

**EVALUATION OF THE LONDON PATIENT CHOICE PROJECT:  
SYSTEM WIDE IMPACTS**

**FINAL REPORT**

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**September 2004**

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## **Acknowledgements**

This research was funded by the Department of Health. We are grateful to Mark Dusheiko and Hugh Gravelle for helpful suggestions on the modelling aspects of this work. We are also grateful to participants at the York Seminars in Health Econometrics and the Centre for Health Economics Seminar for comments and suggestions on various aspects of this work. Members of the London Patient Choice Project team were generous in the time they gave to answer our questions and supply essential data. Through the eighteen months of work on this evaluation we received secretarial support from Helen Parkinson, Panjit Orr, Kerry Atkinson and Marie Platt.

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## Executive Summary

- 1.) Two objectives at the fore of the NHS policy agenda are to develop systems for increasing patient choice and to find mechanisms that will increase effective capacity for treatment of NHS patients on waiting lists. The London Patient Choice Project (LPCP) was one of several initiatives in England to introduce elements of choice and to expand capacity. LPCP developed systems to enable patients, registered with a London GP and who were approaching six months on the waiting list with a London NHS Trust, to be offered a degree of choice over when and where they received treatment. Patients who accepted choice of another hospital would be treated earlier than if they remained with their existing hospital and earlier than the government target waiting time. LPCP activity commenced in October 2002 and by June 2004, 22,500 patients had been offered choice and 15,000 had accepted treatment at another hospital. From the beginning of the Project, it was decided there should be an independent evaluation of performance against objectives. The evaluation focused on three areas, the patient experience (Picker Institute Europe), organisational change (Royal Holloway) and system wide impacts (University of York). In addition, a discrete choice experiment was conducted (King's Fund/RAND Europe) to examine patient attitudes toward different elements of choice. The research teams co-ordinated their work and selected three tracer specialties that were used for in-depth analysis - ophthalmology, orthopaedics and general surgery. The Evaluation was carried out between December 2002 and August 2004.
- 2.) This report presents results of the analysis of system-wide impacts. The research brief identified the key question for this part of the evaluation as: "What are the intended and unintended consequences of implementation of the project". Areas for consideration included activity, waiting (numbers and time), equity, demand (including referral rates from primary care) and prices. Not all patients were offered or exercised choice. The system-wide evaluation examined the impact on *all* patients and addressed the question of whether patients not offered choice were disadvantaged or benefited from introduction of the choice regime. There were two phases to the analysis of system-wide impacts: (1) Establishment of a baseline for GP and inpatient referrals, waiting times and activity before introduction of LPCP and monitoring of performance against baseline throughout the evaluation. The research team submitted five quarterly reports monitoring progress during the period of the evaluation. (2) Modelling of the responses of GPs and Trusts to the incentives generated by LPCP.
- 3.) An evaluation of the impact of a policy initiative like LPCP needs to examine the *difference* LPCP and its incentives made to underlying changes in choice, capacity, activity and waiting time. Waiting times were declining and activity increasing in London before LPCP went live. The research question is whether there were significant *changes* in these trends after introduction of LPCP. To identify the impact of the choice project it is not sufficient to simply compare trends before and after the introduction of choice and new capacity in London. During the period of LPCP, the Department of Health introduced many changes to waiting time targets, funding and capacity that affected the whole NHS, including London. To partly control for these non-choice effects, we use two crude control groups. Comparing changes in London to those

observed in all England excluding London is one way to attempt to separate national changes from those in the local London choice project. A more refined comparison is between developments in other English metropolitan areas and in London. Metropolitan areas not subject to the choice experiment should have more in common with London in terms of travel distances, concentration and case-mix. Using other metropolitan areas as a comparator group may better control for national changes in the NHS and allow a more robust estimate of any separate London choice effect on performance.

- 4.) LPCP created a system where choice could be offered to patients already on a waiting list for one of thirty-five procedures if the patient had few or no medical co-morbidities and was not in a planned programme of multiple operations. Only patients whose names were put forward by Trusts as potentially eligible could be offered choice by the LPCP. Trusts with problems meeting waiting time targets had an incentive to participate in the project. Some of their patients would be offered choice of going to another provider for faster treatment than could be expected at the home Trust. This should free capacity to treat long waits (greater than eight months). Trusts with excess capacity had an incentive to participate as they could earn additional income by agreeing to treat choice patients. Some London Trusts with relatively low waiting times did not participate. Patients on the waiting lists for the relevant procedures in these Trusts were not offered choice.

It was clear from the beginning of the evaluation that the relevant unit for analysis was the specialty and not the Trust as a whole. Some Trusts would export patients in orthopaedics and import patients in ophthalmology. Some Trusts would export patients in general surgery, but not participate for any other specialties. Our evaluation therefore focuses on specialties within Trusts rather than Trusts as a whole. For each specialty we analysed changes in activity and waiting times for three groups of Trusts within London, exporters, importers and non- participants and for two comparator groups of Trusts, those in the rest of England and those in other English metropolitan areas.

- 5.) Data used in our analysis is derived from the routine Department of Health quarterly returns on Trust referrals, activity and waiting times. We use a summary measure of mean waiting time for both inpatients and outpatients by specialty. Mean wait has the advantage of standardising for size, enabling comparison over time and summing inpatients and outpatients to give an indication of “total” mean wait. This Trust-level data has the advantage of enabling us to link information on activity and waiting time to other databases on Trust characteristics such as size and casemix. It also permits more rapid monitoring of performance. The disadvantage of using this data is that unlike Hospital Episode Statistics (HES), it is not possible to disaggregate below the specialty level to analyse performance on specific procedures. Data employed in this study is available in the Data Appendix to this Report (separately bound).
- 6.) Leading up to implementation of London choice, the Department of Health had invested in development of new capacity for surgical elective procedures in the form of Diagnostic and Treatment Centres (DTCs) now referred to as Treatment Centres (TCs). The new capacity in London was large: ophthalmology 14%, orthopaedics 25%, general surgery 13%. The capacity expansion was more than adequate to accommodate

increased activity from choice patients. The Trusts that acquired this new investment in TCs were among the Trusts with relatively low waiting times in London. In addition, LPCP offered financial incentives (cost per case) to all London Trusts to treat choice patients. The evidence suggests that financial incentives in the absence of prior investment in new capacity were relatively weak. Trusts that appeared price competitive, but had not received investment in new capacity, did not respond to the financial incentives of choice.

- 7.) To establish a baseline for LPCP we examined Trust activity and waiting times by specialty for seven years preceding introduction of choice and monitored the eighteen months of LPCP activity. The evidence indicated that for several years before choice there had been stable gaps in waiting times between Trusts within London. Some Trusts maintained consistently higher waiting times than others. During LPCP there was some reduction in these differences in waiting time within London. The most dramatic was for ophthalmology, the specialty with the largest difference in waiting times between London Trusts. By the end of the evaluation, the gap had been closed. In general surgery, the difference in waiting times between exporting and importing Trusts was also reduced but London Trusts not participating in choice provided even lower waiting times. For orthopaedics, the picture was similar but less pronounced. Again, Trusts not participating in the choice Project show the lowest waiting times.
- 8.) Waiting times had been falling in England before the introduction of LPCP. It was important to test whether the reduction in waiting times in London were statistically different from those observed elsewhere. We employed an econometric technique referred to as a difference in difference (DID) model. DID enables us to compare the change in waiting times for groups of London Trusts before and after LPCP with changes in waiting times in a comparator group. Two comparator groups were used, Trusts in the rest of England and Trusts in other English metropolitan areas.

The results differed by specialty. For London Trusts in ophthalmology there was a marginally statistically significant reduction in waiting times relative to other English conurbations and the rest of England. Within London the group of Trusts exporting patients significantly reduced waiting times relative to both comparator groups by approximately 3 weeks in the first year of LPCP. Of particular importance is the result that the reduction in waiting time at importing Trusts was not significantly different from the comparator groups. If the gain to patients at originating Trusts had been at the expense of longer waiting times for patients at receiving Trusts, there would have been concern with the equity of the choice regime. For London Trusts in orthopaedics, there was a statistically significant reduction in London waiting times of approximately 1 week relative to both comparator groups in the first year of LPCP. As with ophthalmology, originators significantly reduced waiting times by around 1 week relative to comparator groups and there was no statistically significant difference in waiting times at recipient or other London Trusts relative to comparators. Gains to patients at originating Trusts do not appear to have been at the expense of patients at receiving Trusts.

In general surgery there was no significant difference between London and the comparator groups of Trusts. Improvement at originating Trusts was not statistically significant relative to comparators. While waiting times fell at recipient Trusts, waiting times fell significantly faster in comparator groups. One factor that may be relevant to our results for general surgery is that choice procedures in that specialty account for a relatively small proportion of activity within the specialty. Hospital Episode Statistics (HES) for 2002/03 indicate that for our groups of London and comparator Trusts, LPCP procedures in ophthalmology may account for between 61 and 73 percent of activity in the specialty while for general surgery LPCP procedures only account for 21 to 27 percent of specialty activity. The low frequency of choice procedures in general surgery is due to the dominance of procedures considered clinically unsuitable for choice. This specialty includes many cancer related procedures and patients with chronic conditions where separating medical and surgical treatment may increase patient risk. In order to identify the impact of choice in this specialty it may be necessary to examine changes in waiting time at the choice procedure level. Results of the statistical analysis are summarised in this Report and full details are available in the Technical Appendix (bound separately).

- 9.) It was possible that the introduction of a choice regime would alter the behaviour of GPs and consultants in terms of their propensity to refer patients for treatment. If referral rates increased significantly, this could undermine any success of choice in contributing to reduced waiting times. Previous research indicates that referral rates are responsive to changes in waiting time. This can reflect two factors. First, as NHS waiting times fall, fewer patients seek private treatment and are referred to the NHS. Second, clinicians may reduce treatment thresholds referring and admitting less clinically severe cases.

To investigate the impact of choice on clinician referral behaviour we estimated demand functions for both outpatient and inpatient treatment. Data covered the period 1995 to March 2004. Interest was focused on whether there was a significant difference in the response of referrals to changing waiting times during the period of London choice. As in other parts of this evaluation, results differed by specialty. For ophthalmology there was no LPCP effect, suggesting consultant decision to admit behaviour has not changed significantly in London relative to the rest of England with the introduction of choice. The estimated elasticity of GP referrals to change in waiting time is low. A 1% reduction in waiting time is associated with a 0.07% increase in referrals. For consultant decisions to admit, a 1% reduction in waiting time is associated with a 0.18% increase in additions to the waiting list. For orthopaedics there was no LPCP effect for GP referrals. A 1% reduction in waiting time was associated with a 0.16% increase in referrals. The estimated elasticity for consultant decisions to admit in orthopaedics shows a 1% reduction in waiting time is associated with a 0.2% increase in additions to the waiting list. In this case there is an LPCP effect but, surprisingly, it is negative. It appears that under choice consultants reduced the rate at which they referred patients for treatment as waiting times fell. In general surgery the estimated response of GPs shows a 1% reduction in waiting time is associated with a 0.05% increase in referrals. However there is a significant, negative, LPCP effect indicating that GP referrals fell relative to what would be expected given the change in waiting times. There was no LPCP effect on consultant decisions to admit. A 1% reduction in waiting time was associated with a 0.2% increase in decisions to add patients to the waiting list.

The results of this analysis were encouraging. The estimated responses of clinicians to reduced waiting times are relatively low. The impact of introducing choice is interesting. In most cases there was no change in behaviour but in two areas, GP referrals in general surgery and consultant decisions to admit in orthopaedics the effect was negative - a decline in expected referrals. It is important to note that our data only covers 12-18 months of choice activity. It may well be that a longer period of analysis is required to capture changes in clinician behaviour.

10.) Our evaluation of system-wide impacts suggests that the LPCP regime was successful in generating convergence within London. It is important to note that the package of measures leading to this result included more than the introduction of choice. LPCP was associated with two important changes to the London health care market. First, for choice procedures, it introduced in effect a single purchaser in place of decentralised local purchasing. It identified patients in Trusts where there were long waits and facilitated their transfer to Trusts with shorter waits. Second, LPCP coincided with bringing on a stream of considerable DH investment in new capacity for elective surgery, the TC programme. This new capacity was located at Trusts with relatively short waits. If the new capacity had gone into Trusts with long waits, the gap in waiting times within London might have been reduced or closed without introducing choice. However, given the location of the new capacity and the previous failure of the market to respond to differences in London wide waiting times and costs, a central purchaser was probably key to making effective use of this new capacity.

Equity within London was improved. Convergence was achieved not by raising waiting times at recipient trusts and reducing them at originators but by bringing down waiting times at originating Trusts to the level of recipients. Our statistical analysis suggests that recipient and non-participating Trusts continued to reduce waiting times in line with the rest of England and other urban conurbations. The reduction in waiting times at originating Trusts was statistically significant relative to both the rest of England and other conurbations. The statistical evidence is weak on whether London as a whole, employing a choice regime, reduced waiting times relative to the comparator groups. However, the impact on convergence is clear.

There were important reductions in the variation in mean waiting times in London in all three specialties. This in itself can be considered an important improvement in the system since it provides greater equity of access across Trusts in terms of waiting times, reducing the apparent “post-code lottery” for London patients. The reduction in waiting times along with the reduction in variation are two distinct and important trends in London waiting times.

A concern with the introduction of choice had been that patients not offered choice would be disadvantaged relative to those that exercised choice. At one level our research suggests this did not happen. We monitored changes in waiting times for *all* patients, not just those exercising choice. The statistically significant fall in waiting times at originators related to all patients on the Trust waiting lists. Interviews conducted by

Royal Holloway as part of the LPCP evaluation recorded comments by some clinicians that waiting time targets in general and choice in particular were unfair and some patients would be treated faster than others who should have priority on clinical grounds. We have not examined the equity of using waiting time targets or in this case of targeting particular procedures. However the evidence presented in this report suggests little support for the view that Trusts treating choice patients needed to make their own patients wait longer. Of the capacity booked and paid for by LPCP, 34% was excess to choice need and was used by recipients to treat their own local patients, over and above the activity contracted by local purchasers.

Our conclusion that LPCP contributed to improving equity of access in London will not necessarily hold with the national roll out of choice. The favourable outcome in London was strongly influenced by the financial incentives of the system which will not apply in future. Under LPCP there was a financial benefit for recipient Trusts that used capacity to treat more of their own patients. Under the more restrictive financial incentives applying in 2004/05 in London and to be applied throughout the country, tensions may arise between treating choice and local patients. It is important that activity under the new financial regime be monitored.

## **1. Introduction**

### **1.1. Background to the evaluation**

Two objectives at the fore of the NHS policy agenda are to develop systems for increasing patient choice and to find mechanisms that will increase effective capacity for treatment of NHS patients on waiting lists. The London Patient Choice Project (LPCP) was one of several initiatives in England to introduce elements of choice and to expand capacity.

The government had set a target of a maximum inpatient waiting time of 15 months by March 2002 and of twelve months by March 2003. Against this national background, LPCP developed systems to enable patients, registered with a London GP and who were approaching six months on the waiting list with a London NHS Trust, to be offered a degree of choice over when and where they received treatment. Patients who accepted choice of another hospital would be treated earlier than if they remained with their existing hospital and earlier than the government target waiting time. The first specialty covered by the Project was ophthalmology and went live in October 2002. The Project was extended to orthopaedics, ENT and general surgery during April 2003 and to other specialties later in 2003. The initial plan was to offer choice to 50,000 London patients in a full year. By June 2004, 22,500 patients had been offered choice and 15,000 had accepted treatment at another hospital. LPCP was formally ended in March 2004 but work continues until March 2005 supporting choice, now the responsibility of London PCTs.

LPCP had four overall objectives:

1. To develop the necessary capacity to treat the number of patients expected to exercise Choice;
2. To develop a working patient Choice system;
3. To learn how to improve the design of the system and feed lessons into future London and national programmes; and
4. To improve patient waiting times and satisfaction.

From the beginning of the Project, it was decided there should be an independent evaluation of performance against objectives. The evaluation focused on three areas, the patient experience (Picker Institute Europe), organisational change (Royal Holloway) and system wide impacts (University of York). In addition, a discrete choice experiment was conducted (King's Fund/RAND Europe) to examine patient attitudes toward different elements of choice. The research teams co-ordinated their work and selected three tracer specialties that were used for in depth analysis.



The tracer specialties are ophthalmology, orthopaedics and general surgery<sup>1</sup>. The objective of working with a common set of tracer specialties was to permit data from the three research groups to be pooled in evaluation of the overall performance of the LPCP. By the end of the evaluation, 80% of patients exercising choice were included within the three tracer specialties. The evaluation was carried out between December 2002 and August 2004.

## 1.2. Evaluation of system-wide impacts

This report presents results of the analysis of system-wide impacts. The research brief identified the key question for this part of the evaluation as: “What are the intended and unintended consequences of implementation of the project?”. Areas for potential consideration included:

- Activity
- Waiting (numbers and time)
- Equity
- Demand (including referral rates from primary care)
- Prices

The distinction between intended and unintended consequences is important. An *intended* impact of the Project was to successfully target patients at Trusts with long waiting times and facilitate their transfer to other Trusts where treatment could be obtained earlier. An *unintended* effect could be that Trusts attracted by the financial incentives to accept these patients made the patients for whom they were usually responsible wait longer for treatment. If this occurred, there could be serious questions about the equity of the project. In general we want to know whether the opportunity given to a few patients to exercise choice had adverse effects on the majority of patients without choice of provider. Another example of an *intended* impact of the project was to reduce waiting times for patients in London. If, in response to choice and lower waiting times, GPs and consultants increase their referral rates, this *unintended* effect could undermine achievement of the waiting time objective.

There were two phases to the analysis of system-wide impacts:

1. Establishment of a baseline for GP and inpatient referrals, waiting times and activity before introduction of LPCP and monitoring of performance against baseline throughout the evaluation. The research team submitted five quarterly reports monitoring progress during the period of the evaluation.
2. Modelling of the responses of GPs and Trusts to the incentives generated by LPCP.

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<sup>1</sup> At the start of the evaluation four tracer specialties were selected for analysis. However, as the project developed, the fourth specialty, gynaecology started so late and had so few patients that it was dropped from the group of tracer specialties.

An evaluation of the impact of a policy initiative like LPCP needs to examine the *difference* LPCP and its incentives made to underlying changes in choice, capacity, activity and waiting time. Waiting times were declining and activity increasing in London before LPCP went live. The research question is whether there were significant *changes* in these trends after introduction of LPCP.

To identify the impact of the choice project it is not sufficient to simply compare trends before and after the introduction of choice and new capacity in London. During the period of LPCP, the Department of Health introduced many changes to waiting time targets, funding and capacity that affected the whole NHS, including London. To partly control for these non-choice effects, we use the “Rest of England” as a crude control group. For the key questions of LPCP impact on waiting times, activity and referrals we ask if there are significant differences between changes in London *relative to* the rest of England.<sup>2</sup>

Table 1.1 gives the total number of patients offered choice and the proportion who accepted the offer of another provider. It is important to note that choice was not offered to all patients on the waiting list. PCTs and Trusts were responsible for ensuring patients did not wait longer than government waiting time targets. LPCP targeted patients likely to wait between 3 and 9 months and offered treatment within 6 months, earlier than could be expected under existing national targets. There are several ways of identifying the importance of LPCP activity in total London elective surgical activity. Table 1.1 gives two perspectives. Column 6 gives the patients who moved to another provider as a percent of all admissions in the relevant London specialties. This indicates the importance of patients changing provider relative to all elective surgical patients treated in London.

As discussed in Section 4 below, the contractual terms for hospitals accepting choice patients provided funding for some patients not offered choice of provider. This meant that the financial importance of participating in the choice project could be in excess of what might be expected from the number of choice patients treated. Column 7 gives the percent of activity funded by LPCP by specialty. The impact of LPCP on London waiting times must take account of the financial regime and not just numbers of choice patients. As in all economic analysis, it is the marginal impact on demand and supply that we expect to affect the behaviour of GPs and Trusts. The methods used in our evaluation of LPCP focus on changes at the margin of NHS activity.

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<sup>2</sup> In Section 6 we examine some other possible control groups to be used in isolating London choice effects from other changes occurring in the NHS.

**Table 1.1: LPCP activity, October 2002 - June 2004**

Specialty	Patients offered choice of another provider		Patients accepting choice of another provider		Patients treated at another provider as % of all London elective surgical activity in LPCP specialties	LPCP funded activity as a % of all London elective surgical activity in LPCP specialties
	Number	percent	Number	Acceptance rate	LPCP to date	2003/04
Ophthalmology	7560	33.7%	5418	72%	7.4%	13.7%
Orthopaedics	6154	27.4%	3901	63%	4.6%	6.5%
General Surgery	4240	18.9%	2563	60%	2.2%	4.3%
Adult ENT	2283	10.2%	1553	68%	na	na
Paediatric ENT	1238	5.5%	851	69%	na	na
Urology	908	4.0%	514	57%	na	na
Gynaecology	81	0.4%	33	41%	na	na
<b>TOTAL</b>	<b>22464</b>	<b>100%</b>	<b>14833</b>	<b>66%</b>	<b>2.8%</b>	<b>5.1%</b>

Source: LPCP and DH Trust returns KH06

It is important to keep in mind the distinction between a patient being offered choice of another provider and the decision to go to another hospital for treatment. In the LPCP scheme, a patient always had the right to choose to stay at their present hospital and wait for treatment. The patient who declines the offer of another provider is still exercising choice. When we discuss the incentives created for hospitals to change performance, the incentives to retain patients may be as strong as the incentives to attract patients willing to change provider. In our evaluation we attempt to identify the importance of some of these “retention” effects.

### 1.3. Structure of the report

Section 2 of this Report outlines the structure of LPCP and the basis for grouping Trusts for the evaluation. Section 3 describes the data available for measuring and monitoring performance. Section 4 examines capacity development and the financial incentives for participating in choice. Section 5 sets out the baseline for the evaluation and reports recent trends for three tracer specialities where London patients are offered choice. Section 6 summarises the results of our statistical analysis of the impact of LPCP on waiting times. The full results of this modelling work are available in a separate Technical Appendix. Section 7 presents the results of our analysis of the impact of choice on clinician referral rates. Section 8 provides a summary of our conclusions. A Data Appendix is available with the data used in the evaluation of system-wide impacts.

## **2. Trust groupings for analysis**

The LPCP developed an approach to quality assurance that relied on the “Buddying” principle.

If patients on the inpatient waiting list of a London Trust are to be offered choice of an alternative provider, the Trust (the “originating Trust”) must agree to co-operate with the scheme and is “buddied” with two other providers (“receiving Trusts”). An eligible patient is then offered choice of remaining with the originating Trust or of obtaining more rapid treatment at either of the two named receiving Trusts. The objective of the system is to ensure agreement on patient care pathways, efficient transfer of medical records and post-operative continuing care. This system means that, for each specialty, Trusts in London can be divided into four groups:

- originating Trusts;
- receiving Trusts;
- non-participating Trusts; and
- Trusts not relevant to the inpatient specialty for which choice is being offered (the Trusts that undertook little or no inpatient activity for the specialty concerned in the quarter ending 30 September 2002)

The Trusts included in each group vary by speciality. We examine trends in referrals, waits and activity for each of the first three groups of Trusts within London.

Given the amount and complexity of change throughout the NHS, an important function of the quarterly updates was to help to identify whether trends within London differed from those observed in the rest of England. We therefore divide all English NHS Trusts into one of two groups:

- those in London (and potentially subject to the LPCP)
- those outside London.

This division allowed us to examine whether recent historical trends in London were similar to those elsewhere in the country and whether developments that occurred within London during the Project were peculiar to London, and thus potentially attributable to the LPCP, or whether they were part of a national trend that is occurring throughout the country.

Table 2.1 lists 32 London region NHS hospital Trusts covered by the LPCP. There are no mental health Trusts in this list as the LPCP relates only to

acute specialties. Because several of the current London region Trusts are the result of mergers, the parties to each merger were identified so that their quarterly returns (submitted before any merger took place) could be included in the historical analysis of recent trends in referral and activity patterns.

**Table 2.1: London region NHS Trusts within the study area**

NHS Trusts	Date opened	Component Trusts
Royal Free Hampstead Hospital (RAL)	01/04/1996	Royal Free (RAL), Royal National Ear, Nose and Throat (RAM)
Royal National Orthopaedic Hospital (RAN)	01/04/1991	
North Middlesex Hospital NHS Trust (RAP)	01/04/1991	
Hillingdon Hospital NHS Trust (RAS)	01/04/1991	
Kingston Hospital NHS Trust (RAX)	01/04/1991	
Ealing Hospital NHS Trust (RC3)	01/04/1992	
Barking, Havering & Redbridge (RF4)	01/04/2001	Redbridge Healthcare (RG4), Havering Hospitals (RG7)
West Middlesex NHS Trust (RFW)	01/04/1993	
Queen Elizabeth Hospital NHS Trust (RG2)	01/04/1993	
Bromley Hospitals NHS Trust (RG3)	01/04/1993	
Whipps Cross NHS Trust (RGC)	01/04/2001	Forest Healthcare (RDF)
Queen Mary's Sidcup NHS Trust (RGZ)	01/04/1993	
Guys and St Thomas' NHS Trust (RJ1)	01/04/1993	
Lewisham Hospital NHS Trust (RJ2)	01/04/1993	
St Mary's NHS Trust (RJ5)	01/04/1993	
Mayday Healthcare NHS Trust (RJ6)	01/04/1993	
St George's Healthcare NHS Trust (RJ7)	01/04/1993	
King's College NHS Trust (RJZ)	01/04/1993	
Whittington Hospital NHS Trust (RKE)	01/04/1993	
Newham Healthcare NHS Trust (RNH)	01/04/1994	
Barts and the London NHS Trust (RNJ)	01/04/1994	
Great Ormond Street Hospital (RP4)	01/04/1999	
Moorfields Eye Hospital (RP6)	01/04/1994	
Royal Marsden NHS Trust (RPY)	01/04/1994	
Chelsea and Westminster NHS Trust (RQM)	01/04/1994	
Hammersmith Hospitals NHS Trusts (RQN)	01/04/1994	
Homerton Hospital NHS Trust (RQX)	01/04/1995	
University College London Hospitals (RRV)	01/04/1996	University College London Hospital (RQP), National Hospital for Neurology (T02), The Eastman Dental Hospital (T09)
Royal Brompton Harefield NHS Trust (RT3)	01/04/1998	Royal Brompton (RPX), Harefield Hospital NHS Trust (RC5)
North West London Hospitals Trusts (RV8)	01/04/1999	Central Middlesex (RAU), Northwick Park (RFZ)
Barnett and Chase Farm NHS Trust (RVL)	01/04/1999	Wellhouse NHS Trust (RDC), Chase Farm NHS Trust (RG9)
Epsom and St Helier NHS Trust (RVR)	01/04/1999	Epsom (RA1), St Helier (RAZ)

Within London, for each specialty, the 32 NHS hospital Trusts were divided into one of four groups:

- receiving Trusts (those treating LPCP patients who choose another provider)
- originating Trusts (those losing LPCP patients from their waiting list)
- ‘other’ London trusts (those doing work in the relevant specialty but not participating in LPCP)
- ‘excluded’ London Trusts (those reporting zero or very little inpatient activity in the specialty for the quarter ending 31 March 2002)

This division enables us to compare trends in referral and activity patterns both before and after the introduction of the LPCP. This four-way division was undertaken separately for each specialty because the sets of recipient and originating Trusts differ by specialty. During the Project a number of Trusts switched between groups. We explore these switchers and possible reasons for this in Section 5. We revised our baseline statistics to reflect the division of Trusts between the originators, recipients, and other groups as at March 2004.

During the period of the evaluation there was only one private sector participant in the choice project. This company supplied activity for ENT patients. All activity in the tracer specialties (80% of choice patients) was undertaken by NHS Trusts and therefore our baseline and monitoring statistics are inclusive of all providers.

In this report we focus on three individual specialties - general surgery, orthopaedics, and ophthalmology - and two aggregate specialties, one comprising all specialties within the remit of the LPCP - general surgery, urology, orthopaedics, ENT, ophthalmology, dental surgery, plastic surgery, and gynaecology - and the second comprising all non-LPCP specialties. This non-LPCP specialty grouping largely comprises medical specialties (more precisely, it comprises HES specialty codes 150, 170 – 499). The construction of these two aggregate groupings was undertaken to examine whether LPC has any unintended effects on those specialties outside the Project’s remit. Only NHS Trusts are included in the aggregate groups of providers.

## **2.1. London Trust groupings by specialty**

For ophthalmology, there are four recipient Trusts:

- Moorfield’s St Ann’s Eye Hospital (RP6)
- St Mary’s (Western Eye) NHS Trust (RJ5)
- Mayday (RJ6)

- Guy’s and St Thomas’ (RJ1)

There are 12 originating Trusts and these are listed in Table 2.2.

**Table 2.2: Originating NHS Trusts for ophthalmology**

Originating Trusts	Date opened	Component Trusts
Barking, Havering & Redbridge (RF4)	01/04/2001	Redbridge Healthcare (RG4), Havering Hospitals (RG7)
Whipps Cross NHS Trust (RGC)	01/04/2001	Forest Healthcare (RDF)
North Middlesex NHS Trust (RAP)	01/04/1991	
Queen Mary’s Sidcup NHS Trust (RGZ)	01/04/1993	
Epsom and St Helier NHS Trust (RVR)	01/04/1999	Epsom (RA1), St Helier (RAZ)
Bromley Hospitals NHS Trust (RG3)	01/04/1993	
Kingston Hospital NHS Trust (RAX)	01/04/1991	
Barts and the London NHS Trust (RNJ)	01/04/1994	
St Georges (RJ7)	01/04/1993	
King’s College Hospital (RJZ)	01/04/1993	
Hillingdon Hospital NHS Trust (RAG)	01/04/1991	
Barnet and Chase Farm NHS Trust (RVL)	01/04/1999	

It should be noted that St George’s (RJ7) strictly falls into the ‘excluded’ London group according to the definitions we have adopted for the groups, since St George’s ophthalmology waiting lists were transferred to Moorfields (RP6) before the start of LPCP and hence it reports no inpatient activity in the specialty. However, historically, it was intended to be an originator and hence its historical waiting list profile would best be counted in the originators group for the purposes of the baseline. In effect, since it has no present ophthalmology activity, its remaining in the originators group should have no effect on the data for the group.



For orthopaedics, there are five recipient Trusts:

- Royal National Orthopaedic Hospital (RAN)
- Hammersmith Hospital (RQN)
- King’s College NHS Trust (RJZ)
- University College London Hospitals (RRV)
- Bromley Hospitals NHS Trust (RG3)

There are 20 originating Trusts for orthopaedics and these are listed in Table 2.3.

