELL¹****Heather McKay¹, Margaret Kiley²**¹ Department of Intensive Care, The Canberra Hospital,² Centre for Higher Education, Learning and Teaching, Australian National University**Objective**

To understand the influences on the change of behaviour (increased documentation of vital signs and incidence of medical review) found following the introduction of a patient deterioration multifaceted intervention.

Methods

Grounded theory was used to elucidate a theoretical conceptual framework for the influences on the change of behaviour in 12 health care workers (seven nurses and five junior doctors) following the introduction of the multifaceted intervention. Semi structured interviews using the domains of the multi-faceted intervention (new observation chart, education package, installation of a multi parameter track and trigger system) were conducted to investigate their experiences until no new information was forthcoming. Transcripts were analysed for emergent themes using the grounded theory method whereby progressive coding phases (open and axial) occurred. A model of why behaviour changed was generated.

Results

From the data it was possible to extract four key influences on the change of behaviour by the healthcare professionals:

- i. The sense of being obligated to behave in a certain manner following patient deterioration:
 - a. *Nurses communicating to the doctors regarding patient deterioration*
N1: "Once you have a figure you know you have to do something"
 - b. *Nurses completing the ward observation chart*
N2: "[I] do it more diligently because it's all there to be done because you have to end up with a score that should reflect all of them."
 - c. *Medical review of the patient occurring*
D3: "Forces [me] to review the patient"
- ii. Being provided with objective evidence of patient deterioration
N5: "I think the new MEWS score has been absolutely wonderful in getting doctors to understand because now there is a concrete score and they have to do something about it and we can ring"
- iii. A sense of confidence by the nurses to communicate with doctors following patient deterioration
N1: "It (MEWS) provided me with more confidence to call the doctors... and I can say 'look they have been running, what are we doing here?'"
- iv. Being provided with a structure of care for managing patient deterioration.
D2: "Does allow me to see the patient in a more timely fashion"

Conclusion

The major influences of the changes in behaviour (being obligated to undertake actions for managing deteriorating patients and feeling confident to perform these actions) need to be considered in any future patient deterioration interventions. Given the positive change in behaviour, the multifaceted intervention was rolled out across the ACT public health system.

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2.2

EVALUATION OF RECOGNITION AND RESPONSE SYSTEMS

2.2e
Parkside
Ballroom B**AEGIS (ALERT AND ESCALATION GENERAL WARD INFORMATION SYSTEMS) – A NOVEL STRATEGY TO IMPROVE RECOGNITION OF DETERIORATING PATIENTS****SOPHIA ANG**

National University Health Systems, Singapore

Objective

Aim of the project was to improve the recognition of deteriorating patients in the general surgical ward facilitated by a closed loop monitoring system.

Method

In September 2010 AEGIS was introduced in a 44 bed general surgical ward/unit in National University Hospital Singapore – an academic medical tertiary care centre with a 1000 hospital beds the average length of stay is 4.5 days which has been unchanged for the duration of the study. The hospital does not have a rapid response team.

AEGIS comprised a non invasive parameter monitor located next to every bed in the general surgical unit with wide threshold surveillance alarm limits.

Each nurse was in charge of 5-7 patients and the alarm of each monitor was linked to the nurse in charge of the patient and ward by pager following an escalation path.

Nurses and doctors on the ward were trained and educated in the use of monitors and data collected on interventions done for patients.

Data collection started from September 2010 till November 2011 (14 months).

All admitted patients were placed on AEGIS by default unless refused by the patient.

In the cases for HD/ICU(High dependency/Intensive care) transfers that were not detected by AEGIS, blood pressure change was the first sign of deterioration detected.

There were a total 83 early interventions carried out by the nurses that were initiated by the AEGIS.

There were 21 occurrences associated with the airway and the breathing system, 48 involving the circulation and 14 cases involving other physiologic changes.

There was a reduction in blood test(arterial gas) not reaching statistical significance $p=0.07$. The primary nurse was the first to respond to the alarm in 93% of clinical events

6% were escalated to the buddy nurse and only 1% re escalated to the supervisor

Conclusion

AEGIS enabled the nurses to intervene appropriately in a number of deteriorations.

Buy-in, change of practice and enhancing general ward nurses' skills to manage identified patients is important so that patients especially in higher risk areas may benefit maximally from the increased vigilance and recognition. Addition of blood pressure monitoring for escalation may increase early intervention.

SESSION 2: Monday 8TH May, 13:30 – 15:00

2.3

RAPID RESPONSE MODELS

2.3a

Parkside
110 A**THE UPTAKE AND CASELOAD OF ICU LIAISON NURSE SERVICES IN AUSTRALIA****ANNA GREEN¹****Tammy McIntyre², Carmel Taylor², Malcolm Elliott³, Sally Evans⁴, Wendy Chaboyer⁵, Daryl Jones²**¹Western Health,²Austin Health,³Australian Catholic University,⁴Bendigo Health,⁵Griffith University, Victoria, Australia.**Background**

Patients admitted to modern hospitals have increased complexity and frequently deteriorate. Medical Emergency Teams (METs) have been introduced to respond to such deterioration. Another approach to reviewing and preventing clinical deterioration in the wards involves ICU liaison nurse (ICU LN) services. Although information on the uptake of METs exists in Australia, there is little information on the rate and timing of implementation of ICU LN services.

Objectives

The aim of this study was to identify how many hospitals in Australia have an ICU LN service, to document the timing of their introduction, and to assess changes in case load since introduction.

Methods

We conducted a retrospective observational study of the changes in ICU LN operating hours and monthly patient reviews, and the timing of implementation of the services.

Results

Seventeen Australian hospitals submitted data. Prior to 2004, there were only 2 ICU LN services and the number of services dramatically increased between 2004 and 2007. In 14/17 sites the monthly patient reviews increased by a median of 54.3%. After adjustment for staff hours, 10 hospitals reported an increase in monthly patient reviews (median increase 48.8%). Between 1999 and 2011, the services performed 123,236 patient reviews including 73,022 ICU discharges (59.3%), 26,800 (21.7%) during or after Rapid Response Team review, and 23,414 (19.0%) de novo referrals from ward staff.

Conclusion:

The demand for ICU LN services has increased in most hospitals since the role was adopted, although this varies considerably. The majority of patients reviewed are patients following ICU discharge. Further research is needed to define the scope of practice of the role and its impact on patient outcome, particular in patients following ICU discharge.

SESSION 2: Monday 8TH May, 13:30 – 15:00

2.3

RAPID RESPONSE MODELS

2.3b
Parkside
110 A**USE OF AN ICU LIAISON NURSE SYSTEM TO FOLLOW
ICU REFERRED PATIENTS AT RISK OF DETERIORATION
ON THE WARD****JENNY LUMSDEN**

ICU, The Royal Melbourne Hospital

Objective

A project was conducted by the ICU Liaison CNC group to improve the ongoing ICU support provided to ward patients who were at risk of deterioration and referred, but not admitted to the ICU.

Methods

The ICU review process was examined by the CNC group and an opportunity for improvement and collaboration with the ICU medical staff was identified in early 2011 with the introduction of three distinct initiatives.

1. All ICU patient referrals were placed on the "ICU Flow" computer system that tracks ICU referrals and ICU inpatients, by the referring unit or ICU registrar. Anecdotally, some patients who were being reviewed in ED, Theatre or the wards who consequently did not require ICU at the time, were being missed to follow-up by ICU on subsequent shifts as the "ICU Flow" program removed these patients off the active screen. The program was modified to generate a report of patients referred but not admitted to ICU for CNC follow-up.
2. An ICU Review form was developed in partnership with the medical staff to improve the collection of patient information for ICU referrals made to either ICU Registrars or CNCs. These were then photocopied and used by the CNCs to follow-up patients when they were not admitted to ICU.
3. A CNC review sticker was also developed for the patient notes to highlight to staff that the CNC had reviewed the patient and the whether they would have further reviews.

Results

The enhanced referral system resulted in a doubling of CNC referrals in 2011 compared to the same period in 2010 with more than 38% of CNC referrals coming from the ICU medical staff in 2011 compared to 18% in 2010, suggesting that fewer patients were being missed to ICU follow-up. 84% of patients reviewed were not admitted to ICU (up from 73% in 2010) and 88% of patients were discharged alive from hospital, an increase from 85% in 2010.

Conclusions

The ICU CNC initiatives have allowed for improved communication and collaboration between the ICU medical and nursing staff regarding patients being 'monitored' on the wards, a reduction in those requiring admission to ICU and an increase in those being discharged alive from hospital. The use of the referral form and CNC stickers has increased the visibility and communication regarding these at-risk patients by all ICU staff and the patient's treating staff on the ward.

SESSION 2: Monday 8TH May, 13:30 – 15:00

2.3

RAPID RESPONSE MODELS

2.3c
Parkside
110 A

STRUCTURE AND ORGANISATION OF RAPID RESPONSE TEAM AT THY-MORS HOSPITAL DENMARK

HANSJÖRG SELTER

Dr. Med. Head of Department, Anaesthesiology

Objective

Reduce Crash Calls by implementing Rapid Response Team and Early Warning Score.

Methods

Project method: Prince II

Project initiated September 2011

Project kick-off: January 9, 2012

Project finished: June 2012

Project Team: Cross-disciplinary, cross-departmental.

The team has evaluated the existing documentation resulting in simplified and updated instructions and actions cards. All clinical staff has received education in the theory and the use of the Early Warning Scores during the Kick-off meetings.

Results

100% of patients have correctly filled Early Warning Score chart. The baseline from January – March 2011 was 20%.

Numbers of Rapid Response Team calls increased from 1 in December 2011 to 14 in January 2012.

We have no results on the number of Crash Calls yet, but are monitoring the data.

Conclusions

In the authors opinion the use of the Early Warning Scores are implemented throughout the Hospital. Critical values are responded to, and Rapid Response Team is called.

This will over time reduce the numbers of Crash Calls.

SESSION 2: Monday 8TH May, 13:30 – 15:00

2.3

RAPID RESPONSE MODELS

2.3d
Parkside
110 A

NURSE PRACTITIONERS TAKE THE LEAD

BRAD CEELY

Natalie Duns, Michael Haddad, Lynette Kirby, Oliver Tegg

The Children's Hospital at Westmead (CHW)

Objective

To integrate an established Nurse Practitioner (NP) Paediatric Intensive Care Outreach Service (PICOS) with the implementation of a standardised track and trigger system (Between the Flags [BTF]) to respond to deteriorating patients.

Method

In 2011 a standardised track and trigger system was implemented at the Children's Hospital at Westmead in line with the state wide role out of BTF. An established PICOS was in place where the NP's were responding to deteriorating patients based on clinical criteria for deterioration. The outcomes of the service had improved the hospital's performance in responding to deteriorating patients since implementation 2005.

The NP service submitted a plan to the BTF steering group to align the existing service with the BTF framework. As a result a 3 tiered response system was introduced to include the NP service:

- 1. Clinical review; treating team
- 2. Rapid Response (RR) call: PICU NP or ICU Registrar and treating team
- 3. Arrest call: Arrest team, NP included

A conscious decision was made to have a 2 person RR team as there was concern about the effects on the children and their families with a large team responding to red zone criteria. The steering group also had concerns of the increased workload associated the introduction of the chart. Whilst the RR team was small it met the mandatory requirements for advanced resuscitation and clinical skills as per policy.

In addition the ward staff could contact the PICOS independently of the track and trigger system as the service was also activated for education needs and troubleshooting for medical and nursing staff.

Results

The implementation of the integrated NP PICOS and BTF has resulted in increased staff confidence in activating the service, increased awareness in the recognition of deteriorating patients, and no unexpected deaths from implementation.

The overall patient outcomes for all calls: 80% remain on the ward, < 15% require HDU admission, and < 5% require ICU admission.

Conclusion

The NP service is a dedicated service for responding to deteriorating patients. The service provides consistency as it is staffed by 4 NP's and 1 Transitional NP with extensive intensive care experience. The results suggest that a RR team does not need to be large in number as long as there is a timely response and the appropriate staff with the right skill sets are activated. The integration of the NP service with the introduction of the BTF program has demonstrated excellent outcomes for patients and the organisation.

SESSION 2: Monday 8TH May, 13:30 – 15:00

2.4

EDUCATION ABOUT RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION2.4a
Parkside
110 B**INTERN PERCEPTIONS OF THE IMPACT OF A PRE-INTERN BLENDED LEARNING PROGRAM (DETECT) AS PREPARATION FOR INTERN YEAR****THERESA JACQUES****Kylie Fraser**

St George Hospital, Chief Editor DETECT

Objective

To evaluate intern perceptions after a pre intern DETECT course of their skill base for dealing with the deteriorating patient and the course's impact on their performance in their intern year.

Methods

In 2011 Interns from 6 hospitals who attended either the DETECT (Detecting Deterioration Evaluation, Treat, Escalate, Communicate with your Team) half-day workshop or one day program during their intern orientation week, completed an anonymous survey of 20 questions five months after DETECT course attendance. Questionnaires were distributed during scheduled intern education sessions. Those not captured thus, completed the survey via web link. Site specific and AHS Ethics committee approvals were obtained.

Results

143 participants completed DETECT pre internship. 94 participants completed the survey (66%). The half-day workshop and one day course were equally represented. As results were consistent across both courses results are presented as a percentage of total respondents. 97% agreed or strongly agreed the 2012 interns would benefit from doing the DETECT course, 82% thought this should be part of orientation or completed prior to starting intern year, (10% suggested as a student, 4% later) and 94% of respondents had completed the mandatory e-learning component of DETECT prior to the course. 82% were confident in their skills to identify deterioration and provide simple treatment measures subsequent to the course. 95% identified DETECT attendance with having a positive or somewhat positive impact on their performance as an intern. 84% felt they had the opportunity to translate course material into clinical practice.

Respondents cited improved communication and more confidence when calling senior staff, or being on call and when on night duty. They noted greater awareness of early warning signs of deterioration and improved management of clinical review and rapid response situations. Specific situations where DETECT skills had assisted were sepsis, hypotension and hypertension in addition to many other instances where they noted increased ability to quickly assess and provide treatment. Retention of core knowledge was evident (e.g 74% were able to accurately describe the ISBAR acronym). 63% were interested in attending a refresher course.

Conclusions

5 months into the year, Interns reflected that attending the DETECT course during orientation was beneficial and relevant to their clinical practice. They recommended the same for future interns. Knowledge retention was evident. This self assessment suggests DETECT has had a positive impact on intern clinical performance particularly assessment, communication and teamwork skills when dealing with the deteriorating patient.

SESSION 2: Monday 8TH May, 13:30 – 15:00

2.4

EDUCATION ABOUT RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION2.4b
Parkside
110 B**IDENTIFYING INCIDENTS OF SUBOPTIMAL CARE DURING PAEDIATRIC EMERGENCIES – AN OBSERVATIONAL STUDY UTILISING INSITU AND SIMULATION CENTRE SCENARIOS****DR FENTON O'LEARY^{1,2}****Dr Andrea Christoff¹, Ms Jennifer Major¹, Ms Ingrid Wolfsberger¹, Dr Francis Lockie¹, Dr Sally Wharton³**¹ Emergency Department, The Children's Hospital at Westmead, Sydney² Disciplines of Emergency Medicine and Paediatrics and Child Health, Sydney Medical³ Anaesthetic Department, The Children's Hospital at Westmead, Sydney**Objectives**

Life threatening paediatric emergencies are relatively uncommon events, however, when they do occur staff caring for these children must have the ability to recognise the deterioration, evaluate, immediately treat and obtain help for these patients. Standardised simulations in the working environment, such as the emergency department or operating theatre, or within a simulation centre enable these situations to be recreated realistically, on demand, without any risk to a patient or the participants. The aim of this paper was to identify sub optimal care during standardised scenarios and to identify the potential causation factors.

Methods

Participants were emergency department and operating theatre staff and students from a paediatric hospital in Sydney, Australia. Scenarios reflected real emergency department or operating theatre cases where possible. Incidents of sub optimal care were identified during scenarios and were analysed by thematic qualitative assessment methods. Potential causation factors were elicited during scenarios and during facilitated debriefs immediately after. Senior clinicians identified the sub optimal incidents and were trained in debriefing to elicit causation factors. Causation factors were attributed to any of seven pre-defined categories.

Results

Seventy three simulations occurred over 9 months in 2011, 35 insitu in the emergency department, 20 insitu in the operating theatre or recovery suite, 20 in a simulation centre. 270 doctors, 235 nurses, 11 medical and nursing students participated in the scenarios and 236 doctors, 107 nurses and 68 medical and nursing students observed. Staff and students may have participated or observed in one or more scenarios. 194 incidents of sub optimal care were observed and attributed to 325 causation factors. There were 76 knowledge deficits, 39 clinical skill deficits, 36 leadership problems, 84 communication failures, 20 poor resource utilisations, 23 preparation and planning failures and 47 incidents with a loss of situational awareness. Clinically important themes were: paediatric life support, drug choice and doses, advanced airway and ventilation, intravenous fluids and recognition of the deteriorating patient. Recurring incidents included the failure to recognise a cardiac arrest, inadequate fluid resuscitation, failure to follow the current resuscitation guidelines and incorrect medication dose administered.

