

ECG Education for Nurses

Who, What and Why?

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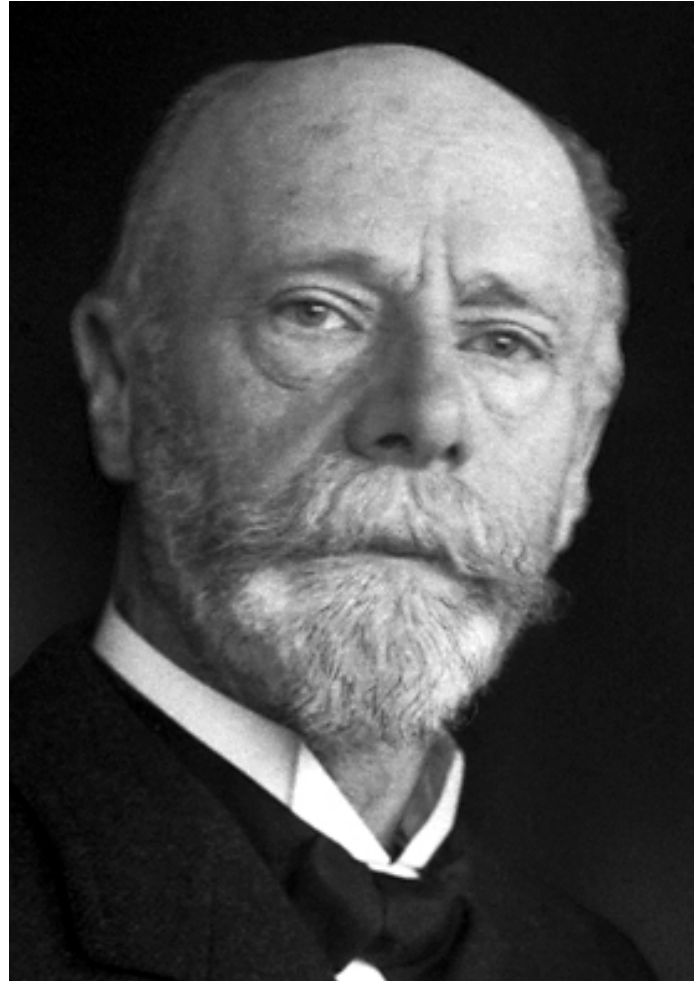


Firstly...

- All the credit (or the blame) goes to...

Mr Willem Einthoven

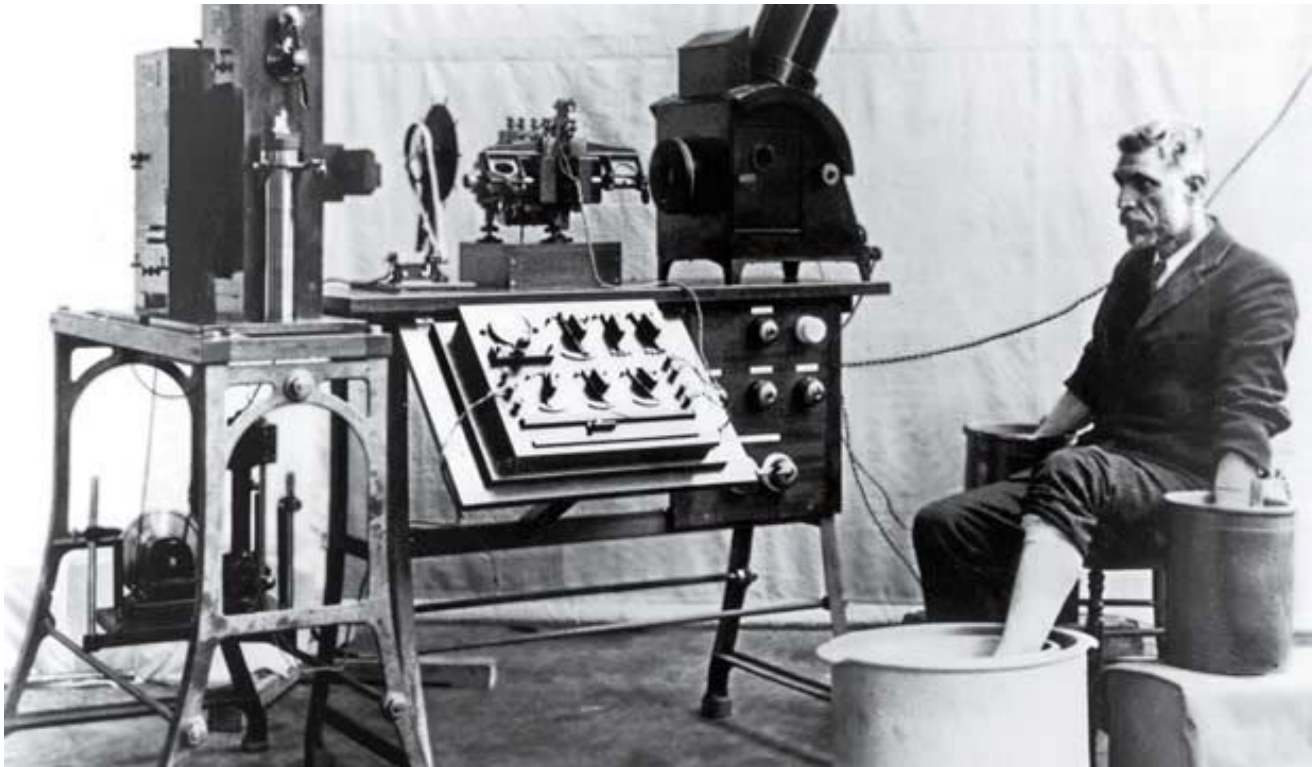
(21 May 1860 – 29 September 1927)



Mr Willem Einthoven

(21 May 1860 – 29 September 1927)

- At the turn of the 20th century, Mr Einthoven carries out the world's first recorded ECG.



21st Century



Let's be thankful.



Who needs to know?

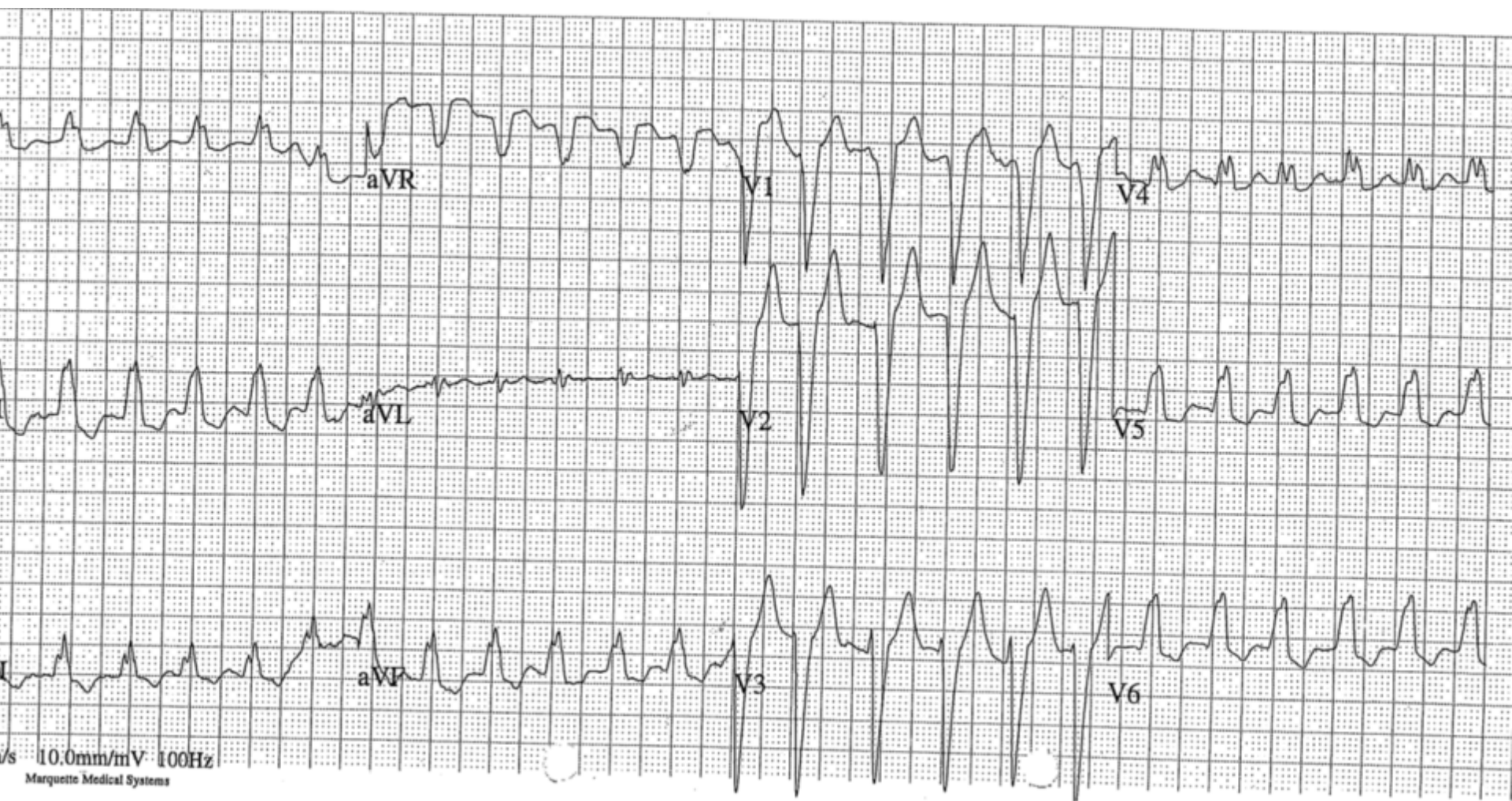
- *Everybody* with patient contact, regardless of clinical area. *(My opinion)*



