Cardiac Surgery Waiting list mortality

National Audit Day, Cardiff 2013

Stephen Dorman
Consultant Cardiologist, Morriston Cardiac Centre
Mid & West Network lead
Access to contemporary cardiovascular care in NHS Wales
Heart patients 'die' on waiting lists

Heart workers are still eager to see new investment.
Hospital patients are dying as they wait longer than ever for heart disease to be diagnosed by specialists, leading cardiac surgeons are warning.

On Friday, the Welsh Cardiac Group spoke out of its fear that Wales is falling further behind England - where there has been massive investment to increase staff and build new facilities - in the care it can offer patients with heart disease.

Patients 'die waiting', doctor claims

Lives are being lost because waiting lists for heart problems are getting longer and the service in Wales is out-dated, a cardiologist has claimed.

A British Cardiac Society working group is to look at claims that Wales is lagging behind England.

A leading Welsh cardiologist, who will represent Wales on that group, has told BBC Wales his waiting lists are increasing.
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Calls for inquiry after 12 die waiting for cardiac surgery

Last updated Wed 31 Jul 2013

Health • Welsh Government • Welsh NHS

The man in charge of Wales' biggest hospital has revealed that 12 people have died over the last 15 months while waiting for cardiac surgery. The Royal College of Surgeons says that South Wales is the only part of the UK where patients are dying in such circumstances.

That's just one issue in a devastating review by the College at the University Hospital of Wales in Cardiff.

Tonight the minister in charge of the Welsh health service said he was “very concerned” at the findings, and one Welsh Labour MP - whose own husband died at the hospital - is demanding an inquiry and the resignation of the people who run it.

Patients 'dying' in surgery wait, claims Powys GP

Patients are dying waiting for heart surgery, according to a leading doctor who has spoken out about delays at Wales' leading cardiac centres.

Powys GP Dr James Wrench, who leads the South Wales Cardiac Network, said those who need operations are supposed to be treated within 26 weeks.

But he said some cannot wait that long and are going private while others are being treated in England instead.

Dr James Wrench says patients need faster treatment for cardiac issues
The Cardiac surgery problem in South Wales

'Dangerous' Cardiff hospital report prompts MP's inquiry call

Surgeons say thousands of operations were cancelled at the start of the year

An MP has called for an inquiry after surgeons said patients had died waiting for heart surgery at the University Hospital of Wales

Morriston hospital staff rift intolerable, says report

An outside team was called in to look at 'longstanding problems'

A rift involving staff at a hospital's cardiac unit has created "intolerable" working conditions and affected patients, says a hard-hitting report.
Table 1: Deaths of patients while on the waiting list for cardiac surgery at Morriston Hospital and University Hospital of Wales*

<table>
<thead>
<tr>
<th>Financial year</th>
<th>Morriston Hospital</th>
<th>University Hospital of Wales</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008/09</td>
<td>10</td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>2009/10</td>
<td>14</td>
<td>7</td>
<td>21</td>
</tr>
<tr>
<td>2010/11</td>
<td>34</td>
<td>11</td>
<td>45</td>
</tr>
<tr>
<td>2011/12</td>
<td>27</td>
<td>10</td>
<td>37</td>
</tr>
<tr>
<td>2012/13</td>
<td>16</td>
<td>9</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>109</td>
<td>43</td>
<td>152</td>
</tr>
</tbody>
</table>

*All cases recorded on the patient management system as removed from the cardiac surgery waiting list due to death.
ABMU & UHW validation exercise

ABMU
• Review performed by Clinical director (MWR) of cardiac surgery waiting list deaths during the period April 2011 to March 2013
• 22 cases were reviewed as part of this process although the casenotes were not available for 4 cases. 2 were reviewed via Morriston PATS and information suggested that they would be categorised as red.
• Traffic light system used to classify

Cardiff & Vale
• Review performed by Clinical director (NM) and additional review by independent nurse of death’s on the cardiac surgical waiting list – April 2012-2013.
• Full review of GP and DGH notes currently being undertaken by relevant LHB’s
Subjective case review methodology of WHSCC Cardiac surgery waiting list mortality data for UHW and MCC (last 2 years)

Earlier cardiac surgery might well have led to a better clinical outcome

Unclear whether or not more timely surgery was the main issue
  e.g. Fitness for surgery, Pt reluctant to undergo intervention, death from no cardiac cause, insufficient clinical details...

