Outpatient First Attendance in Thames Valley

Links between deprivation, ethnicity, students, system thresholds and higher NHS usage

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Table of Contents

Aims

- To establish the fundamental population characteristics leading to demand for outpatient first attendance

- To demonstrate that particular areas have above average levels of first attendance

- To show that specialty boundaries vary between locations

- To show that the counting of 'other' (as opposed to GP-referred) first attendances varies considerably between acute sites

Executive Summary

This work analyses the results from 2.13 million head of population (576,000 first outpatient attendances per annum in 2005/06) at lower super output area level (LSOA)[1] covering all extremes of age profile, deprivation, ethnic composition (Asian & Black) and students in full-time education[2] found across Thames Valley using outpatient first attendance data for the three years 2003/04, 2004/05 and 2005/06 with volumes normalised to 2005/06 out-turn. First attendance was split into patients referred by a GP and into 'other' referrals (i.e. Optometrist, Dentist, Nurse, consultant in another specialty, via A&E, Self-referred, etc).

The results mirrored the conclusions of a separate study which demonstrated that low outpatient to inpatient conversion rates in the surgical specialties were a feature of particular GP surgeries and also wider locations. This work confirms that the low conversion rates for the surgical specialties are principally due to excess first attendance, i.e. first attendance which does not lead to a surgical intervention. A role for indiscriminate high referral across all specialties (not just the surgical specialties) by particular GP practices is implicated.

The key finding of this work is that location specific thresholds for referral and to a lesser extent the counting of a 'first attendance' at particular acute sites drive the overall volume of first attendances more so than the characteristics of the population. The existence of these catchment area thresholds reflects aspects of the surrounding primary care behaviour. A reduction in overall volume of first attendances will focus on GP referral triage backed by a review of data standards at acute sites.

A relationship between deprivation and increased outpatient first attendance is confirmed. However, the rate of increase with IMD is generally lower than for emergency admission but higher than for elective admission. Refer to the related document covering emergency admission for a wider discussion of the model. Appendix One gives specific details relevant to outpatient first attendance.

Students in full-time education are characterised by considerably lower levels of first attendance in all specialties except Dermatology (no effect) or mental health (slightly higher). Ethnicity (Asian or Black) has variable effects on first attendance depending on the specialty. The variable nature of the response to ethnicity is broadly consistent with known disease prevalence and appears to disprove any form of discrimination based on ethnic origin.

There does not appear to be a relationship between distance to the acute site and the relative volume of first attendance (as seen for emergency admission). Areas of high disposable income most likely to benefit from usage of the private health sector do not appear to have lower than expected levels of NHS first attendance.

Even after adjusting for population characteristics likely to affect demand for healthcare the volume of first attendances or what is counted as a 'first attendance' varies considerably[3]. These differences appear to influence the disproportionate

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[1] A LSOA contains around 1,000 to 3,000 head of population. LSOA nest together into electoral wards.
[2] Students in full time education aged 16 and over.
[3] For example the same haematology care can be labelled and therefore counted as 'emergency', 'day case', 'outpatient attendance' or 'regular day attendance' depending on how different hospitals choose

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financial pressures experienced by PCTs. In particular the counting of 'other' first attendance appears to have considerable variation indicating the possibility of inconsistent data standards between acute sites.

In this study the 12 acute hospital sites (both within and outside of TV) providing care to the residents of TV is used to define an acute site catchment area[4]. Each output area was allocated to a location using straight line distance[5]. Each acute site at the centre of a location does not provide a full range of services, however, it is illustrative to see how relative rates of first attendance vary between different locations, e.g. supply induced demand.

The implications to Practice Based Commissioning (PBC) and the development of a small area capitation formula are discussed. The need for suitable adjustment to account for the effect of students (very low levels of first attendance) and different ethnic groups are highlighted.

The outputs of this model have been used to calculate specialty benchmarks for all TV PCTs. These benchmarks allow a PCT to identify which specialties are accounting for the highest volume of 'excess to funded levels' of outpatient first attendance activity and in particular identify those LSOA (i.e. GP practices) where the excess is concentrated.

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to interpret the NHS Data Definitions – which in some cases is dictated by the limitations of PAS systems. By implication the same unit of care can be charged at 4 different prices.

[4] The 12 acute sites are as follows: Frimley Park, Heatherwood, Hillingdon, Horton, Milton Keynes, Northampton, Oxford (ORH/NOC), Royal Berkshire, Stoke Mandeville, Swindon, Wexham Park, Wycombe.

[5] This method assumes that the bulk of the population would normally go to the nearest acute site for outpatient care. Around 5% of first attendances are to more specialist hospitals; however, for the purpose of establishing good correlations the approximation is fit for purpose.

Key Points

First attendance

- For all specialties the first attendance rates increase with the Index of Multiple Deprivation (IMD)[6], i.e. areas of highest deprivation have highest levels of first attendance.

- Only a few specialties show increased levels of first attendance due to % ethnic population.

- In areas with a high proportion of 'students' the rate of first attendance is significantly reduced

System Thresholds for First attendance

- Unless first attendance rates are adjusted for system thresholds the true underlying value of the relationship with IMD cannot be characterised

- System thresholds for the counting of 'Other' first attendance vary considerably

Wider Applications

- Areas of highest IMD are most likely to gain greatest benefit from the input of first attendance avoidance programmes, i.e. peer review of GP referral

- There are implications to the development of a small area formula suited to the needs of practice based commissioning

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[6] See Appendix One for a wider discussion on the Index of Multiple Deprivation

Specialty Overlaps & Data Quality Issues

Throughout this report reference is made to several composite specialty groups where there is considerable overlap in assigning a patient to a specific specialty. These overlaps were identified by combining the data from the two specialties and observing if the sum of residuals (the difference between the value predicted by the model and the actual number of first attendances) was significantly reduced.

Considerable overlap was observed between Plastic Surgery (£130)[7] & Dermatology (£115), between Gynaecology (£135) & Obstetrics (£154), between the Medical group of specialties (£161 to £260) and between Orthopaedics (£144), Neurosurgery, Plastic Surgery (£130), and Anaesthetics (£187). There is also some overlap between General Surgery (£151) and Urology (£157).

The recommendation is that these groups be used for PBC activity reporting rather than the separate specialties.

The observed overlap between Obstetrics and Gynaecology was of too great a magnitude to encompass the small area of ambiguity between the two specialties, i.e. by convention at 13 weeks pregnancy a woman is treated under the heading of 'Obstetrics'. The extreme variability between hospital sites indicates that data standards are not being consistently applied. There is the potential for financial advantage (£19 per first attendance) to those sites who count significantly more attendances (typically <u>double</u> the volume elsewhere) as Obstetrics (Horton & Oxford Radcliff, Heatherwood, Swindon and Ashford). The SHA and PCTs are advised to take urgent action to correct this situation.