**Table 2.3: Originating NHS Trusts for orthopaedics**

Originating Trusts	Date opened	Component Trusts
Barnett and Chase Farm NHS Trust (RVL)	01/04/1999	Wellhouse NHS Trust (RDC), Chase Farm NHS Trust (RG9)
Whipps Cross NHS Trust (RGC)	01/04/2001	Forest Healthcare (RDF)
Royal Free Hampstead Hospital (RAL)	01/04/1996	Royal Free (RAL), Royal National Ear, Nose and Throat (RAM)
Whittington Hospital NHS Trust (RKE)	01/04/1993	
Barking, Havering & Redbridge (RF4)	01/04/2001	Redbridge Healthcare (RG4), Havering Hospitals (RG7)
Barts and the London NHS Trust (RNJ)	01/04/1994	
Newham Healthcare NHS Trust (RNH)	01/04/1994	
Ealing Hospital NHS Trust (RC3)	01/04/1992	
North West London Hospitals Trusts (RV8)	01/04/1999	Central Middlesex (RAU), Northwick Park (RFZ)
Hillingdon Hospital NHS Trust (RAS)	01/04/1991	
St Mary’s NHS Trust (RJ5)	01/04/1993	
West Middlesex NHS Trust (RFW)	01/04/1993	
Epsom and St Helier NHS Trust (RVR)	01/04/1999	Epsom (RA1), St Helier (RAZ)
Kingston Hospital NHS Trust (RAX)	01/04/1991	
Mayday Healthcare NHS Trust (RJ6)	01/04/1993	
St George’s Healthcare NHS Trust (RJ7)	01/04/1993	
Guys and St Thomas’ NHS Trust (RJ1)	01/04/1993	
Queen Mary’s Sidcup NHS Trust (RGZ)	01/04/1993	
Queen Elizabeth Hospital NHS Trust (RG2)	01/04/1993	
Lewisham Hospital NHS Trust (RJ2)	01/04/1993	

There are changes to general surgery. For general surgery, there are four receiving Trusts:

- North West London Hospitals (RV8)
- University College London Hospitals (RRV)
- Lewisham Hospital (RJ2)
- Bromley Hospitals NHS Trust (RG3)

The 19 originating Trusts are listed in Table 2.4.

**Table 2.4: Originating NHS Trusts for general surgery**

Originating Trusts	Date opened	Component Trusts
Barnett and Chase Farm NHS Trust (RVL)	01/04/1999	Wellhouse NHS Trust (RDC), Chase Farm NHS Trust (RG9)
Whipps Cross NHS Trust (RGC)	01/04/2001	Forest Healthcare (RDF)
Barking, Havering & Redbridge (RF4)	01/04/2001	Redbridge Healthcare (RG4), Havering Hospitals (RG7)
Barts and the London NHS Trust (RNJ)	01/04/1994	
Newham Healthcare NHS Trust (RNH)	01/04/1994	
Ealing Hospital NHS Trust (RC3)	01/04/1992	
Hammersmith Hospitals NHS Trusts (RQN)	01/04/1994	
Hillingdon Hospital NHS Trust (RAS)	01/04/1991	
St Mary's NHS Trust (RJ5)	01/04/1993	
West Middlesex NHS Trust (RFW)	01/04/1993	
Epsom and St Helier NHS Trust (RVR)	01/04/1999	Epsom (RA1), St Helier (RAZ)
Kingston Hospital NHS Trust (RAX)	01/04/1991	
Mayday Healthcare NHS Trust (RJ6)	01/04/1993	
St George's Healthcare NHS Trust (RJ7)	01/04/1993	
Guys and St Thomas' NHS Trust (RJ1)	01/04/1993	
Queen Mary's Sidcup NHS Trust (RGZ)	01/04/1993	
Chelsea and Westminster NHS Trust (RQM)	01/04/1994	
Queen Elizabeth NHS Trust (RG2)	01/04/1993	
King's College NHS Trust (RJZ)	01/04/1993	

For the purposes of the analysis of the 'all LPCP specialties' group, a recipient Trust was defined as one that was a recipient in any one of the three individual specialties analysed above (general surgery, orthopaedics, and ophthalmology). Of the remaining Trusts, any hospital that was an originating Trust in at least one specialty was defined as an originating Trust. Consequently, only those Trusts that were neither recipients nor originators were included in the 'other' London Trusts group. The groupings for the all non-LPCP specialties are the same as for all LPCP

specialties.

## **2.2. Trust status during the evaluation**

Table 2.5 shows all Trusts in the LPC Project and whether or not they have changed groups during the period. This classification (originator / recipient / other) is based on the nature of the Trust's participation in LPCP and whether the Trust reported some non-trivial level of inpatient activity in the specialty concerned in the quarter ending March 2004.

**Table 2.5: NHS Trusts and their groupings over time within the LPCP**

NHS Trusts	Ophthalmology					Orthopaedics					General surgery					All LPC and non-LPC specialties				
	March 2003	June 2003	Sept 2003	March 2004*	June 2004	March 2003	June 2003	Sept 2003	Dec 2003	June 2004	March 2003	June 2003	Sept 2003	Dec 2003	June 2004	March 2003	June 2003	Sept 2003	Dec 2003	June 2004
Royal Free Hampstead Hospital (RAL)	OTH	OTH	OTH	OTH	OTH	O	O	O	O	O	OTH	OTH	OTH	OTH	OTH	O	O	O	O	O
Royal National Orthopaedic Hospital (RAN)	X	X	X	X	X	R	R	R	R	R	X	X	X	X	X	R	R	R	R	R
North Middlesex Hospital NHS Trust (RAP)	O	O	O	O	O	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	O	O	O	O	O
Hillingdon Hospital NHS Trust (RAS)	O	OTH	OTH	OTH	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Kingston Hospital NHS Trust (RAX)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Ealing Hospital NHS Trust (RC3)	X	X	X	X	X	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Barking, Havering & Redbridge (RF4)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
West Middlesex NHS Trust (RFW)	X	X	X	X	X	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Queen Elizabeth Hospital NHS Trust (RG2)	X	X	X	X	X	O	O	O	O	O	O	OTH	OTH	OTH	O	O	O	O	O	O
Bromley Hospitals NHS Trust (RG3)	O	O	O	O	O	O	O	O	O	R	O	O	O	O	R	O	O	O	O	R
Whipps Cross NHS Trust (RGC)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Queen Mary's Sidcup NHS Trust (RGZ)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Guy's and St Thomas' NHS Trust (RJ1)	O	O	OTH	R	R	O	O	O	O	O	O	O	O	O	O	O	O	O	R	R
Lewisham Hospital NHS Trust (RJ2)	X	X	X	X	X	O	O	O	O	O	R	R	R	R	R	R	R	R	R	R
St Mary's NHS Trust (RJ5)	R	R	R	R	R	O	O	O	O	O	O	O	O	O	O	R	R	R	R	R
Mayday Healthcare NHS Trust (RJ6)	OTH	R	R	R	R	O	O	O	O	O	O	O	O	O	O	O	R	R	R	R
St George's Healthcare NHS Trust (RJ7)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
King's College NHS Trust (RJZ)	R	R	OTH	O	O	R	R	R	R	R	R	R	R	R	O	R	R	R	R	R
Whittington Hospital NHS Trust (RKE)	X	X	X	X	X	O	O	O	O	O	OTH	OTH	OTH	OTH	OTH	O	O	O	O	O
Newham Healthcare NHS Trust (RNH)	X	X	X	X	X	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Barts and the London NHS Trust (RNJ)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Great Ormond Street Hospital (RP4)	X	X	X	X	X	OTH	OTH	OTH	OTH	OTH	X	X	X	X	X	OTH	OTH	OTH	OTH	OTH
Moorfields Eye Hospital (RP6)	R	R	R	R	R	X	X	X	X	X	X	X	X	X	X	R	R	R	R	R
Royal Marsden NHS Trust (RPY)	X	X	X	X	X	X	X	X	X	X	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH
Chelsea and Westminster NHS Trust (RQM)	O	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	O	OTH	OTH	OTH	OTH	O
Hammersmith Hospitals NHS Trusts (RQN)	O	OTH	OTH	OTH	OTH	R	R	R	R	R	O	O	O	O	O	R	R	R	R	R
Homerton Hospital NHS Trust (RQX)	X	X	X	X	X	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH
University College London Hospitals (RRV)	O	OTH	OTH	OTH	OTH	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Royal Brompton Harefield NHS Trust (RT3)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
North West London Hospitals Trusts (RV8)	O	OTH	OTH	OTH	OTH	O	O	O	O	O	R	R	R	R	R	R	R	R	R	R
Barnett and Chase Farm NHS Trust (RVL)	X	X	X	X	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Epsom and St Helier NHS Trust (RVR)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O

Note: O = Originating, R = Recipient, OTH = Other, X = not relevant

\*Trust status remained the same for December 2003 and March 2004.

### 3. Data

The LPCP is focused on inpatient waits but there are two important reasons for including waits for outpatient appointments. First, a concentration on reducing inpatient waiting time can have the consequence of increasing waits for outpatient appointments. One of the objectives of the system wide evaluation is to identify changes in behaviour that may be an unintended consequence of policy. Second, for the patient, it is the total wait that is important - the time from referral by a GP to completed treatment. Future development of patient choice is intended to begin at the point of GP referral. We therefore report trends on both waits for outpatient first appointments and waits for inpatient treatment.<sup>3</sup>

Aggregate information about referrals, activity levels, and waiting times is available from the quarterly returns submitted by NHS Trusts (KH06, KH07, QM08). Two of the returns relate to inpatient admissions (KH06 and KH07) while the other concerns outpatient attendances (QM08).

#### 3.1. Inpatients

Consider first the KH07 return submitted quarterly by providers of hospital services in NHS Trusts. In addition to emergency and maternity admissions, this return excludes the following patients:

- patients where the date of admission is determined mainly on social or clinical grounds (planned admissions);
- non consultant-led treatments (e.g., for physiotherapy; speech therapy, and counselling); and
- patients temporarily suspended from waiting lists for personal reasons or because they are not medically ready for treatment.

The KH07 return provides both waiting list and some waiting time information. No information is available on how long those admitted actually waited. However, figures are reported for the total number of patients awaiting inpatient admission as at the last day of the quarter together with a breakdown of how many of these patients have been waiting:

- less than three months;
- between three and six months;
- between six and nine months;

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<sup>3</sup> An important limitation of the data is that no information is available on the length of wait for second or subsequent outpatient appointments. If after the first outpatient appointment the consultant wants additional diagnostic tests before a decision to refer as an inpatient, the patient's total wait will be longer than the total waits we report.

- between nine and twelve months;
- between 12 and 15 months;
- between 15 and 18 months;
- between 18 and 21 months;
- between 21 and 24 months; and
- over 24 months.

Figures are available by specialty, by NHS Region and by NHS Trust. A distinction is also drawn between ordinary and day case admissions.

The KH06 return provides supplementary information about the evolution of the waiting list during the quarter including:

- the number of admissions from the waiting list
- the number of cases where a decision to admit has been made (additions to the waiting list)
- the number of patients who failed to attend for their inpatient admission
- the number of removals from the waiting list (e.g., because the patient was admitted as an emergency or died while on the waiting list)
- the number of self-deferrals (patients who have been offered an admission date but who are unable to attend for social reasons). These patients have their waiting time calculated from the most recent date offered.
- the number of suspensions from the list (patients who are not medically ready for treatment).

Again, figures are available by specialty, by NHS Region, by NHS Trust, and also distinguish between ordinary and day case admissions. Both of the data sets (based on the KH06 and KH07 returns) are available electronically from the Department of Health's website <http://www.doh.gov.uk/waitingtimes/>.

### **3.2. Outpatients**

In addition to this inpatient information, similar outpatient data is available from the QM08 return submitted by NHS Trusts. This gathers data on:

- the number of written referrals received from GPs during the quarter;
- the number of other referral requests received (including those from A&E departments, a consultant in a department other than A&E, and a prosthetist);

- the number of GP written referrals seen who had waited:
  - less than 4 weeks
  - between 4 and less than 13 weeks
  - between 13 and less than 26 weeks<sup>4</sup>
  - more than 26 weeks
- the number of patients with a written referral from a GP who had not yet attended for a first appointment and who had been waiting:
  - between 13 and 26 weeks<sup>5</sup>; and
  - over 26 weeks.

Figures are available by specialty, by NHS Region and by NHS Trust and, again, these data are downloadable from the Department of Health's website <http://www.doh.gov.uk/waitingtimes/>.

This outpatient waiting time data is more extensive than that available for inpatients in that data is available for both those that have been treated and those awaiting treatment.

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<sup>4</sup> Since 2002:Q1 the 13-26 weeks category has been split into three divisions: 13 - 17 weeks, 17-21 weeks, and 21-26 weeks.

<sup>5</sup> Since 2002:Q1 the 13-26 weeks category has been split into three divisions: 13 - 17 weeks, 17-21 weeks, and 21-26 weeks.

## 4. Capacity development and financial incentives

One objective of LPCP was to see that sufficient capacity was available to ensure a genuine choice for patients. If a patient was to be given a choice of two other providers, capacity at these providers must be available. Effective capacity can be increased in basically three ways:

- Investment in new capacity
- Financial incentives that make it attractive for Trusts to increase activity with existing assets
- Non-financial incentives to increase numbers treated

### 4.1. Investment in new capacity

The National Plan announced the intention of the Department of Health to invest in new Diagnostic and Treatment Centres, now referred to as Treatment Centres (TCs). Capital and development costs in most cases were financed from central DH funds via the Directorates of Health and Social Care (now abolished)<sup>6</sup>. With the establishment of LPCP, part of the capital budget for the London region was transferred to LPCP to facilitate bringing the TCs on line in time to contribute to capacity growth for London choice.

Table 4.1 lists the London TCs functioning during the period of the evaluation. All of these facilities are NHS TCs. There is one private sector TC in London (BUPA) and other private sector “Independent Treatment Centres” are expected to come on stream in future. Each NHS TC is affiliated to a particular NHS Trust. The NHS does not have separate identifiers for TCs, all data on waiting times, activity and costs are pooled with that of the affiliated Trust. It is therefore not possible to monitor performance of TCs *per se* even in a case like Ravenscourt Park, a facility intended to serve a whole sector of London and not just the catchment area of Hammersmith Hospitals.

There are several ways to put this investment in new capacity into perspective. First, what was the impact on the London area as a whole? If we consider the planned capacity (“additional operations”) of the TCs as a percent of all London activity in the year preceding LPCP (October 2001-September 2002), the capacity increase for London is large:

- Ophthalmology 14%
- Orthopaedics 25%

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<sup>6</sup> There was some PFI involvement with ACAD.



- General Surgery 13%

Not all “planned capacity” came on line at the time the TC was opened, however, a sufficient proportion of the new capacity was available from the beginning to more than accommodate the expected demand from London choice patients. Table 4.3 gives the amount of capacity LPCP contracted from these new TCs during the period of the evaluation.

Another way to see the scale of investment in new TC capacity is presented in the final column of Table 4.1. For each Trust we estimate the new TC capacity as a percent of activity in the Trust during the year preceding opening of the TC. In most cases the new TC can accommodate a substantial increase in Trust activity. In the context of evaluating LPCP, it is worth noting the location of this new capacity. The new investment was not made in the London Trusts with long waiting times. The Trusts that acquired the new investment in TCs were among the Trusts with relatively low waiting times in London. The baseline data reported in Section 5 shows that for years *before* the opening of a recent TC, these Trusts had a record of relatively low waiting times. The location of the new capacity will have had important implications for the scale of patient movement between Trusts in a choice regime.

**Table 4.1: New Capacity in London: NHS Treatment Centres**

NHS Treatment Centre (TC)	Trust	Date TC opened	Specialty	Planned capacity when fully operational (“additional operations”)	Estimated increase in Trust Capacity (planned TC capacity as a % of London Trust activity in the specialty in the year prior to the TC opening)
Central Middlesex (ACAD)	North West London Hospitals Trust (RV8)	July 1999	Surgicentre	5400	63%*
Kings College Hospital	Kings College Hospital NHS Trust (RJZ)	January 2002	Orthopaedics, General Surgery, Ophthalmology	Total: 3000 of which: 1300 700 1000	86% 26% 33%
University College London Hospital	University College London Hospital (RRV)	January 2002	Orthopaedics, General Surgery	Total: 3500 of which: 1200 2300	85% 124%
Ravenscourt Park	Hammersmith Hospitals NHS Trust (RQN)	July 2002	Orthopaedics	7000	448%
Moorfields Eye Hospital	Moorfields Eye Hospital (RP6)	September 2002	Ophthalmology	4800	47%
Bromley Hospitals	Bromley Hospitals NHS Trust (RG3)	November 2003	Orthopadeics General Surgery	Total: 2290 Of which: 1440 1550	50% 78%
SW London Orthopaedic	Epson & St Helier NHS Trust (RVR)	January 2004	Orthopaedics	2200	63%

\* For ACDC the capacity increase only relates to ENT and general surgery

Source: Department of Health and DH Trust returns KH06

## **4.2. Financial incentives**

At the start of LPCP the Project team contacted hospitals where their local knowledge suggested there might be interest and capacity to act as recipients of choice patients. Later letters were sent to all London Trusts and to private sector providers asking for indications of interest in supplying capacity for treatment of choice patients. The incentive to participate was the opportunity to attract income over and above that secured through local contracts (SLAs). If a Trust had capacity for more activity, but the Trust's purchasers lacked funding for more activity, the payments offered by LPCP would be a net increase in effective demand.

For the first six months of LPCP, the prices paid for treating patients who accepted an alternative provider were negotiated by LPCP with the Trust concerned. Published data on Reference Costs were elements in these negotiations. For 2003/04 LPCP was required to use the new National Tariff to pay providers for virtually all LPCP procedures. A National Tariff price reflects the national average of reported average total cost by HRG for all English Trusts. The willingness of a Trust to negotiate provision of extra activity at that price depends on the marginal cost of the Trust, not on its average total cost. For all Trusts, the marginal cost of additional activity would be below average total cost (reference costs) if they hold spare capacity. Some DH analysis of the marginal cost of additional activity associated with past waiting time initiatives suggested marginal cost could be greater than average cost because of the higher rates that were being paid to medical staff for extra activity or to the private sector when the work was subcontracted outside the NHS. It is not possible to guess whether a Trust has a financial incentive to compete for extra activity is the only available information is its reference cost relative to the National Tariff. The arrival of TCs has exacerbated this problem. Reference costs are calculated for each Trust as a whole, averaging across sites and hospitals within the Trust. It is not possible to identify from published sources differences between the cost of performing a procedure in a new TC and the same procedure in other parts of the Trust. It is likely that the cost of a procedure in a TC is below that for the Trust with which it is affiliated. In these cases there could be an incentive for the Trust to bid for the LPCP work even though the published Reference Costs for the procedures in the Trust are greater than the National Tariff.

We do not have data on the marginal costs of the hospitals invited to supply extra capacity for choice but the outcome of LPCP contracting suggests a clear pattern. For 2003/04, the first full year of choice in all specialties, capacity contracted at National Tariff was:

- 78.9% from NHS Treatment Centres
- 8.7% from NHS specialist hospitals
- 7.6% from other London NHS Trusts
- 4.8% from the Private sector (prices were slightly above National Tariff)

The evidence of LPCP contracting suggests that the financial incentives to take on additional choice activity were weak if the Trust had not received new investment for TC capacity.

Table 4.2 summarises information available on reference costs for our three groups of London Trusts. For illustrative purposes, the reference costs and National Tariff are given for one of the largest LPCP procedures in each tracer speciality. The reference costs are for 2002/03 and, with adjustment for inflation, will have been higher in 2003/04 when the National Tariff became the effective price. It was the cost information available to Trusts in 2002/03 that will have informed contract negotiations for 2003/04. There is no reason to believe the inflation uplift would affect the spread of costs observed in the Table. Annex A to this report gives the relevant reference costs for individual Trusts included in the LPCP groups of Trusts.

**Table 4.2: Activity weighted HRG costs for selected LPCP procedures, 2003**

Specialty & HRG procedure	HRG code	Tariff 2003/04	Recipient	Originating	Other
			(number of Trusts) Activity weighted HRG costs £ Range £		
<b>Ophthalmology</b>					
Phako cataract extraction with lens implant	B02	756	(4) 436 299-774	(10) 633 513-784	(6) 931 869-1125
<b>Orthopaedics</b>					
Hip replacement	H02	5033	(5) 5749 4870-6293	(20) 5345 3871-8368	(4) 6278 820*-7683
<b>General surgery</b>					
Varicose Veins	Q11	934	(4) 954 469-1198	(19) 1026 642-1549	(4) 1452 1258-1544

\* based on only 1 Finished Consultant Episode (FCE)  
Source: Reference Costs, 2003

For orthopaedics, all but one of the recipients with a TC had reference costs above the National Tariff and it may be inferred that they had both spare capacity and marginal cost below average total cost. Of the twenty originating Trusts, ten had reference costs below the National Tariff and

ten above. Trusts in this group with no new investment in capacity, even though reference costs suggested they might be price competitive, could not or did not respond to the financial incentives of choice. If the problem was a capacity constraint, marginal cost may have been above average cost. Of the four “non-participating” Trusts, two had reference costs below national Tariff and two above. These Trusts maintained lower waiting times than all other Trusts in London but did not have the investment in new capacity. It would appear that it is the prior investment in capacity rather than the financial incentive *per se* that is a critical factor in the willingness of a Trust to accept choice patients.

General surgery presents a similar picture to that of orthopaedics. Of our tracer specialties, ophthalmology is the exception. Only one recipient Trust had investment in a new TC but this Trust (Moorfields) undertook 74% of choice activity. Reference cost was considerably below the National Tariff. Virtually all originating Trusts also had reference costs below National Tariff but no new central investment in TC capacity.

On the basis of this limited evidence, it would appear that the financial incentive of extra income for treating extra choice patients is on its own weak. It is the prior investment in new capacity and the consequent need to fund that capacity that is the key incentive. Where that capacity is placed is an important determinant of patient flows under a choice regime.

It had been expected that to find the extra capacity required for choice it would be necessary to contract with the UK private sector and, for orthopaedics, overseas providers. However, with the exception of ENT, sufficient NHS capacity was found in London at competitive prices. An overseas provider was not included in the options for choice patients. The expectation that relatively few patients would choose an overseas provider when offered a London alternative, led to a decision not to place contracts with European hospitals for choice patients. As part of the LPCP contribution to the national waiting time initiative, three hundred London patients not participating in the choice programme were treated in Belgium.

### **4.3. Risk sharing**

Under a choice regime there will be uncertainty surrounding the number of patients who opt for choice of another provider and, when offered more than one hospital, uncertainty as to which they will choose. For LPCP there was the additional uncertainty of forecasting for a year in advance the number of patients expected to be waiting between 6-9 months. Contracts (SLAs) needed to be placed at the beginning of the financial year with receiving Trusts for a fixed number of patient treatments (slots). A condition of the contract was that receiving Trusts had to guarantee availability of these slots. This was an obvious corollary of the choice regime where patients were to have a guarantee that they would be treated at the Trust

and time of their choice. If a Trust was not able to deliver contracted slots, no payment would be received. The full financial risk of slots being unavailable or cancelled by the Trust fell on the Trust.<sup>7</sup>

If there were insufficient choice patients to use the contracted capacity at receiving Trusts, the Trust would be notified one working week in advance. The Trust could then use the slots to treat patients on its own waiting list. If the required procedure was on the list of LPCP procedures, LPCP would pay the full contracted price for the activity (backfill-choice in Table 4.3). These financial terms meant receiving Trusts with excess capacity could make additional progress reducing their own waiting times as well as treating choice patients. The contractual terms had the same effect as an increase in funding for local purchasers that enabled the Trust to use more of existing capacity for local treatment. This funding of backfill is an important part of the analysis of the impact of LPCP on waiting times (Section 5 below).

Where there was a shortfall of choice patients and the Trust did not fill the slots with other patients, LPCP paid 50% of the contracted price for the unused capacity. This risk sharing arrangement was intended to provide an incentive for Trusts to hold capacity available for choice but, when that capacity was not needed for choice patients, to seek out other patients who were waiting for treatment.

There is no risk sharing between purchaser and provider for the final year of London Choice, 2004/05. Under the rules of the new national financial flows regime, the purchaser (LPCP) will not be allowed to partly compensate the Trust for holding any unused capacity for elective activity (the 50% payment). In addition there will be no central funding for local patients treated in unused choice slots (backfill). If the Trust seeks to use slots unnecessary for choice patients to treat local patients, the full cost will fall on the relevant PCT and therefore will be subject to any activity limits in the local contract (SLA). For 2004/05 the full financial risk of lower than expected numbers of choice patients going to a particular provider at a particular time will be borne by the Trust. This represents a significant change in the incentive structure from the one that applied during the period of the evaluation. It could have important implications for the transfer of lessons from the evaluation of LPCP to the system that is being rolled out nationally.

It is not possible to examine the impact of the new risk sharing arrangements within the period of this evaluation. We would expect that the increased risk for Trusts in 2004/05 would reduce their willingness to hold capacity for choice patients. LPCP informed us that recipients had not withdrawn from the scheme, perhaps another indication of the excess capacity in TCs. Trusts have been more cautious in the capacity offered and the Project team indicated that Trusts are responding faster to any downward trends in choice bookings. Whether these changes result in more or less unused capacity in 2004/05 than in 2003/04 is an important issue for further examination. There is uncertainty about how much excess capacity

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<sup>7</sup> According to LPCP around 3% of contracted capacity was cancelled by Trusts or otherwise unavailable.

is necessary for a health care system that offers choice. The evidence obtained over the period of this evaluation was highly dependent on the risk-sharing in place up to March 2004. The impact of the new financial incentives should be investigated.

Table 4.3 shows the use made of capacity contracted by LPCP for 2003/04. Three points are significant:

1. For the five TCs with the bulk of contracted LPCP capacity, LPCP demand was a large proportion of their total demand, around one-third of activity in the specialties concerned and even higher for ACAD. These new TCs had capacity but had yet to attract demand from local purchasers. LPCP supplied critical effective demand.
2. Because the number of patients eligible, offered and opting for choice of another provider fell significantly below expectations, only 43% of contracted capacity was used by choice patients although the share varies significantly by hospital. 34% of contracted capacity was used by receiving Trusts to treat their own patients waiting for choice procedures. This considerably reduced the likelihood that patients on the waiting lists of receiving Trusts would be disadvantaged by the participation of the Trust in the choice project.
3. The utilisation rate measures the proportion of contracted capacity the receiving Trusts were able to use, either by treating choice patients or finding other patients to fill vacant slots. Again, the utilisation rate varies by Trust but in general around 25% of *available* capacity remained unused. This was in spite of the fact that Trusts had an incentive to offer this capacity to any PCT willing to purchase extra activity for patients on their waiting lists.

**Table 4.3: Capacity utilisation by LPCP, 2003/04**

Receiving Trusts	Choice patients	Backfill-choice procedures	Other backfill	Utilisation	Total capacity booked	% of Trust activity
North West London Hospitals Trust (ACAD)	2860	1048	0	78%	5022	83%
Moorfield's St Ann's Eye Hospital & St George's	1844	3127	29	101%	5000	32%
King's College Hospital NHS Trust	569	1416	31	76%	2704	26%
University College London Hospitals	1160	149	280	75%	2497	32%
Hammersmith Hospitals NHS Trust (Ravenscourt Park)	637	369	223	72%	2000	33%
Royal National Orthopaedic Hospital	364	288	2	65%	1000	15%
St Mary's Western Eye NHS Trust	433	225	14	73%	938	31%
Lewisham Hospital NHS Trust	65	93	86	132%	250	5%
HCA International	1065	0	0	100%	1065	na
Mayday	253	237	2	82%	600	18%
Epsom & St Helier NHS Trust	21	0	0	10%	220	na
West Middlesex NHS Trust	7	26	53	55%	250	na
Chelsea & Westminster NHS Trust	78	631	0	338%	210	na
Guys & St Thomas' Hospital NHS Trust	205	0	0	55%	373	10%
Bromley Hospitals NHS Trust	56	0	0	100%	56	1%
<b>TOTAL</b>	<b>9617</b>	<b>7609</b>	<b>720</b>	<b>84%</b>	<b>22185</b>	

Source: LPCP and DH Trust returns KH06

The scale of unused capacity raises a number of questions. Some of the interview evidence suggests one working week notice was too short for patients on the local waiting list to be brought in for treatment. It was also suggested that while considerable new capacity had been created in London, some PCTs had too little purchasing power for elective surgery to take advantage of the spare capacity. Most (except ACAD) of the new capacity had been created in the centre of London while the Trusts and PCTs with long waiting lists were in outer London. There may have been a reluctance to purchase additional activity outside local areas. In originating Trusts, success in meeting waiting time targets may have reduced the need to transfer patients to other Trusts where new capacity was unused.

#### 4.4. Non-financial incentives

Evidence from the interviews and project team suggests Trusts are reluctant to give up patients, even when there is no direct financial penalty for doing so. The main incentive for Trusts to export patients has been to enable them to meet government waiting time targets. If they could make progress dealing with their own waiting lists, they would reduce the number of their patients offered choice of another provider. One of the reasons for the fall in the number of patients offered choice relative to expectations was a decline in the number put forward by originating Trusts. Several Trusts that started the Project as exporters withdrew from the scheme and became non-participants (see Section 5 on Switchers). It may be that the threat of losing patients stimulated more activity within these Trusts. Trusts may treat an ability to avoid or minimise exporting patients as an important part of long-term financial viability. Ability to treat local patients within targets is seen as a means of maintaining credibility and future demand with local purchasers.



## **5. Waiting times: Baseline and monitoring**

The LPCP includes six specialties for routine elective procedures. For purposes of the evaluation, three tracer specialties have been selected for in depth analysis of the patient experience and organisational change. These specialties are ophthalmology, orthopaedics and general surgery. Baseline data and monitoring for these specialties are reported as part of the system wide evaluation. In addition to examining activity in the tracer specialties we look at trends for all LPCP specialties combined and all non-LPCP specialties combined at the end of this section.

