

Orthopaedic benchmarking and trends for the BNSSG population

1. Purpose

This is a report on an analysis of orthopaedic health services activity data, comparing indicators of activity in Bristol, North Somerset and South Gloucestershire PCTs with average activity in England.

2. Background

Work on orthopaedics and elective services has prompted questions about whether referral rates and orthopaedic activity in BNSSG (Bristol, North Somerset and South Gloucestershire) are higher than the England average. Relevant work includes:

- A proposal for PCTs across BNSSG to provide a musculoskeletal assessment and triage service (MATS) to reduce referrals to secondary care. Baseline activity needs to be understood for the evaluation of this service.
- The BNSSG elective care programme which aims to manage demand for outpatient follow-ups, access to secondary care and tertiary referrals.
- An earlier analysis of high cost HRG procedures compared to cluster PCTs for one year, which highlighted rates of hip and knee replacements as higher than expected¹.

To investigate whether referral or activity rates across BNSSG are higher than expected, further analysis was required to look at the trends over time.

The activity required for a PCT population depends on local needs for orthopaedic interventions. We do not have direct measures of this need.

- We can estimate activity rates that take account of the local population's age distribution compared to that of England. These are age standardised rates.
- We can also use estimates of PCT populations that have been adjusted to take account of a range of factors used to estimate the fair share of resources required to meet need in each PCT. This is the unified weighted population.

Currently, there is no evidence either way on the validity of assuming that the unified weighted population is an appropriate way of taking account of local needs for individual specialties or procedures. There is a case for using both methods, to help understand activity in relation to one relatively well understood indicator of need, and a less well understood composite measure related to total need for health resources. More detail on these issues is available².

3. Methods

A working group involving information analysts, public health specialists and commissioning managers agreed the aims and methods for the benchmarking analysis.

¹ Joyce Coulson, Avon IM&T 2005.

² Which population should I use to estimate activity rates? C Hine Avon Public Health Network 2006
http://nww.avon.nhs.uk/phnet/Publications/ortho_analysis_populations_sept06.doc

Benchmarking needed to address 2 questions:

- Is activity **appropriate in relation to health needs** of our population?
- Is activity **appropriate in relation to funding** we expect for commissioning healthcare for our population?

To adjust activity rates **for health needs** alone, indirectly age standardised ratios were calculated. The PCT can be compared with the English benchmark of 100. We have adjusted the PCT population to take account of differences in its age structure compared to that of England. Age is the best understood risk factor for relevant common conditions such as osteoarthritis and fractured neck of femur.

To adjust activity rates **to take account of available resources**, population estimates were weighted using the national resource allocation formula (which incorporates adjustments related to need and costs of providing health services). These population estimates are known as 'unified weighted populations'. These were used to estimate rates per 100,000 population³.

In both cases, rates were calculated for spells within the specialty of orthopaedics. The exception was analysis of hand procedures, where 'all specialties' were used to capture total NHS funded activity.

Table 1 shows the populations used for age standardisation and the unified weighted population for resource allocation. The difference between these two population estimates is particularly marked for S Gloucs PCT (about 40,000 people). Bristol North stands out for having an unified weighted population larger than its PCT relevant population. The PCT relevant population is the PCT's practice based population adjusted to reconcile with national ONS resident population estimates.

Table 1 Population estimates used in age standardised analysis and weighted population analysis

Description	PCT relevant population 2006 used in aged standardised analysis (Avon IM&T)	Estimate 2007/08 unified weighted population (DH ⁴) used in resource allocation analysis
BNSSG	844,318	796,679
Bristol North	213,859	224,191
Bristol South & West	194,572	184,000
N Somerset	195,217	188,139
S Gloucestershire	240,670	200,349

Activity rates for England (rather than PCT clusters) have been used as the benchmark. Variations in service models at PCT cluster level may have a significant effect on patterns of activity: using the data for England as a whole should help to reduce this type of bias.

Data was analysed for up to five years (2001/02 – 2005/06) as available, for each PCT within BNSSG and for England, including:

1. Referrals: GP, other and total

³ Note that whilst the unified weighted population is used to estimate fair shares of NHS resources, other factors are then taken into account when deciding the PCTs final allocation eg pace of change towards target funding – see ref 4.

⁴ 2006-07 and 2007-08 Primary Care Trust initial revenue resource limits. DH 2005 <http://www.dh.gov.uk/assetRoot/04/10/44/87/04104487.xls> accessed 21/9/06

2. Outpatient activity: first, follow-up, total and ratio of follow-up to first
3. Elective spells: total, inpatient, day cases and ten most frequent healthcare resource groups (HRGs)
4. Non-elective spells under trauma and orthopaedics.

Note that privately funded healthcare activity is not included in this analysis.

This means that the activity data we have underestimates the total healthcare received by our population.

4. Results

For each area of activity a summary table highlights which PCTs are statistically significantly higher or lower than the England average in the most recent year. In addition, graphs provide trends with 95% confidence intervals for each PCT, BNSSG and the average for England. Three tables summarising all results (including numbers of procedures) are provided in appendix 1.

We have labelled the results for the analysis using unified weighted population 'resource allocation analysis', because it indicates activity in relation to the benchmark for England, taking account of the resources that the PCTs are expected to need^{3,4}. In general there is consistency between results for age standardised and resource allocation analyses – except for South Gloucestershire. This PCT is most affected by the use of unified weighted population estimates, which effectively reduce the total PCT relevant population by 40,000 (about one-sixth).

South Gloucestershire PCT is mostly likely to find that whilst age standardised rates are not higher than English rates, rates estimated using the unified weighted population may look excessive ie activity may appear appropriate to age-related need, but excessive in relation to expectations of S Gloucestershire's fair share of resources. This is the pattern seen for total elective activity. However for some activities, both analyses give high results, indicating that activity is high in relation to both age-related need and available resources. This is the pattern seen for inpatient elective activity. All BNSSG PCTs see this pattern for hip and knee replacements.

Non-elective admission rates in both analyses are significantly low for South Gloucestershire i.e. lower than would be expected given age related needs, and fair share of resources. This could reflect an appropriate relationship between the nationally determined share of resources and a relatively low level of need – or a different model of emergency care in S Gloucestershire with greater use of alternatives to hospital admission.

4.1 Referrals

When weighted for resource allocation, the rates of total referrals in 2005/6 for BNSSG, Bristol SW, N Somerset and South Gloucestershire PCTs were significantly higher than the average for England.

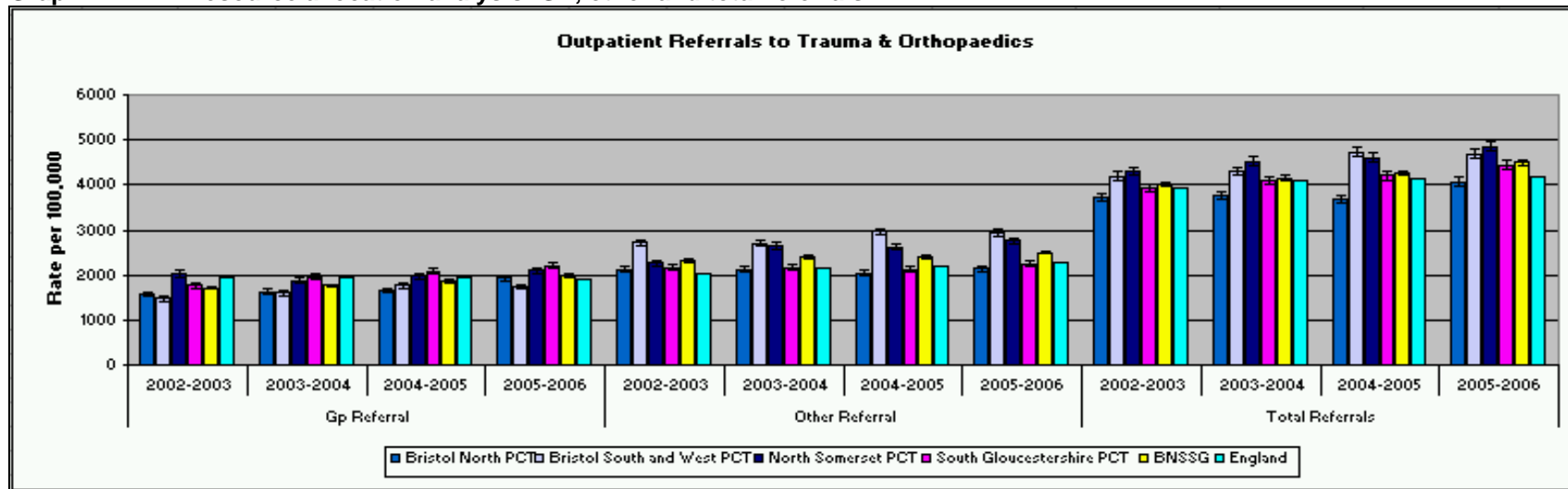
When weighted for resource allocation, South Gloucestershire, N Somerset and BNSSG had significantly higher GP referrals. Bristol SW had significantly lower GP referrals compared with the average for England.

When weighted for resource allocation, Bristol SW, N Somerset and BNSSG had significantly higher 'other' referrals, with the Bristol SW PCT rate being particularly high.

Table 2: Referrals 2005/06: BNSSG PCTS compared to English rates

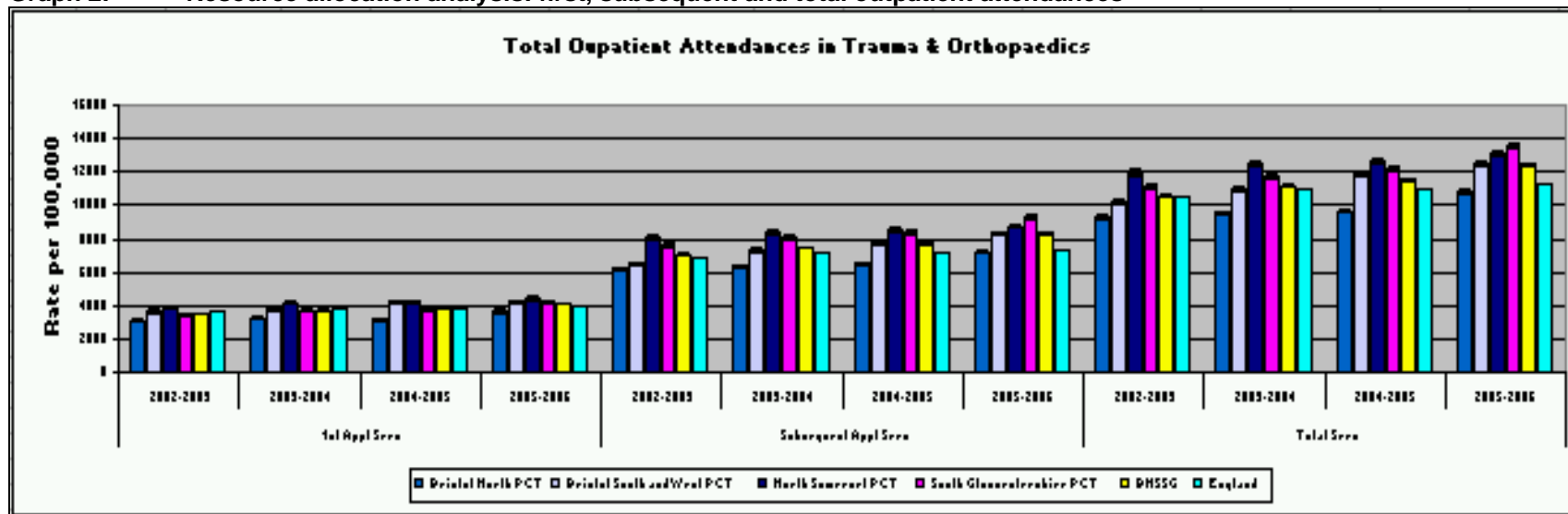
Activity	Age standardised analysis	Comments	Resource allocation analysis	Comments
Total referrals	No age specific data available for England		High: Bristol SW, S Glos, N Somerset & BNSSG Low: Bristol Nth	See graph 1. Rising trend for all PCTs.
GP referrals			High: S Glos, N Somerset, BNSSG Low: Bristol SW	Rising trend for BNSSG.
Other referrals			High: Bristol SW, N Somerset (both rising) and BNSSG.	High BSW rates may reflect more fractures and A&E referrals to fracture clinic?

Graph 1: Resource allocation analysis: GP, other and total referrals



4.2 Outpatient attendances

Graph 2: Resource allocation analysis: first, subsequent and total outpatient attendances



When weighted for resource allocation, all outpatient activity (total, first and follow-up attendances) in 2005/6 for all PCTs except Bristol North were significantly higher than the average for England. The increase in total activity may reflect additional activity to meet outpatient waiting list times.

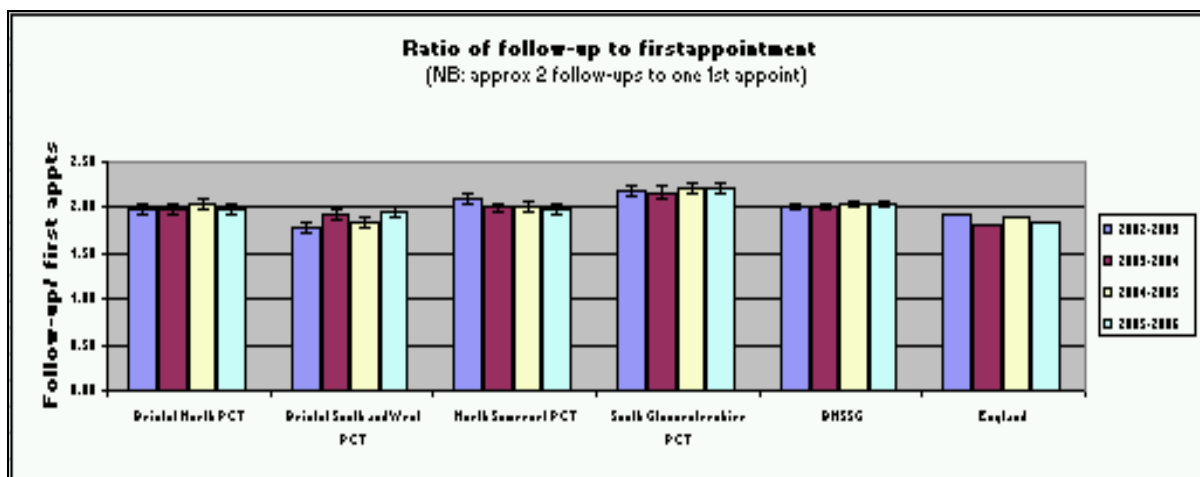
The ratio of follow-up to new appointments was highest for South Gloucestershire at 2.2 to 1, compared with a ratio for England of 1.8:1.

