Thoracic Surgery Single Site Consultant Workforce Model- Consultation 07.06.19

Context

The Joint Committee of Welsh Health Specialised Services Committee (a committee of all the health board chief executives and 3 independent members) considered in November 2018 the recommendations that thoracic surgery should move to a single site model and that single site should be located at Morriston Hospital, Swansea. The committee supported this recommendation but asked for a number of assurances regarding the future model and specifically asked for a workforce plan, within 6 months, which described how thoracic surgical cover would be provided to the Major Trauma Centre at UHW, Cardiff.

In May 2019 a proposal regarding the workforce model was submitted by the two provider (Swansea Bay and Cardiff and Vale University Health Board) medical directors to the Joint Committee however the committee deferred a decision and requested that Dr Sian Lewis (and the WHSS Team) bring a WHSSC workforce assessment back to the Joint Committee by the end of June 2019. They asked that this assessment take into consideration a number of matters and some uncertainties raised in the paper and during the meeting.

This paper summarises this initial assessment of the optimal consultant workforce model. There are a number of assumptions in this modelling work and this paper is therefore being circulated for comments which will be incorporated into the final submission to the Joint Committee. In addition the WHSS team is establishing a panel of expert external advisors who will also provide feedback.

The timescale for this consultation process is extremely challenging; we apologise for this but we are working within the requirements of the Joint Committee. To help with this rapid turn-around it is important that your comments are returned on the attached template and reference the relevant line within the paper. Also it is important that you provide wherever possible independent evidence rather than opinion to substantiate your comments.

Background

The following assessment is based on;

- a number of points made in the RCS Invited Review 2016,
- the WHSSC Service Specification for Thoracic Surgery
- NHS England Service Specification for Thoracic Surgery
- The current activity levels of the two units plus 20% additional workload

The Thoracic Surgery Implementation Group is working to define the service model so this assessment is also based on a number of assumptions. These assumptions come from comparators with other thoracic surgery centres, presentations made by two consultants (MK and PK) at the recent thoracic clinical summits in March and May 2019.

The RCS Invited Review (2016) stated that;
“In line with units of a similar size it was considered that five consultant thoracic surgeons were required to service a population of 2.4 million people safely. This would provide adequate emergency on-call cover as well as other services to ensure adequate patient throughput. RCS Invited Review 2016”.

Additionally the “review team concluded that there were too many separate MDT meetings per week and considered that it would be appropriate to merge meetings. This would place fewer burdens on consultant surgeons attending multiple MDT meetings”.

The RCS also recommended that;

Five consultant thoracic surgeons should be employed to meet service demands. Each of the consultants’ job plans should include:

- one in five on-call duty which includes weekend cover
- At least one specified operating day
- Fair distribution of MDTs with adequate cross-over cover
- Attendance at out-patient clinic

It is acknowledged that at this point the location of the MTC had not been determined.

The independent panel and the final recommendation from Joint Committee including further mitigations required by Health Boards means that there are other fixed points;

- A commitment to 6 consultant on the basis that this would allow 9.00am to 5.00pm onsite cover at the UHW site and an additional 20% workload (based on outturn + 20%).
- A commitment to the development of the skills of the trauma team to manage immediate thoracic trauma.
- That there will be an on-call thoracic surgery rota which also provides cover to the MTC, and will be in the form of remote advice to the trauma team 24/7 plus attending the MTC in the rare event that their specialist surgical intervention skills are required to support the trauma team;
- There will be a thoracic surgery presence on the University Hospital of Wales site 5 days a week for advice and support for major trauma and other clinical services as required.
- That we will obtain and act upon advice from the Wales Cancer Network to improve the way our multi-disciplinary teams work, ensuring that wherever possible care is delivered closer to home.

Further advice provided to WHSSC at the time of the consultation noted that the Intercollegiate Surgical Curriculum Programme has recently been updated (16th November 2017) to include the requirement that surgeons trained in trauma will allow them to practice independently for injuries to the thorax.

The extant Thoracic Surgery Service Specification Version: 1.0 notes the following key points

Appendix D
With regard to minimum volumes (these are based on the NHS England Service specification)

- The thoracic surgery unit should undertake a minimum of 150 primary lung resections per year.
- The thoracic surgery unit should have a minimum of 3 full time general thoracic surgeons.

Regarding emergency cover and on-call arrangements

- Providers are required to have 24/7 emergency cover by general thoracic surgical consultants with or without mixed-practice cardiothoracic surgical colleagues.
- The surgeons on the rota should be able to deal with the full range of thoracic surgical emergencies.
- Cross cover of rotas from consultants with a purely cardiac practice or from consultants from other specialities is unacceptable.
- A sustainable on call rota should not be more frequent that 1 in 4.

