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A Comparative Picture of Orthopaedic Services

Betsi Cadwaladr University Health Board

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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 Betsi Cadwaladr 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

An increasing demand and partially ineffective orthopaedic outpatient services are resulting in long waits for outpatient, diagnostic and inpatient treatment. Once patients are admitted, they generally have a short hospital stay, although inpatient resources could be better utilised and some outcomes following surgery need to improve:

- investment in primary care is reducing at a time when GP referral rates are increasing and although there are well-established Clinical Musculoskeletal Assessment and Treatment Services (CMATS) in place, they are struggling to meet the increasing demand;
- although physiotherapy services are able to meet demand, some aspects of outpatient services are inefficient and waits for radiology tests can be long, particularly in relation to MRI scans;
- pre-operative assessment arrangements are in place and hospital stay is generally shorter than the rest of Wales but more could be done to reduce waits for admission, increase day-case rates and bed occupancy, and improve theatre utilisation across the Health Board; 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 reduced by four per cent between 2010 and 2013.	
Total spend on primary care provision	Average spend per head of population on primary care is just below the all-Wales average at £11.60.	
Proportion of total musculoskeletal spend allocated to primary care	The proportion of total spend on primary care is the second lowest in Wales at 9.9 per cent.	
Range of community based services available to GPs	The range of community based services available to GPs is less positive than other health boards.	
Receipt of alternative intervention prior to surgery	The extent to which patients receive alternative intervention prior to surgery is variable, with a higher proportion of patients receiving physiotherapy advice and exercise programmes than the all-Wales average.	
Is demand for secondary care services managed?		
GP referral rate	The rate of GP referrals per 100,000 head of population has increased to just below the all-Wales average.	
Trend in referrals	The trend in GP referrals increased in March 2013 although the number of referrals is now around 1,300 per month.	
Is the CMATS operating effectively?		
CMATS in place	The Health Board has introduced CMATS in each of the localities.	
CMATS operational arrangements	CMATS comply with the key Welsh Government principles across the three localities.	
CMATS staffing levels	The level of staff per 1,000 GP referrals is lower than the majority of teams across Wales.	

Primary and community based services		
Indicator	Health board performance	Performance rating
Patients treated by CMATS	12.6 per cent of patients referred received a face-to-face assessment by CMATs.	Descriptive 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 12 weeks in east and west, and 14 weeks in central.	

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 their first outpatient appointment has fluctuated over the past three years, with performance since August 2013 above the all-Wales position.	
Consultant outpatient sessions	The number of consultant outpatient sessions per 1,000 GP referrals is around the average for Wales.	Descriptive indicator
Cancelled outpatient clinics	The proportion of outpatient clinics cancelled for 2012-13 ranged between 2.8 and 8.8 per cent.	
Follow-up to new ratios	The ratio of follow-up to new appointments is 1.94 follow-ups to every new, which is above the Welsh Government target of 1.9 but below the all-Wales average.	
Did Not Attend (DNA) rates	The DNA rate for new appointments is within the all-Wales average at 7.2 per cent but the DNA rate for follow-up appointments is the second highest in Wales at 9.4 per cent. Both DNA rates are higher than Welsh Government targets.	
Patient cancellations	The Health Board was unable to report the proportion of patient cancellations.	-

Outpatient and diagnostic services		
Indicator	Health board performance	Performance rating
Co-ordination of visits	Ninety-two per cent of patients felt that the Health Board tried to co-ordinate the number of visits that they needed to make. This is the second highest in Wales.	
Cost per outpatient attendance	The cost of an orthopaedic outpatient attendance is higher than the all-Wales average at £142.15 and the second highest across Wales.	
Are physiotherapy services able to meet demand?		
Waits for physiotherapy services	The percentage of patients waiting less than eight weeks is higher than the all-Wales average at 86 per cent, with very few patients waiting more than 14 weeks.	
Range of settings	Physiotherapy services are provided in a range of primary, community and acute settings.	
Ease of access	Patients are able to self-refer directly to the physiotherapy service.	
Availability of services	The provision of outpatient physiotherapy services remains, in the main, a traditional five-day service.	
Are radiology services able to meet demand?		
Waits for all radiology tests	Since August 2013, waiting times for radiology tests have been better than the all-Wales average although patients are waiting more than eight weeks.	
MRI referral rates	The rate of referrals for MRI scans from both GPs and consultants are lower than the all-Wales average with the exception of consultant referrals in central and GP referrals in the east.	
Waits for MRI scans	Waits for MRI scans have fluctuated above and below the all-Wales average.	

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 but they are inconsistent across the Health Board.	
Receipt of pre-operative assessment	All patients undergoing knee replacement surgery received pre-operative assessment, although 27 per cent received it less than three weeks before surgery.	
Procedures of limited clinical effectiveness	The rate of procedures of limited clinical effectiveness is the lowest in Wales.	
British Association of Day Surgery (BADs) day-case rates	The percentage of recommended orthopaedic procedures undertaken as a day case at three of the Health Board's hospital sites compares well although performance at Wrexham Maelor Hospital is below the Welsh Government target and performance at Ysbyty Glan Clwyd is the lowest of the NHS hospital sites across Wales at just 37 per cent.	
Implementation of 'joint school' ¹	The Health Board has implemented the 'joint school' across all of its localities.	
Waits for surgery	The percentage of patients waiting more than 26 weeks for an inpatient or day-case admission has been higher than the all-Wales average since May 2013.	

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 bed capacity used effectively?		
Day of surgery admission	Performance against the Welsh Government target is positive across the Health Board's main hospital sites with the exception of Ysbyty Gwynedd, where less than half of patients are admitted on the same day as surgery.	
Reduction in inpatient beds	The total number of orthopaedic beds has reduced by 11 per cent over the last four years to 163.	Descriptor indicator
Bed occupancy	Occupancy rates have increased slightly to 74.3 per cent in 2013-14, which is well below the optimal level of 85 per cent. There is variation across sites.	
Is operating theatre capacity used effectively?		
Theatre utilisation	Performance ranges between 67 and 106 per cent of available theatre capacity. This represents some strong performance but falls short of the Welsh Government target of 95 per cent in some sites.	
Cancelled operations	The combined rate of cancelled operations in the west hospital sites was 10.1 per cent, compared with combined performance of 13.4 per cent in the central hospital sites and 21.4 per cent in Wrexham Maelor Hospital. There is no comparison available.	

Is length of stay kept to a minimum?		
Indicator	Health board performance	Performance rating
Average length of stay for elective orthopaedic admissions	Average length of stay for an elective orthopaedic patient in the Health Board is 3.4 days, which is within the Welsh Government target of four days.	
Average length of stay for hip and knee replacements	The average length of stay for patients undergoing hip and knee replacements are well within the Welsh Government targets set for these procedures, with the exception of hip replacements at Ysbyty Glan Clwyd.	
Cost per inpatient episode	The average cost of an elective orthopaedic hospital episode in the Health Board is just above the all-Wales average at £4,280.	
Prosthetic cost per inpatient episode	The average cost of prostheses per episode for the Health Board in 2011-12 was the lowest in Wales at £269.	
Cost per day case	The cost of an elective orthopaedic day case is the highest in Wales at £1,475.	
Cost per inpatient bed day	The cost of an elective inpatient bed day is the highest in Wales at £1,540.	

Follow-up and outcomes		
Indicator	Health board performance	Performance rating
Are patients followed up?		
Follow-up appointment	Ninety-two per cent of the patients undergoing knee replacement surgery received a follow-up appointment post-discharge, which is above the all-Wales average.	
Follow-up appointment within recommended timescales	Ninety-one per cent of patients had received the follow-up appointment within six weeks and three months after discharge, which is below the all-Wales average.	

Follow-up and outcomes		
Indicator	Health board performance	Performance rating
Are adverse complications avoided and the benefits of surgery optimised?		
Surgical Site Infections (SSIs) for hip and knee replacements	The rates of SSIs for both hips and knees vary between hospital sites across the Health Board, but all are above the Welsh Government target of zero per cent. Rates are particularly high at Wrexham Maelor Hospital, at 3.4 per cent for hip surgery and 3.0 per cent for knee surgery.	
Readmission rates for hip and knee replacements	The readmission rate following elective hip replacement is higher than the all-Wales average. The readmission rate for knee replacements is in line with the all-Wales average.	
Mortality rates for elective orthopaedic patients	The mortality rate for elective orthopaedic patients in hospital is the second highest across Wales, although the mortality rate within 30 days of discharge from hospital is below the all-Wales average.	
Revision rates	The rate of revision for hips and knees varies across the Betsi Cadwaladr population, with rates for the Wrexham population the lowest across Wales. Knee revision rates are higher than the all-Wales average for Denbighshire and Gwynedd populations.	
Improvement of symptoms	Eighty-four per cent of the Health Board's patients noticed an improvement in their symptoms.	