Conclusions

During standardised paediatric simulations multiple incidents of suboptimal care have been identified and multiple causation factors attributed to these. Educators should use this information to adapt current training programs to encompass these factors.

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2.4

EDUCATION ABOUT RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION2.4c
Parkside
110 B**IMPACT OF NON-TECHNICAL SKILLS TRAINING ON PERFORMANCE AND EFFECTIVENESS OF A MEDICAL EMERGENCY TEAM (IMPACT): STUDY CONCEPT AND PROTOCOL****RICHARD CHALWIN^{1, 2}****Victoria Eaton¹**¹ Intensive Care Unit, Lyell McEwin Hospital² Faculty of Acute Care Medicine, University of Adelaide**Background**

The concept of non-technical skills training (NTST) arose in the aviation industry after observation that a number of avoidable incidents were caused by human error rather than mechanical failure. In medical training, clinical knowledge and skills are emphasised with little attention given to “human factors”. These encompass such aspects as leadership, team-working, communication and decision-making. Thus far, study in this area has been restricted to simulations. Our project aims to evaluate the impact of implementation of training in non-technical skills for our Medical Emergency Team (MET) service on team performance and patient outcomes.

Methods/Design

This will be a multi-partite quality improvement project run at the Lyell McEwin Hospital, a tertiary metropolitan hospital in Adelaide. We plan to perform a retrospective audit of existing MET service data to establish baseline data. Then a period of prospective study will occur before and after delivery of NTST to members of the MET service. Team attendances will be independently observed for demonstration of non-technical skills and patients will be tracked during their hospital admission. A pilot observation will also be conducted to validate the observational assessment tool and measure inter-rater reliability between the investigators.

The primary outcomes will be 1) MET performance of non-technical skills as graded by a specifically developed qualitative assessment tool and 2) incidence of efferent limb failure as defined by a) requirement for a second MET attendance within 24 hours for the same calling criterion, b) unplanned admission to the Intensive Care Unit (ICU) within 24 hours of MET attendance, c) unexpected cardiac arrest and/or death within 24 hours of MET attendance. Secondary outcomes will include hospital and ICU length-of-stay, and vital status at hospital discharge. These will be used as a comparator between all periods of the project.

NTST will be delivered to MET members by the investigators in collaboration with a group of active instructors from QANTAS and the Royal Australian Air Force Reserves. Oversight will be provided by the hospital Safety and Quality Unit. The baseline audit will include 2000 patients and the observational stage of the study will enrol 700 patients, equally divided between the before-and after-NTST periods.

We aim to demonstrate that training in non-technical skills improves MET service performance leading to a reduction in incidence of efferent limb failure. The anticipation is that this will then extrapolate to reductions in length-of-stay and mortality.

SESSION 2: Monday 8TH May, 13:30 – 15:00

2.4

EDUCATION ABOUT RECOGNISING AND RESPONDING
TO CLINICAL DETERIORATION2.4d
Parkside
110 BRESCUING A PATIENT IN DETERIORATING SITUATIONS (RAPIDS):
THE TEACHING OF LIFE-SAVING MNEMONICS TOOLS IN A
SIMULATION PROGRAMSOK YING LIAW¹Albert Scherpbier², Jan-Joost Rethans², Piyanee Klainin¹¹Alice Lee Centre for Nursing Studies, National University of Singapore²Institute for Education, Faculty of Health, Medicine and Life Sciences, Maastricht University**Objectives**

To implement and evaluate the outcomes of a simulation program for developing nursing students' competency in assessing, managing and reporting of patient with physiological deterioration.

Methods

A randomised controlled trial was used. Thirty-one third years nursing students were randomised into two groups. After a baseline evaluation of all the participants, the intervention group underwent 4 simulation scenarios in a 6 hour education session. All participants were then retested using a patient simulator in a simulated environment. Their performances were videotaped and scored using a validated tool.

Results

Clinical performances mean scores in assessing and managing deteriorating patient improved significantly after the training program compared to baseline ($t = 9.26$; $p < .0001$) and to post-test mean scores of the control group ($F = 77.28$; $p < .0001$). The post-test mean scores of the intervention group in reporting deterioration was also significantly higher than the baseline mean scores ($t = 4.24$; $p < .01$) and the post-test mean scores of the control group ($F = 8.98$; $p < .01$).

Conclusion

The study demonstrated that the nursing students, who underwent the simulation program, had superior performance in accessing and responding to patient deterioration compared to students in control group. Confronting a real or simulated patient undergoing clinical deterioration may provoke anxiety that could affect the nurses' performance. The ABCDE mnemonic provides a useful cognitive strategy and life-saving tool during emergency situation as it prompts the novice learners to recall the tasks and guide them to perform the tasks in a logical approach. The SBAR mnemonic promotes quick recall of critical information to be reported especially during stressful situation when cognitive function can be impaired. The simulation exercises allowed the learners to engage in repetitive practice for the acquisition of clinical skills.

In conclusion, the simulation program using SBAR and ABCDE mnemonics could effectively develop nursing students' clinical performance in assessing and managing deterioration, and communication skills in reporting deterioration condition.

SESSION 2: Monday 8TH May, 13:30 – 15:00

2.4

EDUCATION ABOUT RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION

2.4e

Parkside
110 B**RESPONDING TO THE DETERIORATED CHILD: RESUS4KIDS – PAEDIATRIC LIFE SUPPORT FOR HEALTHCARE RESCUERS****DR FENTON O'LEARY^{1,2,3}****Karyn Fahy², Kathryn Green^{1,2}, Dr Marino Festa¹, Kelly Dart², Melinda Simpson-Collins²**¹Emergency Department, The Children's Hospital at Westmead, Sydney, Australia²The Western Child Health Network, The Ministry of Health, New South Wales, Australia³Disciplines of Emergency Medicine and Paediatrics and Child Health, Sydney Medical

The ultimate deterioration in an infant or child is a respiratory or cardiac arrest. It is essential that health care workers have the knowledge, skills and confidence to respond to these uncommon but life threatening emergencies.

Within New South Wales, Australia it was recognised that the delivery of paediatric life support training for health care rescuers was quite variable. Barriers to delivering training include the lack of a standardised course and skilled instructors as well as the cost for the organisation to fund course development and release for participants to attend the training.

RESUS4KIDS is a State funded project designed to enable every health care worker who cares for infants or children to receive the training required in the initial resuscitation of a deteriorating child. To shorten the face to face time interactive e-learning modules were developed to provide knowledge acquisition and to test the participant's level of understanding prior to a face to face practical session. The modules included lessons on the components of life support using various engaging modalities. To date 55,000 lessons have been accessed and over 3,200 healthcare workers have completed the whole module.

A short practical course was designed to complement the e-learning and had to be 90 minutes to overcome barriers for release for training. The practical course combines team work and communication training with a scenario based hands on skills practice session. A pause and discuss format was utilised, enabling each participant to practice each of the required clinical skills within each scenario.

In order to reach a State wide audience super trainer and instructor trainer courses were developed. By using a train the trainer model super trainers facilitate courses for instructors who take the course back to their local area. To date the practical course has been completed by over 1200 participants including 220 instructors and 10 super trainers. There is no cost to individuals or organisations, except for the release of participants when they attend the training. All course resources are provided via the web site: www.resus4kids.com.au.

As a non-mandated program the course has met several barriers including; accessing the decision makers, competition with mandated courses, having staff released for training and developing a model for sustainability;

RESUS4KIDS is a program that can easily be implemented in any healthcare facility to provide standardised, low cost, paediatric life support training to health care rescuers in a time efficient manner.

SESSION 2: Monday 8TH May, 13:30 – 15:00

2.5

**RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION
IN SPECIFIC CLINICAL SETTINGS**2.5a
Parkside
G04**AREA SPECIFIC DETERIORATING PATIENT
EDUCATION PROGRAMS****NICOLE SLATER****Christopher Perkins, Leitha Slater, Heather McKay, Imogen Mitchell**

Rapid Response Unit, The Canberra Hospital

Objective

To introduce a specific mental health education and competency assessment program in recognising and responding to clinical deterioration to improve compliance by all Mental Health staff.

Methods

ACT Health's Education Program for Clinical Deterioration, COMPASS[®], a mandatory training package for all healthcare professionals, has been poorly attended by mental health staff unit. In preparation for the transition to a new remote mental health unit with an 8-10 minute medical emergency response time, a mental health specific COMPASS program was developed to improve attendance. The changes to the generic COMPASS[®] program included modifying the generic clinical cases to include a mental health specific history. The training included pre-reading including online quiz, a face to face lecture on BLS, modified early warning scores, MET activation criteria, utilisation of the observation chart and escalation processes and participation in low fidelity simulation mental health clinical scenarios of clinical deterioration. The program was advertised in December 2011 and attendance encouraged prior to moving to the new mental health unit in March 2012. Basic demographic data of attendees were collected and a questionnaire following their completion of the course was offered.

Results

Over 2 months, of the 100 mental health staff 76 (76%) attended (41/50 [82%] Mental Health Nurses, 35/50 [70%] Medical staff), this is a significant improvement from previous years where an average of 53% (36/68) of mental health nurses and 0% of medical staff attended) have attended. All attendees successfully completed their basic life support training and their COMPASS quiz. 90% (90/100) course evaluations utilising a likert scale and free text were completed and 95% (95/100) Agreed-Strongly Agreed that the training was applicable to their work place, and would change the way they practised. Staff commented that they now felt more confident to care for a deteriorating patient and that they appreciated the mental health specific scenarios. Staff enjoyed training as a multidisciplinary team citing improved confidence to escalate treatment. Further evaluations planned post opening of the new unit and these results will be available in April 2012.

Conclusion

The adaption of the case scenarios for patient deterioration to be area specific appeared to significantly increase attendance by mental health staff. Consideration of further area specific packages is now being undertaken to facilitate attendance and improve patient care.

SESSION 2: Monday 8TH May, 13:30 – 15:00

2.5

RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION
IN SPECIFIC CLINICAL SETTINGS2.5b
Parkside
G04EXPANSION OF A MEDICAL EMERGENCY TEAM SYSTEM
TO A MENTAL HEALTH FACILITY**JANICE GULLICK¹****Winston Cheung^{1,2}, Jeff Snars², David Milliss^{1,2}, Jeff Tan²**¹ Sydney Nursing School, University of Sydney² Concord Repatriation General Hospital**Objectives**

This study describes the frequency and nature of Medical Emergency Team (MET) calls to a new 170-bed mental health facility co-located with an existing tertiary referral hospital to inform future planning for medical emergency services.

Methods

During this prospective, observational study staff completed data sheets for every MET call to the mental health facility, based on consensus guidelines for monitoring and conducting research on clinical emergency systems. Data collection occurred over a two-year period (May, 2008 to April, 2010). Patients were followed up until discharge or in hospital death. Data included number of and reasons for MET activations, the transfer location of patients after MET calls and in-hospital mortality. MET call rates were expressed as a proportion of the number of admissions with 95% confidence intervals estimated using an exact binomial distribution.

Results

Over 24 months there were 66 MET calls to the mental health facility, and 1217 MET calls at the general hospital. The mean MET call rate was 14.2 calls per 1000 admissions at the mental health facility (95% confidence interval (CI) 10.8-17.7), and 14.7 calls per 1000 admissions at the general hospital (95% CI 13.9-15.5). The mean patient length of stay was 16.8 days in the mental health facility (standard deviation (SD) 35.8) and 3.4 days (SD 0.2) in the general hospital. Neurological and cardiovascular problems were present in 61% and 41% of MET calls respectively. Following MET calls, 36% of patients remained in the mental health facility, with 27%, 16%, 14% and 8% transferred to the emergency department, coronary care unit, a general ward, and the intensive care unit respectively.

Conclusions

The study provides important insights into the emergency needs of mental health patients revealing similar MET call rates between a mental health facility and a tertiary referral hospital. These new understandings suggest to us an underestimation of the level of coexisting medical comorbidity in mental health patients and highlights the importance of an effective clinical emergency response system for such units. Our findings indicate clinicians in acute mental health settings should be well-trained in the initial management of the unconscious patient, seizures, hypotension, chest pain, and cardiac arrest. We have consequently expanded the availability of resuscitation equipment and strengthened clinician training. This study also demonstrates that a MET team should have the ability to be activated on criteria other than routine observations, which trigger a relatively small proportion of MET calls in mental health.

SESSION 2: Monday 8TH May, 13:30 – 15:00

2.5

RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION IN SPECIFIC CLINICAL SETTINGS2.5c
Parkside
G04**THE ROLE OF THE MODIFIED EARLY WARNING SCORING SYSTEMS (MEOWS) IN INTRAPARTUM CARE: LESSONS FROM THE FRONTLINE IN THE UNITED KINGDOM****JANE SANDALL****Nicola Mackintosh, Susanna Rance, Kylie Watson**

King's College London, National Institute for Health Research

Objective

Lack of timely recognition, referral and appropriate treatment of women who are developing a critical illness during or after pregnancy have featured prominently in national reviews of maternity safety in the United Kingdom and internationally. The modified early warning scoring system (MEOWS), requires regular tracking of observations, and provides early signs of impending critical illness to enable earlier response and rescue. There is increasing use in the United Kingdom, although there is limited evidence of effectiveness. This research focuses on the implementation of this system on the frontline to understand its role in managing deterioration and improving safety in maternity care systems. It forms part of a bigger programme of work on management of deterioration in acute care and maternity care.

Methods

Data collection involved over 120 hours of ethnographic observations of labour ward activity and multidisciplinary team meetings, documentary review and over 40 interviews with stakeholders, obstetric, midwifery staff, and managers from two UK hospitals over seven months in 2010–2011. Participants were recruited with the aim of acquiring a broad sample across occupational and professional groups. Observation and interview data were coded using NVivo v8 and organised thematically.

Results

Both sites implemented the MEOWS in the antenatal and postnatal period as alternative charts were in use for women in labour. The MEOWS chart enabled co-ordination and structuring of information about vital signs, and the trigger prompts helped shape perceptions of deterioration and clarify actions. However, there was resistance to the imposition of the tool for all women given the majority of normal births and the relatively rare event of severe maternal morbidity. In the postnatal period, the MEOWS competed with other cultural norms, such as moving women through the service (particularly as workload included care of the baby as well as the mother). Partial adoption of the MEOWS in-practice meant that the tool was limited by geographic, temporal and spatial boundaries. Implementation of the MEOWS lacked integration within a wider system approach to managing critically ill women. Findings were fed back to study sites resulting in changes in how the MEOWS was used.

Conclusions

Translation of early warning scoring systems from acute care to maternity is a complex process. Future successful strategies need be embedded within a robust system which includes both detection strategies a standardised response component for managing critically unwell women.

SESSION 2: Monday 8TH May, 13:30 – 15:00

2.5

RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION IN SPECIFIC CLINICAL SETTINGS

2.5d

Parkside G04

REDUCING RISK OF INDIGENOUS SEPSIS IN THE KIMBERLEY**KYLIE OLIVER****John Boulton, Angela Fisher, Agi D'Amico, Sue Phillips**

Kimberley Health Region

Objective

To reduce the high risk of lethal sepsis amongst Aboriginal children in the Kimberley region.

Methods

The introduction of a Site Instruction (SI) which required medical officers (MO) to initiate parenteral antibiotic therapy (step 3) following a guided clinical assessment as to severity of illness using APLS cut-points for vital signs (step 1) and a partial septic workup comprising urine for micro and culture, throat swab, blood culture, CRP and WCC (step 2) in all children under the age of 5 years who presented with a temperature of 38.5 degrees or greater and no evident source of infection. The SI was designed for use by MO in the two most remote district hospitals in the region, and introduced in mid-2010. It was then adopted in remote community clinics; later in urban centres. The uptake by MO of the SI was audited by measuring compliance with each step for febrile children who fitted the criterion of "no evident source of infection" on presentation to the health facility. The outcome of the SI was reported to the Kimberley Regional Patient Safety Network in Nov 2011.

Results

During the 15 months until end September 2011, 131 of 314 children audited fitted the criterion.

Audits were generated between 4 to 8-weekly and submitted for data entry and analysis and reviewed by the hospital executive. The compliance rate by MO for performing capillary refill time was 46%; for blood cultures, urine MC&S and WCC 45-50%; for CRP was 40%; for throat swab 30%. Antibiotic use with Ceftriaxone was 69%. Compliance increased during periods when education was delivered at local sites. 87 children were admitted to hospital during the period: two-thirds of those who fitted the criterion and 71% of children with vital signs outside the normal range. Of the children not admitted to hospital, 54% were scheduled follow up appointments of whom only half attended. MO consulted the paediatrician in five of eight cases aged 3 months or younger; in fewer than one-fifth of older patients.

Conclusion

The post-neonatal mortality in the Kimberley is ten times the WA State average, mostly from sepsis. Although the effect of the implementation of the SI on such mortality will take years to become apparent due to low statistical power, its use in raising clinicians' index of suspicion for potentially lethal sepsis has led to it to being accepted as an important tool in reducing risk of mortality.