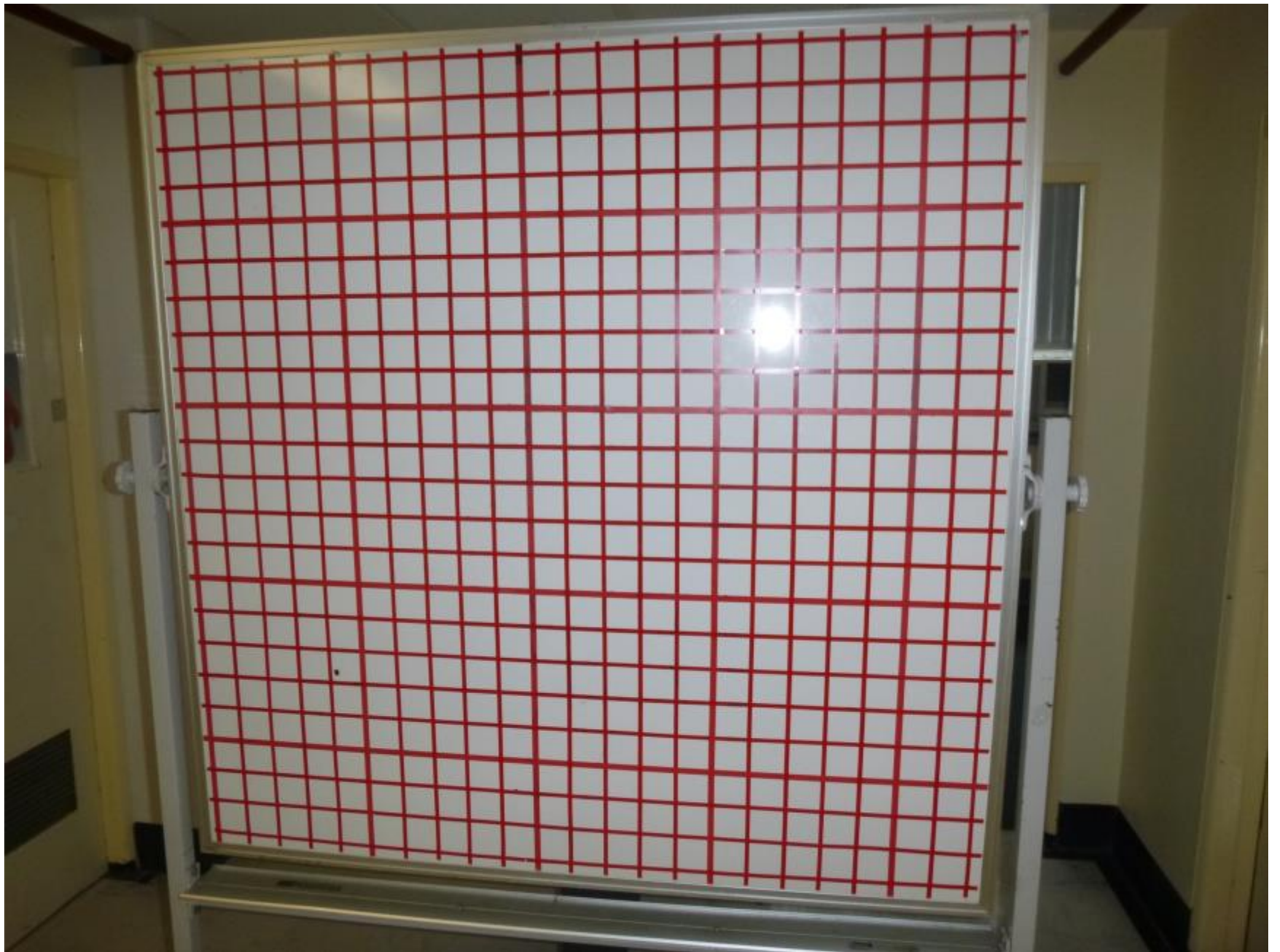
2004



ATHENS 2004

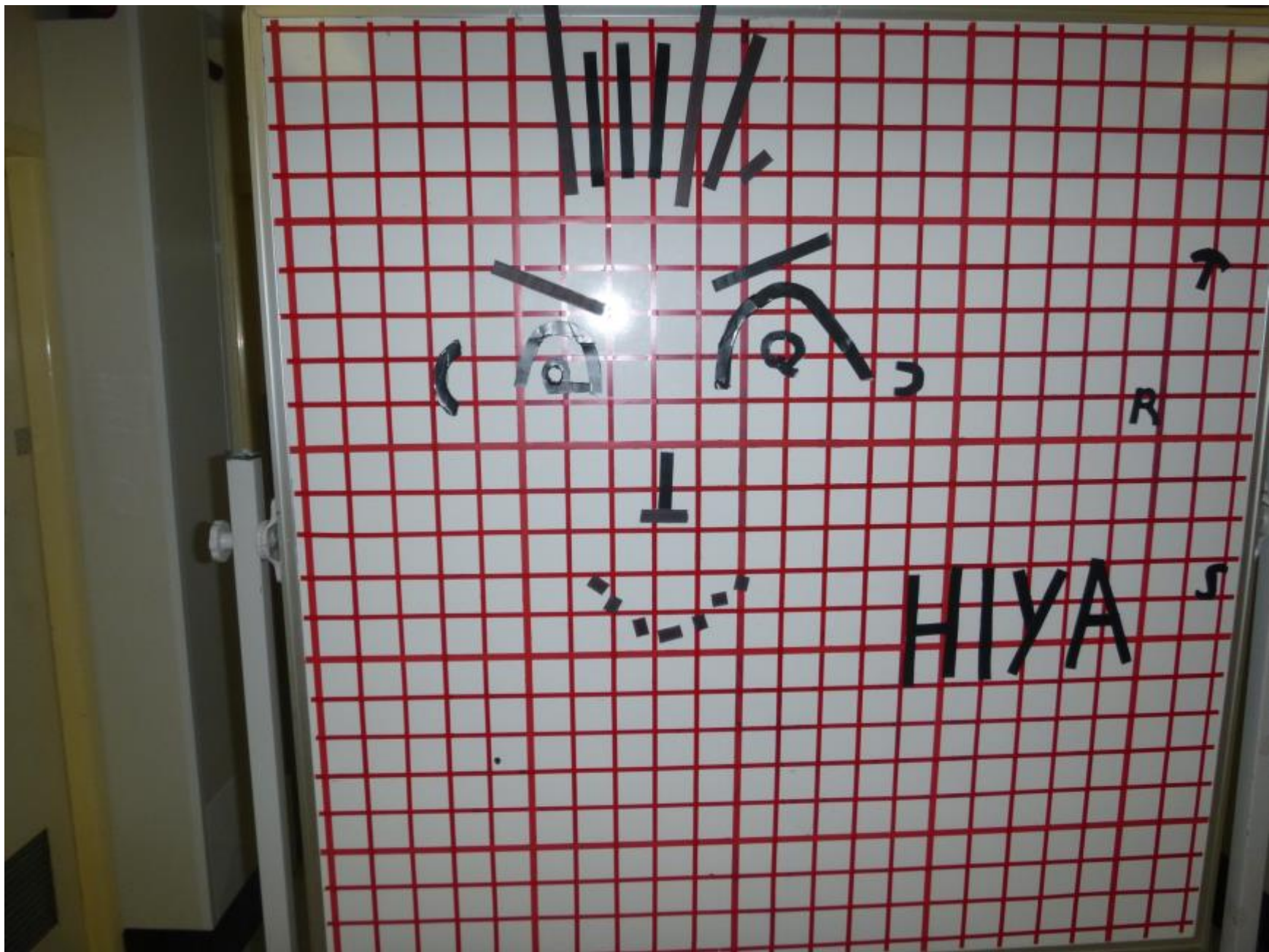


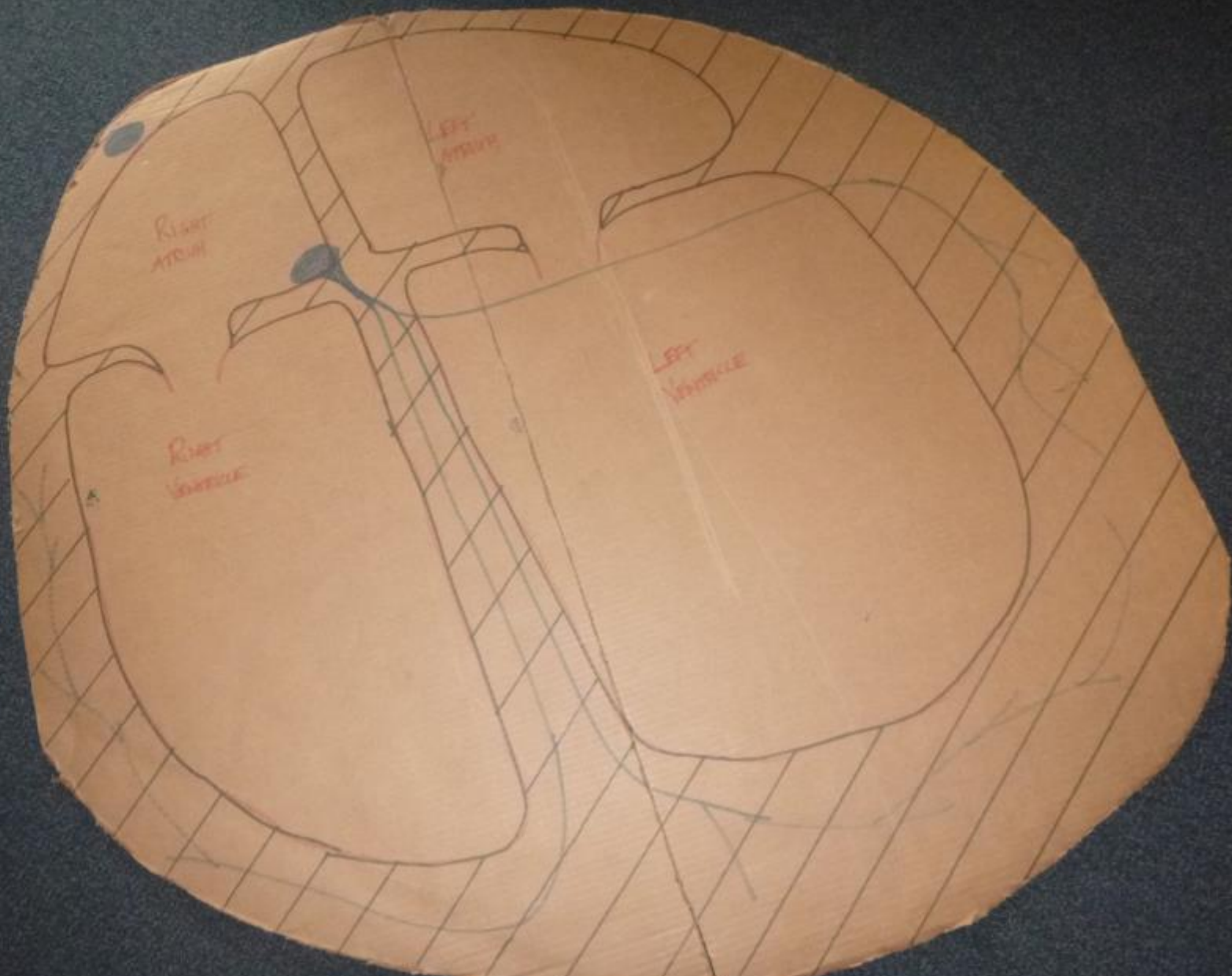














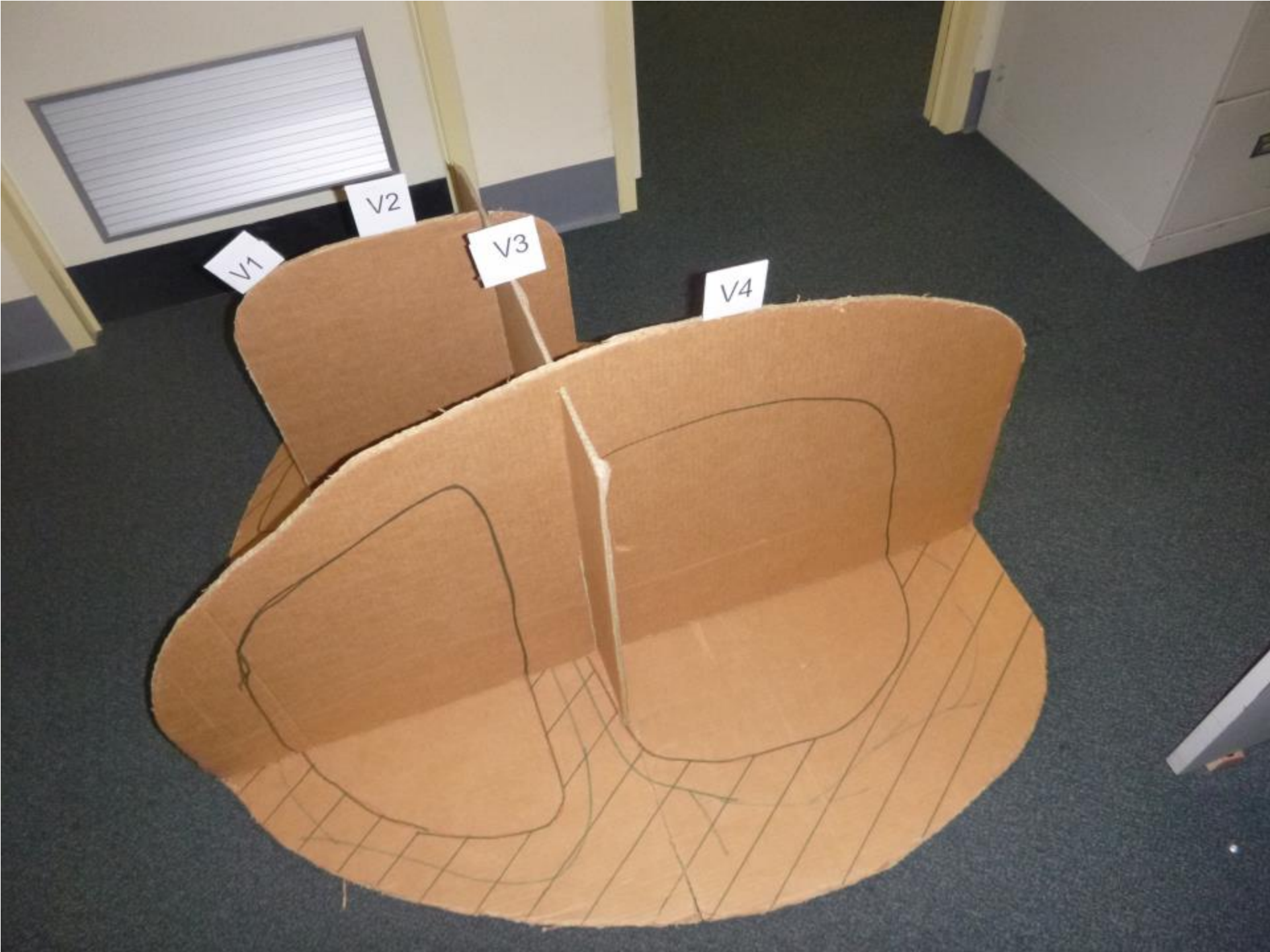


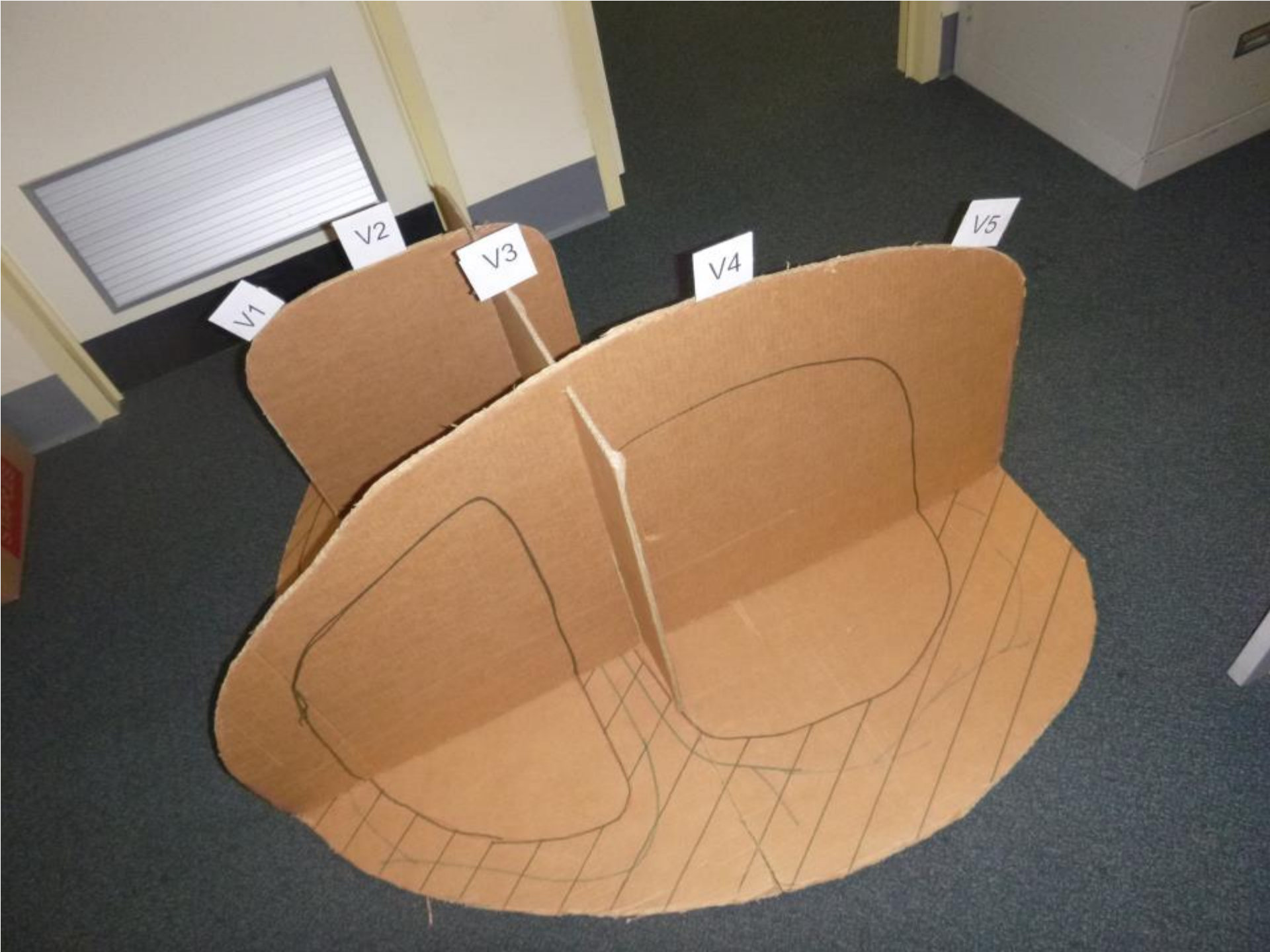


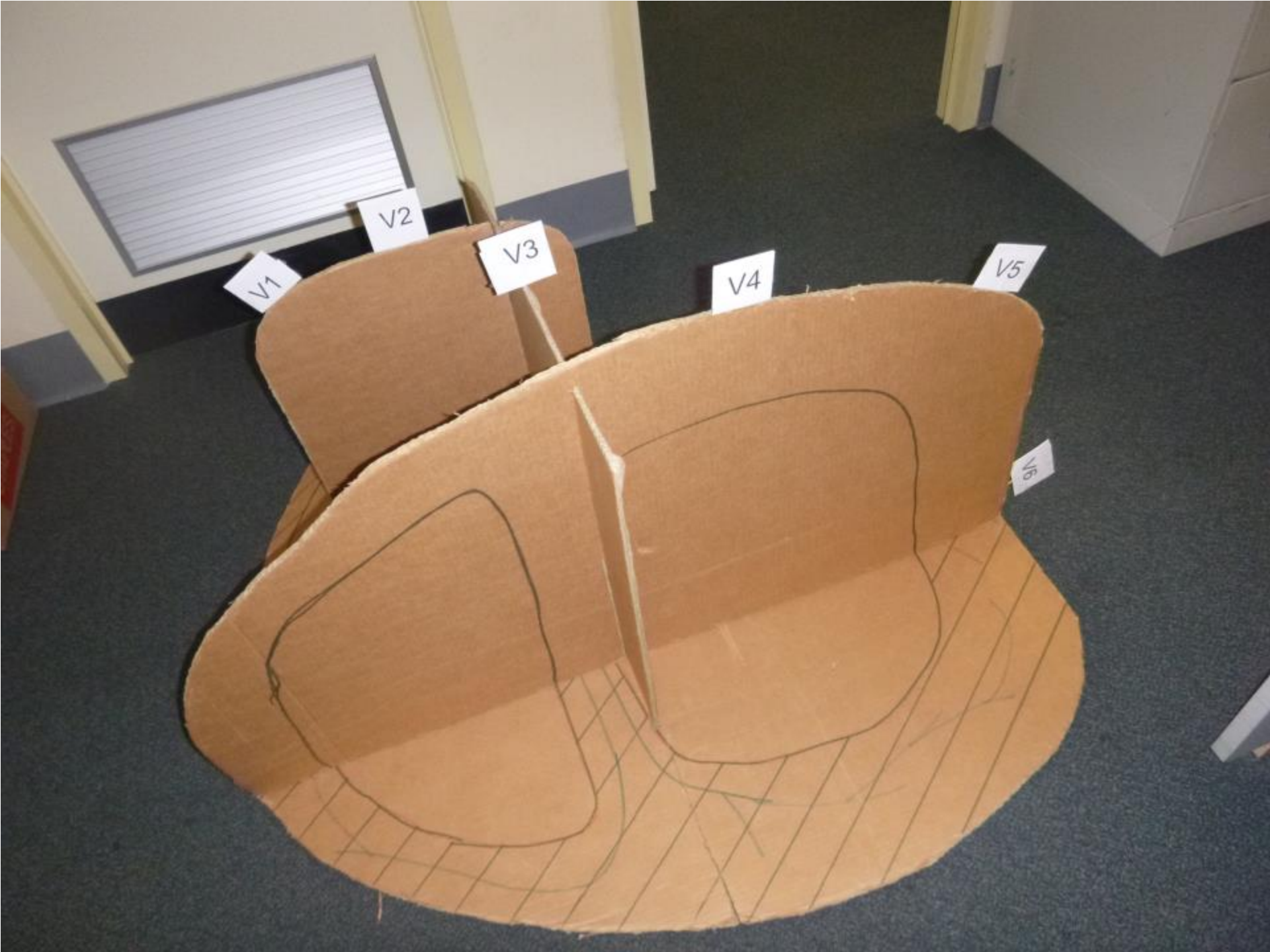
V2

V1









V1

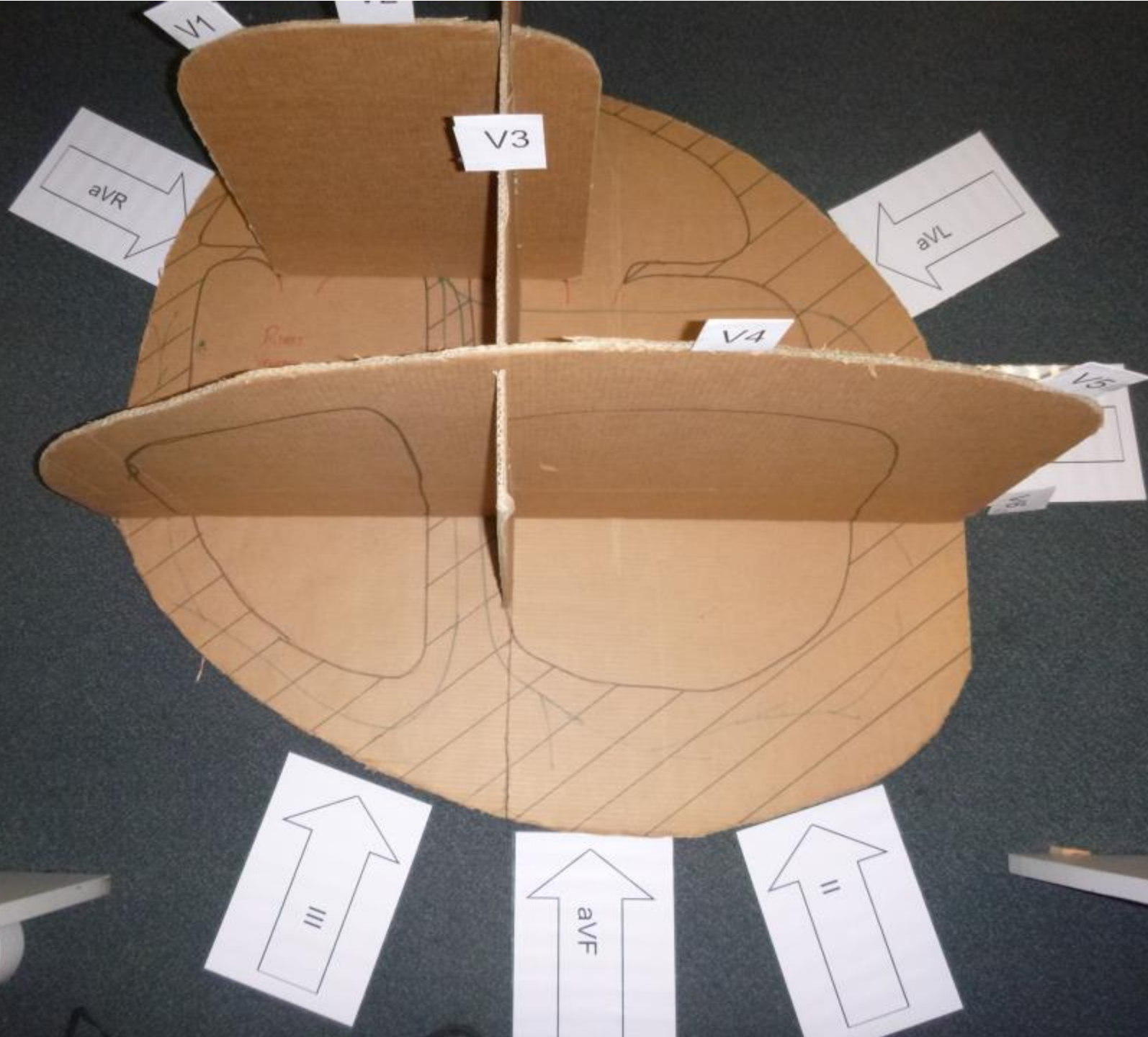
V2

V3

V4

V5

V6



ECG Education (for nurses)

| | |
|-------------------------|----|
