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A Comparative Picture of Orthopaedic Services

Cwm Taf University Health Board

Date: June 2015

Reference number: 231A2015

This report has been prepared on the basis of work done under the Government of Wales Act 1998 and the Public Audit (Wales) Act 2004.

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Summary report

- 1 In 2013, the Auditor General undertook a local mandated review of orthopaedic services across Wales. The review sought to answer the following question: Are orthopaedic services efficient, effective and economical and are they being designed and delivered in a sustainable manner? The findings of that work are set out in the national report **A Review of Orthopaedic Services**.
- 2 As part of the methodology underpinning the review, we collected a range of data to understand the performance of current orthopaedic services within each health board. This report sets out our view of orthopaedic services in Cwm Taf University Health Board (the Health Board) and our view of how the service compares to the rest of Wales.
- 3 We have based our view on the efficiency, effectiveness and economy of orthopaedic services provided by the Health Board using the patient pathway. Collection of the data has been from a range of sources, which are set out in **Appendix 1**, and the data used is the most available data at the point of reporting. The findings from the data analysis are set out in the main body of this report but the high-level messages are set out in **Exhibit 1**. **Exhibit 2** is a summary assessment that uses a traffic light rating to show how the Health Board compares with the rest of Wales on each indicator and, where applicable, Welsh Government targets.

Exhibit 1: High-level messages

Although there is a good level of investment in primary care and referrals for orthopaedic services appear to be reducing, many referrals are now artificially routed through physiotherapy services, which is unable to cope with demand. Once on the orthopaedic pathway, both outpatient and inpatient services are generally inefficient and there are mixed outcomes for patients:

- there is a positive level of investment in primary care with a reduction in referrals for orthopaedic services, but the Clinical Musculoskeletal Assessment and Treatment Service (CMATS) is not operating in line with its intended purpose, which is resulting in referrals now being routed through physiotherapy services;
- outpatient services are inefficient with high levels of follow-up appointments, Did Not Attend (DNAs) and cancellations, and physiotherapy and radiology services are unable to meet demand;
- length of stay and the consequent use of orthopaedic bed capacity could be significantly improved by increasing day-case rates, day of surgery admissions and theatre utilisation; and
- follow-up arrangements generally work well although outcomes from surgical intervention are mixed both across the Health Board and in comparison with the rest of Wales.

Exhibit 2: Summary assessment

Primary and community based services		
Indicator	Health board performance	Performance rating
Has the Health Board invested in primary care provision?		
Increased investment in primary care musculoskeletal provision	Spend on primary care provision for musculoskeletal problems have increased by 29 per cent between 2010 and 2013.	
Total spend on primary care provision	Average spend per head of population on primary care is the highest across Wales at £19.60.	
Proportion of total musculoskeletal spend allocated to primary care	The proportion of total musculoskeletal spend on primary care is the second highest in Wales at 15.4 per cent.	
Range of community based services available to GPs	The range of community based services available to GPs is less comprehensive than that of other health boards.	
Receipt of alternative intervention prior to surgery	The extent to which patients receive alternative intervention prior to surgery is high, with less reliance also placed on pain relief.	
Is demand for secondary care services managed?		
GP referral rate	The rate of GP referrals per 100,000 head of population is below the all-Wales average.	
Trend in referrals	The trend in GP referrals is reducing, which is the only downward trend in Wales.	
Is the CMATS operating effectively?		
CMATS in place	The Health Board introduced CMATS in its current service structure in 2011.	
CMATS operational arrangements	CMATS comply with the key Welsh Government principles with the exception of holding clinics in locality centres and GP involvement.	

Primary and community based services		
Indicator	Health board performance	Performance rating
CMATS staffing levels	The level of CMATS staff per 1,000 GP referrals is the highest in Wales.	
Patients treated by CMATS	84.9 per cent of patients referred received a face-to-face assessment by CMATS. This compares significantly high and may reflect a broader physiotherapy workload.	Descriptor indicator
Waiting times for face-to-face assessment by CMATS	The average wait from referral to face-to-face assessment by CMATS is outside the Welsh Government target of eight weeks, with a wait of 13 weeks. Waits are classed as physiotherapy waits which is inconsistent with Welsh Government guidance.	

Outpatient and diagnostic services		
Indicator	Health board performance	Performance rating
Are outpatient services effective?		
Waits for first outpatient appointment	The percentage of patients waiting more than 26 weeks for first outpatient appointment has increased, although performance remains below the all-Wales position.	
Consultant outpatient sessions	The number of consultant outpatient sessions per 1,000 GP referrals is the highest across Wales.	Descriptive indicator
Cancelled outpatient clinics	The Health Board was unable to report the proportion of cancelled outpatient clinics.	-
New to follow-up ratios	The ratio of follow-up to new appointments in the Health Board is the second highest in Wales at 2.3 and above the Welsh Government target of 1.9	

Outpatient and diagnostic services		
Indicator	Health board performance	Performance rating
DNA rates	DNA rates are above the Welsh Government targets at 8.7 per cent of new appointments and 13 per cent of follow-up appointments. The follow-up DNA rate is the highest in Wales.	
Patient cancellations	The patient cancellation rates are 5.7 per cent and 10.7 per cent for new and follow-up appointments respectively.	
Co-ordination of visits	Eighty-eight per cent of patients felt that the Health Board tried to co-ordinate the number of visits that they need to make. This is just below the all-Wales average.	
Cost per outpatient attendance	The cost per outpatient attendance is the lowest across Wales at £71.92 per outpatient attendance.	
Are physiotherapy services able to meet demand?		
Waits for physiotherapy services	The percentage of patients waiting less than eight weeks has been lower than the all-Wales average at 78 per cent, but patients are no longer waiting more than 14 weeks.	
Range of settings	Physiotherapy services are provided in a range of community and acute settings, although there is no provision in primary settings.	
Ease of access	Patients are not yet able to self-refer directly to the physiotherapy service.	
Availability of services	The provision of outpatient physiotherapy services is, in the main, a traditional five-day service.	

Outpatient and diagnostic services		
Indicator	Health board performance	Performance rating
Are radiology services able to meet demand?		
Waits for all radiology tests	Waiting times for radiology tests are increasing and performance is above the all-Wales average.	
MRI referral rates	The rate of referrals for MRI scans from GPs is lower than the all-Wales average, but higher for consultant referrals.	
Waits for MRI scans	The percentage of patients waiting more than eight weeks for MRI scans has been consistently higher than the all-Wales average since 2012.	

Inpatient services		
Indicator	Health board performance	Performance rating
Is there evidence that arrangements relating to surgical procedures are effective?		
Pre-operative assessment arrangements	Pre-operative assessment arrangements are in place and are consistent across the Health Board.	
Receipt of pre-operative assessment	All patients undergoing knee replacement surgery received a pre-operative assessment prior to admission, although 27 per cent of patients received it less than three weeks before surgery.	
Procedures of limited clinical effectiveness	The rate of procedures of limited clinical effectiveness is below the all-Wales average for Rhondda Cynon Taf residents, but higher for Merthyr Tydfil residents.	
British Association of Day Surgery (BADs) day-case rates	The percentage of the recommended orthopaedic procedures undertaken as a day case is below the Welsh Government target for both Prince Charles and Royal Glamorgan hospitals at 65 and 70 per cent respectively.	

Inpatient services		
Indicator	Health board performance	Performance rating
Implementation of 'joint school' ¹	The Health Board has implemented the 'joint school' although this is currently only available in Royal Glamorgan Hospital.	
Waits for surgery	The percentage of patients waiting more than 26 weeks for admission exceeded the all-Wales average in 2013 but has since reduced.	
Is bed capacity used effectively?		
Day of surgery admission	The proportion of patients admitted on the day of surgery is the lowest across Wales at both Prince Charles and Royal Glamorgan hospitals.	
Reduction in inpatient beds	The total number of orthopaedic beds has reduced by 9.4 per cent between 2010-11 and 2013-14.	Descriptor indicator
Bed occupancy	Occupancy rates have dropped below the optimal level of 85 per cent across the Health Board. There is variation between sites, with 90.5 occupancy at Prince Charles Hospital.	

¹ Joint schools provide educational sessions for patients undergoing orthopaedic surgery including an opportunity for patients to practice physiotherapy exercises and techniques that will be required post-operatively.

Inpatient services		
Indicator	Health board performance	Performance rating
Is operating theatre capacity used effectively?		
Theatre utilisation	Orthopaedic theatre utilisation ranges between 80 and 93 per cent across the Health Board. This remains below the Welsh Government target of 95 per cent.	
Cancelled operations	The rates of cancelled operations and cancelled theatre sessions are both high, with 34.7 per cent of lists cancelled at Prince Charles Hospital.	
Is length of stay kept to a minimum?		
Average length of stay for elective orthopaedic admissions	Average length of stay for an elective orthopaedic patient in the Health Board is 4.5 days, which is outside the Welsh Government target of four days and the highest across Wales.	
Average length of stay for hip and knee replacements	The average lengths of stay for patients undergoing hip and knee replacements are within Welsh Government targets at Royal Glamorgan Hospital, but are among the highest across Wales at Prince Charles Hospital.	
Cost per inpatient episode	Average cost of an elective orthopaedic hospital episode in the Health Board is below the all-Wales average at £3,960.	
Prosthetic cost per inpatient episode	The average cost of prostheses per episode for the Health Board has fallen below the all-Wales average to £415.65.	
Cost per day case	The cost of an elective orthopaedic day case is around the all-Wales average at £1,225.	

Inpatient services		
Indicator	Health board performance	Performance rating
Cost per inpatient bed day	The cost of an elective inpatient bed day is below the all-Wales average at £1,133.	
Are patients followed up?		
Follow-up appointment	All patients undergoing knee replacement surgery received a follow-up post-discharge.	
Follow-up appointment within recommended timescales	Ninety-seven per cent of patients undergoing knee replacement surgery received their follow-up within six weeks and three months after discharge. This is the highest in Wales.	
Are adverse complications avoided and the benefits of surgery optimised?		
Surgical Site Infections (SSIs)	The rates of SSIs for both hips and knees are lower in all hospital sites than the all-Wales average, with the exception of SSI following hip replacement at Prince Charles Hospital, which is at 2.6 per cent. The Welsh Government target is zero per cent.	
Readmission rates for hip and knee replacements	The readmission rates following elective hip and knee replacements are well below the all-Wales average.	
Mortality rates for elective orthopaedic patients	The Health Board reports no deaths in hospital following elective orthopaedic admissions in 2012-13. Death rates within 30 days of discharge are slightly above the all-Wales average.	
Revision rates	The rate of revision for hips and knees is around the all-Wales average for Rhondda Cynon Taf residents, but the knee revision rate for Merthyr Tydfil residents is the highest in Wales at 1.4 per cent.	

