

Early Recognition of the Deteriorating Patient

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compass

The Problem:

The reduced ability of health care workers to identify sufficiently early enough that a patient is clinically deteriorating, and take appropriate action.

As a result the ability to intervene is either missed or critically delayed.

This may be associated with sub-optimal management and treatment, and a potential adverse outcome for the individual



Underlying issue

The failure to detect hypoxia early to prevent multiple organ dysfunction

Solution

Identify patients early in the time piece



Primary Objective

Establish a process that enables early recognition of the deteriorating patient in pilot areas to potentially improve outcomes

Out of Scope

- Medical Emergency Team and resuscitation issues
- On going management of the acute episode
- Clinical areas not identified as pilot wards



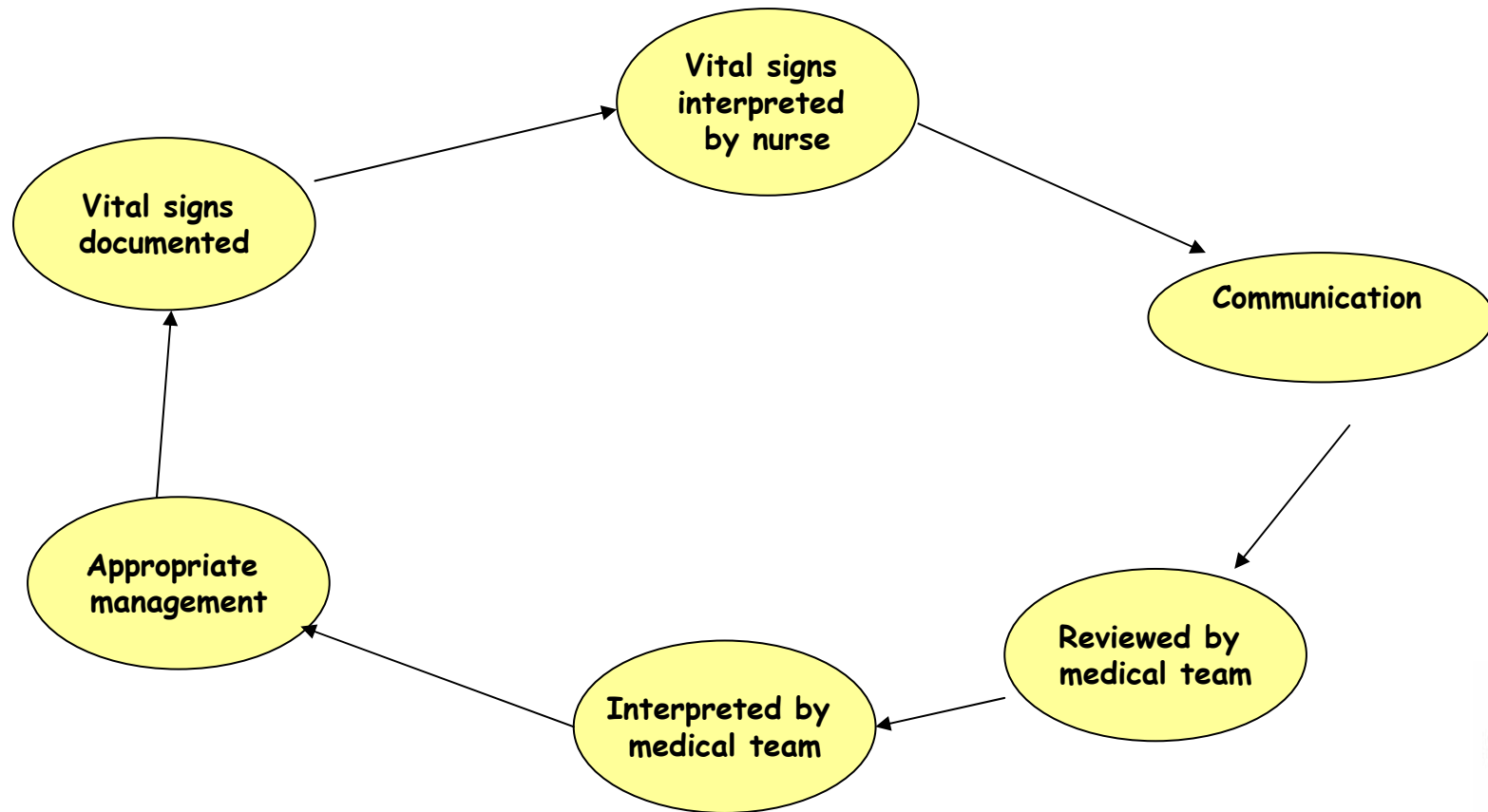
Project Planning

- Scoping of the project
- Timeline established
- Stakeholder involvement

- Focus groups, information sessions
- Literature review
- Snapshot audit



In a perfect world!