| • June 2007 (2 days) | 15 |
| • October 2007 (2 days) | 10 |
| • Feb 2008 (2 days) | 13 |
| • June 2008 (2 days) | 14 |
| • May 2009 (2 days) | 16 |
| • Sept 2009 (2 days) | 15 |
| • Apr 2010 (2 days) | 13 |
| • Sept 2010 (2 days) | 21 |
| • Oct 2010 (2 days) | 17 |
| • March 2011 (2 days) | 16 |
| • July 2011 (2 days) | 15 |
| • Sept 2011 (2 days) | 20 |

| | |
|---------------------|------------|
| <u>TOTAL</u> | 185 |
|---------------------|------------|

**At TQEH
2007-2011**

Introduction and Advanced

At TQEH 2012 - 2014

INTRODUCTION (one day)

| | |
|-----------------------------|----|
| • Feb 2012 | 19 |
| • March 2012 | 21 |
| • March 2012 (Peterborough) | 26 |
| • March 2012 (Maitland) | 15 |
| • March 2102 (Pinnaroo) | 11 |
| • April 2012 | 18 |
| • June 2012 | 17 |
| • August 2012 | 20 |
| • November 2012 | 15 |
| • February 2013 | 11 |
| • June 2013 | 13 |
| • Sept 2013 | 20 |
| • Feb 2014 | 13 |

TOTAL **219**

ADVANCED (one day)

| | |
|--------------|----|
| April 2012 | 14 |
| August 2012 | 11 |
| October 2013 | 13 |

TOTAL **38**

What do they need to know?



What do they need to know?

- THE ECG:

- What it is.

- How it is done.

- Why it is done.

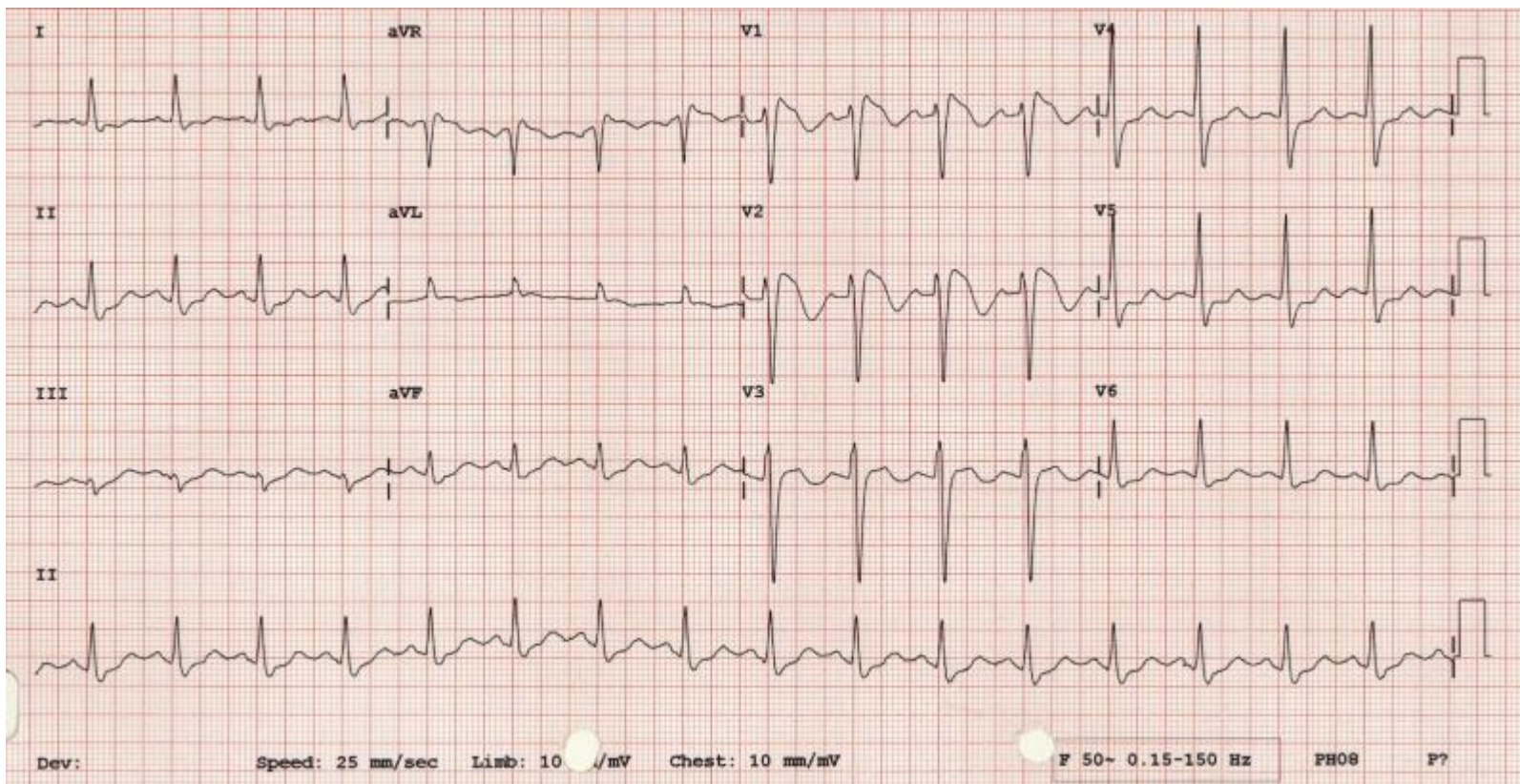


THE ECG:

What?