Inpatient services		
Indicator	Health board performance	Performance rating
Improvement of symptoms	<p>Only 70 per cent of patients at Royal Glamorgan Hospital reported that surgery had partially or significantly improved their symptoms. This is the lowest response in Wales. However, all patients surveyed at Prince Charles Hospital reported improvements.</p>	

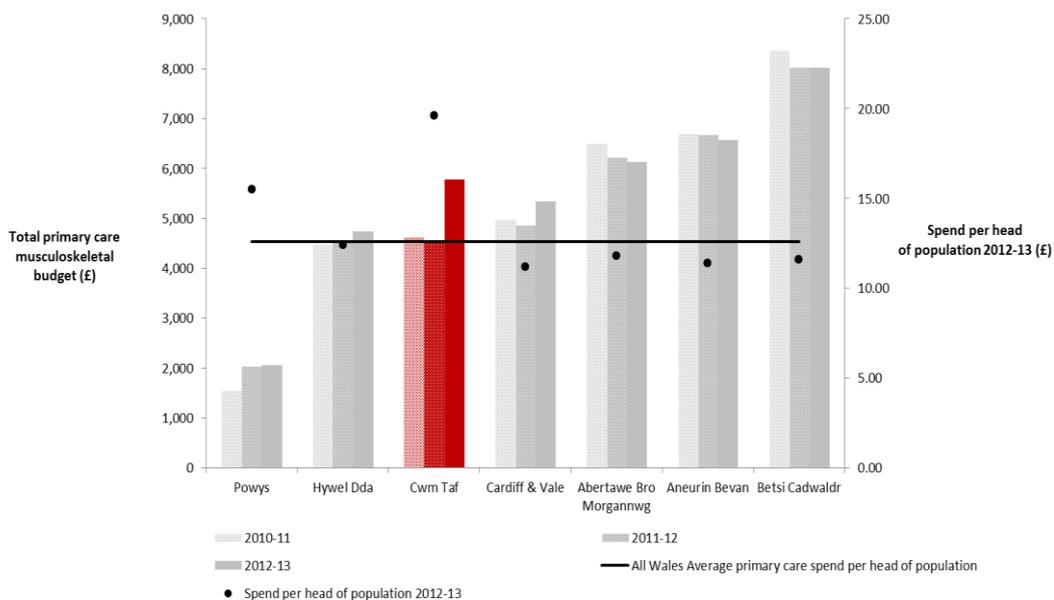
Part 1

1 Primary and community based services

Primary care provision

1.1 Over the last three years, the Health Board has increased its primary care spend on musculoskeletal services by 29 per cent (**Exhibit 3**). The Health Board spend per head of population on primary care musculoskeletal services was the highest across Wales in 2013 at £19.60 (**Exhibit 3**).

Exhibit 3: Musculoskeletal programme budget spend on primary care between 2010 and 2013



Source: Stats Wales

1.2 The proportion of musculoskeletal monies spent on primary care was the highest in Wales in both 2010-11 and 2011-12, and second highest in 2012-13 ([Exhibit 4](#)). This would indicate that the Health Board has a more positive focus on primary care provision of musculoskeletal services, with primary care spend accounting for 15.4 per cent of total expenditure in 2012-13 compared against an all-Wales average of 11.2 per cent.

Exhibit 4: Proportion of musculoskeletal programme budget spent on primary care between 2010-11 and 2012-13

Health board	% of MSK programme budget spent on primary care		
	2010-11	2011-12	2012-13
Abertawe Bro Morgannwg	11.3	9.8	10.8
Aneurin Bevan	10.2	10.2	9.7
Betsi Cadwaladr	10.7	9.3	9.9
Cardiff and Vale	11.9	10.6	12.0
Cwm Taf	16.0	15.1	15.4
Hywel Dda	9.3	9.0	10.3
Powys Teaching	9.9	14.0	17.1
All Wales	11.1	10.4	11.2

Source: Stats Wales

1.3 As part of our work, we reviewed the level of direct access by GPs to primary and community based services, which could prevent an unnecessary referral to secondary care orthopaedic services. This would include such services as community pain services, self-management programmes, community based lifestyle programmes, community physiotherapy and chiropractic therapy. The Health Board reported having a number of services in place, which allow direct access by GPs, although the range of services compares less favourably to other parts of Wales ([Exhibit 5](#)).

Exhibit 5: GP direct access to primary and community based services

	Abertawe Bro Morgannwg	Aneurin Bevan	Betsi Cadwaladr	Cardiff and Vale	Cwm Taf	Hywel Dda	Powys
Physiotherapy	✓	✓	✓	✓	✓	-	✓
Extended role physiotherapist	✓	✓	✓	✓	✓	-	✓
Community pain service	✓			✓	✓	-	✓
GP with special interest in orthopaedic conditions/complaints	✓	✓	✓	✓		-	
Enhanced services relevant to orthopaedic conditions/complaints		In part				-	
Enhanced access to diagnostics		✓	In part			-	✓
Chiropractic therapy						-	
Community based lifestyle/weight-loss programmes		✓	✓	✓	✓	-	✓
Self-management programmes	✓					-	

Source: Wales Audit Office Health Board Survey

1.4 As part of our Survey of Patients Undergoing Knee Replacement Surgery, we asked patients whether they had received a range of alternative interventions prior to receiving surgery. A higher proportion of patients received physiotherapy advice, exercise programmes and weight management advice than the all-Wales average, which is positive. The proportion of patients receiving pain relief was the lowest across Wales at 63.6 per cent, which is also positive as it suggests that GPs are looking at alternative treatments as opposed to defaulting to prescribing medication (Exhibit 6).

Exhibit 6: Percentage of patients who received alternative intervention prior to knee replacement surgery

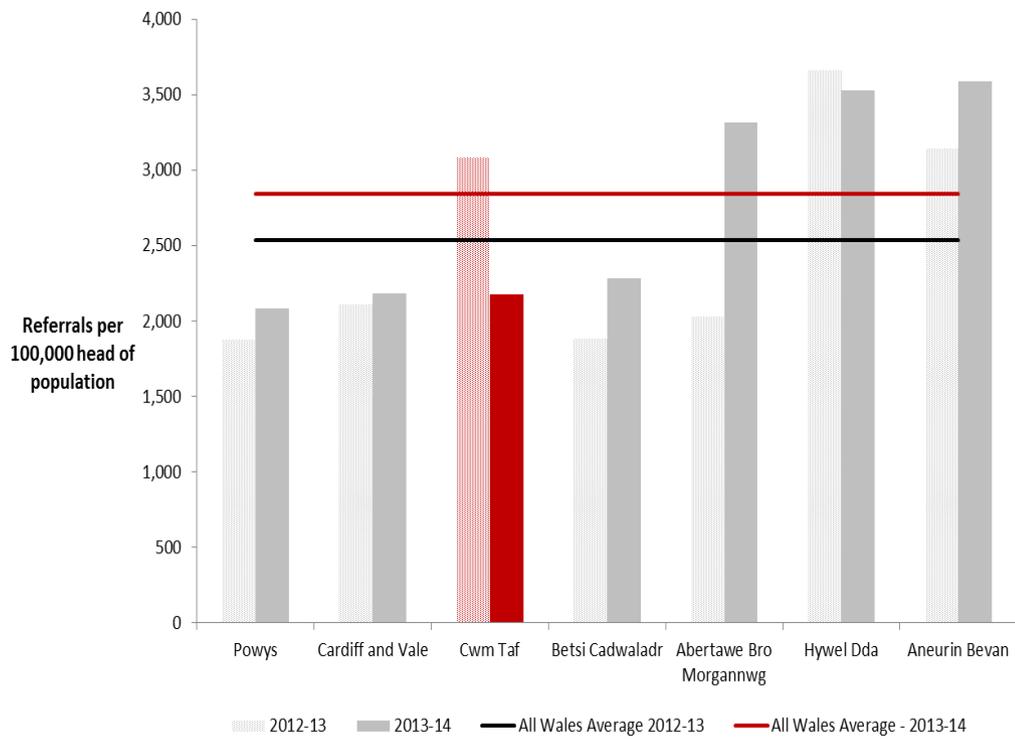
	Cwm Taf	All-Wales average
Percentage of patients receiving pain relief before surgery	63.6	74.9
Percentage of patients receiving physiotherapy advice or treatment before surgery	33.3	26.1
Percentage of patients receiving an exercise programme before surgery	36.4	23.4
Percentage of patients receiving weight management advice before surgery	15.2	9.1

Source: Wales Audit Office Survey of Patients Undergoing Knee Replacement Surgery

GP referrals

- 1.5 The Health Board's rate of GP referrals for orthopaedics per 100,000 head of population in Wales is now below the all-Wales average. The rate of referrals has reduced dramatically since 2012-13 ([Exhibit 7](#)), and the Health Board is only one of two health boards in Wales that have experienced a downward trend. The proportions of residents aged 65 and over across the Health Board's two main catchment areas are some of the lowest in Wales, with 18.1 per cent and 17.5 per cent in Rhondda Cynon Taf and Merthyr Tydfil respectively. The average proportion of residents aged 65 and over across Wales is 19.5 per cent. The age of the population is a contributory factor to orthopaedic referral rates across Wales, which would indicate that local demand for orthopaedic services in 2012-13 may not have been effectively managed.

Exhibit 7: GP referrals per 100,000 head of population 2012-2014



Source: Stats Wales

1.6 Typically, the Health Board used to receive an average of more than 800 GP referrals per calendar month. The number of GP referrals for orthopaedics is now lower, with the average between April 2013 and January 2015 around 523 referrals per month (Exhibit 8).

Exhibit 8: Number of GP referrals received April 2012 – March 2015



Source: Stats Wales

Community musculoskeletal assessment and treatment services

1.7 In 2012, the Welsh Government introduced the concept of the CMATS. The aim of the CMATS is to provide a first point of contact for GP referrals for assessment and treatment of musculoskeletal-related pain and conditions as a way of ensuring that the right referrals for orthopaedic services are filtering through to secondary care. The Health Board introduced CMATS in its current structure in 2011 across its two localities. The Welsh Government set out clear guidance as to how CMATS should operate. Local compliance with some of the key principles set out in the Welsh Government guidance, however, is variable ([Exhibit 9](#)).