Issues

- Documentation
- Interpretation
- Escalation



Vital Signs Performed?

62 patients, 1 600 observations

Vital sign frequency (readings/day; IQR)

Overall	4.0	(2.0,5.5)
Blood pressure	5.0	(3.5,6.7)
Heart rate	4.5	(3.2,5.8)
Respiratory rate	1.0	(0. 0,1.6)*
Temperature	4.5	(3.0,5.5)

* $p < 0.0001$

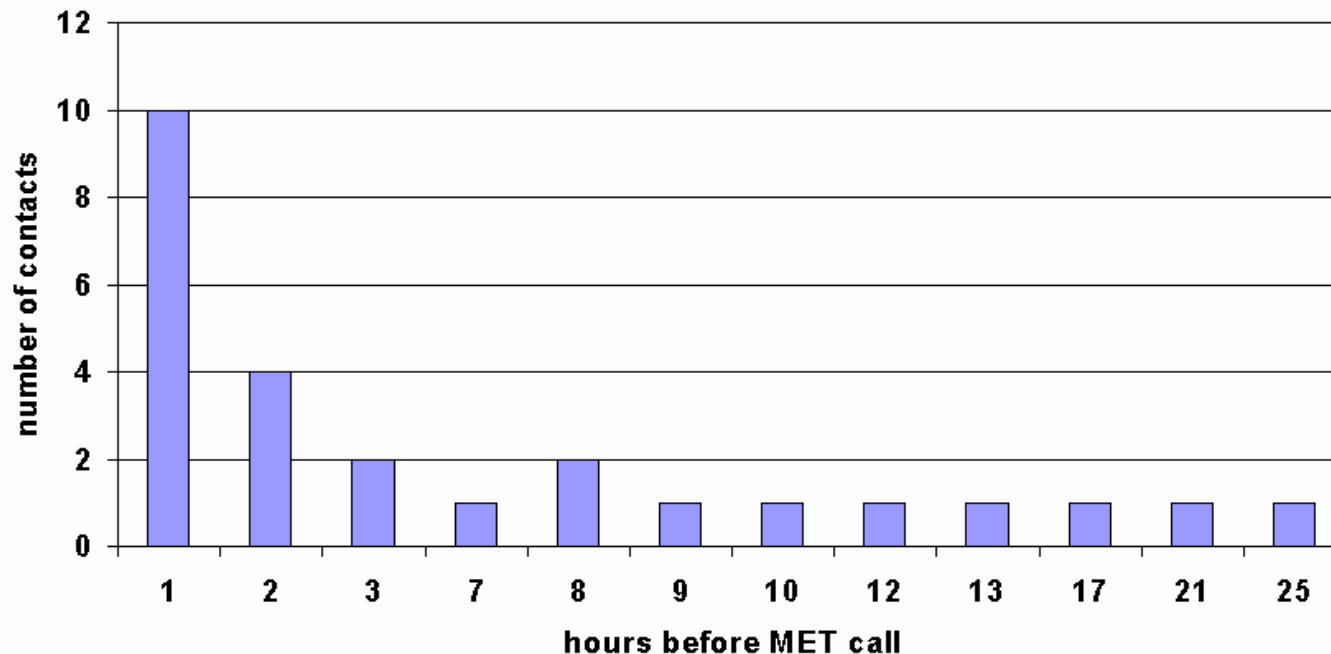
Van Leuvan C, Mitchell I. Critical Care & Resuscitation. 2008; in press



Vital Signs Interpreted?

