PoCT in the Management of AF

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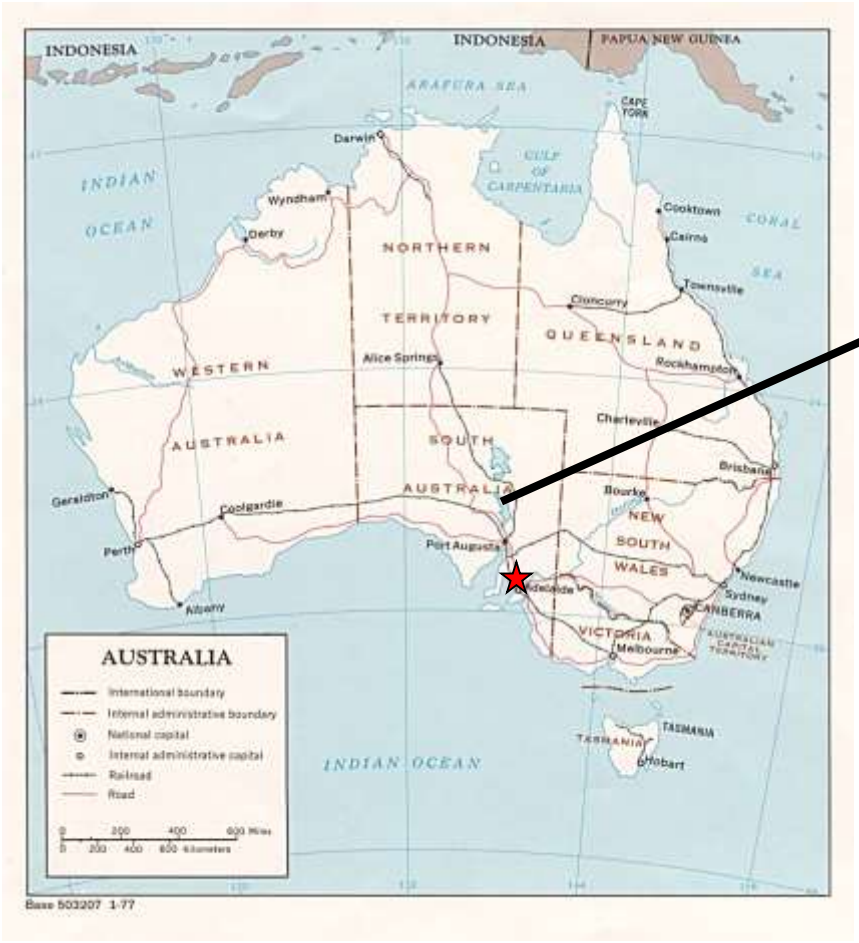
Geography and Demographics