More timely cardiac surgery did not appear to be the main issue
  e.g. Coding error, TAVI pt, death from non cardiac cause, pt declines intervention, no cardiac surgical indication, unheralded IP referral...
Validation exercise – Evidence base

<table>
<thead>
<tr>
<th>Level of Evidence</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Data derived from multiple randomized clinical trials or meta-analyses.</td>
</tr>
<tr>
<td>B</td>
<td>Data derived from a single randomized clinical trial or large non-randomized studies.</td>
</tr>
<tr>
<td>C</td>
<td>Consensus of opinion of the experts and/or small studies, retrospective studies, registries.</td>
</tr>
</tbody>
</table>

Level of Evidence ??
Review of abstracts of Clinical Director review of selective case note review
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>29/04/2010</td>
<td>Echocardiogram</td>
<td>Severe Aortic stenosis, good LV function</td>
</tr>
<tr>
<td>21/07/2010</td>
<td>Coronary angiography</td>
<td>Significant LMS and prox LAD disease</td>
</tr>
<tr>
<td>29/07/2010</td>
<td>Referred to CTS for AVR and CABG</td>
<td>PH hypertension, asthma, rheumatic fever</td>
</tr>
<tr>
<td>11/10/2010</td>
<td>Seen by cardiac surgeon in OP</td>
<td>Placed on cardiac surgical WL</td>
</tr>
<tr>
<td>09/12/2011</td>
<td>Admitted with community acquired pneumonia and heart failure</td>
<td>Cardiac arrest on 10/12/2011</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Died later same day</td>
</tr>
</tbody>
</table>
“It is reasonable to conclude that there have been up to 16 deaths on the cardiac surgical waiting list over the past two years of which there are “mitigating” circumstances in six of these. These deaths are dominated by severe symptomatic aortic stenosis and confirms the adverse nature of this condition which, if left untreated by surgery, has a mortality of about 50% at one year. No clustering relating to referring cardiologists, consultant surgeons or hospitals was identified.”

ABMU Clinical Director Regional Services, 13/9/2013
ABMU "red" category patients - Limited analysis of component delays

Notes: ABM22 had a cancelled operation due to low Na during the period of “Cardiac OPD to completed Ix”. ABM21 was a direct GP referral to Cardiac surgery. ABM15 timings were complex due to patient initially refusing surgery and requesting a second opinion.
Analysis of ABMU component waits

- Caveats - Data incomplete
  - No details of GP to Cardiology referral time
  - Cardiology investigation time sometimes performed upfront prior to referral and not always included in this analysis
  - Outliers excluded (ABM21 & 22)

- Mean time from placing on cardiac surgical waiting list and date of death 28 weeks (198 days)

- Mean time from Cardiology referral to Death 41 weeks (288 days)
**Case 1**

Moderate aortic stenosis / PVD / NIDDM

11/8/2011 Referred to Cardiac Surgery for AVR & CABG
3/11/2011 Seen in Cardiac OPD and added to waiting list
15/5/2012 **(194 days later)** Admitted for pre-assessment – Found to be in CCF
16/5/2012 Dried out but developed AKI, likely to need RRT
12/6/2012 Further surgical review – Too high risk for conventional AVR? TAVI
1/7/2012 Admitted to ITU for haemofiltration
4/7/2012 Aortic Balloon valvuloplasty

**7/7/2012 - RIP**
UHW validation

Of the 12 cases

- 6 cases earlier intervention might well have led to a better outcome. 50% of these cases were awaiting AVR
- 3 cases unclear whether the timeliness of surgery was the main issue
- 3 cases - timeliness of cardiac surgery was not relevant to the observed mortality
Mean time from referral to addition to IPWL = 9.5 weeks (65 days)
Mean time from Listed in waiting list to death = 30.5 weeks* (213 days)
Mean time from referral to death = 40 weeks* (288 days)

* This data excludes UHW8 outlier
UHW & ABMU validation exercise - Common themes

Attributing causality to Cardiac surgery waiting list mortality is complex & compounded by: Judgements on co-morbidity / “fitness for surgery”, Non cardiac causes of death, Patient reluctance/refusal to consider surgery, Limited documentation of any clinical deterioration within the casenotes, reasonableness of ‘stop clock’ decisions

Nevertheless some common themes emerge

- ‘Avoidable’ mortality on the South Wales cardiac surgery waiting list of 0.5-1% p.a, a proportion of which has mitigating factors beyond waiting list related delay

- Patients awaiting AVR ± CABG appear most at risk, but mitral valve disease and coronary disease also feature

- Adverse outcomes in this group are typified by an average delay from being placed on the waiting list to death of 28-30 weeks. The average delay from cardiology referral to death was 40 weeks
Evidence from the literature