Assessment

Demand Analysis

This demand analysis is based on an estimated population of 2.2 million people.

The table below shows the activity outturn for all procedures over the last 3 years

Table 1 Thoracic Surgery Outturn by Centre

<table>
<thead>
<tr>
<th></th>
<th>SBUHB</th>
<th>CVUHB</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016/17</td>
<td>421</td>
<td>615</td>
<td>1036</td>
</tr>
<tr>
<td>2017/18</td>
<td>474</td>
<td>646</td>
<td>1120</td>
</tr>
<tr>
<td>2018/19</td>
<td>422</td>
<td>672</td>
<td>1094</td>
</tr>
</tbody>
</table>

Source: Provider contract monitoring returns to WHSSC

This shows a fairly static position of approximately 1100 cases per year. For planning purposes this would mean approximately 1300 cases based on outturn plus 20%.

Table 2 shows the casemix for the two centres combined as reported to the Society for Cardiothoracic Surgery in 2017/18.

Table 2 Casemix for Morriston/UHW Combined 2017/18

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Number of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lung resections – primary malignant</td>
<td>458</td>
</tr>
<tr>
<td>Lung Resection – others</td>
<td>101</td>
</tr>
<tr>
<td>Mesothelioma Surgery</td>
<td>16</td>
</tr>
<tr>
<td>Pleural procedures</td>
<td>170</td>
</tr>
<tr>
<td>Chest wall/diaphragmatic</td>
<td>97</td>
</tr>
<tr>
<td>Mediastinal</td>
<td>57</td>
</tr>
</tbody>
</table>
Table 3 Number of primary lung resections

<table>
<thead>
<tr>
<th>Year and Source</th>
<th>SBUHB</th>
<th>CVUHB</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016/17 SCTS*</td>
<td>159</td>
<td>194</td>
<td>353</td>
</tr>
<tr>
<td>2017/18 SCTS*</td>
<td>162</td>
<td>279</td>
<td>441</td>
</tr>
<tr>
<td>2018/19 WHSSC</td>
<td>168</td>
<td>273</td>
<td>441**</td>
</tr>
</tbody>
</table>

*excludes exploratory procedures with no resection
** forecast from M11

Surgical resection is currently the only curative option for lung cancer, therefore long term survival rates are closely related the number of resections carried out at a centre. The table below shows the resection rate for patients across south Wales based on the hospital of referral. This shows a significant variance in lung resection rates from 27% to 13%. The best resection rate across the UK is reported from Papworth Hospital at 28%. The aim with a single centre is to consistently increase the resection rate to be amongst the best in the UK and to do this across the region.

Table 4 Lung Cancer Audit 2018 (2017 data)

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Resection rate</th>
<th>Total cases</th>
<th>Number resected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bronglais General Hospital</td>
<td>15.40%</td>
<td>56</td>
<td>9</td>
</tr>
<tr>
<td>Prince Philip Hospital</td>
<td>18.40%</td>
<td>188</td>
<td>35</td>
</tr>
<tr>
<td>Withybush General Hospital</td>
<td>15.10%</td>
<td>97</td>
<td>15</td>
</tr>
<tr>
<td>Princess of Wales Hospital</td>
<td>27.00%</td>
<td>106</td>
<td>29</td>
</tr>
<tr>
<td>Morriston Hospital</td>
<td>22.90%</td>
<td>294</td>
<td>67</td>
</tr>
<tr>
<td>University Hospital Llandough</td>
<td>17.10%</td>
<td>290</td>
<td>50</td>
</tr>
<tr>
<td>The Royal Glamorgan Hospital</td>
<td>23.10%</td>
<td>152</td>
<td>35</td>
</tr>
<tr>
<td>Prince Charles Hospital Site</td>
<td>18.30%</td>
<td>133</td>
<td>24</td>
</tr>
<tr>
<td>Nevill Hall Hospital</td>
<td>13.10%</td>
<td>106</td>
<td>14</td>
</tr>
<tr>
<td>Royal Gwent Hospital</td>
<td>18.80%</td>
<td>268</td>
<td>50</td>
</tr>
<tr>
<td>South Wales</td>
<td>19.40%</td>
<td>1690</td>
<td>328</td>
</tr>
<tr>
<td>Wales</td>
<td>18.30%</td>
<td>2179</td>
<td>399</td>
</tr>
</tbody>
</table>
## Proposed Activity Requirements

### MDTs

At the recent clinical summit meetings the two clinical leads suggested the following MDT configuration based on six surgeons with two surgeons covering each MDT to ensure that there is always a surgical presence at the MDT and to improve consistency of decision making.