The final issue of data quality lies in Milton Keynes where the PCT recently adjusted its LDP following an independent count of GP referral volumes conducted via its Referral Hub. The values were some 20,000 higher than via the Trust reported Minimum Data Set (MDS). It is of interest to note that only in Milton Keynes is there a consistent bias in the counting of 'Other' referrals which are on average 11% higher than in other locations. This gap is greatest in the Medical Group of specialties (70% higher than the TV average).

Role of Deprivation, Ethnicity, Students and other Population Factors

Due to the relationship between IMD, ethnicity, students and level of private health usage and first attendance rate it is impossible to answer questions regarding first attendance rates without first adjusting for the effect of these factors on the relative use of services. Comparison in all figures and tables is always against the age adjusted average, i.e. after adjusting for the effects of age how many first attendances would be expected in each LSOA.

Deprivation (IMD)

Figure One demonstrates the relationship between the relative volume of first attendance and IMD.

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[7] The 06/07 PbR tariff for outpatient first attendance is given in brackets

Figure One: Effect of IMD on relative volume of first attendance. Data covers all referral types across all specialties and is after adjustment for site catchment area thresholds but does not include adjustment for ethnicity or students.
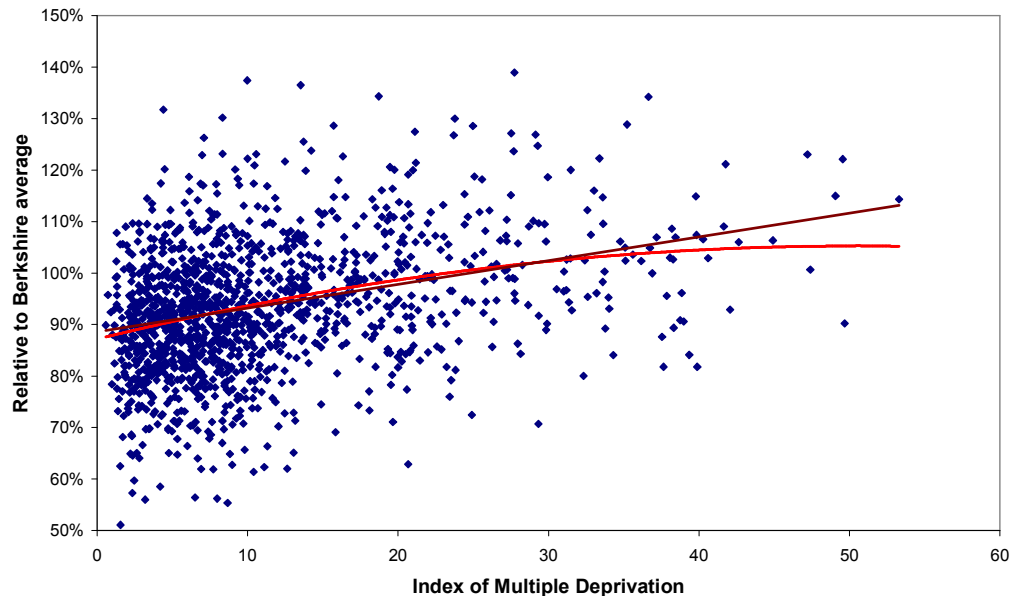
The slope of the trend line in Figure One gives the increase in first attendances as IMD increases while the Y-axis intercept gives the position relative to the Berkshire average (100% = Berkshire average) applied to the particular age structure of each LSOA[8].

As can be seen, even after grossing the data at the all specialty level the scatter is reasonably high. This is largely an unavoidable consequence of Poisson statistics and the individual contribution of specific GP practice thresholds (which are effectively lumped into the site threshold). Maximum volume of first attendance for any LSOA is 1,025 p.a. for a single LSOA with a population of 2,743 persons, hence, the <u>minimum</u> value of the 99% confidence interval due to Poisson variation is ± 96 p.a. (± 9%). However for the average population of 1,500 head per LSOA with an average of 425 first attendance p.a. the 99% confidence interval becomes ± 62 p.a. (±15%), i.e. in the above figure about 75% of the variation can be described by Poisson randomness with the other 25% arising from specific GP practices (as reflected at LSOA level) or due to ethnic origin and students (not adjusted for in this figure). For a list size of 10,000 (approximately 2,850 first attendances p.a.) the 99% confidence interval becomes ± 160 p.a. (±6%)[9].

To put this in context for PBC a practice would have to reduce its volume of first attendance by 6% below the predicted average (assuming that the average = funded level) in order to <u>always</u> make a surplus. This is simply the reduction required to offset the effect of Poisson variation. Much larger reductions than this will be required for high referring practices, i.e. they must first reduce their level of referral down to the average and then reduce further to avoid the effects of Poisson randomness.

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[8] Recall that the national average IMD is around 22.

[9] A value higher than this applies as list size reduces below 10,000, i.e. a small single handed practice with a list size of 2,500 will have a 99% confidence interval of ± 12%. There is a clear message around grouping practices in order to avoid the high volatility in budgets arising from unavoidable statistical variation in demand.

Table One summarises the percentage increase in 'GP' and 'Other' first attendances for a 10 unit increase in the index of multiple deprivation (IMD). Data from a previous report covering elective & emergency admissions at specialty level has been added for comparison and as can be seen referral for first attendance increases more rapidly with IMD than for elective admission. While there is incomplete coverage across all specialties it is apparent that different aspects of acute care respond to IMD in a unique way and this may not be adequately reflected in the current capitation formula which assumes that emergency & elective admission and outpatient attendance all show parallel increases with deprivation.

Table One: Percentage increase in first attendances for a 10 unit increase in IMD. Data from a previous report covering emergency (EM) & elective (EL) admission has been added for reference.

Specialty	GP-referred	Other-referred	Total First Attendance	EM	EL[10]
Mental Illness	27	-	10	-	-
Thoracic Medicine	19	-	-	13	7
General Medicine	16	-	-	24	4
Neurology	14	-	-	-	-
Obstetric & Midwife	14	-	-	-	-
Rheumatology	14	-	-	3	7
Gynaecology	13	-	12	4	4
Gastroenterology	12	-	-	36	5
ENT	11	11	11	10	10
T&O	10	11	12	16	6
Medical Group[11]	9	-	11	23	3
General Surgery	9	1	10	23	4
All Specialties	9	-	4	19	4
Surgery & Urology	-	-	-	19	3
Orthopaedic Overlap Group[12]	8	-	10	-	-
Paediatrics	7	-	-	9	1
Oral Surgery	6	4	8	12	3
Urology	5	4	6	12	1
Cardiology	5	-	9	16	1
Plastic Surgery & Dermatology	4	-	3	-	-
Plastic Surgery	3	1	4	12	5
Ophthalmology	3	3	4	5	7
Oncology	-	-	-	2	7
Haematology	-	-	-	1	1
Dermatology	0	-	1	-	-

ENT appears to be the only specialty where all aspects of acute care respond to IMD in the same way, i.e. a 10 to 11% increase in emergency, elective and outpatient care for each 10 unit increase in IMD.