Details of activity and numbers waiting by length of wait are given in the Data Appendix. In the main report we use a summary measure of waiting time, the “mean wait”. For inpatients, this is the mean waiting time for all patients on the waiting list of a Trust on the last day of the quarter. For outpatients, it is the mean waiting time for all patients seen during the quarter. There are three advantages of using this measure of Trust performance. First, it is a way of standardising for size of Trust. One Trust may have two to three times the numbers waiting compared to another Trust. However, if activity levels of the first Trust are two to three times that of the second, there is no reason why expected waits should be longer in Trusts with relatively large numbers of patients waiting. Second, the mean wait is a measure suitable for comparing the performance of Trusts over time. It is rarely possible to estimate the impact of changes to NHS policy over short periods of time. Time series analysis is essential. A measure of performance based on a particular short term policy objective, such as numbers waiting over 12 months, ceases to be useful after all Trusts eliminate 12 month waits. Third, it is possible to calculate mean waiting time for both outpatients and inpatients. Summing the two gives an indication of the expected minimum wait from GP referral to treatment. Ex ante it is not possible for GPs or patients to know how long it will take for a patient to progress from referral through outpatients to inpatient treatment but the mean wait is probably the best indicator of expected time to treatment. We stress that our figures for “total” mean wait can be an underestimate. The data does not permit inclusion of waiting time for second or subsequent outpatient appointments which will be important when diagnostic tests are required after the first outpatient appointment but before a patient is added to the inpatient waiting list.

The mean wait is calculated from the data in the Data Appendix. As noted earlier, the inpatient waiting list is divided into a number of time bands (patients having waited less than 3 months, those having waited between 3 and 6 months, between 9 and 12 months, and so on) and records the number of patients on the list at the end of each quarter in each time band. To obtain the mean wait, we calculate a weighted average of the time bands using the mid-points of each time band and the number of patients in each band as the weight for that band. Other studies have shown that the mean wait is highly correlated with the proportion of patients waiting more than 3 months and with the proportion of patients waiting more than 12 months (see, for example, Martin and Smith, 1999). A similar procedure was employed to calculate the mean wait for those on the outpatient waiting list although this refers to patients treated while the inpatient figure relates to patients still awaiting treatment.

It is important to note that in this Report we examine changes in waiting times for *all* patients on NHS waiting lists. Choice patients in London were treated earlier than might otherwise have been expected but this section addresses the question of how other patients fared under a choice regime where choice was exercised by a few.

## 5.1. Ophthalmology

### 5.1.1. Inpatients and daycases

Table 5.1 shows recent trends in inpatient and daycase demand (additions to the waiting list) and supply (inpatient and daycase admissions) for our five groups of Trusts. For the baseline, figures for the quarter ending in September of each year are reported so that the impact of any seasonal effects can be ignored and because the LPCP for this specialty commenced in October 2002. The second half of the Table gives activity and waiting times for each quarter of the LPCP. The full quarterly data set, corresponding to the summary in Table 5.1, can be found in Tables A11- A20 of the Data Appendix.

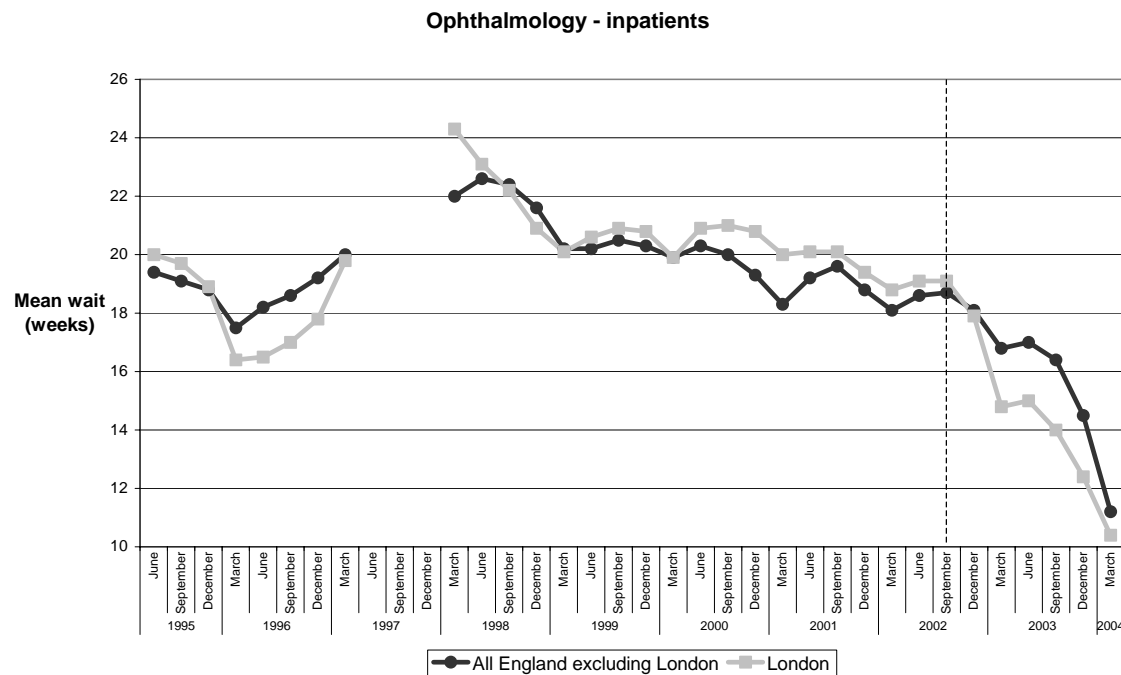
Over the seven year baseline period, demand and supply for inpatient and daycase treatment grew much faster outside London (at about 25%) than in London (about 5%) but the waiting time for admission was about the same (around 19 weeks in September 2002). During the LPCP, the position was reversed with demand and supply growing more rapidly in London than in the rest of England. If we compare activity rates for the eighteen months of LPCP with the previous eighteen months, demand in London increased by 12% and supply by 16%. In the rest of England, demand and supply increased by 3% and 9% respectively.

Figure 5.1 illustrates the trends in waiting time for London and the rest of England. The vertical line at September 2002 marks the commencement of LPCP activity in ophthalmology. Throughout this report we use graphs to illustrate the trends summarised in the Tables. Note that the graphs do not have a zero origin and that this will tend to have the effect of exaggerating any differences between the various types of Trust. The convention we have adopted makes it easier to focus on the trend changes which are an important objective of the baseline.

**Table 5.1: Additions to the inpatient waiting list and admissions, 1995-2004, ophthalmology**

Quarter ending	All England except London n=115			London n=21			Recipient Trusts n=4			Originating Trusts n=12			Other London Trusts n=5		
	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)
September 1995	69	59	19.1	12	11	19.7	6	5	12.9	5	4	23.3	1	1	21.4
September 1996	79	65	18.6	14	11	17.0	7	6	13.6	6	4	18.5	1	1	20.0
September 1997	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
September 1998	79	74	22.4	13	11	22.2	6	5	19.2	6	5	24.3	1	1	22.5
September 1999	83	73	20.5	12	10	20.9	5	4	19.8	5	4	22.3	2	1	17.6
September 2000	86	78	20.0	12	10	21.0	6	4	18.6	5	5	22.7	2	1	19.5
September 2001	82	73	19.6	12	10	20.1	5	4	15.3	5	5	22.9	1	1	18.0
September 2002	85	77	18.7	13	11	19.1	5	5	12.0	6	5	22.7	2	1	14.3
% growth baseline 1995-2002	22.6	29.8	-2.0	5.8	3.8	-3.0	-10.1	-12.7	-7.0	17.4	18.0	-2.6	40.5	32.7	-33.2
December 2002	86	78	18.1	13	11	17.9	6	5	12.6	6	5	20.9	1	1	14.6
March 2003	88	83	16.8	14	13	14.8	6	6	10.7	6	5	17.1	2	2	13.7
June 2003	81	74	17.0	14	11	15.0	7	5	11.2	5	5	17.4	2	1	13.5
September 2003	83	79	16.4	14	12	14.0	7	6	11.0	5	5	16.1	2	1	13.0
December 2003	87	83	14.5	14	12	12.4	7	5	10.2	5	5	13.7	2	1	13.3
March 2004	91	92	11.2	15	14	10.4	7	7	10.2	6	6	10.2	2	2	11.5
% growth during LPCP	4.9	17.8	-38.1	9.5	30.1	-41.9	17.6	40.7	-19.0	-1.6	20.6	-51.2	18.7	26.4	-21.3

**Figure 5.1: Waiting time in weeks for ophthalmology inpatients, June 1995 - March 2004**

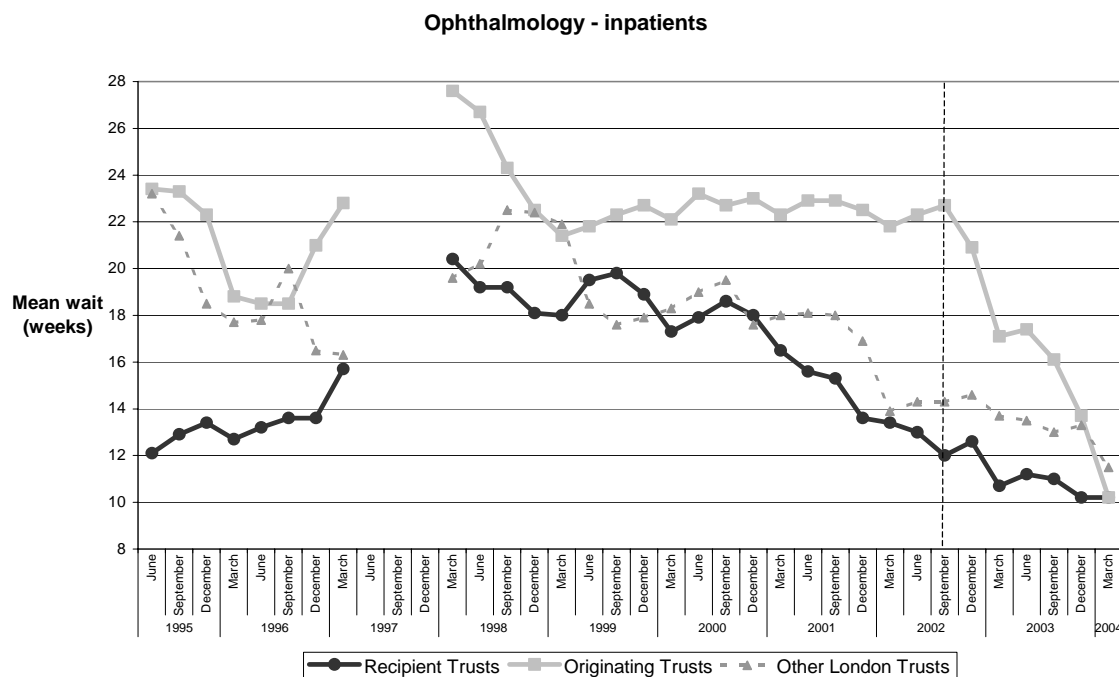


Within London there are some marked differences between Trusts. Over the baseline period, recipient Trusts experienced a *decline* in demand and supply, of about 10% and 13%, and originating Trusts experienced a *growth* of about 25% and 21%. The mean wait for admission at recipient Trusts (12 weeks in September 2003) was about one-half that at originating Trusts (23 weeks). The mean wait at the ‘other’ London trusts (14 weeks) was marginally higher than at recipient Trusts.

If we compare activity rates for the eighteen months of LPCP with the previous eighteen months, at recipient Trusts there is an increase in demand

of 30%<sup>8</sup> and a 25% increase in supply. Originating Trusts show a marginal increase in demand (1%) and a 13% increase in supply. The striking change is in the waiting times within London. Figure 5.2 shows that during LPCP there was a rapid convergence of waiting times for patients at London Trusts.

**Figure 5.2: Waiting time in weeks for ophthalmology inpatients, June 1995 - March 2004**



While the LPCP is only dealing with patients likely to approach a six month wait for inpatient treatment, a strong incentive for originating Trusts to cooperate with the project is that losing some of their six month waits may make it easier for them to meet DH targets for long waits. The dramatic fall in mean waiting times at originating trusts reflects their success in reducing long waits. In September 2002, 36% of patients on waiting lists at

<sup>8</sup> Part of this increased demand is due to the transfer of ophthalmology work from St George's to Moorfields at the beginning of LPCP.

originating trusts had been waiting for more than six months. By March 2004, only 2.5% were waiting more than six months.

*5.1.2. GP referrals, activity and mean waits for an outpatient appointment*

While LPCP was focused on reducing inpatient waiting time, changes in GP referrals and outpatient activity by Trusts could impact on the ability of Trusts to reduce inpatient waits. Table 5.2 shows the number of GP referrals received and seen, together with the mean waiting time for the first outpatient appointment for the five groups of NHS Trusts over the period 1995-2004. The full quarterly data set corresponding to the summary Table 5.2 can be found in Tables A1-A10 of the Data Appendix.

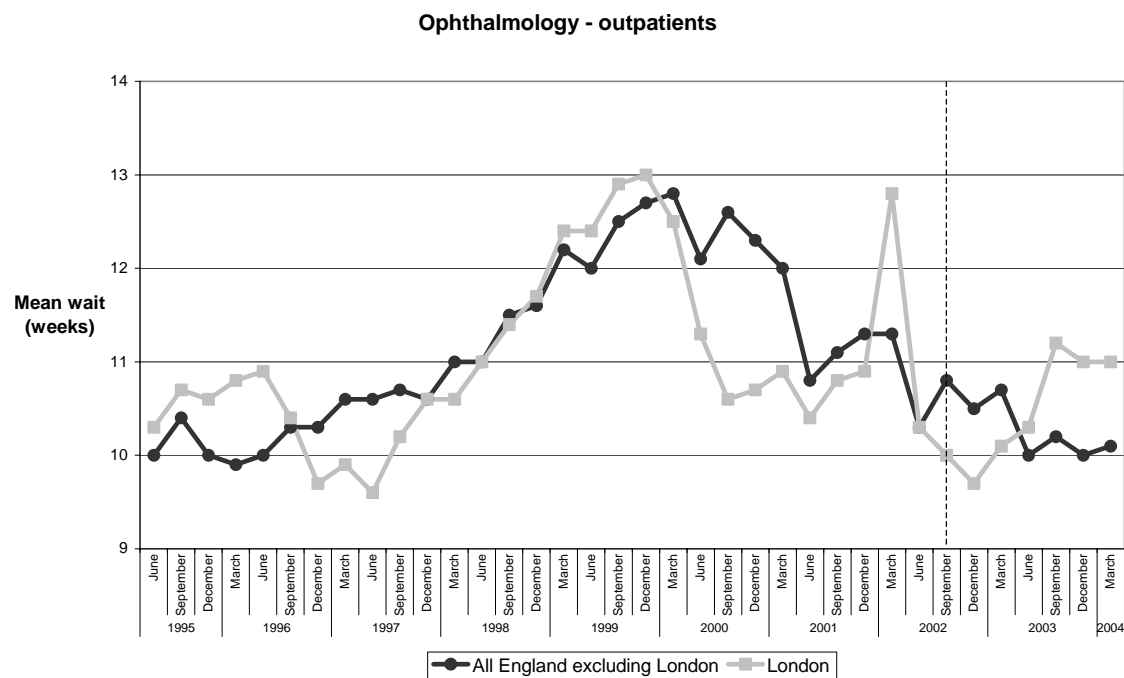
In the years leading up to LPCP, there is little difference in the growth of GP referrals as between London and non-London Trusts. By September 2002 mean waiting times were similar in the capital and the rest of England. However, within London, the experience of the three groups of Trusts was different. In originating hospitals referrals had grown by about 34% while in recipient hospitals referrals had grown by about 16%. The “other” London Trusts, neither recipients nor originators, experienced an increase in referrals of about 14%. GP referrals seen by consultants increased by about 13% in recipient and other London Trusts, but by 37% in originators. Although referrals seen increased much more quickly at originators than recipients, it was at the latter that waiting times for a first outpatient appointment fell the most, down 17% at recipients compared to a decline of 4% at originators.

Comparing the first eighteen months of LPCP with the preceding eighteen months, there were marginal declines in demand and supply in the rest of England but an increase of 1.5% in demand in London and an increase of 4% in supply. Figure 5.3 charts changes in waiting times for a first outpatient appointment. While the downward trend in waiting time continued in the rest of England, during the eighteen months of LPCP waiting times have increased.

**Table 5.2: GP referrals received and seen, 1995-2004, ophthalmology**

Quarter ending	All England except London n=115			London n=21			Recipient Trusts n=4			Originating Trusts n=12			Other London Trusts n=5		
	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)
September 1995	139	124	10.4	26	22	10.7	12	9	9.5	10	9	12.0	4	4	10.7
1996	149	133	10.3	32	28	10.4	15	14	10.7	12	10	10.0	5	4	9.9
1997	150	135	10.7	28	26	10.2	12	12	10.0	11	10	10.7	4	4	9.5
1998	156	134	11.5	30	28	11.4	13	14	10.7	12	10	13.2	5	4	9.6
1999	161	141	12.5	31	26	12.9	11	10	11.4	13	11	15.3	7	5	10.4
2000	167	151	12.6	31	26	10.6	11	11	8.3	14	11	13.5	7	5	9.2
2001	169	145	11.1	31	25	10.8	13	10	8.0	12	11	13.3	6	5	10.5
2002	172	150	10.8	31	26	10.0	13	11	8.1	12	11	11.9	6	5	10.0
% growth baseline 1995-2002	23.7	20.3	3.8	21.5	19.9	-6.5	15.8	13.5	-14.7	38.4	26.1	-0.8	33.7	37.2	-6.5
December 2002	170	148	10.5	32	28	9.7	14	12	7.6	12	11	12.1	6	5	10.0
March 2003	171	156	10.7	32	28	10.1	14	13	7.9	12	11	12.5	5	5	10.2
June 2003	169	139	10.0	31	24	10.3	14	10	8.7	13	10	11.9	4	4	10.4
September 2003	168	143	10.2	32	25	11.2	14	10	9.7	13	11	12.6	5	4	11.1
December 2003	171	144	10.0	31	26	11.0	13	12	10.0	13	10	12.3	5	4	10.3
March 2004	174	150	10.1	33	28	11.0	13	12	10.0	14	12	12.0	5	5	11.2
% growth during LPCP	2.4	1.2	-3.8	2.7	2.2	13.4	-5.6	-4.6	31.6	14.1	9.6	-0.8	-2.3	2.9	12

**Figure 5.3: Waiting time in weeks for ophthalmology outpatients, June 1995 - March 2004**





**Figure 5.4: Waiting time in weeks for ophthalmology outpatients, June 1995 - March 2004**

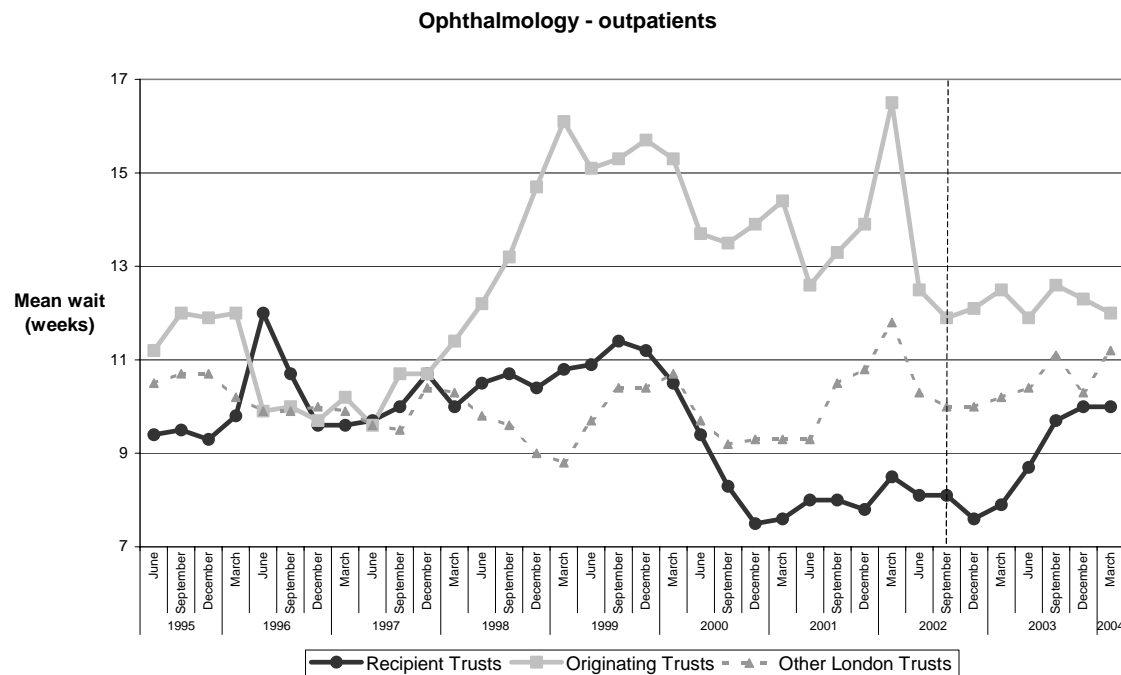
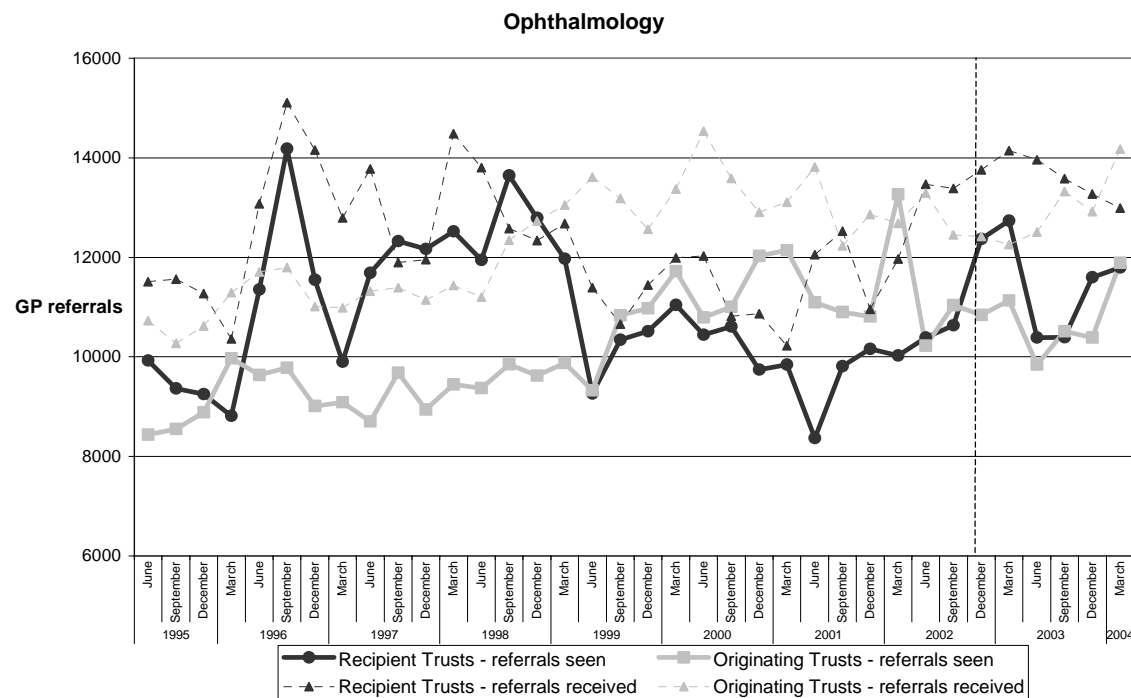


Figure 5.4 shows the mean wait at the originating Trusts is higher compared to that at the ‘other’ London hospitals and almost four weeks longer than at the recipient Trusts. The reduction in mean waiting times for recipient Trusts started well before the introduction of LPC. The vertical line at September 2002 marks the commencement of LPC activity in ophthalmology.

Changes in the mean wait for first outpatient appointments can reflect changes in demand, the number of GP referrals, or in supply, the number of patients seen. Figure 5.5 shows how the balance of demand and supply has changed over recent years. Over the period, originating Trusts seem to have had a larger increase in supply relative to receiving Trusts. Analysis of trends within London for ophthalmology is complicated by the fact that just before the start of LPCP all ophthalmology work at St George’s (an originator) was transferred to Moorfields (a recipient). It appears that the

increase in mean waiting time at recipient Trusts since December 2002 may be due to the transfer of patients from the St George's waiting list (containing a high proportion of long waits) on to the Moorfields waiting list.

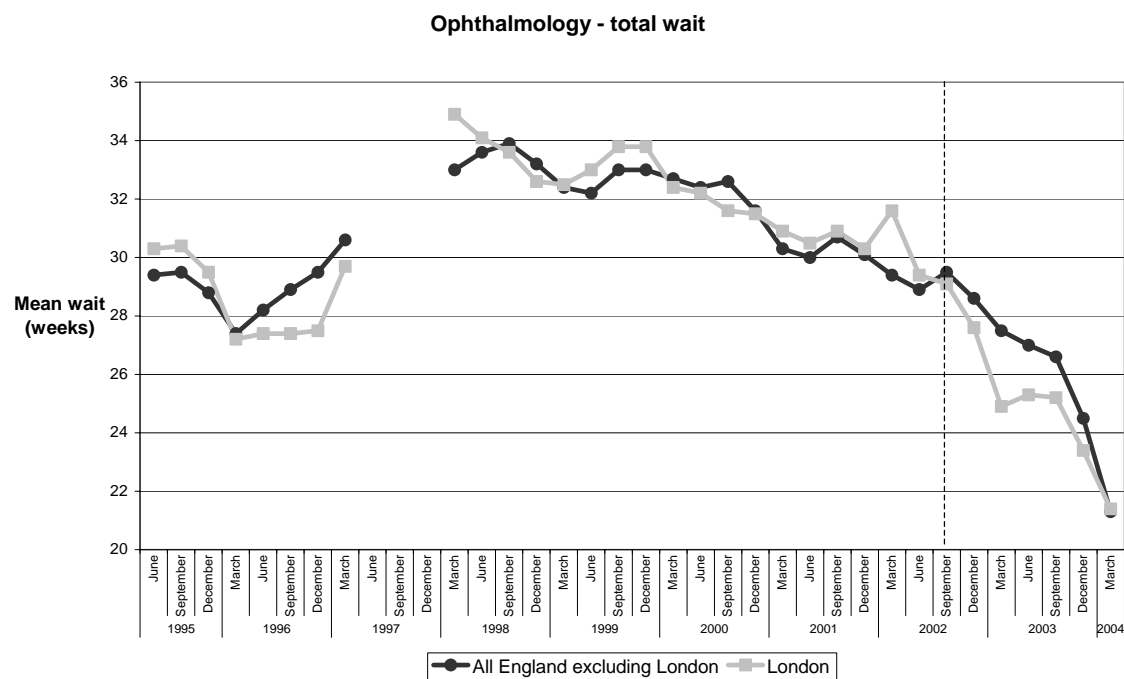
**Figure 5.5: Number of GP referrals received and seen for ophthalmology, June 1995 - March 2004**



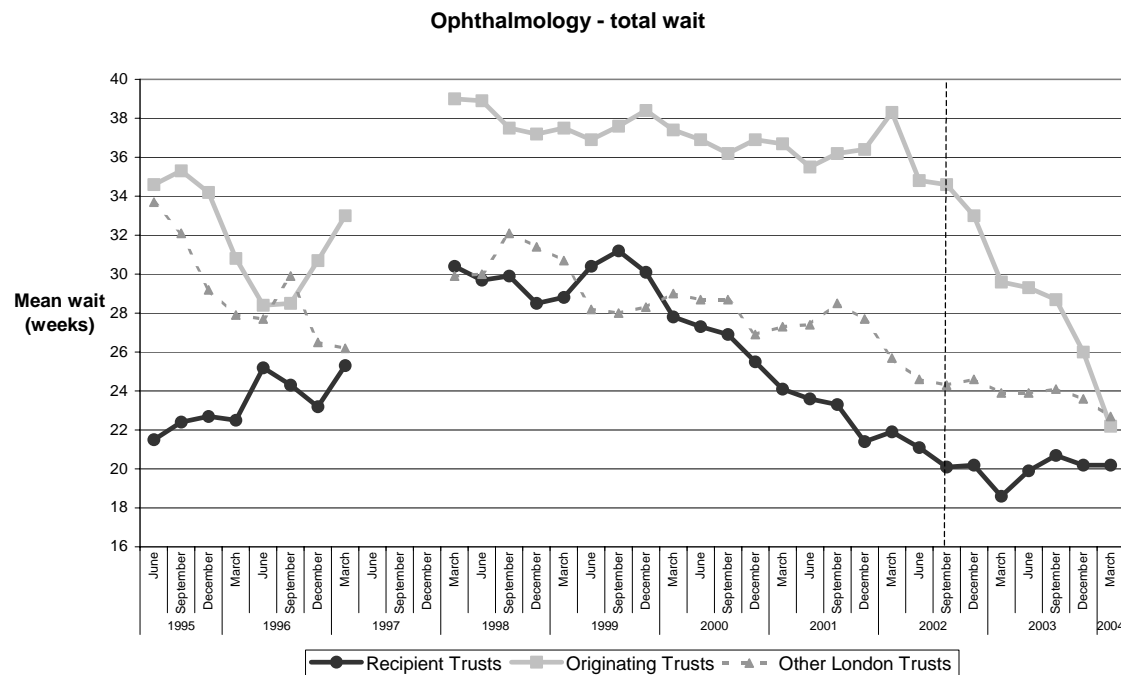
5.1.3. Total waiting time

Figure 5.6 and Figure 5.7 show the total waiting time for this specialty, by quarter, as a combination of the inpatient and outpatient waiting time. These figures repeat the pattern identified earlier of little difference between London and the rest of England but considerable variation within London.

Figure 5.6: Total waiting time in weeks for ophthalmology, June 1995 - March 2004



**Figure 5.7: Total waiting time in weeks for ophthalmology, June 1995 - March 2004**



5.1.4. Trusts that have switched groups in ophthalmology

Before LPCP went live in the specialty of ophthalmology, a number of Trusts agreed to join the scheme in one of the Trust groupings. Since these first indications of Trust interest there have been a large number of Trusts that have switched from one Trust grouping to another over the three phases of the LPC ophthalmology project.

Table 5.3 shows three groups of switchers. The first and largest group are those that through the course of LPCP have decided to join the ‘other’ group and no longer export patients. The second group consists of Trusts that have decided to become recipients through the course of the project. Although St Mary’s (RJ5) has for the purposes of the baseline always been considered a recipient Trust, they were originally down (prior to LPCP going live) as an originator. Finally the third group of Trusts are those that have dropped from being a recipient Trust. The incentives facing each of these three groups to switch will be very different.