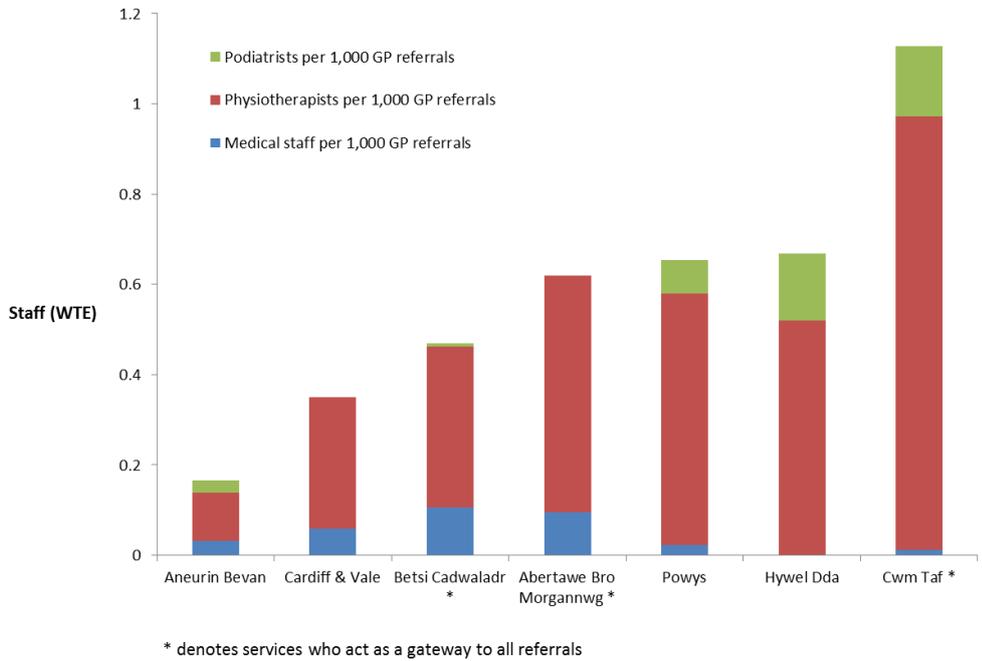
Exhibit 9: Compliance with the key principles set out in the Welsh Government guidance on CMATS

Principle	Compliance by this health board	Number of health boards across Wales complying
Clinics held in a combination of locality and secondary care centres	✘ (Clinics all held in a hospital setting).	All except Aneurin Bevan and Cwm Taf
All musculoskeletal referrals (with the exception of specific exclusions) will go to the CMATS	✓	Three (Abertawe Bro Morgannwg, Betsi Cadwaladr and Cwm Taf)
Staff have direct access to diagnostics	✓	All except Powys
The service consists of:		
Advanced practice physiotherapists	✓	All
Advanced practice podiatrists	✓	All except Abertawe Bro Morgannwg and Cardiff and Vale
GPs with knowledge, skills and interest in MSK conditions/complaints	✘	Four (Abertawe Bro Morgannwg, Aneurin Bevan, Betsi Cadwaladr and Cardiff and Vale)

Source: Wales Audit Office Health Board Survey

1.8 Despite having very limited medical input, the staffing levels for the CMATS compare significantly more favourable than all other teams across Wales (Exhibit 10). The Health Board's CMATS acts as a gateway to all referrals so it would be recognised that staffing levels would be higher than other CMATS who do not act at the gateway; however, the CMATS is very closely aligned to the physiotherapy department and therefore some of the staff levels may include staff who also provide generic physiotherapy treatment outside of the remit of CMATS. The reduction in the rate of GP referrals into the service, however, may also suggest that the staffing levels first established in 2011 may no longer be appropriate.

Exhibit 10: CMATS staffing levels



Source: Wales Audit Office Health Board Survey

1.9 One of the principles of CMATS is to assess, diagnose and treat patients whose treatment is applicable to the specialists within CMATS and where it is deemed possible that the patient can be seen and treated in a maximum of two visits ('face-to-face assessments'). Those patients who need treatment that is more intensive should be referred on to more appropriate services at the point of referral. From data provided by the Health Board, 84.9 per cent of patients referred received a face-to-face assessment. Not all health boards were able to provide this data; however, compared to those that could provide the data, this compares significantly high. Across the Health Board localities, waiting times to see the CMATS for a face-to-face assessment are included in the referral to treatment pathway for physiotherapy. This is contrary to Welsh Government guidance. The average wait from referral to face-to-face assessment is 13 weeks, which is outside the Welsh Government target of eight weeks. This wait is in line with physiotherapy services and would suggest that CMATS are being operated as a physiotherapy service.

1.10 From data provided by the Health Board, only 7.7 per cent of all patients through CMATS were referred onto secondary care orthopaedic services. This is positive, as it would indicate that 93 per cent were referred elsewhere. However, a large proportion of patients are managed within CMATS, some of which may subsequently need to be referred onto secondary care orthopaedic services. The introduction of CMATS has the potential to generate new demand that previously may not have existed and therefore some of the referrals received by CMATS may not have been referred into orthopaedics had the service not been in place.

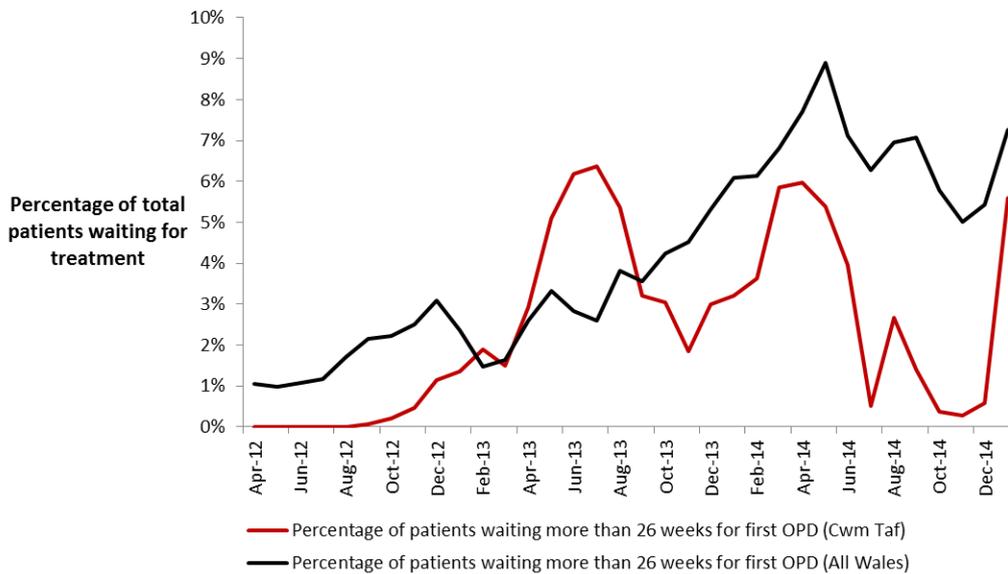
Part 2

2 Outpatients and diagnostic services

Outpatient services

2.1 In order to meet the Welsh Government target of 95 per cent of patients treated within 26 weeks of referrals, health boards should be working to an internal target of between 12 to 14 weeks for first outpatient appointment. The Health Board is currently working to an internal target of 16 weeks for first appointment, which places greater pressure on the diagnostic and inpatient element of the referral to treatment pathway to meet the 26-week-wait target. The percentage of patients waiting more than 26 weeks for their first outpatient appointment has varied between zero per cent and 6.4 per cent over the last two years. At January 2015, the percentage of patients waiting more than 26 weeks was 5.6 per cent, which was below the all-Wales position (Exhibit 11). An increasing trend in extended waits may indicate that there is insufficient outpatient capacity to meet with fluctuations in service demand.

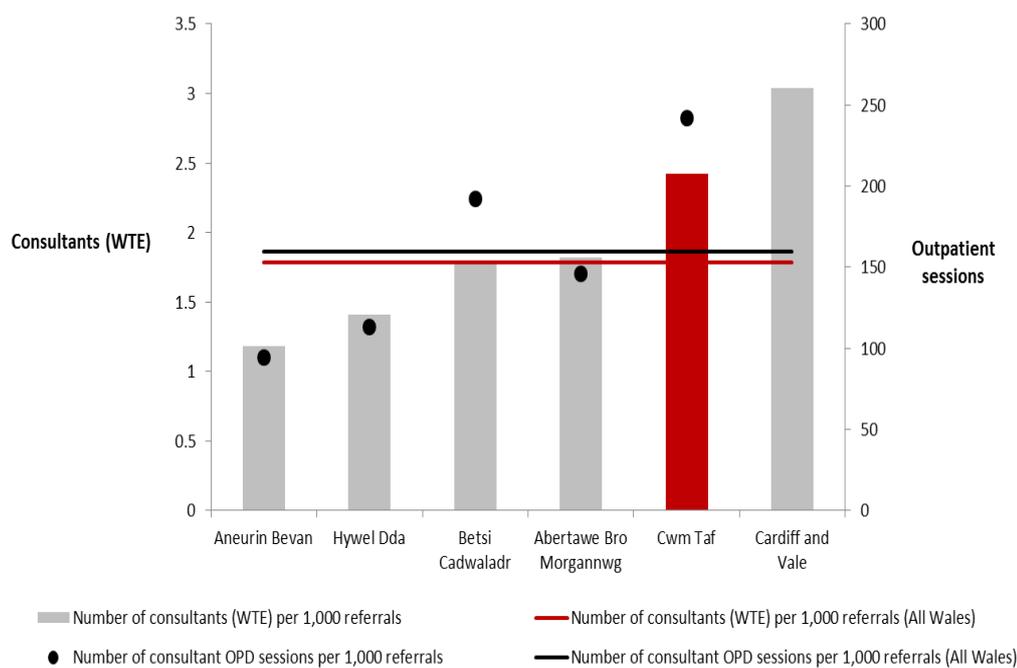
Exhibit 11: Percentage of patients waiting more than 26 weeks for first outpatient appointment



Source: Welsh Government Delivery Unit

2.2 The ability to meet outpatient demand is dependent on the extent to which health boards have the right level of medical staffing. Within the consultant capacity, it is also important to consider whether there is an appropriate balance within individual job plans between outpatient direct clinical care sessions and theatres. The number of consultants per 1,000 referrals at the Health Board is the second highest across Wales, and the number of consultant sessions dedicated to outpatient activity is the highest in Wales (**Exhibit 12**). Both of these indicators would suggest that there is sufficient consultant capacity to deal with the current outpatient demand. There could potentially be an impact on consultant availability for inpatient services such as theatre sessions if too much consultant time is being allocated towards outpatients.