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[10] Data comes from an earlier study conducted at specialty level for elective and emergency admissions. Jones, R (2006) Elective and Emergency Admissions in Thames Valley. A report for the Thames Valley Strategic Health Authority prepared by Healthcare Analysis & Forecasting.

[11] The medical group includes General Medicine, Cardiology, Gastroenterology, Endocrinology, Elderly Medicine, Nephrology, Thoracic Medicine, Infectious Diseases

[12] The Orthopaedic Overlap Group includes Orthopaedics, Neurosurgery, Plastic Surgery, Anaesthetics & Pain Management

The increase in first attendance with increasing IMD creates the situation where the 14% of the population living in areas with an IMD >20 account for up to 26% of first attendances (see Appendix Two for the top 150 LSOA).

These findings are consistent with the known evidence for health inequalities[13] and the secondary effects of smoking on health.

Note the differing sensitivity at Specialty level of GP and Other first attendance to IMD. This difference partly explains why the ratio of GP to Other first attendances is different in the same specialty from one PCT to another and why the relative volumes between specialties are different from one PCT to another.

Role of Private Healthcare Usage

Summing the residuals (i.e. the difference between actual and expected) across the surgical specialties enables the identification of those areas which have consistently higher or lower NHS usage. This will partly reflect the influence of private health usage in certain areas and high GP referral in other areas.

Investigation of those SOA with very low first attendances to the NHS (i.e. a residual greater than -20% in Figure One) shows that they are mainly clustered in Wycombe & South Buckinghamshire. Using the web tool www.upmystreet.com such areas appear to correlate with high disposable income and are typically Acorn classification Type 1 to 4 which are know to have 'high' levels of private health cover, i.e. approximate 60% above national average levels of private medical insurance leads to an average -40% residual (against the Berkshire average).

This lower usage of elective NHS surgery is partly compensated for by areas of higher usage in areas with IMD values between 0 and 20. This is perhaps a reflection of the referral habits of individual GPs. In this respect three of the LSOA with very high first attendance rates are all from Slough in the adjacent areas of Haymill & Britwell.

In conclusion, while NHS utilisation in the surgical group of specialties is on average 10% lower for IMD < 11 there are particular Acorn Classification types that exhibit very low NHS usage. The referral behaviour of particular GP practices is also seen to play a role. The implication of both these statements to PBC is obvious. In terms of PBC a specific adjustment is needed to correctly account for the effects of private health care usage. Other than resorting to tools such as the Acorn classification the best factor upon which to rely would appear to be the historic levels of low first attendance seen in specific LSOA.

Role of Ethnicity

Different ethnic groups are known to have a disposition to particular conditions and diseases. These effects are summarised in Table two where the magnitude of the change in volume of first attendance associated with a 10 percentage point increase in ethnic population is given for each specialty.

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[13] Raleigh,V.S. & Polato,G.M. (2004) Evidence of health inequalities. Healthcare Commission Strategy Document.

Table Two: Effect of ethnic origin and full-time students on the volume of first outpatient attendance. Values in the table show the effect of a 10 percentage point increase in ethnic type or the age adjusted proportion of students.

Specialty	GP-referred First Attendance				All First Attendance (GP + Other)			
	Volume (1,000's)	Asian	Black[14]	Student	Volume (1,000's)	Asian	Black	Student
All Specialties	1,433	2%	1%	-8%	2,655	1%	-1%	-7%
Orthopaedic Overlap	227	-1%	-1%	-6%	427	-1%	1%	-8%
Medical Group	190	4%	9%	-8%	343	4%	10%	-6%
T&O	151	0%	0%	-9%	298	-1%	0%	-8%
Ophthalmology	133	6%	11%	-6%	275	5%	2%	-2%
Mental Illness	40	-3%	7%	10%	251	-1%	-2%	-1%
General Surgery	154	0%	4%	-9%	209	0%	4%	-10%
Plastic Surgery & Dermatology	154	0%	-2%	-2%	206	-1%	-2%	-1%
ENT	100	1%	11%	-4%	151	1%	9%	-5%
Cardiology	76	5%	9%	-7%	143	5%	6%	-9%
Gynaecology	101	3%	0%	-11%	138	2%	0%	-9%
Dermatology	90	1%	8%	0%	111	1%	7%	-1%
Oral Surgery	21	4%	-2%	-13%	100	2%	4%	-10%
Obstetric & Midwife	87	6%	0%	-15%	189			
Plastic Surgery	64	0%	-8%	-7%	96	-1%	-6%	-5%
Urology	59	1%	4%	-4%	82	1%	3%	-4%
General Medicine	46	4%	8%	-10%	91			
Paediatrics	49	3%	2%	-17%	88			
Neurology	44	2%	-3%	-7%	71			
Rheumatology	29	1%	14%	-7%	46			
Gastroenterology	30	1%	8%	-6%	43			
Thoracic Medicine	18	4%	4%	-10%	37			

As can be seen the different ethnic types have a unique pattern of demand for each specialty. The existence of any form of racial discrimination can be ruled out by virtue of the fact that each racial group has both +ve and –ve coefficients over a range of specialties.

Effect of Students

Some 90% of LSOA have less than10% students[15] and only 4% of LSOA have >20% students. The maximum population of full-time students is 83% & 69% respectively for the two LSOA situated in the ward of Carfax in Oxford.

There is evidence that a high proportion of students are able to skew the calculation of fundamental population characteristics such as life expectancy. For example, the Ward of Carfax in Oxford (highest proportion of students in TV) has the 4th lowest average life expectancy at birth in the SE of England[16] - clearly the presence of large numbers of students is acting to distort the calculation of this otherwise fundamental population characteristic.

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[14] Note that the confidence interval associated with Black ethnic type is much higher than for Asian. See report covering emergency admission for a more complete discussion.

[15] Students in full-time education aged 16 or above

[16] Eayres,D.P & Williams,ES. Evaluation of methodologies for small area life expectancy estimation – note that the very low life expectancy may itself be an artefact of the high proportion of students in this ward.

Another interesting comment is that students may not have health needs reflective of the IMD for the area in which they reside during term time. Most students come from relatively affluent socio-economic parent groups and may therefore be better approximated by a more 'affluent' IMD value.

The impact of students on the overall first attendance rate for each specialty was assessed by first calculating the age adjusted expected percentage of first attendances due to students (assuming that their attendance rate was at the age adjusted average). For whatever reason it is apparent from Table Two that students do have a lower rate of first attendance than the non-student population. Mental Illness and Dermatology are the only exceptions to an otherwise negative effect due to students. Such effect will have a material effect on the funding allocated for outpatient attendance within PBC budgets, in particular for the University practices.