<table>
<thead>
<tr>
<th>Lung Cancer MDT</th>
<th>New Cases/Year (NLCA 2015)</th>
<th>Surgeon Responsible</th>
<th>Surgeon Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBU HB Morriston MDT (Singleton, Morriston, Neath)</td>
<td>311</td>
<td>Surgeon 1</td>
<td>Surgeon 4</td>
</tr>
<tr>
<td>Hywel Dda MDT GGH (GGH, BGH, WGH, PPH)</td>
<td>311</td>
<td>Surgeon 2</td>
<td>Surgeon 5</td>
</tr>
<tr>
<td>CTM HB MDT POW</td>
<td>108</td>
<td>Surgeon 3</td>
<td>Surgeon 6</td>
</tr>
<tr>
<td>Prince Charles MDT</td>
<td>126</td>
<td>Surgeon 4</td>
<td>Surgeon 1</td>
</tr>
<tr>
<td>ABUHB NHH, Gwent</td>
<td>257</td>
<td>Surgeon 5</td>
<td>Surgeon 2</td>
</tr>
<tr>
<td>Royal Glamorgan &amp; C&amp;V MDT</td>
<td>407</td>
<td>Surgeon 6</td>
<td>Surgeon 3</td>
</tr>
</tbody>
</table>

With the advent of the new Cwm Taf Morgannwg Univeristy Health Board it could be feasible that PoW, Prince Charles and Royal Glamorgan join as one MDT but for planning purposes the arrangement suggested by the Clinical Summit have been used. It will however be important that any agreed final model reflects the input of the All Wales Cancer Network and the output of their peer review programme.

As suggested also by the two clinical leads, if six surgeons were in post this would provide each surgeon with the following new cases.
Outpatient and Pre-assessment Clinics

The 2018/19 contract monitoring returns for the two centres for outpatient activity is as follows

Cardiff & the Vale University Health Board

New outpatients: 521
Follow Up: 1085

Swansea Bay (inc Bridgend)

New outpatients: 313
Follow Up: 616

Based on the information from other centres in England pre-assessment/outpatient clinics need to run daily and this is usually at the thoracic centre so in this case Morriston. Additionally the two clinical leads further proposed the need for clinics in the peripheral hospitals for cases identified at the MDT. The suggestion is therefore that in addition to the daily clinics in Morriston there are:

- two clinics/week in Cardiff
- one each in the other Health Board areas which could rotate around the hospitals within the Health Board. This would need to be confirmed once the implementation group have finalised their work on the service model.

Pre-habilitation

It is proposed that this occurs at all hospitals but is not consultant led.

Operating Lists

<table>
<thead>
<tr>
<th>Lung cancer MDTs</th>
<th>Total New Cases (NLCA 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgeon 1</td>
<td>311 + 126 = 437</td>
</tr>
<tr>
<td>Surgeon 2</td>
<td>311 + 257 = 568</td>
</tr>
<tr>
<td>Surgeon 3</td>
<td>108 + 407 = 515</td>
</tr>
<tr>
<td>Surgeon 4</td>
<td>126 + 311 = 437</td>
</tr>
<tr>
<td>Surgeon 5</td>
<td>257 + 311 = 568</td>
</tr>
<tr>
<td>Surgeon 6</td>
<td>407 + 108 = 515</td>
</tr>
</tbody>
</table>
The RCS recommended that each surgeon should have at least one operating list per week. Information from the surgeons at both UHW and Morriston suggest that the most efficient way is to run a long list, essentially equivalent to 3 consultant session days. Advice from both centres also suggests that around 4 cases per long day is an appropriate number.

The planned activity is around 1300 cases/year, although it is likely to be less than this at the outset based on current figures. So for 4 cases per 3 session list = 325 lists/year = 6.25 lists/week.

**On call**

The RCS report suggested a one in five on-call duty which includes weekend cover for five surgeons so it is proposed that this is a one in six for six surgeons which with prospective cover would equate to around 1 in 5.

**Major Trauma Centre**

The concerns about cover for the major trauma are acknowledged and it is understood that the “go live” date of April 2020 is a key driver for the urgency required in agreeing the consultant workforce configuration.

Advice provided by the Major Trauma Network Clinical Lead suggests that a thoracic surgeon would need to attend the MTC to deal with an emergency 3 to 8 times per year.

Advice from the two thoracic centres varies one centre stating that they are rarely called in out of hours and the other suggesting that they are called 1 to 2 times per month.