The higher total outpatient activity rates may reflect local action to 'catch up' and reduce outpatient waiting times, lower referral thresholds and/or higher follow-up rates.

Table 3: Outpatient attendances 2005/06: BNSSG PCTs compared to English rates

Activity	Age standardised analysis	Comments	Resource Allocation Analysis	Comments
Total OP activity	No age specific data available for England		High: All except Bristol Nth	See graph 2. Trend of rising OP activity for BNSSG, English rate showed upward trend since 2002/03
First outpatient attendances			High: All except Bristol Nth	Trend of rising 1 st OPA for BNSSG (consistent with trend in referrals), English rate showed upward trend since 2002/03
Outpatient follow up attendances			High: All except Bristol Nth	Trend of rising follow ups for BNSSG, English rate showed upward trend since 2002/03
Follow-up to first appointment ratio			High: All	See graph 3.

Graph 3: Ratio of follow up to new outpatient appointments



4.3 Elective activity

The age standardised analyses compare local PCTs with an English benchmark of 100.

The age standardised total elective activity rate was significantly higher than England for North Somerset and Bristol South and West. It was low for Bristol North and South Gloucestershire PCTs. However the resource allocation analysis showed South Gloucestershire PCT and BNSSG to have significantly higher rates than England. The BNSSG age standardised rate was not significantly different to the English rate.

In 2001/2 total elective activity for BNSSG was significantly lower than England, when weighted for resource allocation. Total elective activity across BNSSG between 2001/2-2004/5 increased by 48.6%, compared to an increase of 17.4% in England. This percentage increase was lowest in Bristol North. In 2002/3 the age standardised rate showed lower activity than expected, but the trend of increasing activity in recent years has taken the activity levels above the England average and higher than the level of resource allocated. This may reflect a 'catch-up' in activity, but continuation of this trend is a cause for concern.

Age standardised inpatient elective activity rates were significantly higher than England for BNSSG and all PCTs except Bristol North. This was also the case for the analysis weighted for resource allocation, except that it showed Bristol North to be significantly below the England average. This means inpatient elective activity is greater than expected either on the basis of age related need or expectations of resources.

The age standardised day case activity was significantly lower than England for BNSSG and all PCTs except North Somerset. This was also the case for the analysis weighted for resource allocation. There is a strong trend of increasing day case rates for all PCTs, such that the position looks likely to change to BNSSG PCTs having higher rates than England. However this is not yet reflected in any parallel reduction in total inpatient activity.

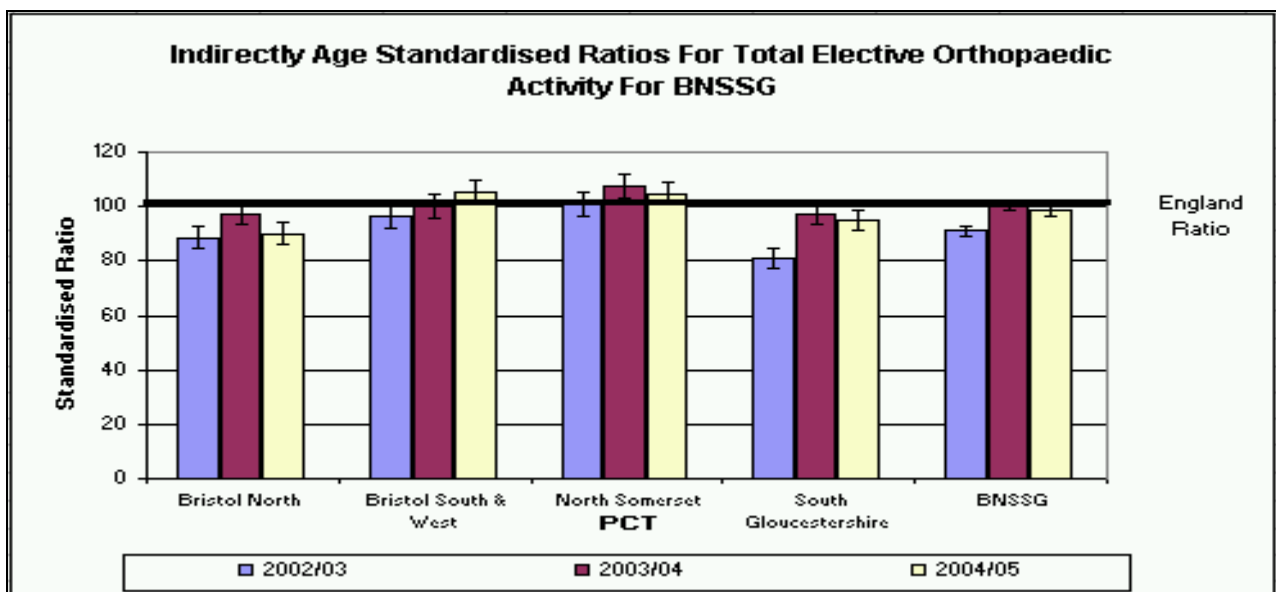
The increase over recent years in elective activity has rectified a situation of under provision compared to the average for England for resource allocation, but activity is now higher than the resource allocation benchmark.

The higher inpatient activity and lower day case activity could reflect scope for inpatient work to be shifted to day cases, or it could reflect a more complex case mix, with fewer less complex cases being treated locally than would be expected.

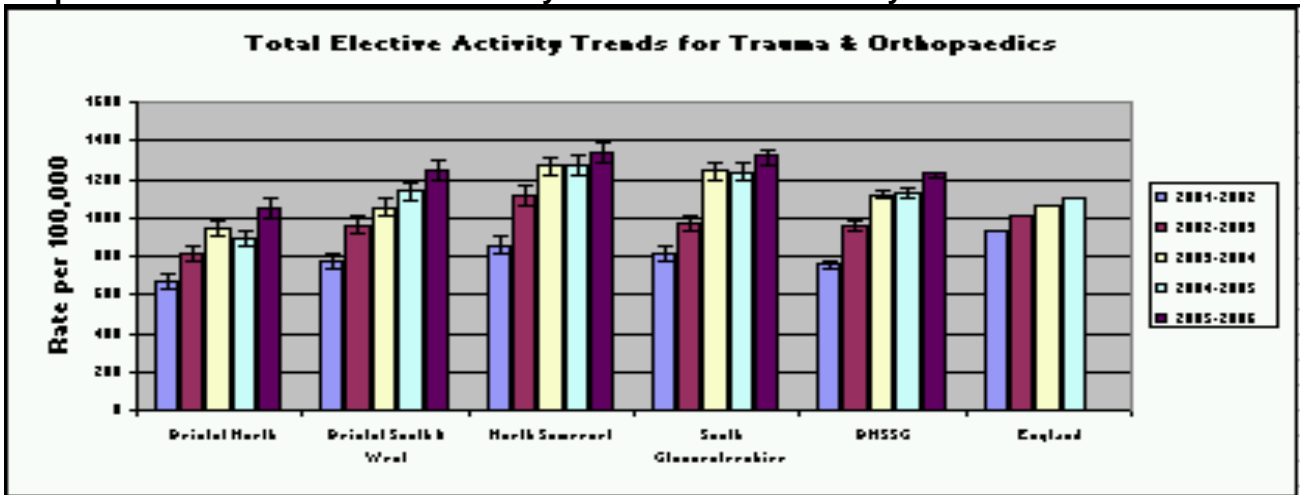
Table 4: Elective activity data 2004/5: BNSSG PCTs compared to English rates

Activity	Age standardised analysis	Comments	Resource Allocation Analysis	Comments
Total elective activity	High: N Somerset, Bristol SW Low: Bristol Nth, S Glos.	See graph 4 BNSSG not significantly different from English ratio. Rising trend for Bristol SW but only borderline high by yr 3.	High: S Glos, N Somerset, BNSSG. Low: Bristol Nth	See graph 5 Total elective activity for all PCTs in 2001/2 was significantly lower than the England average. Total elective activity across BNSSG between 2001/2-2004/5 increased by 48.6%, compared to an increase of 17.4% in England. This % increase was lowest in Bristol North.
Inpatient elective activity	High: Bristol SW, S Gloucs, N Somerset, Bristol Nth, BNSSG	See graph 6 Very consistent pattern of high activity rates in 02/03 – 04/05 compared with benchmarks.	High: S Gloucs, N Somerset, Bristol SW, BNSSG Low: Bristol Nth	See graph 7 Rising trend for all local PCTs and England between 2002/03 and 2004/05.
Day case elective activity	Low: All (for 3 yrs)	See graph 8 Very consistent pattern of low activity rates, with rising trend.	Low: Bristol Nth, Bristol SW, S Glos, BNSSG	See graph 9 Style of secondary care provision at Weston may be a factor in higher daycase rates seen for N Somerset.

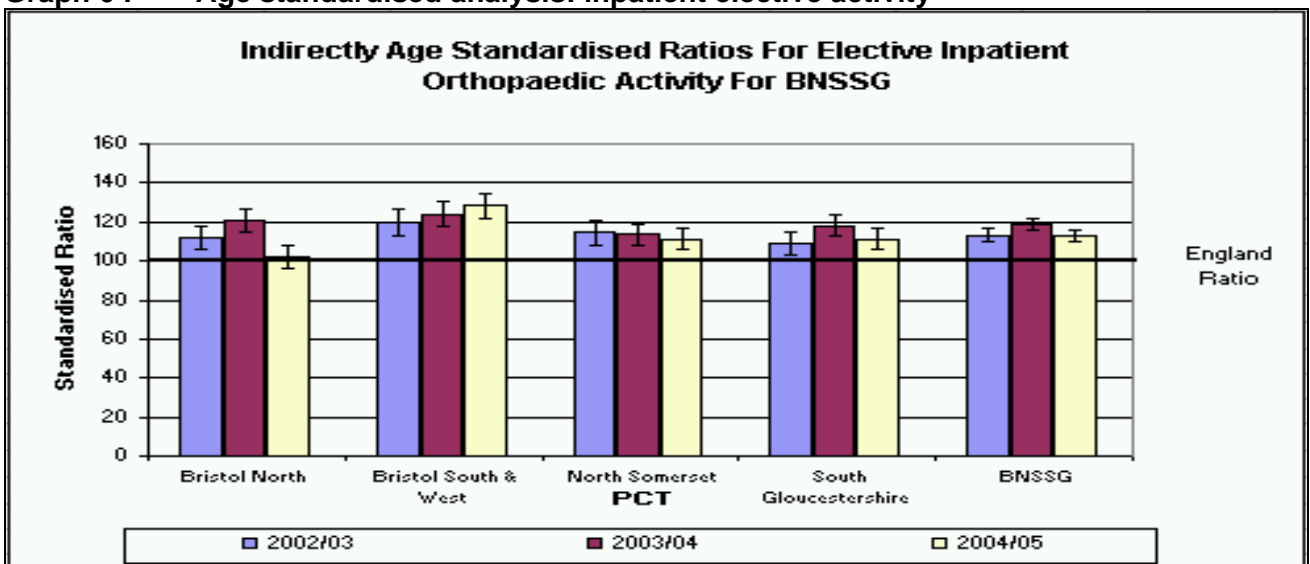
Graph 4 : Age standardised analysis: total elective activity



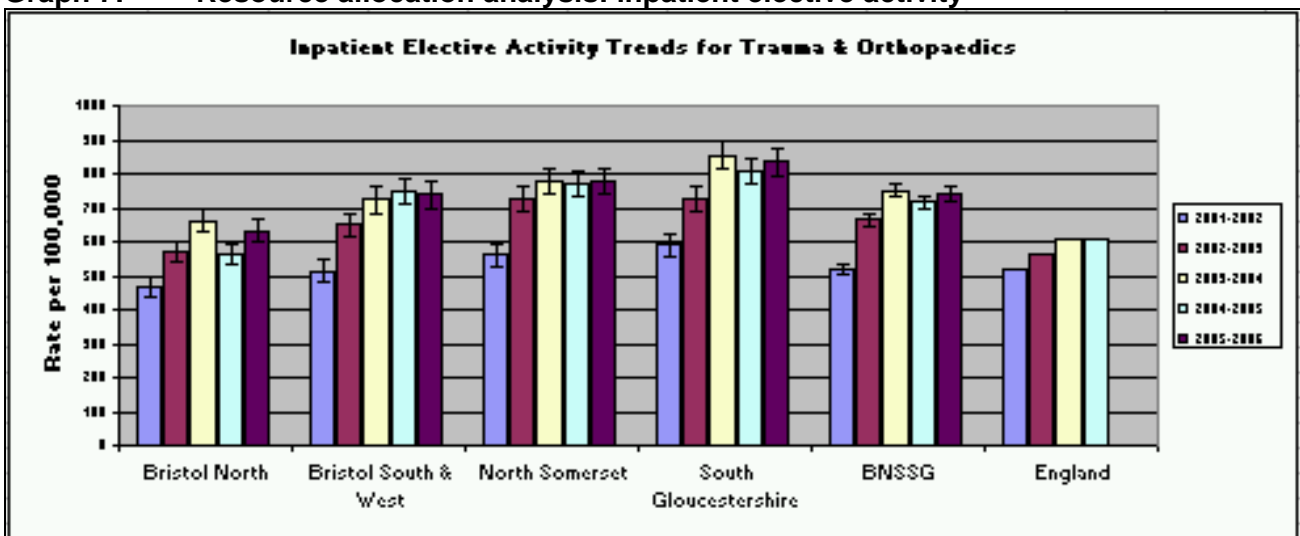
Graph 5: Resource allocation analysis: total elective activity