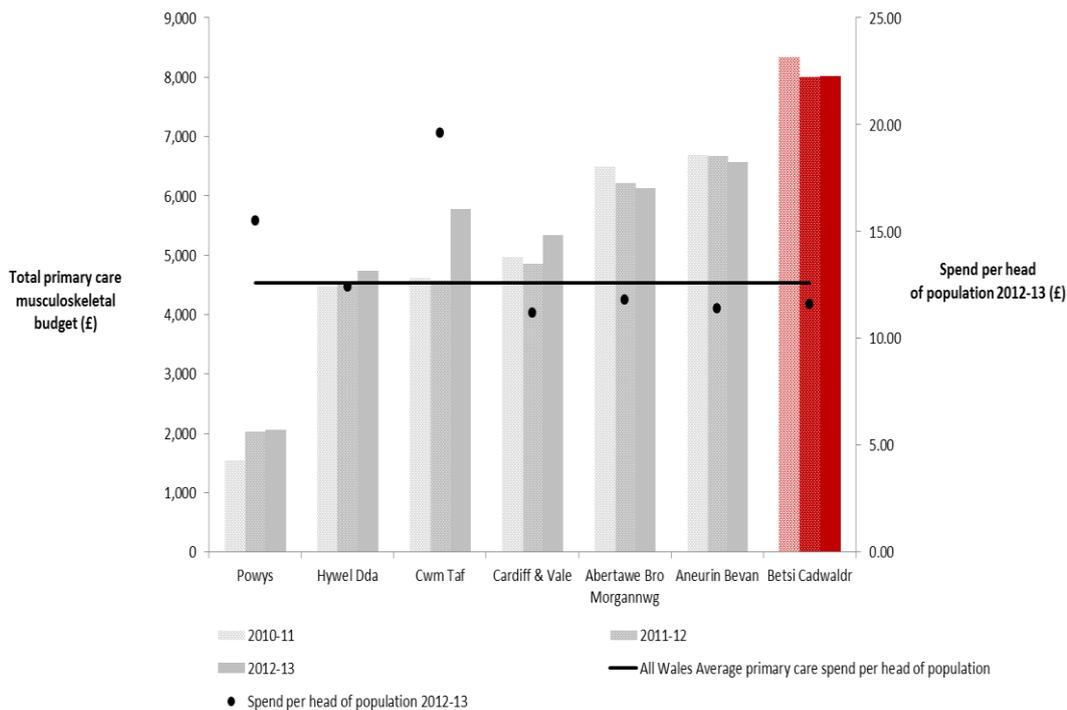
Part 1

1 Primary and community based provision

Primary care provision

1.1 The Health Board has reduced its primary care spend on musculoskeletal services by 4.0 per cent between 2010 and 2013 (Exhibit 3). The Health Board spend per head of population on primary care musculoskeletal services was just below the all-Wales average at £11.60 in 2013 (Exhibit 3). This level of spending is in line with a number of other health boards.

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 by the Health Board fell between 2010-11 and 2011-12 but rose slightly the following year to 9.9 per cent (Exhibit 4). The performance has been consistently below the all-Wales average, and for 2012-13, is the second lowest in Wales. This would suggest that musculoskeletal services have been potentially focused predominantly more towards secondary care provision.

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 and exercise programmes than the all-Wales average, which is positive. The extent to which patients had received other interventions such as weight management advice and pain relief was below the all-Wales average ([Exhibit 6](#)).

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

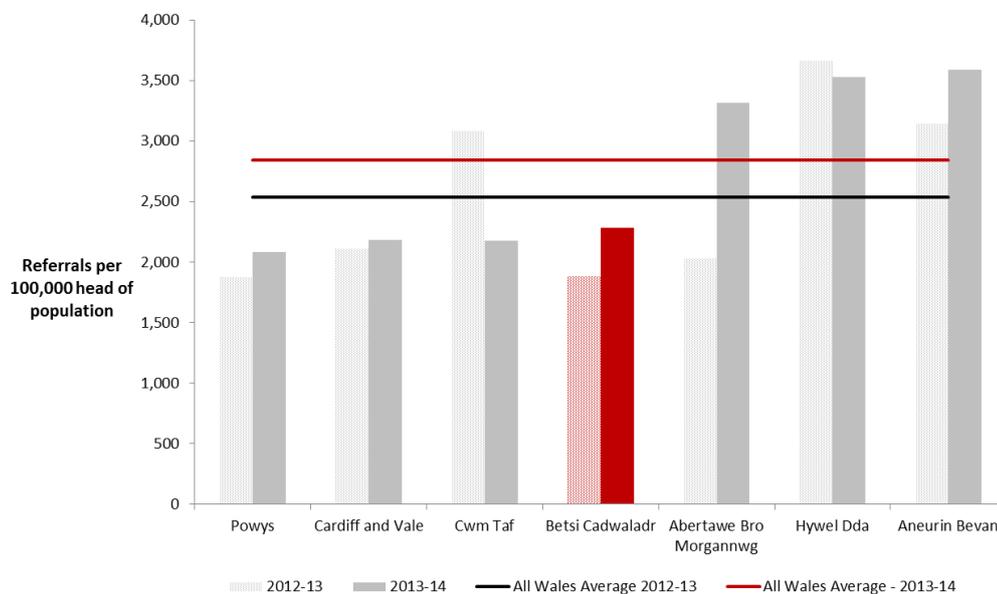
	Betsi Cadwaladr	All-Wales average
Percentage of patients receiving pain relief before surgery	71.4	74.9
Percentage of patients receiving physiotherapy advice or treatment before surgery	30.2	26.1
Percentage of patients receiving an exercise programme before surgery	28.6	23.4
Percentage of patients receiving weight management advice before surgery	7.9	9.1

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

GP referrals

1.5 The rate of GP referrals for orthopaedics per 100,000 head of population in the Health Board was one of the lowest in Wales in 2012-13. With the exception of Flintshire and Wrexham, the proportion of residents aged 65 and over for the other Health Board catchment areas are some of the highest in Wales. The proportion of Conwy residents aged 65 plus is the highest in Wales at 25.7 per cent. The age of the population is a contributory factor to orthopaedic referral rates across Wales, although the below-average referral rate would suggest that the Health Board had been managing its demand for orthopaedic services. The rate of referrals has since increased, although it remains below the average for Wales ([Exhibit 7](#)).

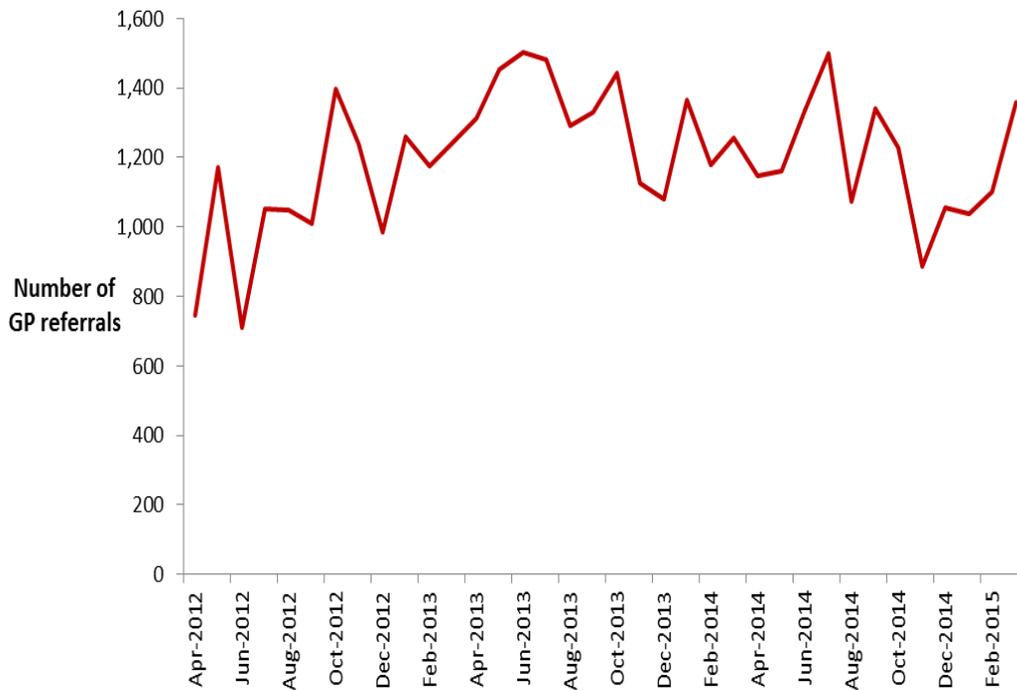
Exhibit 7: GP referrals per 100,000 head of population 2012-2014



Source: Stats Wales

1.6 Typically, the Health Board used to receive an average of 1,100 GP referrals per calendar month. Across the period April 2013 to March 2015, the number of GP referrals for orthopaedics has been higher, with an average of around 1,300 GP referrals per month (Exhibit 8). This is likely to be because of repatriation of patients previously referred to neighbouring NHS trusts in England back into the Health Board.

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 December 2012 across its three localities. The Welsh Government set out clear guidance as to how CMATS should operate. Local compliance with the key principles set out in the Welsh Government guidance is positive (Exhibit 9).