SESSION 2: Monday 8TH May, 13:30 – 15:00

2.5

**RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION
IN SPECIFIC CLINICAL SETTINGS**2.5e
Parkside
G04**PARAMEDICS AND PALLIATIVE CARE – AN UNLIKELY ALLIANCE****KAREN GLAETZER¹****Alison McLeod², Hugh Grantham³, Kate Swetenham¹**¹ Southern Adelaide Palliative Services, Flinders University² SA Health³ Flinders University, SA Ambulance Service**Objective**

The ECP/Palliative Care Project evaluated the delivery of an after hours rapid response to palliative care clients at their place of residence by Extended Care Paramedics (ECPs) across the Adelaide metropolitan and peri urban areas.

Methods

The evaluation was conducted from 5/7/2011 – 31/10/2011. Data collection was undertaken by both the Palliative Care Services and ECPs. The palliative care consumers, or their carers, were also interviewed to assess their satisfaction of the service.

The aims of data collection and evaluation were:

- To record the number of after hour calls that palliative care services receive and the main reasons for calls
- To determine the number of palliative care patients who receive ECP services who are not registered with a palliative care service
- To identify the indications for ECP attendance and the patient outcomes
- To analyse the infrastructure required and cost to palliative care services if non-ECP rapid response teams were developed for each region
- To assess patient and carer satisfaction with the ECP service

Results

The results revealed that ECP's conducted 40 palliative care attendances during the 118 day evaluation period. The majority of these were clients were known to a palliative care service and the main reasons being symptom issues, deterioration and/or medication issues. At the completion of the ECP visit 90% of patients remained at the site of contact, with only 10% needing transfer to hospital or hospice. The feedback from patients and carers was extremely positive with 100% rating their satisfaction with the service good or better.

Conclusions

A palliative care patient who presents with a single problem is often an extremely complex patient in terms of co-morbidities and a highly charged social environment. Managing an individual situation requires a high level of synthesis ability as well as very well developed interpersonal skills. Applying the same problem solving, analysis and synthesis to palliative care situations it is not only practical but as the data illustrates it is highly effective. To establish a standalone emergency response system for palliative care patients from within the palliative care structure would be associated with significant costs. As far as we are aware this is the first formally reported trial of extended care paramedics collaborating with palliative care services to provide a community rapid response. The data proves that such a model is not only possible but also an effective economic strategy meeting the needs of this particular group of patients.

SESSION 5: Tuesday 8TH May, 13:30 – 15:00

5.1

EPIDEMIOLOGY OF THE DETERIORATING PATIENT

5.1a

Parkside
Ballroom A**INCIDENCE WITH WHICH PATIENTS FULFIL HOSPITAL SPECIFIC MET CRITERIA DURING A COMPLETE ADMISSION****JESSICA GUINANE^{1,2}****Tracey Bucknall¹, Judy Currey³, Daryl Jones⁴**¹Cabrini-Deakin Centre for Nursing Research, Cabrini Hospital, Melbourne²Eastern Health, Emergency Department³Deakin University, Burwood, Melbourne⁴Austin Hospital, Melbourne**Objective**

Failure to recognise clinical deterioration and activate a Medical Emergency Team (MET) response is an ongoing concern for patient safety. This study aimed to determine the incidence, management and outcomes of patients' with vital signs fulfilling MET call criteria during their admission and the proportion who received a MET review.

Method

Following ethics approval, a retrospective chart audit was conducted in a not-for-profit private Melbourne hospital. All patients hospitalised for ≥ 24 hours in general wards and discharged during a 7-day study period were included. Medical records were reviewed for all patients who fulfilled MET criteria to assess escalation of care. Data were analysed using content analysis.

Results

Amongst 568 patients, 82 (14.4%) had one or more documented vital sign/s fulfilling MET criteria, yet only 3 (3.7%) received a MET review. In the 79 patients not reviewed by the MET, a nurse-initiated response to the recognised warning signs was documented in 23 patients (28%). In 12 (14%) patients medical staff were alerted to the deterioration and intervened in 11 cases. For 46 (56%) patients there was no documentation of recognition, escalation, or intervention. The most common vital sign breaching MET criteria were blood pressure (49%), oxygen saturation (30%), heart rate (12%) and respiratory rate (2%). In patients with MET criteria, 37 (44%) had documented resolution of instability within 1 hour, of which 26 (70%) had a documented intervention. Nursing staff independently instigated 81% of these interventions and 19% were referred onto medical staff. Length of hospital stay for patients fulfilling MET criteria was twice that of those who did not, regardless of MET review (8.61 days versus 4.31 respectively; $p < 0.001$).

Conclusions

Despite 1 in 7 patients fulfilling MET criteria, MET activation occurs infrequently. In approximately half of cases there was no documentation supporting recognition or escalation of care in the absence of MET review. Nurses may not always recognise the significant parameters for patients' safety. However, the other patient cases indicated clinicians' interpreted vital signs and performed further assessment's to confirm or disconfirm potential problems and escalated care in ways other than a MET call. The presence of MET criteria was associated with a doubling of length of stay. Our findings suggest the need to improve recognition of clinical deterioration and better education and decision support for escalation of care for such patients. Further research is needed to understand the decision making process that occurs in the presence of clinical deterioration.

SESSION 5: Tuesday 8TH May, 13:30 – 15:00

5.1

EPIDEMIOLOGY OF THE DETERIORATING PATIENT

5.1b
Parkside
Ballroom A**RAPID RESPONSE TEAM CALLS TO PATIENTS WITH
A PRE-EXISTING NOT FOR RESUSCITATION ORDER:
INTERVENTIONS AND OUTCOMES****ARTHAS FLABOURIS****Charles Coventry, Krishnaswamy Sundararajan, Tracey Cramey**

School of Medicine, University of Adelaide and Intensive Care Unit, Royal Adelaide Hospital, South Australia

Objective

Compare and contrast Rapid Response Team (RRT) calls to patients with, and those without, a pre-existing Not For Resuscitation (NFR) order.

Methods

Retrospective medical record and database review. Tertiary referral hospital, with a two-tier RRT call system – Code Blue (cardiac arrest) and Medical Emergency Team (MET). Inclusion criteria: adult, ward inpatient with a hospital length of stay (LOS) of at least 24 hours prior to a Rapid Response Call. Study period: 1st January to 30th September 2011.

Results

1258 patients had a RRT call, of whom 198 (15.7%) had pre-existing NFR orders. Patients with, compared to those without a pre-existing NFR, were older (median years, 81 vs 70, $p < 0.01$), similar gender (males, 56.6% vs 54.3%, $p = 0.55$), similar time of call (median hour, 11:00 vs 12:50, $p = 0.06$) and less likely be a Code blue call (4.5% vs 12.6%, $p < 0.01$).

The worried criterion was more often the reason for a RRT call for patients with a pre-existing NFR (48.5% vs 33.9%, $p < 0.01$), and at time of RRT call had a higher respiratory rate (24 vs 20, $p < 0.01$) and lower SaO₂ (93% vs 97%, $p = 0.02$)

Patients with, compared to those without, a pre-existing NFR were no less likely to have a critical care type intervention (24.2% vs 25.8%, $p = 0.63$) or ward type intervention (88.9% vs 90.1%, $p = 0.61$). Cardiopulmonary resuscitation was attempted on 2 (1%) patients. 4 (2.0% vs 9.4%, $p < 0.01$) were admitted to ICU, however they were more likely to be left on the ward (92.4% vs 80.3%, $p < 0.01$) similar likelihood of a not for RRT call order (2.5% vs 0.9%, $p = 0.06$) or die at the time of the RRT call (5.6% vs 3.5%, $p = 0.16$). Hospital mortality was higher (56.1% vs 24.2%, $p < 0.01$).

Conclusion

RRT calls to patients with a pre-existing NFR order are not uncommon, are triggered by concerned ward staff, and such patients are just as likely to receive critical care type interventions, for predominately respiratory compromise. Our findings suggest RRT provide some benefit to such patients and that “NFR” and “not for RRT calls” are two distinct entities. Documentation of decisions for limitation of therapy should differentiate these two, whilst some NFR decisions should incorporate a “not for RRT” component. A very few number of patients with an NFR still received CPR and systems to monitor, report upon, and prevent such occurrences are important for patient safety and Rapid Response Systems quality improvement.

SESSION 5: Tuesday 8TH May, 13:30 – 15:00

5.1

EPIDEMIOLOGY OF THE DETERIORATING PATIENT

5.1c

Parkside
Ballroom A**MEDICAL EMERGENCY TEAM (MET) REVIEWS:
FACTORS INFLUENCING DELAY AND HOSPITAL OUTCOME****EMILY SANSONI¹****Heather McKay², Nicole Slater³, Leitha Scott³, Imogen Mitchell³**¹ Australian National University Medical School² ACT Health³ The Canberra Hospital**Objective**

To determine the incidence and hospital outcome of delayed Medical Emergency Team (MET) reviews and factors associated with delayed MET review.

Methods

This was a retrospective observational study of 1439 patients aged 16 and over who received a MET review between January 2009 and December 2010 at an Australian university affiliated tertiary hospital. The main outcome measures were incidence and hospital outcome of delayed MET reviews. A delayed MET review was defined *a priori* as a MET review occurring more than 60 minutes after a patient reached a MET review trigger. Data collected on potential factors associated with delayed MET review included patient demographics, not for resuscitation (NFR) status, whether patients were medical or surgical, vital sign readings prior to MET review, MET trigger at time of MET review and time and day of week of the trigger for MET review.

Results

12% (172/1439) of MET reviews were delayed by 60 minutes or more. More delayed MET reviews were triggered by hypotension (74/172, 43%) and tachypnoea (27/172, 15.7%) compared with non-delayed reviews ($p < .05$). MET reviews triggered by hypotension, tachypnoea and tachycardia as well as reaching a MET trigger out of hours each independently predicted delayed MET review ($p \leq .001$). Triggers reached out of hours occurred with a higher frequency in the delayed MET review group (70.3% [121/172] vs. 53.1% [673/1267]; $p < .001$). Hospital mortality in the delayed MET review group (61/171, 35.7%) was significantly higher than in the non-delayed group (302/1261, 23.9%; $p = .001$). Controlling for patients not for resuscitation, delayed MET review independently predicted hospital death (OR = 1.69, $p = .037$).

Conclusions

MET triggers are more likely to be ignored if reached out of hours. MET reviews triggered by hypotension, tachycardia and tachypnoea are more likely to be delayed. Delayed MET review is associated with significantly increased hospital mortality. This has significant implications for focussing efforts on why delayed MET reviews occur and how to decrease their occurrence. Strategies could include increasing the number of appropriate decision makers to work out of hours and further education and emphasis on the importance of vital signs in triggering MET reviews.

SESSION 5: Tuesday 8TH May, 13:30 – 15:00

5.1

EPIDEMIOLOGY OF THE DETERIORATING PATIENT

5.1d
Parkside
Ballroom A**COMPARING PATIENT DETERIORATION SYSTEMS
IN UNPLANNED INTENSIVE CARE ADMISSIONS****PARIS RAMRAKHA¹****Nicole Slater², Imogen Mitchell²**¹ Nepean Hospital² The Canberra Hospital**Aim**

To compare the incidence of the Medical Emergency Team [MET] calling criteria, a Modified Early Warning Score [MEWS] ≥ 4 and the Seagull Sign [Heart rate numerically greater than systolic blood pressure] prior to an unexpected intensive care unit (ICU) admission.

Method

A retrospective, observational study of all unexpected ICU admissions over the age of 18 years between 1st January 2008 and 31st December 2010 at the Canberra Hospital was undertaken. Data collected included patient demographics, their vital signs in the preceding 24 hours and their hospital outcome. Patients fulfilling MET calling criteria, a MEWS of 4 or more or who had a seagull sign in the 24 hours prior to the ICU admission were identified and the temporal relationships to ICU admission were calculated.

Results

519 patient admissions (58% male, median age 65 years, IQR=20 [54 to 74 years]) met the inclusion criteria. Overall in the 24 hours prior to ICU admission, 68% (351/519) patients fulfilled the MET criteria, 64% (334/519) had a MEWS ≥ 4 , and 38% (199/519) had a Seagull Sign. For the period of 16-24 hours prior to the ICU admission, 15% (78/519) patients had a MEWS ≥ 4 , 13% (66/519) had a Seagull sign and only 5% (28/519) patients fulfilled the MET criteria. For the period of 0 to 2 hours prior to ICU admission, 51% (264/519) patients fulfilled MET criteria, 42% (218/519) had a MEWS ≥ 4 , 22% (110/519) had a Seagull Sign.

Conclusion

Clinical markers designed to detect patient deterioration, based on vital signs observations, are only present, at best, in two thirds of cases 24 hours prior to an unexpected ICU admission and are predominantly late signs of patient deterioration. The incidence of the Seagull Sign and MEWS of 4 or more is marginally greater than the MET criteria 24 hours prior to ICU admission. In this cohort of unplanned ICU admissions, the Seagull sign did not provide an advantage over the MEWS systems for detecting patient deterioration. Further review of the sensitivity and specificity of these deteriorating-patient systems is required to determine their accuracy in predicting patient deterioration.

SESSION 5: Tuesday 8TH May, 13:30 – 15:00

5.1

EPIDEMIOLOGY OF THE DETERIORATING PATIENT

5.1e

Parkside
Ballroom A**MULTIPLE MET REVIEWS: COMPARING PATIENT CHARACTERISTICS AND OUTCOME WITH INCREASING NUMBER OF MEDICAL EMERGENCY TEAM REVIEWS****DAVID BROWN¹****Imogen Mitchell², Bronwyn Avard², Heather McKay³, Nicole Slater⁴, Teresa Neeman⁵**¹ Australian National University² The Canberra Hospital³ Program Manager – Early Recognition of the Deteriorating Patient⁴ CNC Resuscitation Coordinator – The Canberra Hospital⁵ Statistical Consulting Unit – Australian National University**Objective**

To determine the relationship between the number of Medical Emergency Team (MET) reviews per patient and hospital mortality.

Methods

A retrospective observational study was performed on 1,465 patients experiencing 1,962 MET reviews between January 2009 and June 2011 in a large University affiliated teaching hospital. Data collected included patient demographics, incidence of MET calls, resuscitation status and hospital outcome.

Results

Of the 1,465 patients, 1149 (78.4%) had one MET review, 235 (16%) had two MET reviews and 81 (5.5%) had three or greater MET reviews. Patients who had 3 or more MET reviews were significantly younger than those undergoing one MET review [63 (50, 76) years and 72 (57, 82) years respectively; $p=0.001$] and patients who had 3 or more MET reviews were more likely to have a not for resuscitation (NFR) order in place than those having one MET review [34/81 (42%) and 285/1149 (24.8%) respectively; $p=0.001$]. Patients undergoing three or more MET reviews had significantly higher hospital mortality than those undergoing one MET review [32/81 (39.5%) and 306/1149 (26.6%) respectively; $p=0.043$]. However, hospital mortality declined from 39.5% (32/81) to 23.4% (11/47) in patients with 3 or more MET reviews when patients with NFR orders in place were removed.

Conclusions

This retrospective study demonstrated that overall, patients who had a greater number of MET reviews were younger in age, had a greater likelihood of having an NFR order in place and had a higher mortality than those patients undergoing one MET review. However, once NFR patients are removed from the mortality data, hospital outcome is more comparable in patients with one and three or more MET reviews. This has important implications in MET resourcing, with unnecessary MET calls being potentially avoided with timely end of life discussions and appropriate NFR allocation.

SESSION 5: Tuesday 8TH May, 13:30 – 15:00

5.3

**USING QUALITATIVE METHODS TO EXAMINE THE PROCESSES OF
RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION**5.3a
Parkside
110 A**AN ETHNOGRAPHY OF RESCUE WORK: RELATIONSHIPS
BETWEEN ORGANISATIONAL SYSTEMS, DEPARTMENT AND
INDIVIDUAL LEVEL PROCESSES****NICOLA MACKINTOSH****Jane Sandall, Charlotte Humphrey**

King's College London, National Institute for Health Research

Objective

This research aimed to explore the nature of 'rescue work', and illuminate relationships between organisational systems, department and individual level processes.

Methods

The research used ethnographic methods. Data collection involved >150 hours of observation of two wards in the medical directorate of two UK hospitals over 12 months. Fieldwork included periods of shadowing a purposive sample of medical staff and an outreach team at one of the sites, attendance at committee meetings (18) and stakeholder meetings (15), and collection of documentary evidence (audit data, protocols). Semi-structured, face-to-face, individual interviews were carried out with doctors (14), ward and critical care nurses (11), healthcare assistants (4) and safety leads and managers (6). Participants were recruited with the aim of acquiring a broad sample across occupational and professional groups. Observation and interview data were coded using NVivo v8 and organised thematically.

Results

Care for acutely ill patients is influenced by socio-cultural, political and technological structures and processes. Relations between critical care, medicine and management influenced the organisation and provision of services within the two study sites; organ specialism assumed a hierarchical superiority over generalist services. Negotiated clinical work took place at micro-level, but also at meso-level, where organisational trajectories, structural processes such as the housing of outliers, and 'turfing' (transfer of responsibility) between medical firms influenced patient pathways. Some cultural norms were aligned with the organisations' safety system approach to managing deterioration (e.g. prioritising acutely ill patients, taking the necessary clinical first steps in an emergency, asking for help), but others were at odds with it (e.g. being seen to cope, escalating up the chain of command rather than bypassing hierarchies, not calling consultants at home). Technological tools (e.g. an intelligent assessment system) opened up the 'black box' of rescue work to scrutiny. Tools such as the early warning scores, escalation protocol and SBAR performed a valuable bridging function between professions. However, these tools also reinforced existing professional hierarchies and occupational divides. They shaped patient trajectories and mediated boundaries, with positive and negative consequences for patients in terms of access to specialist and critical care.