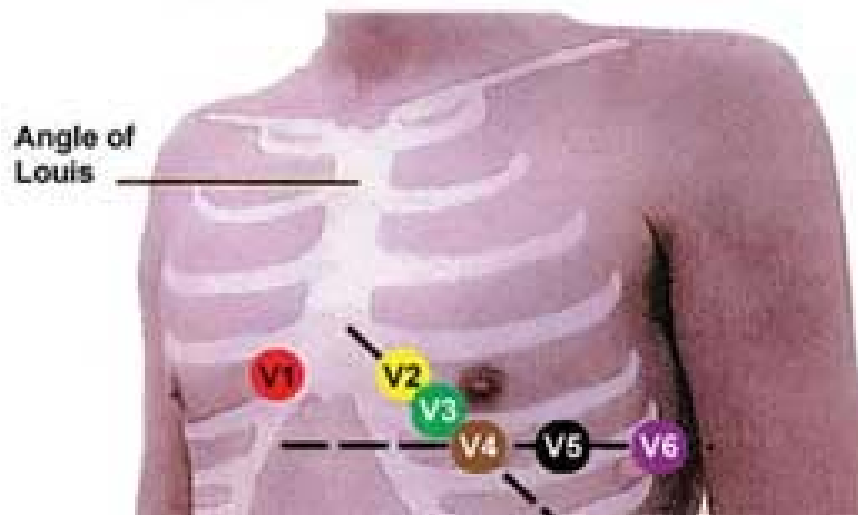
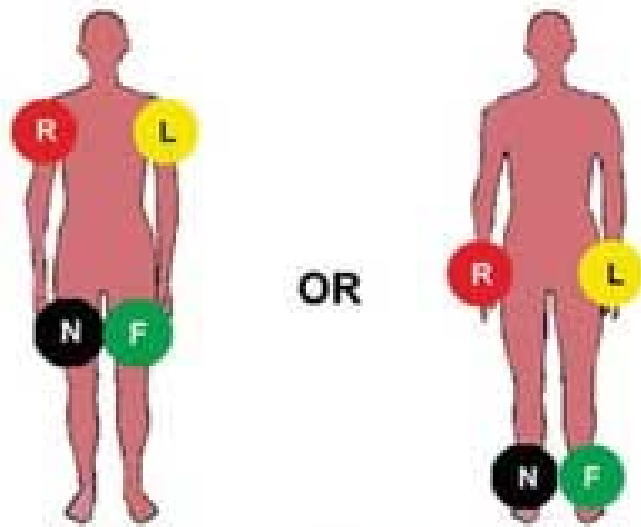


- What it is
- *What it isn't*



THE ECG:

How?



- (9=12, how come?)

THE ECG:

Why?

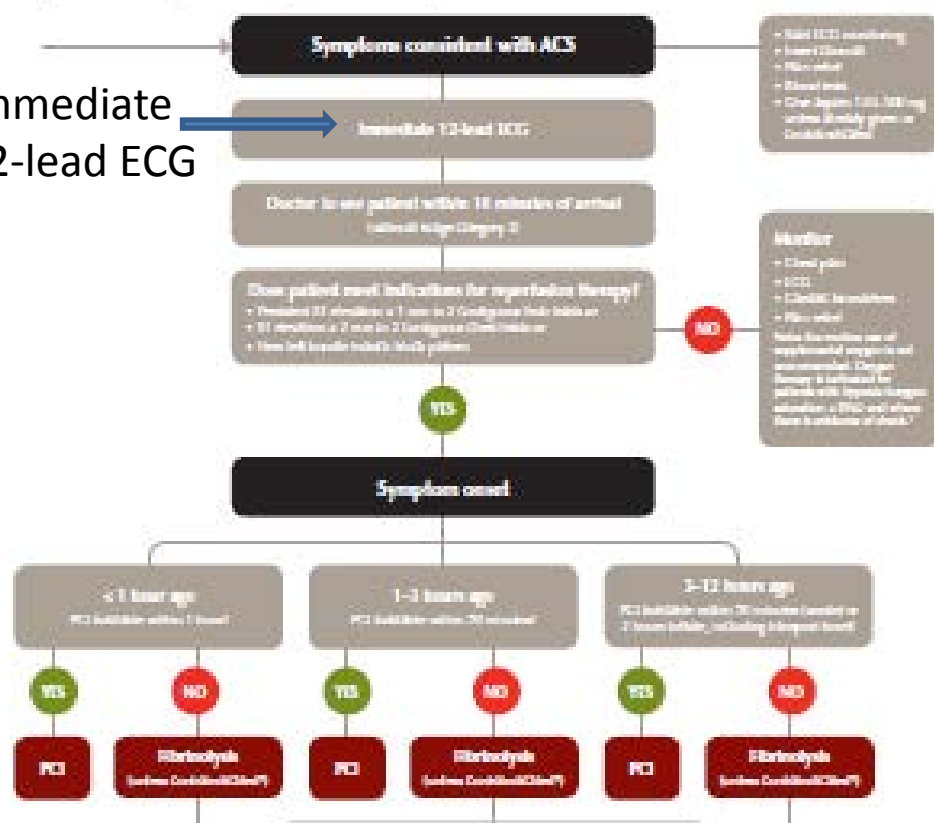


National Guideline

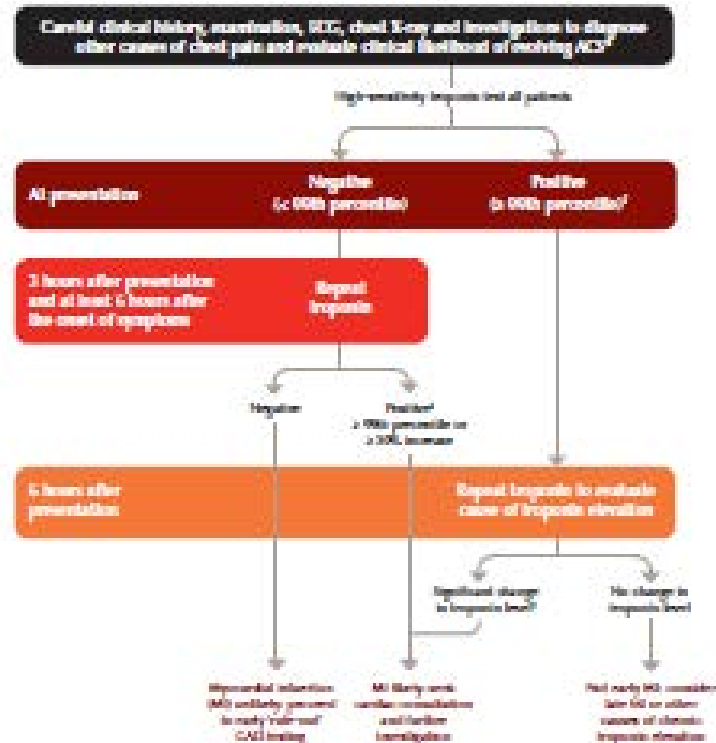
Acute coronary syndromes treatment algorithm Updated September 2011

Reperfusion therapy for ST segment elevation myocardial infarction (STEMI)

Immediate
12-lead ECG



Evolving risk stratification: clinical assessment, troponin assessment and time



* This algorithm applies to patients with suspected ACS, in the absence of the absolute Class I troponin elevation (e.g. repeat, postmyocardial infarction). Where other diagnoses are evident, management should be directed at these conditions.