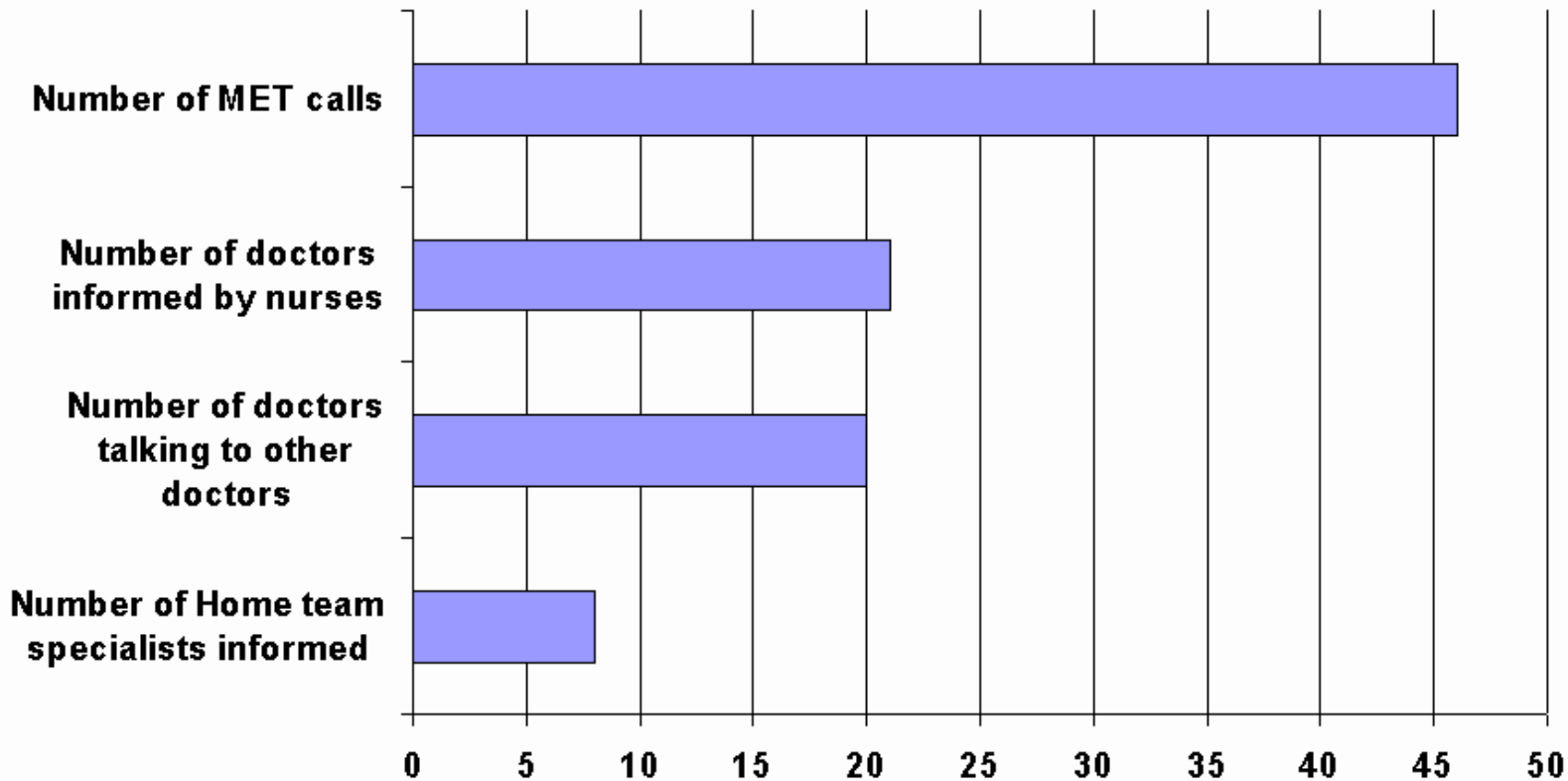
- Long delays before doctors contacted
- 40% MET calls preceded by MET criteria but not acted upon

When was the FIRST contact made prior to the MET-call by a nurse?



Vital Signs Communicated?

Who is informed 12 hours prior to a MET call?