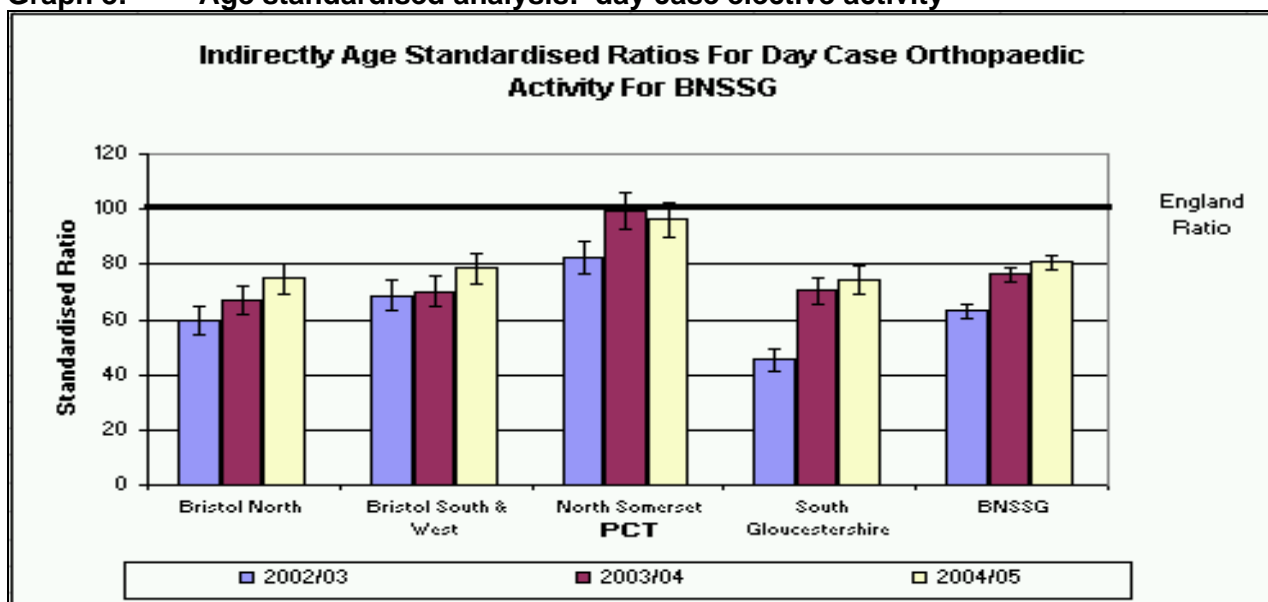
Graph 6: Age standardised analysis: inpatient elective activity



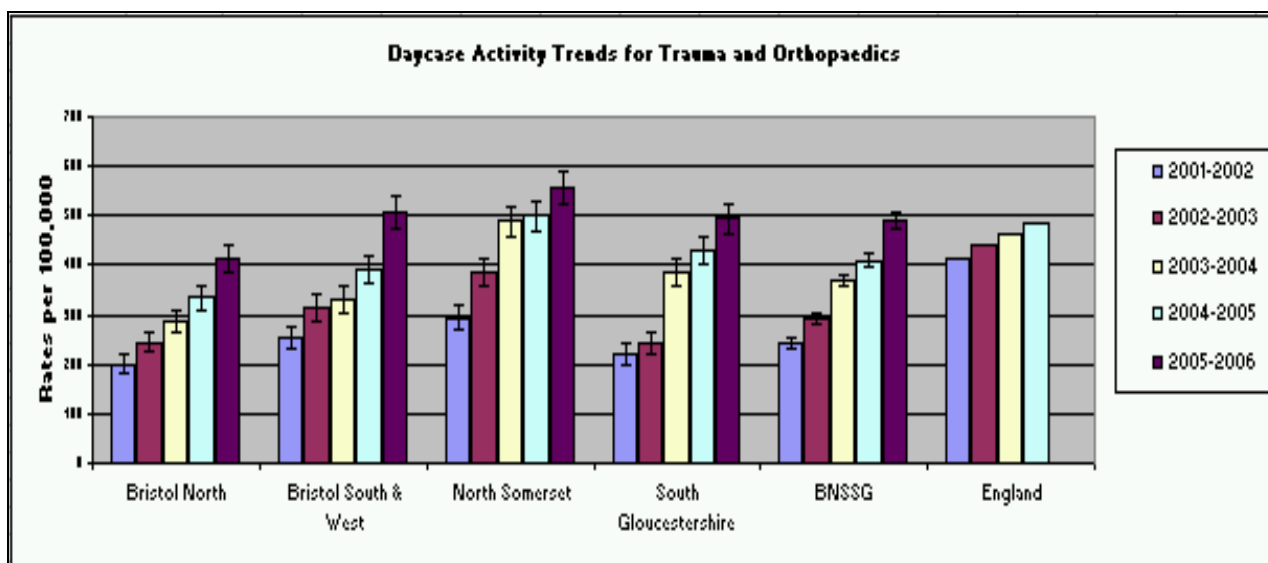
Graph 7: Resource allocation analysis: inpatient elective activity



Graph 8: Age standardised analysis: day case elective activity



Graph 9: Resource allocation analysis: day case elective activity



4.4 Top 10 Health Resource Groups

Graphs of trends in this section are provided in appendix 1. The pooled data analysis against English benchmarks based on 2002-2005 shows local PCTs being significantly below benchmark for some common HRGs. But the graphs illustrate rising trends which if continued, will change this position with some PCTs' rates expected to rise significantly above benchmark in the near future. For other HRGs high rates are already apparent but trends remain upwards.

Age standardised rates for total arthroscopies were significantly lower than the average for England, but this conceals:

- Significantly raised rates for elective inpatient arthroscopy (in both age related and resource allocation analyses).
- Clear upward trend in daycase arthroscopy rates: it is likely that the 2005/06 rates will significantly exceed the English rate.

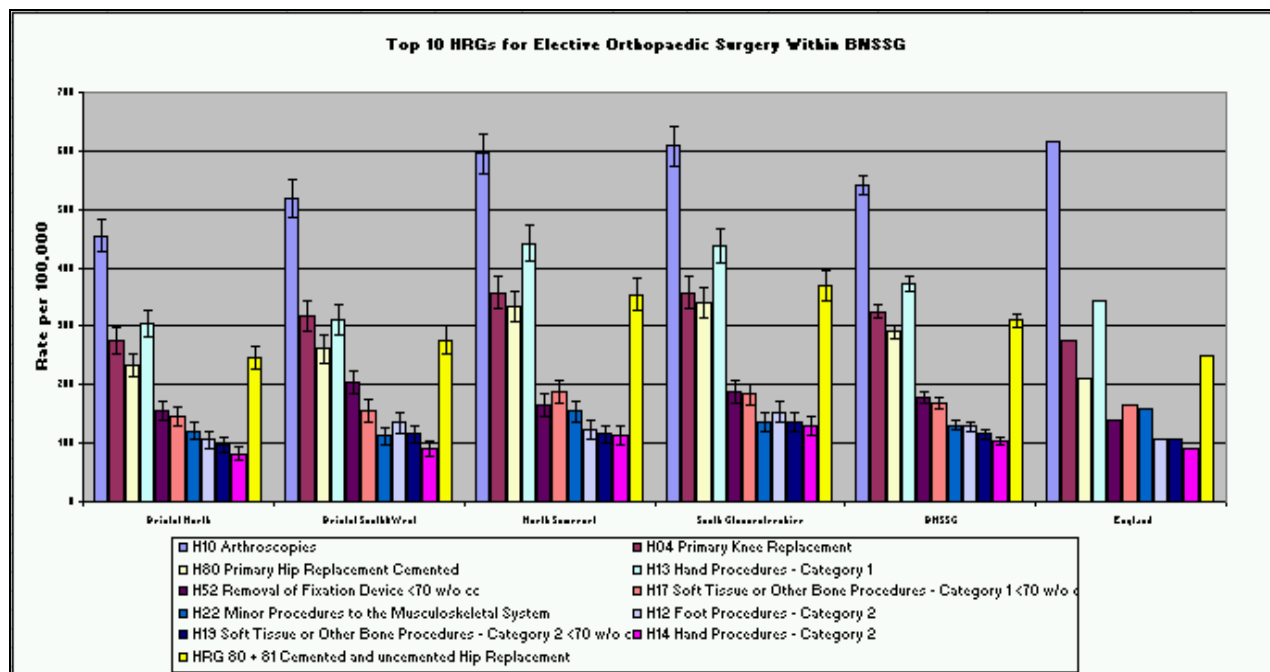
Rates for total hip and total knee replacements are significantly higher than expected, compared with England, with clear upward trends. This is the case in both age standardised and resource allocation analyses.

Significantly high rates in both age standardised and resource allocation analyses are also found for:

- Removal of fixation devices (under 70's without complications)
- Category 2 foot procedures
- Categories 1 and 2 hand procedures in North Somerset and South Gloucestershire

Conversely, both analyses show low rates for minor procedures to the musculoskeletal system (H22).

Graph 10: Resource allocation analysis: top10 HRGS based on pooled data 2002- 2005



Please refer to appendix 1 for detailed graphs for procedures included in graph 10

Table 5: Top 10 HRGs pooled data for 2002-2005

HRGs	Age standardised analysis	Comments	Weighted population analysis	Comments
H10 Arthroscopies	Low: All - but rising trend.	Pattern of high inpatient and significantly low daycase provision compared to England, for all except N Somerset where inpatients are close to benchmark.	Low: Bristol Nth, Bristol SW, BNSSG – but rising trend.	BNSSG 05/06 is 24% higher than 04/05 and 68% higher than 02/03.
H04 Primary Knee Replacement	High: All except N Somerset	BNSSG ratio 16% higher than England and rising trend	High: Bristol SW, S Glos, N Somerset, BNSSG and rising trend	BNSSG 05/06 15% above 04/05 and 50% above 02/03.
H80 and H81 Total primary hip replacements (uncemented and cemented)	High: All	Very marked upward trend for BNSSG against English benchmarks.	High: All except Bristol Nth.	Rising trend.
H80 Primary Hip Replacement Cemented	High: All	Substantial and consistent pattern.	High: All	
H13 Hand Procedures – Category 1 All specialties	High: N Somerset, S Glos	Category 1 includes a relatively short list of procedures e.g. carpal tunnel release, excision of ganglia. Specialties other than orthopaedics are included as plastic surgery is a significant provider. Inpatient ratios low and daycase ratios high for all.	High: N Somerset, S Glos, BNSSG. Low: Bristol Nth, Bristol SW	Daycases show rising trend.
H52 Removal of Fixation Device <70 w/o cc	High: All	Relatively low for inpatient, high for daycase in BSW and NS, opposite pattern for SG and BN.	High: All	
H17 Soft Tissue or Other Bone Procedures – Category 1 <70 w/o cc	High: N Somerset Low: Bristol SW		High: N Somerset, S Glos Low: Bristol Nth	
H22 Minor Procedures to the Musculoskeletal System	Low: All	Numbers are rising.	Low: Bristol Nth, Bristol SW, S Glos, BNSSG	
H12 Foot Procedures - Category 2	High: Bristol SW, S Glos.	All high for IP, low for daycases.	High: Bristol SW, S Glos, BNSSG	S Glos very high.
H19 Soft Tissue or Other Bone Procedures - Category 2 <70 w/o cc		No significant differences. All low for daycases but numbers small.	High: S Glos	
H14 Hand Procedures – Category 2 All specialties	High: S Glos, BNSSG	Category 2 contains a long list of procedures on tendons, muscles, ligaments and joints inc, reconstructions and use of prostheses.	High: N Somerset, S Glos, BNSSG. Low: Bristol Nth	Rising trend. Inpatient rates look particularly high. Daycases have risen.

4.5 Non-elective admissions

In contrast to findings for elective activity, there is no upward trend in indirectly age standardised rates for non-elective admissions. Local PCT rates are similar or below the English benchmark. There is only one exception – a high rate for Bristol S&W in 2003/04.

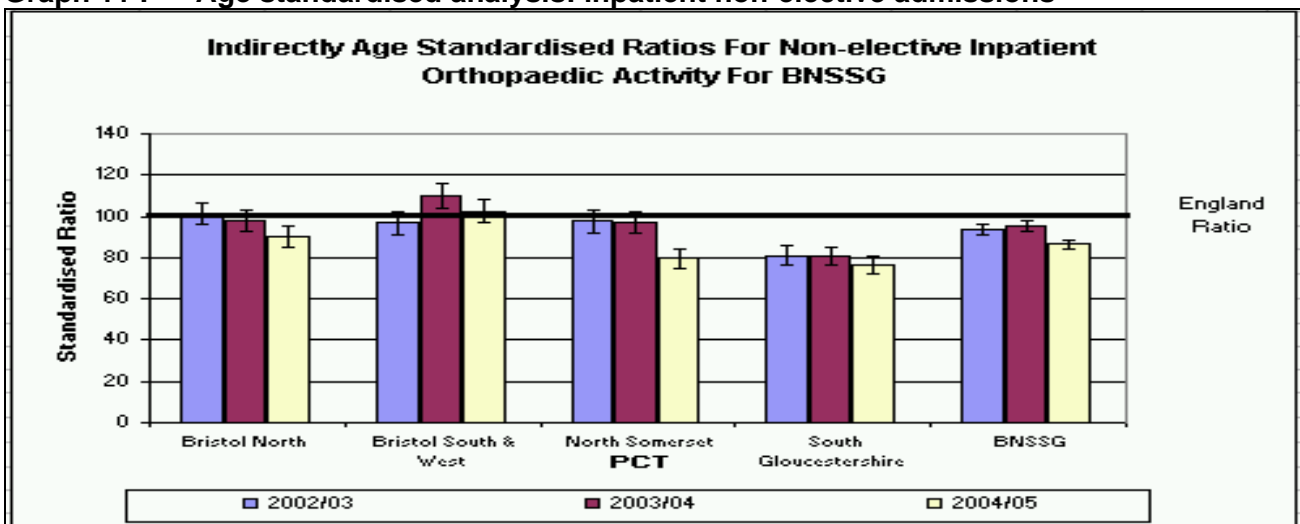
Similarly, there is no upward trend for local PCTs in the resource allocation analysis of non-elective admissions. There is a clear upward trend for the English rates.

These findings could reflect a lower level of need for non-elective admissions, or greater use of alternatives to admission in BNSSG.