System Thresholds for First Attendance/Counting

The fact that there is large variation in healthcare structure & practice and in GP referral behaviour is widely known and implies those system-wide thresholds to first attendance or the counting of a 'first attendance' should be different.

The usual approach to identify a healthcare system is to use a PCT or local authority boundary, however, such boundaries do not reflect the usual flows of patients to the nearest acute hospital site. In this study each LSOA has been assigned to sit in the catchment area of the nearest acute hospital site using straight line distance[17].

Hence in Tables Four & Five the Frimley healthcare system is that group of LSOA which would normally travel to Frimley Park hospital to receive their outpatient care. This is an alternative way of identifying population groups in relation to acute care. This acts to simplify an otherwise exceedingly complex analytical problem.

In this study a system threshold of 100% represents the TV average while a threshold of 120% implies 20% more first attendances (or events counted as a 'first attendance') than the TV average after adjusting for the effects of age, IMD, ethnicity and full-time students – the effect of which are covered in the following section.

Interpreting differences in thresholds between acute sites is not a straightforward matter since the threshold can reflect one or more of the following:

- The specialty overlaps particular to that site, i.e. at one site more Urology type work may be conducted by General Surgeons than at another site, etc.
- The higher or lower referral behaviour of the surrounding GP's, i.e. in the area surrounding one site diabetes, etc may be treated to a greater extent in a primary care setting.
- Other data quality issues such as follow-up appointments following an emergency or elective admission counted as a first attendance or GP referrals misallocated to 'other' referrals.
- Capacity issues particular to 2005/06. For example, higher levels of first attendance at one site to meet waiting time targets or capacity differences due to rationalisation of services between sites.

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[17] Experience shows that there are only minor differences between the use of travel times and linear distance, i.e. the acute site catchment areas are relatively stable. Whatever the method there will always be ambiguity for those LSOA which are almost equidistant between two sites, however, since over 50% of a site catchment population live within only 5 km of the site such distant LSOA make little impact on the analysis.

- Lower rates in other areas may signify particular endoscopy, laparoscopy, cystoscopy, lithotripsy, etc procedures which by-pass a first outpatient attendance and are first seen as a 'day case' procedure.

As such a higher threshold at one site should not be interpreted as direct evidence for 'excess' referral but signifies a need to investigate the root causes.

Adjustment for the effect of system thresholds is vitally important to establishing the correct sensitivity to the effects of IMD, ethnicity and students. The value of the coefficients can be skewed if the effects of system thresholds are ignored. This observation has implications to the national capitation formula where no adjustment has been made for system thresholds and hence implies that the funding allocations may be subject to bias. For example, a population with an IMD of 20 and with 20% ethnic population would receive a Urology budget of 85% of the national average after adjusting for the effect of thresholds but would only be given 73% of national average if the confounding effect of the thresholds were ignored. There is the potential for extreme bias since what appear to be small changes in the individual coefficients translate into large changes in the calculated output.

Thresholds for the various acute sites are given in Appendix Three. Note that thresholds vary at different sites for the same acute trust (i.e. Horton vs ORH, Heatherwood vs Wexham Park) and that there is considerable variation between sites even at total first attendance across all specialties which implies that some sites may have been counting in a different way to others, i.e. nurse led clinics, ward attenders, etc.

PCTs and PBR leads need to be aware that there is a basic inconsistency in the way outpatient attendances are counted and that this will have a material effect on financial pressures.

Examples of High Variance

- High levels of Plastic Surgery first attendance appear to cluster around Stoke Mandeville and Wexham Park hospitals but not around the ORH. All have specialist Plastic Surgery departments. This raises the question – where do all the equivalent first attendances go in other locations?

- The locations (most notably Milton Keynes) showing high Medical first attendances require investigation given the effect on the cost born by the PCT.

- Other examples of significant variation in first attendance/counting are in ENT (HWWP), Ophthalmology (ORH/Horton), Paediatrics (RBBH, Horton, Wycombe), Oncology (ORH/Horton), Rheumatology (ORH), Oral Surgery (ORH/Horton), Haematology (ORH).

Potential to Reduce Volume of First Attendance

Table Three details the potential to reduce the volume of first attendance across all specialties for the combined GP & Other referrals. This total includes excess GP referral and any additional excess due to the potentially variable data standards applied at various acute sites. As can be seen the excess is located in particular areas (parts of Oxfordshire, Milton Keynes, Berkshire East, South Bucks & Aylesbury Vale) and the sub-total of these areas gives a potential saving

of 37,700 first attendances p.a. after reduction of the volume to the Thames Valley average. This is equivalent to savings of around £5.7M p.a.

However, reducing the rate of first attendance down to the average for Berkshire West (Reading + Wokingham + West Berkshire LA's) would lead to potential savings of 64,000 first attendance p.a. or around £9.6M p.a.

Table Three: Excess first attendance by Local Authority Area. Highest excess per 1,000 head of population is at the top of the table.

Local Authority	Population	Excess	Excess per 1000 head
South Bucks	61,945	2,583	42
West Oxfordshire	55,293	2,304	42
Aylesbury Vale	165,741	6,509	39
Oxford	134,242	4,817	36
Milton Keynes	207,059	7,168	35
Slough	119,064	3,924	33
Cherwell	131,781	3,987	30
Windsor and Maidenhead	133,633	2,940	22
Vale of White Horse	111,552	1,484	13
Bracknell Forest	109,618	944	9
South Oxfordshire	128,188	1,058	8
Sub-Total	**1,358,116**	**37,717**	**28**
Wycombe	162,105	-4,394	-27
Chiltern	89,226	-3,223	-36
West Berkshire	144,489	-5,924	-41
Reading	143,097	-6,912	-48
Wokingham	150,211	-7,475	-50
Sub-Total	**689,128**	**-27,928**	**-41**

Table Four details the excess first attendance for various specialty groups compared to the total for all specialties. In general the total is spread across the various specialty groups fairly evenly except for some notable exceptions.

Milton Keynes seems to have a very high excess of first attendance in the medical group of specialties and to a lesser extent in the Orthopaedic overlap group and for Surgery & Urology.

Slough, Aylesbury Vale and South Bucks all have a very high proportion of the total as Plastic Surgery & Dermatology while Wycombe & Chiltern are the only areas in the bottom of the table to show an excess in this specialty group. This appears to reflect referral to the Plastic Surgery departments at HWWP and the Bucks Trust.

Analysis at LSOA level appears to confirm the earlier observation that GP practices that are high referring in one specialty tend to be likewise across all specialties.

Table Five gives the top 15 LSOA for excess first attendance. Given that a single LSOA is most likely to be serviced by a particular GP practice this table is highlighting the potential for over-referral in particular locations due to GP referral behaviour.