Conclusions

This research highlights the distributed nature of safety work on the frontline, and locates it within the enabling and constraining complex organisational system of healthcare. This work has implications for healthcare practice in terms of the role of rapid response systems themselves, including their intended, unintended and at times, contradictory consequences.

SESSION 5: Tuesday 8TH May, 13:30 – 15:00

5.3

USING QUALITATIVE METHODS TO EXAMINE THE PROCESSES OF RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION

5.3b

Parkside
110 A

THE HUMAN ELEMENT OF MANAGING PATIENT DETERIORATION

IMOGEN MITCHELL¹Heather McKay¹, Monica Kennedy², Margaret Kiley³¹The Canberra Hospital²Faculty of Business and Government, University of Canberra³Centre for Higher Education, Learning and Teaching, Australian National University

Objective

To understand what affects healthcare professionals to manage patient deterioration appropriately to inform future patient deterioration projects.

Methods

Grounded theory was used to elucidate a theoretical conceptual framework for the influences on health care workers in managing patient deterioration. Four groups (senior and junior doctors, nurses and a representative combined sample) were brought together to discuss and reflect upon a case of patient deterioration. Discussion was unstructured and conducted until no new information was forthcoming. Transcripts were analysed for emergent themes and progressive coding (open and axial) occurred. A model of the influences on healthcare professionals in managing patient deterioration was generated.

Results

The overriding influence that affects healthcare professionals' management of patient deterioration was the ability to make the right decision. The major influential categories were the characteristic of the patient, junior doctor/nurse and the supervising consultant. More specifically:

i. Nature of patient deterioration:

Junior Doctor (JD): "Yes if they are an acutely unwell patient, you think: 'Okay I need to do something'"

ii. Ability to make a decision:

JD: "There's still the fear of getting it wrong. There's still the fear of not knowing and fear of ridicule for not knowing"

iii. Content of communication:

JD: "If you were the registrar on call for the night or the weekend the consultant's decision over the phone is probably to a certain extent more...probably the vast majority of it is based on your presentation of your recap of the story"

iv. Ability to challenge decisions:

Nurse (N): "If he [the registrar] says to me 'I don't want you to' well no then maybe I would be a little bit more apprehensive [about calling a MET]"

v. Ability to ask for help:

JD: "I suppose that there will be an expectation that I will know more but certainly at the moment I'm definitely in the playground of being able to say 'I don't know'"

vi. Staff workload

N: "An intern that has got a million things that they're doing, they've got so much to do you sort of think to yourself: 'Yes I can understand why you can't get here'"

Conclusion

Decision making is the essence of deteriorating patient care, which is significantly influenced by human behaviour. Any new patient deterioration system needs to consider the major influential categories, which requires a long review of the current model of the delivery of healthcare.

SESSION 5: Tuesday 8TH May, 13:30 – 15:00

5.3

USING QUALITATIVE METHODS TO EXAMINE THE PROCESSES OF RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION5.3c
Parkside
110 A**THE EXPERIENCE OF NURSES AND DOCTORS WHO CARE FOR A CHILD WHO HAS HAD AN UNEXPECTED ACUTE LIFE-THREATENING EVENT (ALTE) IN HOSPITAL?****ADRIENNE HUDSON^{1,2}****Heather Duncan², Helen Pattison¹, Rachel Shaw¹**¹School of Life & Health Sciences, Aston University, Birmingham, UK²Birmingham Children's Hospital NHS Foundation Trust, UK Objective

To explore nurses and doctors experience of caring for a child who has had an acute life-threatening event (ALTE) in hospital.

Methods

Nursing and medical staff who cared for a child who had an ALTE were invited to participate in a voluntary, semi-structured interview between October 2010 – April 2011. The transcribed interviews were analysed using Interpretative Phenomenological Analysis (IPA) to examine what the experience meant to the participant.

Results

Themes generated from a cross-case analysis include:

- Knowing the patient and family affects the experience – nurses and doctors who knew the patient prior to the ALTE had a more subjective reaction during the event. They often required more support and reassurance after the event.
- Clinicians wanted a role during a resuscitation – a role enabled participants to focus, detach from the patient and feel as though they had made a positive contribution to the resuscitation.
- Clinical confidence and competence improves experience of events – confidence in clinical skills enabled participants to detach from their subjective reactions to the patients and be more process and clinically focused.
- Participants want someone to talk to after the event – participants wanted someone to speak to after the event to get reassurance that they had done everything correctly leading up to and during the event.
- Participants want feedback to learn from the event – participants wanted feedback after an event to provide reassurance and to learn from each event.
- Participation in events is preparation for subsequent events – being involved in events helped to prepare them for future events.

Conclusions

To date there have been no other studies published looking at the experience of caring for a child who has an ALTE in hospital using IPA. The study is part of a PhD program of work, which includes a systematic literature review, international survey of practice and the IPA interviews. The rich qualitative data generated by the IPA interviews has been coupled with the results from the SLR and survey of practice to develop pilot interventions aimed at reducing the impact of stress on nurses who care for children who have an ALTE in hospital through preparation and support.

SESSION 5: Tuesday 8TH May, 13:30 – 15:00

5.3

USING QUALITATIVE METHODS TO EXAMINE THE PROCESSES OF RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION

5.3d
Parkside
110 A**'DOCUMENT AND GO': ACUTE CARE NURSES USE OF VITAL SIGNS****MELANIE GREENWOOD****Rosalind Bull, Mary FitzGerald**

School of Nursing and Midwifery, University of Tasmania

Objective

This piece of work generates knowledge of the ways nurses take, record, interpret and use vital signs as an indicator of physiological status and the impact of ward culture on recognition of unexpected changes in patients' vital signs which may lead to physiological deterioration.

Methods

This is a sequential two phased mixed methods study. The qualitative phase incorporates ethnographic methods of in the field observation and key informant interview. Inductive analysis of field notes (50 hours) using the six step thematic analysis process proposed by Braun and Clarke (2006) uncovered three preliminary core themes and several sub themes. Consenting nurses were observed taking, recording and using vital signs in a medical and surgical ward of a large Australian metropolitan teaching hospital. Multiple observations recorded as field notes from two research sites were transcribed and iteratively coded.

Results

The qualitative phase of the study focused on articulating nurses' understanding of vital signs and the application of these understanding when caring for the patient at risk of changes in physiological status. The first three tentative themes are: 'Time to do the obs' explores the influence of time and time as a trigger for actions; 'vital signs as negotiated and delegated work' situates vital signs as items to be directed toward and by others; and 'vital signs as knowable and do-able' articulates the knowledge and skills of those who take, record and use vital signs.

Conclusions

The measurement of vital signs receives a great deal of attention in contemporary literature with an explosion of outputs addressing this important area of research. Despite health care education directed toward recognition and early intervention for patient deterioration, missed opportunities to intervene still occur. What is missing from the literature is an account of 'the way we do things here' because this perspective has most potential to reveal aspects of the culture that support or inhibit 'best practice'. Pertinent findings from an observational study conducted in medical and surgical wards at a large Australian metropolitan teaching hospital provide an account of 'how it is'. Outcomes of this research will directly affect the understanding of vital sign taking, recording, interpretation and how vital sign measures connect to actions and subsequent adverse event detection in acute care.

SESSION 5: Tuesday 8TH May, 13:30 – 15:00

5.3

USING QUALITATIVE METHODS TO EXAMINE THE PROCESSES OF RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION5.3e
Parkside
110 A**NURSES EXPERIENCES OF ACTIVATING A RAPID RESPONSE SYSTEM IN RURAL GENERAL WARDS****DOT HUGHES**

SNSW LHD and NSW Clinical Education and Training Institute Rural Directorate,
Rural Research Capacity Building Program

Objective

The aim of the research project was to develop an understanding the positive or negative perceptions which influence nurses in their decision to activate a Rapid Response System (RRS) when patients experience clinical deterioration.

Methods

The research was a hermeneutic phenomenological study, with nurses employed on general rural hospital wards invited to attend one of three focus group meetings. Participants were asked to describe their experiences of activating a RRS and reflect on the emotions the experience evoked. Audio recordings of the meetings were transcribed and analysed to identify core categories and properties of those categories. The findings were validated by an independent reviewer.

Results

The results showed that nurses used words such as worried, scared, anxious and frustrated to describe activating a RRS. The main themes identified from the transcription were:

- Time; which related to the time until help arrived or the time taken to call for help
- Feedback; the nurses reported the majority of feedback as negative, causing them to feel as though their judgment was doubted, they were wasting time, or isolated in their concern for the patient.
- Lack of observation variances; lack of acceptable observation variances caused confusion. This lack of clarity caused concern and delays in activating the RRS.
- 'Not for resuscitation' orders; caused misunderstanding, sometimes patients without orders required activation of the RRS according to policy although it was clearly not in the patient's best interest. Other times patients with 'not for resuscitation' orders developed a new condition requiring urgent review and assistance.

Positive experiences of activating a RRS aligned with the severity of the patient's condition and improved patient outcomes. While all nurses reported activating the RRS, as required by policy and also as part of doing the right thing for the patient, less experienced nurses were reluctant to activate the system, and the nurses employed for longer periods reported ignoring negative feedback.

Conclusions

The results highlighted that the decision making process of when to activate a RRS is influenced by previous experiences. Nurses reported a number of factors which prevented spontaneous activation of the RRS, resulting in time delays from recognition of a patient with clinical deterioration to activation of the RRS. This research supports action to improve the embedding of the local track and trigger system with clarification of the observation variances and 'not for resuscitation' orders, and education of responders to provide meaningful positive feedback to nursing staff.

SESSION 5: Tuesday 8TH May, 13:30 – 15:00

5.4

EVALUATION OF RECOGNITION AND RESPONSE SYSTEMS

5.4a

Parkside
110 B**LIFE-THREATENING RESPIRATORY EVENTS
IN HOSPITALISED CHILDREN****SHARON KINNEY****Halima Al-Talaq, James Tibballs**

Royal Children's Hospital, Melbourne/The University of Melbourne

Objective

To determine the effect of introduction of a medical emergency team (MET) on unexpected life-threatening respiratory events (LRE) in wards of a paediatric hospital.

Methods

Patient databases of LREs before (pre-MET) and after introduction of a MET (post-MET) were examined to determine the characteristics and outcomes of LRE's, defined as a medical emergency requiring the immediate provision of assisted ventilation with a bag-mask device, non-invasive bilevel positive airway pressure machine, or via an endotracheal or tracheostomy tube. LRE's were classified as either respiratory arrest (apnoea) or respiratory compromise (hypoventilation), without initial cardiac arrest.

Results

Among 104,780 admissions during 41 months pre-MET and 138,424 admissions in 48 months post-MET, the incidence of LRE increased from 48 (0.46/1000) to 220 (1.59/1000) (RR=3.47; 95%CI: 2.54, 4.74, $p < 0.001$) but death did not change from 6 (0.06/1000) to 19 (0.14/1000) (RR=2.40; 95%CI: 0.96, 6.00, $p < 0.054$). The incidence of bag-mask ventilation (only) increased from 0.20/1000 to 0.98/1000 (RR=4.87; 95%CI: 3.07, 7.71, $p < 0.001$) although the incidence of endotracheal intubation was unchanged from 0.24/1000 to 0.31/1000 (RR=1.30; 95%CI: 0.80, 2.13, $p = 0.293$). Respiratory arrest accounted for 25 (52%) of LRE's during the pre-MET period in contrast to 70 (32%) during the post-MET period. The most common cause of LRE during both periods (pre-MET and post MET respectively) was depression of the central nervous system (50% and 42%) followed by upper or lower airway obstruction (33% and 34%). An increased proportion of children had previous surgery prior to the LRE during the post-MET period (65% versus 58%, $p = 0.001$). Sixteen (33%) children during the pre-MET period and 97 (44%) during the post-MET period had received at least one medication that could impact on central nervous system respiratory function during the four hours prior to the LRE ($p = 0.17$). Narcotics were the most frequently administered medication accounting for 63% pre-MET ($n = 10$) and 42% post-MET ($n = 41$) followed by benzodiazepines (19% and 40%) and other types of sedatives (6% and 11%).

Conclusions

Introduction of a MET system was associated with an increase in LRE but with no change in death or the provision of endotracheal intubation. Depression of central nervous system control of respiration was the most common cause of the LRE before and after introduction of MET. An increased proportion of children were postoperative in the post-MET period and they frequently received medications that impacted on respiratory function. Additional preventative strategies should involve targeting children in these high risk groups.

SESSION 5: Tuesday 8TH May, 13:30 – 15:00

5.4

EVALUATION OF RECOGNITION AND RESPONSE SYSTEMS

5.4b
Parkside
110 B**“DROWNINGS” BETWEEN THE FLAGS; IMPLEMENTATION OF A COLOUR-CODED OBSERVATION CHART FAILS TO IMPACT ON THE DETECTION OF DETERIORATING PATIENTS****MATTHEW SHEPHERD**

Tamworth Rural Referral Hospital, Hunter New England Area Health Service, Tamworth NSW

Objective

To assess the effect of implementing a colour-coded observation chart on the detection of deteriorating patients in a rural referral hospital with an established Medical Emergency Team (MET) system.

Methods

A convenience sample of two 14-month periods pre-and-post introduction of the Standard Adult General Observation (SAGO) Chart using data from the Tamworth Hospital's MET Service's electronic database (1/11/08 through 31/12/09 and 1/2/10 through 31/3/11). MET calls were activated on the basis of set physiological parameters. The “Worried” activation criterion was defined as a MET call activated despite the absence of physiological MET criteria. All MET calls for both periods were audited. “Missed” MET calls were defined as cases in which patients satisfied activation criteria prior to their MET call being activated. When groups were compared, non-parametric chi-squared analysis was undertaken.

Results

There was a statistically significant increase in MET activation in the post-SAGO group ($\chi^2 = 19.11$; $p < 0.0009$). There was no statistical difference in the number of Cardiac Arrests ($\chi^2 = 0.20$; $p = 0.993$). The proportion of MET calls for cardiovascular and respiratory activation criteria were not significantly different between the groups ($\chi^2 = 1.93$, $p = 0.165$; $\chi^2 = 1.42$, $p = 0.233$). There was a statistically significant increase in “Worried” category activation ($\chi^2 = 4.83$; $p < 0.028$). Of the “Worried” category patients, there was no statistically significant difference in the rate of transfer of patients to a critical care area ($\chi^2 = 2.91$; $p < .08$). There were no “missed” MET calls in either period.

Conclusions

In a rural referral hospital with an established MET System, the use of the SAGO chart was associated with a statistically significant increase in total MET calls and “Worried” activation criteria, without a change in the number of cardiac arrests, additional detection of physiological deterioration, or “missed” MET calls. A significant number of “drownings” continue to occur “between the flags”.

SESSION 5: Tuesday 8TH May, 13:30 – 15:00

5.4

EVALUATION OF RECOGNITION AND RESPONSE SYSTEMS

5.4c

Parkside
110 B**IMPACT OF THE INTRODUCTION OF A TRACK & TRIGGER SYSTEM ON PICU WORKLOAD AND PATIENT OUTCOMES IN A TERTIARY CHILDREN'S HOSPITAL****MICHAEL HADDAD****Brad Ceely, Oliver Tegg, Lynette Kirby, Natalie Duns, Marino Festa**

Department of Paediatric Intensive Care, The Children's Hospital at Westmead, Sydney

Objective

To describe the impact of a track and trigger system (Between the Flags (BTF) on patient outcomes and Nurse Practitioner led Paediatric Intensive Care Outreach Service (PICOS) workload in a tertiary children's hospital.

Methods

Review of PICOS data collected prospectively for 1 year before and after implementation of BTF (February 2010 to February 2012) is undertaken.

Electronic patient records were completed for all urgent calls for PICU review of ward patients in this period. BTF was implemented in February 2011 and the electronic patient record was adapted to capture rapid response activation.

Patients seen as elective follow-up of PICU discharge or following previous PICOS reviews in both periods are excluded from the data. Calls from the emergency department and operating theatres/recovery are also excluded.

All other admissions to PICU following PICOS review, rapid response calls or cardiac arrest calls are included.

Outcome following PICOS activation is categorised according to patient disposal (Admission to PICU as Intensive Care (IC)/High Dependency Care (HDC) Vs. Remain on ward).

For all patients admitted to PICU, three further outcomes are reported – ventilated or non-ventilated, length of stay in PICU and survival at PICU discharge.

Results

Comparison of data before and after implementation of BTF demonstrates 161% increase in PICOS activity.

A significant increase in the number of patients reviewed for every patient admitted is observed (Chi square 21.05, $p < 0.0001$), with a change in the ratio of patients admitted from approximately 1 in 3, to 1 in 5 urgent calls.