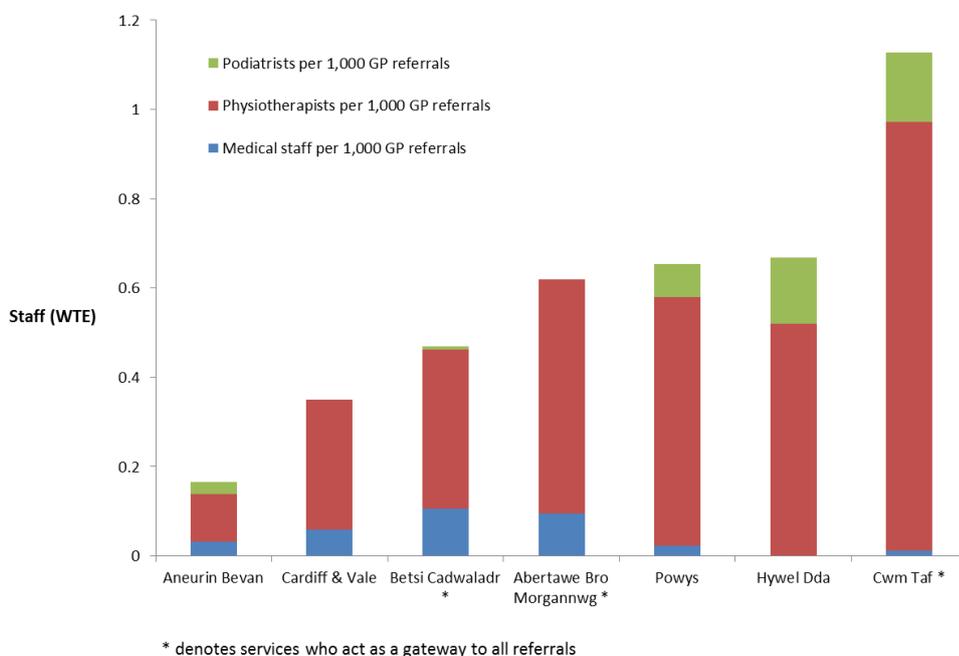
Exhibit 9: Compliance with the key principles set out in the Welsh Government guidance on CMATS

Principle	Compliance by this health board	Number of health boards across Wales complying
Clinics held in a combination of locality and secondary care centres	✓	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	✓ (Lead: GP with specialist interest in east, although consultant involvement in west and central)	Four (Abertawe Bro Morgannwg, Aneurin Bevan, Betsi Cadwaladr and Cardiff and Vale)

Source: Wales Audit Health Board Survey

1.8 The staffing levels for the CMATS at the Health Board are lower than the majority of teams across Wales ([Exhibit 10](#)). The Health Board's CMATS acts as a gateway to all referrals so will be under additional pressure relative to services with higher staffing levels such as Powys and Hywel Dda, where referrals can also pass through other routes. The increasing rate of referrals will also place additional pressure on the teams.

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, 12.6 per cent of patients referred received a face-to-face assessment. In line with Welsh Government guidance, waiting times to see the CMATS for a face-to-face assessment are not included in the referral to treatment pathway. The average wait from referral to face-to-face CMATS assessment at the Health Board however is 12 weeks in east and west, and 14 weeks in central, which is outside the Welsh Government target of eight weeks.
- 1.10 From data provided by the Health Board, 43 per cent of all referrals through CMATS were referred on into secondary care orthopaedic services. This is positive, as it would mean that 57 per cent were referred elsewhere. However, some caution needs to be given to this performance as referral rates would suggest that demand for orthopaedic services is continuing to rise. 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.

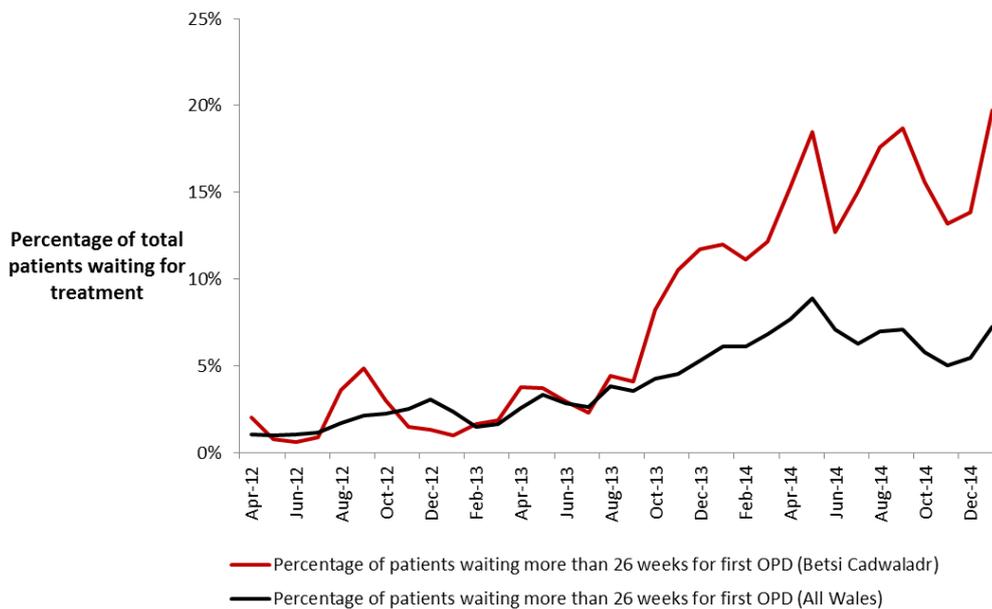
Part 2

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 the first outpatient appointment. The Health Board did not report its internal target. The percentage of patients waiting more than 26 weeks for their first outpatient appointment at the Health Board has fluctuated over the past three years, with performance since August 2013 above the all-Wales position. At January 2015, the percentage of patients waiting more than 26 weeks was 19.7 per cent (Exhibit 11). This suggests that outpatient capacity has not kept pace with demand.

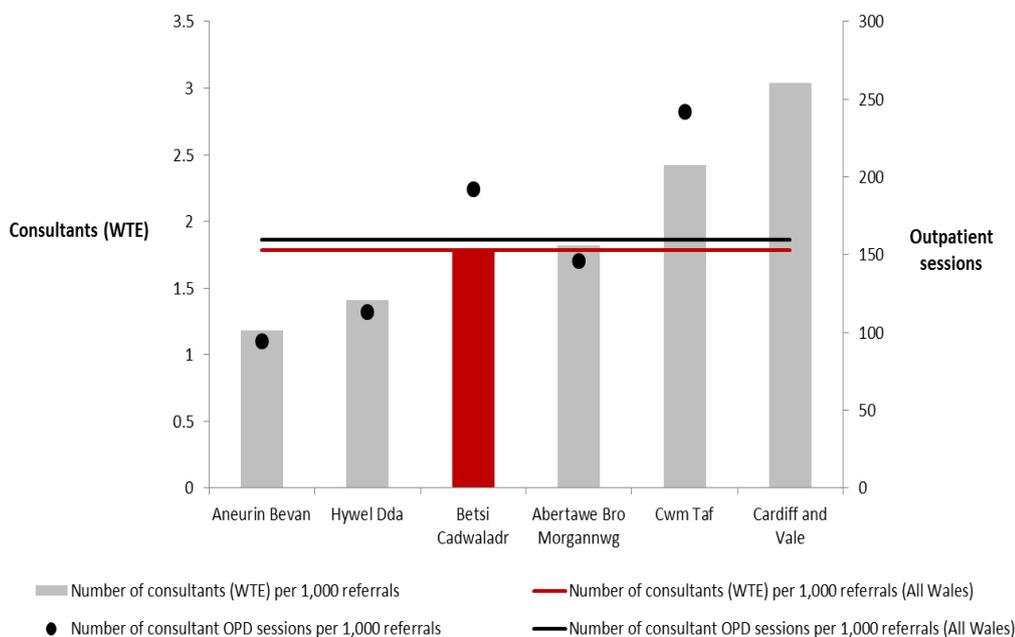
Exhibit 11: Percentage of patients waiting more than 26 weeks for first outpatient appointment



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 is around the average across Wales (Exhibit 12). The number of consultant sessions dedicated to outpatient activity is above average, and the second highest across Wales (Exhibit 12). The Health Board therefore provides a higher level of consultant involvement at the outpatient interface than the majority of other health boards across Wales.