Table Four: Volume of excess to the Thames Valley average for first attendance in various locations.

Local Authority	All	Medical Group[18]	Orthopaedic Overlap Group[19]	Plastic Surgery & Dermatology	Surgery & Urology
South Bucks	42	3	5	10	2
West Oxfordshire	42	7	12	5	7
Aylesbury Vale	39	11	5	11	7
Oxford	36	5	5	7	-1
Milton Keynes	35	26	12	-4	10
Slough	33	-5	6	9	4
Cherwell	30	6	9	0	8
Windsor & Maidenhead	22	-7	8	8	1
Vale of White Horse	13	1	3	1	0
Bracknell Forest	9	-8	2	0	0
South Oxfordshire	8	3	-1	-1	-5
Wycombe	-27	-4	-5	5	-3
Chiltern	-36	-6	-8	4	-4
West Berkshire	-41	-7	-12	-10	-7
Reading	-48	-7	-4	-6	-7
Wokingham	-50	-8	-4	-7	-7

Table Five: Top 15 LSOA for excess total first attendances per 1,000 head. Red indicates top 50, Pink top 50 to 100.

LSOA	LA	IMD	All Specialties	Medical Group	Orthopaedic Overlap	Plastic & Dermatology	Surgery & Urology
E01017656	Aylesbury Vale	2	274	34	47	41	26
E01028769	West Oxfordshire	6	247	11	49	19	18
E01016785	Milton Keynes	12	236	55	49	8	32
E01016782	Milton Keynes	12	232	40	48	19	33
E01016747	Milton Keynes	11	220	55	43	10	44
E01016749	Milton Keynes	6	204	54	43	6	40
E01017828	South Bucks	12	156	23	23	12	13
E01028584	Oxford	8	152	14	22	19	5
E01017805	South Bucks	19	151	14	12	18	20
E01028442	Cherwell	10	148	19	34	8	22
E01028463	Cherwell	4	147	18	15	6	20
E01017809	South Bucks	16	133	7	22	13	11
E01017709	Aylesbury Vale	24	131	22	12	22	14
E01028516	Oxford	25	128	12	22	12	6
E01017694	Aylesbury Vale	8	128	14	24	15	21
E01016448	Slough	28	127	10	22	19	22

Note that the top 15 LSOA for excess referral are mostly in affluent areas and all have an IMD less than the national average. GP referral behaviour is clearly capable of exerting a major effect.

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[18] General Medicine, Gastroenterology, Endocrinology, Cardiology, Thoracic Medicine, Infectious Diseases, Elderly Care, Nephrology

[19] Orthopaedics (including fracture clinic), Neurosurgery, Plastic Surgery, Anaesthetics & Pain

Conclusions

This work has clearly demonstrated that both GP referral behaviour and the counting of first attendances at acute sites lead to differences in the financial pressures experienced in particular locations.

In the context of benchmarks for PBC it identifies the unique relationship between IMD, ethnicity and students which exist for each specialty and highlights the practical difficulty of identifying every relevant population characteristic to be incorporated into a small area capitation formula.

At a pragmatic level the volume of first attendance even after aggregation at the all specialty level is still relatively small in statistical terms and as such there is considerable statistical noise at a practice level. By implication stable PBC budgets can only exist for the largest practices and smaller practices will of necessity need to be grouped into larger entities.

Appendix One: Methodology

A more detailed description of the methodology is given in the companion report covering non-zero day stay emergency admissions. Details specifically relevant to this report are as follows.

National Average Rates of First attendance

National data for outpatient attendance is not easily obtained. For this study data for the whole of Berkshire was used as a proxy for the national average. Data was at specialty level for GP and other first attendance types. First attendances were split into 5 year age bands (0 to 4, 5 to 9, etc up to 85+).

Age banded first attendances were matched against 2003 mid-year population estimates for Berkshire to give a rate per 1,000 head for each age band. This figure assumes that all areas are at the Berkshire average Index of Multiple Deprivation (IMD). The only effect that this approximation is likely to have is to change the value of the intercept in the model. This is effectively a self-correcting mechanism which allows the output from the model to be recalibrated against the national average should this data become available.

Population Data at Lower Super Output Area (LSOA) Level

2001 census population data by 5 year age band was obtained for each lower super output area in Thames Valley. A lower super output area (LSOA) is a geographic and socio-economically distinct area containing 960 to 6,500 head of population (average 1,500). LSOAs nest into wards and then into Unitary Authority and PCT boundaries.

For each LSOA an expected volume of first attendances was calculated using the age banded population and the age banded national average first attendance rates.

Specialty Groups

Specialty level data was aggregated into larger specialty groups with General and Elderly medicine combined; Oral, Maxillofacial, Orthodontics & Medical dental all combined. Paediatric Surgery was combined with General Surgery, Paediatric Cardiology combined with Cardiology, etc.

Index of Multiple Deprivation

ONS data for each LSOA was obtained for the 2004 revision of the Index of Multiple Deprivation (IMD).

Ethnicity

2001 census data at LSOA level on the percentage of persons from different ethnic origins was obtained from the neighbourhood statistics database of the ONS.

Full Time Students

ONS data for students was obtained from Tables KS14 and CS63. This data was used to determine the number of full time students in each LSOA for the age bands 15-19, 20-24, 25-29, 30 to 34. These numbers were then used to calculate the expected number of first attendances for all persons and for full time students. The

expected percentage of first attendances attributed to students (assuming they had the same attendance rate as the general population) was then calculated.

Hence for each LSOA we have a calculated % of attendances expected to arise from students. This is a better approach than simply taking the unadjusted raw proportion of students in the LSOA since we are applying an adjustment for age, i.e. the percentage of attendances due to students in the specialty of Geriatrics is expected to be 0% while in Paediatrics the proportion will be higher, etc. Full data tables are available covering all LSOA in the South Central SHA.

First attendances

First attendances at LSOA level in 2003/04, 2004/05 and 2005/06 was obtained via the Health Informatics Shared Services for Berkshire, Oxfordshire and Buckinghamshire. First attendances for residents outside of Thames Valley were excluded.

LSOA-based First attendance Rate Relative to the Expected Average

Actual first attendances for each LSOA were compared to forecast expected average using the age profile of each LSOA and the Berkshire rates for each of the 5 year age bands.

Allocation of LSOA to Trust/Site Catchment Areas

Each LSOA was allocated to a Trust/Site catchment area using linear distance between the LSOA population centroid and the acute site. Linear distance has been shown to be a good approximation to travel time.

Trust/Site Thresholds for First attendance

It is reasonable to expect that different organisations and sites have different thresholds for first attendance. These thresholds can arise due to:

- GP referral thresholds
- Different standards for counting of a 'first attendance', i.e. some locations may count ward attendees, urgent outpatient appointments, assessment unit attendance, etc differently to others
- Different ways of allocating a patient to a specialty, i.e. there is overlap between General Surgery/Urology/Gynaecology, between General Surgery and Gastroenterology, between General Medicine and Cardiology, etc, between T&O, Neurosurgery & Plastic Surgery and between Plastic Surgery & Dermatology, etc.