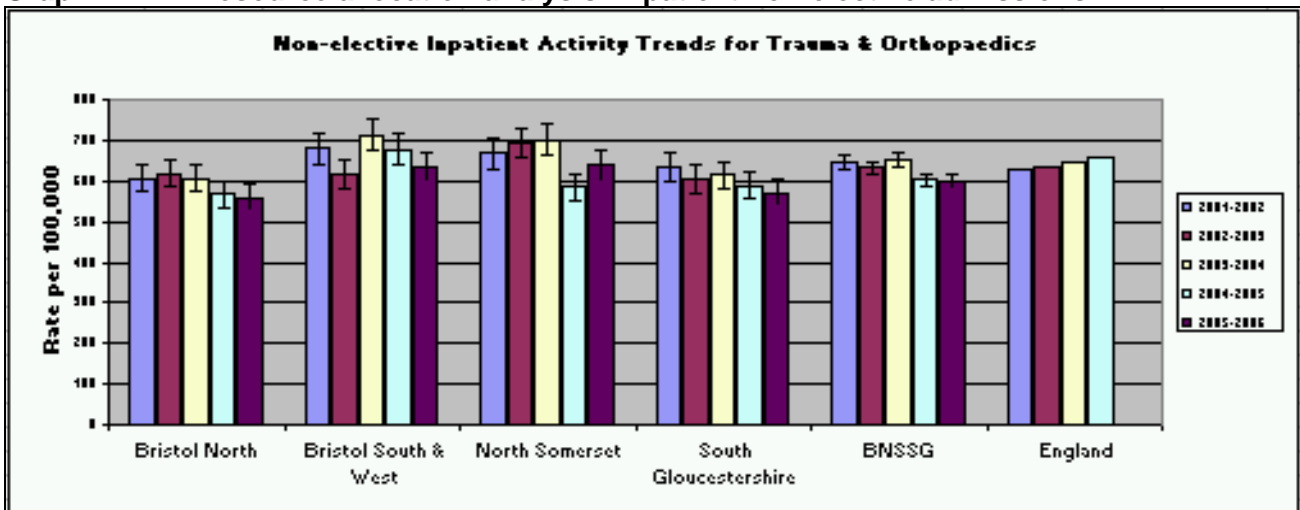
Table 6 Non-elective admissions, 2004/05

Activity	Age standardised analysis	Comments	Resource Allocation Analysis	Comments
Non-elective admissions	See graph 11 Low: all except Bristol SW	S Gloucs rate is particularly low.	See graph 12 Low: all except Bristol SW	

Graph 11 : Age standardised analysis: inpatient non-elective admissions



Graph 12: Resource allocation analysis: inpatient non-elective admissions



5. Conclusions

This report indicates which PCT population orthopaedic intervention rates are, or are expected to become, significantly raised above the benchmark rates for the English population. This information can be used in targeting action to manage demand.

When analysed to take account of national expectations of PCTs' fair share of resources:

- Total orthopaedic referrals (including GP and other referral sources) in 2005/06 were high compared to England, except for Bristol North, and these rates are rising.
- Total outpatient attendances in 2005/06 were high compared to England, except for Bristol North, and attendance rates are rising. Follow up to first appointment ratios are higher than for England, especially for S Gloucestershire.

Further work to understand differing patterns of GP and other referrals in each PCT should consider the effects of different care pathways being used e.g. availability of community physiotherapy services offering primary care management and triage of GP referrals.

Whilst age standardised rates for total elective activity for BNSSG are not significantly different from England in 2004/05, this conceals significant local differences and trends. The resource allocation analysis shows a significantly high rate of elective activity for BNSSG. Activity may not be inappropriate to age-related need, but it is high in relation to resource expectations. Inpatient elective care is high in both age related and resource allocation analyses except in Bristol North. Whilst daycase rates have been low they show a clear upward trend (graphs 8 & 9).

Within elective activity, rates of hip and knee replacements are particularly high with rising trends. Arthroscopies, hand and foot procedures and removal of fixation devices should also be considered in any plans to manage demand for elective orthopaedic care, given the apparent growth in rates of these procedures (appendix 1).

The age standardised and resource allocation analyses for South Gloucestershire may indicate a more significant gap between levels of resources and need for elective orthopaedic care, but there is no indication of this being the case for rates of non-elective care, which are lower than expected.

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Summary of benchmarking analyses and graphs for commonest HRGs

Table 1 Orthopaedic activity - non-elective spells, 2002/03 – 2004/05

Year	PCTName	Non-elective spells
2002/03	Bristol North	1382
	Bristol South & West	1132
	North Somerset	1303
	South Gloucestershire	1211
	BNSSG	5028
	England	321556
2003/04	Bristol North	1357
	Bristol South & West	1311
	North Somerset	1317
	South Gloucestershire	1229
	BNSSG	5214
	England	327859
2004/05	Bristol North	1271
	Bristol South & West	1246
	North Somerset	1099
	South Gloucestershire	1179
	BNSSG	4795
	England	332724
3 Year Total	Bristol North	4010
	Bristol South & West	3689
	North Somerset	3719
	South Gloucestershire	3619
	BNSSG	15037
	England	982139

Table 2 Benchmarking Of Access To Orthopaedic Services Within BNSSG: Summary Of Statistical Significance Of Results (see footnote)

Broad Area of Activity	Type of Activity	Healthcare Resource Group		Year	Age Standardised Analysis					Weighted Population Analysis						
		Code	Description		BN	BSW	NS	SG	BNSSG	BN	BSW	NS	SG	BNSSG		
Outpatient Referrals	GP Referrals	All	All HRGs	2002/03						L	L	H	L	L		
				2003/04						L	L	L	ns	L		
				2004/05						L	L	ns	H	L		
				2005/06						ns	L	H	H	H		
	Other Referrals			2002/03								H	H	H	H	H
				2003/04								ns	H	H	ns	H
				2004/05								L	H	H	L	H
				2005/06								L	H	H	ns	H
	Total Referrals			2002/03								L	H	H	ns	H
				2003/04								L	H	H	ns	H
				2004/05								L	H	H	ns	H
				2005/06								L	H	H	H	H
	Outpatient Attendances			First - All Sources	2002/03							L	ns	H	L	L
2003/04									L	ns	H	L	L			
2004/05									L	H	H	ns	ns			
2005/06									L	H	H	H	H			
Follow-up		2002/03								L	L	H	H	H		
		2003/04								L	H	H	H	H		
		2004/05								L	H	H	H	H		
		2005/06								ns	H	H	H	H		
Total		2002/03								L	L	H	H	H		
		2003/04								L	ns	H	H	H		
		2004/05								L	H	H	H	H		
		2005/06								L	H	H	H	H		
Elective		Total	All	All HRGs	2001/02						L	L	L	L	L	
	2002/03				L	ns	ns	L	L	L	ns	H	ns	L		
	2003/04				ns	ns	H	ns	ns	L	ns	H	H	H		
	2004/05				L	H	H	L	ns	L	ns	H	H	H		
	Inpatient	2001/02										L	ns	H	H	ns
		2002/03			H	H	H	H	H	ns	H	H	H	H	H	
		2003/04			H	H	H	H	H	H	H	H	H	H	H	
		2004/05			ns	H	H	H	H	L	H	H	H	H	H	

	Day Case	All	All HRGs	2001/02						L	L	L	L	L
				2002/03	L	L	L	L	L	L	L	L	L	L
				2003/04	L	L	ns	L	L	L	L	ns	L	L
				2004/05	L	L	ns	L	L	L	L	ns	L	L
Non-elective	Inpatient	All	All HRGs	2001/02						ns	H	H	ns	ns
				2002/03	ns	ns	ns	L	L	ns	ns	H	ns	ns
				2003/04	ns	H	ns	L	L	L	H	H	ns	ns
				2004/05	L	ns	L	L	L	L	ns	L	L	L
Elective	Total	H10	Arthroscopies	2002/03 - 2004/05	L	L	L	L	L	L	L	ns	ns	L
		H04	Primary Knee Replacement	2002/03 - 2004/05	H	H	ns	H	H	ns	H	H	H	H
		H80	Primary Hip Replacement Cemented	2002/03 - 2004/05	H	H	H	H	H	H	H	H	H	H
		H80 + H81	Primary Hip Replacement Cemented + Uncemented	2002/03 - 2004/05	H	H	H	H	H	ns	H	H	H	H
		H13	Hand Procedures - Category 1	2002/03 - 2004/05	ns	ns	H	H	H	L	L	H	H	H
		H52	Removal of Fixation Device <70 w/o cc	2002/03 - 2004/05	H	H	H	H	H	H	H	H	H	H
		H17	Soft Tissue or Other Bone Procedures - Category 1 <70 w/o cc	2002/03 - 2004/05	ns	L	H	ns	ns	L	ns	H	H	ns
		H22	Minor Procedures to the Musculoskeletal System	2002/03 - 2004/05	L	L	L	L	L	L	L	ns	L	L
		H12	Foot Procedures - Category 2	2002/03 - 2004/05	ns	H	ns	H	H	ns	H	ns	H	H
		H19	Soft Tissue or Other Bone Procedures - Category 2 <70 w/o cc	2002/03 - 2004/05	ns	ns	ns	ns	ns	ns	ns	ns	H	H
		H14	Hand Procedures - Category 2	2002/03 - 2004/05	ns	ns	ns	H	H	ns	ns	H	H	H

NB.

"H" - Local rate is statistically significantly higher ($p < 0.05$) than England rate.

"L" - Local rate is statistically significantly lower ($p < 0.05$) than England rate.

"ns" - Local rate is not statistically significantly different ($p > 0.05$) from England rate.

Table 3 Orthopaedic activity – numbers of procedures (all elective HRGs and commonest HRGs) 2002/03 – 2004/05.

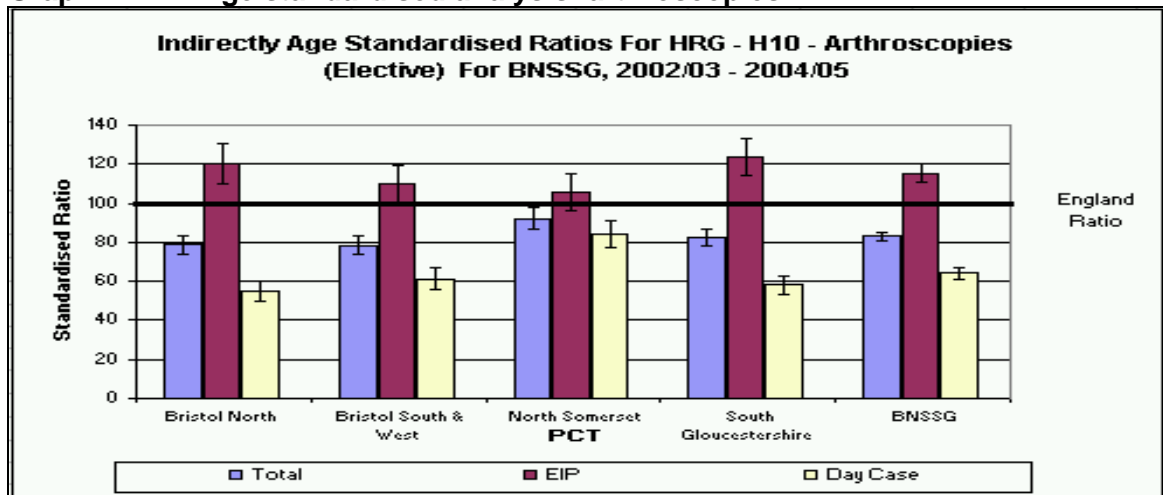
Type	Year	PCT	All HRGS	H10	H04	H13	H80+81	H80	H52	H17	H22	H12	H19	H14
Elective inpatient	2002/03	Bristol North	1279	169	184	32	164	162	77	68	18	80	42	41
		Bristol South & West	1193	134	180	32	136	134	45	69	17	76	42	33
		North Somerset	1365	154	174	23	201	196	47	77	14	86	61	54
		South Gloucestershire	1460	224	199	32	201	197	63	75	28	73	53	66
		BNSSG	5297	681	737	119	702	689	232	289	77	315	198	194
		England	285436	35933	40987	6768	40374	35168	11653	15716	5244	14323	13481	9336
	2003/04	Bristol North	1485	213	214	26	194	188	52	66	15	56	78	48
		Bristol South & West	1329	164	195	39	163	159	47	61	19	81	64	50
		North Somerset	1463	156	230	28	213	207	34	62	17	62	66	54
		South Gloucestershire	1708	230	246	34	278	261	71	60	25	91	91	69
		BNSSG	5985	763	885	127	848	815	204	249	76	290	299	221
		England	307863	39626	47605	6801	43344	36726	11438	16164	5485	15093	14363	9283
	2004/05	Bristol North	1261	183	219	33	193	172	44	64	17	70	73	63
		Bristol South & West	1375	178	211	32	209	188	60	69	26	72	81	66
		North Somerset	1449	173	268	30	252	227	33	67	18	61	73	64
		South Gloucestershire	1617	220	271	47	262	224	65	88	20	105	98	75
		BNSSG	5702	754	969	142	916	811	202	288	81	308	325	268
		England	309650	39673	50800	6002	43000	34389	10847	15745	5259	14597	14595	9005
	3 Yr Total	Bristol North	4025	565	617	91	551	522	173	198	50	206	193	152
		Bristol South & West	3897	476	586	103	508	481	152	199	62	229	187	149
		North Somerset	4277	483	672	81	666	630	114	206	49	209	200	172
South Gloucestershire		4785	674	716	113	741	682	199	223	73	269	242	210	
BNSSG		16984	2198	2591	388	2466	2315	638	826	234	913	822	683	
England		902949	115232	139392	19571	126718	106283	33938	47625	15988	44013	42439	27624	
Day Case	2002/03	Bristol North	549	120	0	180	0	0	47	38	62	15	7	11
		Bristol South & West	579	148	1	148	0	0	70	38	44	6	10	3
		North Somerset	730	161	1	245	0	0	44	33	57	4	5	10
		South Gloucestershire	482	110	1	211	0	0	41	26	50	15	2	14
		BNSSG	2340	539	3	784	0	0	202	135	213	40	24	38
		England	224411	63671	5	47355	5	0	11512	11120	21621	3144	3511	5747
	2003/04	Bristol North	639	134	0	195	0	0	60	52	63	8	9	13
		Bristol South & West	611	130	0	157	0	0	66	25	51	8	6	5
		North Somerset	919	225	0	261	0	0	69	58	91	7	8	10
		South Gloucestershire	776	180	0	267	0	0	71	53	66	11	10	12
		BNSSG	2945	669	0	880	0	0	266	188	271	34	33	40