Preparation

- Design of new general observation
- Develop Modified Early Warning Score Policy
- Design interdisciplinary education program "COMPASS"
- Completion of education by nurses and JMOs



Modified Early Warning Score (MEWS)

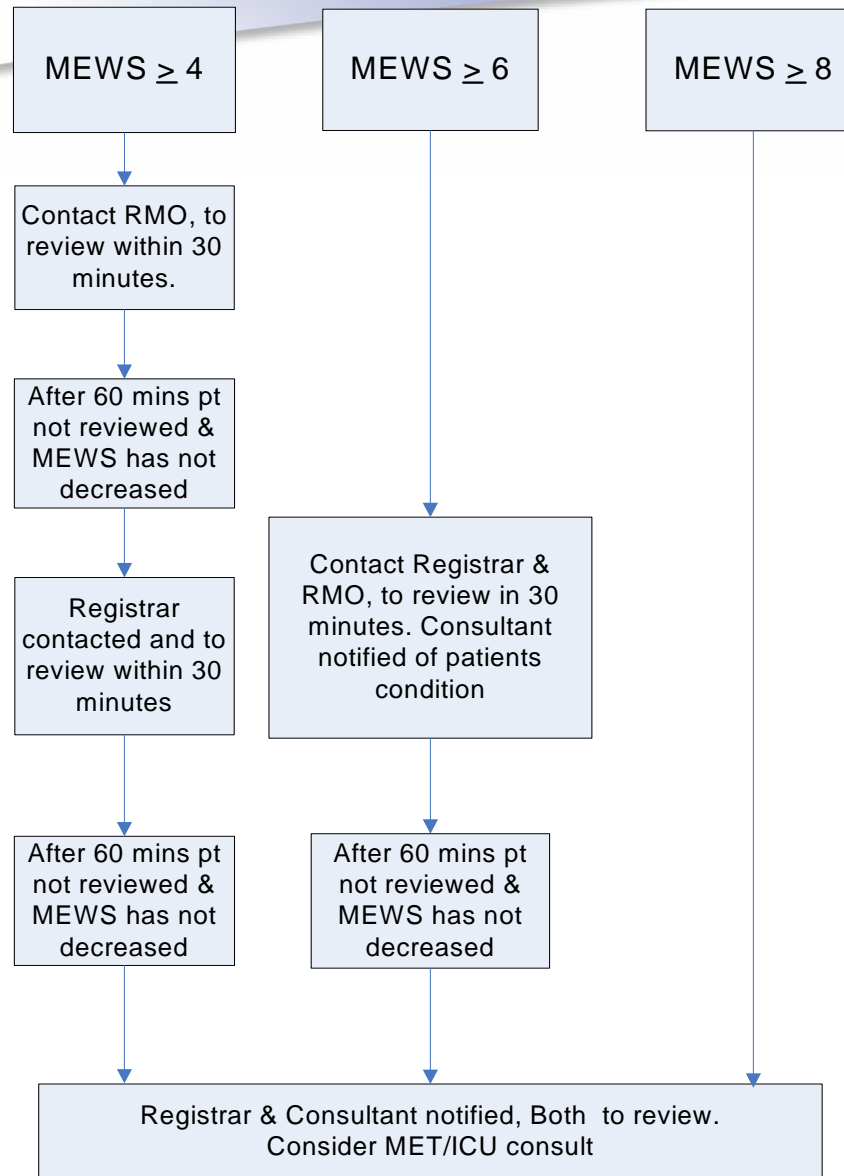
- Scores a set of observations based on any abnormalities
- Takes into account the usual BP for the individual patient
- Triggers:
 1. medical review
 2. change in frequency of observations
 3. who is to escort patient





Usual SBP→		190	180	170	160	150	140	130	120	110	100	90	80	
Current BP	200s	0	0	1	1	2	2	2	3	3	4	5	5	
	190s	0	0	0	1	1	1	2	2	3	3	4	4	
	180s	0	0	0	0	0	1	1	2	2	3	3	4	
	170s	1	0	0	0	0	1	1	2	2	3	3	3	
	160s	1	1	0	0	0	0	0	1	1	2	2	2	
	150s	1	1	1	0	0	0	0	0	1	1	2	2	
	140s	2	1	1	1	0	0	0	0	0	1	1	1	
	130s	2	2	1	1	0	0	0	0	0	0	0	1	
	120s	2	2	2	1	1	0	0	0	0	0	0	0	
	110s	3	2	2	2	1	1	0	0	0	0	0	0	
	100s	3	3	3	2	2	2	1	1	0	0	0	0	
	90s	4	3	3	3	2	2	2	2	1	1	0	0	
	80s	MET 4				MET 3				MET 2			1	0
	70s												MET 1	