Death on the waiting list for cardiac surgery

BEN BRIDGEWATER

Heart 1999 81: 564
doi: 10.1136/hrt.81.6.564
## Evidence from the literature

<table>
<thead>
<tr>
<th>Paper</th>
<th>Population</th>
<th>Setting</th>
<th>Median wait to surgery</th>
<th>Waiting list mortality</th>
<th>Readmission/MACE rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eur J Cardiothorac Surg. 2004 Feb;25(2):196-202</td>
<td>574 patients awaiting elective CABG</td>
<td>Sao Paolo, Brazil</td>
<td>126 days</td>
<td>2.5% Sudden or any cardiac death</td>
<td>23% Cardiac readmission/MI/UA/Death</td>
</tr>
<tr>
<td>Heart 1999;81:586–592</td>
<td>701 patients awaiting elective CABG</td>
<td>Green Lane, Auckland, NZ</td>
<td>146 days</td>
<td>2.6% waiting list mortality. 0.28% per month of waiting</td>
<td>Scoring system ineffective. 18% Readmission rate with MI/UA</td>
</tr>
<tr>
<td>The Annals of Thoracic Surgery Vol 77, (3) Mar 2004</td>
<td>5,864 patients awaiting elective CABG</td>
<td>Sweden</td>
<td>55 days</td>
<td>1.3% Mortality rate</td>
<td></td>
</tr>
<tr>
<td>Heart. 1999 Jun;81(6):593-7.</td>
<td>All patients who died on cardiac waiting list in 1994 &amp; 1995</td>
<td>11 Dutch cardiac centres</td>
<td>35 days</td>
<td>0.6% Mortality (CABG only) 181 waiting list deaths</td>
<td></td>
</tr>
</tbody>
</table>
Associated problems of long waits for cardiac surgery

• Clinical deterioration & decompensation leading to elevated surgical risk and ↑ length of stay

• Complaints

• Patient anxiety / depression / time of work

• Cost

• Inequity – North vs South Wales
"Heart surgery waiting times."

Posted by reverence (as the patient), last month

I am a patient of Morriston hospital and I am waiting for cardiac surgery, I have been waiting since my diagnosis was made, September 2012. My condition is a progressive one and time factors mean that the longer I wait, the worst I become.

I am a 60 year old male living in Swansea and have been well cared for by the cardiac team. Their care is first class and I only have praise for them all. My delay is caused because there is insufficient high care beds for post operative patients who have under gone cardiac surgery. Why is this?

I have no knowledge of when my operation will be undertaken. I have no knowledge if I will live long enough to face my operation. I don’t want to die yet, will the delay I have faced be a considering factor in the coroners report after my death.

Who is responsible for this, who is to blame, will someone provide more funds to provide more ITU beds so more than the ones waiting can be saved
Conclusions

• Patients are most interested in their total pathway mortality, not simply their peri-operative surgical risk. The current waiting list mortality equates to around a 0.5-1% additional risk.

• Cardiac surgery waiting times remain a cause of significant mortality & morbidity since they were first highlighted in 2002. Subsequent remedial actions in Wales, including temporary outsourcing, have been largely ineffective in improving access sufficiently.
What can be done ?
Reduction in CABG waiting times in England since 2004
What are CABG waiting times like in England?

“The average waiting time for CABG surgery across all ten SHAs in 2008/9 was 57 days”

Source: DrFosterhealth.co.uk
How much is that bypass?

<table>
<thead>
<tr>
<th>Country</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>$8,882</td>
</tr>
<tr>
<td>Chile</td>
<td>$12,401</td>
</tr>
<tr>
<td>U.K.</td>
<td>$14,117</td>
</tr>
<tr>
<td>Spain</td>
<td>$17,437</td>
</tr>
<tr>
<td>France</td>
<td>$22,844</td>
</tr>
<tr>
<td>South Africa</td>
<td>$37,044</td>
</tr>
<tr>
<td>Australia</td>
<td>$43,230</td>
</tr>
<tr>
<td>U.S.</td>
<td>$73,420</td>
</tr>
</tbody>
</table>

Graphic by Bloomberg Businessweek; Data: International Federation of Health Plans
Disruptive innovation

“We will become the first country in the world to dissociate health care from affluence”

“We are all products of the National Health Service in the UK, and what we learnt...we have implemented in perhaps a slightly different manner”

Dr Devi Shetty, Cardiac Surgeon and winner of the Economist’s 2011 Innovation awards

Nayrana Hrudayalaya heart hospital, Bangalore
1000 beds
6000 Cardiac operations p.a
$2000-$5000 per operation
1.4% 30 day mortality post CABG
Any questions?

• **Who is responsible for improving access to cardiac services?**
  – Welsh Government / WHSCC / Health Boards
  – WCS / Cardiac Networks
  – Clinical community: Surgeons, intensivists, Cardiologists / Primary Care...
  – Patients

• **Where are the solutions likely to lie to this problem?**
Who is responsible for monitoring a patient’s status whilst on the waiting list?

• The GP
• Cardiologist
• Cardiac Surgeon
• LHB
• WHSCC
• The patient
Tracking patients through the system