**Table 5.3: Switchers in ophthalmology**

NHS Trusts	March 2003	June 2003	Sept 2003	Dec 2003	March 2004	June 2004
<b>From originators to other or recipients</b>						
Guys and St Thomas' NHS Trust (RJ1)	O	O	OTH	R	R	R
Hillingdon Hospital NHS Trust (RAS)	O	OTH	OTH	OTH	OTH	O
Chelsea and Westminster NHS Trust (RQM)	O	OTH	OTH	OTH	OTH	OTH
Hammersmith Hospitals NHS Trusts (RQN)	O	OTH	OTH	OTH	OTH	OTH
University College London Hospitals (RRV)	O	OTH	OTH	OTH	OTH	OTH
North West London Hospitals Trusts (RV8)	O	OTH	OTH	OTH	OTH	OTH
<b>From originators or other to recipients</b>						
St Mary's NHS Trust (RJ5)	R	R	R	R	R	R
Mayday Healthcare NHS Trust (RJ6)	OTH	R	R	R	R	R
<b>From recipients to other or originators</b>						
King's College NHS Trust (RJZ)	R	R	OTH	O	O	O

We explore in more detail the first group of switchers and examine in Table 5.4 their inpatient demand and supply data compared to the other three groups of Trusts within London. The main characteristic of Trusts that moved from Originators to Other is that prior to LPCP they had far higher growth in both demand and supply than recipient Trusts or those originating Trusts that have remained in the project. The comparison with “other” Trusts is confounded by the fact that switchers now account for five of the six Trusts in the “other” group. The major success of switchers in reducing waiting times prior to the introduction of the Choice Project has not been continued during the first fifteen months of Choice.

**Table 5.4: Additions to the inpatient waiting list and admissions, 1995-2004, ophthalmology: Switchers**

Quarter ending	Switchers O to OTH n=4			Recipient Trusts n=4			Originating Trusts n=12			Other London Trusts n=5		
	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)
1995	1	1	25.9	6	5	12.9	5	4	23.3	1	1	21.4
1996	1	1	14.8	7	6	13.6	6	4	18.5	1	1	20.0
1997	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1998	1	1	13.0	6	5	19.2	6	5	24.3	1	1	22.5
1999	1	1	9.8	5	4	19.8	5	4	22.3	2	1	17.6
2000	1	1	13.3	6	4	18.6	5	5	22.7	2	1	19.5
2001	1	1	13.6	5	4	15.3	5	5	22.9	1	1	18.0
2002	1	1	12.1	5	5	12.0	5	6	22.7	2	1	14.3
% growth baseline 1995-2002	60.8	51.5	-53.3	-10.1	-12.7	-7.0	17.4	18.0	-2.6	40.5	32.7	-33.2
December 2002	1	1	13.0	6	5	12.6	6	5	20.9	1	1	14.6
March 2003	1	1	12.4	6	6	10.7	6	5	17.1	2	2	13.7
June 2003	1	1	12.7	7	5	11.2	5	5	17.4	2	1	13.5
September 2003	1	1	11.8	7	6	11.0	5	5	16.1	2	1	13.0
December 2003	1	1	12.3	7	5	10.2	5	5	13.7	2	1	13.3
March 2004	1	1	10.4	7	7	10.2	6	6	10.2	2	2	11.5

## **5.2. Orthopaedics**

### *5.2.1. Inpatients and daycases*

Table 5.5 gives summary figures for demand, supply and waiting time for inpatient treatment in orthopaedics for our five groups of Trusts over the period 1995-2004. LPCP activity in orthopaedics went live in April 2003. However, in the previous three months some orthopaedics patients were treated as part of development work on the choice regime. We therefore include activity in the quarter ending March 2003 as part of the LPCP period. For the baseline in this specialty, figures for the quarter ending in December of each year are reported so that the impact of any seasonal effects can be ignored. December 2002 is the last full quarter prior to the commencement of LPCP activity. The full quarterly data set, corresponding to the summary in Table 5.5 can be found in Tables A31-A40 of the Data Appendix.

Over the baseline period, demand and supply for inpatient treatment grew by more in the rest of England than in London. At the beginning of LPCP mean waiting times for inpatient admission were only marginally higher in London (19.4 weeks) than in the rest of England (18.8 weeks). If we compare activity after LPCP officially went live in April 2003 with the preceding year, demand and supply continued to rise faster outside the capital, around 8%, than within London, around 3%. By the end of LPCP, waiting times were identical in London and the rest of England. Figure 5.8 illustrates the trends in waiting times for London and the rest of England.

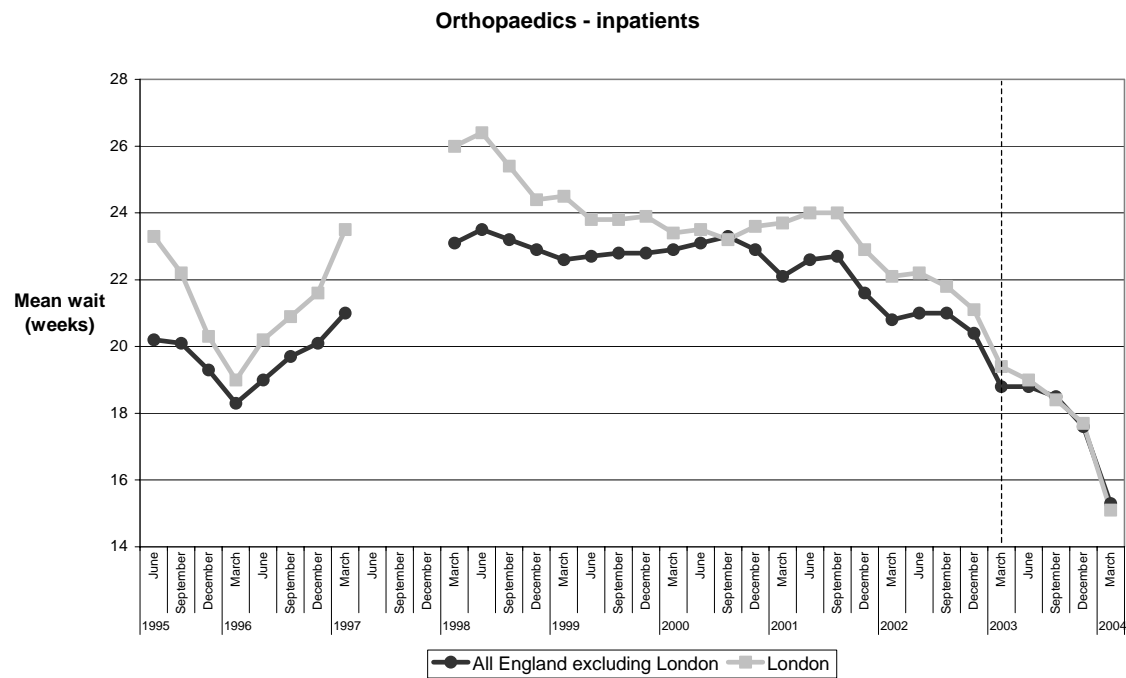
**Table 5.5: Additions to the inpatient waiting list and admissions, 1995-2004, orthopaedics**

Quarter ending	All England except London n=150			London n=29			Recipient Trusts n=5			Originating Trusts n=20			Other London Trusts n=4		
	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)
December															
1995	103	85	19.3	16	12	20.3	3	2	19.9	12	9	20.6	1	1	18.6
1996	109	85	20.1	17	12	21.6	4	2	22.4	11	8	21.4	1	1	20.2
1997	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1998	109	93	22.9	16	13	24.4	4	3	21.9	12	9	25.2	1	1	21.4
1999	111	88	22.8	16	12	23.9	3	2	21.2	12	9	24.6	1	1	24.3
2000	115	92	22.9	16	12	23.6	4	3	20.3	11	8	24.5	1	1	23.0
2001	118	93	21.6	17	12	22.9	4	3	21.9	12	9	23.5	1	1	18.3
2002	122	99	20.4	17	14	21.1	4	3	20.0	12	9	21.6	1	1	16.6
% growth baseline 1995-2002	17.8	17.2	5.7	6.4	10.6	3.9	14.8	47.7	0.5	7.1	4.7	4.9	-20.0	-18.5	-10.8
March 2003	126	108	18.8	18	15	19.4	4	4	19.0	13	10	19.9	1	1	12.9
June 2003	121	98	18.8	18	14	19.0	4	4	18.5	13	9	19.5	1	1	13.5
September 2003	129	106	18.5	18	14	18.4	4	4	17.8	13	10	19.0	1	1	12.0
December 2003	132	107	17.6	18	14	17.7	4	3	16.8	13	9	18.2	1	1	13.7
March 2004	136	118	15.3	18	15	15.1	4	4	14.3	13	10	15.5	1	1	12.2
% growth during LPCP	8.0	9.8	-18.6	1.6	0.5	-22.2	-6.3	-6.6	-24.7	4.8	2.9	-22.1	-3.2	3.3	-5.4

The full quarterly data set, corresponding to the summary in Table 5.5, can be found in Tables A31- A40 of the Data Appendix.



Figure 5.8: Waiting time in weeks for orthopaedics inpatients, June 1995 - March 2004



**Figure 5.9: Waiting time in weeks for orthopaedics inpatients, June 1995 - March 2004**

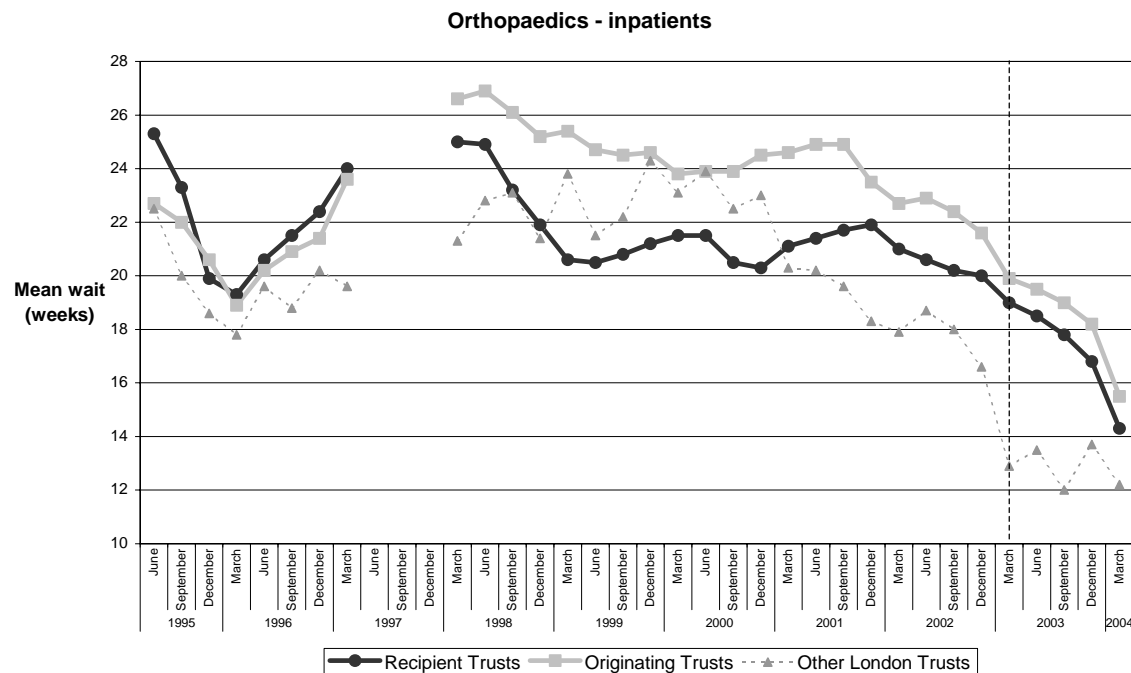


Figure 5.9 shows trends for Trusts within London. Unlike ophthalmology, in orthopaedics originating Trusts had begun to improve waiting times relative to recipients sometime before the introduction of LPCP. Comparing performance during LPCP with the preceding year, demand increased 6%, relative to supply, 3%, at recipients and grew at 3% for originators. Waiting times fell at the same rate for both groups of Trusts maintaining the differential one week mean waiting time observed at the beginning of the Project. Other London Trusts, those that chose not to participate in the choice project, had been reducing waiting times for some years before LPCP. During the baseline period supply had been falling in these Trusts. During the year of LPCP, demand and supply increased relative to previous years and waiting times ceased to fall. Nevertheless, waiting times in other London Trusts remain the lowest in the capital.

5.2.2. GP referrals, activity and mean waits for an outpatient appointment

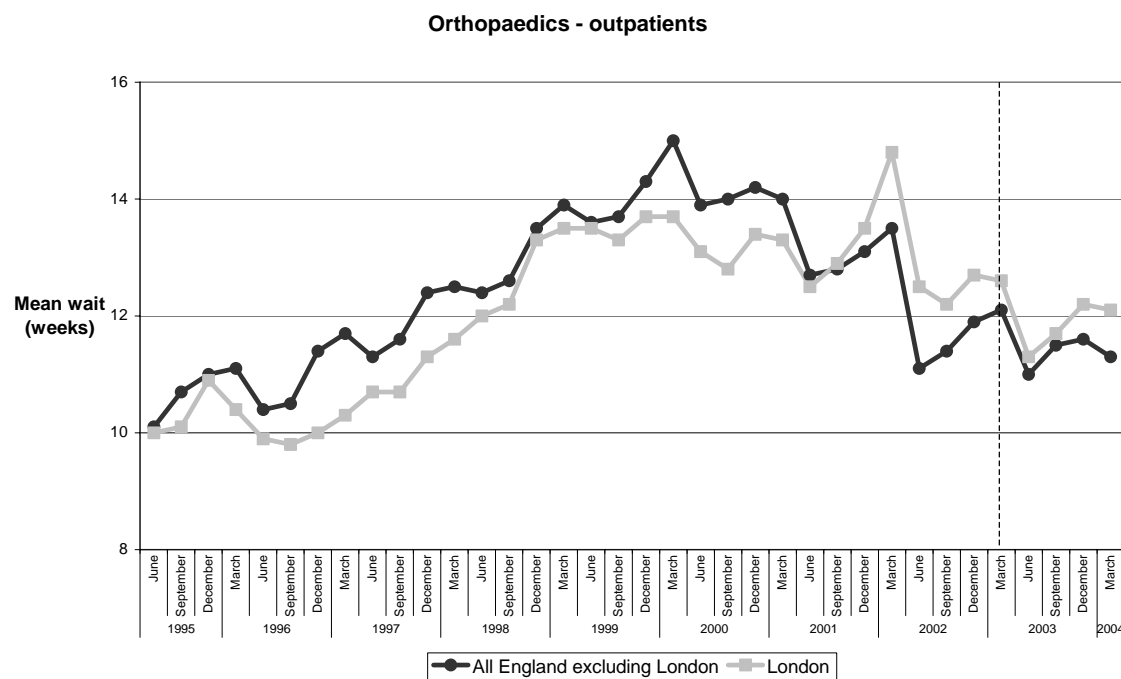
Table 5.6 shows the number of GP referrals received and seen in orthopaedics, together with the mean waiting time, for the usual five groups of NHS Trusts over the period 1995-2004. The full quarterly data set, can be found in Tables A21- A30 of the Data Appendix.

**Table 5.6: GP referrals received and seen, 1995-2003, orthopaedics**

Quarter ending	All England except London n=150			London n=29			Recipient Trusts n=5			Originating Trusts n=20			Other London Trusts n=4		
	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)
December															
1995	175	172	11.0	28	27	10.9	4	3	12.1	21	22	10.7	2	2	10.6
1996	179	171	11.4	29	26	10.0	4	4	10.2	22	21	9.9	2	2	10.8
1997	182	166	12.4	27	25	11.3	4	4	12.1	20	19	11.0	2	2	12.6
1998	187	158	13.5	28	22	13.3	4	3	12.9	21	16	13.4	2	2	13.0
1999	184	165	14.3	28	23	13.7	5	4	10.7	21	17	14.5	2	2	12.4
2000	189	175	14.2	28	26	13.4	5	4	11.2	21	20	13.9	2	2	13.3
2001	192	179	13.1	29	24	13.5	5	3	12.3	22	19	13.7	2	2	13.4
2002	201	169	11.9	30	27	12.7	5	5	11.1	23	21	13.0	2	2	12.9
% growth baseline 1995-2002	14.8	-1.6	8.2	6.9	-1.2	16.5	6.9	20.0	-8.3	8.0	-4.7	21.5	-4.2	-0.5	21.7
March 2003	206	179	12.1	32	28	12.6	5	4	10.8	25	22	13.0	2	2	12.6
June 2003	208	160	11.0	33	25	11.3	5	4	10.0	25	19	11.7	2	2	10.9
September 2003	211	171	11.5	33	26	11.7	5	5	9.8	25	20	12.2	2	2	11.4
December 2003	203	178	11.6	29	26	12.2	4	5	10.1	23	20	12.8	2	2	11.0
March 2004	211	180	11.3	33	30	12.1	5	5	10.8	26	22	12.4	2	2	10.9
% growth during LPCP	2.8	0.5	-6.6	0.8	4.7	14.0	0.0	24.5	0.0	0.7	2.5	-4.6	2.8	-11.8	-13.5

In the period leading up to LPCP, GP referrals received grew faster outside London (15%) than inside (7%) but in both areas supply declined marginally. The mean wait for a first outpatient appointment increased more in London than in the rest of England. Comparing the year of LPCP with the previous twelve months, demand grew by more in London (1.6%) than in the rest of England (0.3%) while supply grew by more in the rest of England (1.7%) than in the capital (1%). Waiting time in London fell faster than elsewhere and by the end of the LPCP period there was little difference in waiting time between London and the rest of England. The quarterly trends are shown in Figure 5.10.

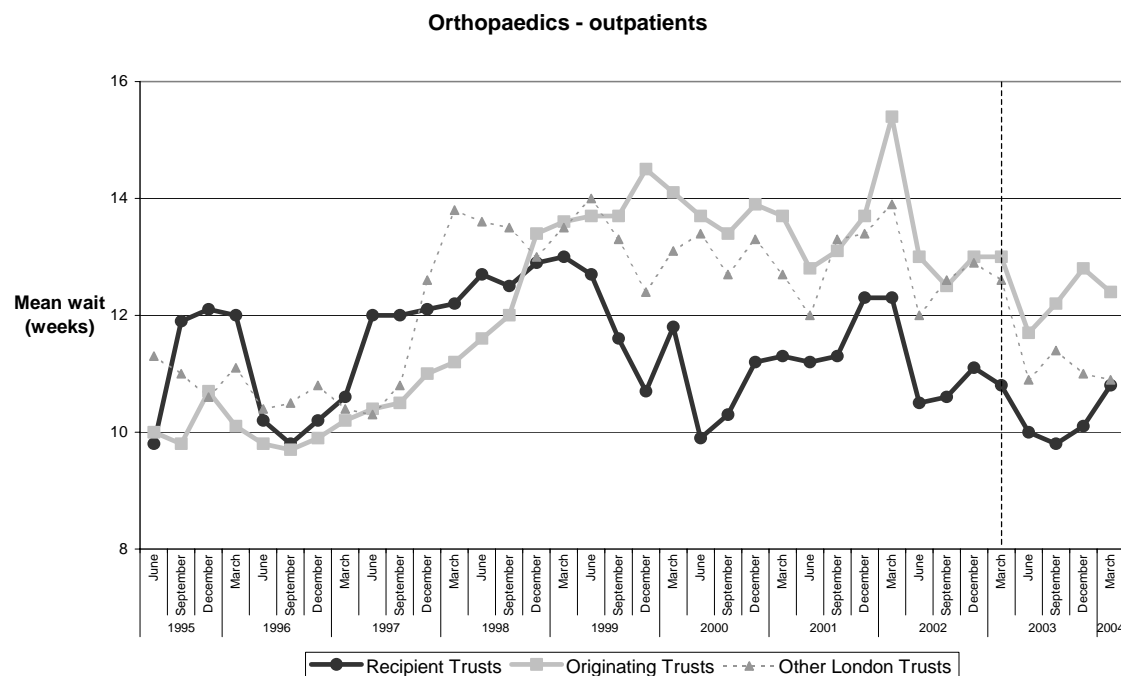
**Figure 5.10: Waiting time in weeks for orthopaedics outpatients, June 1995 - March 2004**



Over the baseline period waiting time for a first outpatient appointment increased at both originating and other Trusts but fell for recipients. At the

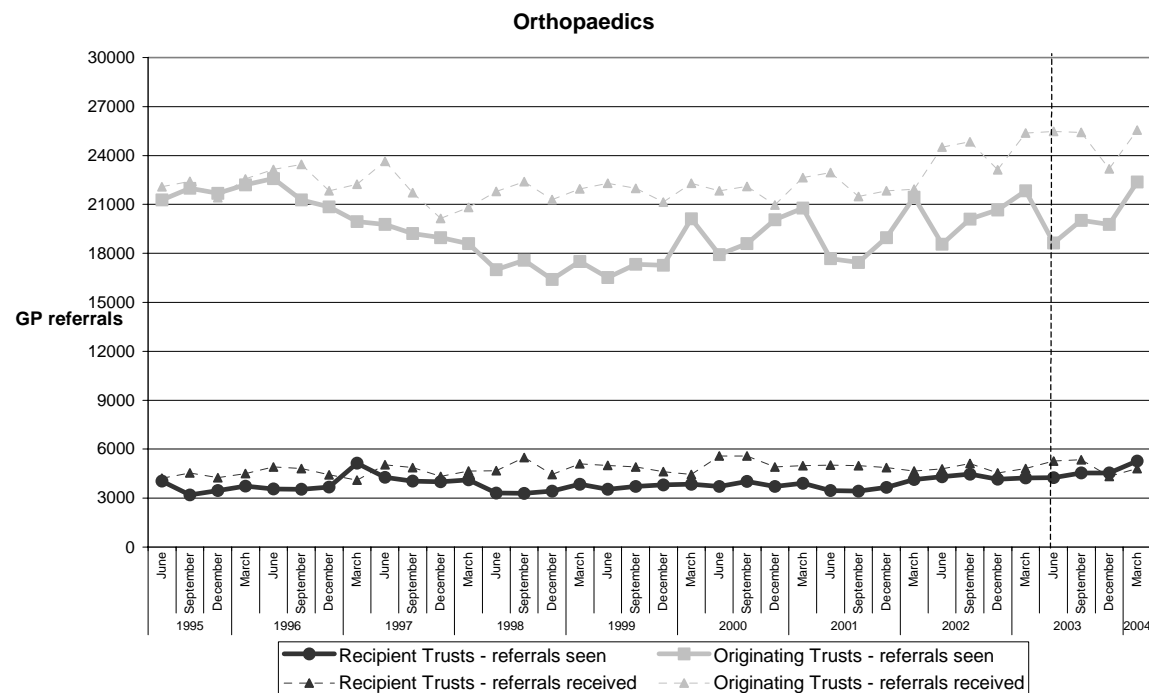
beginning of London Choice, mean waiting times for first outpatient appointments were eleven weeks at recipients and thirteen weeks at originating and other Trusts. By the end of one full year of LPCP in orthopaedics, there was little change in the mean waiting time at recipients and other Trusts and a marginal increase in waiting time at originators. Quarterly trends for the three groups of Trusts within London are given in Figure 5.11.

**Figure 5.11: Waiting time in weeks for orthopaedics outpatients, June 1995 - March 2004**



Unlike ophthalmology, originating Trusts are the primary centres for patient treatment in orthopaedics within London. In December 2003, 86% of GP referrals were to originating Trusts. As Figure 5.12 indicates, the importance of originating Trusts in providing orthopaedic services has been clear for the whole of the baseline period and this situation has not changed under the choice regime.

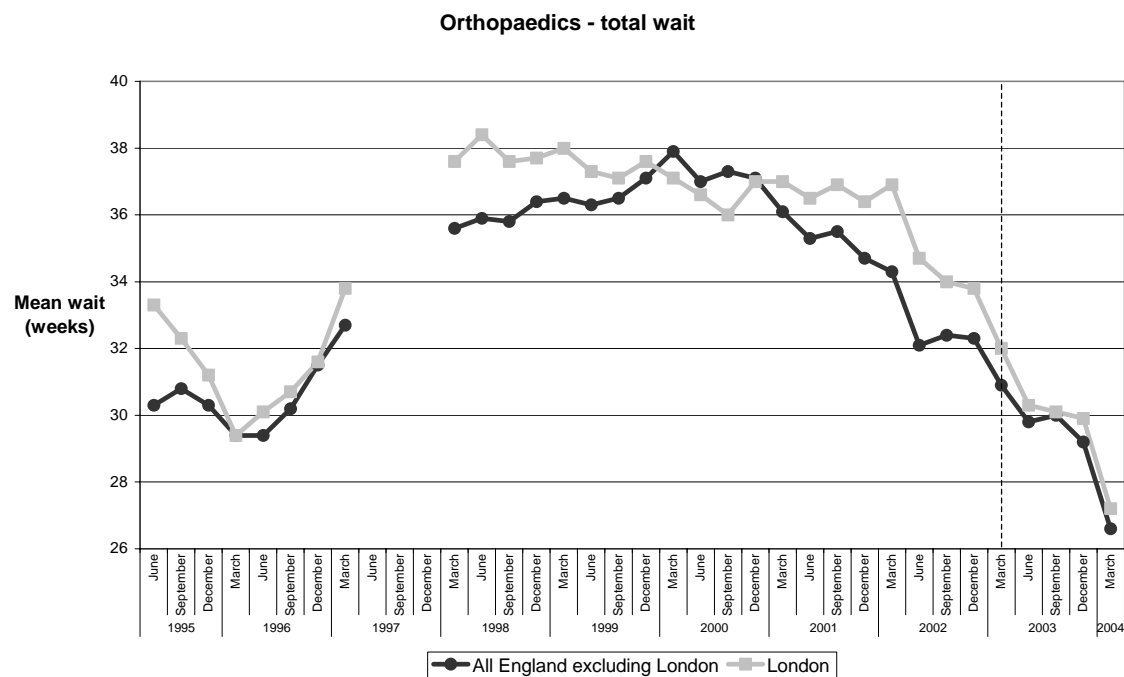
**Figure 5.12: Number of GP referrals received and seen for orthopaedics, June 1995 - March 2004**



5.2.3. Total waiting time

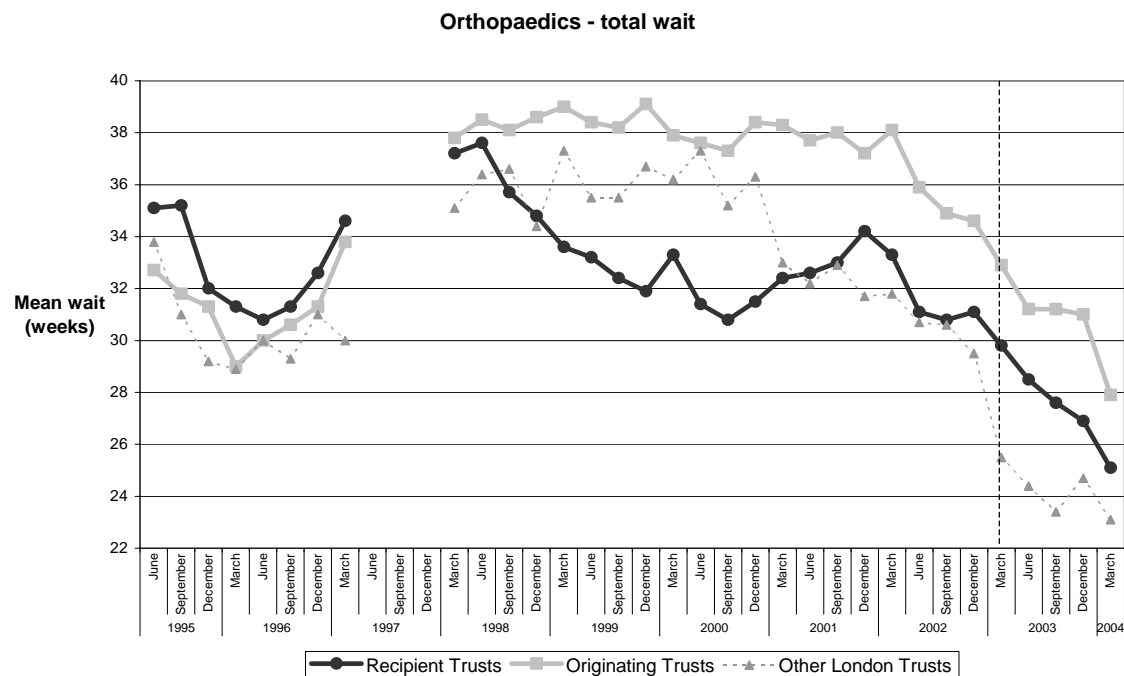
Figure 5.13 and Figure 5.14 show the total waiting time for this specialty, by quarter, as a combination of the inpatient and outpatient waiting time. Total waiting times had been falling in both London and the Rest of England before the introduction of LPCP. This trend continued during LPCP and by March 2004 there was little difference in total mean waiting time in the capital and the rest of the country.

Figure 5.13: Total waiting time in weeks for orthopaedics, June 1995 - March 2004



Within London, previous baseline trends continued through the LPCP period but with some slowing in the improvement for non-participating Trusts.

**Figure 5.14: Total waiting time in weeks for orthopaedics, June 1995 - March 2004**





### 5.3. General surgery

#### 5.3.1. Inpatients and daycases

Table 5.7 gives recent trends in demand, supply and waiting times for our five groups of Trusts providing general surgery. As with orthopaedics, LPCP activity in general surgery went live in April 2003 but there was some development activity in the previous three months. The full quarterly data set corresponding to the summary Table 5.7 can be found in Tables A51-A60 of the Data Appendix.

Over the baseline, the experience of Trusts both within and outside London was similar. Both groups experienced a reduction in demand and supply of about 15% and 17% between 1995 and 2002. The mean wait at December 2002 was identical for Trusts in London and the rest of England (16.5 weeks). It is important to note that the convergence in inpatient waiting times started two years before the introduction of LPCP. Comparing the full year of LPCP with the previous twelve months, demand fell at a faster rate in the rest of England than in London but mean waiting times fell at the same rate. By March 2004, mean waiting time for inpatient admission was the same in London and the rest of England, 12.8 weeks. Figure 5.15 shows quarterly changes in mean waiting time in London and the rest of England.

Within London, there were substantial differences between Trusts in the baseline period. Demand and supply had fallen marginally at the recipient Trusts but had declined by about 28% at originating Trusts. Both demand and supply increased by about 23% at the 'other' London Trusts. There was also variation in waiting times as at December 2002: from eleven weeks at the 'other' Trusts, to fifteen weeks at the recipient Trusts, to just over seventeen weeks at originating Trusts. If we compare the first full year of LPCP activity with the previous twelve months, recipient Trusts had an increase of 8% in demand and 5% in supply. Originating Trusts experienced a marginal decrease in demand and supply while other Trusts recorded larger declines, 4% in demand and 8% in supply. All Trusts reduced waiting times, other Trusts by 23%, originating Trusts by 16% and receiving Trusts by 11%. By March 2004 there had been some convergence in waiting times at receiving and originating Trusts but other Trusts maintained consistently lower waiting times. Figure 5.16 illustrates these trends within London trends.