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

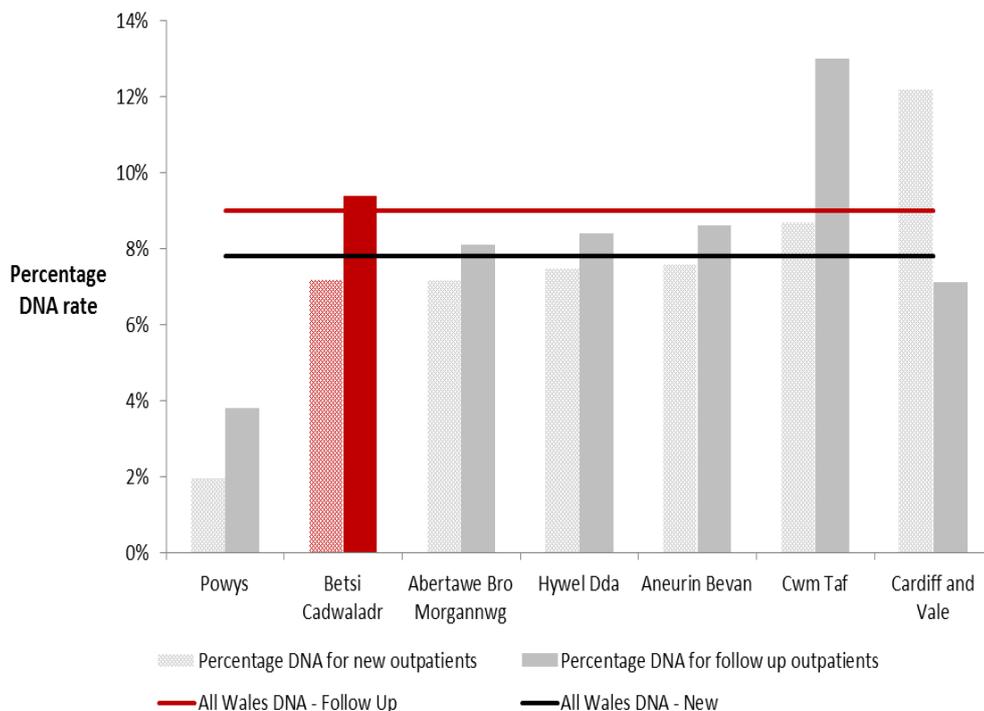


Source: Stats Wales and Wales Audit Office Health Board Survey

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 told us that the rate of cancelled outpatient clinics for 2012-13 ranged between 2.8 and 8.8 per cent. 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 below the all-Wales average at 1.94 follow-up appointments to every new appointment. This was, however, 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, more than 92 per cent of patients felt that the Health Board tried to co-ordinate the number of visits that they needed to make. This compares favourably against the average response across Wales (88 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 are within the all-Wales average at 7.2 per cent but the rate for follow-up outpatient appointments is the second highest in Wales at 9.4 per cent. This performance falls outside the Welsh Government target of five per cent for new appointments and seven per cent for follow-up appointments, indicating that there is scope to improve efficiency within the system ([Exhibit 13](#)). The Health Board did not provide us with information about its rate of patient cancellation for new or follow-up outpatient appointments. Some other health boards were also unable to report patient cancellation rates.

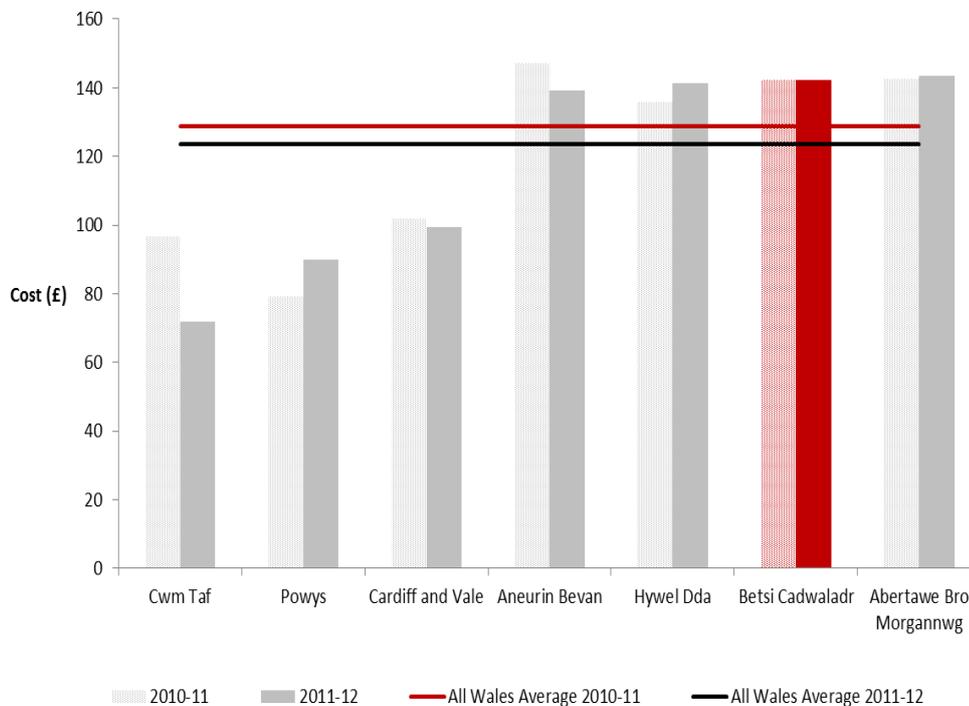
Exhibit 13: DNA rates for new and follow-up outpatients 2013-14



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 higher than the all-Wales average in 2011-12 (Exhibit 14) at £142.15, the second highest across Wales. The level of activity that goes through the outpatient departments will influence the cost of an outpatient attendance, along with a higher proportion of new 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

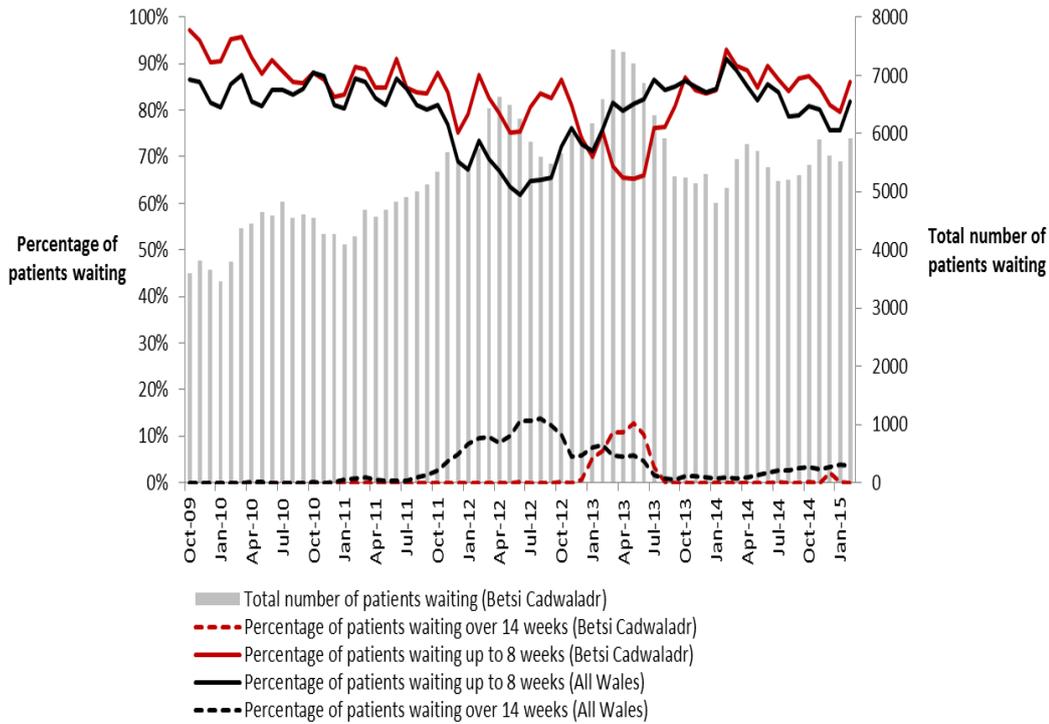


Source: Welsh costing returns

Physiotherapy services

- 2.9 The Health Board generally sees patients requiring physiotherapy to treat musculoskeletal problems quicker than in other parts of Wales. During the period January 2014 to February 2015, the percentage of patients waiting less than eight weeks averaged 86.2 per cent compared to the all-Wales performance of 82.3 per cent ([Exhibit 15](#)).
- 2.10 The Welsh Government target is that no patient should wait more than 14 weeks for therapy services. The Health Board's performance in this respect has generally been good, although a number of patients in Wrexham Maelor Hospital experienced delays during the first half of 2013 ([Exhibit 15](#)). Waits for physiotherapy deteriorated in Wrexham Maelor Hospital following a decision to divert resources to respond to inpatient physiotherapy demand. This has since been resolved, with very few patients, if any, waiting more than 14 weeks since August 2013.

Exhibit 15: Waiting times for physiotherapy (adults)



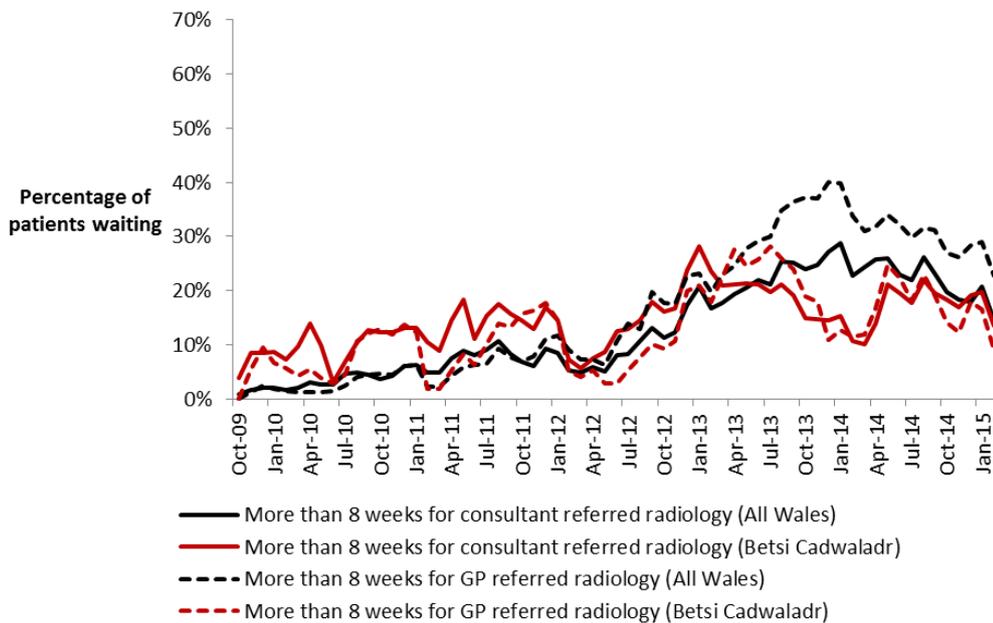
Source: Stats Wales

2.11 Outpatient physiotherapy services are provided in a wide range of settings across the Health Board including GP surgeries, which is identified as good practice. The Health Board has introduced a self-referral service, which allows patients to contact the physiotherapy department directly. This reduces the need for patients to be seen by another healthcare professional prior to referral. Where self-referral schemes have been established in other health boards, some physiotherapy services also offer a contact number for advice prior to making a referral. This provides an opportunity to signpost patients to other more appropriate services and reduces some unnecessary waits. 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. Access to all radiology tests requested by GPs and consultants in this Health Board was worse than the all-Wales average until 2013 (**Exhibit 16**). Since then, the Health Board's performance has improved with waits for both GP and consultant-referred radiology better than the all-Wales average since August 2013.