AUSTRALIA

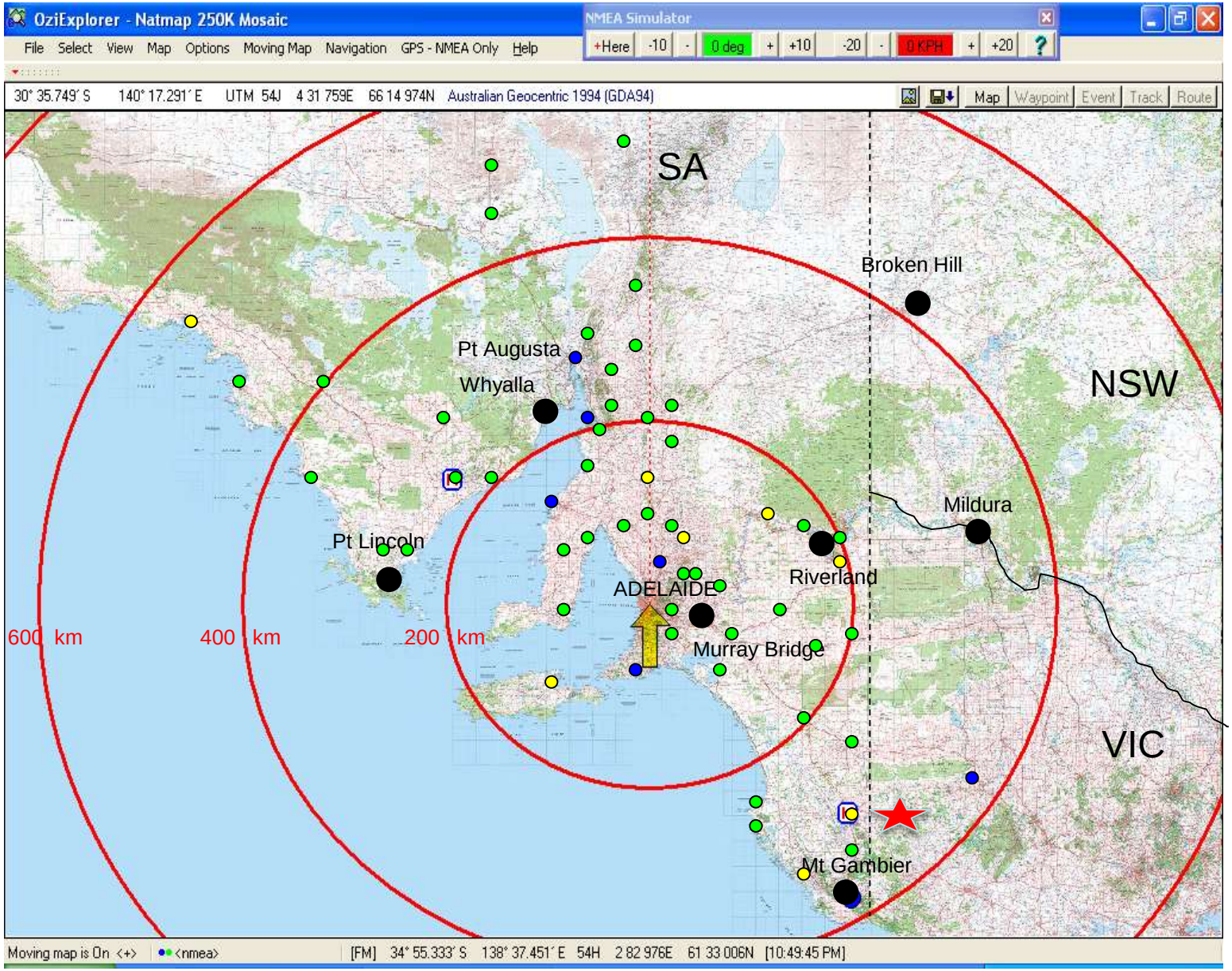
South Australia

- Area 980,000 square km
- Population 1,600,000

Case Study 1

- 60 yr old female admitted Sat. 1150 am, Rural/Remote Hospital

Rural Hospitals and Pathology Labs



Case Study 1

Presentation (1150 hrs Sat am 2008):

- Increasingly unwell for 7 days, esp last 4 days
- Symptoms: malaise and dizziness, lethargy, anorexia and palpitations
- ECG: rapid AF ~ 130 bpm, no ischaemic changes
- Initial treatment: Aspirin, Metoprolol 25mg twice daily, Clexane s/c 60mg 12/24
  - 1800 hrs – first dose of Warfarin 6 mg

Case Study 1

- Progress:
  - Sat 1925 hrs:
    - syncopal, low BP, HR 100-120 bpm
  - Action
    - Metoprolol and aspirin held
    - Amiodarone 600 mg orally
    - IV fluids for hypotension.
    - POCT Troponin T - negative.

Case Study 1

- Progress:
  - Sun am:
    - further hypotension, HR 110-120 bpm in AF
    - IV Digoxin 500mcg given
    - bloods requested for Mon am.
  - Sun 1400hrs:
    - further hypotension
    - Persistent poor rate control in AF
    - IV fluids increased
    - further IV Digoxin 250 mcg

Case Study 1

- Progress:
  - Sun 1830 hrs:
    - cause for lack of response to Rx unclear
    - Cardiology Consultation by phone
    - decision to transfer to Regional Hospital (130km) for urgent echo, bloods.
  - Sun 2130 hrs:
    - on arrival at Regional Hospital
      - hypotensive – shocked
      - haematemesis.

Test	Results	Ref Interval
Sodium	130 mmol/L	136-146
Potassium	2.9 mmol/L	3.5-4.2
Chloride	97 mmol/L	98-109
Biocarb	27 mmol/L	20-33
Urea	10.9 mmol/L	2.5-8.5
Creat	48 umol/L	60-110
Urate	0.14 mmol/L	0.18-0.47
Glucose	8.8 mmol/L	6.3-6.9
Cholesterol	1.6 mmol/L	<5.5
Calcium	1.69 mmol/L	2.10 - 2.55
Phosphate	0.94 mmol/L	0.75-1.45
T. Protein	32 g/L	60-82
Albumin	20 g/L	35-50
GGTP	15 U/L	<50
AST	8 U/L	<41
ALT	16 U/L	<51
LD	92 U/L	50-280
Trop T (x3)	negative	<0.1

Test	Result	Range
Hb	34 g/L	125-160
WCC	11.6 $x10^9$/L	4.0-11.0
Plat	236 $x10^9$/L	150-450
INR	2.3	
aPTT	44	

Case Study 1

- Progress:
  - Transferred to HDU, transfused 10 units.
  - Urgent endoscopy: Gastric ulcer – sclerosed.
  - Echo (Mon am) – normal - in SR!

POCT Pathology Available

Roche Diagnostics Cardiac Reader T

Rural ED Characteristics

- Workforce –Generalist Nurses and GPs
- Most without on-site Laboratory
- 50-600s km distance to Lab
- Increased risk of pre-analytical errors
- Unacceptably long turn-around times
- Low throughput per site
- High specimen transport cost

Rural Emergency POCT

- Troponin T
- NT-proBNP
- D-Dimer
- Hb, WCC with diff
- Na, K
- Creatinine
- Glucose
- HbA1c
- Lactate
- ABG (pO2, pCO2, pH)
- LFT
- Lipids
- Coagulation – INR
- CRP
- Stroke panel
- Strep A
- BHCG
- Fibronectin

Integrated Cardiovascular Clinical Network CHSA