		England	233425	65008	0	51720	0	0	11835	11750	21045	3561	3621	5969
	2004/05	Bristol North	750	200	0	215	0	0	69	41	97	8	12	7
		Bristol South & West	717	201	0	164	0	0	87	24	50	5	9	10
		North Somerset	940	250	0	244	0	0	85	57	95	11	4	21
		South Gloucestershire	863	254	0	288	0	0	65	66	84	12	18	24
		BNSSG	3270	905	0	911	0	0	306	188	326	36	43	62
		England	245715	69011	25	54880	12	12	12569	12660	21918	4092	4120	6458
	3 Yr Total	Bristol North	1938	454	0	590	0	0	176	131	222	31	28	31
		Bristol South & West	1907	479	1	469	0	0	223	87	145	19	25	18
		North Somerset	2589	636	1	750	0	0	198	148	243	22	17	41
		South Gloucestershire	2121	544	1	766	0	0	177	145	200	38	30	50
		BNSSG	8555	2113	3	2575	0	0	774	511	810	110	100	140
		England	703551	197690	30	153955	17	12	35916	35530	64584	10797	11252	18174
Total	2002/03	Bristol North	1828	289	184	212	164	162	124	106	80	95	49	52
		Bristol South & West	1772	282	181	180	136	134	115	107	61	82	52	36
		North Somerset	2095	315	175	268	201	196	91	110	71	90	66	64
		South Gloucestershire	1942	334	200	243	201	197	104	101	78	88	55	80
		BNSSG	7637	1220	740	903	702	689	434	424	290	355	222	232
		England	509847	99604	40992	54123	40379	35168	23165	26836	26865	17467	16992	15083
	2003/04	Bristol North	2124	347	214	221	194	188	112	118	78	64	87	61
		Bristol South & West	1940	294	195	196	163	159	113	86	70	89	70	55
		North Somerset	2382	381	230	289	213	207	103	120	108	69	74	64
		South Gloucestershire	2484	410	246	301	278	261	142	113	91	102	101	81
		BNSSG	8930	1432	885	1007	848	815	470	437	347	324	332	261
		England	541288	104634	47605	58521	43344	36726	23273	27914	26530	18654	17984	15252
	2004/05	Bristol North	2011	383	219	248	193	172	113	105	114	78	85	70
		Bristol South & West	2092	379	211	196	209	188	147	93	76	77	90	76
		North Somerset	2389	423	268	274	252	227	118	124	113	72	77	85
		South Gloucestershire	2480	474	271	335	262	224	130	154	104	117	116	99
		BNSSG	8972	1659	969	1053	916	811	508	476	407	344	368	330
		England	555365	108684	50825	60882	43012	34401	23416	28405	27177	18689	18715	15463
	3 Yr Total	Bristol North	5963	1019	617	681	551	522	349	329	272	237	221	183
		Bristol South & West	5804	955	587	572	508	481	375	286	207	248	212	167
		North Somerset	6866	1119	673	831	666	630	312	354	292	231	217	213
		South Gloucestershire	6906	1218	717	879	741	682	376	368	273	307	272	260
		BNSSG	25539	4311	2594	2963	2466	2315	1412	1337	1044	1023	922	823
		England	1606500	312922	139422	173526	126735	106295	69854	83155	80572	54810	53691	45798

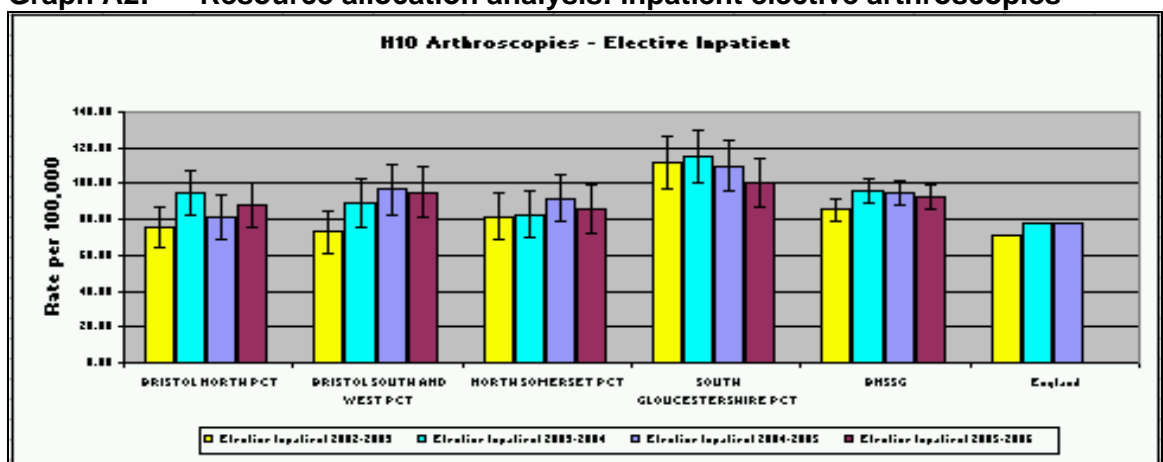
Key

H10 Arthroscopies	H17 Soft Tissue or Other Bone Procedures – Category 1 <70 w/o cc
H04 Primary Knee Replacement	H22 Minor Procedures to the Musculoskeletal System
H80 and H81 Total primary hip replacements (uncemented and cemented)	H12 Foot Procedures - Category 2
H80 Primary Hip Replacement Cemented	H19 Soft Tissue or Other Bone Procedures - Category 2 <70 w/o cc
H13 Hand Procedures – Category 1 All specialties	H14 Hand Procedures – Category 2 All specialties
H52 Removal of Fixation Device <70 w/o cc	

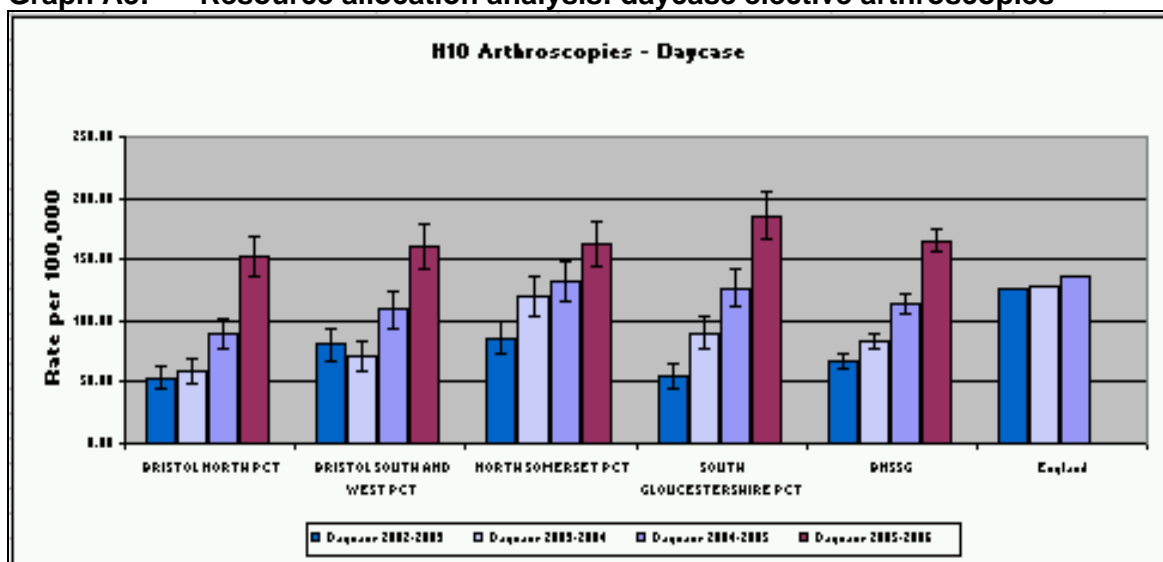
Graph A1: Age standardised analysis: arthroscopies



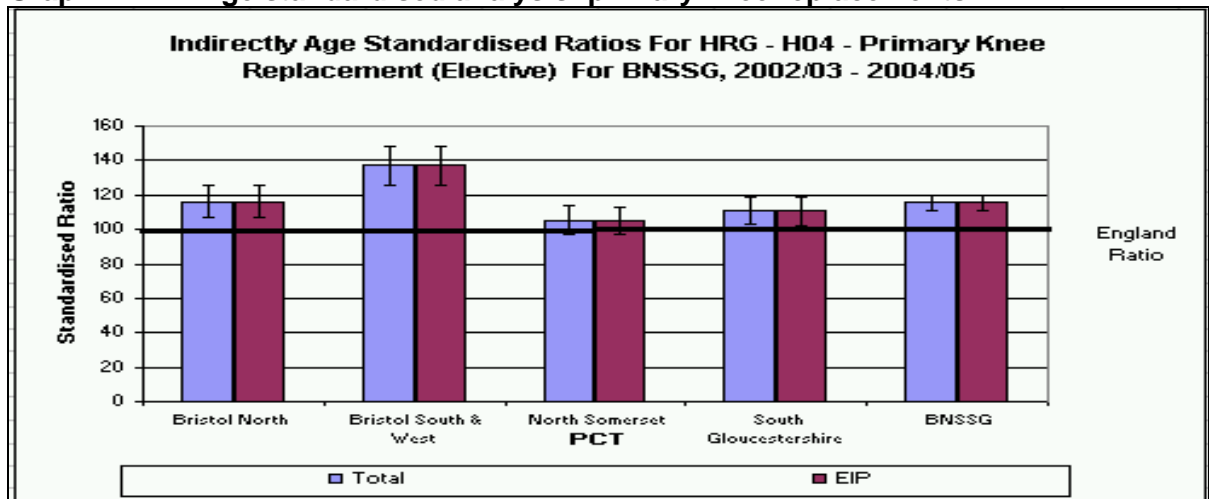
Graph A2: Resource allocation analysis: inpatient elective arthroscopies



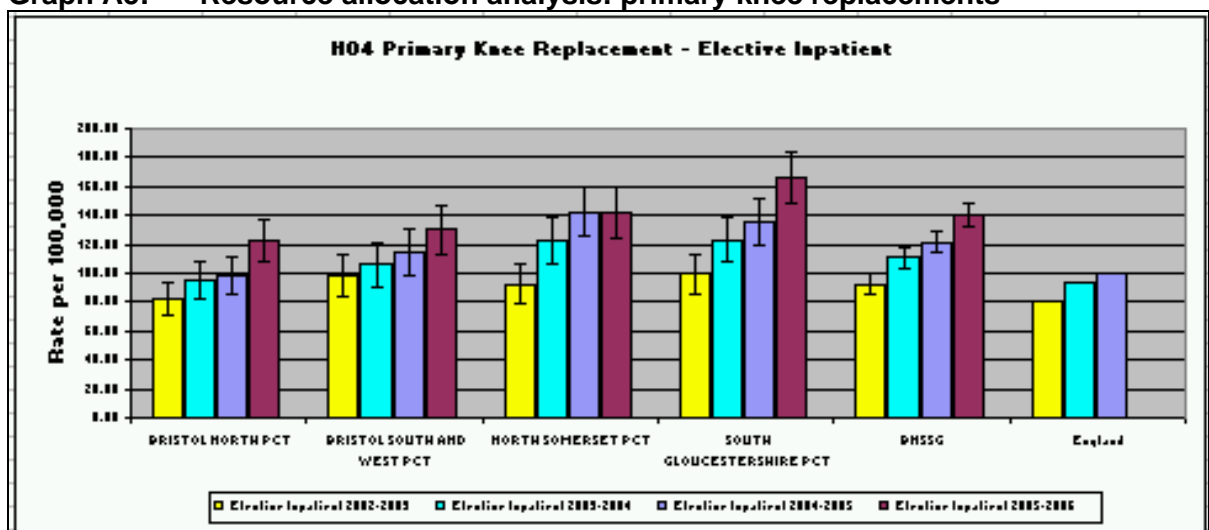
Graph A3: Resource allocation analysis: daycase elective arthroscopies



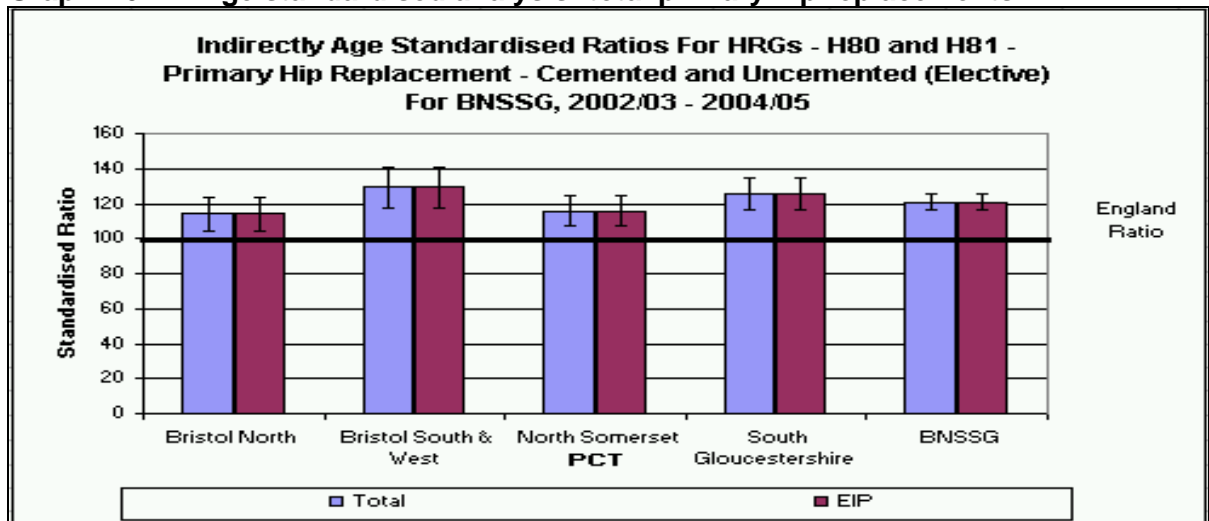
Graph A4: Age standardised analysis: primary knee replacements



