INTRODUCTION OF A MEDICAL EMERGENCY TEAM at RCH

The Patient Safety Committee (formerly 'Adverse Events Committee') and its Resuscitation Subcommittee plan to introduce a **Medical Emergency Team** on Monday 2nd September 2002.

The purpose of MET is to provide rapid assistance in the pre-arrest emergency management of a patient as deemed necessary by any nurse or doctor. It is hoped to decrease the number of cardio-respiratory arrests in wards and departments and reduce the number of unplanned admissions to ICU. The MET service will also replace 'Code Blue' which traditionally has been (erroneously) regarded as indicated only for cardio-respiratory arrest.

Evidence collected over the past three years suggests that it is necessary for our hospital to radically change the way in which assistance is provided in emergency situations. The perceived reasons for **not** being able to obtain assistance in time were inadequate staff numbers, lack of ability by staff to recognise serious illness and lack of empowerment to get assistance, or a combination of these factors. The staff involved were from all levels of nursing and medical staff.

We want to empower any nurse to request assistance without necessarily consulting with seniors or doctors and to empower any doctor to request assistance without consulting with seniors. The staff on the ward/department will be requested to notify the bed-card unit after calling MET.

We have constructed a list of guideline criteria (below) which will help guide clinicians to decide when to call MET. These criteria have been constructed from the upper and lower limits of normal values, from observation of sick children at RCH and by extrapolation from call criteria found useful in adult hospitals. Each unit may modify these criteria for any individual patient.

An increase in workload by the units staffing MET has been anticipated. We plan to refine the call criteria by regular review of calls (open to all medical and nursing staff) and to have a co-ordinated programme of education for staff in the recognition of serious illness.

The MET will be comprised of an ICU registrar/consultant and nurse, an Emergency Department registrar/consultant and nurse and the specialties medical registrar. These five members will attend a call immediately and will be expected to give or organise any emergency treatment dictated by the patient's condition. Then, they **must** consult with the bed-card unit members to conjointly decide further management and follow-up. They must record all details of calls and their outcomes, and will be responsible to the ICU consultant on duty. MET members will support the callers of MET, irrespective of whether the call was, in retrospect, appropriate or not.

MET may be summoned by dialling '777'. The switchboard operators will be instructed to:

1) Issue a loud-speaker MET call (eg 'MET team ward X'), in place of 'Code Blue'
2) Page MET team members via beepers and PDT screens (in ICU and Emergency)
3) Phone ICU directly (as has been done routinely for 'Code Blue')

The overhead enunciator is due for decommission and will not be used.

Medical and nursing staff who are not members of MET or members of the bed-card unit will be asked not to attend, thereby reducing the unnecessary and sometimes counterproductive agglomeration of personnel which now occurs in response to 'Code Blue'.

Several adult hospitals, but no paediatric hospitals, have published their experience with MET services - with beneficial effects for patients. At Dandenong Hospital [(1)] the incidence of unexpected cardiac arrests was reduced from 3.77/1000 hospital admissions to 2.05/1000 which after adjustment for case mix was associated with a 50% reduction in the incidence (odds ration 0.50, 95% confidence interval 0.35 to 0.73). At Campbelltown Hospital [(2)], the incidence of in-hospital death decreased slightly from 0.74% to 0.65% and the incidence of cardiorespiratory arrest decreased slightly from 0.08 to 0.07%.

1. Buist MD, Moore GE, Bernard SA, Waxman BP, Anderson JN, Nguyen TV. Effects of a medical emergency team on reduction of incidence of and mortality from unexpected cardiac arrests in hospital: preliminary study. BMJ 2002; 324: 1-6.
2. Salamonson Y, Kariyawasam A, van Heere B, O'Connor C. The evolutionary process of medical emergency team (MET) implementation: reduction in unanticipated ICU transfers. Resuscitation 2001; 49: 135-141.

CRITERIA FOR ACTIVATION OF MEDICAL EMERGENCY TEAM

any ONE or more of:

1. Nurse or doctor *worried* about clinical state

2. Airway threat

3. Hypoxaemia: **SpO_2 <90% in any amount of oxygen**

SpO_2 <60% in any amount of oxygen (cyanotic heart disease)

4. Severe respiratory distress, apnoea or cyanosis

5. Tachypnoea

Age	Respiratory rate
Term-3 months	>60
4-12 months	>50
1-4 years	>40
5-12 years	>30
12 years+	>30

6. Tachycardia or bradycardia:

Age	Heart rate too slow	Heart rate too fast
Term-3 months	<100	>180
4-12 months	<100	>180
1-4 years	<90	>160
5-12 years	<80	>140
12 years+	<60	>130

7. Hypotension:

Age	BP (systolic)
Term-3 months	<50
4-12 months	<60
1-4 years	<70
5-12 years	<80
12 years+	<90

8. Acute change in neurological status or convulsion

9. Cardiac or respiratory arrest

Notes

- Some of the values for respiratory rate, heart rate and blood pressure are outside the normal ranges for age: they represent concerning levels that may indicate serious illness, and that require expert review.
- It is also important to look for **worsening trends** in vital signs and report these.
- If a child fulfils any of these criteria, notify the treating medical team and the MET service (via switchboard on 777).

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