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 at 15 per cent and 36 per cent of all GP-referred radiology requests and consultant-referred radiology requests respectively. This pattern of referral shows considerable variation across the three main hospital sites (**Exhibit 17**).

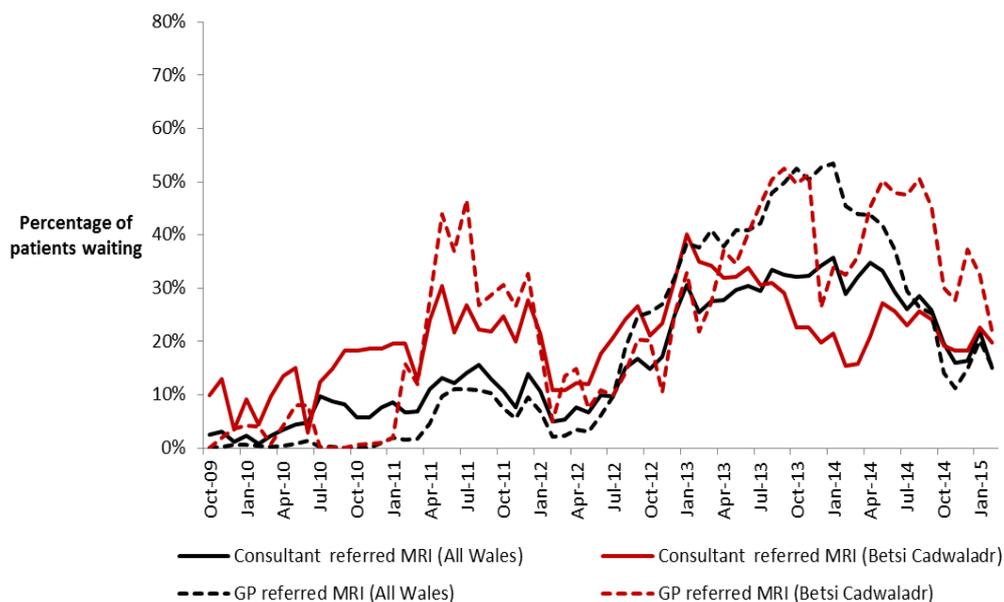
Exhibit 17: Proportion of radiology requests for MRI scans

Hospital site	Proportion of GP referrals for MRI scans	Proportion of consultant referrals for MRI scans
Ysbyty Glan Clwyd	2	44
Ysbyty Gwynedd	2	36
Ysbyty Wrexham Maelor	28	37
All-Wales average	23	39

Source: Stats Wales

2.14 The increased rate of demand, particularly for GP-referred MRI scans, can place pressure on health boards' radiology departments. Waiting times for MRI scans have varied considerably between 2010 and 2015, with performance up until October 2012 generally worse than the all-Wales position. Since October 2012, waits for GP-referred MRI scans have fluctuated around the all-Wales position, although performance remains high. In February 2015, 22 per cent of patients referred for an MRI scan by their GP were waiting more than eight weeks (Exhibit 18). Waits for consultant-referred MRI scans remained higher than the all-Wales position up until June 2013 when performance dropped below the all-Wales position. In February 2015, 20 per cent of patients referred by their consultant were waiting more than eight weeks (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 although the delivery of these services varies (**Exhibit 19**).

Exhibit 19: Pre-operative assessment arrangements

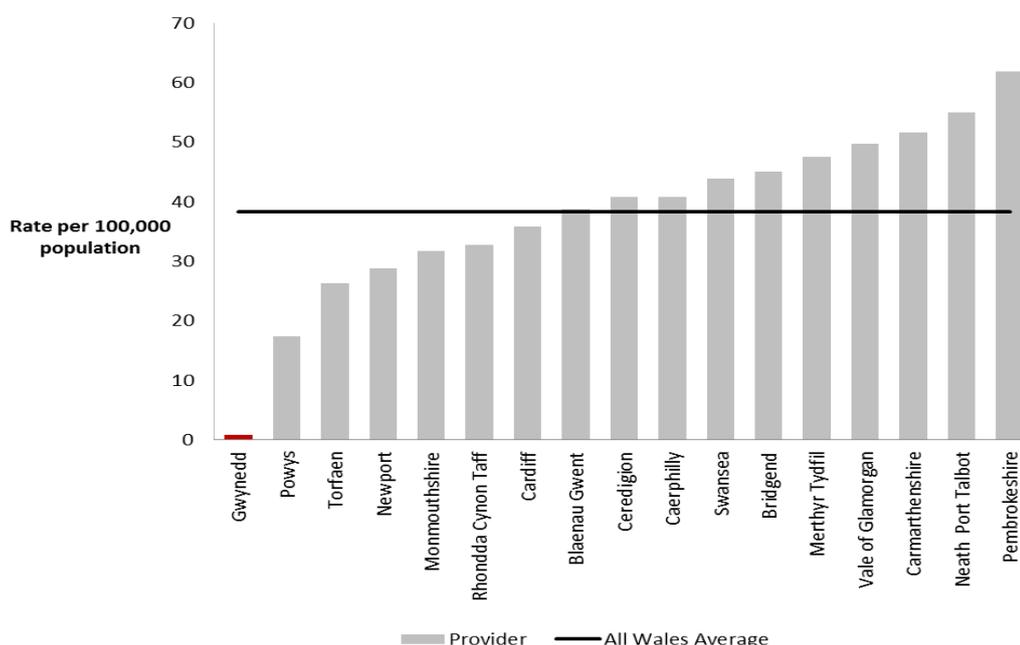
	Ysbyty Glan Clwyd	Ysbyty Gwynedd	Ysbyty Wrexham Maelor
Dedicated department	✓	✓	✓ (Pre-operative assessment clinic within the main outpatients department)
Nurse led	✗	✓	✓
Available five days per week	✓	✓	✓
Orthopaedic specific	✗	✗	✗
Co-ordination of booking appointments	Medical secretaries	Medical secretaries	Booking centre

Source: Wales Audit Office Health Board Survey

3.2 Our Survey of Patients Undergoing Knee Replacement Surgery 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 before surgery. At the Health Board, 73 per cent of patients received their 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 low across Gwynedd with no rates reported in the other five authority areas across North Wales ([Exhibit 20](#)).

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

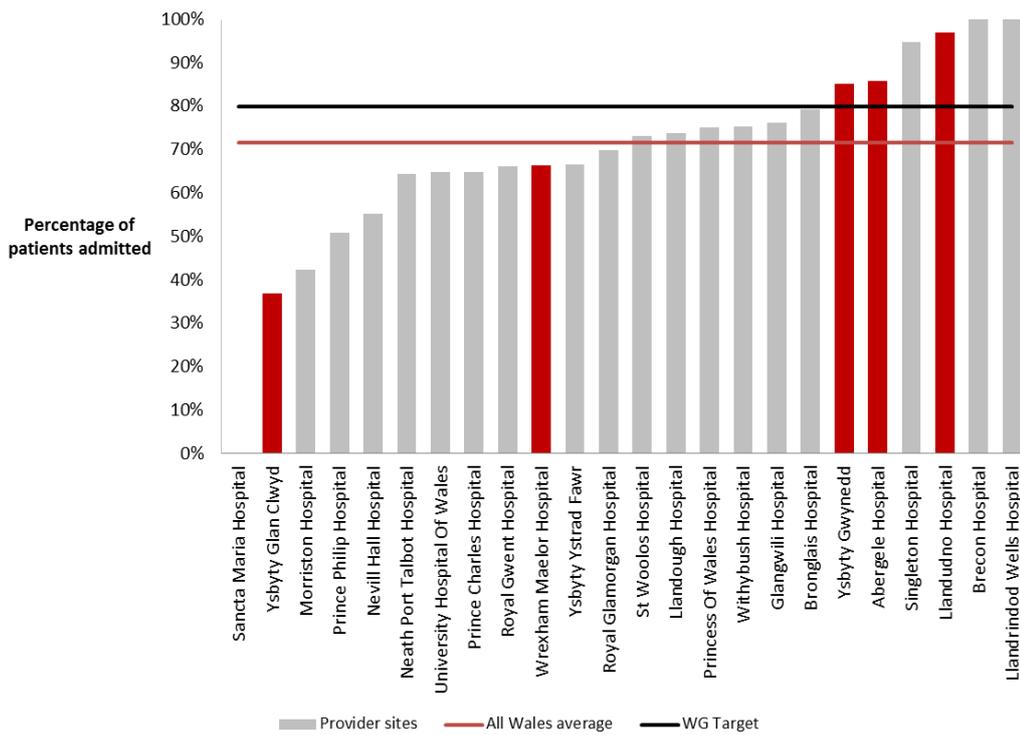


Source: Patient Episode Database Wales

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 three of the Health Board’s hospital sites exceeded the Welsh Government target. Performance at Wrexham Maelor Hospital however was below the target and the all-Wales average, and performance at Ysbyty Glan Clwyd was the lowest of the NHS hospital sites across Wales at just 37 per cent (Exhibit 21).