**Table 5.7: Additions to the inpatient waiting list and admissions, 1995-2004, general surgery**

Quarter ending	All England except London n=148			London n=28			Recipient Trusts n=4			Originating Trusts n=19			Other London Trusts n=5		
	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)
December															
1995	185	160	16.1	29	23	17.9	4	3	17.2	22	18	18.4	3	2	14.9
1996	183	156	17.3	28	23	18.5	4	3	16.8	21	18	19.2	3	2	15.4
1997	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1998	181	164	18.7	27	24	20.9	4	4	19.4	20	17	21.6	3	3	17.5
1999	181	156	18.1	26	20	19.7	4	3	19.1	18	15	20.2	3	3	16.5
2000	169	150	18.2	22	19	19.9	4	3	18.1	15	13	20.5	3	2	17.6
2001	162	140	17.7	23	19	19.3	4	4	18.2	16	13	19.7	3	2	16.2
2002	158	138	16.6	24	19	16.5	3	3	14.5	17	14	17.4	3	3	11.4
% growth baseline 1995-2002	-15.0	-14.0	3.1	-17.6	-17.2	-7.8	-15.8	-13.4	-15.7	-23.1	-23.2	-5.4	23.9	24.6	-23.5
March 2003	156	144	15.7	24	20	15.5	4	3	14.8	17	14	16.1	3	3	10.6
June 2003	144	133	15.7	23	20	15.6	4	3	14.3	16	14	16.4	3	3	9.6
September 2003	147	134	15.1	24	20	15.1	4	3	13.7	16	14	15.9	3	3	9.4
December 2003	151	133	14.1	23	19	14.5	4	3	14.3	16	13	15.1	3	3	9.7
March 2004	150	141	12.8	24	20	12.7	4	3	12.4	16	14	13.1	3	3	9.8
% growth during LPCP	-4.1	-2.6	-18.5	0.2	-1.5	-18.1	8.1	4.2	-16.2	-3.7	-2.5	18.6	9.0	-3.1	-7.5

The full quarterly data set, corresponding to the summary in Table 5.7, can be found in Tables A51- A60 of the Data Appendix.

**Figure 5.15: Waiting time in weeks for surgery inpatients, June 1995 - March 2004**

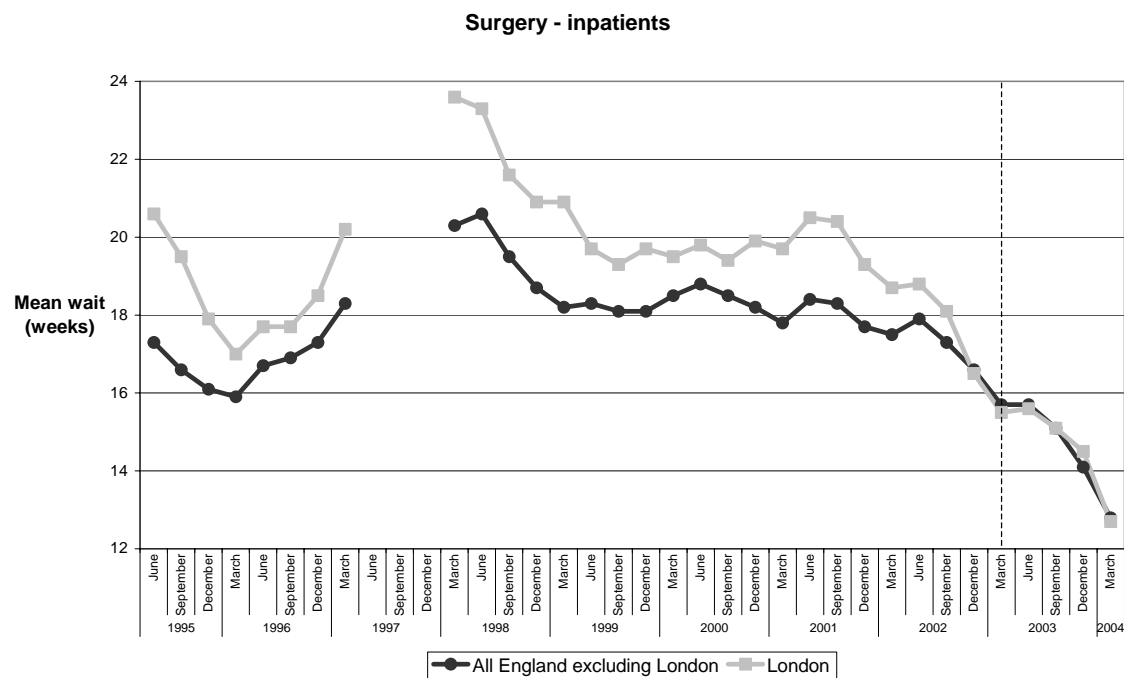
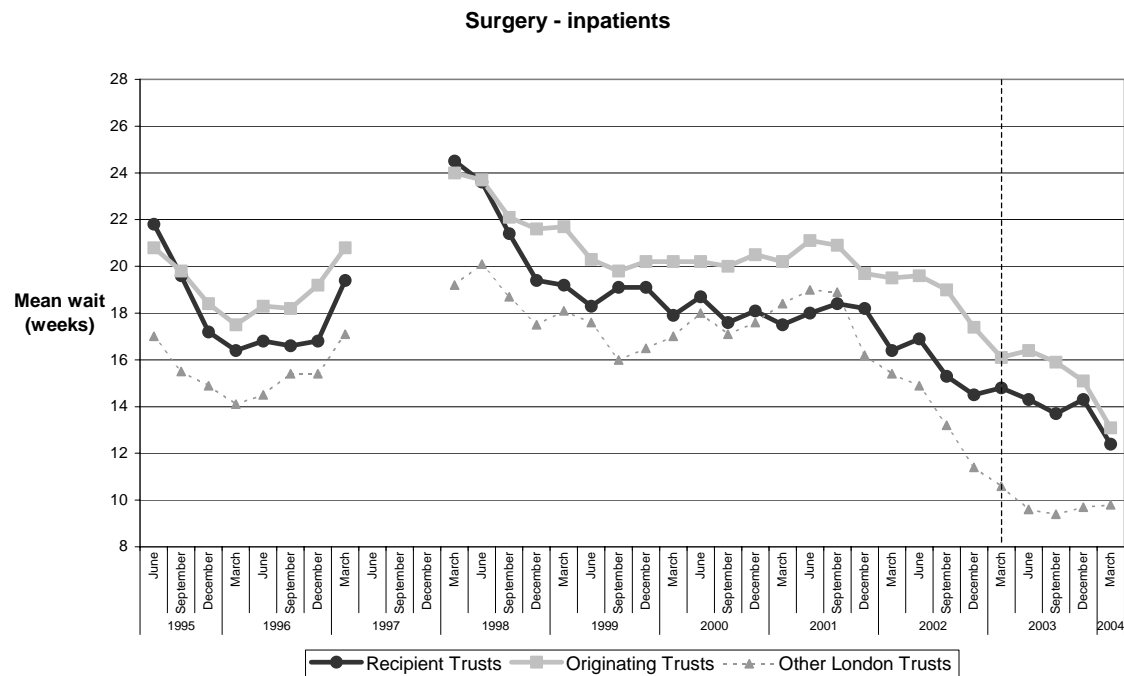


Figure 5.16: Waiting time in weeks for surgery inpatients, June 1995 - March 2004



Inpatient waiting times have been falling in all three groups of London Trusts. By March 2004 there was evidence of some convergence between originators and recipients but other Trusts maintained lower waiting times than participants in LPCP.

5.3.2. GP referrals, activity and mean waits for an outpatient appointment

**Table 5.8: GP referrals received and seen, 1995-2003, general surgery**

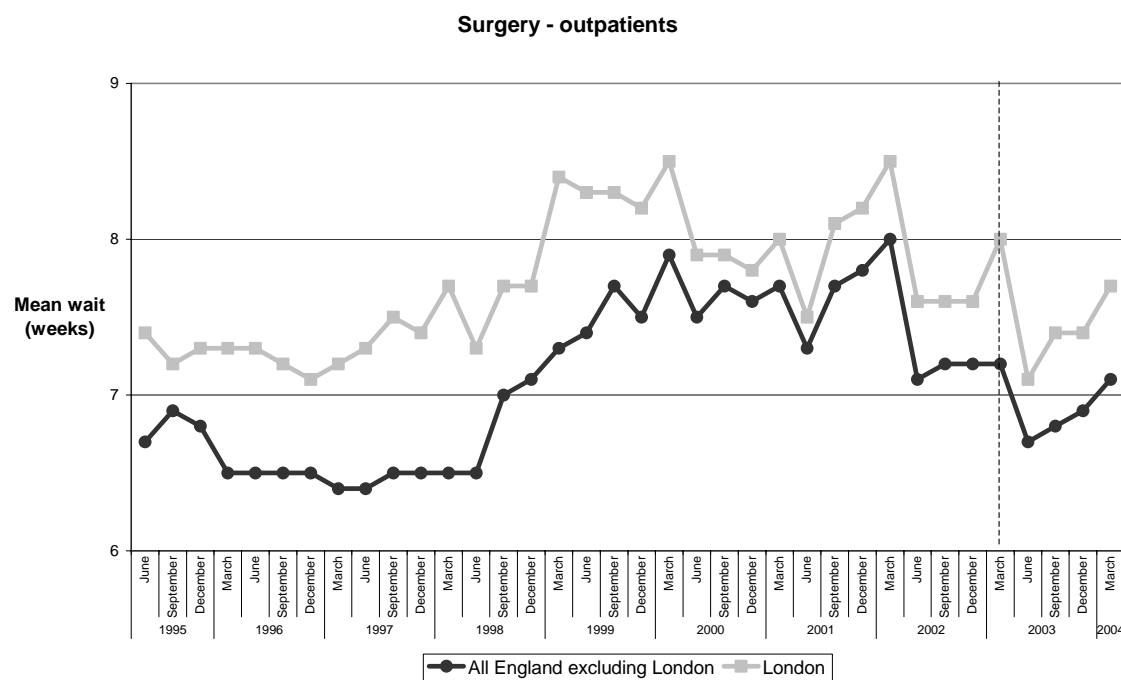
Quarter ending	All England except London n=148			London n=28			Recipient Trusts n=4			Originating Trusts n=19			Other London Trusts n=5		
	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)
1995	244	226	6.8	44	38	7.3	7	6	6.9	32	29	7.3	5	4	8.2
1996	244	223	6.5	43	37	7.1	7	6	7.2	32	28	7.0	5	4	8.5
1997	241	221	6.5	41	35	7.4	7	5	7.2	29	26	7.1	5	4	9.6
1998	266	232	7.1	46	37	7.7	7	6	8.6	33	27	7.3	6	5	9.0
1999	263	236	7.5	44	38	8.2	7	6	8.3	32	28	7.9	5	4	10.3
2000	267	238	7.6	46	39	7.8	8	6	7.7	33	29	7.6	5	4	9.1
2001	261	240	7.8	46	42	8.2	7	6	7.2	33	30	8.3	5	5	9.1
2002	263	239	7.2	46	42	7.6	7	7	6.7	33	29	8.0	5	6	7.1
% growth baseline 1995-2002	7.5	5.5	5.9	4.4	9.2	4.1	12.2	19.7	-2.9	2.9	2.6	9.6	3.8	41.6	-1.4
March 2003	262	232	7.2	45	42	8.0	6	7	6.9	33	29	8.4	5	5	7.3
June 2003	262	216	6.7	47	39	7.1	8	7	6.5	32	27	7.4	6	5	6.3
September 2003	273	224	6.8	48	39	7.4	8	7	6.5	33	27	7.8	7	6	6.3
December 2003	275	236	6.9	46	41	7.4	8	7	6.9	32	28	7.8	7	6	6.3
March 2004	270	231	7.1	49	43	7.7	8	8	6.6	34	30	8.2	7	6	6.6
% growth during LPCP	3.0	-0.5	-1.4	8.7	3.4	-3.8	10.0	7.1	-4.3	5.6	2.0	-2.4	25.2	6.0	-9.6

Table 5.8 gives activity and waiting times for a first outpatient appointment over the period 1995-2004. The full quarterly data set, corresponding to the summary in Table 5.8, can be found in Tables A41- A50 of the Data Appendix. Over the baseline period, GP referrals received and seen grew at about the same rate (between 5% and 8%) outside London but in the capital referrals seen grew at twice the rate of referrals received (9% compared

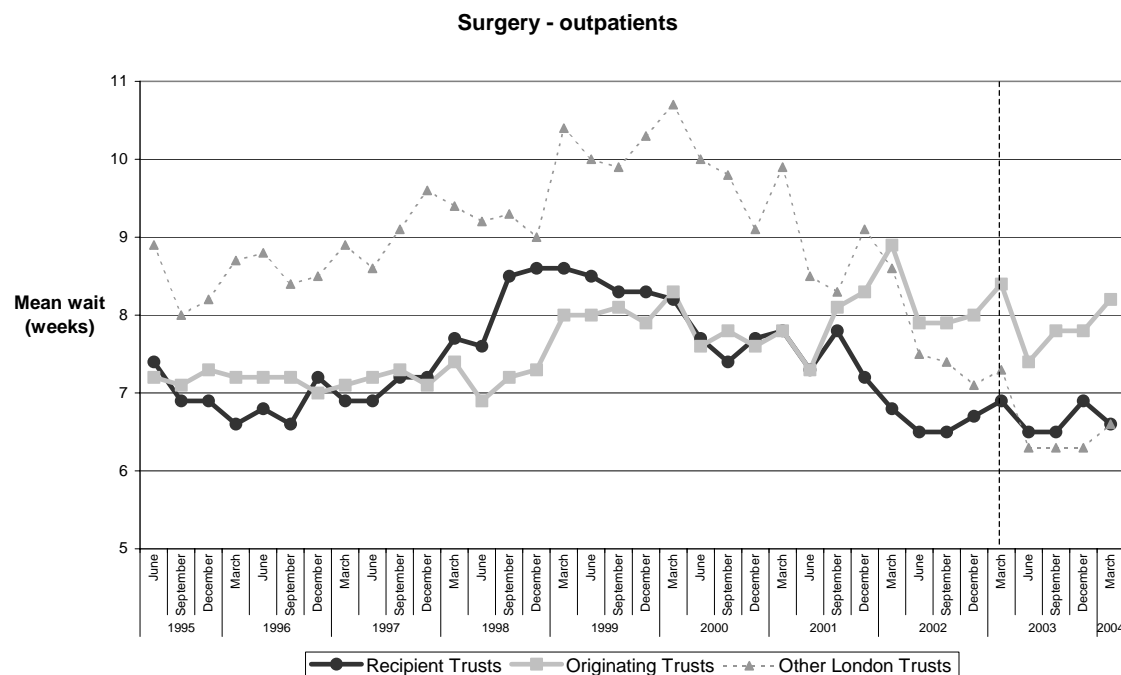
to 4%). Waiting times for first outpatient appointments in both London and the rest of England were falling in the year before the introduction of choice. Figure 5.17 illustrates the changes in waiting times in London and the rest of England.

Figure 5.18 illustrates the trends within London. Over the baseline period, there were again considerable differences between the experiences of the three types of Trust. Referrals received grew faster at the recipient Trusts (12%) than at the originating Trusts (3%) and referrals seen also grew much more quickly at the recipients (20%) than at the originators (3%). This was not sufficient to prevent the mean wait increasing faster at the former than at the latter. At December 2002 the mean wait was lowest the recipients and other Trusts (7 weeks) followed by originators (8 weeks).

**Figure 5.17: Waiting time in weeks for surgery outpatients, June 1995 - March 2004**



**Figure 5.18: Waiting time in weeks for surgery outpatients, June 1995 - March 2004**

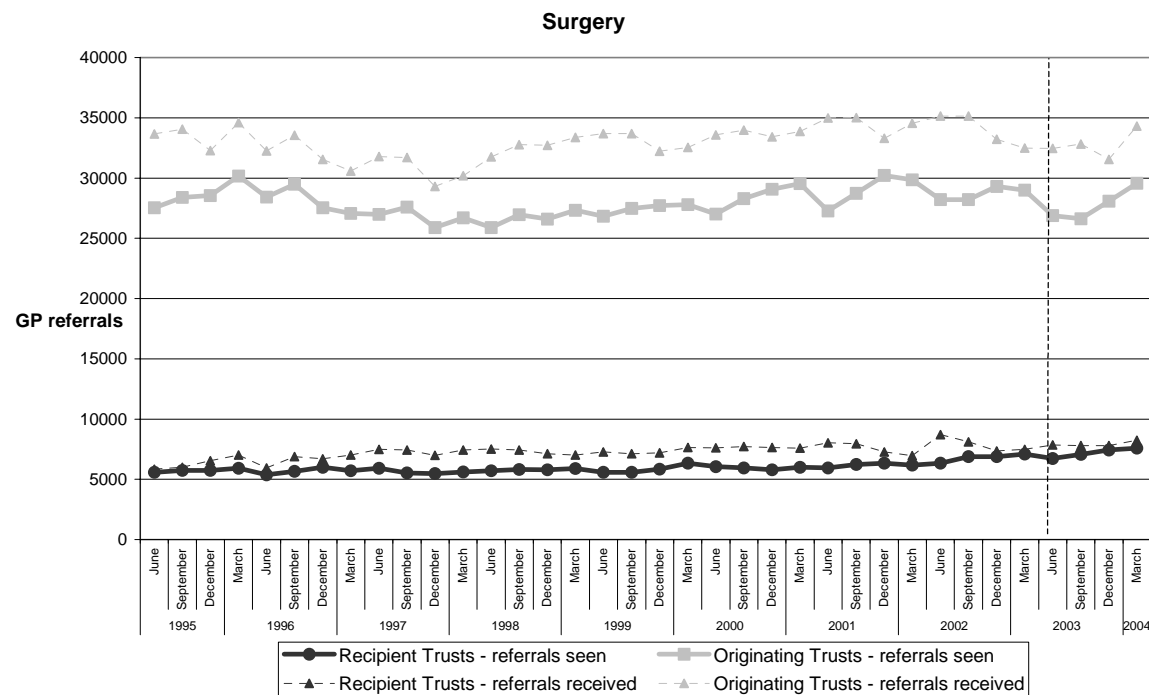


Comparing the full twelve months of LPCP with the previous twelve months, referrals grew most at non-participating Trusts (26%) with zero growth at recipients and a fall at originating Trusts. By March 2004 mean waiting times were 6.5 weeks at recipients and other Trusts but 8 weeks at originators.

It is evident from Figure 5.18 that the pattern of waiting times observed in other specialties does not apply in general surgery. There has been no persistent gap between waiting times at originating and receiving Trusts. Other Trusts, those not participating in the London Choice project, had consistently higher waiting times in the period leading up to introduction of choice. Since then these Trusts have been more successful than originators or recipients in reducing waiting times.



**Figure 5.19: Number of GP referrals received and seen for surgery, June 1995 - March 2004**



As with orthopaedics, originating Trusts dominate the supply of services in general surgery. This is highlighted by Figure 5.19 showing the number of referrals in each group of London Trusts.

5.3.3. Total waiting time

Figure 5.20: Total waiting time in weeks for surgery, June 1995 - March 2004

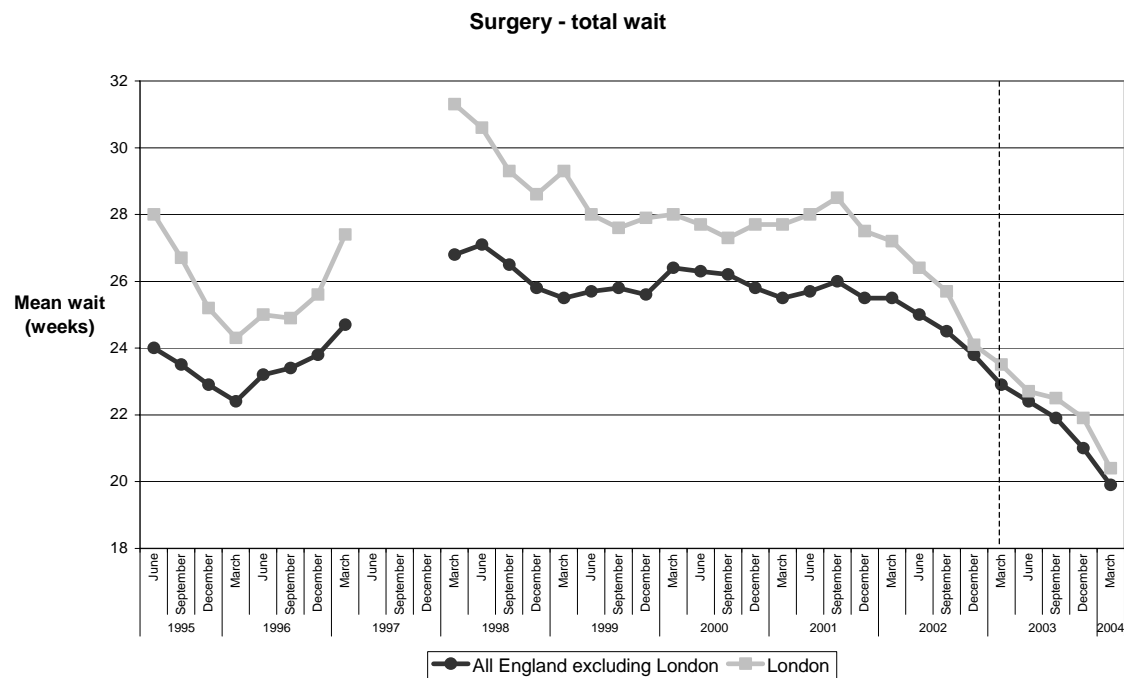
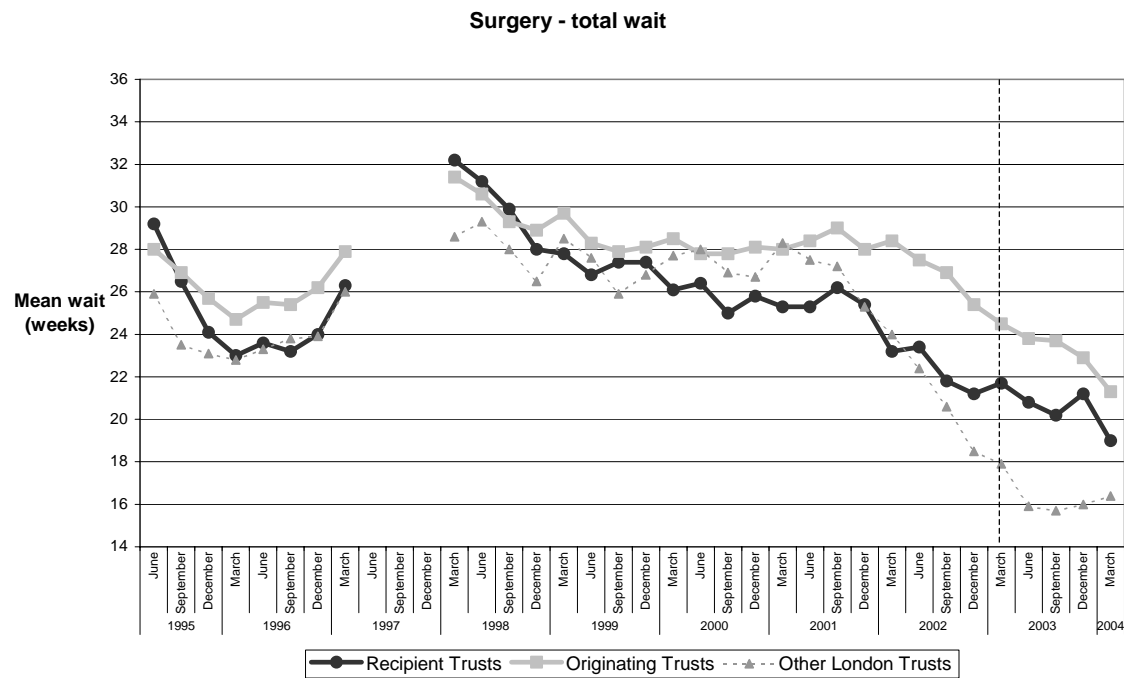


Figure 5.21: Total waiting time in weeks for surgery, June 1995 - March 2004



#### **5.4. All LPCP specialties ('surgery') and non-LPCP specialties ('medical')**

It was anticipated that one system wide impact of LPCP could be to improve waiting times for the specialties targeted by the Project but at the expense of waiting times for all other specialties. A preliminary view of the baseline can be obtained by looking at activity and waiting times for all LPCP specialties compared to all non-LPCP specialties. As mentioned in Section 2, the LPCP specialties include general surgery, urology, orthopaedics, ENT, ophthalmology, dental surgery, plastic surgery and gynaecology. The non-LPCP specialties are largely made up of medical specialties. For both groups we are only looking at patients on waiting lists for elective procedures. For the tables in this section, a Trust is included in the recipient group if it is a recipient for any specialty and in the originating group if it is an originator for any specialty.

Table 2.5 gives the current status for all London Trusts. If a Trust is a recipient for some specialties but an originator for others, it is allocated to the group of recipients. A more sophisticated analysis of Trusts that are both importers and exporters of patients should be possible when sufficient data is available for Trust level modeling. As throughout this report, trends from 1995-2004 provide the baseline and activity in all England except London is used as a crude control for nation-wide changes in NHS activity.

#### 5.4.1. *Inpatients*

Table 5.9 gives demand and supply for inpatient treatment and mean waiting time for LPCP specialties. Table 5.10 gives the equivalent data for all non-LPCP specialties<sup>9</sup>. It should be noted that for the country as a whole, as of December 2003, admissions for inpatient treatment in non-LPCP specialties were only 23% of total inpatient admissions.

Over the baseline period in the rest of England, demand for LPCP specialties fell by 5%, activity by 4% and the mean wait marginally increased. For non-LPCP specialties there was little change in demand, activity fell by around 5% and the mean waiting time by 1%. In December 2003 the mean wait for admissions in non-LPCP specialties was 13 weeks while the mean wait for LPCP specialties was 16 weeks.

The London experience was very different from that of the rest of England. For LPCP specialties additions to the waiting list and activity both declined at twice the rate for the rest of England and mean waiting times fell by 4%. For non-LPCP specialties demand in London fell by 18% as compared to virtually no change in the rest of England. Activity declined by 13% in London with no change in mean waiting times. In spite of these differences in demand and supply, by December 2003 the mean waiting times in London for both groups of specialties were the same as those for the rest of England: 13 weeks for non-LPCP specialties and 16 weeks for LPCP specialties.

Within London over the baseline period, demand for LPCP specialties fell by 13% in recipient Trusts and by 11% at originating Trusts. Activity increased by 2% at recipients but declined by 17% at originators. The pattern for non-LPCP specialties was very different. Demand at recipients fell by over 30% but by less than 5% at originating Trusts. Activity at recipients fell by 20% and at originators by 5%. By December 2003 the mean waiting time at recipient Trusts was 14 weeks for non-LPCP specialties and 15 weeks for LPCP specialties. At originating Trusts the mean wait was 14 weeks for non-LPCP specialties and 17 weeks for LPCP specialties.

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<sup>9</sup> The full quarterly data set corresponding to Table 5.9 can be found in Data Appendix tables A71-A80 and for Table 5.10 in Appendix tables A91-A100.

It is clear from this preliminary view of the baseline that, leading up to the introduction of LPCP, there were important changes taking place in the balance of activity in London relative to national trends.

**Table 5.9: Additions to the inpatient waiting list and admissions, 1995-2004, all LPCP specialties**

Quarter ending	All England except London n=157			London n=31			Recipient Trusts n=11			Originating Trusts n=17			Other London Trusts n=3		
	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)
December 1995	694	603	17.4	116	94	18.8	48	35	18.7	66	58	19.0	3	3	17.8
December 1996	700	596	18.0	118	94	19.0	47	35	19.3	68	58	18.8	3	2	13.8
December 1997	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
December 1998	697	635	19.9	113	96	21.7	44	36	22.3	66	57	21.4	3	3	14.8
December 1999	700	605	19.4	107	84	20.9	44	33	20.4	61	49	21.4	3	3	16.3
December 2000	681	597	19.3	99	80	20.9	42	33	20.7	55	45	21.1	3	2	17.7
December 2001	669	576	18.6	101	83	20.1	44	36	19.7	55	45	20.4	3	2	16.9
December 2002	660	578	17.7	104	85	18.1	43	35	17.1	58	47	18.8	4	3	13.0
% growth baseline 1995-2002	-4.9	-4.0	1.7	-10.2	-9.5	-3.7	-10.4	-0.2	-8.6	-13.1	-18.3	-1.1	18.2	16.9	-27.0
March 2003	673	612	16.5	108	91	16.6	45	38	16.4	58	50	16.8	4	3	12.0
June 2003	628	560	16.5	104	87	16.5	46	37	16.1	55	46	16.9	4	3	11.8
September 2003	648	587	16.2	104	89	16.1	45	37	15.6	55	48	16.6	4	3	11.2
December 2003	662	583	15.2	104	85	15.4	44	36	14.6	56	46	16.1	4	3	10.6
March 2004	678	628	13.2	108	93	13.2	45	38	12.9	58	51	13.5	4	4	9.7
% growth during LPCP	0.7	2.6	-20.0	0.5	2.2	-20.5	0.3	0.8	-21.3	-0.1	2.9	-19.6	10.0	7.2	-19.2

**Table 5.10: Additions to the inpatient waiting list and admissions, 1995-2004, all non-LPCP specialties**

Quarter ending	All England except London n=157			London n=31			Recipient Trusts n=11			Originating Trusts n=17			Other London Trusts n=3		
	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)	Additions (000s)	Admissions (000s)	Mean wait (weeks)
1995	131	118	14.1	45	36	14.6	20	14	15.7	18	16	13.9	7	6	14.3
1996	150	134	14.5	49	42	15.8	17	14	17.6	27	24	14.1	4	4	15.3
1997	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
1998	173	157	14.3	57	49	15.5	24	20	16.3	28	25	14.5	5	4	16.2
1999	169	154	15.1	45	38	16.9	19	16	17.8	21	18	14.6	5	4	21.1
2000	143	128	16.0	38	33	17.7	18	16	16.9	16	14	17.8	4	4	19.7
2001	135	116	15.5	37	32	15.5	18	16	15.3	15	13	15.3	5	4	16.8
2002	130	113	14.0	37	32	14.6	16	13	15.4	16	14	13.8	5	5	14.9
% growth baseline 1995-2002	-0.2	-4.5	-0.7	-17.9	-12.8	0.0	-22.2	-10.2	-1.9	-10.8	-11.6	-0.7	-24.4	-23.3	4.2
March 2003	136	121	13.0	39	34	13.8	18	15	14.5	15	14	13.2	6	5	13.4
June 2003	134	116	13.0	37	32	13.8	17	15	14.2	14	12	13.6	6	5	12.8
September 2003	138	122	12.8	38	34	13.4	19	17	13.6	14	12	13.6	6	5	12.2
December 2003	140	121	12.3	37	33	12.8	18	16	12.7	14	12	13.2	6	5	12.2
March 2004	146	131	11.0	39	32	10.8	17	14	11.0	16	13	10.8	6	5	10.3
% growth during LPCP	7.6	8.4	-15.4	-1.1	-6.4	-21.7	-8.1	-9.4	-24.1	6.7	-6.6	-18.2	0.7	1.4	-23.1

5.4.2. *GP referrals, activity and mean waits for an outpatient appointment*

Table 5.11 gives demand and supply for first outpatient appointments and the mean wait for LPCP specialties. Table 5.12 gives the equivalent data

for all non-LPCP specialties<sup>10</sup>. Over the baseline period, in the rest of England, referrals for LPCP specialties grew by 10%, activity by 5% and the mean wait by 6%. In contrast, demand in the non-LPCP specialties increased by 18%, supply by 12% and the mean wait increased by about 10%. Activity in non-LPCP specialties is roughly half that of the LPCP specialties but demand was increasing at a greater rate. By December 2003, the mean wait was slightly higher for LPCP specialties than for non-LPCP specialties in the rest of England.