If a site has a threshold equal to the average for Thames Valley then the value of the threshold should be equal to 100%. Sites with a lower threshold for counting of a first attendance will have a value greater than 100%, i.e. a value of 125% implies 25% higher numbers of first attendances than the average for Thames Valley.

The aim of the threshold is therefore to detect non-average counting of 'first attendances' due to one or more of the above reasons.

GP Referral and First attendance Thresholds

GP referral behaviour is known to vary considerably. This variability will be to some extent encapsulated into the area thresholds for first attendance, i.e. the observed threshold is the combined outcome of both primary and secondary care.

Modelling of the effects of IMD, Ethnicity, Students and Site Thresholds

The population age distribution for each LSOA was used to calculate the expected number of first attendances based on the Berkshire average first attendance rates per age band.

The difference between the actual number of first attendances and the expected (Berkshire average) was assumed to be due to the effects of IMD, Ethnicity, Students and Trust/Site thresholds for Counting/First attendance. A linear relationship has been assumed. No effect of distance was observed.

The model had the following parameters.

Ratio of actual/national average =

((Intercept + A x IMD + B x % Asian + C x % Black + D x % Student) x Site Threshold)

The value of all constants was derived using the Solver function in Excel. This was accomplished by minimising the sum of residuals between the expected value predicted from the model and the actual value.

Appendix Two: Top 150 LSOA in Thames Valley Where First Attendance Avoidance Schemes May Yield the Greatest Return

Data is grouped by Local Authority and then by Ward. LSOA in the top 100 are highlighted in red bold. Note that this is the excess <u>after adjusting for</u> the effects of age, IMD, ethnicity and students. All data is an average of three years of referrals/attendances. Excess per 1,000 head ranges from 274 to 65. The wards of Coldharbour (Aylesbury Vale), Carterton NE (West Oxfordshire), Middleton & Emerson Valley (Milton Keynes) all have >200 excess first attendance per 1,000 head and a total outpatient first attendance rate of over 500 per 1,000 head[20]!

Data from this table can be exported into Excel for additional analysis or can be mapped to discern spatial patterns. For example, the highest number of LSOA flagged in one electoral ward is for Bletchley & Fenny Stratford in Milton Keynes which is likely to be serviced by a particular GP practice.

LSOA_CODE	Ward	LA	IMD	Excess	Excess per 1000 head
E01017929	The Risboroughs	Wycombe	11.1	**116**	76
E01016548	Clewer East	Windsor & Maidenhead	2.78	**135**	**95**
E01016549	Clewer East	Windsor & Maidenhead	10.3	**118**	**78**
E01016550	Clewer East	Windsor & Maidenhead	6.14	**140**	**97**
E01016553	Clewer North	Windsor & Maidenhead	4.36	**124**	**86**
E01016555	Clewer North	Windsor & Maidenhead	20.8	109	78
E01016556	Clewer South	Windsor & Maidenhead	13.1	**122**	67
E01016569	Eton Wick	Windsor & Maidenhead	9.66	87	**82**
E01016577	Horton & Wraysbury	Windsor & Maidenhead	17.8	**123**	**79**
E01016582	Maidenhead Riverside	Windsor & Maidenhead	10.6	**143**	**108**
E01016590	Oldfield	Windsor & Maidenhead	17.2	112	**78**
E01016609	Sunninghill & South Ascot	Windsor & Maidenhead	9.18	**166**	**99**
E01028764	Bampton & Clanfield	West Oxfordshire	4.77	**153**	**91**
E01028765	Bampton & Clanfield	West Oxfordshire	6.89	**173**	**89**
E01028766	Brize Norton & Shilton	West Oxfordshire	6.14	**290**	**106**
E01028769	Carterton North East	West Oxfordshire	6.29	**370**	**247**
E01028771	Carterton North West	West Oxfordshire	9.35	**129**	**88**
E01028774	Carterton South	West Oxfordshire	5.77	96	69
E01028785	Eynsham & Cassington	West Oxfordshire	4.39	**119**	77
E01028789	Freeland & Hanborough	West Oxfordshire	2.16	95	67
E01028704	Abingdon Ock Meadow	Vale of White Horse	11.2	**123**	**87**
E01028738	Marcham & Shippon	Vale of White Horse	4.95	**139**	68
E01028614	Chinnor	South Oxfordshire	6.99	100	67
E01028625	Didcot Ladygrove	South Oxfordshire	4.77	**119**	**82**
E01028638	Forest Hill & Holton	South Oxfordshire	13.4	96	74
E01028670	Thame South	South Oxfordshire	2.96	97	70
E01028672	Thame South	South Oxfordshire	4.22	104	72
E01028681	Wheatley	South Oxfordshire	3.16	85	68
E01028683	Wheatley	South Oxfordshire	5.06	95	69
E01017804	Burnham Church	South Bucks	7.99	**157**	**109**
E01017805	Burnham Church	South Bucks	18.7	**271**	**151**
E01017806	Burnham Church	South Bucks	4.87	**166**	**99**
E01017807	Burnham Lent Rise	South Bucks	4.5	**180**	**121**
E01017808	Burnham Lent Rise	South Bucks	10.5	**179**	**117**
E01017809	Burnham Lent Rise	South Bucks	15.7	**198**	**133**
E01017814	Dorney & Burnham South	South Bucks	7.94	**115**	74

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[20] The Thames valley average for total outpatient first attendance is 280 per 1,000 head.