Exhibit 21: Percentage of BADS-recommended orthopaedic procedures undertaken as a day case 2012-13

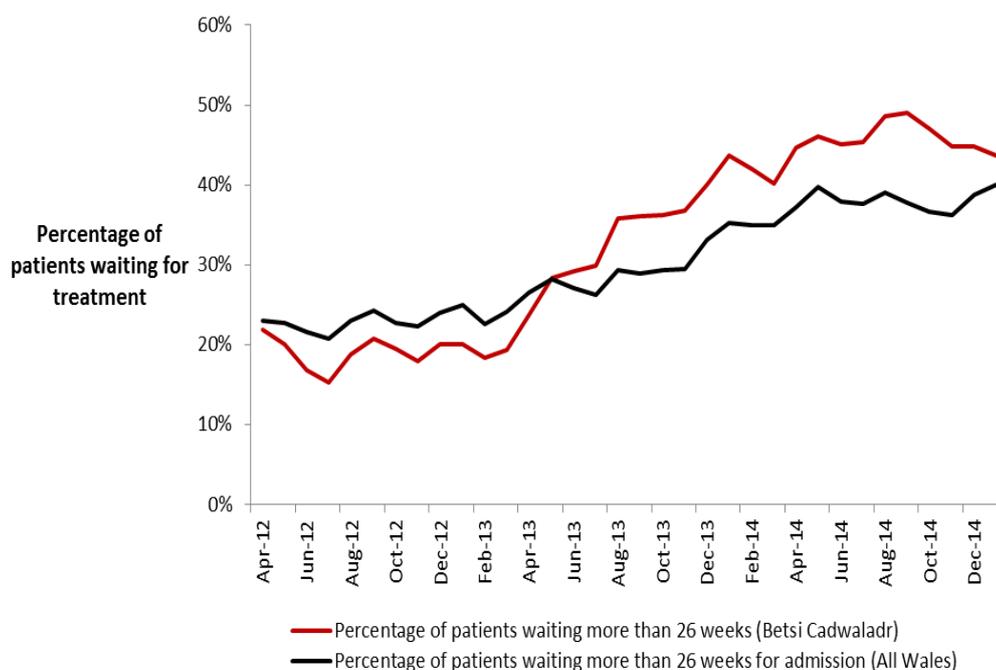


Source: Patient Episode Database Wales

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 have adopted the Enhanced Recovery After Surgery (ERAS) programme. This includes 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 operates three 'joint schools', one in each of its main district general hospital sites.
- 3.6 The percentage of patients waiting more than 26 weeks for an inpatient or day-case admission has been higher than the all-Wales average since May 2013 (Exhibit 22). In January 2015, 44 per cent of patients were waiting more than 26 weeks for admission, compared against an average of 40 per cent across Wales. The longer waits for outpatient appointments, followed by waits for diagnostics, will have a knock-on effect on the ability of the Health Board to treat those who require admission within 26 weeks. A high level of consultant input to outpatient sessions may also result in delays for admission, because of reduced capacity for consultant sessions on theatre lists.

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

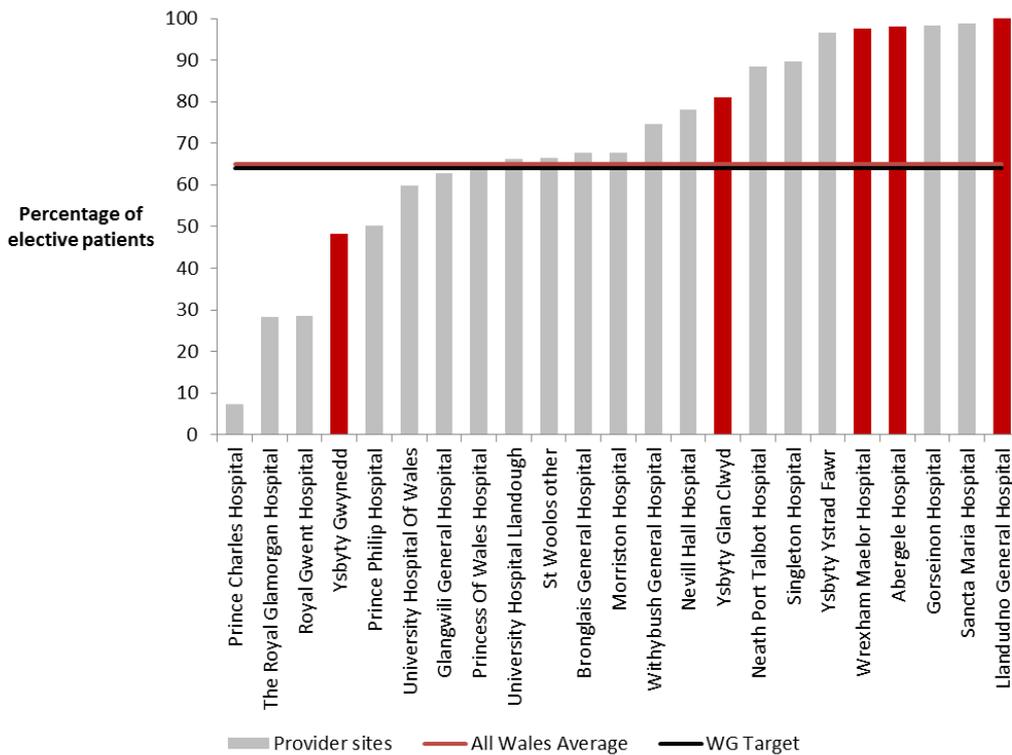


Source: Welsh Government Delivery Unit

Admission

3.7 To prevent any unnecessary overnight stays in hospital and to make the 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 surgery. Performance against this target is positive across the Health Board’s main hospital sites with the exception of Ysbyty Gwynedd, where less than half of patients are admitted on the same day (Exhibit 23).

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, although some wards do also include a number of beds allocated for orthopaedic trauma cases. The number of available trauma and orthopaedic beds has reduced by 11 per cent over the last four years, with an average of 163 daily available beds across four sites in 2013-14. The occupancy rate for these beds has increased slightly from 69.6 per cent in 2010-11 to 74.3 per cent in 2013-14, compared to an optimal occupancy rate of 85 per cent. This would indicate that there are opportunities to further increase throughput or to reduce the available bed capacity. There is variation across sites, the higher occupancy rate being in Ysbyty Glan Clwyd at 95.5 per cent compared to 32.4 per cent at Abergele Hospital ([Exhibit 24](#)).

Exhibit 24: Available beds and occupancy rates 2013-14

	Available beds	Occupancy rate (%)
Abergele Hospital	24.0	32.4
Wrexham Maelor Hospital	50.7	76.0
Ysbyty Glan Clwyd	34.9	95.5
Ysbyty Gwynedd	53.5	77.7

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 provided comprehensive information on the utilisation of its orthopaedic theatres for both day-case and inpatient theatres. Theatre utilisation over a three-month period January 2013 to March 2013 ranged between 67 and 106 per cent of available capacity ([Exhibit 25](#)). This represents strong performance but falls short of the Welsh Government target of 95 per cent in some sites. Over utilisation of theatre capacity however, if not planned for, may also create pressure within theatres as theatre lists may be overrunning leading to patients being cancelled on other lists or patients having to stay in overnight because procedures were completed late in the day. 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
Abergele Hospital	94%	91%	88%
Llandudno Hospital	84%	97%	95%
Wrexham Maelor – day theatres	67%	91%	71%
Wrexham Maelor – main theatres	93%	96%	93%
Ysbyty Glan Clwyd	99%	–	86%
Ysbyty Gwynedd	102%	106%	98%