The experience of London was different. For LPCP specialties demand grew at a rate similar to the rest of England but supply grew at twice the national rate. By December 2002 the mean wait was about the same in London and the rest of England. For non-LPCP specialties, London experienced an increase in demand and supply at only half the rate for the rest of England but waiting times increased by almost 18%. It would appear that at the start of LPCP, London was having more difficulty coping with the non-LPCP specialties than with the LPCP specialties.

Within London referrals for LPCP specialties grew by 9% at recipient Trusts and 7% at originating Trusts. However supply increased more at originators (9%) than at recipients (4%). By December 2003 the mean wait was slightly lower at recipients (9 weeks) than at originators (10 weeks). For non-LPCP specialties recipients experienced a 23% increase in demand and generated a 14% increase in supply. Waiting time increased by 26%. Demand and supply were virtually unchanged at originators but waiting time for non-LPCP specialty first outpatient appointments increased by 13%. By December 2003 recipient Trusts had marginally higher waiting times for LPCP specialties than for non-LPCP specialties and originating Trusts had equal waiting times for both groups of specialties.

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<sup>10</sup> The full quarterly data set corresponding to Table 5.11 can be found in Data Appendix Tables A61-A70 and for Table 5.12 in Appendix Tables A81-A90.



**Table 5.11: GP referrals received and seen, 1995-2004, all LPCP specialties**

Quarter ending	All England except London n=157			London n=31			Recipient Trusts n=11			Originating Trusts n=17			Other London Trusts n=3		
	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)
1995	1089	1000	9.0	191	166	9.1	76	65	8.5	113	98	9.5	5	3	7.5
1996	1090	992	8.9	192	169	8.8	77	70	8.8	113	97	8.8	3	3	9.5
1997	1100	976	9.2	187	157	9.6	77	63	9.7	106	92	9.4	4	3	11.6
1998	1148	984	10.0	202	163	10.3	79	63	10.1	120	97	10.4	3	3	11.7
1999	1154	1021	10.8	194	163	11.1	75	61	10.5	115	99	11.4	3	3	11.1
2000	1185	1061	10.6	195	171	10.4	75	61	9.3	117	106	11.1	4	4	11.4
2001	1196	1076	10.3	196	171	10.6	75	63	9.7	118	104	11.2	3	4	10.3
2002	1204	1046	9.5	209	180	9.7	84	70	8.8	122	106	10.4	4	5	8.7
% growth baseline 1995-2002	10.5	4.6	5.6	9.7	8.8	6.6	10.2	6.4	3.5	7.8	8.0	9.5	-18.0	50.4	18.7
March 2003	1227	1075	9.6	215	188	10.0	85	73	9.0	126	110	10.8	4	5	8.8
June 2003	1216	977	8.9	215	170	9.3	83	65	8.7	127	101	9.6	5	5	8.3
September 2003	1227	1019	9.2	214	174	9.6	82	67	9.2	126	101	10.0	6	5	7.6
December 2003	1219	1046	9.2	208	180	9.7	80	71	9.5	123	104	10.0	6	5	7.8
March 2004	1247	1059	9.2	227	196	9.8	84	78	9.6	137	113	10.0	6	5	7.6
% growth during LPCP	1.6	-1.5	-4.2	5.5	4.5	-2.0	-0.5	6.3	6.6	8.3	2.9	-7.4	42.5	16.8	-13.6

**Table 5.12: GP referrals received and seen, 1995-2004, all non-LPCP specialties**

Quarter ending	All England except London n=157			London n=31			Recipient Trusts n=11			Originating Trusts n=17			Other London Trusts n=3		
	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)	Referrals received (000s)	Referrals seen (000s)	Mean wait (weeks)
December															
1995	503	460	8.4	119	103	8.4	45	39	7.7	70	60	9.1	6	5	5.0
1996	518	472	8.3	124	106	8.5	49	41	8.6	70	61	8.7	5	5	5.8
1997	524	469	8.7	126	103	8.8	53	39	8.8	68	59	9.0	6	5	6.5
1998	551	477	9.3	130	103	9.5	53	36	9.4	72	62	9.7	6	6	7.0
1999	550	488	10.0	123	103	10.2	48	37	9.9	70	60	10.6	5	6	8.0
2000	587	511	10.0	127	107	10.3	50	40	10.0	72	62	10.7	6	5	8.1
2001	595	518	9.9	130	109	10.2	52	41	9.4	72	63	10.8	6	6	8.3
2002	597	518	9.2	130	110	9.9	50	41	9.5	73	64	10.2	7	5	9.7
% growth baseline 1995-2002	18.6	12.8	9.5	9.2	6.2	17.9	12.0	5.7	23.4	5.5	7.2	12.1	20.9	12.9	94.0
March 2003	623	534	9.0	136	115	10.0	51	43	9.4	78	67	10.5	7	5	8.5
June 2003	633	496	8.3	136	109	9.2	51	42	9.0	79	62	9.6	6	5	7.2
September 2003	646	525	8.6	134	109	9.4	50	42	8.8	78	62	10.1	6	5	7.0
December 2003	634	535	8.6	126	109	9.4	46	41	8.9	74	64	9.9	6	5	7.3
March 2004	653	536	8.4	141	120	9.4	49	45	9.2	85	69	9.7	6	6	7.3
% growth during LPCP	4.8	0.4	-6.6	3.7	3.7	-6.0	-4.0	2.6	-2.1	10.1	4.4	-7.6	10.5	3.8	-14.1

Demand for non-LPCP specialties grew faster outside London than in the capital. Waiting times were the same for inpatients (11 weeks) but higher in London for outpatient appointments (9 weeks compared to 8 weeks). It is difficult to generalise about trends within London. The concentration of TC development in recipient Trusts suggests that the fall in non-LPCP activity may simply reflect the reconfiguration of capacity. There is little difference between the groups of London Trusts in mean waiting times for inpatients. Waits for a first outpatient appointment are similar for

originators and recipients (9 weeks) but much lower at other Trusts (7 weeks).

There is no *prima facie* evidence that LPCP work was substituted for non-LPCP activity. However, it is likely that specialty level data is too aggregated to test the substitution hypothesis. Analysis of tracer procedures may be a more fruitful approach in any future analysis.

## **5.5. Summary**

This section of our report sets out the baseline leading up to introduction of choice in London and activity during the London Patient Choice Project. It is clear that waiting times had been falling before the LPCP and in some specialties convergence of waiting times within London had begun before the introduction of choice. In the next section we examine whether there were statistically significant *changes* in these trends during the period LPCP was active.

## **6. Modelling the response to Choice: Waiting times**

This section presents the results for modelling the response of Trusts to Choice. The purpose of Patient Choice has been to reduce waiting times for Trusts with long waits by giving patients the option of moving to Trusts with lower waiting times in the particular specialty. In this section we test whether Choice (LPCP) has had a significant effect on mean inpatient waiting times in the three specialties ophthalmology, general surgery and orthopaedics. We examine whether Choice has been a successful instrument for reducing waiting times in two instances:

- 1.) for LPCP Trusts as a whole relative to comparator Trusts that engage in activity in the particular specialty, and
- 2.) within London for the three types of Trusts that engage in activity in the particular specialty, particularly those that export patients (originators), relative to comparator Trusts.

Since there were different incentives facing the three groups of London Trusts (recipients, originators and others), our main interest is to examine whether within the three groups there has been some convergence in mean inpatient waiting times. Our second analysis (within London) will enable us to explore this.

A detailed description of the methodology, data and results for this modelling is available in the Technical Appendix available with this report (bound separately).

### **6.1. The methodology**

We use a difference in difference (DID) methodology (Blundell and Costa Dias, 2000; Wooldridge, 2002) which enables us to compare the change in waiting times for LPCP Trusts (using the terminology from the evaluation literature, they are called the treated group) before and after the LPCP Project (the treatment) with the change in waiting times (our treatment outcome) for Trusts in a comparator group such as the rest of England (the control group) over the same period. The treatment effect here should not be confused with the medical treatment of patients in any way – the treatment here refers to the policy intervention of LPCP and the treatment group the Trusts exposed to the LPCP intervention.

Our data is set up in each of the 3 specialties to cover a period of 4 years, with 3 years of waiting times data prior to the introduction of LPCP and 1 year of waiting times data post LPCP. We construct an LPCP year dummy variable to capture the 4 years of LPCP data, including the treatment year. Our waiting times data is quarterly inpatient waiting times in each of the three specialties.

The difference in difference (DID) estimates, test for the significance of the difference in waiting times for the LPCP group between years 3 (pre-treatment) and 4 (post-treatment) with that of the control group.

Our treatment group (LPCP Trusts) consists of 3 groups of Trusts each of which face quite different incentives within the LPCP treatment regime. Originating Trusts with higher waiting times would be able to reduce their waiting times, hence the effect of the LPCP on their waiting times is likely to be more negative. Recipient Trusts with lower waiting times to start off with, would receive additional patients through the Choice mechanism but should still be able to maintain low waiting times. The third group of Trusts within London (others) participate in activity in the particular specialty but have chosen not to participate in the LPC Project for whatever reason, even though they were eligible to be included in the Project (or exposed to the treatment option). This group of Trusts had very low waiting times but they did not have the investment in new capacity that would make it financially attractive to become recipients. The evidence suggests Trusts do not like exporting patients. The threat that under a choice regime these Trusts might in future have to export patients may have been an incentive to keep improving on their low waiting times. We evaluate the effect of LPCP on these three groups of Trusts.

Again DID tests for the significance of the difference in waiting times for the 3 LPCP groups within London between years 3 (pre-treatment) and 4 (post-treatment) with that of the control group.

## **6.2. The data**

Three databases were constructed, one for each specialty. The first full year of data for LPCP in ophthalmology ran from October 2002 to September 2003, and for general surgery and orthopaedics from April 2003 to March 2004. Our data is quarterly waiting time data for inpatients and covers a period of 4 years or 16 quarters, starting from October 1999 for ophthalmology and starting in April 2000 for general surgery and orthopaedics. Each database is set up to have 3 years (or 12 quarters) of waiting times data prior to the introduction of LPCP and 1 year (or 4 quarters) of waiting times data post LPCP (a full year in which LPCP has been running). We therefore have 3 equivalent calendar years of data prior to the introduction of LPCP to which we compare the effects of LPCP. The databases contain inpatient waiting times data in each of the specialties for all Trusts within England.

We match the above waiting times data with a large Trust database which is available on an annual basis, by financial year. Since the data is only available annually, we merged the Trust data with the quarterly data on inpatient mean waiting times and assumed the annual Trust data to be constant across quarters, within the financial year. For the quarters in which we require 2003/04 annual Trust data which is not available yet, we have assumed these constant from 2002/03.

The Trust data covers a very large number of variables on expenditure, resource use, performance and staffing. These include performance data and key targets from the Commission for Health Improvement (CHI), workforce census data from the Department of Health listing medical staff by specialty and by grade, Hospital Episodes Statistics (HES) aggregate data, hospital activity statistics, including capacity measures, vacancy rate survey data from the Department of Health, CIPFA data on expenditure, salaries, activity, staffing, and Reference Cost data.

### 6.3. Control groups

When using the DID methodology, we test the difference in mean waiting times between our treatment group (LPCP Trusts) in the treatment year and the pre-treatment year relative to the difference in mean waiting times for a control group (non-LPCP Trusts) in the treatment year and the pre-treatment year. We used three types of comparator or control groups in this study (non-LPCP Trusts):

- 1.) Rest of England
- 2.) Matched control
- 3.) Metropolitan areas

#### 6.3.1. *Rest of England*

The first control group, rest of England, is intuitively plausible, since we wish to test whether changes in waiting times in LPCP Trusts are the result of a specific London effect. In the baseline and monitoring of waiting times, we have compared London Trusts to the rest of England as a comparator group. However, this is a much larger sample of Trusts than LPCP. The advantage of a large control group is that coefficient estimates in the regressions may be more robust, since we have a large sample size. However the disadvantage of rest of England as a control group is that we may be comparing LPCP Trusts to several non-LPCP Trusts in the rest of England that are very different in terms of their circumstances, characteristics and operating environments which we would otherwise not deem as useful comparisons.

#### 6.3.2. *Matched control*

The second control group is matched control, where we try to match LPCP Trusts with non-LPCP Trusts using a statistical technique called propensity score matching. Since the assignment of Trusts to the treatment (LPCP) and control (non-LPCP) groups is not random, the estimation of the treatment effect may be biased by the existence of confounding factors (Becker and Ichino, 2002). Propensity score matching is a way to 'correct' the estimation of treatment effects controlling for the existence of these confounding factors based on the idea that the bias is reduced when the comparison of treatment outcomes (waiting times) is performed using treated and control groups who are as similar as possible. The method

matches treatment hospitals (LPCP) with non-treatment hospitals from the set of Trusts in the rest of England in LPCP year 3 on the basis of observable characteristics, other than their waiting times. Thus, under the propensity score matching, exposure to LPCP treatment is random and LPCP and control Trusts should on average be identically matched.

The advantage of this matched control group is that statistically there is a strong match between LPCP and non-LPCP Trusts on their pre-treatment characteristics. The disadvantage is that the control group is small and therefore coefficient estimates in the regressions may be less reliable. As a result, this control group was tested for the first specialty ophthalmology only and then subsequently dropped for the other two specialties. We do not report these results in the main report, but full results are available in the Technical Appendix.

### 6.3.3. Metropolitan areas

The third control group is metropolitan areas. The reason for this choice of control group was to counteract concerns with the rest of England control group that we may be comparing LPCP Trusts to non-LPCP Trusts in the rest of England that are very different in terms of their circumstances, characteristics and operating environments which may not be relevant. We therefore chose as the third control group the main metropolitan areas outside of London which would likely each have a similar local health economy to London in terms of travel distances, size and concentration. Four Strategic Health Authorities have been used as representative of the conurbations for control purposes. Although the 28 Strategic Health Authorities only came into existence in 2002, the Trusts which fall within their boundaries are chosen as the control group and hence they remain controls across the whole period (SHA codes have been extended backwards). The four Strategic Health Authorities are listed in Table 6.1.

**Table 6.1: Strategic Health Authorities which represent major metropolitan areas**

SHA code	Strategic Health Authority name	Number of Trusts within SHA
Q12	West Yorkshire	5
Q14	Greater Manchester	5
Q27	Birmingham and the Black Country	6
Q28	West Midlands South	4

The advantages of this control group are that it is slightly larger than the matched control group and likely to therefore produce more reliable coefficient estimates in the regressions, and the Trusts are likely to be quite well matched to LPCP Trusts in that they operate within a similar type of health economy.

## 6.4. The modelling approach

Using the DID methodology, for each of the above control groups we ran three types of estimation techniques, Ordinary Least Squares (OLS), a fixed effects model, and a random effects model. We ran a number of specification tests for each model. We ran all models with and without Strategic Health Authority effects - results were qualitatively similar. We also ran all models with dummy variables for seasonal effects. A full discussion of all these issues is covered in the Technical Appendix.

## 6.5. Ophthalmology

### 6.5.1. Descriptive statistics

Table 6.2 shows the descriptive statistics for the mean inpatient waiting times in ophthalmology for the different groups of Trusts within the study. Within LPCP there are 20 Trusts (4 recipients, 10 originators and 6 others) while in the matched control group there are 18 Trusts and in the metropolitan areas control group there are 26 Trusts.

The mean waiting time across all treatment and control groups has fallen over the 4 periods. However our interest is whether this decrease in the waiting times is significantly greater for the LPCP group between years 3 and 4, relative to the control groups. Furthermore, we can break down this comparison for LPCP into the 3 groups within LPCP relative to the control group. The difference in difference methodology enables us to do this.

It is clear from these descriptive statistics that originators have higher waiting times than all other groups of Trusts, particularly in the first 3 years although there is a big decline in year 4. The other group have consistently lower waiting times than any of the other groups within London over the 4 years. Waiting times for the rest of England group and the matched control group are not too dissimilar. Mean waiting times in metropolitan areas appear to be lower than for the other two control groups, and not too dissimilar from the other Trust group within London, particularly for the last 2 years of data, year 3 and 4.

Table 6.2 also shows the descriptive statistic for the coefficient of variation which provides a relative measure of data dispersion compared to the mean. It is calculated as the standard deviation over the mean. When the coefficient of variation is small, the data scatter compared to the mean is small. When the coefficient of variation is large compared to the mean, the amount of variation is large. The variance provides a similar measure of dispersion, but the coefficient of variation indicates the variation relative to the mean.



From this measure, it is clear that across all groups (except metropolitan areas) there has been a reduction in the coefficient of variation. This trend provides an important indication of convergence in mean waiting times within each of these groups towards their mean waiting time respectively. This in itself can be considered an important improvement within the system, even if waiting times weren't falling, since it provides greater equity across Trusts with respect to the length of wait which patients are likely to receive and removes some of the randomness of patients potentially waiting much longer at certain Trusts than others simply by virtue of their being referred to one Trust rather than another.

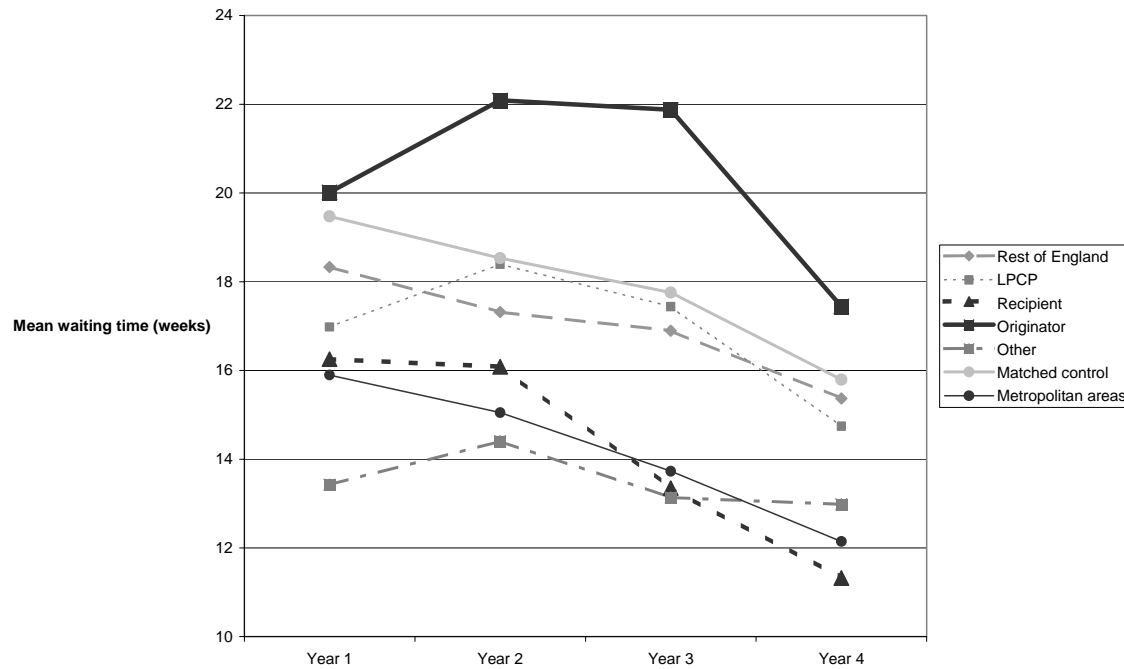
The reduction in waiting times along with the reduction in variation are therefore two distinct and important trends in the data.

**Table 6.2: Descriptive statistics for inpatient mean waiting time in ophthalmology by group over 4 years**

	Number of Trusts	LPCP year	Number of observations	Mean	Std Dev	Coefficient of variation	Variance	Min	Max
Rest of England	n=163	1	515	18.332	5.56	0.303	30.91	7	35
		2	488	17.318	5.32	0.307	28.30	7	32
		3	458	16.896	5.05	0.299	25.50	7	32
		4	447	15.372	4.46	0.290	19.89	7	26
LPCP	n=20	1	72	16.982	5.84	0.344	34.11	9	27
		2	76	18.397	5.85	0.318	34.22	9	31
		3	78	17.438	5.87	0.337	34.46	7	29
		4	76	14.746	3.77	0.256	14.21	9	27
Recipients	n=4	1	16	16.254	4.63	0.285	21.44	9	23
		2	16	16.082	4.31	0.268	18.58	11	24
		3	16	13.347	3.12	0.234	9.73	10	19
		4	16	11.322	2.06	0.182	4.24	9	15
Originators	n=10	1	32	20.014	4.73	0.236	22.37	10	27
		2	36	22.087	4.71	0.213	22.18	13	31
		3	38	21.878	4.48	0.205	20.07	13	29
		4	36	17.442	3.30	0.189	10.89	12	27
Others	n=6	1	24	13.426	5.88	0.438	34.57	9	26
		2	24	14.404	4.91	0.341	24.11	9	25
		3	24	13.136	3.63	0.276	13.18	7	23
		4	24	12.983	2.07	0.159	4.28	9	17
Matched control	n=18	1	60	19.475	6.33	0.325	40.07	7	31
		2	66	18.531	6.23	0.336	38.81	7	32
		3	70	17.760	5.03	0.283	25.31	9	28
		4	70	15.796	3.67	0.232	13.47	9	24
Metropolitan areas	n=26	1	52	15.898	4.37	0.275	19.13	7	23
		2	62	15.050	4.20	0.279	17.60	8	23
		3	74	13.730	3.71	0.270	13.77	7	21
		4	80	12.144	3.48	0.287	12.09	8	24

Figure 6.1 plots the mean waiting times in weeks for each of these groups. It is clear that originators have the highest waiting times but have seen the largest decline in year 4. Recipients and other Trusts have the lowest waiting times, though recipients have seen some decline over the last two years while others have not seen much of a decline between years 3 and 4, and in fact see a slight increase between years 1 and 2.

**Figure 6.1: Plot of inpatient mean waiting times in ophthalmology by group over 4 years**



Box plots are another way of presenting the location and variation in data, particularly the changes between different groups of data. The following box plot depicts the distribution for the mean waiting time variable over time for the LPCP group relative to each of the main comparator groups. The box shows the interquartile range from the 25<sup>th</sup> to 75<sup>th</sup> percentile with the line in the middle of the box showing the median value (of the mean waiting time). The lines extending from either side of the box show the upper and lower adjacent values of the variable while the dots show any

outside values that may exist in the distribution (those values that lie more than  $\pm 3$  times the interquartile range, or equivalently above or below the adjacent values). The box plots are therefore a useful visual way of summarising the distribution of the mean waiting time variable over time.

**Figure 6.2: Distribution of mean waiting time in weeks for ophthalmology by year for LPCP Trusts and the comparator groups Rest of England and Metropolitan areas**

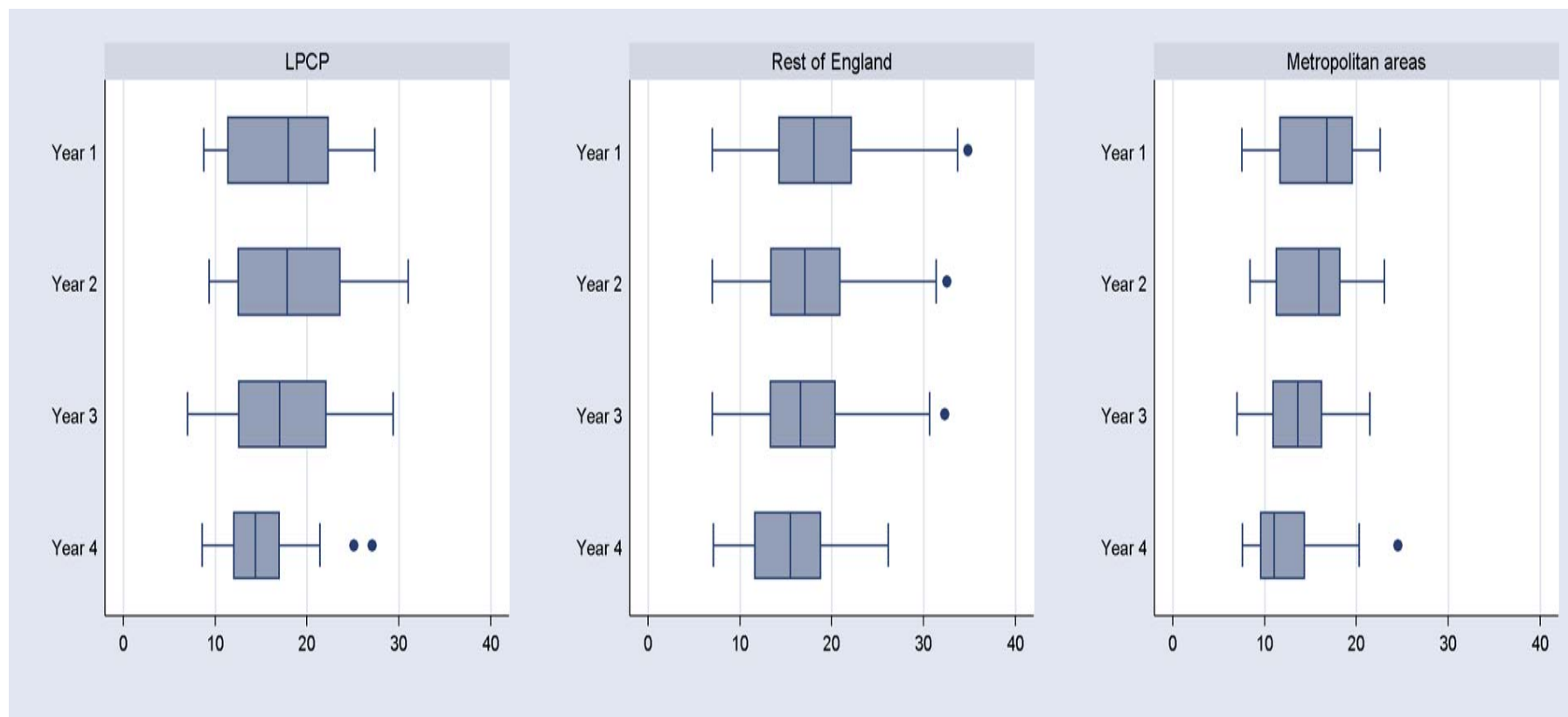


Figure 6.2 shows a reduction in the median value of waiting times across all groups over time. While the median value of waiting time for metropolitan area Trusts has fallen, there has been less reduction in the distribution of mean waiting times. The most dramatic reduction in the

dispersion of mean waiting times appears to have been in the LPCP group, which again underscores the important equity implications this is likely to have for LPCP Trusts.

6.5.2. *Difference in difference results for LPCP Trusts*

This section presents the results for the difference in difference (DID) model in which we test whether the overall treatment group (LPCP) relative to the control groups (non-LPCP Trusts) were any different in their change in mean waiting times between years 3 and 4.

Table 6.3 shows the results for the test of the difference in difference model against the two control groups, rest of England and metropolitan areas. The full regression results are available in the Technical Appendix.

**Table 6.3: Results for difference in difference model for overall effect of London Patient Choice on inpatient waiting times**

	Rest of England comparator			Metropolitan areas comparator		
	OLS	Fixed effects	Random effects	OLS	Fixed effects	Random effects
Test for LPCP	-0.635 (0.83)	-1.202 (1.44)	-1.447 (1.86)*	-1.129 (1.31)	-1.617 (1.71)*	-1.628 (1.79)*

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Our main interest in these results is to test the overall difference in difference in waiting times for the LPCP group relative to the comparator groups in year 4 versus year 3. These results are summarised in Table 6.3.

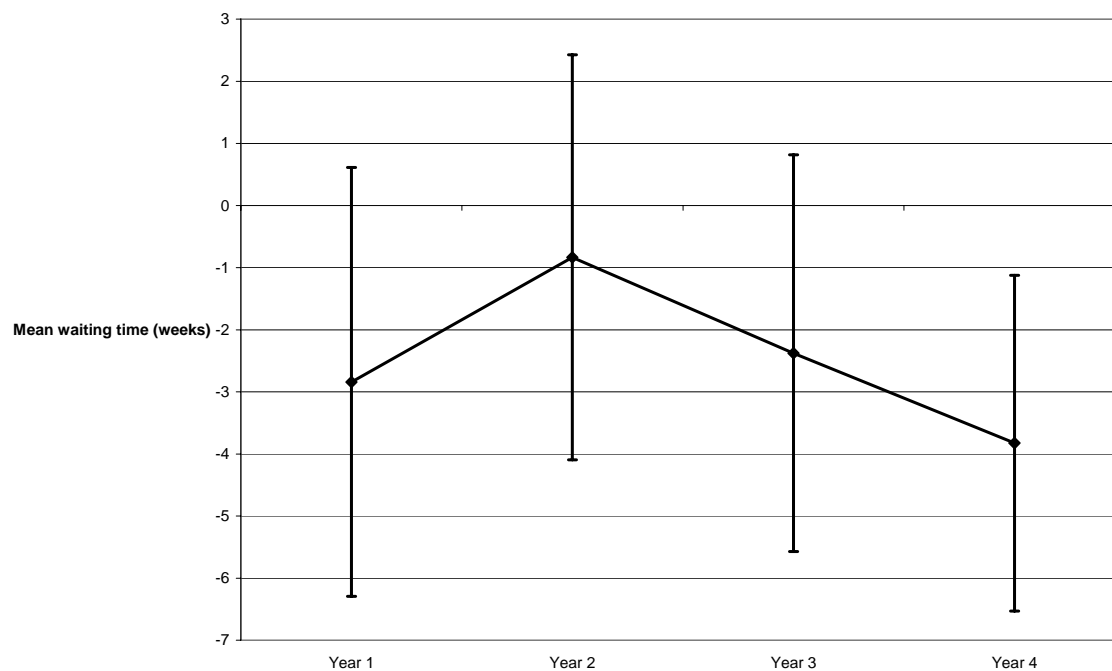
In all the models the DID is negative, suggesting that on average the effect of the LPCP treatment (policy intervention) on the LPCP treatment group was to reduce waiting times by around 1 week between year 3 and year 4 compared to the different control groups. However these DID estimates are only significant in three of the models at the 10 percent level.