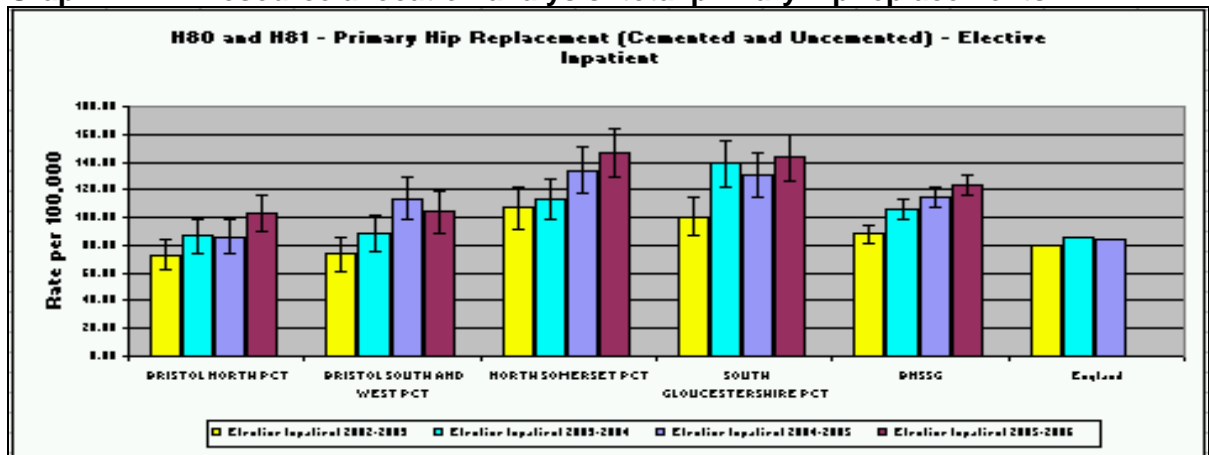
Graph A5: Resource allocation analysis: primary knee replacements



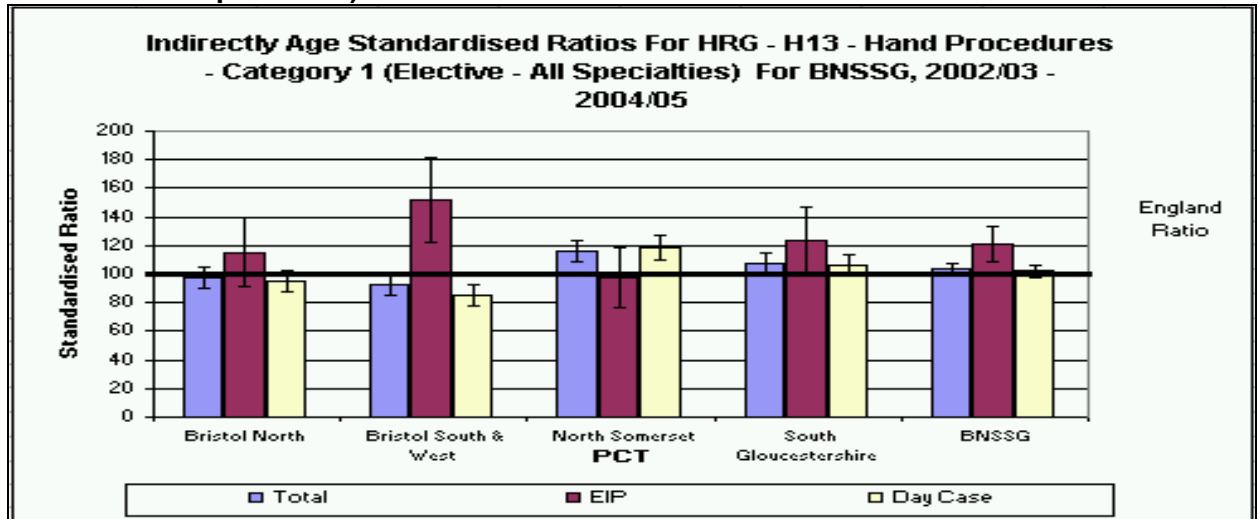
Graph A6 : Age standardised analysis: total primary hip replacements



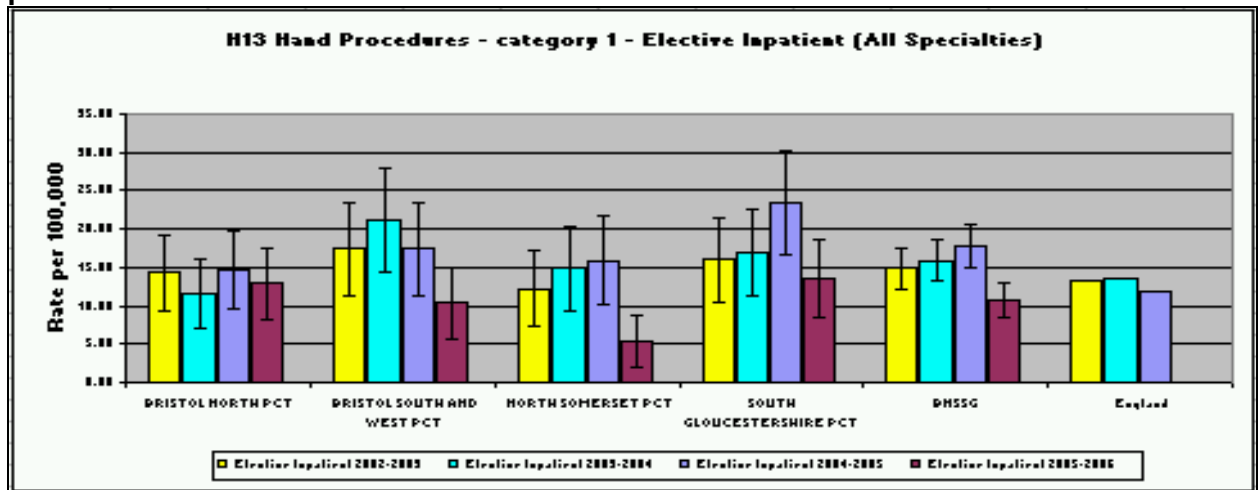
Graph A7: Resource allocation analysis: total primary hip replacements



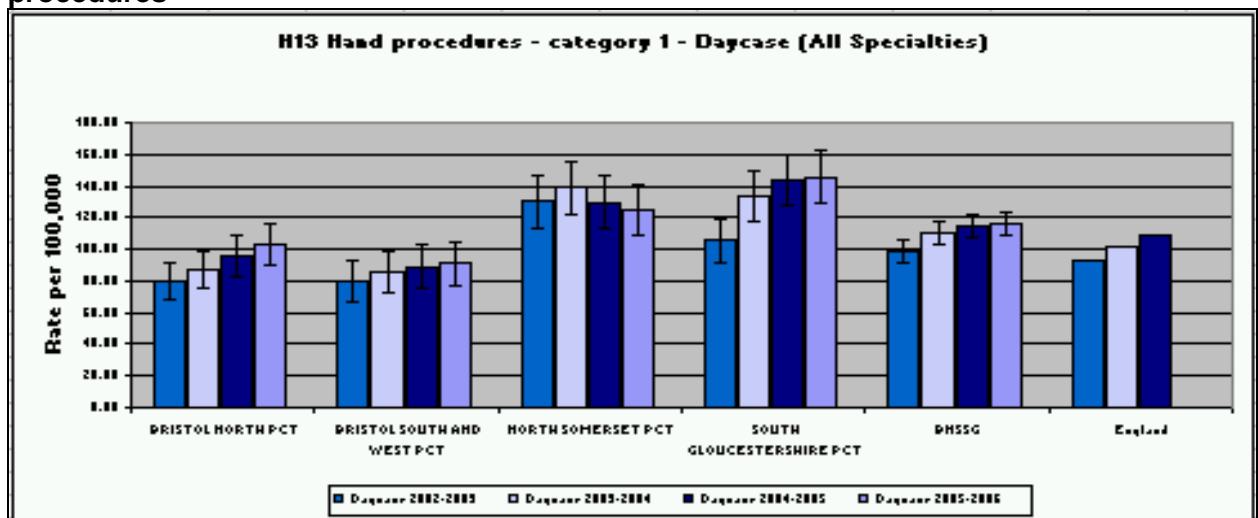
Graph A8: Age standardised analysis: category 1 hand procedures (all specialties)



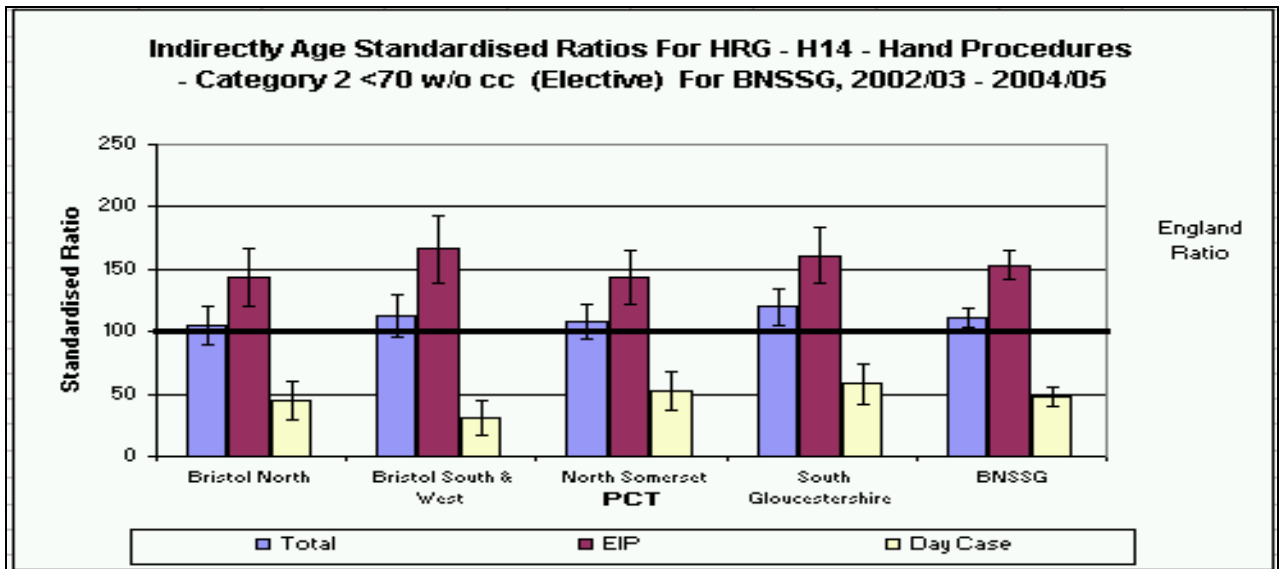
Graph A9: Resource allocation analysis: inpatient elective category 1 hand procedures



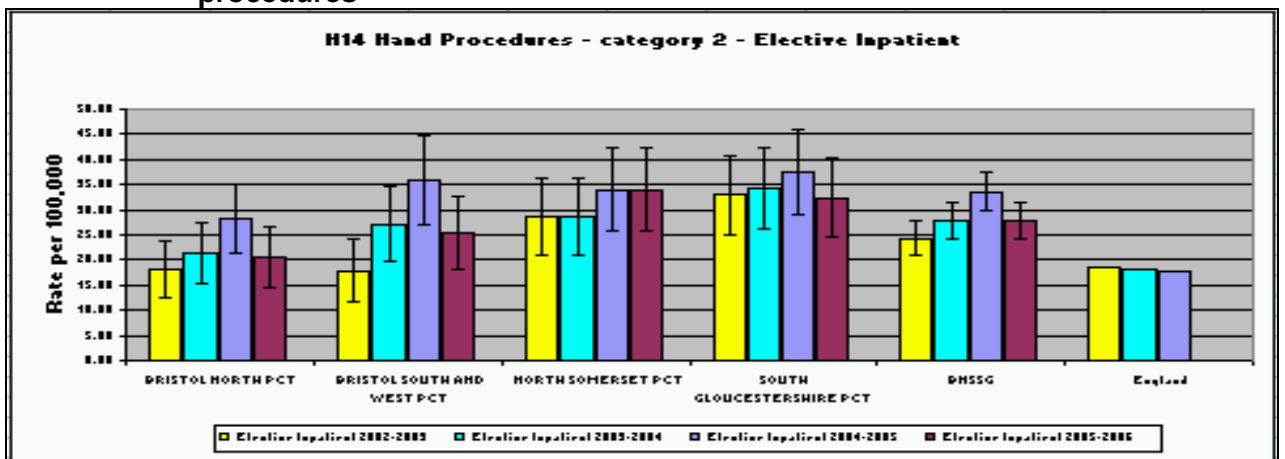
Graph A10: Resource allocation analysis: daycase category 1 hand procedures



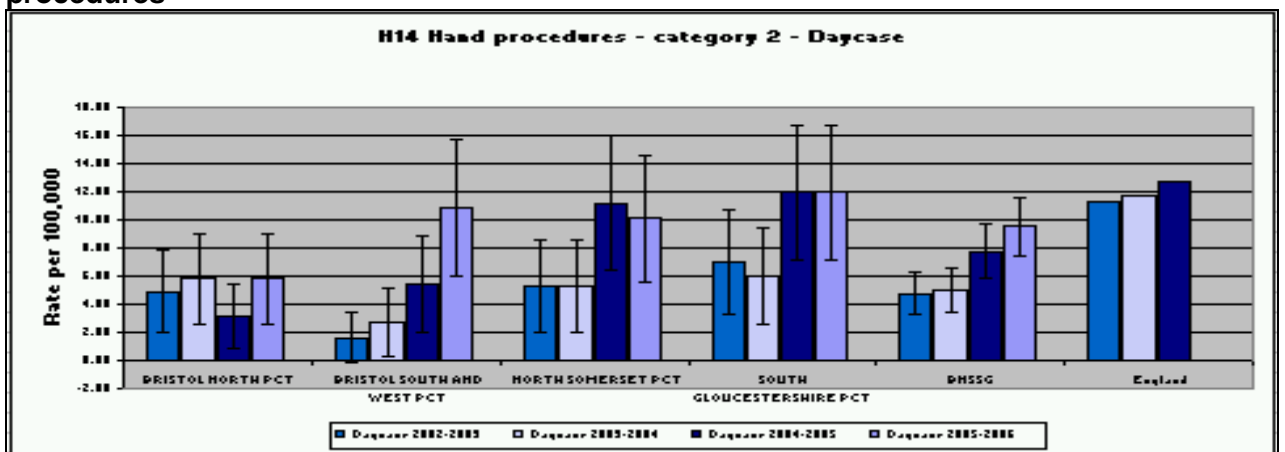
Graph A11: Age standardised analysis: category 2 hand procedures, all specialties (under 70's without complications)