E01017816	Farnham Royal	South Bucks	5.25	**137**	**87**
E01017817	Farnham Royal	South Bucks	7.47	**158**	**91**
E01017823	Hedgerley & Fulmer	South Bucks	7.62	97	70
E01017824	Iver Heath	South Bucks	5.82	**158**	**102**
E01017825	Iver Heath	South Bucks	6.7	**150**	**99**
E01017826	Iver Heath	South Bucks	10	**189**	**126**
E01017827	Iver Village & Richings Park	South Bucks	13.5	**151**	**100**
E01017828	Iver Village & Richings Park	South Bucks	11.8	**229**	**156**
E01017830	Stoke Poges	South Bucks	7.73	**166**	**96**
E01017831	Stoke Poges	South Bucks	1.91	**148**	**94**
E01017832	Stoke Poges	South Bucks	12.4	**120**	**78**
E01017834	Wexham & Iver West	South Bucks	12.5	**178**	**117**
E01017835	Wexham & Iver West	South Bucks	14.2	**194**	**123**
E01016448	Baylis & Stoke	Slough	27.7	**225**	**127**
E01016451	Britwell	Slough	41.8	**129**	**86**
E01016458	Central	Slough	33	96	65
E01016459	Central	Slough	29.3	**144**	**92**
E01016462	Chalvey	Slough	27.5	**148**	**99**
E01016463	Chalvey	Slough	36.6	**166**	**116**
E01016464	Chalvey	Slough	35.2	**138**	**101**
E01016465	Chalvey	Slough	29.2	**164**	**105**
E01016466	Chalvey	Slough	33.4	**147**	**95**
E01016472	Cippenham Green	Slough	15.9	**123**	**79**
E01016474	Cippenham Meadows	Slough	24.7	109	68
E01016475	Cippenham Meadows	Slough	23.7	**152**	**100**
E01016484	Farnham	Slough	19.5	112	**88**
E01016487	Farnham	Slough	20.7	**119**	74
E01016489	Foxborough	Slough	21.2	**184**	**109**
E01016498	Haymill	Slough	19.3	107	66
E01016508	Langley St Mary's	Slough	9.75	**131**	**91**
E01016519	Wexham Lea	Slough	13.9	**194**	**112**
E01028513	Barton & Sandhills	Oxford	39.8	101	67
E01028515	Barton & Sandhills	Oxford	12.6	97	68
E01028516	Barton & Sandhills	Oxford	25	**197**	**128**
E01028530	Cowley	Oxford	20.4	110	76
E01028532	Cowley Marsh	Oxford	25.6	**166**	**97**
E01028534	Headington	Oxford	7.47	91	72
E01028537	Headington	Oxford	9.59	101	73
E01028539	Headington Hill & Northway	Oxford	12.7	107	68
E01028557	Lye Valley	Oxford	19.7	**121**	**78**
E01028558	Lye Valley	Oxford	11.8	**133**	**92**
E01028560	Marston	Oxford	14.7	**132**	**91**
E01028561	Marston	Oxford	8.94	**137**	**89**
E01028571	Quarry & Risinghurst	Oxford	13.5	107	72
E01028574	Quarry & Risinghurst	Oxford	20.1	**127**	**95**
E01028584	St Margaret's	Oxford	8.33	**232**	**152**
E01028595	Wolvercote	Oxford	13.1	103	74
E01016710	Bletchley & Fenny Stratford	Milton Keynes	16.1	**190**	**113**
E01016711	Bletchley & Fenny Stratford	Milton Keynes	4.46	**131**	**83**
E01016712	Bletchley & Fenny Stratford	Milton Keynes	27.2	100	69
E01016713	Bletchley & Fenny Stratford	Milton Keynes	7.06	**178**	**111**
E01016714	Bletchley & Fenny Stratford	Milton Keynes	22.2	103	67
E01016715	Bletchley & Fenny Stratford	Milton Keynes	18.9	**123**	76
E01016716	Bletchley & Fenny Stratford	Milton Keynes	18.9	**161**	**91**
E01016732	Campbell Park	Milton Keynes	12	112	**79**
E01016737	Denbigh	Milton Keynes	13.7	**169**	**118**
E01016740	Denbigh	Milton Keynes	10.4	**156**	**103**
E01016745	Eaton Manor	Milton Keynes	11.2	**142**	**84**
E01016747	Emerson Valley	Milton Keynes	10.8	**324**	**220**
E01016749	Emerson Valley	Milton Keynes	6.02	**307**	**204**
E01016756	Furzton	Milton Keynes	21	**153**	**94**

E01016757	Furzton	Milton Keynes	9.24	107	68
E01016763	Linford North	Milton Keynes	8.28	93	66
E01016779	Loughton Park	Milton Keynes	27.7	**168**	**96**
E01016782	Middleton	Milton Keynes	11.8	**247**	**232**
E01016785	Middleton	Milton Keynes	11.6	**342**	**236**
E01016804	Stantonbury	Milton Keynes	24.4	99	65
E01016807	Stantonbury	Milton Keynes	15.1	**127**	**80**
E01016820	Walton Park	Milton Keynes	8.23	99	66
E01016822	Walton Park	Milton Keynes	19.8	**138**	**94**
E01016825	Walton Park	Milton Keynes	9.55	93	67
E01016828	Walton Park	Milton Keynes	6.78	109	73
E01016829	Whaddon	Milton Keynes	18.3	**132**	**88**
E01016832	Whaddon	Milton Keynes	11.3	**132**	**97**
E01016833	Whaddon	Milton Keynes	5.52	107	**80**
E01016834	Whaddon	Milton Keynes	19.5	**127**	**81**
E01016840	Wolverton	Milton Keynes	7.8	**133**	**87**
E01016844	Woughton	Milton Keynes	49.6	**116**	76
E01016847	Woughton	Milton Keynes	47.2	**118**	**84**
E01016848	Woughton	Milton Keynes	31.5	**133**	**93**
E01028428	Banbury Calthorpe	Cherwell	3.65	**124**	**85**
E01028429	Banbury Calthorpe	Cherwell	5.5	91	**81**
E01028441	Banbury Hardwick	Cherwell	23	98	66
E01028442	Banbury Hardwick	Cherwell	9.99	**204**	**148**
E01028460	Bicester North	Cherwell	4.24	**137**	**103**
E01028463	Bicester South	Cherwell	4.41	**223**	**147**
E01028475	Bloxham & Bodicote	Cherwell	6.27	**135**	65
E01028494	Kidlington South	Cherwell	13.2	84	68
E01028502	Otmoor	Cherwell	7.19	76	66
E01028503	Sibford	Cherwell	9.21	75	71
E01028510	Yarnton, Gosford & Water Eaton	Cherwell	10.1	**126**	**88**
E01028511	Yarnton, Gosford & Water Eaton	Cherwell	6.03	109	69
E01016196	College Town	Bracknell Forest	7.1	**141**	73
E01016231	Old Bracknell	Bracknell Forest	16.5	110	73
E01017635	Bedgrove	Aylesbury Vale	3.56	**122**	**82**
E01017640	Bedgrove	Aylesbury Vale	2.7	**141**	**87**
E01017650	Buckingham South	Aylesbury Vale	3.57	103	68
E01017655	Coldharbour	Aylesbury Vale	4.55	**146**	**87**
E01017656	Coldharbour	Aylesbury Vale	2.1	**431**	**274**
E01017674	Grendon Underwood	Aylesbury Vale	10.8	**115**	65
E01017681	Long Crendon	Aylesbury Vale	5.69	107	**83**
E01017690	Mandeville & Elm Farm	Aylesbury Vale	7.06	83	67
E01017694	Marsh Gibbon	Aylesbury Vale	8.35	**167**	**128**
E01017695	Newton Longville	Aylesbury Vale	6.36	106	**86**
E01017698	Oakfield	Aylesbury Vale	13.5	111	**79**
E01017700	Oakfield	Aylesbury Vale	2.38	**158**	**101**
E01017701	Pitstone	Aylesbury Vale	7.7	113	74
E01017703	Quainton	Aylesbury Vale	2.84	112	**90**
E01017709	Southcourt	Aylesbury Vale	23.8	**189**	**131**
E01017710	Southcourt	Aylesbury Vale	15.7	**132**	**93**
E01017711	Southcourt	Aylesbury Vale	24.4	**132**	**87**
E01017712	Southcourt	Aylesbury Vale	26.1	98	67
E01017719	Waddesdon	Aylesbury Vale	6.38	111	**92**
E01017723	Walton Court & Hawkslade	Aylesbury Vale	19.6	**123**	**86**
E01017736	Winslow	Aylesbury Vale	9.46	101	70

Appendix Three: Site thresholds for volume of first attendance relative to the Thames Valley average.