Exhibit 12: Consultant staffing and outpatient sessions per 1,000 referrals for 2013-14

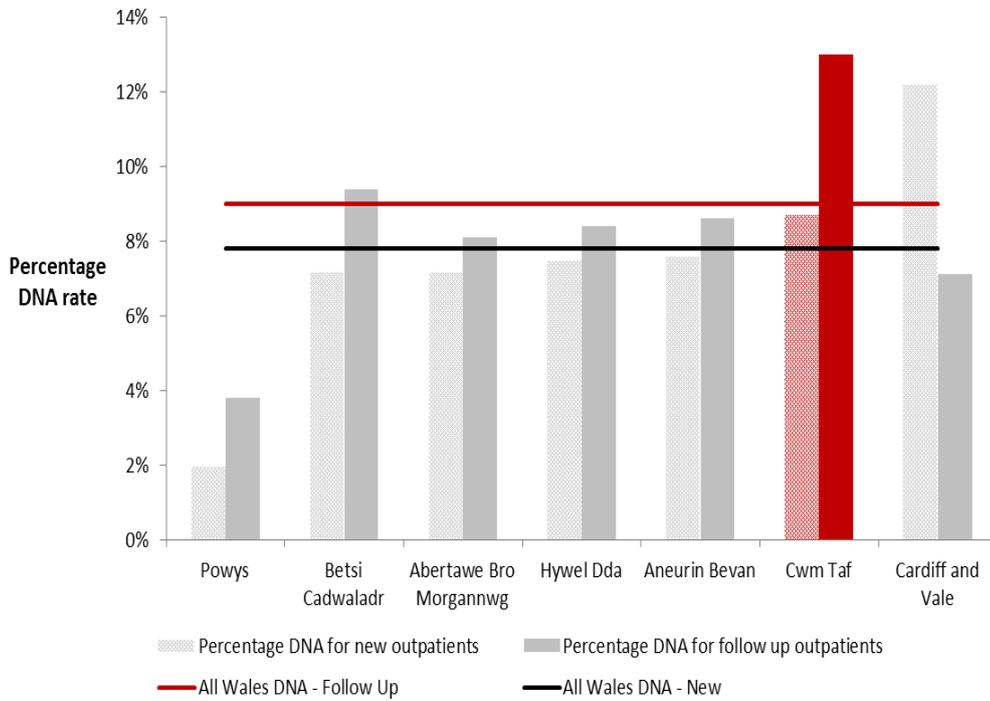


Source: Stats Wales and Wales Audit Office Health Board Survey

2.3 Once an outpatient session is planned, it is important that those sessions be maintained as cancelling a clinic creates additional pressures within the system, as it is still obliged to treat patients within 26 weeks. The Health Board was unable to report its rate of cancelled outpatient clinics for 2012-13 through our Health Board Survey. Many other health boards are unable to report this data for orthopaedic clinics.

- 2.4 Clinics consist of a mix of new and follow-up appointments based on demand for the service. Some patients may require follow-up appointments before professionals can make a clinical decision, while for other patients a single visit to outpatients is sufficient. Some patients who require follow-up appointments do not necessarily need to be seen by a doctor, or to be seen in the hospital setting. It is therefore important that patients are asked to return only when necessary and to the appropriate setting. This will help to avoid unnecessary follow-up attendances, which could displace patients who urgently need first appointments.
- 2.5 For the period 2013-14, the ratio of follow-up to new appointments in the Health Board was the second highest in Wales at 2.3 follow-up appointments to every new appointment. This is also higher than the previous Welsh Government target of 1.9.
- 2.6 Changes to the provision of outpatient services can help to reduce the number of times patients have to come to hospital. This could include hot clinics, or virtual clinics whereby patients are consulted with using modern technology. In our survey of patients who underwent knee replacement surgery, 87.5 per cent of patients felt that the Health Board tried to co-ordinate the number of visits that they needed to make. This compares just below the all-Wales average of 88.3 per cent.
- 2.7 The DNA rate and patient cancellation rate can provide an indication as to whether appointments are appropriate. The DNA rate for new outpatient appointments in the Health Board is above the all-Wales average at 8.7 per cent and the second highest in Wales. The Health Board also has the highest rate of non-attendance in Wales for follow-up appointments, at 13 per cent. This could indicate that many follow-up appointments are not necessary. The Welsh Government targets are five per cent for new appointments and seven per cent for follow-up appointments, indicating that there is considerable scope for improvement ([Exhibit 13](#)). Through the Health Board Survey, the Health Board's reported rates of patient cancellation for new and follow-up orthopaedic outpatient appointments are 5.7 per cent and 10.7 per cent respectively. Not all health boards were able to report cancellation rates and therefore there is no comparison available.

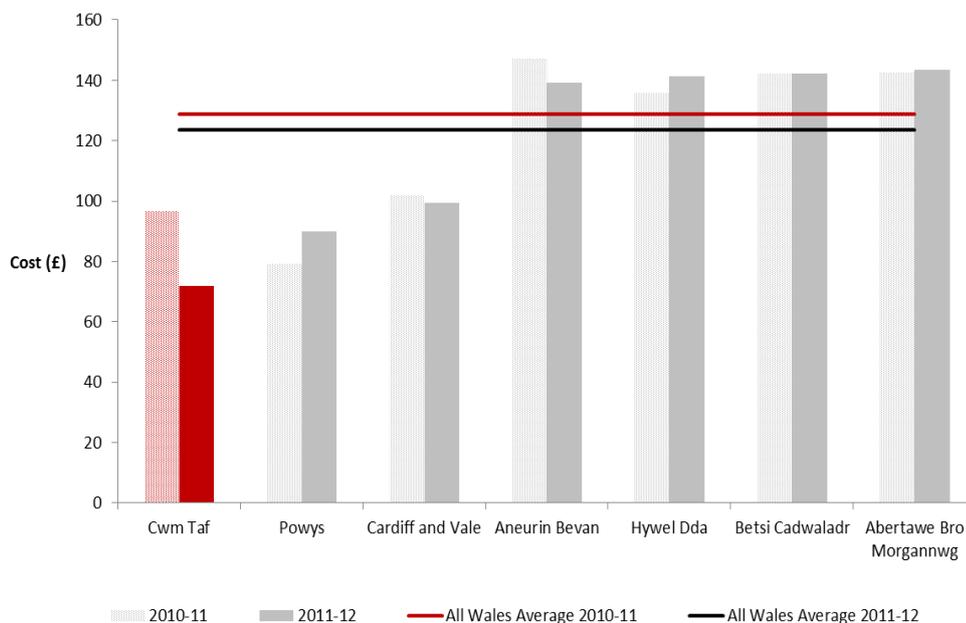
Exhibit 13: DNA rates for new and follow-up outpatients 2013-14



Source: Stats Wales

2.8 Using financial information submitted by the Health Board to the Welsh Government on an annual basis, we identified that the cost of an orthopaedic outpatient attendance in the Health Board was the lowest across Wales in 2011-12 at £71.92, and had reduced by more than 25 per cent on the previous year (Exhibit 14). The level of activity that goes through the outpatient departments will influence the cost of an outpatient attendance, along with a higher proportion of follow-up attendances, although other costs associated with staff and equipment will also be important factors.

Exhibit 14: Cost of an orthopaedic outpatient attendance for 2010-11 and 2011-12

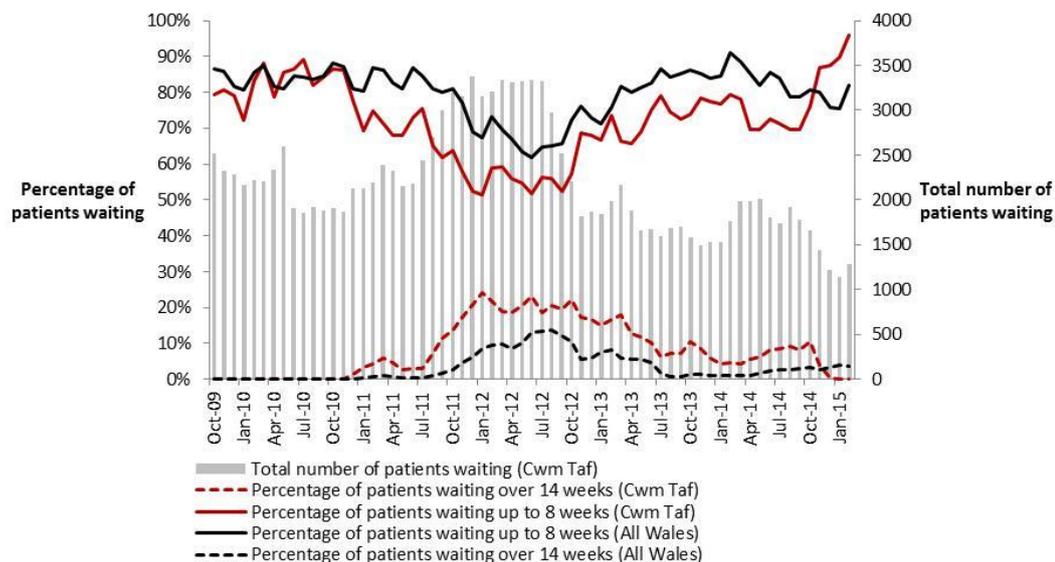


Source: Welsh costing returns

Physiotherapy services

- 2.9 The Health Board generally sees patients requiring physiotherapy to treat musculoskeletal problems less quickly than in other parts of Wales, although over recent months, performance has improved. During the period January 2014 to February 2015, the percentage of patients waiting less than eight weeks was 78.1 per cent at the Health Board compared to the all-Wales average of 82.3 per cent (Exhibit 15). Performance in February 2015 peaked to 96 per cent. Performance within the Health Board is marginally better at Prince Charles Hospital than at Royal Glamorgan Hospital. Performance significantly deteriorated during 2011 which correlates with when the CMATS were established.
- 2.10 The Welsh Government target is that no patient should wait more than 14 weeks for therapy services. Between December 2011 and December 2014, the Health Board did not meet this target. Since January 2015, performance has improved, with no patients waiting more than 14 weeks.