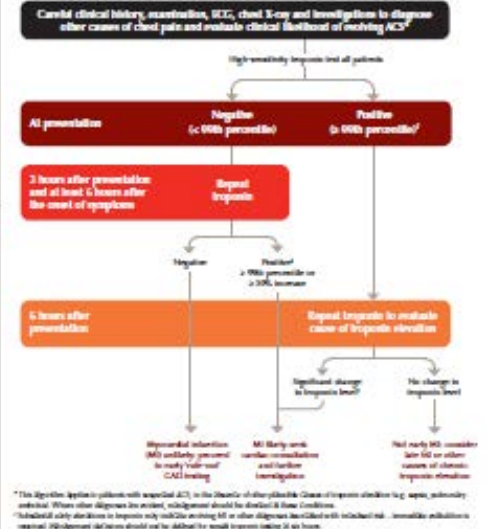
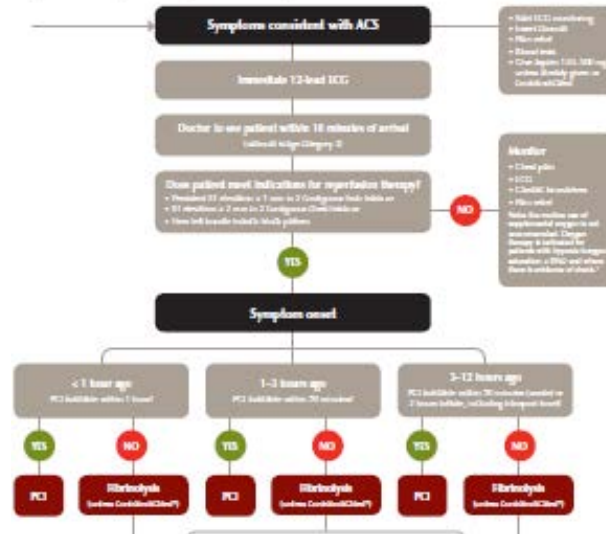
** Substantial early elevations in troponin only indicate evolving MI or other diagnoses associated with increased risk. Immediate initiation of reperfusion (PCI/direct stenting) should not be delayed for repeat troponin testing at 6 hours.

Why do nurses need ECG education?

And Why Everybody?

21st Century

- Cardiovascular disease is the biggest killer in Australia.
- 55,000 Heart Attacks in Australia per year.



27 deaths per day from Heart Attack (9,811) in 2011

Symptoms consistent with ACS

Immediate 12-lead ECG

Doctor to see patient within 10 minutes of arrival
(national triage category 2)

Does patient meet indications for reperfusion therapy?

- Persistent ST elevation ≥ 1 mm in 2 contiguous limb leads or
- ST elevation ≥ 2 mm in 2 contiguous chest leads or
- New left bundle branch block pattern

YES

- Start ECG monitoring
- Insert cannula
- Pain relief
- Blood tests
- Give aspirin 150–300 mg unless already given or contraindicated

Monitor

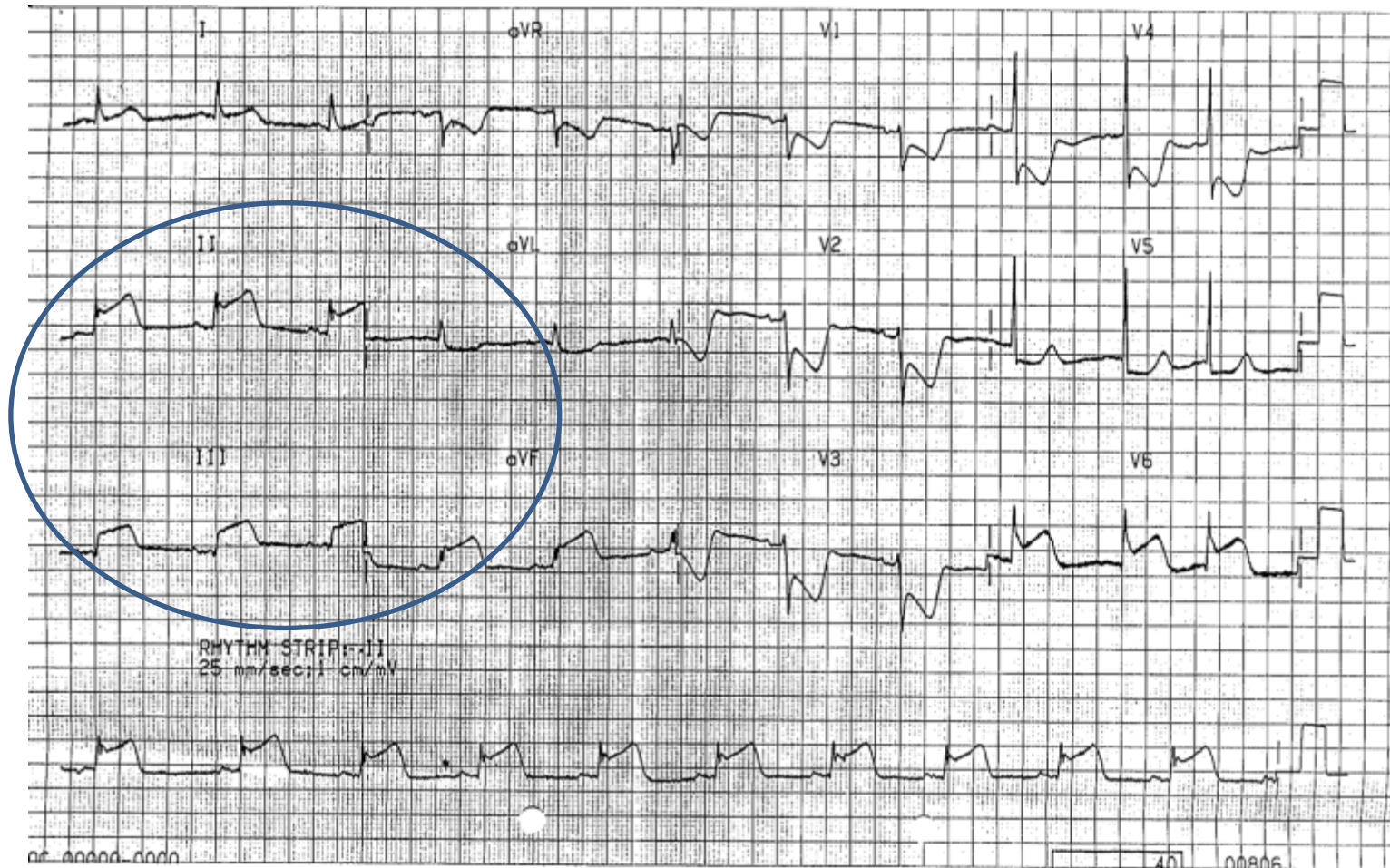
- Chest pain
- ECG
- Cardiac biomarkers
- Pain relief

Note: the routine use of supplemental oxygen is not recommended. Oxygen therapy is indicated for patients with hypoxia (oxygen saturation $< 93\%$) and where there is evidence of shock.¹

NO

Does patient meet indications for reperfusion therapy?

- Persistent ST elevation ≥ 1 mm in 2 contiguous limb leads or
- ST elevation ≥ 2 mm in 2 contiguous chest leads or
- New left bundle branch block pattern



191

Does patient meet indications for reperfusion therapy?