Specialty	Type	Ashford & St Peters	FPH	Heather-wood	Hemell Hemps'd	Hilling-don	Horton	Luton	MKGH	NDH	ORH	RBBH	Slough	Stoke Mandeville	Swindon	Watford	Wycombe
General Surgery	GP	125%	97%	100%	114%	95%	122%	111%	98%	96%	95%	85%	112%	122%	103%	93%	102%
General Surgery	All	106%	85%	87%	91%	89%	135%	95%	139%	83%	109%	75%	99%	120%	119%	77%	88%
Urology	GP	207%	135%	137%	83%	133%	77%	128%	85%	76%	74%	90%	150%	76%	85%	66%	101%
Urology	All	171%	146%	129%	69%	109%	99%	97%	98%	68%	70%	85%	145%	96%	73%	71%	88%
T&O	GP	62%	104%	99%	89%	82%	109%	109%	102%	96%	92%	129%	91%	87%	92%	64%	86%
T&O	All	71%	95%	82%	86%	92%	126%	93%	132%	76%	113%	103%	81%	92%	110%	67%	85%
ENT	GP	95%	84%	92%	104%	105%	160%	128%	100%	64%	108%	88%	112%	101%	92%	112%	111%
ENT	All	85%	95%	95%	84%	101%	143%	102%	117%	68%	103%	95%	104%	101%	89%	83%	94%
Gynaecology	GP	102%	208%	87%	111%	102%	13%	100%	102%	82%	49%	76%	123%	134%	77%	80%	110%
Gynaecology	All	105%	171%	88%	103%	103%	17%	121%	125%	90%	51%	71%	119%	182%	74%	78%	100%
Ophthalmology	GP	132%	126%	107%	120%	105%	105%	88%	83%	138%	80%	94%	98%	77%	104%	96%	122%
Ophthalmology	All	174%	110%	138%	80%	89%	96%	77%	91%	92%	107%	69%	133%	84%	108%	73%	91%
Dermatology	GP	109%	70%	56%	144%	91%	95%	110%	101%	58%	115%	99%	77%	134%	87%	173%	155%
Dermatology	All	87%	64%	53%	123%	84%	98%	111%	102%	59%	133%	95%	74%	137%	106%	144%	134%
Cardiology	GP	136%	96%	117%	10%	97%	31%	89%	100%	150%	108%	136%	113%	124%	92%	11%	10%
Cardiology	All	90%	69%	81%	17%	72%	99%	101%	269%	100%	86%	91%	91%	129%	78%	20%	16%
Plastic Surgery	GP	453%	56%	335%	33%	248%	75%	65%	28%	25%	68%	15%	347%	146%	56%	20%	37%
Plastic Surgery	All	245%	43%	231%	59%	172%	75%	71%	51%	37%	91%	27%	271%	192%	75%	57%	74%
Obstetrics	GP	98%	13%	102%	62%	85%	159%	64%	56%	107%	262%	54%	55%	36%	252%	76%	66%
Paediatrics	GP	258%	87%	145%	93%	99%	90%	71%	77%	81%	78%	115%	129%	97%	63%	90%	119%
General Medicine	GP	527%	73%	102%	297%	47%	197%	70%	70%	18%	48%	37%	135%	54%	73%	444%	317%

Neurology	GP	91%	75%	117%	96%	85%	93%	73%	106%	63%	112%	96%	126%	94%	86%	95%	101%
Mental Illness	GP	154%	120%	139%	96%	53%	86%	19%	0%	133%	126%	114%	104%	99%	105%	54%	76%
Mental Illness	All	140%	115%	106%	74%	145%	91%	29%	1%	144%	104%	144%	126%	71%	90%	56%	85%
Gastroenterology	GP	50%	8%	110%	7%	87%	86%	102%	166%	104%	148%	131%	50%	182%	134%	0%	5%
Midwife	GP	411%	150%	565%	0%	51%	238%	17%	0%	0%	0%	0%	381%	0%	0%	0%	0%
Obstetric & Midwife	GP	182%	51%	216%	47%	78%	169%	50%	43%	81%	199%	43%	124%	28%	190%	59%	53%
Rheumatology	GP	237%	95%	112%	163%	94%	72%	121%	82%	47%	70%	88%	127%	134%	68%	181%	170%
Oral Surgery	GP	155%	58%	90%	34%	114%	183%	16%	42%	161%	211%	44%	119%	42%	231%	47%	40%
Oral Surgery	All	109%	100%	108%	101%	103%	83%	85%	88%	66%	112%	101%	102%	121%	117%	88%	90%
Thoracic Medicine	GP	43%	90%	40%	20%	48%	31%	119%	125%	150%	149%	144%	31%	144%	145%	32%	14%
Medical Group excl Cardiology	GP	249%	68%	80%	149%	75%	122%	112%	94%	71%	107%	83%	85%	141%	108%	199%	150%
Medical Group incl Cardiology	GP	205%	75%	89%	96%	90%	91%	100%	96%	98%	109%	102%	92%	135%	105%	126%	105%
Medical Group incl Cardiology	All	153%	66%	77%	78%	86%	109%	111%	170%	81%	114%	80%	92%	127%	104%	93%	81%
All Specialties	GP	133%	96%	112%	97%	93%	105%	100%	86%	103%	105%	89%	114%	102%	87%	95%	102%
All Specilaties	All	126%	92%	104%	86%	93%	107%	104%	111%	87%	110%	82%	110%	114%	102%	85%	88%
Orthopaedic Group	GP	145%	95%	142%	78%	125%	109%	90%	90%	78%	88%	101%	143%	98%	83%	63%	80%
Orthopaedic Group	All	111%	90%	107%	84%	116%	115%	87%	118%	69%	107%	88%	114%	108%	102%	74%	86%
Plastic Surgery & Dermatology	GP	148%	76%	123%	112%	138%	89%	93%	81%	49%	100%	76%	147%	133%	78%	139%	131%
Plastic Surgery & Dermatology	All	162%	64%	114%	101%	122%	89%	94%	85%	48%	115%	70%	142%	156%	89%	129%	117%