Exhibit 15: Waiting times for physiotherapy (adults)



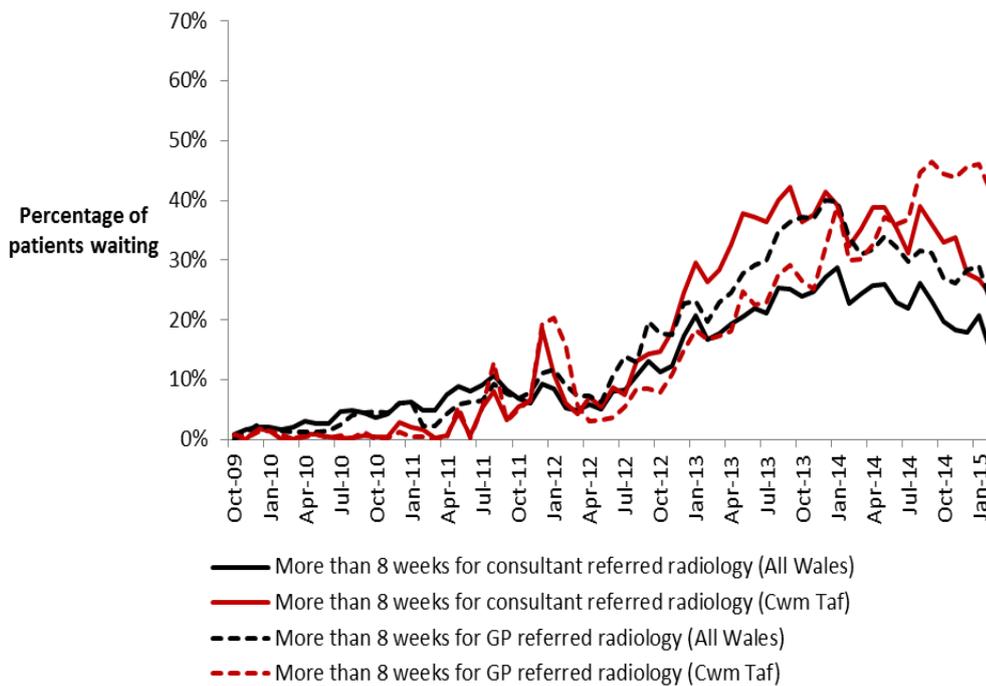
Source: Stats Wales

2.11 Outpatient physiotherapy services are provided in a wide range of settings across the Health Board although unlike other health boards across Wales, there is no physiotherapy provision in GP surgeries. The Health Board has not yet implemented a process of self-referral and patients who need physiotherapy continue to require a referral to the department by a health professional. Other health boards have implemented self-referral and this has provided the opportunity for patients to contact the department for advice prior to making a referral, or to be signposted to other more appropriate services. In common with the rest of Wales, the provision of physiotherapy services remains, in the main, a traditional five-day service within the working week.

Radiology services

2.12 In the main, patients with musculoskeletal problems will require access to radiological tests. Across the period April 2013 to March 2014, access to radiology tests requested by GPs in this Health Board was better than the all-Wales average (**Exhibit 16**). During this time, 27.8 per cent of patients at the Health Board waited more than eight weeks compared against 33 per cent across Wales. The Health Board performs less well for consultant referrals into the radiology service, with an average of 37.5 per cent of patients waiting more than eight weeks compared to 23.2 per cent across Wales (**Exhibit 16**). Data since April 2014 indicates that waiting times at the Health Board are rising and the percentage of patients waiting more than eight weeks in February 2015 was higher than the all-Wales position.

Exhibit 16: Percentage of patients waiting more than eight weeks for radiology tests



Source: Stats Wales

2.13 Across Wales, requests for MRI scans in 2013-14 accounted for 23 per cent and 39 per cent of all GP-referred radiology requests and consultant-referred radiology requests respectively. The proportions of MRI referrals in the Health Board are lower for GP-referred radiology requests (16 per cent) but higher for consultant-referred radiology requests (44 per cent). This pattern of referral is similar between the two main hospital sites (**Exhibit 17**).

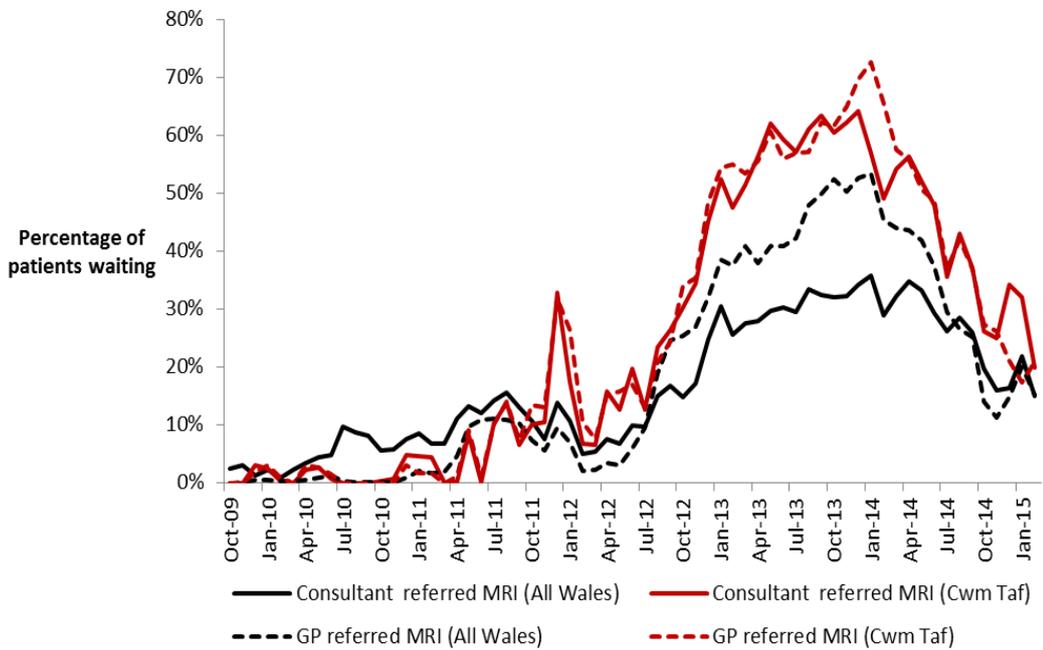
Exhibit 17: Proportion of radiology requests for MRI scans

Hospital site	Proportion of GP referrals for MRI scans	Proportion of consultant referrals for MRI scans
Prince Charles Hospital	15	42
Royal Glamorgan Hospital	18	46
All-Wales average	23	39

Source: Stats Wales

2.14 The increased rate of demand for MRI scans can place pressure on health boards' radiology departments. Waiting times for MRI scans are longer at the Health Board than they are across Wales, although since January 2014, the percentage of patients waiting more than eight weeks has reduced. In February 2015, an average of 20.4 per cent of patients waited more than eight weeks for their MRI tests. The all-Wales average is lower, at 15.2 per cent (Exhibit 18).

Exhibit 18: Percentage of patients waiting more than eight weeks for an MRI scan



Source: Stats Wales

Part 3

3 Inpatient services

Waits and preparation for admission

3.1 Once the clinician has made the decision that the most appropriate course of action to deal with musculoskeletal problems is a surgical intervention, the Health Board should list the patient for surgery and arrange a date for pre-operative assessment to make sure that the patient is clinically fit. Pre-operative assessment arrangements are in place across the Health Board and are consistent across the two sites ([Exhibit 19](#)).

Exhibit 19: Pre-operative assessment arrangements

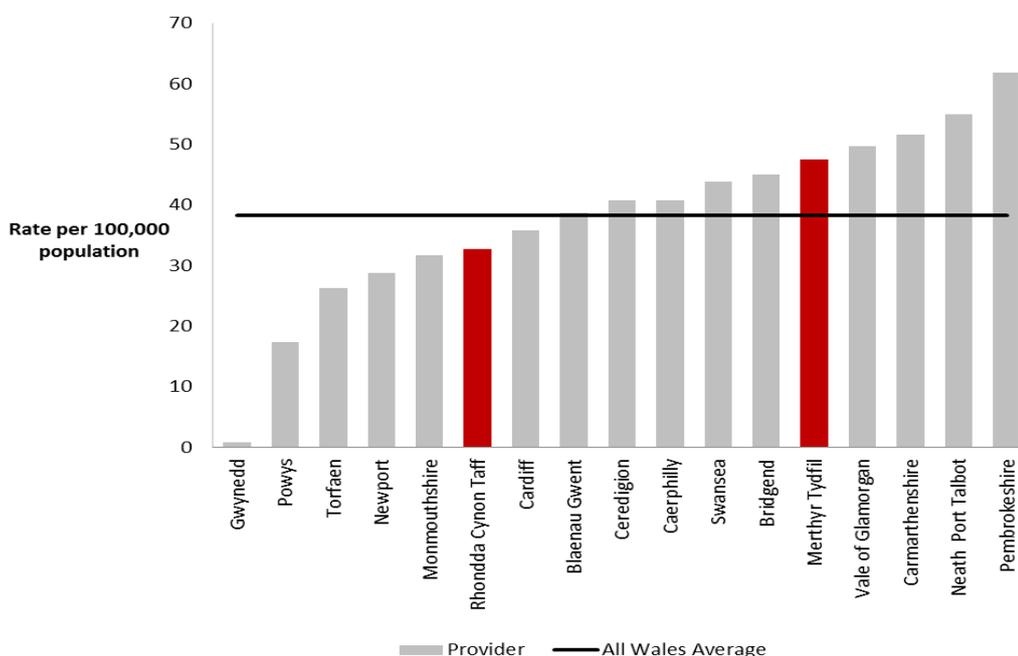
	Prince Charles Hospital	Royal Glamorgan Hospital
Dedicated department	✓	✓
Nurse led	✓	✓
Available five days per week	✓	✓
Orthopaedic specific	✓	✓
Co-ordination of booking appointments	Combination of pre-assessment clerks, waiting list team, secretaries	Combination of pre-assessment clerks, waiting list team, secretaries

Source: Wales Audit Office Health Board Survey

3.2 Our survey of patients undergoing knee replacement identified that all patients received a pre-operative assessment prior to admission. Pre-operative assessments should be carried out with reasonable notice to minimise unexpected cancellations if a patient requires further intervention prior to surgery. At the Health Board, 73 per cent of patients received an assessment more than three weeks prior to admission.

3.3 When listing a patient, it is important that the benefits of surgery are considered and that patients are not listed for procedures that research has demonstrated have limited clinical effectiveness². For the period 2012-13, we identified that the rate of procedures of limited clinical effectiveness was higher than the all-Wales average for Merthyr Tydfil residents, but lower for Rhondda Cynon Taf residents (Exhibit 20).