The following two figures show the mean waiting times in weeks for LPCP Trusts relative to each of the comparator groups for each of the four years. We estimate the treatment outcome for LPCP Trusts in each year and produce confidence intervals for each estimate. A confidence interval is a range of values (one of the 4 vertical bars in Figure 6.3) that has a high probability (usually set at a 95% certainty) of containing the parameter being estimated (our estimated treatment outcome for each of the 4 years). Thus if the confidence intervals are very long we have less certainty

about the precision of the parameter estimate. Zero in this case represents the comparator group. Thus if the confidence intervals overlap zero, the change in treatment outcome (or mean waiting time) is not significant relative to the comparator group.

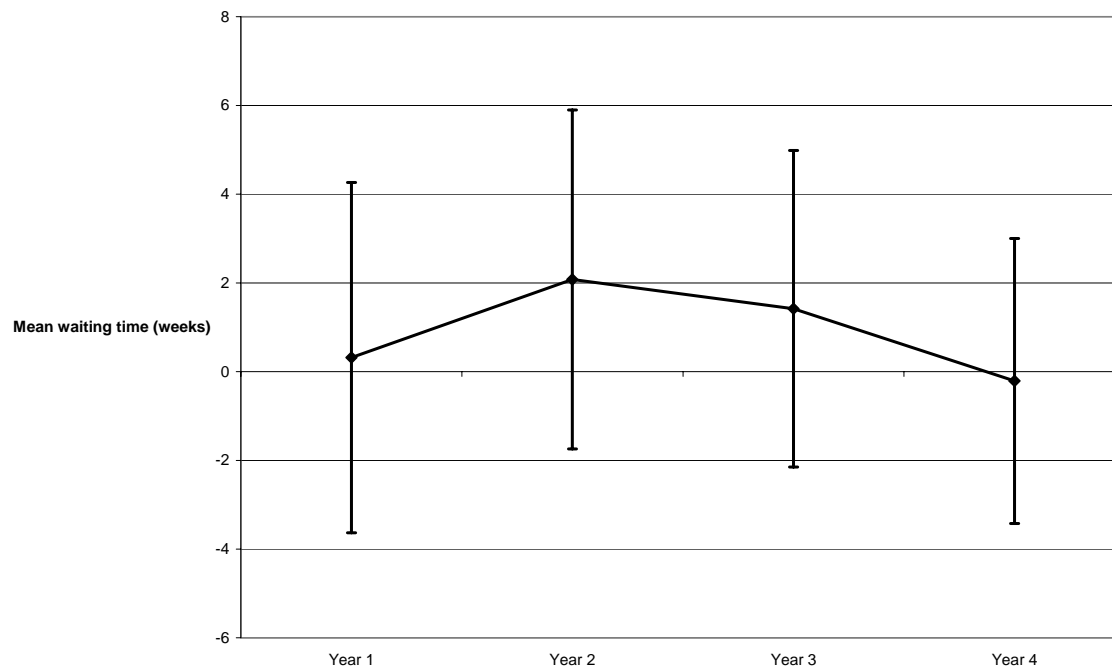
Figure 6.3 shows a downward trend in waiting times from year 2 onwards and results suggest that waiting times for LPCP Trusts in year 4 were significantly lower than the rest of England comparator group.

**Figure 6.3: Mean waiting time in weeks for ophthalmology for LPCP group relative to rest of England comparator group**



When comparing LPCP to metropolitan areas in Figure 6.4, we see there is no significant difference between waiting times for LPCP and metropolitan areas across all 4 years, since the confidence intervals overlap in each period.

**Figure 6.4: Mean waiting time in weeks for ophthalmology for LPCP group relative to metropolitan areas control group**



6.5.3. *Difference in difference results for the three groups of LPCP Trusts*

While we may be interested in the overall LPCP effect relative to the rest of England and metropolitan areas, there were of course very different incentives facing Trusts within LPCP and we therefore wish to distinguish any changes in waiting times for the three groups of Trusts within London. We therefore use the difference in difference model again to explore whether there were significant changes between years 3 and 4 for any

of the 3 groups of Trusts within LPCP relative to the comparator groups. In particular, we are interested in whether originating Trusts were able to significantly reduce their waiting times.

Table 6.4 shows the results for the difference in difference model for inpatient waiting times in ophthalmology for the three groups of London Trusts relative to the comparator groups (rest of England and metropolitan areas).

**Table 6.4: Results for difference in difference model for effect within London on inpatient waiting times**

	Rest of England comparator			Metropolitan areas comparator		
	OLS	Fixed effects	Random effects	OLS	Fixed effects	Random effects
Test for recipients	0.212 (0.24)	-0.667 (0.83)	-0.699 (0.91)	-0.076 (0.09)	-0.770 (0.83)	-0.950 (1.04)
Test for originators	-2.290 (2.49)**	-3.378 (2.98)***	-3.360 (3.11)***	-2.198 (2.28)**	-3.527 (2.88)***	-3.575 (3.08)***
Test for others	1.284 (1.37)	1.020 (1.21)	0.978 (1.22)	1.624 (1.51)	1.324 (1.44)	1.073 (1.19)

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Our main interest is again to test the overall difference in difference (DID) in waiting times for the 3 groups of LPCP Trusts relative to the comparator groups in year 4 versus year 3. We are interested in whether there has been a significant decline in mean waiting times for originating Trusts, which would suggest some convergence in mean waiting times within London Trusts. However, we also wish to test whether such a decline has been at the expense of patients at the other groups of Trusts now taking on the additional activity. In other words, if waiting times significantly increase for recipient Trusts as a result of taking on additional choice patients, then some patients lose while others gain. If the decline is significant for originators only, this would suggest an equity improvement to the system as a whole.

In all 6 models we find a negative effect for originating Trusts suggesting that they have lowered their waiting times in the LPCP treatment year relative to the previous year. This effect is significant across all six models. These results suggest originating Trusts lowered their waiting times in the LPCP treatment year relative to the previous year by approximately 3 weeks.

Results for recipient Trusts were not significant in any of the models suggesting no deterioration in waiting times relative to comparators.

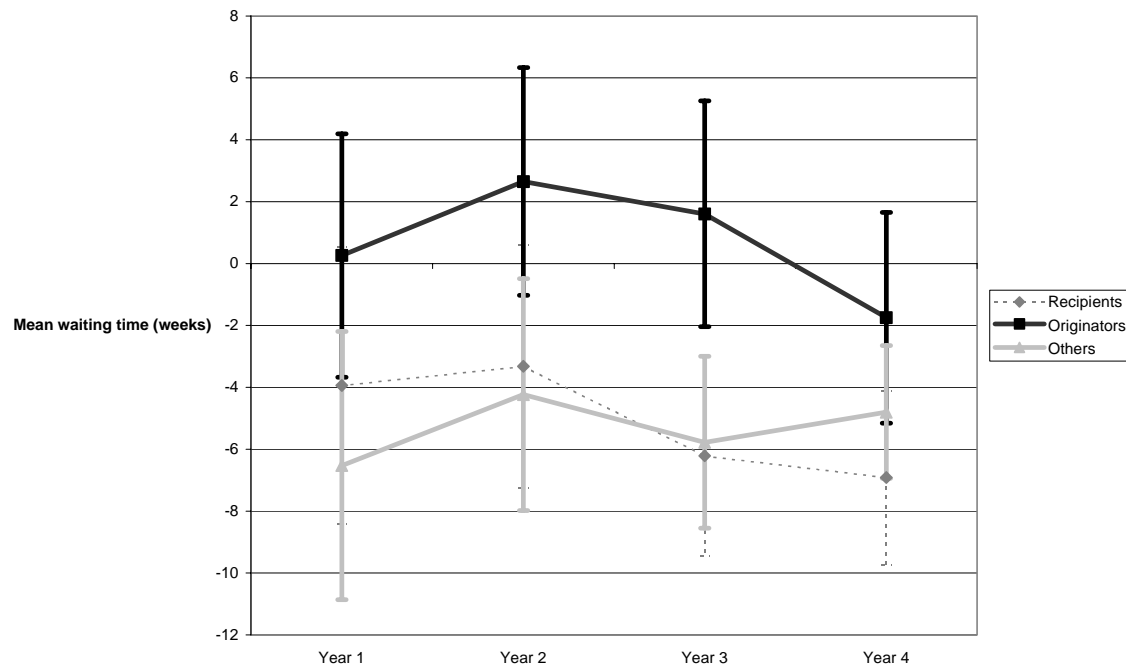


The following two figures show the mean waiting times in weeks for the three groups of LPCP Trusts in London relative to each of the comparator groups for the four years.

Figure 6.5 shows a downward trend in waiting times from year 2 onwards for originators. However, in all 4 years the mean waiting times for originating Trusts is not significantly different from the rest of England comparator group. Recipients and others always have significantly lower waiting times than the rest of England comparator group over all four periods although there is some reduction for recipients in year 4 relative to the rest of England, and some increase for others in year 4 relative to the rest of England, although none of these changes are significant.

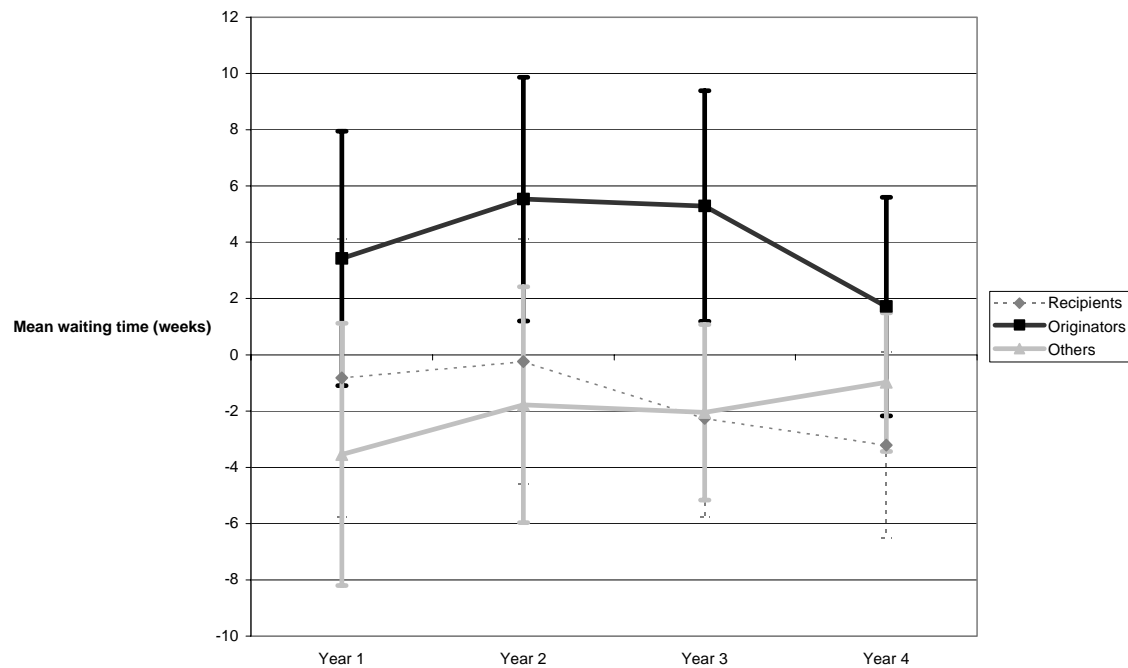
The overall effect however is a convergence within London of inpatient waiting time for ophthalmology with originators moving closer to the other two London groups. This would appear to be the main achievement of LPCP over this period, by increasing equity with respect to waiting times between London Trusts.

**Figure 6.5: Mean waiting time in weeks for ophthalmology for LPCP groups relative to rest of England comparator group**



Using metropolitan areas as the control group, we again see a decline in waiting times for originating Trusts from year 2 onwards. In years 2 and 3 mean waiting times for originating Trusts were significantly higher than for metropolitan areas, however in year 4 this is no longer the case and originating Trusts are no longer significantly different. In all four years waiting times for recipients and others are not significantly different from waiting times for Trusts in metropolitan areas.

**Figure 6.6: Mean waiting time in weeks for ophthalmology for LPCP groups relative to metropolitan areas control group**



## **6.6. Orthopaedics**

### *6.6.1. Descriptive statistics*

Table 6.5 shows the descriptive statistics for mean waiting times in orthopaedics for the various groups of Trusts over time. There are 29 LPCP Trusts, comprising 20 originators, 5 recipients and 4 others. Metropolitan areas provide a comparator group of 34 Trusts.

Mean waiting times in orthopaedics are generally higher than the other specialties with a wider range of waiting times (min and max values). Mean waiting times have again fallen across the board. Mean waiting times are by far the lowest for the other group of Trusts within London, followed by metropolitan areas also with lower waiting times than the rest of the groups. Originators have the highest mean waiting times although they have seen some large reductions over time particularly between years 3 and 4.

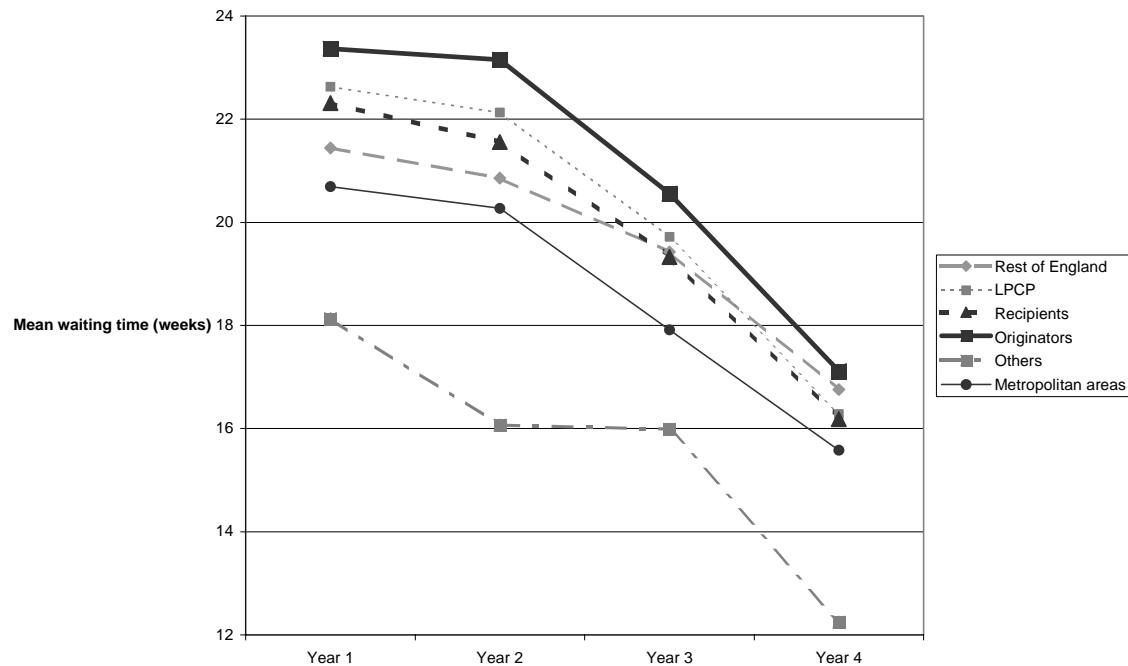
The coefficient of variation seems to be declining slightly in most groups, with a sharp decline for the other group within London and somewhat of an increase for recipient Trusts.

**Table 6.5: Descriptive statistics for inpatient mean waiting time in orthopaedics by group over 4 years**

	Number of Trusts	LPCP year	Number of observations	Mean	Std Dev	Coefficient of variation	Variance	Min	Max
Rest of England	n=184	1	592	21.440	5.18	0.242	26.83	7	36
		2	564	20.854	4.60	0.221	21.16	8	33
		3	532	19.424	3.69	0.190	13.64	8	29
		4	522	16.756	3.27	0.195	10.68	7	25
LPCP	n=29	1	108	22.630	4.91	0.217	24.10	7	32
		2	108	22.131	4.88	0.221	23.86	9	33
		3	116	19.715	3.67	0.186	13.45	9	27
		4	116	16.285	3.12	0.191	9.72	8	23
Recipients	n=5	1	16	22.311	1.59	0.071	2.54	20	25
		2	16	21.558	2.96	0.137	8.78	17	27
		3	20	19.325	2.17	0.112	4.69	14	23
		4	20	16.184	2.55	0.158	6.52	11	20
Originators	n=20	1	80	23.367	4.15	0.177	17.19	13	32
		2	80	23.155	4.36	0.188	18.99	12	33
		3	80	20.558	3.28	0.159	10.73	13	27
		4	80	17.117	2.75	0.160	7.55	12	23
Others	n=4	1	12	18.137	9.02	0.497	81.42	7	32
		2	12	16.069	5.97	0.371	35.58	9	24
		3	16	15.987	4.67	0.292	21.85	9	24
		4	16	12.250	2.34	0.191	5.47	8	16
Metropolitan areas	n=34	1	84	20.694	4.37	0.211	19.12	10	33
		2	92	20.271	4.18	0.206	17.49	12	31
		3	112	17.914	3.56	0.199	12.69	10	26
		4	112	15.582	3.33	0.214	11.12	9	22

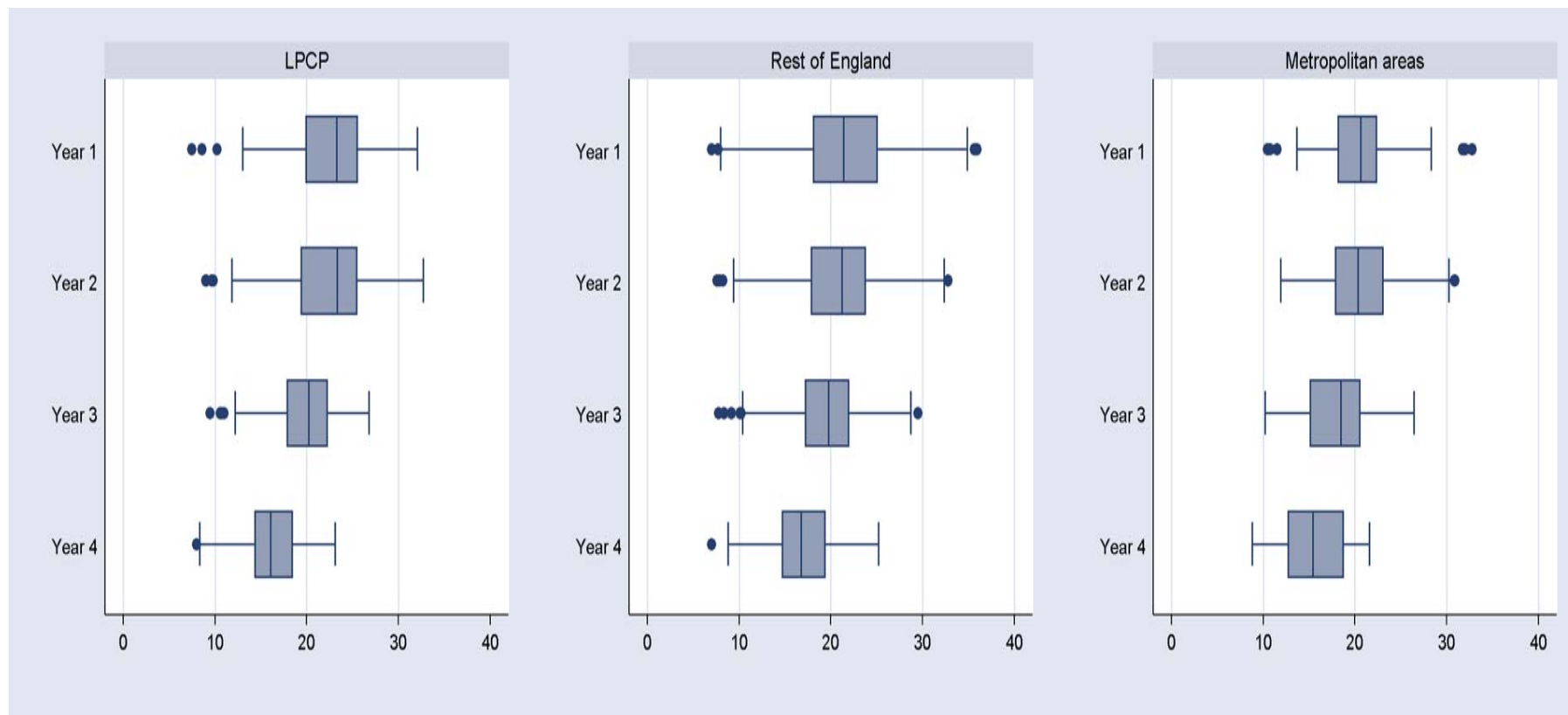
Figure 6.7 shows the plot for mean inpatient waiting times in orthopaedics for each of the groups over time. It is noticeable that the downward trend in waiting times has been evident before the introduction of LPCP in year 4.

**Figure 6.7: Plot of inpatient mean waiting times in orthopaedics by group over 4 years**



The boxplot for orthopaedics waiting times in Figure 6.8 show the drop in the median value of waiting times for all groups over time with some reduction in dispersion in year 4 for all groups compared to previous years.

**Figure 6.8: Distribution of mean waiting time in weeks for orthopaedics by year for LPCP Trusts and the comparator groups Rest of England and Metropolitan areas**



6.6.2. *Difference in difference results for LPCP Trusts*

Table 6.6 shows the results for the DID model for orthopaedics using the two control groups and three estimation procedures.

**Table 6.6: Regression results for difference in difference model for overall effect of London Patient Choice on inpatient waiting times**

	Rest of England comparator			Metropolitan areas comparator		
	OLS	Fixed effects	Random effects	OLS	Fixed effects	Random effects
Test for LPCP	-0.936 (1.53)	-0.794 (2.19)**	-0.867 (2.47)**	-0.743 (1.19)	-1.098 (2.60)***	-1.098 (2.72)***

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

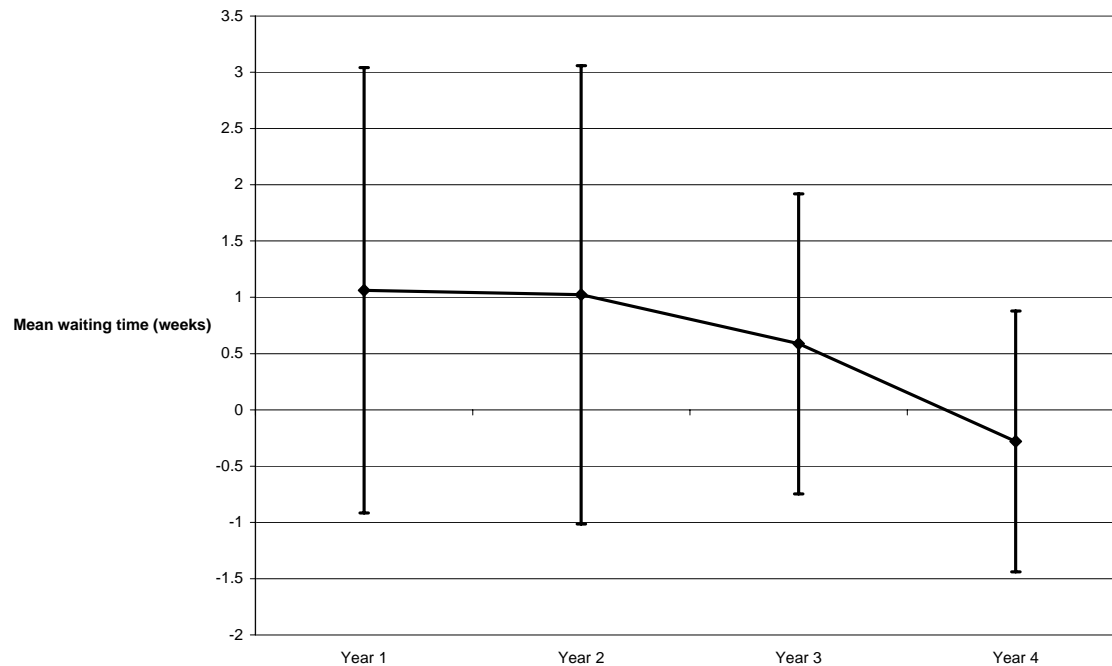
Testing the overall DID in waiting times for the LPCP group relative to the comparator groups in year 4 versus year 3, we find a negative coefficient across the board and significant results for all the random and fixed effects models (our preferred models). This suggests that in orthopaedics the effect of the LPCP intervention on LPCP Trusts was to lower their waiting times by around 1 week in the treatment period relative to the comparator groups in the same period.

The following two figures, Figure 6.9 and Figure 6.10 show the mean waiting times in weeks for LPCP Trusts relative to each of the comparator groups for each of the four years.

Figure 6.9 shows a downward trend in waiting times over the four years although waiting times for LPCP Trusts in the 4 years are never significantly different from the rest of England.

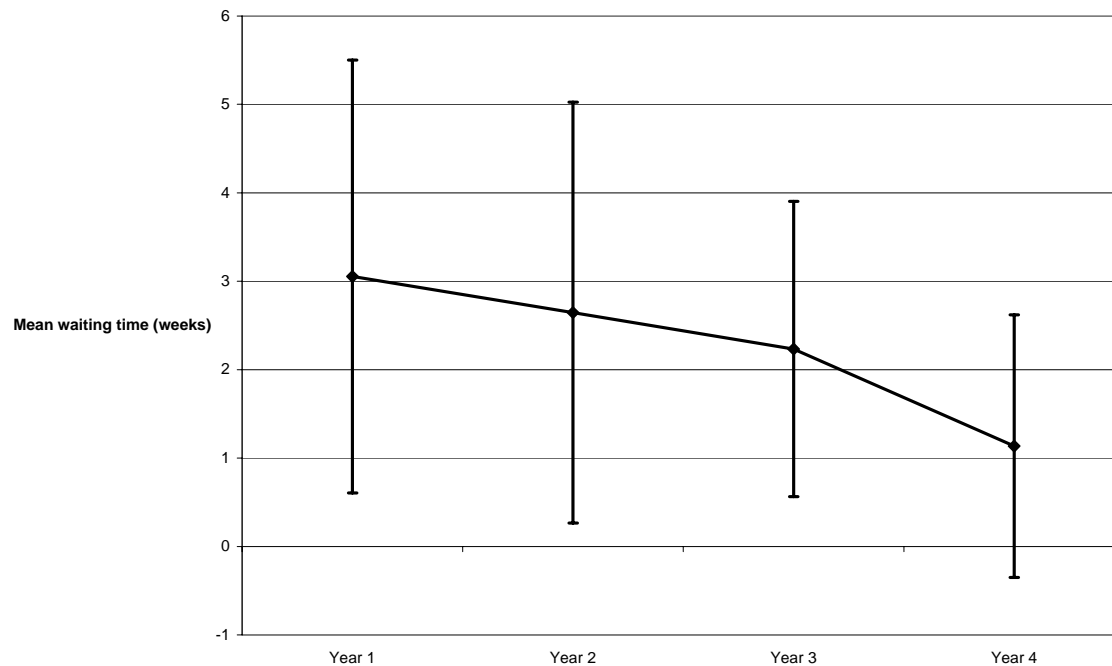


**Figure 6.9: Mean waiting time in weeks for orthopaedics for LPCP groups relative to rest of England comparator group**



Compared to metropolitan areas, we see in Figure 6.10 a similar decline in mean waiting times for LPCP Trusts across the four years. In the first 3 years, LPCP Trusts have significantly higher waiting times compared to metropolitan areas, but in year 4, the treatment year, they are no longer significantly different since the confidence intervals overlap zero.

**Figure 6.10: Mean waiting time in weeks for orthopaedics for LPCP group relative to metropolitan areas control group**



6.6.3. *Difference in difference results for the three groups of LPCP Trusts*

Table 6.7 shows the results for the DID model for inpatient waiting times in orthopaedics for the three groups of London Trusts relative to the comparator groups rest of England and metropolitan areas.