Should there only be one on call rota covering the thoracic surgical centre and the MTC the concern is clearly that the surgeon will be required in both places at the same time. The analysis below is based on the NCEPOD Report from 2003 which carried out a comprehensive review of non-elective surgery. The analysis is based on the figures quoted in that report which are for combined cardiothoracic surgery. We have taken advice from the President of the Society of Cardiothoracic Surgeons regarding the relevance of this analysis to current clinical practice and whilst there have been some changes, including increasing use of rib fixation, it was felt that there was unlikely to be a material difference in the frequency of clinical emergencies. These figures, because they include cardiac emergencies are therefore likely to overestimate of the thoracic surgery emergency workload.

From this analysis, the probability of a thoracic surgery emergency and an MTC emergency arising on the same day is 1 in 429 days.

The probability of this occurrence in the same hour i.e. at exactly the same time is 1 in every 6,857 days i.e. once every 18.8 years.
Calculation of Thoracic Surgery On Call Probability

**NCEPOD 2003 Non Elective Surgery in the NHS**

**Percentage of Non-elective operating**
Cardiothoracic surgery 17.10%

**Operating Time of Day**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Weekday</th>
<th>Weekday</th>
<th>Weekend</th>
<th>Weekend</th>
<th>Night</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiothoracic (n)</td>
<td>120</td>
<td>21</td>
<td>13</td>
<td>2</td>
<td>9</td>
<td>165</td>
</tr>
<tr>
<td>Percentages</td>
<td>72.7%</td>
<td>12.7%</td>
<td>7.9%</td>
<td>1.2%</td>
<td>5.5%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total Percentage On call window</td>
<td>100%</td>
<td>27 3%</td>
<td>72.7%</td>
<td>12.7%</td>
<td>7.9%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

South Wales Thoracic Surgery total
Non elective @17.1% based on cardiothoracic average NEL 1,100

Estimated allocation to time of day
Total in on call window 188

Probability per day of thoracic case on call 0.1397

**Major Trauma Thoracic Surgery Activity**
Weekend 8 per annum
Weekday 2.3 per annum
Weekday out of hours 5.7 per annum
Total major trauma estimated for weekend and out of hours 6.1 per annum

Probability per day of major trauma thoracic case on call 0.0167

Cumulative probability of thoracic case on call and major trauma thoracic case same day 0.0023

Estimated frequency of occurrence same day - 1 in every 429 days - 1.2 years
Estimated frequency of occurrence same hour (day * 16 hours) - 1 in every 6,857 days - 18.8 years

Assumptions
1. Thoracic non elective rate equivalent to average across cardiothoracic surgery - in practice cardiac likely to be higher
2. Assumes all cases performed by surgeon visiting on site and not by advice
3. Both of these assumptions likely to overstate frequency of occurrence

On this basis and given the commitment to the development of the skills of the trauma team to manage immediate thoracic trauma the likelihood of the surgeon being required to be in both centres at the same time during the night or on weekends ie when there is no surgeon on site at UHW is extremely low. It is therefore suggested that both the MTC and the thoracic surgical centre can be covered by one on call rota once the surgical centre is established.

### Required Consultant Workload Total number of Sessions/week

The following table takes all the analysis above and provides a breakdown across the activities of the number of consultant sessions required per week.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Per Week</th>
<th>Total sessions Per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theatre sessions</td>
<td>6.25 X 3 session lists</td>
<td>18.75</td>
</tr>
<tr>
<td>Pre-assessment and Outpatient clinics</td>
<td>Morriston daily Cardiff 2/week Glangwili/PPH (alternate weeks) Gwent/NHH (alternate weeks)</td>
<td>10</td>
</tr>
</tbody>
</table>

Appendix D
Appendix D

<table>
<thead>
<tr>
<th></th>
<th>PoW/PCH/RGH (1 every 3 weeks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDT</td>
<td>6 (not full sessions) 3</td>
</tr>
<tr>
<td>On call</td>
<td>Intensity Payment Intensity Payment</td>
</tr>
<tr>
<td>Travel</td>
<td>5 estimate 5</td>
</tr>
<tr>
<td>Ward Rounds M-F</td>
<td>5 5</td>
</tr>
<tr>
<td>Admin</td>
<td>5 5</td>
</tr>
<tr>
<td>Total</td>
<td><strong>46.75</strong></td>
</tr>
</tbody>
</table>

Admin and SPAs will need to be added to the above depending upon the number of surgeons.

**Specimen Job Plan – 10.5 sessions 7.5:3 split**

- Theatre 3.0
- OPD/pre-assessment 1.0
- MDT 0.5
- Admin 1.0
- Ward Round 1.0
- Travel 1.0
- SPA 3.0

Based on the above split then 6.2 consultants would be required.

