The Simpson Centre for Health Services Research
innovation | intervention | implementation

UNSW SYDNEY | Australia's Global University

Ingham Institute Applied Medical Research

LIVERPOOL HOSPITAL
Intensive Care Unit

RAPID RESPONSE - YEAR IN REVIEW

KEN HILLMAN

13th International Conference on Rapid Response Teams and Medical Emergency Teams
Chicago, USA; 11-12 May 2017

I would like to acknowledge Michael DeVita for his help and sharing his expertise in the preparation of this presentation

I have the following conflicts of interest

- **National Health and Medical Research Council grants:**
  - 2 grants evaluating the MET system – approximately AUD $1 million
  - 1 grant recently awarded to evaluate the impact of a state-wide programme in reducing cardiac arrests and other adverse events in Emergency Departments AUD$1 million (NHMRC $471,409; Heart Foundation and Clinical Excellence Commission financial and in-kind contributions $543,000)
- **Sotera Wireless**
  - Share options

Mortality is a poor proxy for quality of patient care

RRS should also focus on the causes for poor quality of care as well as responding to it

BMJ 2016;353:i2750

COMPARISON OF NEWS WITH SINGLE MET CRITIERIA

- NEWS ≥ 7 compared to single MET criteria
- Some MET values have higher sensitivity (ie correctly identifies) than NEWS
- All MET values have lower specificity – (ie picks up more patients)

CCM 2016;44:2171

COMMENTS

- Single centre study
- More mistakes with NEWS scores
- NEWS misses life-threatening situations, eg seizures, airway obstruction which do not have numbers
- Disempowers nurses by medically proscriptive score
- Ignores “concern”
- Most important feature of ‘triggers’ - **CHANGE ORGANISATIONAL CULTURE**
- All trials and meta-analysis showing improvement in mortality, cardiac arrests have used **MET** not **NEWS**

CARDIAC ARREST AND MORTALITY TRENDS

- 2002-2009
- >9 million admissions
- 82 NSW hospitals
- IHCA – in-hospital cardiac arrests

  IHCA – related mortality

  Hospital mortality

MJA 2014;201:167-170

CARDIAC ARREST AND MORTALITY TRENDS

- RRS uptake over 8 years
  32% → 74%
- IHCA – 52% decreased rate
- IHCA related mortality – 53% decreased rate
- Mortality 23% decrease

ALL O<0.01

MJA 2014;201:167-170

- Reduced incidence IHCA
- 5% related to improvements in delivery of CPR
- 95% related to prevention of IHCAs

MJA 2014;201:167-170

SINGLE CALL MET SYSTEM vs TWO-TIERED SYSTEM WITH HOME TEAM INVOLVEMENT

- ↑ Clinical reviews
- ↑ Rapid response calls
- No decrease in cardiac arrests or deaths

Resuscitation 2015;17:77-82

STATEWIDE STANDARDISED IMPLEMENTATION OF A RRS IN 280 HOSPITALS

- Majority had already introduced a RRS
- No change in the rates of cardiac arrests and deaths.
- **ALSO** – reduction in low mortality DRG rates by 20% (P<0.001)

Resuscitation 2016;107:47-56

TRACK AND TRIGGER FOR END-OF-LIFE

One-third of all RRS calls are for patients at the end-of-life

CCM 2012;40:98

“TRACK”

CriSTAL TOOL

Age, frailty, age care home predicts elderly patients near the end-of-life

BMJ Support Palliat Care 2015;5:78

NEXT STEPS

RESPONSE

Honest and empathetic discussions with patient and care givers

Empowering patient/care givers to make genuine choices

EARLY WARNING SYSTEM FOR PALLIATIVE CARE

- Intervention EWS – 36 variables predicting mortality and potential palliative care intervention
- 206 patients randomised
- Increased ACD in intervention group
- Lower transfer to ICU

CCM 2016;44:2171

Intensive Care Med (2016) 42:608–610
DOI 10.1007/s00134-016-4271-1

EDITORIAL

Finally time for rapid response systems to be well MET in Europe?

Markus B Skrifvars[1*] and Ignacio Martin-Loeches[2]

A start towards standardisation in the EU?

DIVERSIFICATION

- Difficult Airway Response Team (DART)
  - Johns Hopkins
  - Airway management failures
  - Anesthesiologists, ENT, trauma, emergency medicine and risk managers

1. Inconsistent communication processes, including paging issues and delays
2. Lack of knowledge among providers in non-OR areas on when and how to activate airway support
3. Limited accessibility and availability of surgical emergency airway cart from the OR
4. Inconsistent availability of additional experienced attending physicians
5. Lack of clear roles during difficult airway events
6. Lack of familiarity with specialized airway techniques
7. Concerns regarding residents' training and experience

Mark, Herzer et al. Anesthesia-Analgesia 2015; 121;127

DART: PLAN AND RESULTS

- In situ simulations for teamwork skills at outset
- Results:
  - 2008-13: 360 adult events
  - 23 emergent surgical airways
  - 62 stabilized and transported to the OR
  - NO deaths