Source: Wales Audit Office Health Board Survey

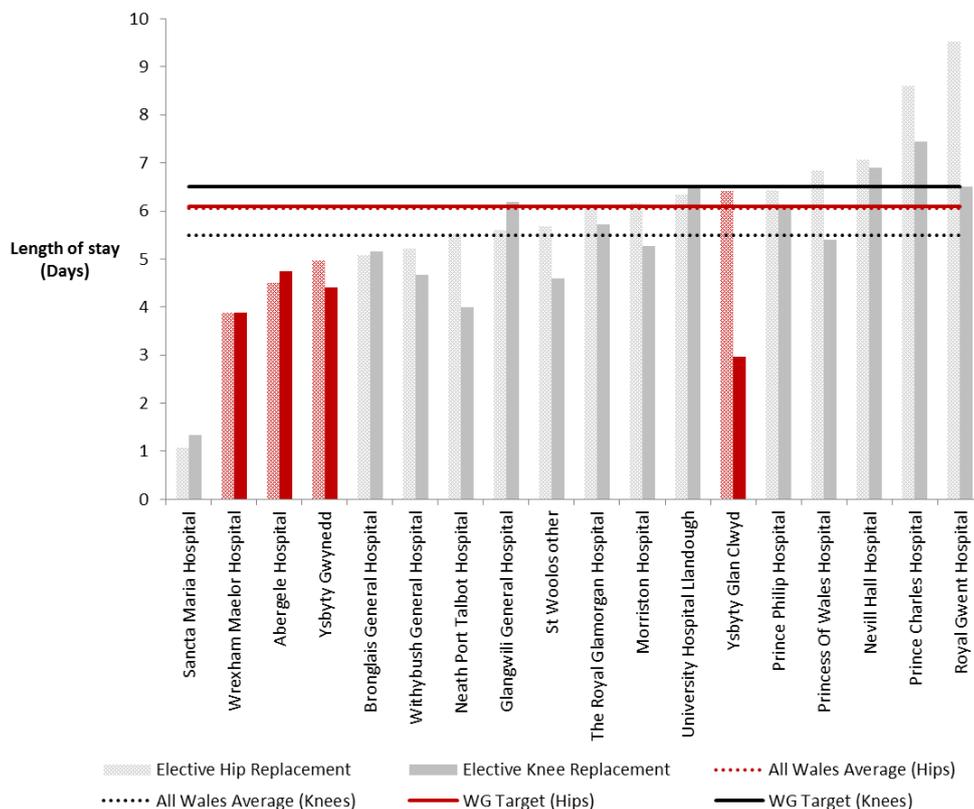
3.10 The rate of cancelled orthopaedic theatre sessions made by the Health Board for the period 2012-13 varies considerably between 0.7 per cent in west and 27.9 per cent in east. Across sessions that were held, the rate of cancelled inpatient operations made by the Health Board during this period also varies. The combined performance in the west hospital sites was 10.1 per cent, compared with combined performance of 13.4 per cent in the central hospital sites and 21.4 per cent in Wrexham Maelor 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 3.4 days, which is below the Welsh Government target of four days. There is variation across the five hospital sites within the Health Board, although all remain within the Welsh Government target. The shortest average length of stay is in Llandudno General Hospital at 1.0 days compared with the longest average length of stay in Ysbyty Glan Clwyd at 3.7 days.

3.12 The average length of stay for patients undergoing hip and knee replacements are well within the Welsh Government targets set for these procedures ([Exhibit 26](#)), with the exception of hip replacements at Ysbyty Glan Clwyd. The average length of stay for a hip replacement at Ysbyty Glan Clwyd is 6.4 days, which is just outside the Welsh Government target of 6.1 days. The majority of joint replacements in the central area are undertaken at Abergele Hospital, so it is likely that the length of stay at Ysbyty Glan Clwyd reflects more complex patients who cannot be operated on at Abergele Hospital where there are no critical care facilities available.

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

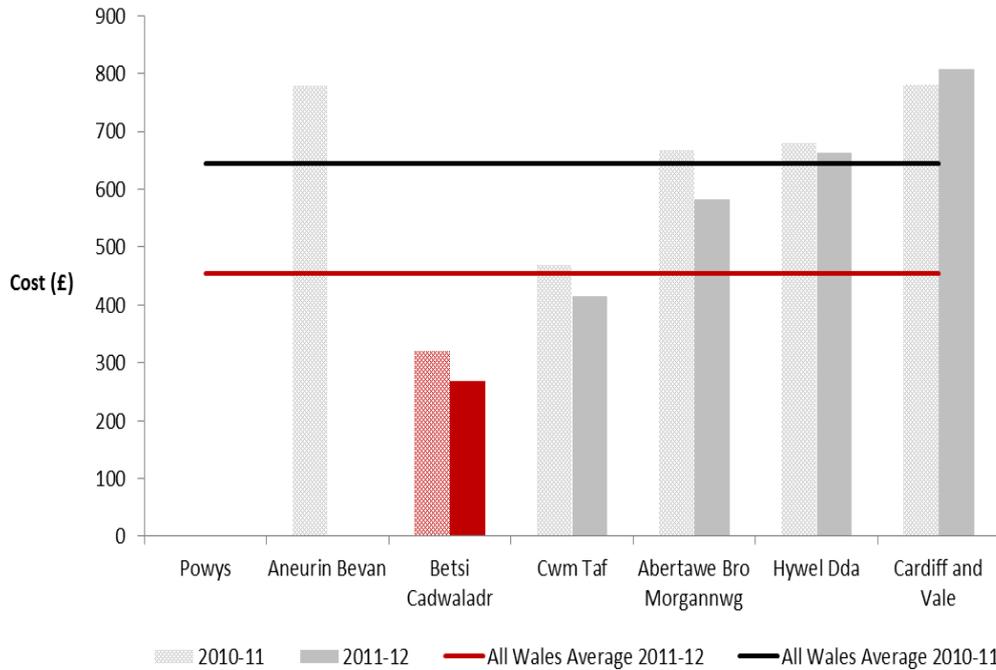


Source: Patient Episode Database Wales

3.13 The average cost of an elective orthopaedic hospital episode in the Health Board for 2012-13 was £4,280, which was just above the all-Wales average of £4,239. A patient's length of stay would usually be the main driver of this cost, but other costs associated with staff and equipment are important factors. Given that the average length of stay for elective orthopaedics in the Health Board is below the all-Wales average, the higher average cost is therefore likely to be affected by higher costs associated with such aspects as staffing, equipment and 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, however, was the lowest in Wales for both 2010-11 and 2011-12, with a decrease in the cost of 16 per cent (Exhibit 27).

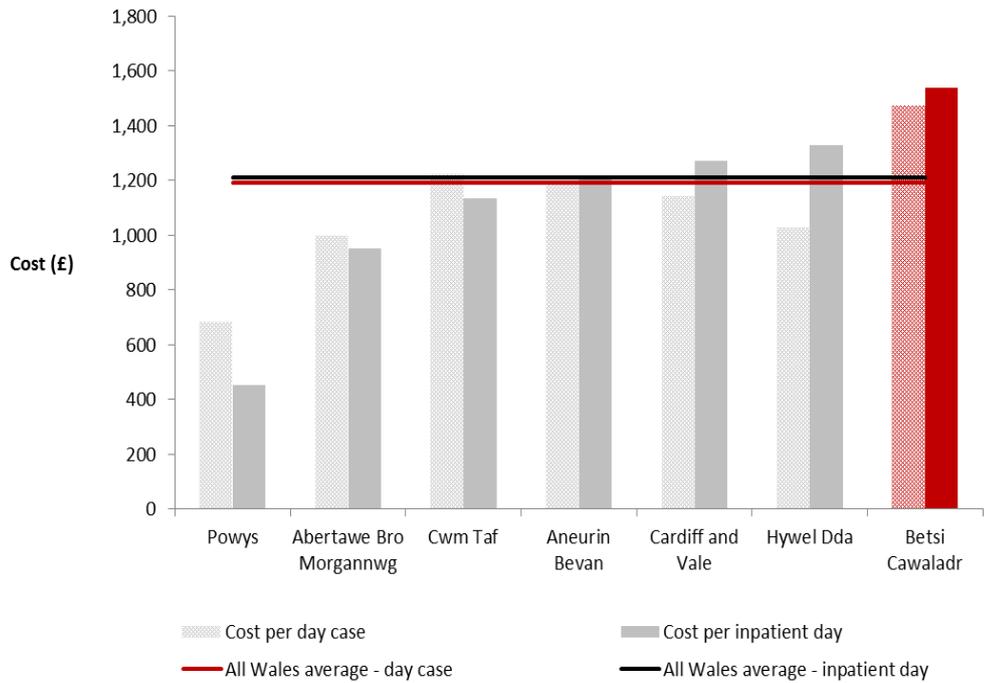
Exhibit 27: Average prosthetic cost per episode for 2010-11 and 2011-12



Source: Welsh costing returns

3.15 The costs of both an elective inpatient bed day and an orthopaedic day case for 2012-13 were £1,540 and £1,475 respectively. These figures were the highest across Wales ([Exhibit 28](#)). If performance against the Welsh Government target for same-day admission in Ysbyty Gwynedd 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 £381,612 per year, or free up capacity to increase throughput. In addition, if performance against the BADS orthopaedic procedures at Wrexham Maelor Hospital and Ysbyty Glan Clwyd improved to the recommended level of 80 per cent, the difference between the cost of a day case and the cost of an inpatient bed day could also potentially release resources in the region of approximately £16,500 per year.