No significant difference before and after implementation of BTF in the proportion of patients admitted for IC vs HDC is observed (Chi square 2.86, $p = 0.091$). No difference in mortality is observed in patients admitted to the ICU (Chi square 0.861, $p = 0.353$).

Conclusions

Comparison of 12-months' complete data before and after the implementation of BTF demonstrates a significant increase in PICOS workload. No differences are observed in the proportion of patients admitted for IC or HDC, or in other clinical outcomes including need for mechanical ventilation or survival to PICU discharge. These data question the utility of a track and trigger system to improve patient outcomes in a tertiary paediatric hospital with established escalation processes and PICOS.

SESSION 5: Tuesday 8TH May, 13:30 – 15:00

5.4

EVALUATION OF RECOGNITION AND RESPONSE SYSTEMS

5.4d
Parkside
110 B

DOCUMENTING EVENTS CAN GO ALONG WAY – USING EMR TO SUPPORT EVALUATION AND HANDOVER

CHRISSY CEELY

Adam Bennett, Brad Ceely, Natalie Grady, Michael Haddad, Oliver Tegg

The Children's Hospital at Westmead (CHW)

Objective

To develop a system to support the evaluation of the Between the Flags (BTF) program and enable timely communication of critical information about deteriorating patients

Methods

With the implementation of the BTF program a process for collecting, collating and reviewing data locally over time would be required in order to evaluate the program. The CHW project team viewed this as an opportunity to enhance the BTF program by integrating a process where data collected for evaluation could be further utilised to improve safe clinical handover of children whose condition is deteriorating.

Local tools and processes for data collection, collation, review, feedback and reporting were defined. The project team obtained executive support, engaged key clinicians, reviewed literature, liaised with other health care facilities to design tools and processes.

Following identification of data required for evaluation, the team engaged the Clinical Application Support Unit (CASU) in the development of an electronic form within PowerChart (eMR). The aim was to document all Rapid Response calls electronically in the patient's record, while generating data for evaluation.

Results

The Clinical Emergency Response Systems (CERS) forms were developed and implemented at the commencement of the program. The forms are accessible in the patient's eMR and reports can be automatically generated to support clinical handover of critical information. These reports are contemporaneous, do not require manpower to generate, are individualised to wards/teams, facilitate targeted education and support data derived decision-making.

Feedback from clinicians validates that this initiative has enhanced clinical handover through the provision of up-to-date and comprehensive information on deteriorating patients, whilst supporting the evaluation process of BTF KPI's and organisational governance.

A recent sample audit demonstrated that 100% of RR activations had been documented using the eMR forms and that this information was utilised during 100% of the hospital-wide evening to night shift handovers. Staff are engaged with the process and monthly audits occur.

It is also noted that in the last 12 months there have been no unexpected deaths or RCA investigations at CHW involving unrecognised deteriorating patients on the wards.

Conclusion

Since the commencement of the BTF program, all RR calls have been electronically documented in the patient's eMR in a consistent and contemporaneous manner. The information is used to support shift to shift handovers and the reports generated from the forms, enables data and program evaluation. We are now able to ensure that deteriorating patients or patients at risk are identified and discussed at clinical handover, enhancing our documentation of events and patient safety.

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5.4

EVALUATION OF RECOGNITION AND RESPONSE SYSTEMS

5.4e

Parkside
110 B**THE DECISION FOR A NOT FOR RESUSCITATION ORDER
AT THE TIME OF A RAPID RESPONSE TEAM ATTENDANCE****KRISHNASWAMY SUNDARARAJAN****Alexander Keeshan, Arthas Flabouris, Tracey Cramey**School of Medicine, University of Adelaide, and Intensive Care Unit, Royal Adelaide Hospital,
South Australia**Objective**

To describe the documented circumstances surrounding the issuing of limitations in care orders at the time of a Rapid Response Team (RRT) call. To compare these circumstances with those of patients issued an NFR independent of a RRT call.

Methods

Retrospective medical record and database review. Tertiary referral hospital, with a two tier RRT system – Code Blue (cardiac arrest), staffed by Intensive Care Unit (ICU) and general Medical doctors, and Medical Emergency Team (MET), staffed by general Medical doctors. Inclusion criteria: adult, ward inpatients; hospital length of stay > 24 hours. Two groups: RRTLimits patients, being patients who had limitations documented at time of a RRT call, and nonRRTLimits patients, being patients with limitations documented independent of a RRT call. Study period: 1st February to 30th August 2011.

Results

There were 994 RRT calls, of which 48 (4.8%) patients had a limitation of care order documented by the RRT. 4 (8.3%) of the 48 patients were a cardiac arrest. In comparison to nonRRTLimits patients (N=50), RRTLimits patients were of a similar median age (80.5 vs 78.5, $p=0.30$), similar time of documentation (15:30 vs 15:55 hrs, $p=0.52$) and day of week (weekend: 32% vs 35.4%, $p=0.72$).

RRTLimits patients were less likely than nonRRTLimits patients to have a documented not for resuscitation (31 (64.6%) vs 49 (98.6%), $p<0.01$) or “not for ICU” (18 (37.5%) vs 41 (82.0%), $p<0.01$) but more likely to have “not for RRT” (31 (64.6%) vs 22 (44%), $p=0.04$) or “modified RRT calling criteria” (4 (8.3%) vs 0%, $p=0.04$). They were not more likely to have had a RRT call prior to the occasion of a documented limitation (20.8% vs 12%, $p=0.24$).

Overall, the most common reasons documented for a limitation in care order was similar for both groups, being: chronic illness (79.5%); patient wishes (8.2%); futility due to admitting illness (8.2%); expansion of existing limitations (7.1%). RRTLimits documentation was less likely to include involvement of the patient in the decision making (18.8% vs 50%, $p<0.01$) or next of kin notification (58.3% vs 90%, $p<0.01$). Documentation of admitting team involvement occurred in 60.4% of RRTLimits.

Conclusion

Documentation of limitations in care by RRT and admitting medical teams follow a similar pattern, although RRT are more likely to document limitation in care in isolation to patients, next of kin and admitting teams. These findings have implications for overall governance of documented limitation in care orders within hospitals with RRT.

SESSION 5: Tuesday 8TH May, 13:30 – 15:00

5.5

PERCEPTIONS AND USE OF RECOGNITION
AND RESPONSE SYSTEMS5.5a
Parkside
G04**“THINGS THAT GO BOOM IN THE NIGHT”: RESPONSE TO
ABNORMAL PHYSIOLOGY – WHEN DO NURSES CALL FOR HELP
AND WHY NOT?****CHRISTIAN P SUBBE¹****Jennifer Yiu², Khaled Nasser Said Tofeec³, Rebecca Madge³, Hassan Mohammed³,
Anwar Khan³**¹School of Medical Sciences, Bangor, UK²Cardiff University, Medical School, Cardiff, UK³Ysbyty Gwynedd, Bangor, UK**Objective**

Following the introduction of a National Early Warning Score (NEWS) we aimed to measure reliability of responses to patients triggering a NEWS of 6 or above and to identify patient and environmental factors that might impact on decisions by nursing staff to escalate to a Rapid Response Team (RRT).

Methods

Files from *all* patients on 4 medical wards were reviewed during 20 nights (20:00 to 8:30) in November 2011. We recorded diagnoses, previous observations and predefined conditions that might prejudice decisions to escalate in response to abnormal scores (Table 1).

Results

109 patients triggered NEWS of 6 or more. Nursing staff followed the protocol for call-out to RRT nurse practitioners or On-call Doctors in only 18 cases (17%). Workload of medical teams had little impact on call-outs.

Nearly all patients triggering had predefined conditions. COPD was associated with a decreased call rate. Logistic regression identified frailty (Clinical Frailty Scale >5) as the only significant predictor ($p < 0.05$) of a call-out.

Within 24 hours of trigger 1 patient died and 1 patient was admitted to Intensive Care. 24 further patients died within a month of surveillance, of these 7 in a rehabilitation facility or after discharge. The rate of deaths was higher in the group with call-outs ($p < 0.02$) and time to death was shorter ($p < 0.03$). Logistic regression identified call-outs and cancer as predictors of death.

Conclusions

Compliance with escalation protocols was variable, particularly in patients with COPD. Nurses were more likely to initiate a call-out in patients who subsequently died suggesting in parts appropriate usage of the RRT.

Day review by parent teams with modification of escalation plans for patients unlikely to survive to hospital discharge or improve over night would aid workload of out-of hours teams and may improve efficiency. Automated systems for vital sign recording might be needed to assure reliability of performance.

SESSION 5: Tuesday 8TH May, 13:30 – 15:00

5.5

PERCEPTIONS AND USE OF RECOGNITION AND RESPONSE SYSTEMS

5.5b
Parkside
G04

RAPID RESPONSE SYSTEM SATISFACTION AS PART OF THE MULTICENTRE COMET TRIAL

JEROEN LUDI KHUIZE¹Anja Brunsveld-Reinders², Evert de Jonge², Dave A. Dongelmans³¹Academic Medical Centre, Department of Quality Assurance and Process Innovation, the Netherlands²Leiden University Medical Centre, Department of Intensive Care, the Netherlands³Academic Medical Centre, Department Intensive Care Medicine, the Netherlands**Introduction**

This study is part of the multi-centre Cost and Outcome analysis of Medical Emergency Teams (COMET) trial. Satisfaction with the Rapid Response System (RRS) and its components is shown to be important for the utilisation of the RRS and is related to clinical outcome of a RRS.

Objectives

To analyse satisfaction with RRS using a written questionnaire distributed to nurses and physician on the study wards in 11 participating hospitals.

Methods

Each participating hospital distributed 80 questionnaires among nurses and physicians of the study wards one year after the initiation of the study. In the survey, questions were included on the use of RRS, compliance to its protocol and on recent experience with deteriorating patients.

Results

A total number of 492 questionnaires were returned. One hospital returned 86 questionnaires. Therefore, the overall response rate was 56% (492/880) varying between 23% to 108%.

Forty-four percent of respondents (n=214) indicated they had not seen any case with a positive Modified Early Warning Score (MEWS ≥ 3) in the previous two weeks. In 55% (n=140) of the cases with a positive MEWS, the RRT wasn't activated at anytime during their admission.

The value of MEWS to prevent deterioration of a patient was rated at 7 (median, IQR 6 – 8) on a scale from 0 (completely disagree) to 10 (completely agree). The value of a RRT besides the sole utilisation of the MEWS was assessed identically. Caregivers rated a RRS as being an essential tool in current clinical practise at 7.5 (IQR 7 – 8).

Regarding compliance, the interpretation by physicians and nurses of the RRS differed from the actual protocol. Nurses should call the resident in all cases with a positive MEWS. However, caregivers' compliance with the protocol was not 100%. They rated their agreement with the statement that the resident should be called in all cases with a positive MEWS at 7 (IQR 5 – 8).

No significant differences were identified between hospitals or caregivers not having seen deteriorating patients recently.

Conclusion

Satisfaction with and perceived added value of a RRS and its components as part the COMET study was high. The results of the COMET study on the effects of RRS on outcome will be presented in the end of 2012. Repeated questionnaires will study satisfaction during prolonged use of RRS and it will be interesting to correlate these findings to (trends) in outcome in and amongst participating hospitals.

SESSION 5: Tuesday 8TH May, 13:30 – 15:00

5.5

**PERCEPTIONS AND USE OF RECOGNITION
AND RESPONSE SYSTEMS**5.5c
Parkside
G04**'PUTTING THE PICTURE TOGETHER': FACTORS IMPACTING
ON GRADUATE NURSES' PREPAREDNESS TO RECOGNISE
AND RESPOND TO THE DETERIORATING PATIENT****LINDY KING****Amy Jaensch**

Flinders University, Adelaide, Australia

Background

Nurses have a significant role in recognising subtle signs of patient deterioration and responding appropriately to prevent adverse events and improve patient outcomes. This pivotal position has often fallen to the new graduate who, after rapid immersion into the complexity of care associated with contemporary acute-care work, must make high-consequence decisions in relation to a suspected decline in their patient's condition. To do so, graduates need to be prepared for this role.

Objective

The aim of this project was to review research studies that provided data on factors that influence new graduate nurse's preparedness for recognition and response to patient deterioration in the acute care setting.

Methods

A comprehensive literature search was conducted using the online databases of Cumulative Index to Nursing and Allied Health Literature, Ovid Medline, Informit and Google Scholar, reference lists of key articles and expert advice. Keyword combinations included patient deterioration, deterioration, pre-arrest period, emergency assistance, resuscitation, vital signs, clinical decision making, novice nurses, new graduate nurses, expert nurses, adverse event and complexity. All relevant studies were subsequently appraised for rigour and quality. Seventeen primary research studies drawn from novice and experienced registered nurse experiences emerged as relevant to the aim of the project.

Results

Thematic analysis of the research studies provided six major themes related to the aim of the project. Emergent themes were: clinical staff support, lack of nurse experience, overwhelming workload, holistic patient assessment, past experiences and lack of available resources. These themes indicated graduate nurses were particularly vulnerable due to lack of clinical experience, knowledge and skill, all barriers to interpreting clinical signs of deterioration and taking appropriate action.

Conclusions

This review highlighted the importance of positive staff support and subsequent confidence building. Graduates then felt able to present effective assessments to gain action and less fearful of reprimand when escalating an intervention call. Realistic workloads that allowed graduates time to focus on grouping clinical information and assistance to understand the 'total picture' of the patient also emerged as vital. Results indicated undergraduate and hospital in-service education programs needed to offer students and graduates the opportunity to practice reasoning. Complex clinical situations involving patient deterioration through simulation and clinical placement opportunities appeared most useful. A deficit was found in research focused specifically on graduate nurse's preparation for recognising and responding to the deteriorating patient. A clear need for further research to investigate graduate nurses' experiences and preparation for this role emerged.

SESSION 5: Tuesday 8TH May, 13:30 – 15:00

5.5

PERCEPTIONS AND USE OF RECOGNITION
AND RESPONSE SYSTEMS5.5d
Parkside
G04**STRENGTHENING THE AFFERENT ARM: IMPLEMENTING
CONTINUOUS MONITORING IN SURGICAL UNITS****ANNE MILLER****Elizabeth Card, Donna Nelson**

Department of Anaesthesiology, Vanderbilt University Medical Centre Nashville, Tennessee

Objective

To investigate the effects of and to identify strategies for effectively implementing continuous patient monitoring in Surgical nursing units.

Method

Participants were registered nurses working in three surgical units. The sample pool varied between 50–58 over 18 months. The *Nihon Kohden continuous monitoring equipment* displayed SpO₂, HR, RR, BP with ECG, respiration and SpO₂ waveforms on a LCD read-out attached to a patient blood pressure cuff and transmitted to a remote workstation. Research nurses kept rigorous notes throughout the implementation. An iterative intervene, elicit anonymous survey feedback, modify intervention *procedure* was used. Three of iterations were conducted at 6-monthly intervals. In addition, to demographic variables (day or nightshift; length of service as an RN and in the unit; previous telemetry experience), the survey canvassed three themes: perceived benefit; workload and workflow; technology understanding.

Results

Survey response rates were 82, 84 and 56% for Surveys 1, 2 and 3 respectively. 63% of Survey 2 and 79% of Survey 3 had completed a previous survey. Multivariate logistic regression showed that nightshift nurses perceived greater benefits compared to their dayshift peers ($p < 0.001$) between survey 1 and 2, ($p = 0.038$) but not between Surveys 2 and 3 ($p = 0.36$). Nurses with telemetry experience perceived benefits more than nurses without this experience ($p < 0.001$). Night shift nurses felt that they were better able to detect change with the monitors than day shift nurses ($p < 0.001$) and those with telemetry experience were more likely to report this ability than those without ($p < 0.04$). Nurses with telemetry experience felt they had a better understanding of the technology than those without ($p < 0.006$), and there was a marginally significant difference between a reported understanding between Survey 1 and 2. Qualitative analysis of both nurses free-form text and the research nurses' documentation show predictable shifts in nurses' technology acceptance and also highlighted broader technological and cultural issues.

Conclusions

Technology implementation is not benign but exposes cultural and other underlying dynamics. Effective and success implementation strategies depend on understanding cultural issues (e.g. how shift preferences are allocated); the extent to which nurses understand and acknowledge the problem that the technology is intended to solves; understanding nurses' needs, in this case for knowledge about how to use new information and how to integrate it in practice. An action research approach in a small pilot unit is one way to identify and develop strategies for addressing local issues.



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RURAL NURSES GET EDUCATION ON THE DETERIORATING PATIENT – STAT!**DEBBIE STONE, LEANNE ROGERS**

Flinders University Rural Clinical School, Renmark, South Australia

Objective

To deliver a unique rural simulation education program using the DETECT principles as a foundation for teaching a systematic approach toward patient assessment and management.

Methods

The program has three components;

1. Pre-learning reading
2. One day experiential learning workshop
3. Post course on-line self reflection questionnaire

Pre-learning activities include a web search of emergency protocols and DETECT initiatives. The experiential learning workshop introduces participants to triaging, recognising deteriorating patients and the ISBAR communication tool, using a building block approach with engaging activities, followed by simulation scenarios with immediate debriefing. A post workshop self reflective activity completes the learning curve.