Exhibit 20: Rate of procedures of limited clinical effectiveness per 100,000 head of population 2012-13

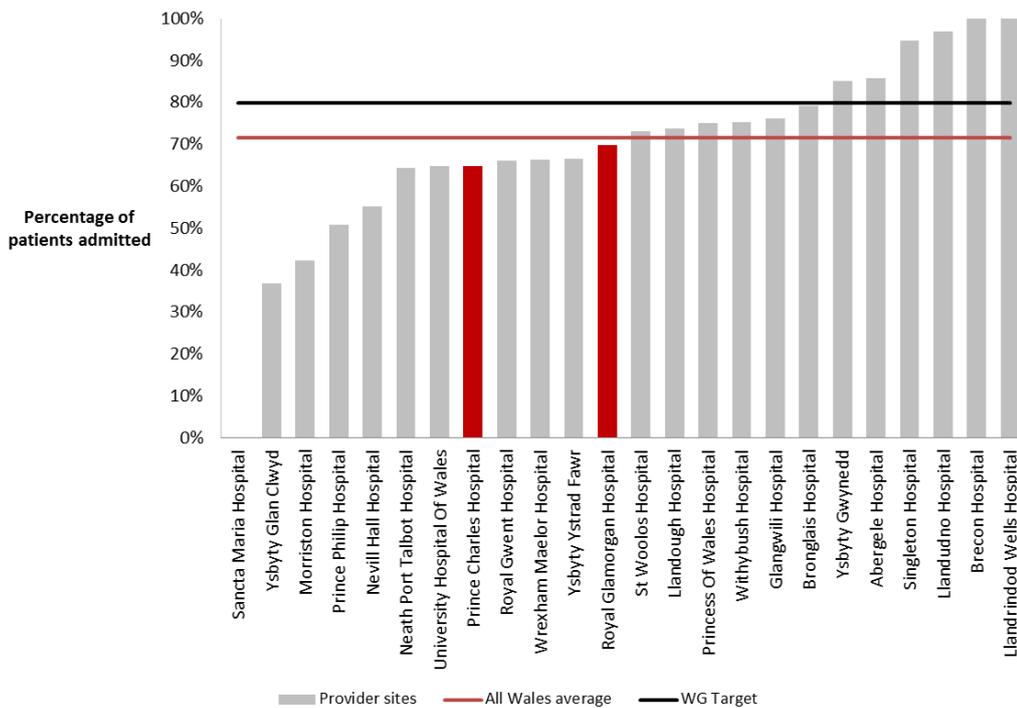


Source: Patient Episode Database Wales

² The procedures reviewed include decompression on lumbar spine, excision of lumbar intervertebral disc, fusion of other joint of spine, extirpation of lesion of spine, biopsy of spine, denervation of spinal facet joint of vertebra and exploration of spine.

3.4 When listing a patient, it is also important that there is consideration of the potential for providing surgery on a day-case basis so that patients are not kept in hospital unnecessarily. The BADS has recommended a number of orthopaedic procedures, which are suitable as day case. These have previously formed part of the Welsh Government performance management framework with a target of 80 per cent. For the financial year 2012-13, the percentage of recommended orthopaedic procedures undertaken as a day case at both of the Health Board's main hospital sites were below both the Welsh Government target and the all-Wales average. Rates at Prince Charles and Royal Glamorgan hospitals were 65 per cent and 70 per cent respectively (Exhibit 21).

Exhibit 21: Percentage of BADS-recommended orthopaedic procedures undertaken as a day case 2011-12

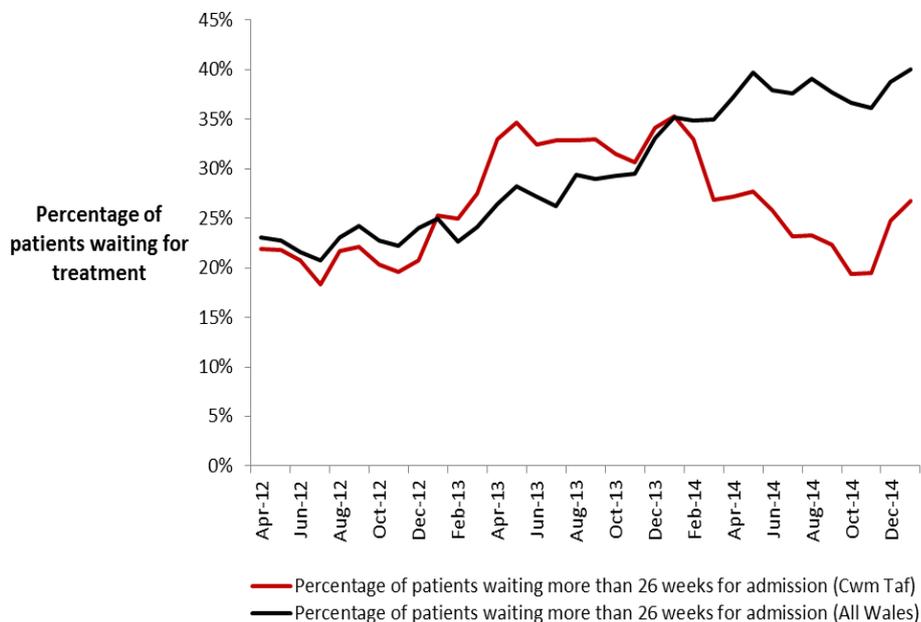


Source: Patient Episode Database Wales

Note: Private hospital facilities that carried out activity on behalf of the NHS are included.

- 3.5 To ensure that patients receive the optimal outcome from surgical intervention, health boards can provide support both before and after surgery. These Enhanced Recovery After Surgery (ERAS) programme. This can include the establishment of a 'joint school' to provide educational sessions for patients about to undergo hip or knee replacement surgery. Support includes an opportunity for patients to practice physiotherapy exercises and techniques that will speed recovery post-operatively. The 'joint school' is held prior to hospital admission and research indicates that the 'joint school' principle results in quicker recovery post-surgery and a reduced hospital stay. The Health Board currently runs a 'joint school' at Royal Glamorgan Hospital; however, the 'joint school' at Prince Charles Hospital is currently on hold.
- 3.6 The percentage of patients waiting more than 26 weeks for an inpatient or day-case admission was higher than the all-Wales average between January 2013 and January 2014, peaking at 35 per cent in May 2013. Since February 2014, performance dropped below the all-Wales average and showed signs of improvement, although since November 2014, performance has deteriorated (Exhibit 22).

Exhibit 22: Percentage of patients waiting more than 26 weeks for inpatient or day-case admission between April 2012 and January 2015

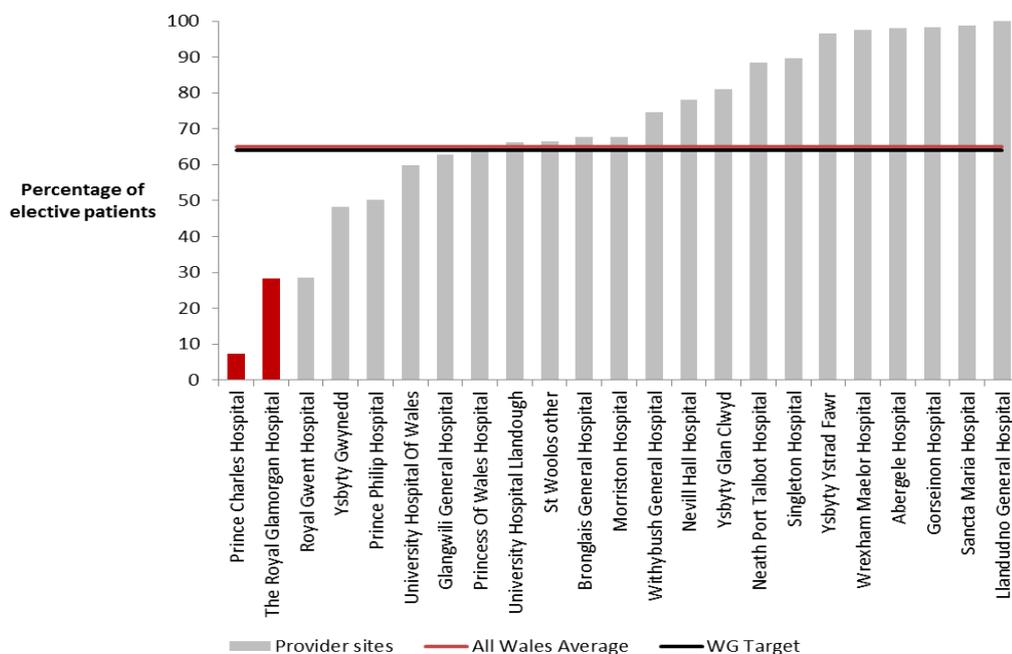


Source: Welsh Government Delivery Unit

Admission

3.7 To prevent any unnecessary overnight stays in hospital and to make best use of the bed capacity available, it is good practice for patients to be admitted on the day of surgery. The Welsh Government target is that at least 64 per cent of patients are admitted on the day of their surgery. Performance across the Health Board's hospital sites is the lowest in Wales (**Exhibit 23**). At Royal Glamorgan Hospital, less than 29 per cent of patients are admitted on the same day. Performance at Prince Charles Hospital is the weakest across Wales at just seven per cent.

Exhibit 23: Percentage of elective orthopaedic patients admitted on the day of surgery 2012-13



Source: Patient Episode Database Wales

3.8 The Health Board has dedicated wards for elective orthopaedic activity, with separate wards for orthopaedic trauma cases. The total number of available trauma and orthopaedic beds has reduced by nine per cent over the last four years, with an average of 97.8 daily available beds across two sites in 2013-14. The occupancy rate for these beds has fluctuated between 86.5 per cent in 2010-11 to 82.2 per cent in 2013-14. This compares with an optimal occupancy rate of 85 per cent. There is variation between sites. The occupancy rate at Prince Charles Hospital was 90.5 per cent in 2013-14, while at Royal Glamorgan Hospital it was 73.4 per cent (**Exhibit 24**).

Exhibit 24: Available beds and occupancy rates 2013-14

	Available beds	Occupancy rate (%)
Prince Charles Hospital	50.1	90.5
Royal Glamorgan Hospital	47.7	73.4

Source: Stats Wales

During admission

3.9 Operating theatres play an important part in the hospital stay of an elective orthopaedic patient, and any delays in surgery or cancellations can result in poor patient experience and inefficient use of resources. Cancellations on the day of surgery can also result in underutilisation in theatre capacity. The Health Board's monthly utilisation of orthopaedic theatres over a three-month period January 2013 to March 2013 was between 80 per cent and 93 per cent. Performance was similar between Prince Charles and Royal Glamorgan hospitals. This represents strong performance but falls short of the Welsh Government target of 95 per cent. Not all health boards provided us with theatre utilisation performance and therefore there is no comparison available.