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



Source: Welsh costing returns

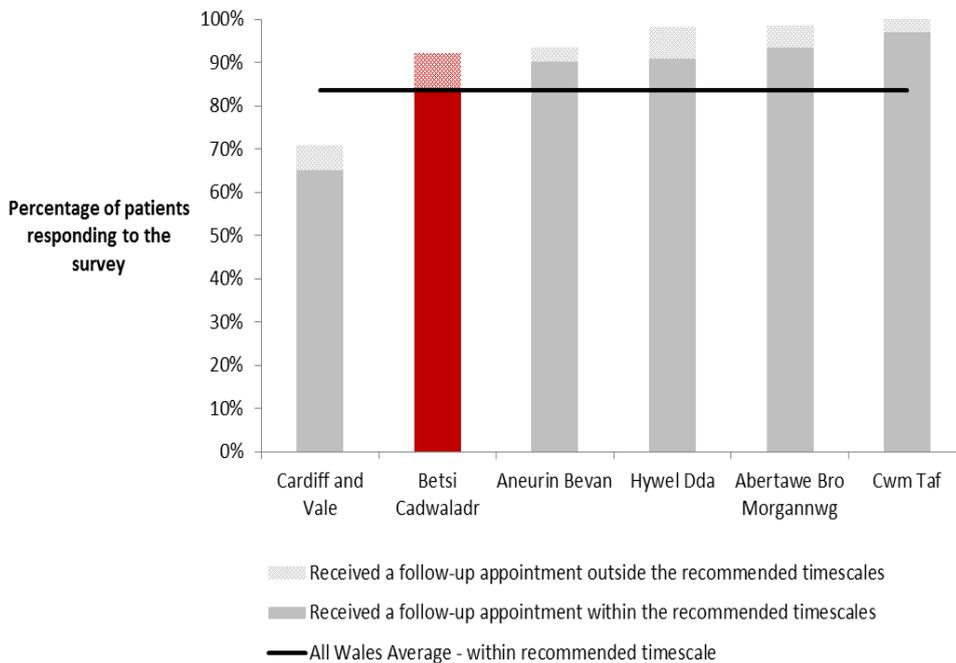
Part 4

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 was unable to report how many patients had received their follow-up appointment within the specified timescales. However, our patient survey identified that 92 per cent of the patients undergoing knee replacement surgery who responded to our survey had received a follow-up post-discharge (Exhibit 29), which is above the all-Wales average. Of those, 91.4 per cent of patients had received the follow-up appointment within the specified timescales.

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 38 per cent of elective orthopaedic activity in the Health Board. The rates of SSI vary between hospital sites across the Health Board (**Exhibit 30**). Rates are particularly high at Wrexham Maelor Hospital, at 3.4 per cent for hip surgery and 3.0 per cent for knee surgery. The Welsh Government target is zero per cent. No SSIs were recorded for Abergele Hospital.

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

Hospital	SSI rate (hips)	SSI rate (knees)
Glan Clwyd General	1.0	0.9
Wrexham Maelor	3.4	3.0
Ysbyty Gwynedd	1.3	2.0
All-Wales average	1.5	1.8

Source: Public Health Wales Observatory

- 4.4 For the same period, we identified that the readmission rate following elective hip replacement at the Health Board is higher than the all-Wales average (**Exhibit 31**). The mortality rate for orthopaedic patients in hospital is the second highest across Wales, although the mortality rate within 30 days of discharge from hospital is below the all-Wales average.

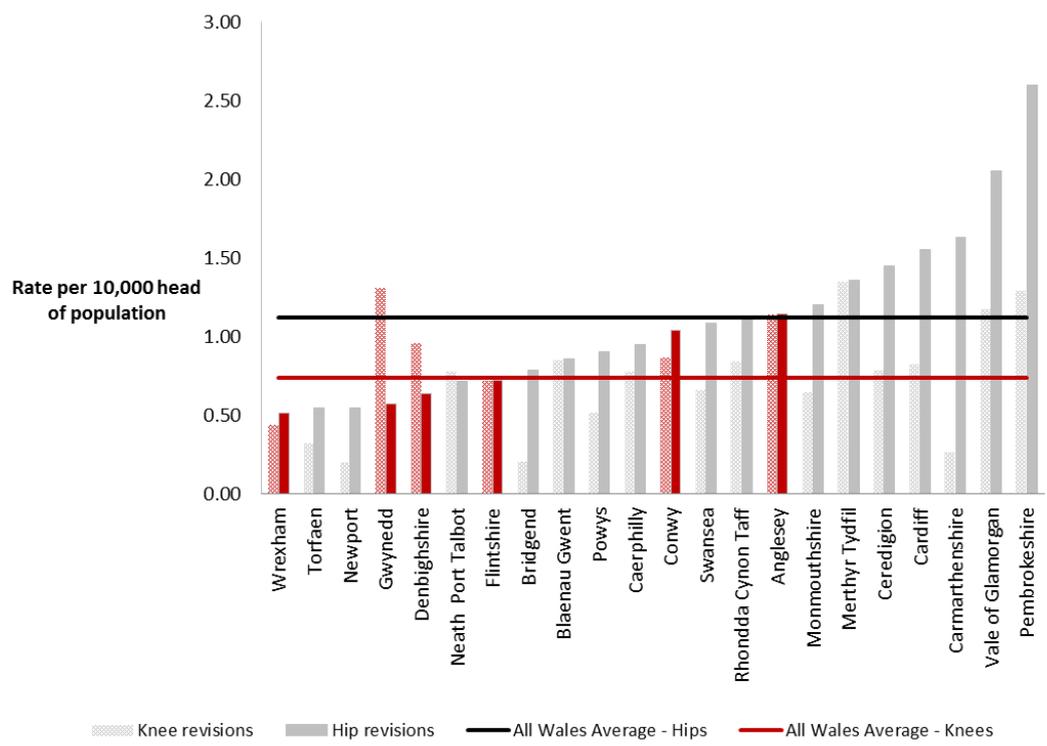
Exhibit 31: Readmission and mortality rates for elective orthopaedics 2012-13

Indicator	Betsi Cadwaladr	All-Wales average
Percentage of patients readmitted within 28 days following a hip replacement	1.3	0.9
Percentage of patients readmitted within 28 days following a knee replacement	0.1	0.1
Death in hospital per 100 elective orthopaedic admissions	0.09	0.06
Death within 30 days of discharge following an elective orthopaedic admission, per 100 elective orthopaedic admissions	0.08	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 varies across the Health Board's localities, and in Wrexham are the lowest across Wales. Knee revision rates are higher than hip revision rates in Denbighshire and Gwynedd, at 1.0 per cent and 1.3 per cent respectively ([Exhibit 32](#)). This is a feature not seen elsewhere.

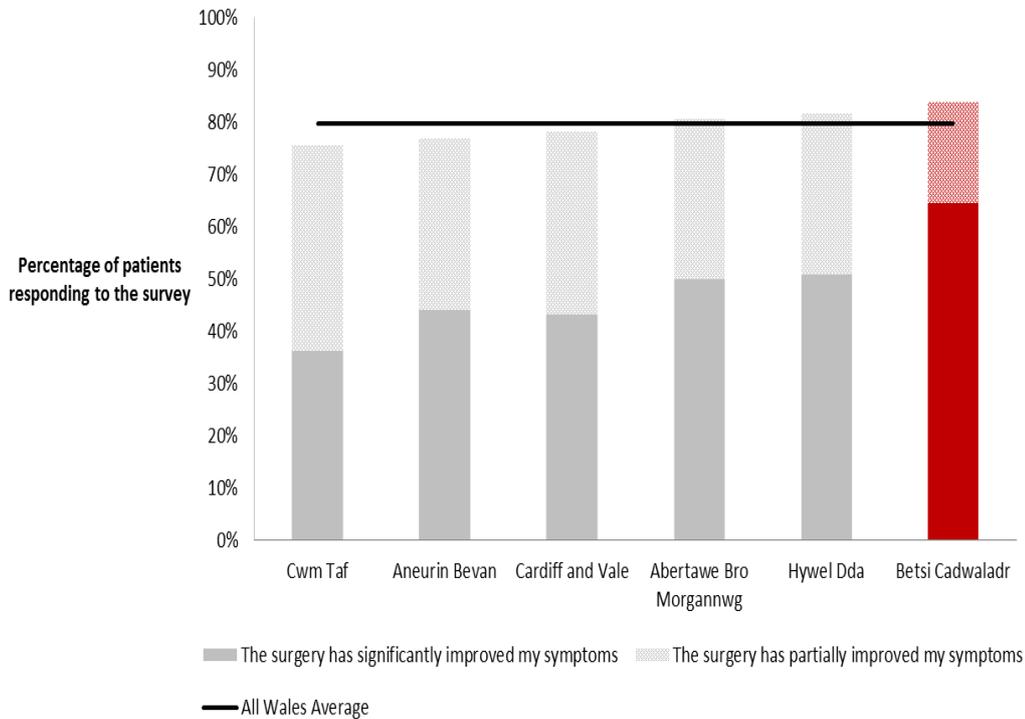
Exhibit 32: Rate of revision per 10,000 head of population 2012-13



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. Nearly 84 per cent of the Health Board’s patients noticed an improvement. This was the most positive response in Wales. Sixty-five per cent of the Health Board’s patients reported that surgery had significantly improved their symptoms, and a further 19 per cent stated that surgery had partially improved their symptoms (Exhibit 33). Within the Health Board, there is considerable variation between sites. At Wrexham Maelor Hospital, 92 per cent of patients reported improvements, compared to 85 per cent from Abergele Hospital and just 64 per cent from Ysbyty Gwynedd.

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 reported using the Oxford Hip and Knee scores as a way of measuring the impact of joint replacement surgery, along with submission of patient data to the National Joint Registry. This is recognised as good practice.
- 4.8 The Health Board also reported undertaking a number of patient satisfaction surveys during the last 12 months to gather the views of orthopaedic patients. During the period 2012-13, the Health Board recorded 65 complaints relating to orthopaedic services at Wrexham Maelor Hospital. This equates to less than three per cent of elective orthopaedic inpatient admissions at Wrexham. Many health boards are unable to report the number of complaints specifically relating to orthopaedic services, and therefore there is no comparison available. No information was provided for the hospital sites in the west and central areas.

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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