Results

From the 76 evaluations collated, 100% of participants believed they felt more confident and prepared to recognise, communicate and manage a deteriorating situation following the simulation education.

Conclusions

Evidence indicates that providing rural nurses with the opportunity to consolidate their knowledge and skills in a simulated learning environment adds confidence to their clinical practice. Further analysis of the evaluated data is required in the context of reflective practice to fully understand the clinical application of the education. Quality improvement reviews have suggested a tool variation to enable learning through reflective practice to occur more effectively.

WHAT HAPPENED TO PATIENTS UNPLANNED TRANSFERRED TO INTENSIVE CARE UNITS AFTER EMERGENCY DEPARTMENT ADMISSION

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Objective

We performed a retrospective medical record review for patient unplanned transferred to intensive care unit (ICU) after emergency department (ED) admission, to identify the clinical features and outcomes of these patients.

Method

We reviewed the medical records of patients unplanned transferred to ICU within 48 hours of ED admission from 2007 to 2010. Patients less than 14 years old and admitted for injuries or suicides were excluded. The information collected included demographic data, past medical histories and functional status, vital signs and laboratory findings, clinical presentations in ED and when patient's condition deteriorated, and outcomes after transferred to ICU. Chi-square and logistic regression analysis were used to identify risks for death after ICU admission.

Results

Of 307 patients analysed, 184(59.9%) were male, and 80(25.7%) were older than 80 years. Infections accounted for reasons of admission in 132(43.0%), followed by gastrointestinal diseases (59, 19.2%) and neurological diseases (48, 15.6%). Over three quarters (240, 78.2%) of patient's deteriorating problems fulfilled MET calling criteria, while 39 (12.7%) of these patients needed resuscitations on deteriorations. Among 108 (35.2%) of the patients, clinical deterioration were identified when patients were still in ED stay. Seventy-two (12.7%) died during that ICU stay, and death were significantly associated with age of older than 80 years, history of cancer or liver cirrhosis, cerebral performance category (CPC) score of 3 or 4, if patients were still in ED stay on clinical deteriorations, and the time elapsed from decision of disposition to clinical deteriorations. Histories of cancer, age of older than 80 years, and when patients had left ED on deterioration were found to be independent predictors of death, with odd ratios of 2.2 (95% C.I.=1.1 to 4.6), 5.6 (95% C.I.= 2.5 to 12.6), and 3.9 (95% C.I.= 1.8 to 8.4), respectively.

Conclusions

One third of the study patients deteriorated when they were in ED stay, and earlier detection of deterioration were associated with less death, so we need to continuously monitor patients when they are still in ED stay. Attention must be exercised to patients who are older than 80 years, have histories of cancer or liver cirrhosis, have CPC score of 3 or 4. Calling criteria of MET can be applied to these patients to recognise deteriorations of clinical conditions. Since infections accounted for more than 40% of our study patients, quality improvement strategies for sepsis might decrease the possibly wrong decisions of ED dispositions.

AIRWAY ON THE RUN: RESPONDING TO TIME CRITICAL AIRWAY EMERGENCIES**ZARA BARSTOW, SARAH CHARLESWORTH**

ICU Outreach Clinical Nurse Consultant, Monash Medical Centre

Objective

To provide emergency backup service to anaesthetists in areas of the hospital outside of theatre, and high dependency areas for acute, time critical airway emergencies in both adult and paediatric populations.

Methods

Over the last 18 months at Monash Medical Centre (MMC), it was noted there had been a marked increase in the need for urgent anaesthetic assistance to be available outside of the operating suite. Historically the anaesthetist who carries the emergency pager was contacted for emergency management. However, they were also responsible for patients in theatre therefore they were not always immediately available for time critical airways.

Since the introduction of Medical Emergency Team (MET) calls at MMC in 2006, it has been identified that these patients often deteriorated further to the point that they need urgent anaesthetic assistance. A Code Blue was activated in this situation, which alerts the anaesthetists, but also takes other senior clinicians away from the clinical area unnecessarily. The concept of an Anaesthetic Alert was derived by senior anaesthetic staff to address both of these perceived needs for change.

Following approval from the Resuscitation Committee and Executive level, the Anaesthetic Alert was trialled for a 6 month period.

Identified staff requiring support outside of the operating suite or in an emergency situation could call the hospital emergency extension and activate an Anaesthetic Alert to garner timely assistance. Available anaesthetic staff and an ICU Outreach Nurse would then respond to the alert.

Data was collected pertaining to patient information, why the Anaesthetic Alert was activated and the outcome.

Results

During the trial, the Anaesthetic Alert was activated 41 times, of that, 9 were for paediatric patients. 16 Anaesthetic Alert's were activated during a MET call and a total of 34 calls or 87% resulted in the patient being intubated. Promising trial results and positive feedback has highlighted the essential continuation of this Anaesthetic Alert system. However, it was during the trial phase that alerts were being called outside of the set parameters instead of calling a Code Blue. These issues were followed up immediately and have been put down as expected hurdles during such a change in culture.

Conclusions

Based on the results of the trial, the service was deemed successful. However, it was modified slightly to include a direct speed dial to the anaesthetist in-charge. It has now been introduced permanently at MMC with plans to implement at other network sites.

MISSED OBSERVATIONS WITHIN THE CANCER PATIENT POPULATION

CHRISTINE BROWN, CHRISTINE MURPHY

Liaison Nurse Consultants, Peter MacCallum Cancer Centre

Objective

To improve accurate vital sign documentation for early detection of patient deterioration in a cancer care setting by ongoing education on the importance of vital signs and the implementation of the Adult Deteriorating Detection System (ADDS) chart.

Method

Peter MacCallum is a cancer specific hospital with 89 inpatient beds.

In 2009 the Liaison nurse service was introduced to PeterMac. An initial audit looking for missed MET calls showed an unexpectedly good result with only 1% of the inpatients meeting MET criteria without action. During the audit it was noted that not all five observations were documented each time, this may have potentially skewed the missed MET result. This led to repeating the audit to establish a baseline of missed observations within the inpatient population. All charts were reviewed over the previous 24hr period assessing if a complete set of the 5 vital signs had occurred, these being blood pressure, heart rate, respiratory rate, oxygen saturations and temperature.

The initial result found that 38% of observations had at least one observation missing, with respiratory rate being the most frequently missed at 68% of the time. A plan was put in place to implement ongoing education on the relevance of vital signs for early detection of deterioration. This audit has been completed every 6 months since 2009.

November 2011 Peter MacCallum introduced the two tiered ADDS chart.

Results

Over time the percentage of missing observations did not improve. However the frequency of respiratory rate assessment did. Oct 2010 missing observations increased to 42 %, with RR decreasing to being missed 42% of the time. July 2011 was the peak of missing observations showing a full set was not being taken 66% of the time with RR being missed in 52% of these cases. Education was not proving to be the sole resolution. The ADDS chart was implemented in November 2011. The December 11 audit showed the frequency of missing observations improved 41% of the time – the second best result thus far and RR improving to being missed in 39% of these cases, this is the best result so far.

Conclusion

The observation chart audits have indicated that there remains a lack of understanding on the implication of an incomplete set of observations has on patient outcomes. Ongoing education on management of the deteriorating patient and the use of the ADDS chart will continue.

The improvement in respiratory assessment is pleasing and could be attributed to the strong focus of the importance respiratory assessment during the education sessions, as well as the ADDS chart which places respiratory rate as the first observation at the top of the page.

OUR PERSPECTIVE: USABILITY AND TESTING OF THE NATIONAL OBSERVATION RESPONSE CHART PROJECT, CALVARY HEALTH CARE ADELAIDE

PHILIPA HILLIARD

ICU Educator, Calvary Wakefield Hospital

Although Calvary Wakefield Hospital and Calvary North Adelaide Hospital had already begun to develop an Observation Response Chart (ORC) it was felt that it would be a beneficial experience to participate in the National Observation Response Chart project. This was run jointly by the Australian Commission on Safety and Quality in Health Care (ACSQHC) and University Sydney. The chart we were given to trial was an Adult Deterioration Detection Chart (ADD) with an added blood pressure (BP) chart. During the project we observed nurses using the ADD chart and we provided the data for analysis.

Objectives

- To expose nursing and visiting medical officers to an ORC prior to implementing our own ORC.
- To give bedside nurses the opportunity to have input into the design and layout of an Adult Deterioration Detection Chart.
- To gain a better understanding of any issues we may face when implementing an ORC chart.

Method

Application to participate was made to ACSQHC. We were one of ten hospitals chosen nationally to participate. I was appointed site project officer for the two sites. Ethics approval was gained after initial reluctance. Prior to the trial commencing the charts had to be adapted to meet the sites requirements. This involved meetings with executive teams, ICUs and clinical managers. Education prior to the trial involved site visits, education packages and sample charts. Education was given to the nurses who were rostered for the trial shifts.

Observed nurses using the chart during observation times as per study requirements and end of shift debrief. All participants received an appreciation letter and free coffee vouchers.

Results

There was some reluctance from one ICU to participate in the ORC due to the potential for increased medical review from ICU to ward patients. For the trial period no medical reviews were required as a result of the ADD score. From the project officer's perspective the nurse who sought clarification on the ORC tended to be assistant nurses and enrolled nurses. Nursing students needed minimal assistance when using the chart. Determining the patients' usual BP caused some concern. The negative feedback included concerns that some senior nurses on duty thought the action required section would mean the senior nurse would be pestered with minor issues. Registered nurses stated that the ORC was taking away nurses clinical skills. Junior nurses stated they liked having clear direction and assisted in patient care.

Conclusion

From participating in the ORC trial as the site project officer, nursing staff used the charts relatively easily and overwhelming gave positive feedback. Education on the value of ORC and medical emergency criteria would be of value. Fears expressed that the chart would increase calls to medical officers did not eventuate for the trial period. Due to the difficulty in ascertaining the patients' usual blood pressure for the trial, our hospitals will not use the added BP chart despite understanding its value. No change to the Action required sections needed.

INTRODUCING THE MET CONCEPT INTO REGIONAL AREAS**FIONA MARGRIE, SALLY CAMERON**

Riverland Regional Health Service, Berri, SA

Objective

To develop and implement standard guidelines based on agreed best practice to be implemented for the management of retrieval/deteriorating patients.

Methods

The project was developed using methodology from a clinical practice improvement course.

Evidence of problem was identified through auditing and surveying staff. An external review of practices responding to retrieval/deteriorating patients also occurred.

Systems and process were identified and examined and a brainstorming session occurred to explore possible rationale for these systems/processes. These contributing factors were documented on a "Cause and Effect" diagram and voting each occurred as to which the highest priority to manage was. This was reported on a Pareto chart.

Plan/Do/Study/Act cycles then occurred to implement improvements. Each cycle is continually monitored for results.

Results

Audit results highlighted inconsistencies with management of the retrieval/deteriorating patient. The staff perception survey identified that 67% of staff were unaware of their role and responsibilities during a retrieval and that these patients were not consistently managed. The external review of practices identified the need for a "combination team" to be activated to respond appropriately with retrieval/deteriorating patients.

The first intervention was to modify the geographical layout of our resuscitation room. With the MET concept in mind the new room set up remained constant for a period of 1 month and at least 3 retrievals. After reviewing the feedback and consultation with staff, the project team made minor changes to the new set up.

The second intervention was the introduction of the MET concept. The project team identified roles based and each role was allocated a colour coded lanyard, which is issued at the commencement of each shift.

Roles are; Doctor – Yellow, Team Leader – Green, Airway Nurse – Blue, Circulation Nurse – Red and Scribe – Purple. Education of staff on each role occurred prior to implementation. Education included desk top and mock scenarios. This education continues.

Staff are required to document names for each role, each shift. In the month of December, documentation of the team occurred 61% of the time. In January documentation occurred 68% of the time.

Conclusions

The project has met our objective to introduce standardisation into the management of the retrieval/deteriorating patient. While in infancy, the project has had many positive outcomes and continues to improve. It has demonstrated that the MET concept can be adopted to rural health services where access to resources are often limited or not available.

PATIENT SAFETY ADDS UP: CLOSING THE LOOP ON CLINICAL DETERIORATION

GUY PEACOCK, JAYNE HARRIS

Southern Adelaide Local Health Network & Flinders Medical Centre, SA Health

Objective

To address the problems of suboptimal accuracy, appropriateness and completeness of vital sign observations coupled with high variation in escalation of care relative to early warning signs of clinical deterioration.

Methods

The staged introduction of an observation and response chart as the central observation chart across the Division of Medicine, Cardiac & Critical Care Services at Flinders Medical Centre was undertaken over a twelve month period commencing November 2010.

In order to effectively roll out the Modified ADDS Observation Chart within the context of limited resources and variable ward cultures a staged introduction was undertaken. Engagement of medical and nursing clinicians was secured from the outset. Extensive consultation was initiated with wards/units and clinical services four weeks prior to commencing the project. The project team were imbedded in the wards to coach and support staff and facilitate the resolution of any conflict resulting from the introduction of the chart and associated changes to clinical process. Investing time in 'meaningful' consultation secured high levels of engagement, ensuring ownership of the project at a local level.

Multidisciplinary education sessions were commenced prior to the launch to cover the broader Project and essential requirements of the ADDS chart. A Marketing Campaign was launched to coincide with the commencement of the education program.

Results

Incidents of escalation were reviewed and revealed that 90% of escalations resulted in changes to care plans. Preliminary comparisons between the ADDS tool and other track and trigger systems has revealed encouraging levels of sensitivity and specificity.

Conclusion

A more visibly standardised process pertaining to vital sign observation and documentation has lead to improvement in the completeness and accuracy of vital sign sets. Introduction of a standardised and transparent escalation process has resulted in medical review in a more timely fashion. The hurdle at this stage is achieving a uniformed timely response from Medical officers to requests for clinical review. Anecdotally we have observed a quantitative and qualitative improvement with regard to the verbal communication between professional groups.

The priority has been strong engagement of the multidisciplinary team in all aspects of the change process. The focus is on changing specific behaviours within the health care team, necessitating a close review of the associated antecedents and consequences. The broader focus is cultural transition in order to achieve sustainability in process and behavioural change. The evolution and crystallisation of lasting cultural change through the fostering of greater collaboration between disciplines within the processes of patient care is a more diffuse potential outcome.

MANAGING DETERIORATING PATIENTS IN A PRIVATE HOSPITAL**MS FARIDA SAGHAFI, DR MARGARET MATHERS**

Mater Hospital, Sydney

Objective

To implement a system for early recognition and appropriate management of the deteriorating patient in a private hospital.

Method

In 2009 a retrospective audit of medical records and staff surveys indicated the existence of barriers to the early identification of the deteriorating patient in a 200 bed acute care private hospital in Sydney, NSW. Further research into this process, highlighted a need for a detection system with a multiple level trigger and response appropriate to a private hospital with limited resources. At the time several systems were used by the public sector. Between the Flags (BTF) track and trigger was considered to be the most appropriate system in a private hospital due to its simplicity and was adopted in August 2010. This system consisted of a colour coded observation chart with two levels of clinical response: (i) Clinical Review by Resident Medical Officer for patients with observations in the yellow zone; (ii) activating Code Blue for patients with observations in the red zone. The implementation was accompanied with education of nursing and medical staff. Evaluation of the system demonstrated a number of problems: an excessive number of calls for Clinical Review for patients in the yellow zone and a reluctance to use Code Blue for patients in the red zone who had not arrested. As a result two further tiers of response were added: (i) Nurse team leader review for the stable and well patients in the yellow zone prior to initiating a Clinical Review call, (ii) Rapid Response for patient with observations in the red zone with the exception of cardiorespiratory arrests, loss of consciousness, and $BP \leq 70$ mmHg). These changes were accompanied by further education. The BTF system had not been used in any other private hospital in Australia.

Results

There has been a decrease in the number of cardiorespiratory arrests per hospital admission from 3% (2009) to 0.06% (2011). Implementation of BTF system has resulted in a reduction in the number of Code blue calls with at least one early sign of deterioration 8 hours prior to the event from 36% to 6.7%.

Conclusion

The BTF system was initiated by the Australian Clinical Excellence Commission and implemented in the public sector. Applying this system in a private hospital assisted the clinical nurses with the early recognition of deteriorating patients. It empowered nurses to initiate an appropriate medical review and timely medical management. As a result the number of cases requiring CPR within the hospital was significantly reduced.

IS THERE MORE THAN ONE WAY TO SKIN A CAT?**LYNN SALT, CLINICAL NURSE SPECIALIST – CRITICAL CARE OUTREACH;
JANE BILIK, PATIENT AT RISK NURSE****Objective**

To critique the differences in organisational delivery of Critical Care Outreach between two hospitals that are geographically close, yet are distinctly unique in operational deliverance.

Method

Collaborative shifts were worked by nurses from each hospital to assess and observe aspects of the outreach team and operational functionality of the delivery of their service.

Results

Interestingly, common themes that emerged addressed issues of not only differences in Outreach delivery but structural disparities and hierarchal challenges, these included –

- Referral processes
- Track and trigger systems
- Junior doctors role or an advisory role?
- Hierarchical issues (doctor – nurse relationships)
- Organisational challenges (funding, senior management support)
- ICU medical/intensivist support
- Compliance of EWS documentation
- Ongoing post-graduate education
- Hands on approach or an advisory role?