On an 8.5 session DCC with 2 SPAs

- Theatre 3.0
- OPD 2.0
- MDT 0.5
- Admin 1.0
- Ward Round 1.0
- Travel 1.0
- SPA 2.0

Based on the above then 5.5 consultants would be required.

We do not know the number of sessions included in the current establishment of thoracic surgeons but we do know that the Welsh average is over 10 and the average number of SPAs is less than 3.

**Covering the MTC from April 2020**

As stated the planned go live date for the MTC is April 2020. It is not expected that the thoracic surgical centre will be established for around 2 years as capital infrastructure is required.

There is a clear level of anxiety about how the thoracic work will be covered at the MTC from April 2020 especially given that the trauma teams and the resuscitative surgeons may not be experienced in working in an MTC.

Additionally the majority of work for thoracic surgeons in an MTC is rib fixations. It is suggested that similar to other centres, rib fixations can be undertaken by
orthopaedic surgeons. However it is recognised that this will take some time to
come to practice at the MTC and that thoracic surgeons are likely to be required
to undertake the rib fixations in the short term.

Given all this the recommendation is that an additional locum thoracic surgeon is
appointed at UHW for between 6 and 12 months in the first instance, to provide
additional support from April 2020 and that the two thoracic consultant teams
develop plans to work together. During this time where there are regular reviews
of the emergency activity levels.

The advantage of this recommendation is that the MTC is better supported and
that during the period that the locum is in place some of the assumptions in this
paper can be tested especially regarding the need for a thoracic surgeon to
attend the MTC in an emergency. It will also allow the thoracic surgery
implementation group to complete its work on the model and will then allow a
further discussion at Joint Committee on the long term model including
consultant workforce when the implementation business case is presented.

Cost of additional locum – this is estimated to be in the order of £150,000
including on-costs, travel, intensity allowance etc.

Recommendation

To note the analysis and that this would draw the conclusion that the number of
thoracic consultant surgeons required for the workload is around 5.5 to 6.2 wte
consultants required depending upon exact job plan and DCC/SPA split.

To note that the amount of operating time is the crucial driver and that for the
predicted activity (outturn plus 20%) 6.25 lists will be required every week. To
enable every surgeon to have one full operating list this means that around 6
surgeons will be required.

Given the low probability of the surgeon being required to attend the MTC and
the thoracic surgery centre at exactly the same time that there should be one
call rota.

In recognition of the concerns regarding support to the MTC when it opens in
April 2020 that a short term locum consultant is appointed in UHW. This will not
impact on the total recommended numbers of consultants but will enable
support for the MTC and to test and build confidence in the system whilst the
final service model is being determined. Also that during this time the two
thoracic centres develop plans to work together.

Appendix D
Information from the Liverpool thoracic centre was presented at the Clinical Summit in May 2019. It was noted at this meeting that for a population of around 2.8 million people Liverpool have 5.5 wte thoracic surgeons working on a team based approach.

They operate on a hub and spoke model which supports 10 peripheral hospitals.

Weekly Clinics with attendance in person by thoracic surgeon.

- All new patients travel to LHCH.

Weekly Lung MDTs:

- 4 major MDTs with direct attendance & cross cover.
- Others by VC.

**MDTs:** High Risk cases MDT, Lung cancer MDTs and Specialist MDTs.

**Trauma support**

- Trauma centre is 7 miles away.
  - Self-sufficient and independent.

- Chest trauma cases -
  - Phone Thoracic Consultants directly.
  - Thoracic Surgeons only contacted after local decision to open chest has been made.
  - Occasionally have to go to site.
  - Clinic every Thursday am. Patients seen by MS.

- Rib Fractures delt by Orthopaedic Surgeons who are now self-sufficient.
Golden Jubilee Hospital Clydebank

This centre covers a population of around 2.2m people. They are currently advertising for a consultant thoracic surgeon to join their team.

They have 4 full time thoracic surgeons + 1 mixed practice. (their current advert is for a vacancy in their full time establishment)

They cover 9 MDTs

1:4 on call with prospective cover & part of trauma team with MTC in Glasgow
Addendum Following Consultation

To note that surgery is not the only cure for lung cancer as there are radiotherapy techniques that are also curative but recognising that surgery has the best 5 year survival rates.

Clarity that the proposal, subject to fully being agreed via the implementation group, is that each MDT is supported by 2 surgeons.

The MDT numbers for Aneurin Bevan are not correct.

Other Changes Recommended Following Consultation

The locum consultant should be appointed for 12 months and not 6 to 12 months.