COMPASS[®] Education

- Back to basics
- Interdisciplinary
- Interactive CD
- 100 page manual
- Online quiz
- 3 hour face to face
- Practical scenarios



COMPASS[®] Education

- Flexible for clinicians
- 3 hour release time not a full day
- Doctors and nurses are being taught the same
- Numerous methods of getting message across (lecture, reading, interactive CD, scenarios)
- Empowers nurses
- Supports junior staff
- Challenges nurses to use computers



Communication

- **S**ituation
- **B**ackground
- **A**ssessment
- **R**ecommendations



Study Periods

Control: Feb-June 2006

Study of four wards under normal operating conditions

Pilot: Feb-June 2007

Study of four wards after introduction:
Education, observation chart and MEWS

Study population

All patients > 18 years

Excluded palliated patients



Results

2006- 1196 patients (430 random)

2007- 996 patients (322 random)



Documentation of vital signs

- ↑ 37% to 97% documentation rate for RR
- ↑ Resp rate documentation 2.7 to 4.7 /day ($p < 0.0001$)
- ↑ O₂ Saturation 4.3 to 6.8 / day ($p = 0.02$)



Adverse Events

- ↓ Unplanned ICU transfers from 21 to 5 ($p=0.005$)
- ↓ Cardiac Arrests from 4 to 0 ($p=0.03$)
- ↓ Deaths from 1.89 % to 0.81% of admissions ($p=0.05$)



Patient Review

↑ MET callouts 27 to 51 ($p < 0.001$)

↓ Time to review 110 to 45 minutes

↓ Consumer complaints 14 to 6



COMPASS Evaluations

900 participants responded:

96 % found the package flexible for clinicians

97% found it useful for their professional development

96 % said it would make a difference in their everyday work



What do the staff think?

“ It has made us think again” *Ward nurse*

“ I was so proud of my staff - one new grad was looking at all the information about the patient, trying to work out why they were deteriorating”
Nurse Manager

“It helps us prioritise who we need to see first” *Intern*



Lessons

- Dedicated Project Officer
- Designate a Clinical Lead and a Sponsor
- Project planning (Scope Document)
- Senior executive support
- Stakeholder involvement



Communication

- Progress reports to all relevant stakeholders
- Quarterly newsletters
- Consultants-meetings (formal & informal), letters, wine & cheese!
- Posters
- Team meetings
- Steering Committee meetings
- Presentations "ad nauseum"





Challenges

- Inability to release staff for a full day training
- Engaging medical staff
- Competing against other projects
- Cross territory differences



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Change Management

- Stakeholder involvement from the start (Change comes from within)
- "What's in it for me?"
- Gearing sessions to the audience
- Persistence and patience
- Evidence, Evidence, Evidence
- Plant the seed and watch it grow...



Change Management

"Tell me and I'll forget, show me and I may remember, involve me and I will understand"
Chinese proverb



Characteristics of Project Managers

- Readiness to accept ownership of a situation
- Persistence
- Positive attitude
- Good planning and organisational skills
- Ability to delegate authority
- Ability to tailor communication to an audience
- Ability to establish and maintain focus
- Ability to evaluate before judging
- Willingness to escalate



Early Recognition of the Deteriorating Patient

Currently:

- Rolled out to the two hospitals
- Installed education program in ANU Medical School
- Installed education program in UC Nursing School and CIT
- Trial in rural setting, Dubbo Base Hospital
- Establishing an ongoing program and sustainability

Interest

- Australian Commission on Safety and Quality in Health Care
- NSW Health (GWAHS, Clinical Governance, CEC)
- Northern Territory
- Private Sector



In Conclusion...

Simple techniques

+

back to basic education

can have a positive impact



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McKay, H., Mitchell, I., VanLeuvan, C., McCutcheon, C.,
Avard, B., Berry, R., Lamberth, P., Slater, N. & Antoniou, B.

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