Exhibit 25: Theatre utilisation

	January 2013	February 2013	March 2013
Prince Charles Hospital	80%	82%	93%
Royal Glamorgan Hospital	82%	89%	90%

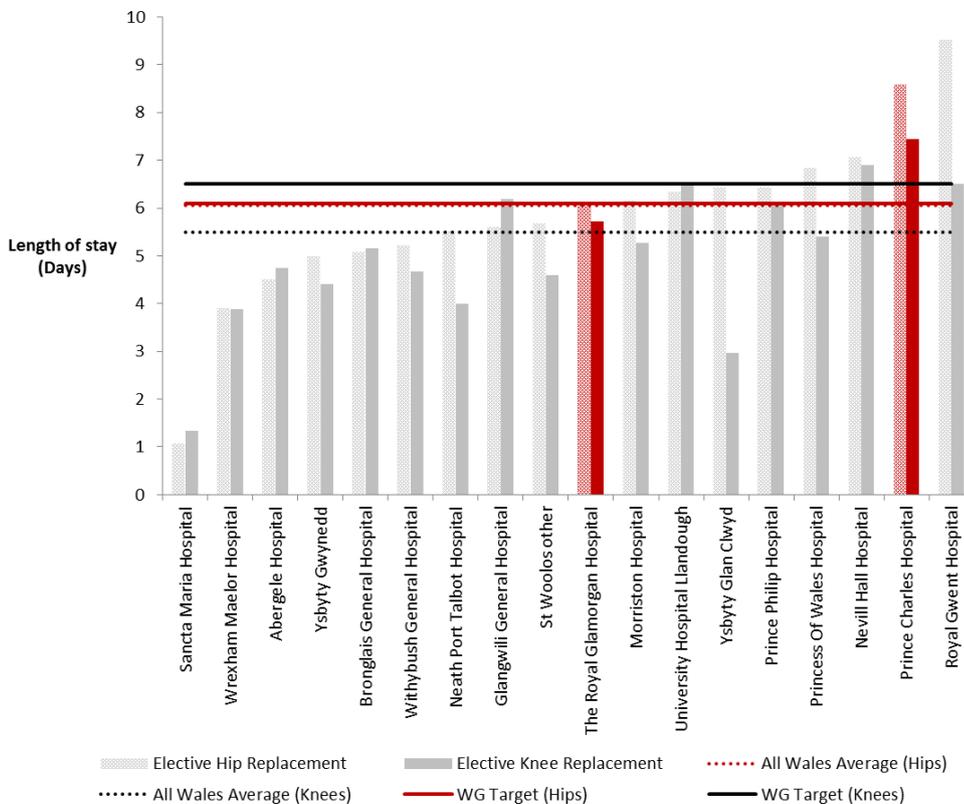
Source: Wales Audit Office Health Board Survey

3.10 The rate of cancelled orthopaedic theatre sessions made by the Health Board for the period 2012-13 was 23.6 per cent at Royal Glamorgan Hospital and 34.7 per cent at Prince Charles Hospital. Across sessions that were held, the rate of cancelled operations made by the Health Board during this period was 16.5 per cent at Royal Glamorgan Hospital and 14.5 per cent at Prince Charles Hospital. The Welsh Government has previously set a target for cancelled operations on the day of surgery at two per cent. Although the cancelled operations rate for the Health Board are not just cancellations on the day of surgery, these higher rates need to be explored to understand the reasons why patients are being cancelled. Not all health boards were able to report cancellation rates and therefore there is no comparison available.

Discharge

- 3.11 The average length of stay for an elective orthopaedic patient in the Health Board is 4.5 days, which is outside the Welsh Government target of four days and the longest across Wales. There is variation across the two main hospital sites with the average length of stay in the Royal Glamorgan Hospital just above the Welsh Government target at 4.1 days. In Prince Charles Hospital, the average length of stay is 5.1 days.
- 3.12 The average length of stay for patients undergoing hip and knee replacements are within the Welsh Government targets set for these procedures at Royal Glamorgan Hospital. At Prince Charles Hospital, the average length of stay following knee replacement is the highest across Wales. The average length of stay following hip replacement is the second highest across Wales (**Exhibit 26**). Average length of stay could be reduced by admitting more patients on the day of their surgery rather than ahead of time.

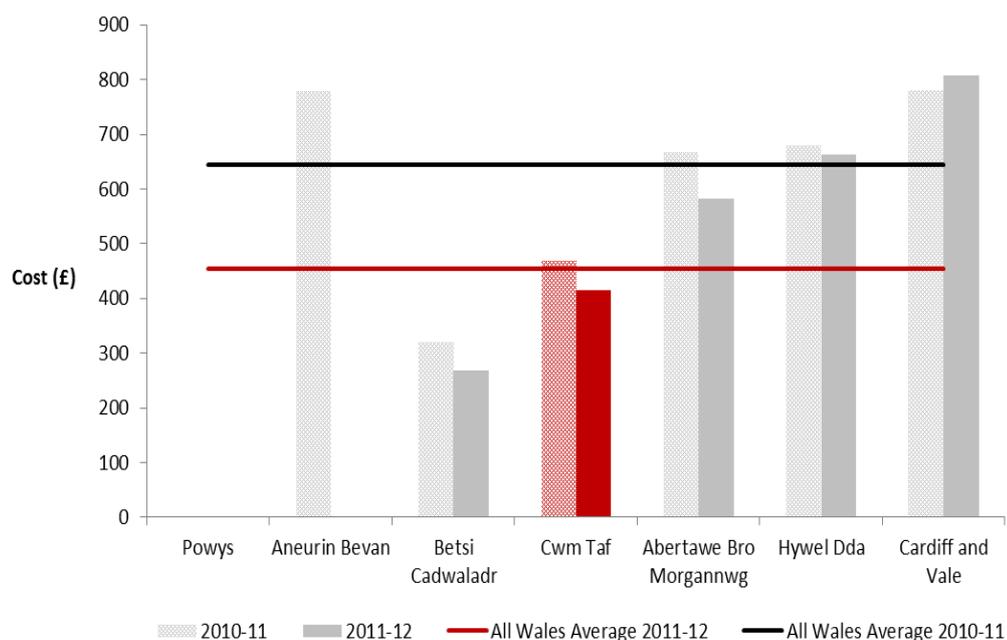
Exhibit 26: Average length of stay for elective hip and knee replacements between April 2012 and October 2013



Source: Patient Episode Database Wales

- 3.13 The average cost of an elective orthopaedic hospital episode in the Health Board for 2012-13 was below the all-Wales average at £3,960. Length of stay will influence the cost of a hospital episode, but other costs associated with staff and equipment will also be important factors. Given that the average length of stay for elective orthopaedics in the Health Board is above the all-Wales average, the lower average cost is therefore likely to be affected by lower costs associated with such aspects of staffing, equipment or drugs.
- 3.14 One factor that influences the cost of treatment is the cost associated with prostheses. The average cost of prostheses per episode for the Health Board was below the all-Wales average for both 2010-11 and 2011-12, with a decrease in the cost of nine per cent ([Exhibit 27](#)).

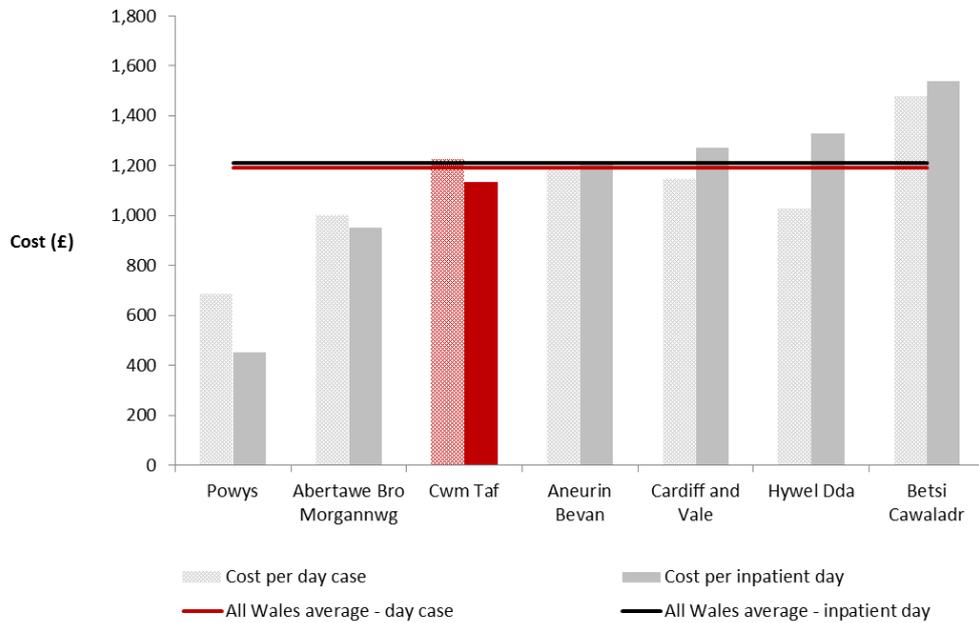
Exhibit 27: Average prosthetic cost per episode for 2010-11 and 2011-12



Source: Welsh costing returns

- 3.15 The cost of an elective orthopaedic inpatient bed day is also lower than the all-Wales average at £1,133 ([Exhibit 28](#)). The cost of an elective orthopaedic day case is in line with the all-Wales average at £1,225 ([Exhibit 28](#)). If performance against the Welsh Government target for same-day admission in both hospital sites improved to the recommended level of 64 per cent, the reduction in length of stay as a result would potentially release resources in the region of £1.24 million per year, or free up capacity to increase throughput.