- Persistent ST elevation ≥ 1 mm in 2 contiguous limb leads or
- ST elevation ≥ 2 mm in 2 contiguous chest leads or
- New left bundle branch block pattern

y Department

With Pain

Rate 57
PR 195
QRSD 91
QT 403
QTc 392

--Axis--

P 67
QRS 32
T -11

.....ST > .35 mV in I, aVL, V5-6

.....ST > .35 mV V1-V5

ages.....T waves > 1.2 mV

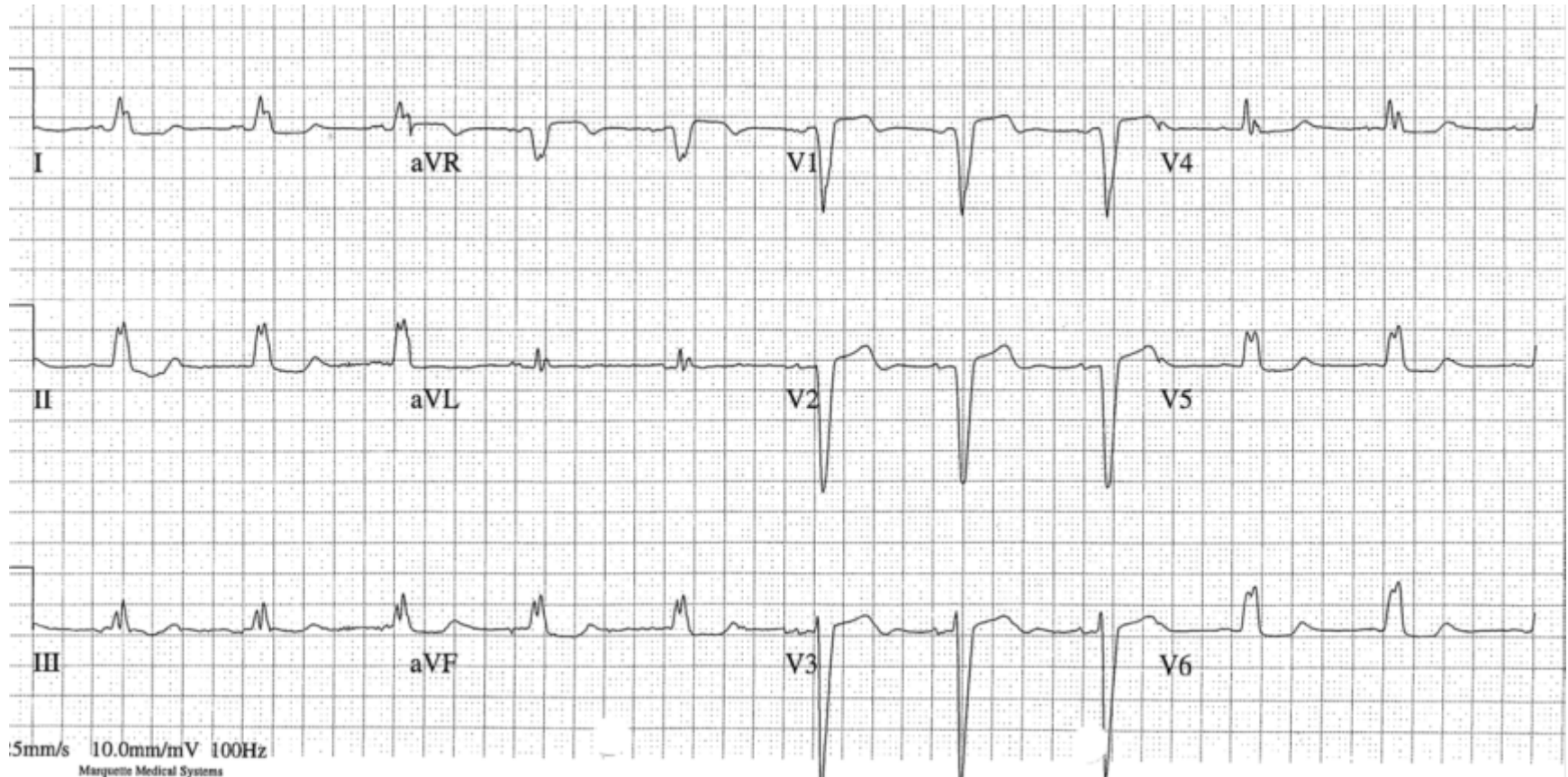
DRMAL ECG -

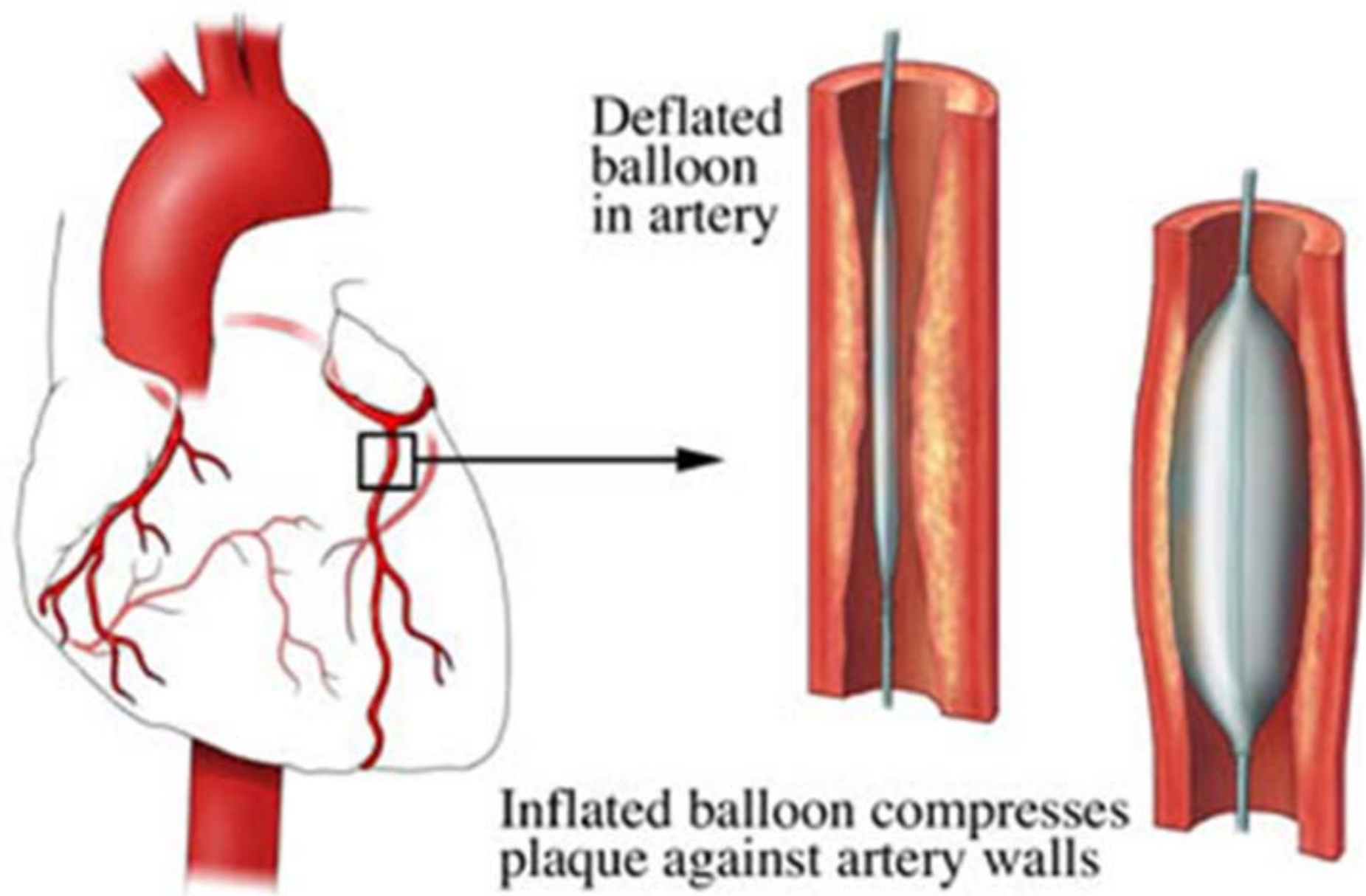
Unconfirmed diagnosis.



Does patient meet indications for reperfusion therapy?

- Persistent ST elevation ≥ 1 mm in 2 contiguous limb leads or
- ST elevation ≥ 2 mm in 2 contiguous chest leads or
- New left bundle branch block pattern





To Ponder...

- “The ECG and electrolytes should be regularly monitored in patients taking psychotropic drugs”

QTc prolongation by psychotropic drugs and the risk of Torsade de Pointes
(Wenzel-Seifert, Wittmann, Haen, 2011)

- “It is reasonable to obtain a preoperative ECG in low-risk patients who require high-risk surgery or in high-risk patients requiring any type of surgery”

Preoperative Cardiac Risk Assessment and Medical Management for Noncardiac Surgery (Thanavaro, Fonner, 2012)

- “In patients with suspected ACS a 12 lead ECG should be acquired and interpreted in the pre-hospital emergency setting as soon as possible”

Guideline 14.1 Acute Coronary Syndrome – Presentation with ACS

(Australian Resuscitation Council, www.resus.org.au, 2011)

Questions?