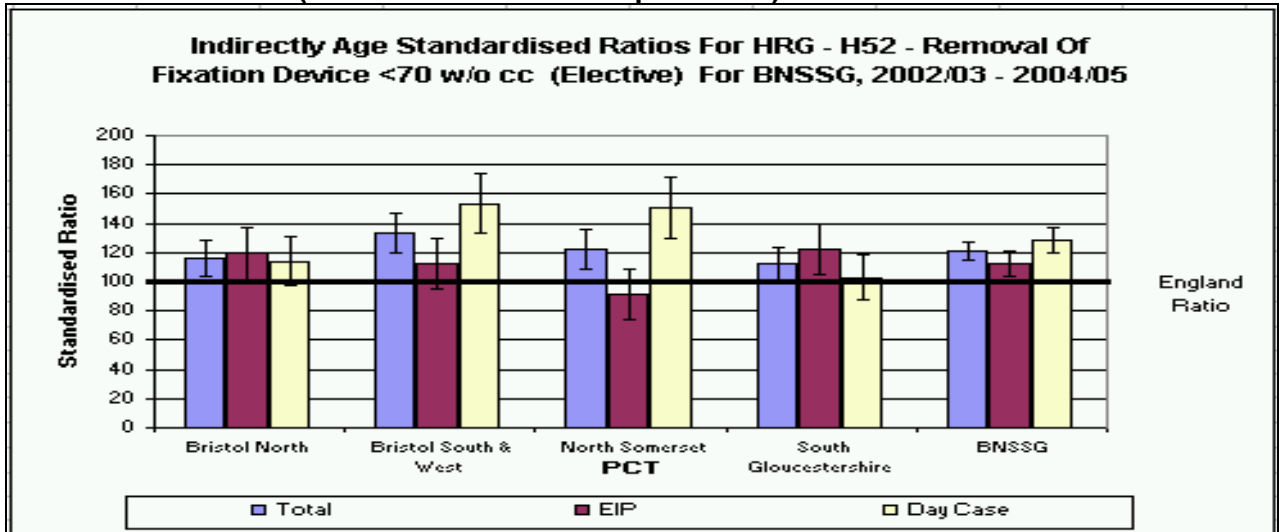
Graph A12: Resource allocation analysis: inpatient elective category 2 hand procedures



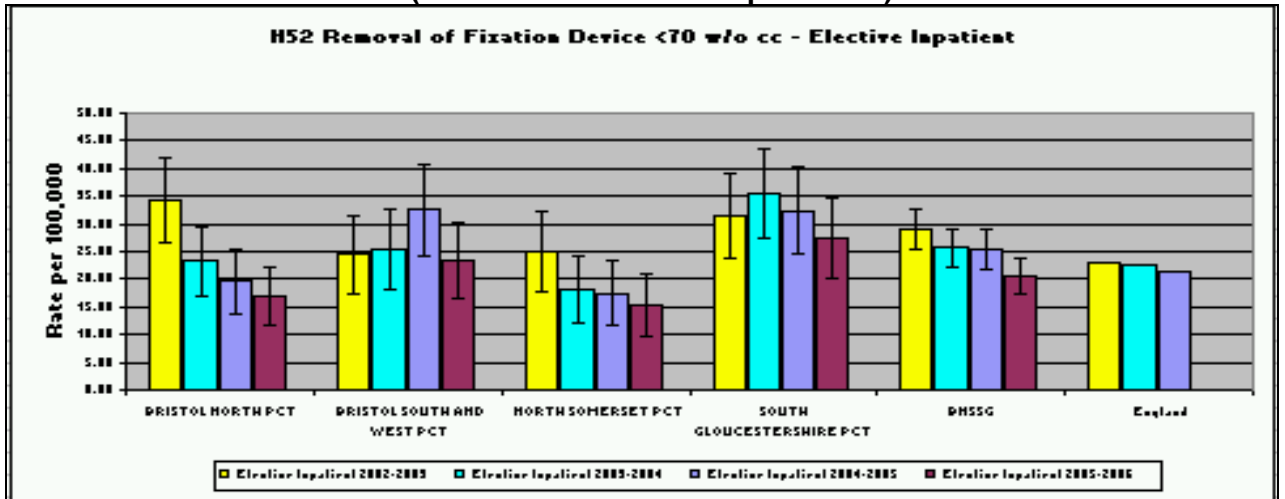
Graph A13: Resource allocation analysis: daycase category 2 hand procedures



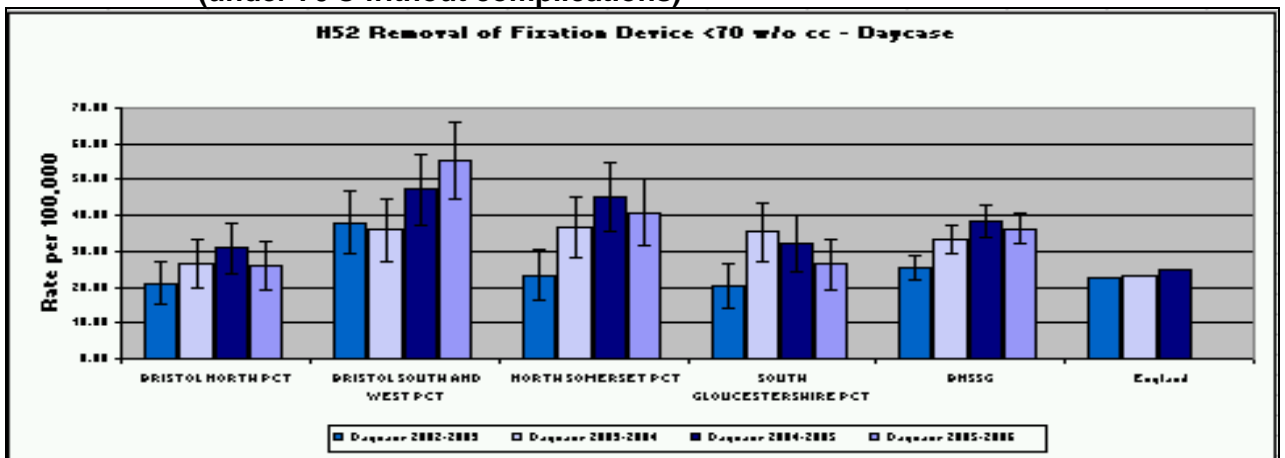
Graph A14: Age standardised analysis: inpatient elective removal of fixation device (under 70's without complications)



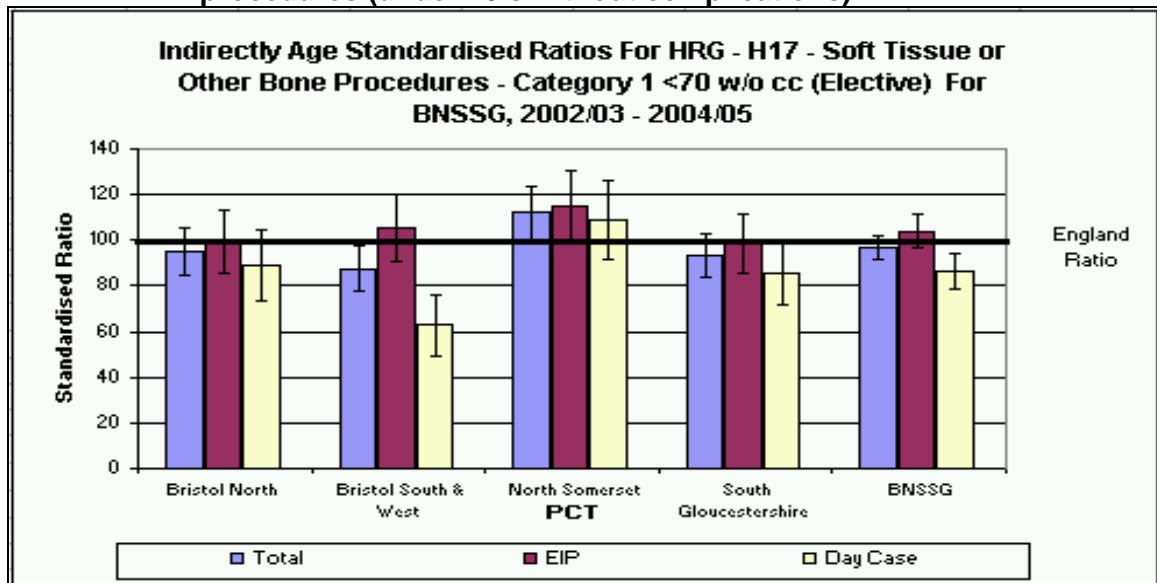
Graph A15: Resource allocation analysis: inpatient elective removal of fixation device (under 70's without complications)



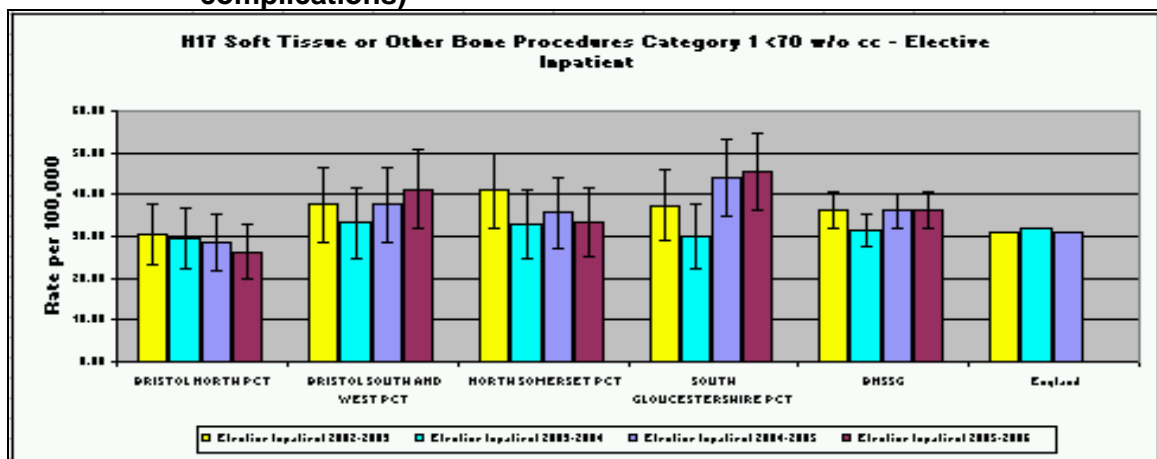
Graph A16: Resource allocation analysis: daycase removal of fixation device (under 70's without complications)



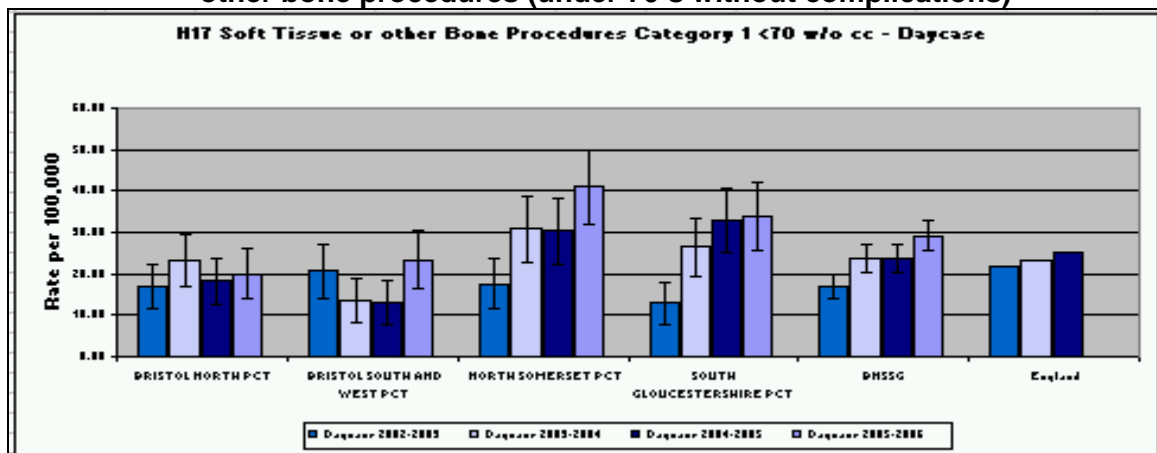
Graph A17: Age standardised analysis: category 1 soft tissue or other bone procedures (under 70's without complications)