Conclusion

We found that despite the differences in our operational focus, both teams were thriving and nurses viewed Outreach as a source of support. Recent research has evaluated nurses' opinions of Outreach and found that nurses feel more confident in caring for the deteriorating ward patient once Outreach became involved. They stated that they viewed the Outreach nurse as a skilled professional who through the sharing of critical care skills and through the modelling of skills in preventing patient deterioration, were more able to identify deterioration and put an appropriate plan of action in place.

We found an array of differences in approaches to our Outreach teams including referral systems, hands on approach or an advisory role and the medical and managerial support available. However we concluded that there is not one set criteria that must be followed for success to be evident.

In conclusion, there are many models of Outreach in current clinical practice and different models should be tailored towards the individual institution. Of paramount importance is the support and advice that Outreach nurses are able to communicate to the ward nurses. This is of tremendous benefit to both nursing staff and more importantly patients in this quest to identify and treat the deteriorating ward-based patient.

A SHARP DECREASE IN ADVERSE EVENTS AFTER INTRODUCTION OF A RAPID RESPONSE SYSTEM IN A LARGE UNIVERSITY MEDICAL CENTRE IN THE NETHERLANDS

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Introduction

Implementation of Rapid Response Systems (RRS) was initiated in the early summer of 2011 in response to guidelines by the Dutch Health Inspectorate and the accreditation of the Joint Commission International. Since there is increasing evidence on the afferent limb being the most critical component of a RRS and delay is correlated to worse outcome, we conducted a post implementation study in a university centre. Wards were randomised to measure the Modified Early Warning Score (MEWS) 'on demand' compared to three times daily. We report the data for all patients who underwent a cardiac arrest or unplanned ICU admission during the three post implementation months.

Objective

To analyse if introduction of a RRS influences the number of Adverse Events (AE) during a post-implementation study.

Methods

Using a cross-sectional design, the prevalence of adverse events was analysed during a three months (September until November 2011) directly after introduction of a RRS.

In June 2011, 4 nurses per ward were trained in the use of a RRS and a standardised presentation became available for education on the wards which could be used by these trained nurses to inform the rest of the team. Physicians were notified using email and presentations given during handover meetings. To facilitate implementation, personal communication together with pocket cards, posters and emails were distributed containing the protocol.

During the study months, all Rapid Response Team (RRT) calls were registered and vital parameters (including MEWS and physician notifications) were registered up to 48 hours prior to the event and feed back was provided to the wards.

Results

Sixty-four AEs occurred during the study months. Prevalence of AEs decreased from 12.2 to 7.9/1000 admissions, median age was 63 years (IQR 48-72). Indicators for severity of disease (APACHE-IV median 69 (IQR 56-89) and outcome including hospital survival (65%) all remained stable. The number of RRT calls increased from 10.7 to 14.3/1000 admissions. Patients were taken less often to the ICU after RRT consultation in November compared to September (66 versus 32%).

Seventy-seven percent (49) of AE patients had a MEWS \geq 3 and in 31 (63%) patients, this occurred more than 12 hours prior the event. The physician was called in 61 (46%) of measurements with MEWS \geq 3 and errors in calculation of the MEWS were present in 385 (71%) of all measurements.

Conclusion

The implementation of a RRS resulted in immediate reduction of number of AEs. An explanation could be the increased dose of RRT while compliance to protocol was incomplete.

NEONATAL MET: MORE THAN MEETS THE EYE**ZSUZSOKA KECSKES^{1,2}, LEANNE EHRLICH¹, ALISON MOORE¹, JENI WILLIAMS¹**¹ Department of Neonatology, Canberra Hospital² Australian National University Medical School, Canberra, ACT**Background**

Few hospitals caring for children have a Paediatric as well as Neonatal ICU, posing a problem for the care of deteriorating neonates or children in the hospital or surrounding region. At Canberra Hospital, deteriorating neonates or high risk deliveries are attended by NICU staff; however, communication of these events happened ad hoc. The care of deteriorating infants and children in the hospital occurred either in the Emergency or Paediatric Departments with little specialised communication path, training or governance. The aim of the ACT NETS service was to respond to neonatal (up to the age of 8 months) MET calls, to streamline the communication and to assess the feasibility of caring for children up to the age of 2 years in a NICU.

Method

A partnership was formed between NSW NETS to initiate a neonatal MET and retrieval service with the aim to implement a system to respond to critically ill infants in the hospital and the ACT in time critical manner with appropriately trained staff. A system to call for neonatal and infant METs was devised, as was standardised data collection system. In addition, a plan to stabilise and care for children up to the age of 2 years before retrieval in the NICU at Canberra Hospital was formed.

Results

Since 2010, 10 nursing staff members (the Neonatal MET team), all neonatal registrars and consultants underwent paediatric life support training. A centralised phone number and data collection form was developed to facilitate communication. Paediatric early warning systems were implemented across the hospital. The Neonatal MET team responded to 75 calls outside of normal delivery attendance. 19 of these were to infants older than 1 day, up to the age of 10 months. With additional training, development of procedures and clinical guides the NICU was able to care for 32 paediatric patients. Eleven children were retrieved by NETS before transfer to a tertiary PICU, 21 children received all of their ICU care in the NICU before transfer to a paediatric ward. 101 neonatal retrievals were done during the last 2 years from the ACT and surrounding region.

Conclusion

The neonatal retrieval and MET system has proved to be a timely and safe service. In a hospital without a paediatric ICU it is possible for a NICU to develop a MET system for infants deteriorating in the hospital or presenting to the Emergency Department.

LEANING HEALTHCARE FACILITIES TO IMPROVE RESPONSE TO CLINICAL DETERIORATION: EVIDENCE FROM A CANADIAN HOSPITAL

JALILA JBILOU, SALAH-EDDINE EL ADLOUNI

Université de Moncton (NB) Canada

Objective

Identify drivers and challenges to the implementation of lean management in an emergency room (ER) to reduce clinical deterioration

Methods

Step 1: Scoping review of the literature published between 2005 and 2011 on lean management in ER. Explored databases: PubMed, EBSCOHost and ISIWeb of science. Extracted dimensions: Human dimension, Organisational dimension, Population dimension, and Systemic dimension.

Step 2: A qualitative study based on semi-structured interviews with all the medical and non medical staff involved in the ER to explore how lean management may help ensuring that patients who deteriorate receive appropriate and timely care.

Results

Our results show that Lean management is a clinical and organisational strategy that helps reducing clinical deterioration. However, implementing Lean Management in an ER has to be prepared in terms of training and human resources engagement. Moreover, the engagement of the top-management to support and invest in Lean management sustainability is a critical condition for its success. Computerisation of health records and of patients' data improves patients' classification at admission and surveillance. There are also specific factors that are tightly related to the organisational climate (team work, interdisciplinary, and effective collaboration between clinicians and managers), the evaluation culture (audit, feedback and practice/management performance assessment) and specific skills for healthcare providers (education and training in rapid response and clinical multitasks management). This process has to be adapted to the professional and organisational dimensions and has to be supported by electronic devices.

Conclusions

Implementing lean management in ER to reduce clinical deterioration has to be undergone through a research-consultation process that involves managers and clinicians. We present a tool that provides useful information on how to systematically monitor observable physiological abnormalities (such as blood pressure, consciousness, respiratory frequency, cardiac frequency, and oxygen saturation) that are observable prior to serious adverse events such as cardiac arrest, unanticipated admissions to intensive care and unexpected death.

THE WHEN, WHERE, WHY AND IMPACT OF RAPID RESPONSE CALLS IN A METROPOLITAN HOSPITAL

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Objective

To monitor and evaluate the effectiveness of the Rapid Response Call (RRC) system at a Metropolitan Hospital.

Method

The appointment of a Critical Care Liaison Nurse (CCLN) Service in 2009 enabled a revitalisation of the RRC system in recognising and responding to deteriorating patients. This included an updated RRC data form enabling the collection of greater detail including; patient demographics, when and why the call was made and immediate outcomes. The establishment of a comprehensive database has enabled extended data analysis including monthly and annual reporting; mortality data, time trends and review of RRCs for preventable adverse events.

Results

Data was available for 1395 RRC for the 24 month period, 580 in 2010 and 815 in 2011. Of these, 1177 were MET calls and 218 Code Blues. There has been a significant decrease in Code Blues as a percentage of RRC calls during 2011 at 12% from 21% in 2010 ($p < 0.01$).

- **When** – The distribution of RRCs revealed weekdays were busier than weekends, with Tuesday the busiest day. 49% of RRCs occurred during 08:00 to 16:00.
- **Where** – Medical wards account for the majority of RRC (58%) 29% in surgical wards and 13% in other clinical areas.
- **Why** – The most common reason for RRCs are alteration in circulation (33%), closely followed by changes in conscious state (27%).
- **Immediate Outcomes** – The Majority of patients (54%) remained on the ward with an active management plan, 20% were transferred to a critical care area (ICU – 12% & CCU – 8%) and 12% died within 30min or remained on ward with a palliative management plan.
- **Hospital Mortality** – The in-hospital mortality data for all patients who had a RRC was 27% compared to the standard hospital mortality of 2% for admitted adult inpatients.

Conclusion

The steady increase in MET calls is due to the acceptance by clinical staff of RRCs as a key element in responding to the deteriorating patient. There has been a significant decrease in Code Blues with the rise in METs over the past 2 years.

Patients who meet MET call criteria are known to be a high risk group and the increased hospital mortality rate for these patients confirms this. The establishment of a MET review process has created target specific educational programs. The increase in RRC has had an impact on ICU workload and resulted in additional Intensivist and ICU registrar cover during the peak periods.

KYOTO MODEL INTER-HOSPITAL RAPID RESPONSE SYSTEM FOR PERINATAL MATERNAL DETERIORATION**YOSHIHIRO YAMAHATA, BON OHTA, TAKAO SUZUKI, KAORU KOIKE, JO KITAWAKI, KAZUHIRO IWASAKU, IKUO KONISHI, HIROSHI FUJIWARA**

Kyoto Prefectural University of Medicine

Objective

For safe delivery, emergency physicians and obstetricians try to organise the inter-hospital rapid response system together in Kyoto prefecture, Japan.

Methods

In Japan, the perinatal maternal mortality rate is very low, but the rate in Kyoto prefecture is higher than the average rate of other prefectures. Usually delivery will be held at a private obstetrician's hospital in Japan. Obstetricians in Kyoto felt a sense of crisis and took contact with emergency physicians. We took hands together and started a project for the safe delivery. A project was taken place with three steps. For the first step, we made the consensus about the primary response and the transfer criteria (= Inter-hospital Rapid Response System) for the maternal deterioration. The consensus is based on the guideline for obstetric hemorrhagic crisis which was published by Japan Society of Obstetrics and Gynecology, and the suggestion for the maternal safety 2010 which was published by Japan Association of Obstetrics and Gynecology. For the second step, we tried to establish the training course for obstetricians based on the consensus. For the third step, we held the training course and researched the effect of the training course by using a questionnaire and a written test.

Results

Obstetricians and Emergency physicians of university hospitals and public hospitals, and a member of the Kyoto association of obstetrics met together and made the consensus over six months. Emergency physicians of university hospitals were accustomed to the simulation training, so we designed the training course (see the agenda of the course, Figure 1). We held the course on October 2011, with eighteen participants. The average point of a written test is increased from 69 to 97 after the course. Most improved questions are about anaphylaxis and oxygenation. Overall satisfaction for the course is 4.89 of 5 (97.8%), satisfaction for the scenario simulation is 4.95 of 5 (99.0%).

Conclusions

This trial was achieved the purpose on three points. 1) Emergency physicians and obstetricians in a same area could share the sense of crisis together and have the consensus about the maternal critical situation. 2) We could establish the training course of which is suitable for obstetricians. 3) Through the training course, result of the written test was improved. For the next step, we should check the retention of knowledge and research the behaviour modification of participants.

RESPONDING APPROPRIATELY TO PATIENTS IN DETERIORATION (RAPID) IMPLEMENTATION FROM AN ORGANISATIONAL PERSPECTIVE

JENNY LUMSDEN, JANETTE HENDERSON

Melbourne Health – The Royal Melbourne Hospital

Objective

“To evaluate the implementation of the RAPID (Responding Appropriately to Patients In Deterioration) project from an organisational perspective”

Methods

Using a project management approach, a further component of the hospital’s rapid response system was implemented for deteriorating patients before they triggered the well-established Medical Emergency Team (MET) call.

Stage 1 – Pilot Program 2009 – Following involvement in the Health Roundtable SAFE Patient Care Program, a pilot study was conducted on a busy acute surgical ward with a high patient turnover and high patient acuity. Staff designed observation and ISBAR charts, and a comprehensive education program was conducted.

Stage 2 – Extend Pilot 2010 – Following initial evaluation, the pilot was extended to two different clinical areas – medical oncology and cardiothoracics. The project was rebadged as RAPID, and a team was formed to take it to organisational-wide implementation.

Stage 3 – Implementation 2011.

- RAPID interfaced with the standardised paging and postoperative orders projects.
- All clinical areas of the hospital were evaluated for inclusion with consideration given for specialised areas, e.g. Mental Health.
- The observation chart was refined and audited.
- A comprehensive communication plan was developed and implemented
- An organisational procedure that included the components of RAPID and the interface with MET was developed.
- Implementation of RAPID occurred in May.

Stage 4 – until end 2011 – Sustainability and Evaluation. Ongoing evaluation and suggestions for improvement occurred. The resuscitation committee takes responsibility for RAPID from 2012.

Results

- A pre and post-implementation audit revealed an improved documentation of reportable limits from 0% to 20%, and an increased compliance of observations undertaken as planned from 75% to 100%.
- Nursing staff reported greater confidence and assertiveness when escalating patient deterioration.
- The MET call rate decreased by 28% during the initial pilot, although this was not repeated following the organisational-wide implementation.
- Identified problems included lack of medical engagement (not listing or signing reportable observations), and that the default physiological parameters were too close to MET criteria.

Conclusions

Implementing changes to multidisciplinary clinical practice across an organisation requires careful planning, high level engagement, multidisciplinary involvement with incremental implementation and ongoing process improvement. The MET call rate did not decrease with this project but this is thought to reflect the greater overall awareness of patient deterioration and the call criteria being too similar. Ongoing review and improvement is required.

RESPONDING APPROPRIATELY TO PATIENTS IN DETERIORATION (RAPID) IMPLEMENTATION FROM AN EDUCATIONAL PERSPECTIVE

CAROLINE COOPER-BLAIR, JENNIFER BURKE

Melbourne Health – The Royal Melbourne Hospital

Objective

To provide a structured interactive education program to facilitate the implementation of RAPID.

Methods

A three staged education program commencing with a pilot program, an intermediate stage and the organisational wide implementation.

Assess – Wards were scoped for the suitability of completing a pilot education program based on the number of Medical Emergency Team (MET) calls, patient acuity and the motivation of the ward staff.

Plan: A three-month pilot education program was developed for a busy, acute general surgical ward as part of the Health Roundtable SAFE Patient Care Program in 2009. Ward staff were instrumental in developing other related components such as a new observation chart and ISBAR handover pads. A ward resource folder and training matrix was prepared.

Implementation: Small group orientation to RAPID was completed using low-fidelity group scenario training. The focus of the scenario training was the reinforcement of the ABCDE approach to patient assessment, communication using the ISBAR tool, clear escalation paths and the principles of Crisis Resource Management (CRM).

Evaluate: Participants in the low-fidelity group scenario training completed pre and post evaluation indicating positive learning. Nursing staff reported improved assessment skills, empowerment and confidence when communicating with other staff.

The pilot project education program was introduced to two other wards in 2010 and a multidisciplinary RAPID Project team was formed. In addition, an interdisciplinary RAPID Instructors Course was developed to train the nursing and medical Education Teams. Organisational wide education began in April 2011 and was completed May 2011.

Results

The results of the education program clearly indicated an improvement in observations and documentation of reportable parameters, communication and empowerment for nursing staff to escalate care. RAPID is now embedded into our daily practice and education is included in orientation and our BLS Train the Trainer program. The major challenge was around documentation of specific reportable parameters.

Conclusions

The project achieved its objectives and has strengthened our ability to assess and respond to patients in clinical deterioration. New knowledge included the importance of tailoring the scenarios to meet the staff needs, the utilisation of CRM principles and the escalation of care. Changes as a result of the program include the use of ISBAR and the introduction of baseline reportable parameters as a safety net for all our patients.

**AWARENESS AND RECOGNITION OF DELIRIUM
IN A METROPOLITAN TEACHING HOSPITAL****RENATA MISTARZ, ANDREA DORIC, ANN WHITFIELD, DAVID CHARLESWORTH**

ICU Liaison Nurse, Box Hill Hospital, Victoria

Delirium in its many forms has a strong association with negative outcomes including increased mortality, prolonged hospital stay, higher hospital costs and persistent cognitive impairment. Despite its clinical impact, delirium remains poorly recognised by bedside clinicians. A number of studies have demonstrated that delirium is poorly detected by bedside nurses and medical practitioners in the general ward setting.