Exhibit 28: Average cost per elective orthopaedic day case and inpatient bed day 2012-13



Source: Welsh costing returns

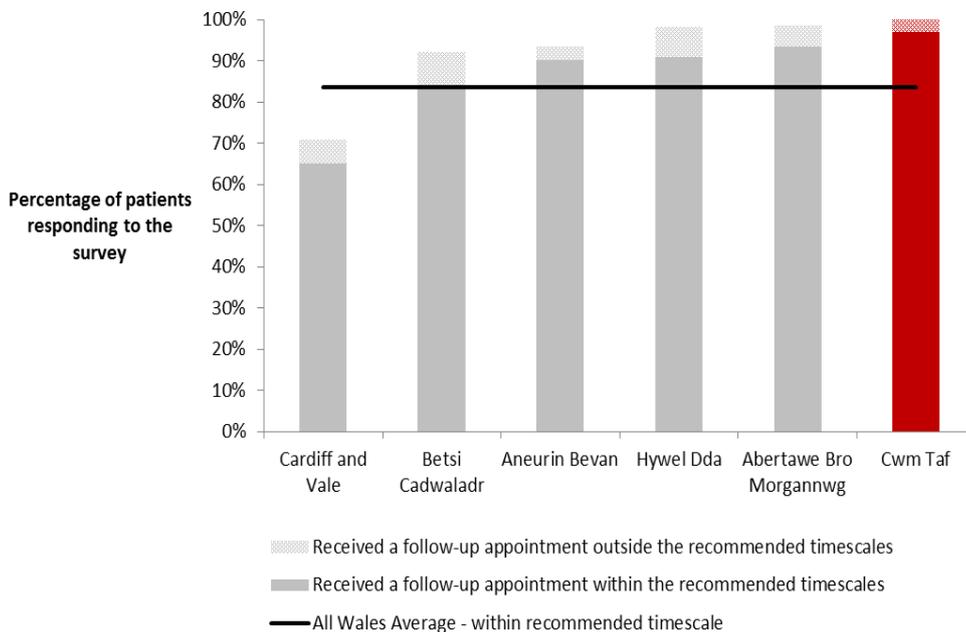
Part 4

4 Follow-up and outcomes

Follow-up arrangements

4.1 Following discharge, patients undergoing a hip or knee replacement should receive a follow-up appointment between six weeks and three months of discharge. The Health Board reported that 98 per cent of patients undergoing a hip or knee replacement over a two-month period had received their follow-up appointment within the specified timescales. This correlates with our patient survey, which identified that all patients undergoing knee replacement surgery who responded to our survey received a follow-up post-discharge (Exhibit 29). Of those, 97 per cent of patients had received the follow-up appointment within the specified timescales. This was the highest level of performance reported across Wales.

Exhibit 29: Percentage of patients responding to the knee replacement survey who received a follow-up appointment post-discharge



Source: Wales Audit Office Survey of Patients Undergoing Knee Replacement Surgery

Patient outcomes and experience

- 4.2 For many patients, surgery can be a positive life-changing experience, which can significantly improve their quality of life, but occasionally things can go wrong. As part of our work, we reviewed a range of indicators to understand the extent to which there are adverse experiences for patients both short and long term.
- 4.3 Acquiring an SSI during admission can extend the length of time a patient stays in hospital. For the period 2012-13, we reviewed the rate of SSI for hip and knee replacements. These procedures account for approximately 35 per cent of elective orthopaedic activity in the Health Board. The rates of SSI following hip or knee surgery are lower than the all-Wales average, with the exception of hip SSIs at Prince Charles Hospital which is at 2.6 per cent ([Exhibit 30](#)). The Welsh Government target is zero per cent.

Exhibit 30: SSI rates for hip and knee arthroscopy 2012-13

Hospital	SSI rate (hips)	SSI rate (knees)
Prince Charles	2.6	1.7
Royal Glamorgan	1.0	1.4
All-Wales average	1.5	1.8

Source: Public Health Wales Observatory

- 4.4 For the same period, we identified that readmission rates following elective hip or knee replacements and the mortality rate for orthopaedic patients in hospital are the lowest across Wales. The mortality rate within 30 days of discharge from hospital is above the all-Wales average ([Exhibit 31](#)).

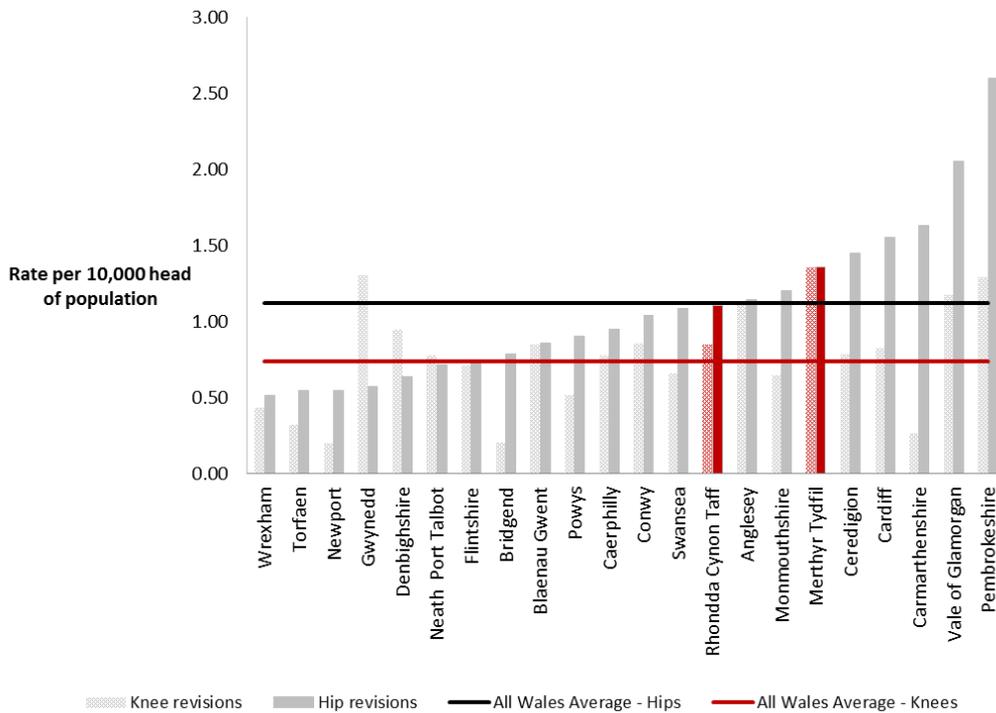
Exhibit 31: Readmission and mortality rates for elective orthopaedics

Indicator	Cwm Taf	All-Wales average
Percentage of patients readmitted within 28 days following a hip replacement	0.3	0.9
Percentage of patients readmitted within 28 days following a knee replacement	0.0	0.1
Death in hospital per 100 elective orthopaedic admissions	0.00	0.06
Death within 30 days of discharge following an elective orthopaedic admission, per 100 elective orthopaedic admissions	0.13	0.10

Source: Patient Episode Database Wales

4.5 The lifespan of an artificial hip or knee varies based on a number of factors, but on average can last for more than 20 years. However, as the average age of the population increases, the likelihood of patients having to undergo a secondary joint replacement (or 'revision') also increases. Revisions, however, can be an indication of where the original joint replacement may not have been effective. The rate of revision for hips and knees is around the all-Wales average for Rhondda Cynon Taf residents, but the knee revision rate for Merthyr Tydfil residents is the highest in Wales at 1.4 per cent ([Exhibit 32](#)).

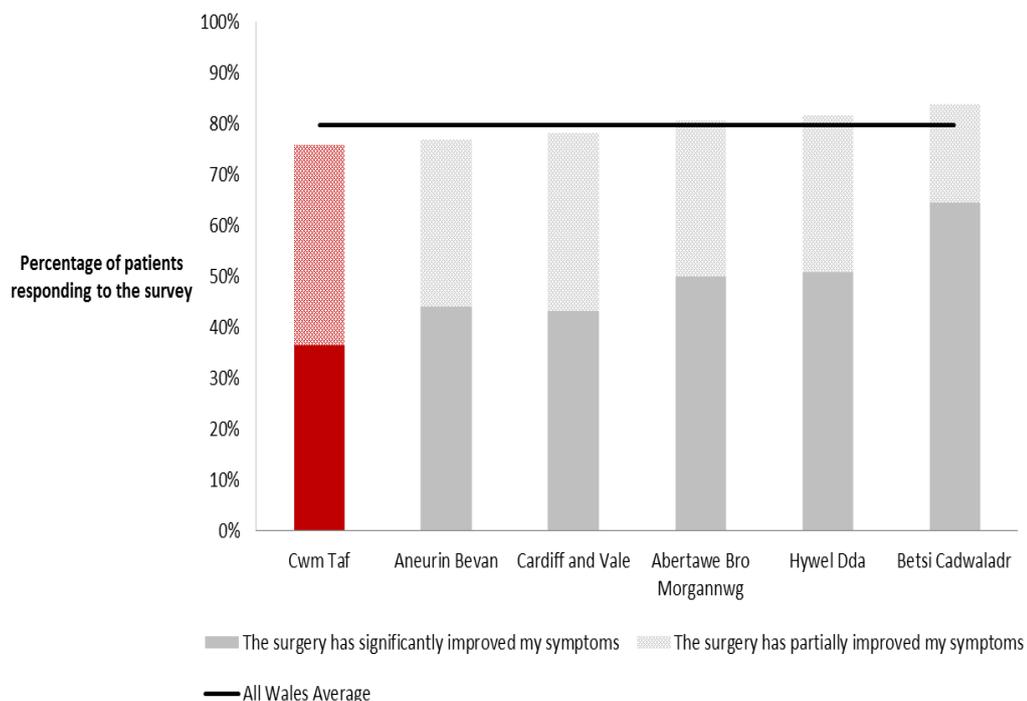
Exhibit 32: Rate of revision per 10,000 head of population 2012-13



Source: Patient Episode Database Wales

4.6 In our survey of patients who underwent knee replacement surgery, we asked patients whether their surgery had improved their symptoms. Just under 76 per cent of the Health Board’s patients reported that surgery had partially or significantly improved their symptoms (**Exhibit 33**). This was the least positive response across Wales. There is variation, however, between sites, with all patients from Prince Charles Hospital reporting improvements compared to 70 per cent from Royal Glamorgan Hospital.

Exhibit 33: Percentage of patients who identified that their knee replacement surgery partially or significantly improved their symptoms



Source: Wales Audit Office Survey of Patients Undergoing Knee Replacement Surgery

- 4.7 The Health Board submits patient data to the National Joint Registry. It is not clear whether the Health Board uses the Oxford hip and knee scores as a way of measuring the impact of joint replacement surgery. Many other health boards use the Oxford scores, which is recognised as good practice.
- 4.8 The Health Board reports that it has not undertaken patient satisfaction surveys during the last 12 months to gather the views of orthopaedic patients. During the period 2012-13, the Health Board received 44 complaints relating to orthopaedic services. This equates to 1.2 per cent of elective orthopaedic admissions. Many health boards are unable to report the number of complaints specifically relating to orthopaedic services, and therefore there is no comparison available.

Appendix 1

Sources of data

The sources of data used to inform the mandated review of orthopaedic services include:

- Wales Audit Office Health Board Survey which requested a range of data relating to:
 - GP referrals
 - CMATS
 - Orthopaedic outpatients
 - Therapy services
 - Radiology services
 - Pre-operative assessment
 - Orthopaedic beds
 - Operating theatres
 - Medical staffing
 - Patient experience
 - Financial information
- Patient Episode Database for Wales
- Stats Wales (www.statswales.wales.gov.uk)
- Public Health Observatory
- Wales Audit Office Survey of Patients Undergoing Knee Replacement Surgery
- Welsh costing returns

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