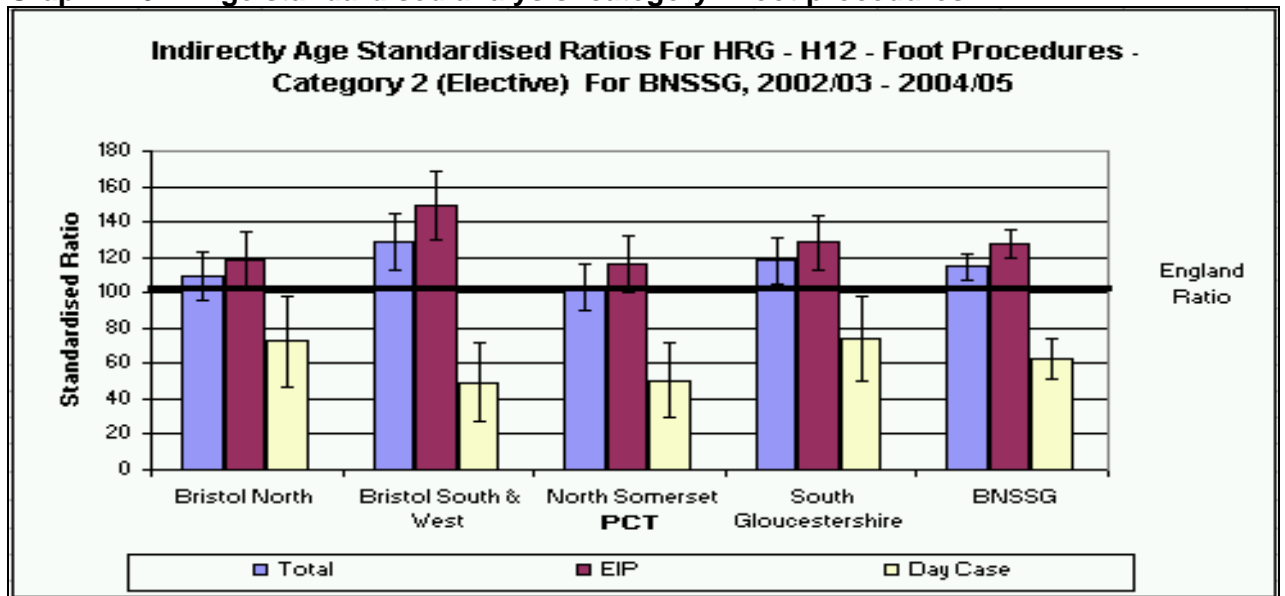
Graph A18: Resource allocation analysis: inpatient elective category 1 soft tissue or other bone procedures (under 70's without complications)



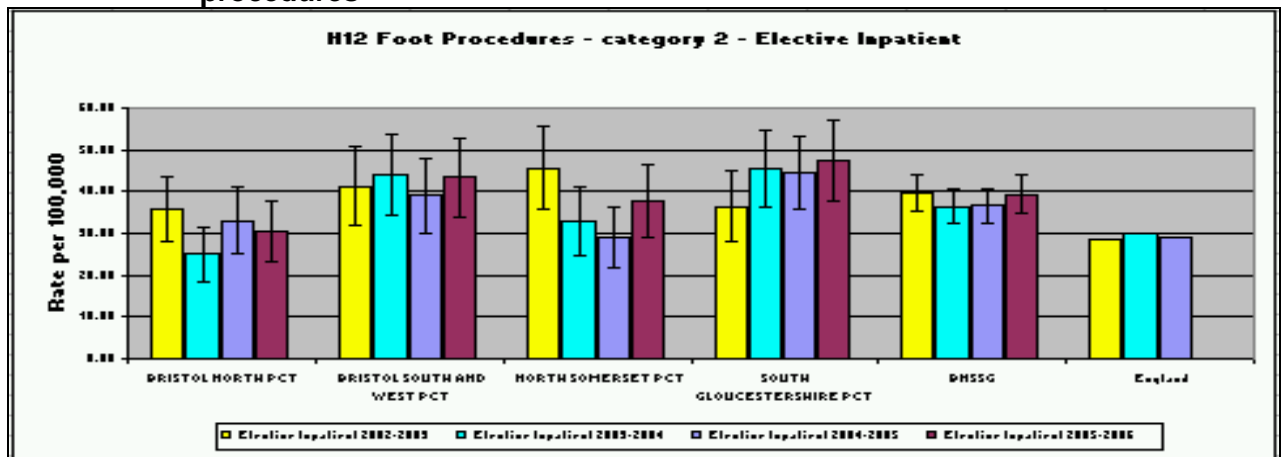
Graph A19: Resource allocation analysis: daycase category 1 soft tissue or other bone procedures (under 70's without complications)



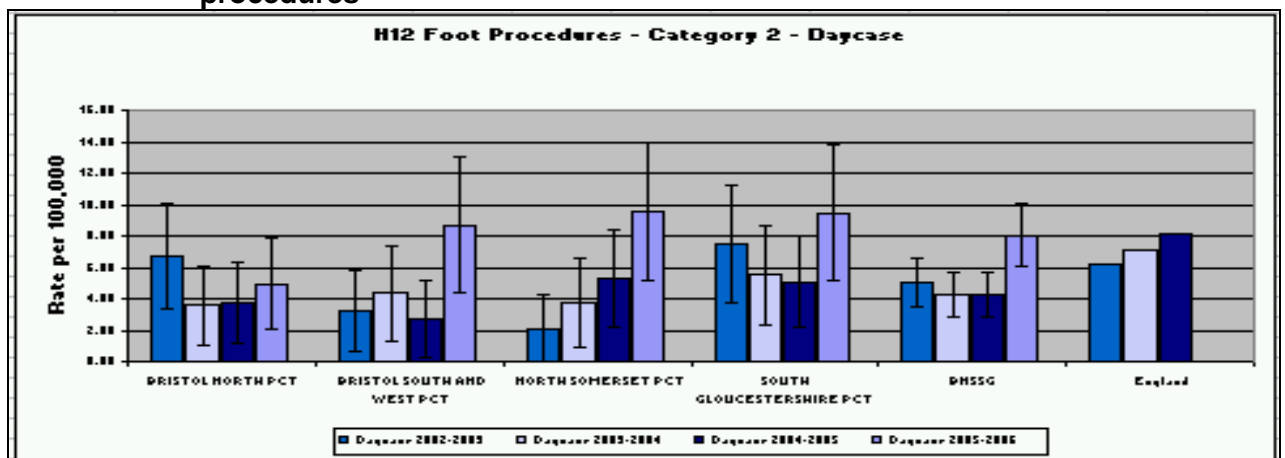
Graph A20: Age standardised analysis: category 2 foot procedures



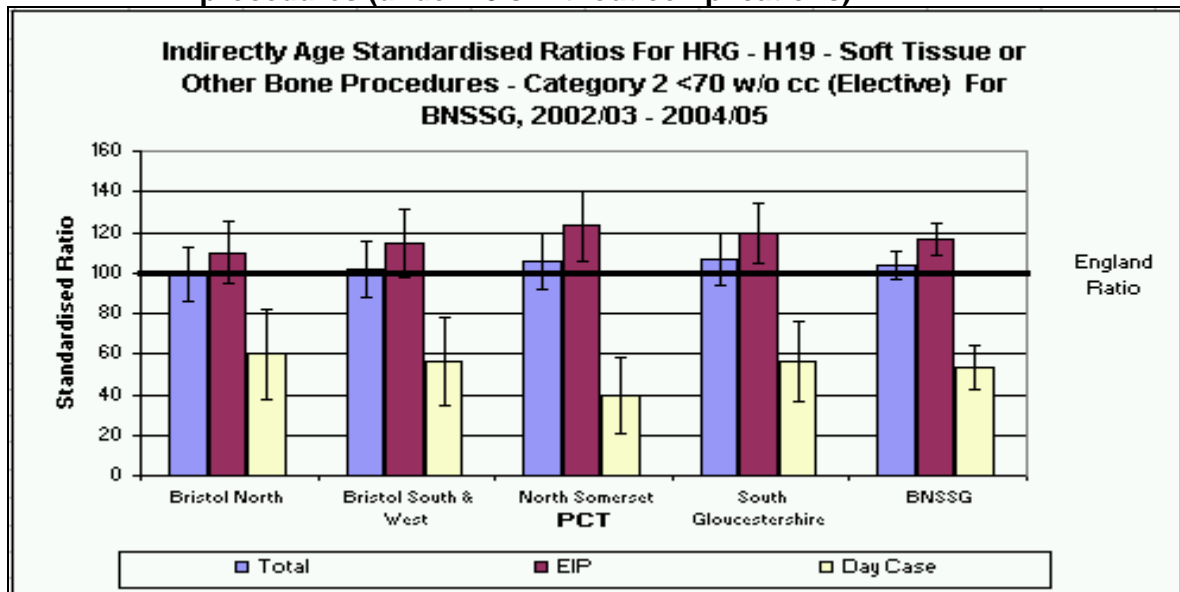
Graph A21: Resource allocation analysis: inpatient elective category 2 foot procedures



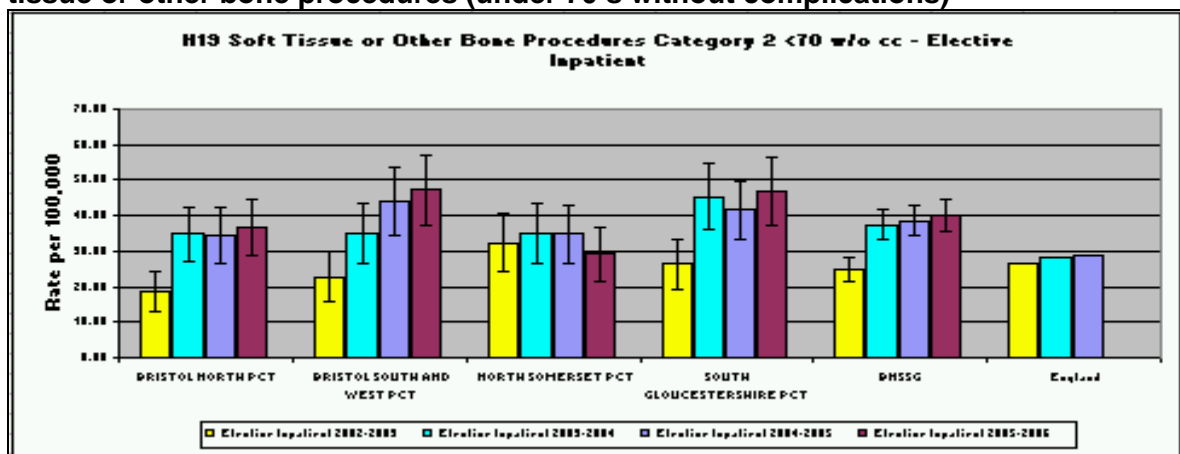
Graph A22: Resource allocation analysis: inpatient elective category 2 foot procedures



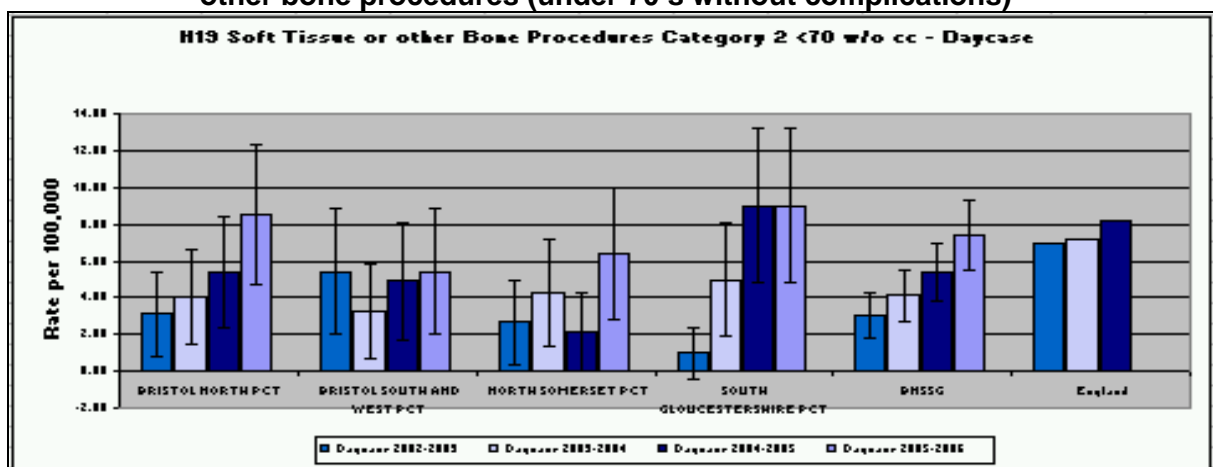
Graph A23: Age standardised analysis: category 2 soft tissue or other bone procedures (under 70's without complications)



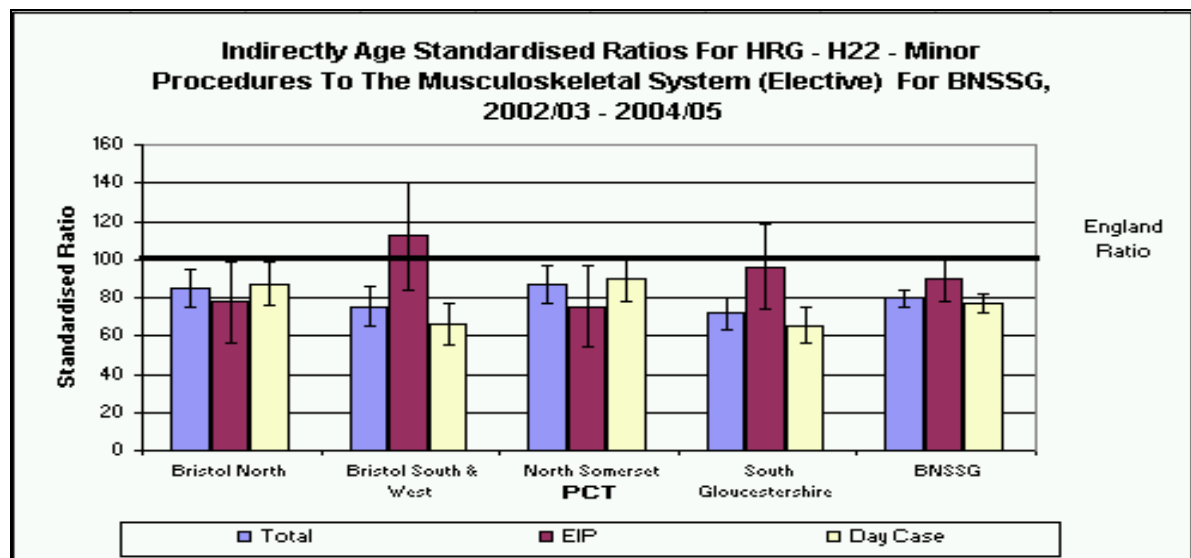
Graph A24: Resource allocation analysis: inpatient elective category 2 soft tissue or other bone procedures (under 70's without complications)



Graph A25: Resource allocation analysis: daycase category 2 soft tissue or other bone procedures (under 70's without complications)



Graph A26: Age standardised analysis: Minor procedures to the musculoskeletal system



Graph A27: Resource allocation analysis: Minor procedures to the musculoskeletal system – inpatient and daycase rates