Delirium is not often regarded as an important clinical syndrome and many clinicians are not aware that in elderly patients, delirium may be the sole manifestation of life threatening illness such as sepsis or myocardial infarction. It is this lack of appreciation of delirium as a potential medical emergency that delirium is often overlooked and misdiagnosed in the hospital setting.

The objective of this project was to identify the level of general awareness and knowledge of delirium amongst nursing, medical and allied health professionals. The project also examined the methods used by clinicians to detect and manage delirium, in addition to identifying barriers to the management of delirium. This survey based study was observational and without intervention.

The survey was distributed to all nurses, medical and allied health clinicians working in general medical and surgical wards at a large Melbourne metropolitan hospital and it was distributed to approximately two hundred staff over a two week period. The survey response rate was 73% with the majority of responders being either medical or nursing staff. The results show that although the majority of participants agreed that delirium is a common problem, only 17% were familiar with the use of delirium detection tools and the majority relied upon observation and visual cues to detect delirium. The majority of responders believed that lack of time, staff and knowledge are barriers to the prevention of delirium in their clinical practice.

In conclusion, this project reveals that there is a place for education of nursing, medical and allied health staff to address the lack of knowledge of prevention, recognition, early detection and management of delirium.

CHANGE FOR THE BETTER: INTRODUCTION OF A CLINICAL DETERIORATION FRAMEWORK**ANDREA DORIC, DAVID CHARLESWORTH**

Eastern Health

Eastern Health is one of Melbourne's largest metropolitan public health services, providing a range of emergency, medical and general healthcare services to a diverse community. With a rising cardiac arrest rate and unplanned patient flow not meeting the desired standards, a current state analysis across Eastern Health's acute sites was undertaken. This involved a comparison of current rapid response systems and data at each site. Although both Angliss and Maroondah hospitals had a MET response in place, they were quite different systems with different MET criteria, responders and resources. Box Hill Hospital, on the other hand, had only a Code Blue response.

A point prevalence study was conducted at each acute site examining patients' observation charts in one 24 hour period, focusing on the frequency of observation measurement and the incidence of missed Medical Emergency Team (MET) calling criteria during this period. The point prevalence study revealed a percentage of patients with missed MET criteria of 16.7% at Box Hill, 14.6% at Maroondah and 2.7% at Angliss Hospital.

In order to improve the detection, recognition and response to the deteriorating patient across Eastern Health an expert advisory committee was formed and a clinical deterioration framework was developed over a period of 6 months. This framework included the development and introduction of observation and response charts for paediatric, obstetric and neurology patients, together with the introduction of the Adult National Observation Chart. Escalation of care processes and resuscitation planning have been standardised across the network, together with resuscitation equipment and processes. The Eastern Health MET system will be launched at Box Hill Hospital in the near future. A standardised database for MET and Code Blue calls has been implemented across Eastern Health to enable monitoring, planning and benchmarking.

With the introduction of the clinical deterioration framework, it is anticipated that Eastern Health will see a significant reduction in the cardiac arrest rate, improved survival rates, decreased length of stay and improved patient flow.

SIMULATED LEARNING IN INTENSIVE CARE EMERGENCIES (SLICE): DOCTORS AND NURSES WHO WORK TOGETHER, TRAIN TOGETHER

SARAH WEBB

Royal North Shore Hospital, Sydney

Objective

To improve management of Intensive Care Emergencies through the introduction of non-technical skills in multidisciplinary training.

Method

A multidisciplinary simulation program (SLICE) was implemented over a two year period. A pre-survey and post survey of staff perceptions of medical emergency management was issued to all staff in order to ascertain the benefits of the project. The program, which is ongoing, has been funded for eight courses. Each course admits eighteen multidisciplinary participants; twelve senior intensive care nurses, four residents, one registrar and one consultant. As a result each scenario uses the normal team mix encountered in usual clinical practice. A pre-course learning package was issued detailing the project's core principles:

- Managing self
- Managing others
- Problem solving

The courses consisted of six hours of high fidelity simulation involving a series of typical Intensive Care medical emergencies. The faculty comprised of a multidisciplinary team, from the same Intensive Care Unit making the course both cost effective and sustainable. During each scenario, the observing participants were issued debriefing guides to promote identification and familiarisation of the non-technical principles. Immediately after each scenario an extensive debrief was performed in order to highlight non-technical aspects of the scenario that impacted on the event management. Debriefing and among participants, observers and faculty facilitated reflective practice and allowed a platform for future management strategies to be explored.

Results

Over the course of the project to date, several themes were reflected in every course:

- The need to overcome interdisciplinary lack of communication
- Importance of clear role delineation to optimise timely emergent care
- Problems associated with surplus of team members during emergency situations

Conclusions

Participants of the SLICE program reported raised awareness of the non-technical barriers to the effective management of medical crises. While the project is ongoing, the feedback from the courses has been promising and all participants have reported it was worthwhile. The most evident benefit of the course has been multidisciplinary learning. It is clear that both nurses and doctors appreciate learning each others strengths/weaknesses and how to communicate with each other. We look forward to developing and evolving the project with our new premise: We work as a team, we train as a team.

A COMPARISON OF THE RESPONSES (PATTERNS OF ACTION) OF NURSES WORKING IN MEDICAL AND SURGICAL WARDS TO PATIENTS WHOSE CONDITION IS DETERIORATING

**JON VIKTOR HAUGOM¹, DAG FRODE KJERNLIE¹, TERJE ØDEGÅRDEN²,
INGER JOHANSSON^{2,3}**

¹Hospital Innlandet – Gjøvik, Norway

²Gjøvik University College, Norway

³Karlstad University, Karlstad, Sweden

Hospital Innlandet, Gjøvik, is a hospital in Norway with 170 beds. In 2008 a project group was set up, and in June 2009 the hospital established a Medical Emergency Team (MET). Before its establishment information meetings and comprehensive training were given to doctors and nurses. Two years after the introduction of MET statistics showed that nurses in medical wards used the team less (8/1000 inpatients) than nurses in surgical wards (11/1000). Before MET was implemented, doctors in medical wards were more sceptical to the system than doctors in surgical wards. In Norway the MET system is not prioritised in official patient guarantee campaigns.

As a part of a Master's degree study a questionnaire was sent out to register the experiences and attitudes regarding MET of nurses working in medical and surgical wards.

Method

A cross-section study of 74 nurses (47 medical and 27 surgical, response rate 99%).

A questionnaire developed by Jones et al.* was used to chart the advantages, applicability and obstacles in relation to MET. In addition 12 new questions were formulated, five of which were demographic (in all 29 questions). The questionnaire was checked for language and tried in pilot tests. Collection of the data was carried out in May 2011 and analysed with descriptive and analytic statistics. Additional written comments were analysed by deductive content analysis.

Results

There was strong agreement among the nurses that MET contributed to prompt help when they were worried about a patient, and could prevent a minor problem becoming a major one. Nurses in the surgical and medical wards felt that co-operation with MET was good, easy and effective, and a major plus for the patients. The criteria used when calling for assistance were easy to use, but it was described as a problem to know how ill the patient really was. There were shown to be significant differences where nurses in medical wards regarded their patients as being more complex than the nurses in surgical wards did, and were less inclined to believe that MET could help them treat ill patients better.

Conclusion

MET gives greater security for nurses in the ward. Nurses in medical wards have a stronger tendency to consult the duty doctor before calling in the MET. On the basis of experiences and attitudes, nurses in medical wards have less confidence in the effect of MET than those working in surgical wards.

MEWS AND LACTIC ACID AS PROGNOSTIC FACTOR OF MEDICAL EMERGENCY TEAM ACTIVATION

YOUN-KYUNG JUNG¹, JURY LEE¹, MYONGJA HAN¹, JIYOUNG AN¹, HYUN-SUK SEO¹, JINMI LEE¹, YUJUNG SHIN¹, SUNHUI CHOI¹, JUNG-SUK SON¹. JIN WON HUH^{1,2}, SANG-BUM HONG^{1,2}

¹ Registered Nurse, Medical Emergency Team, Asan Medical Centre, Korea

²The Department of Pulmonary and Critical Care Medicine, Asan Medical Centre, Korea

Objective

Modified Early Warning Score (MEWS) is developed for the early detection of critical ill patients at risk of deterioration and serum lactate is a potentially useful biomarker of septic patients. Our goal was to evaluate the role of MEWS and lactic acid for predicting the outcome of medical emergency team (MET) activation.

Methods

At the Asan Medical Centre (2743 beds) in Korea, MET was composed of special nurses, medical ICU residents, fellows, staffs. MET activation was done by Electronic Medical Record (eMR) monitoring or general ward nurse or resident call.

MEWS of 435 patients activated by MET was calculated. Lactic acid level was scored as 1 (<4 mmol/l), 2 (2-4 mmol/l), and 3 (> or = 4 mmol/l). And we added these two scores (LA-MEWS). Finally, we compared the MEWS to LA-MEWS for predicting the outcome of MET team (ICU transfer)

Results

Of the 435 enrolled patients, 264 (60.7%) patients were male. Mean age was 60.3 (\pm 14.87) years. Common cause of activation was 46.4% respiratory distress. Although critical care was done by MET at general ward, 28.5% patients were transferred to ICU. ROC curve analysis was used to determine the ability of MEWS and LA-MEWS to predict the outcome of MET activation. The areas under the ROC curve were 0.61 (95% confidence interval (CI), 0.56-0.67; $p = 0.000$) for MEWS and 0.67 (95% confidence interval (CI), 0.57-0.77; $p = 0.002$) for LA-MEWS. A MEWS cutoff value of 4.5 correlated with sensitivity and specificity values of 61.3 and 52.7%, respectively. A LA-MEWS cutoff value of 4.5 correlated with sensitivity and specificity values of 82.9 and 40.4%, respectively.

Conclusion

LA-MEWS is higher sensitivity than MEWS for predicting the outcome of MAT activation. However, we need the development of more accurate scoring system because these scoring system was too low specificity.

OUTCOMES IN PATIENTS WITH SEPTIC SHOCK FOR LACTATE OR BLOOD PRESSURE AT GENERAL WARD BY MEDICAL EMERGENCY TEAM

JEONGSUK SON, SUNHUI CHOI, HYUNSUK SEO, YUJUNG SHIN, JINMI LEE, MYUNGJA HAN, JIYOUNG AN, JURI LEE, YUNKYUNG JUNG¹, SOHEE PARK, JIWON RYU, JINWON HUH, SANG-BUM HONG²

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Objective

To compare outcome in patients with septic shock by increased lactate group or low blood pressure group or combined group who received early goal directed therapy (EGDT) in general ward by Medical Emergency Team

Methods

This study was a retrospective observation study of patients presenting septic shock in general ward (March.2008 ~ November.2011). Patients were included if patients had more than two of systemic inflammatory response syndrome criteria, and lactic acidosis(≥ 4 mmol/L), or hypotension (systolic blood pressure (SBP) ≤ 90 mmHg despite adequate fluid resuscitation). The patients were classified into 3 groups : lactate (≥ 4 mmol/L) with normotension (group 1), lactate < 4 mmol/L and SBP ≤ 90 mmHg (group 2), and lactate ≥ 4 mmol/L and SBP ≤ 90 mmHg (group 3). We measured success rate of EGDT goals for 6 hours and 28 day mortality.

Results

A total of the 421 patients was enrolled, 11 (2.6%) in group 1, 258 (61.3%) in group 2, and 152 (36.1%) in group 3. There was no difference in base-line characteristics including APACHE II score (24.9 ± 9.3 vs. 24.4 ± 8.9 vs. 26.1 ± 8.6 , $p=0.19$) but SOFA score was different (7.7 ± 3.2 vs. 10.6 ± 3.6 vs. 11.3 ± 3.7 , $p=0.004$) among 3 groups. EGDT goal success rate was not different among groups (45.5% vs. 60.1 vs. 57.9%, $p=0.60$). The 28 day mortality was significant difference among groups (27.3% vs. 24.8% vs. 36.8%, $p=0.035$).

Conclusion

The 28 day mortality in patients with septic shock was different among increased lactate group or low blood pressure group or combined group, so it might be needed more detailed definition of septic shock in future consensus.

LEVERAGING COMPETENCIES TO CREATE A SUSTAINABLE DEDICATED RAPID RESPONSE TEAM

MARGIE GORALSKI STICKLES

University of Maryland Medical Centre

Objective

Evaluate strategies that maximise resources and the potential of clinical nursing practice for a dedicated Rapid Response Team.

Methods

Because of increasingly constrained resources, restriction of resident duty-hours, and severity of illness of hospitalised patients, creating a sustainable, free standing Rapid Response Team (RRT) continues to challenge organisations. Members of this team typically have other patient responsibilities and are assigned to the RRT as an additional duty. An academic medical centre created a novel, dedicated RRT by combining allocated full time equivalents (FTE) with an existing critical care transport service. In December 2011, ample staffing patterns were established from an enhanced complement of critical care support staff in order to identify a critical care nurse and a critical care technician as dedicated RRT responders for 24/7 staffing and on call coverage.

Results

Budgetary constraints posed a considerable challenge for acquiring the number of FTE needed to provide 24/7 coverage. The leadership of our Critical Care Transport Team developed an innovative staffing strategy by adding additional FTE to the existing team without the need to staff a completely independent RRT. Comparing this model to that of an independent 24/7 RRT, an estimated \$82,000 per team is averted, with this fiscal year annualised savings of an estimated \$111,000 in salary. On-call requirements per staff member are significantly reduced by the shared responsibility, with 100 percent of staff members reporting increased job satisfaction.

Conclusions

The widespread acceptance by nurses, physicians and administrators of RRT has been well established. Providing a specialised team as a resource to the primary health care team facilitates early detection of deterioration and has been shown to decrease cardiopulmonary arrests, decrease unplanned transfers to higher levels of care, and increased staff satisfaction. Competing regulatory and financial priorities present challenges when implementing this important patient safety program. This large, urban, academic medical centre recognised the value of Rapid Response teams but also remained cognisant of the financial impact and the potential increase in workload.

Since its initiation in 2006, this Critical Care Transport Team has engendered trust and collaboration and has increased nurse satisfaction across the organisation. By melding the critical care transport team with RRT and leveraging the existing competencies, trust and collaboration, the transition to a new service model has been well received in all care areas. Initial data demonstrate an exponential awareness and utilisation of the RRT, with 140 requests over the first 2 months of 24/7 coverage.



NOTES

7

7-9 May 2012

A large area of the page is filled with horizontal dotted lines, providing a space for writing notes.

THANK YOU

The Australian Commission on Safety and Quality in Health Care would like to thank all of our partners, sponsors and exhibitors. Without their contribution, an event like the 7th Annual Conference on Rapid Response Systems and Medical Emergency Teams would not be possible.

Special thanks must go to our Platinum Partner, the Clinical Excellence Commission and the New South Wales Ministry of Health. We also acknowledge our Silver Partner, Philips Healthcare, and our Bronze Partners, Covidien and SoteraWireless/Cerner.

The professional relationship between our partners is sincerely valued. We look forward to seeing these relationships continue to grow and prosper in the future.

We also thank all of our exhibitors and encourage all delegates to make use of their Conference Passport – visit each of the booths, have your passport stamped and enter the draw for some great prizes.

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THE NEW SOUTH WALES MINISTRY OF HEALTH**

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Our award-winning products are used by doctors and nurses directly on the ward to help deliver improved patient outcomes and allow hospitals to reap the clinical and financial benefits of safer care.

We take advantage of simple and effective IT, such as touch-screen mobile technology, as well as making good use of a hospital's existing IT investments.

T: +61 (0)2 8923 2552
www.patienttrack.com

**TALEB MEDICAL**

Taleb Medical primarily provides One-Stop-Ventilation-shop for equipment and Consumables (Masks & Ventilation Hoods) used across all areas of the respiratory care spectrum including Neonatal to Adult, Invasive and Non-Invasive, Stand alone CPAP/BIPAP, Dedicated & or Combined Ventilators for Homecare, Sleepcare (OSA), ICU, MRI, HDU, A&E, CT, Physio, Transport, Disaster and/or Mass Casualty Preparedness units & M.A.S.H. We also provide best-in-class Niche products including The World's most capable & robust hand held Capnograph/Oximeter and Cardiac Science Defibrillators etc...

T: +61 (0)3 9330 4940
E: Sales@talebmedical.com
www.talebmedical.com

**VERATHON MEDICAL**

Verathon® Medical provides innovative easy to use instruments to help health care providers. Verathon's GlideScope® Video Laryngoscope is designed to offer a consistently clear view of the airway, enabling quick intubation. Easy to learn and use, GlideScope® covers all patient sizes and is available in both single use and reusable system configurations.

T: +61 (0)2 9006 1272
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www.verathon.com

**ZOLL MEDICAL**

ZOLL Medical develops and markets medical devices and software solutions that help advance emergency care and save lives, while increasing clinical and operational efficiencies. With products for defibrillation and monitoring, circulation and CPR feedback, data management, fluid resuscitation, and therapeutic temperature management, ZOLL provides a comprehensive set of technologies that help clinicians and lay rescuers treat victims needing resuscitation and critical care.

T: 1 800 605 555
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AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE

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