Multidisciplinary pulmonary embolism response teams and systems

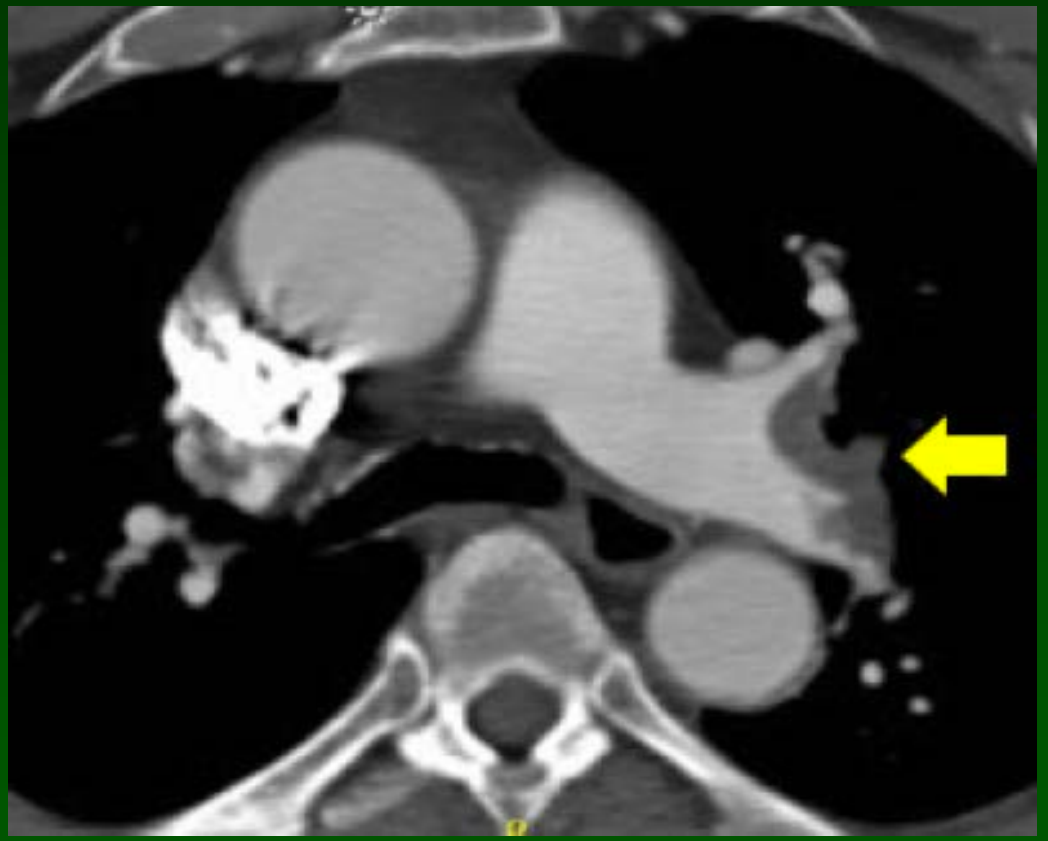
Peter P. Monteleone[1], Kenneth Rosenfield[1], Rachel P. Rosovsky[2]

- PE management is becoming increasingly complex due to advancing technologies
  - tPA, catheter directed thrombolysis, percutaneous thrombus aspiration, thrombectomy devices, ECMO
  - Critical situation requiring rapid assessment, interdisciplinary care planning, interdisciplinary personnel participating in care, excellent communication and resource utilization

Cardiovascular Diagnosis and Therapy
2016;6(6):662-667

PERT

- Teaming up with teams
  - ICU or ED team for patient identification and stabilization
  - Transport team
  - Therapeutic team to determine course of action and implement it
  - Post treatment care



Cardiovascular Diagnosis and Therapy 2016;6(6)

Nursing and Medical Perceptions of a Hospital Rapid Response System

New Process But Same Old Game?

Clint Douglas, PhD, RN; Sonya Osborne, PhD, RN; Carol Windsor, PhD, RN; Robyn Fox, PhD, RN; Catriona Booker, PhD, RN; Lee Jones, BSc(Hons); Glenn Gardner, PhD, RN

J Nurs Care Qual
Vol. 31, No. 2, pp. E1–E10

628 surveys of RNs and MDs

- 97% Patients complex
- 95% RRS provides useful help
- 90% Response is timely
- 93% allows them to seek help when worried
- 63% RRS calls taught them management skills
- 87% Disagree RRS degrades skills

RN AND MD PERCEPTIONS: SAME OLD…

- 14% RNs believed calls were due to ineffective medical management
- 5% MDs believed calls were due to ineffective nursing care
- 70% of both MD and RN would call patient's attending first for patient who has MET criteria!
- 22% MD and 15% RN would not call a RRT if they could not reach the attending
- 17% RN and 8% MD felt they would be criticised

Sarani B, Sonnard S, Bergey MR, et al. Residents ad perceptions of the impact of a medical emergency team on education and patient safety in an academic medical school. Crit Care Med 2009;37(12):3091-3096.

Davies O, DeVita MA, Ayinla R, et al. Barriers to activation of the rapid response system. Resuscitation 2014;85:1152-1161.

PATIENT EXPERIENCE

Consumer participation in early detection of the deteriorating patient and call activation to rapid response systems: a literature review

Jane Vorwerk and Lindy King

Journal of Clinical Nursing, 25, 38–52, doi: 10.1111/jocn.12977

- Consumer activated calls rare: < 2.5/month
- Increased staff activated calls
- Decreased ICU transfer, Non-ICU IHCA, mortality
- Reasons for consumer calls:
  - Communication and perceived deterioration
- Overwhelmingly positive consumer responses
  - Felt safer, more empowered, higher satisfaction
- Improved consumer education by nurses