**Table 6.7: Regression results for difference in difference model for effect within London on inpatient waiting times**

	Rest of England comparator			Metropolitan areas comparator		
	OLS	Fixed effects	Random effects	OLS	Fixed effects	Random effects
Test for recipients	-0.849 (0.78)	-0.506 (0.77)	-0.503 (0.80)	-0.743 (0.97)	-0.809 (1.16)	-0.809 (1.21)
Test for originators	-1.067 (1.74)*	-0.805 (2.01)**	-0.803 (2.09)**	-0.929 (1.44)	-1.108 (2.43)**	-1.108 (2.54)**
Test for others	-1.358 (0.74)	-1.101 (0.96)	-1.098 (1.00)	-0.579 (0.58)	-1.405 (1.19)	-1.405 (1.25)

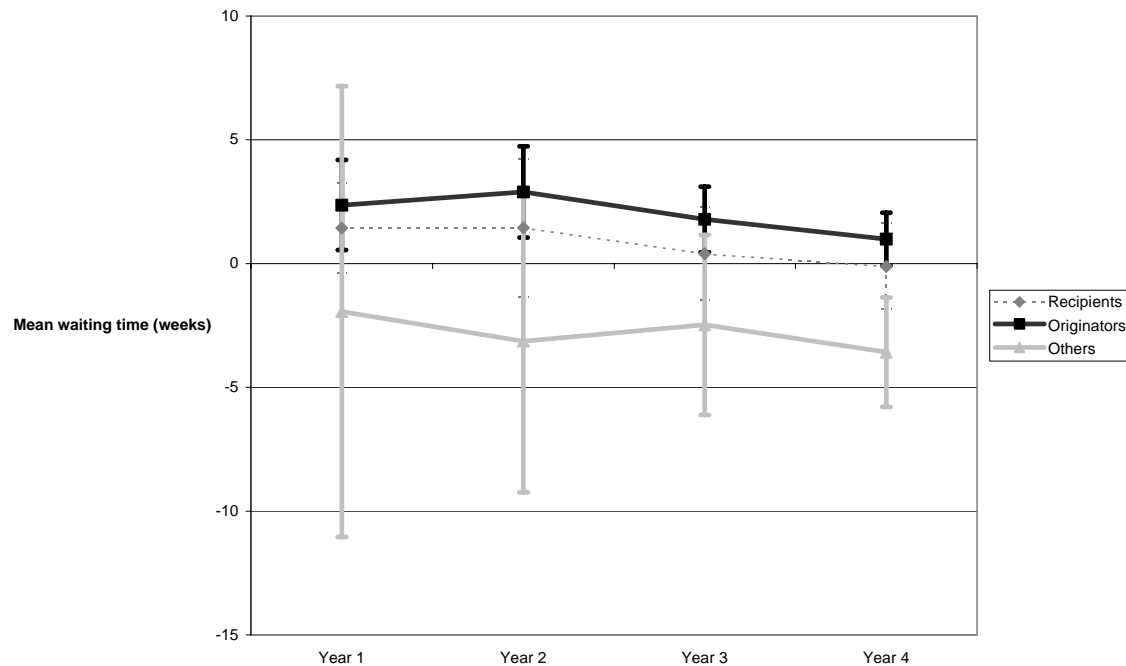
\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Again we test the overall difference in difference (DID) in waiting times for the 3 groups of LPCP Trusts relative to the comparator groups in year 4 versus year 3. In all six models we find a negative effect for originating Trusts suggesting that they have lowered their waiting times in the LPCP treatment year relative to the previous year. In five of the six models this effect is significant. More promisingly, the coefficients for all models for both recipients and others are all negative and insignificant. This means that reductions in waiting times for originating Trusts did not come at the expense of waiting times in other Trusts. The results suggest that waiting times in originating Trusts fell by around 1 week in the treatment period relative to the comparator groups, representing an equity gain to the London system as a whole.

Figure 6.11 and Figure 6.12 show the mean waiting times in weeks for the three groups of LPCP Trusts in London relative to each of the comparator groups for the four years. Zero represents the comparator group.

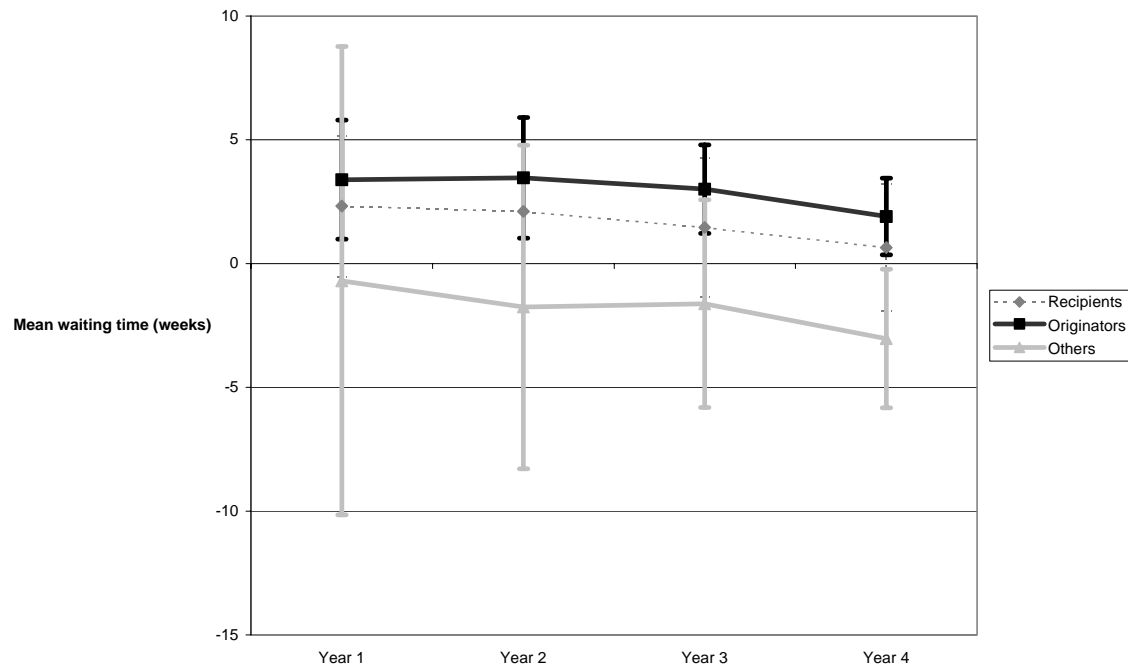
Figure 6.11 shows a downward trend in waiting times for originators from year 2 onwards. In the first 3 years mean waiting times for originating Trusts are significantly higher than the rest of England comparator group, but in year 4 this difference disappears. Recipients have waiting times that are never significantly different from the rest of England, while others waiting times become significantly lower than the rest of England in year 4.

**Figure 6.11: Mean waiting time in weeks for orthopaedics for LPCP groups relative to rest of England comparator group**



A similar pattern emerges relative to metropolitan areas although for originators, their waiting times always remain significantly above the control group, even though they are moving closer. Recipients and others error bars always overlap with metropolitan areas and their mean waiting times are therefore never significantly different.

**Figure 6.12: Mean waiting time in weeks for orthopaedics for LPCP groups relative to metropolitan areas control group**



## **6.7. General surgery**

### *6.7.1. Descriptive statistics*

Table 6.8 shows the descriptive statistics for mean inpatient waiting times in general surgery across the different Trust groupings over time. In general surgery there are 28 LPCP Trusts (19 originators, 4 recipients and 5 others), with 35 Trusts in the metropolitan areas control group.

Mean waiting times in all groups have dropped over time, with a large drop for originator Trusts between years 3 and 4. Other Trusts within London have extremely low (and declining) waiting times. Metropolitan areas have similar waiting times to recipient Trusts, particularly in years 3 and 4.

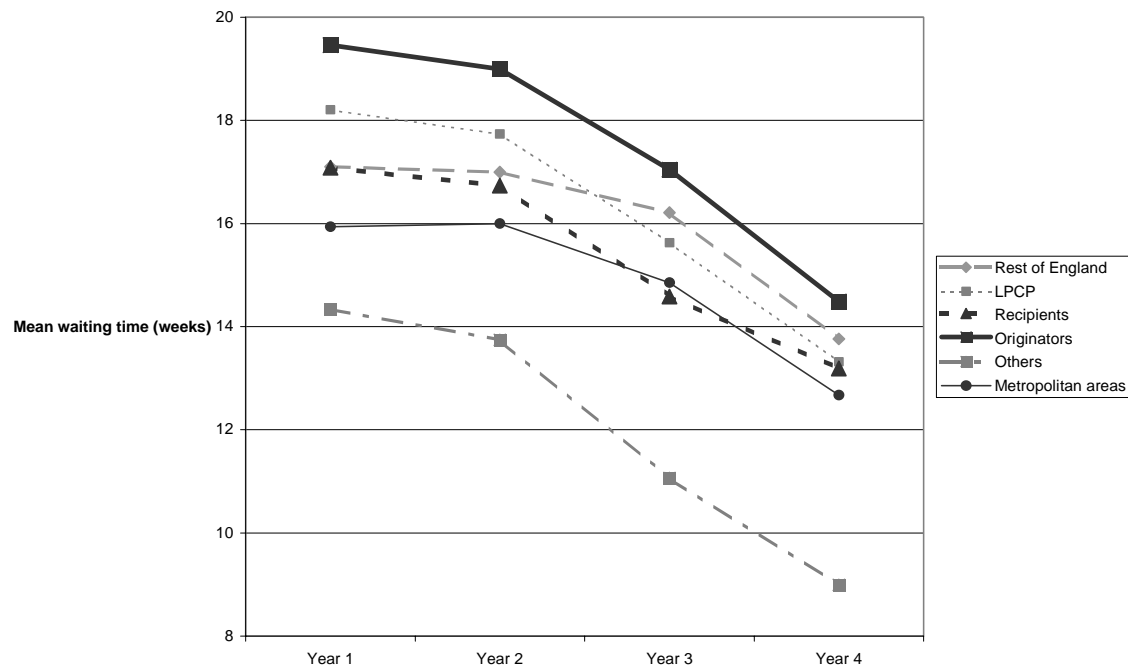
In terms of the coefficient of variation, there has again been some reduction over time for most groups, though much less markedly than in ophthalmology. Other London Trusts are the exception with a large reduction in the dispersion around the mean for this group over time.

**Table 6.8: Descriptive statistics for inpatient mean waiting time in general surgery by group over 4 years**

	Number of Trusts	LPCP year	Number of observations	Mean	Std Dev	Coefficient of variation	Variance	Min	Max
Rest of England	n=188	1	609	17.102	4.87	0.285	23.73	7	30
		2	565	16.995	4.44	0.262	19.75	7	29
		3	519	16.212	3.52	0.217	12.42	8	26
		4	504	13.761	2.96	0.215	8.76	7	23
LPCP	n=28	1	112	18.203	4.81	0.264	23.17	7	30
		2	112	17.735	5.11	0.288	26.08	7	31
		3	112	15.624	3.92	0.251	15.40	7	24
		4	112	13.318	3.05	0.229	9.30	7	20
Recipients	n=4	1	16	17.084	2.53	0.148	6.41	13	20
		2	16	16.733	2.96	0.177	8.77	11	20
		3	16	14.586	2.59	0.178	6.72	10	19
		4	16	13.187	1.84	0.139	3.37	11	16
Originators	n=19	1	76	19.456	4.23	0.218	17.93	12	30
		2	76	18.995	4.37	0.230	19.11	11	31
		3	76	17.043	3.18	0.186	10.09	10	24
		4	76	14.485	2.49	0.172	6.18	10	20
Others	n=5	1	20	14.335	6.04	0.421	36.43	7	26
		2	20	13.747	6.79	0.494	46.08	7	28
		3	20	11.062	3.74	0.338	13.98	7	20
		4	20	8.990	1.44	0.160	2.06	7	11
Metropolitan areas	n=35	1	88	15.934	3.95	0.248	15.59	9	25
		2	96	15.998	3.60	0.225	12.93	8	24
		3	108	14.851	3.18	0.214	10.09	9	22
		4	108	12.673	2.81	0.222	7.88	8	21

Figure 6.13 plots the mean waiting time in weeks for each of these groups. All Trust groups show reductions in mean waiting times over time and it is interesting to note that many of the trend reductions started before the introduction of LPCP. Originators have the highest waiting times but also show large reductions over time, while other Trusts within London have by far the lowest waiting times.

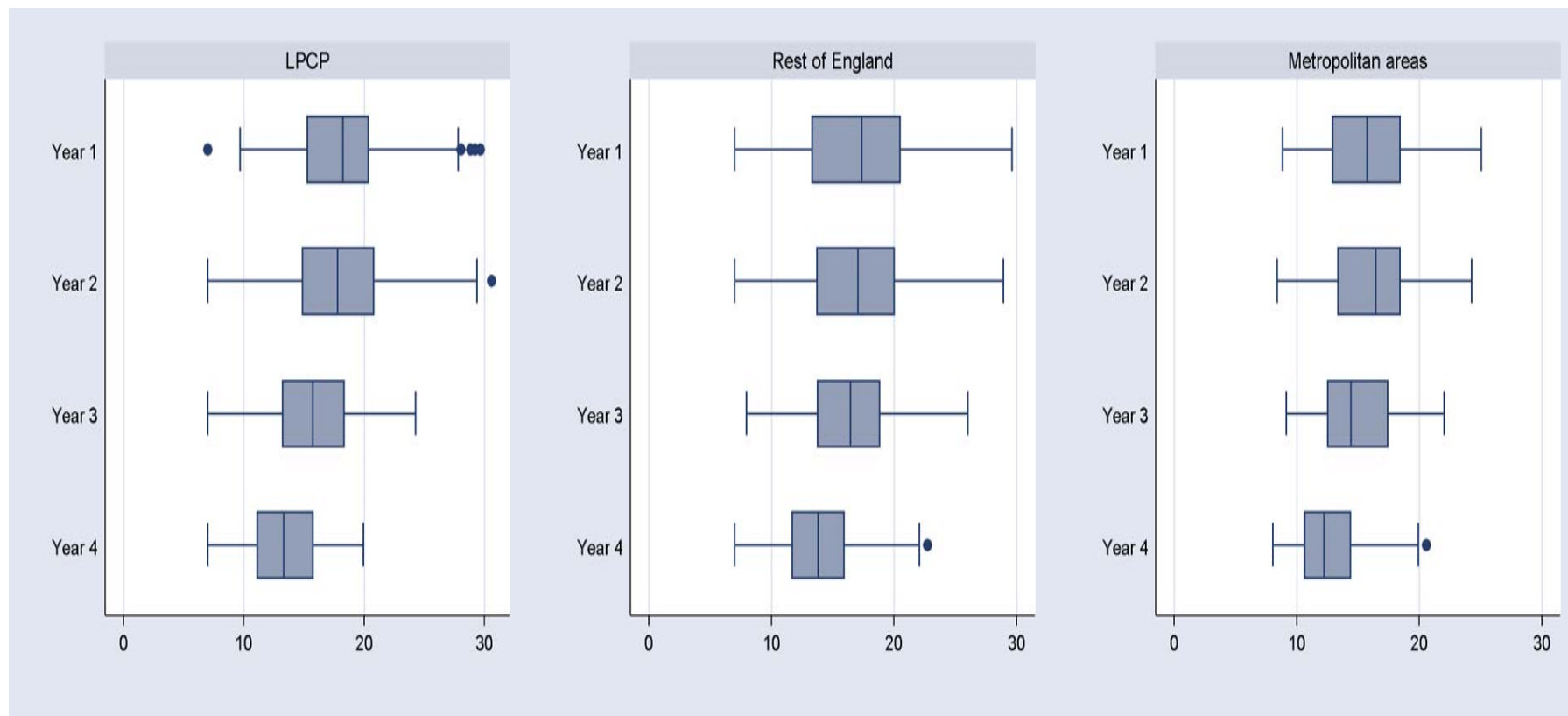
**Figure 6.13: Plot of inpatient mean waiting times in general surgery by group over 4 years**



The following boxplot Figure 6.14 shows the distribution of mean waiting times for LPCP relative to the comparator groups over time. There has been a marked drop in the median value of the mean waiting time across all groups over time, as well as a reduction in the dispersion of mean waiting times for each group over time.



**Figure 6.14: Distribution of mean waiting time in weeks for general surgery by year for LPCP Trusts and the comparator groups Rest of England and Metropolitan areas**



6.7.2. *Difference in difference results for LPCP Trusts*

Table 6.9 shows the results for the difference in difference model for general surgery using the two control groups, rest of England and metropolitan areas. For each group we have run the DID model using the three estimation procedures OLS, fixed effects and random effects.

**Table 6.9: Results for difference in difference model for overall effect of London Patient Choice on inpatient waiting times**

	Rest of England comparator			Metropolitan areas comparator		
	OLS	Fixed effects	Random effects	OLS	Fixed effects	Random effects
Test for LPCP	-0.074	0.142	0.275	-0.331	-0.127	-0.127
	(0.12)	(0.38)	(0.75)	(0.59)	(0.26)	(0.28)

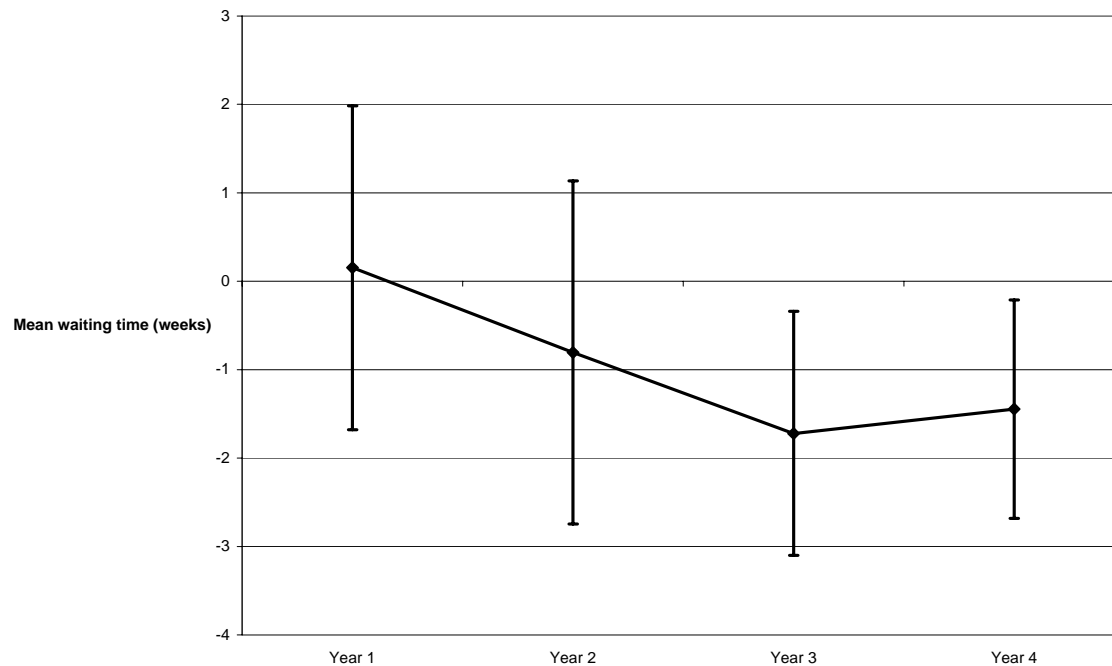
\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Our main interest in these results is to test the overall difference in difference in waiting times for the LPCP group relative to the comparator groups in year 4 versus year 3. In four of the six models the DID is negative, but it is insignificant in all specifications.

Figure 6.15 and Figure 6.16 show the mean waiting times in weeks for LPCP Trusts relative to each of the comparator groups for each of the four years. Zero represents the comparator group. Thus if the confidence intervals overlap zero, the change is not significant relative to the comparator group.

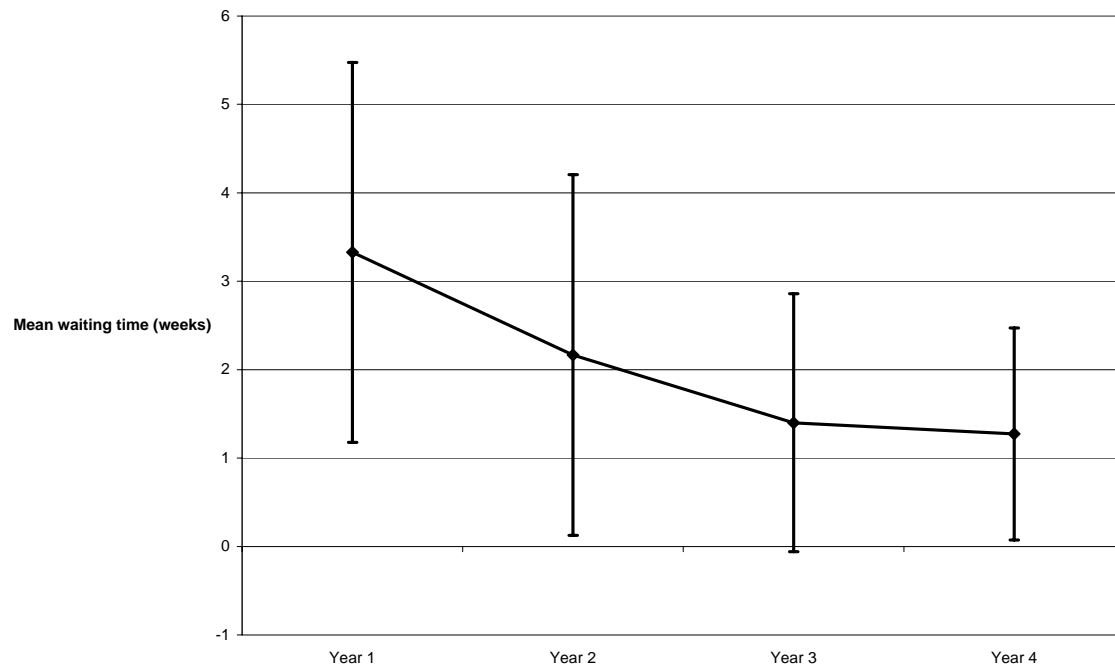
Figure 6.15 shows a downward trend in waiting times from years 1 to 3 followed by a slight increase between years 3 and 4, although the difference between years 3 and 4 is not significant. However LPCP Trusts had significantly lower waiting times than the rest of England in general surgery in both years 3 and 4.

**Figure 6.15: Mean waiting time in weeks for general surgery for LPCP groups relative to rest of England comparator group**



Using instead the metropolitan areas control group, we see in Figure 6.16 a similar decline in mean waiting times for LPCP Trusts across all 4 years relative to metropolitan areas. In years 1 and 2 LPCP Trusts have significantly higher waiting times compared to metropolitan areas, while in year 3 this difference is insignificant. In year 4 the confidence intervals once again do not overlap zero and LPCP Trusts again have significantly higher waiting times compared to metropolitan areas, although the difference in years 3 and 4 is small.

**Figure 6.16: Mean waiting time in weeks for general surgery for LPCP group relative to metropolitan areas control group**



6.7.3. *Difference in difference results for the three groups of LPCP Trusts*

Table 6.10 shows the results for the difference in difference model for inpatient waiting times in general surgery for the three groups of London Trusts relative to the two comparator groups (rest of England and metropolitan areas). We again use OLS, fixed effects and random effects models in each case though the coefficients are not reported. Full results are available in the Technical Appendix.

**Table 6.10: Regression results for difference in difference model for effect within London on inpatient waiting times**

	Rest of England comparator			Metropolitan areas comparator		
	OLS	Fixed effects	Random effects	OLS	Fixed effects	Random effects
Test for recipients	1.377 (1.19)	1.044 (2.45)**	1.039 (2.54)**	1.616 (2.16)**	0.779 (1.49)	0.779 (1.56)
Test for originators	-0.191 (0.34)	-0.114 (0.26)	0.066 (0.15)	-0.208 (0.30)	-0.379 (0.72)	-0.379 (0.75)
Test for others	-0.456 (0.49)	0.373 (0.40)	0.367 (0.41)	-0.217 (0.28)	0.107 (0.11)	0.107 (0.11)

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

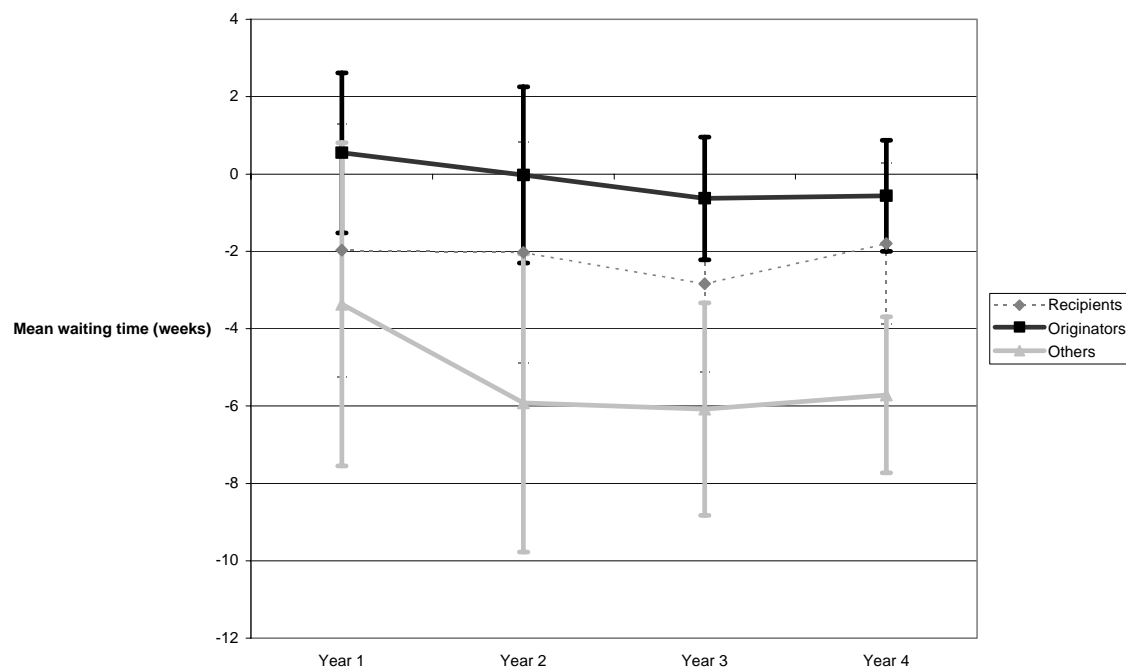
Our main interest is again to test the overall difference in difference (DID) in waiting times for the 3 groups of LPCP Trusts relative to the comparator groups in year 4 versus year 3. In five of the six models we find a negative effect for originating Trusts suggesting that they have lowered their waiting times in the LPCP treatment year relative to the previous year, however this effect is not significant in any of the models.

Results for recipient Trusts show a positive effect across all model specifications and are significant in three of the models. This means that overall waiting times in recipient Trusts did not fall as fast as in the rest of England over the LPCP treatment period and since there were no significant changes over this period for originators or others, the increase of 1 week in waiting times for recipients relative to the rest of England suggests the gain for choice patients may have been at the expense of patients in receiving Trusts.

Figure 6.17 and Figure 6.18 show the mean waiting times in weeks for the three groups of LPCP Trusts in London relative to each of the comparator groups for the four years. Zero represents the comparator group.

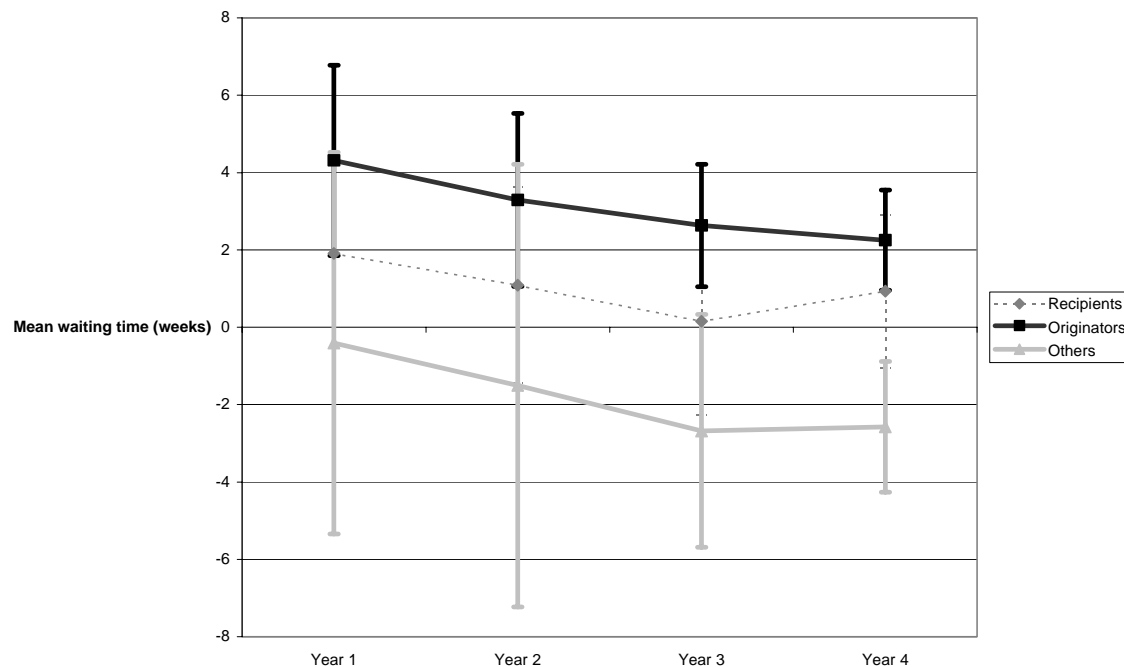
Figure 6.17 shows a downward trend in waiting times for originators. However, in all 4 years the mean waiting times for originating Trusts is not significantly different from the rest of England comparator group. Recipients have significantly lower waiting times than the rest of England in year 3 but not in any of the other periods, while others have significantly lower waiting times than the rest of England in all years except year 1.

**Figure 6.17: Mean waiting time in weeks for general surgery for LPCP groups relative to rest of England comparator group**



Using instead the metropolitan areas as a control group in Figure 6.18, we see again a decline in mean waiting times for originating Trusts across the four periods, although their waiting times always remain significantly higher than for metropolitan areas, since the confidence intervals never overlap zero. Recipients waiting times over all four periods are never significantly different from the metropolitan areas, while for others they become significantly lower in year 4.

**Figure 6.18: Mean waiting time in weeks for general surgery for LPCP groups relative to metropolitan areas control group**



### 6.8. Discussion

The results for the three specialties presented suggest that LPCP as a policy intervention was successful in the two specialties of ophthalmology and orthopaedics, in as much as we saw a significant reduction in mean waiting times for these 2 specialties in the treatment year relative to the pre-treatment year compared to the various control groups we have used in this study. General surgery on the other hand was not significant. One reason that has been put forward for these different results relates to the proportion of total activity undertaken in any particular specialty which included LPCP procedures. The data we use for mean waiting times is by specialty and covers some non-LPCP activity. Hence, the waiting times

we report by specialty may underestimate the true impact of LPCP if a large proportion of activity in the specialty is made up of non-LPCP procedures.

To examine this hypothesis, we drew data from the Hospital Episodes Statistics (HES) for the year 2002/03 for all finished consultant episodes (FCEs) undertaken with an elective admission. The data was drawn by HRG code, by specialty code, and by Trust. Table 6.11 lists the LPCP HRG procedures undertaken within each specialty and their HRG codes. We then calculated the proportion of total FCEs for each Trust which these LPCP HRGs represent. These are summarised for the 3 groups of Trusts in each specialty. These HRGs are also coded under other specialties in the HES data, but for consistency with the previous analyses, these have been ignored and FCEs are only counted if they are recorded within the three specialities we are examining. The HES data does not coincide exactly with the quarterly data by specialty in the rest of this analysis, but the volume of activity within Trusts that these HRGs represent, is unlikely to change dramatically over time.

It is evident that a large proportion of total ophthalmology activity (between 61 and 73 percent) is represented by just 2 HRGs which are the two LPCP procedures, while a small proportion of total general surgery activity (between 21 and 27 percent) is represented by the HRGs which were covered by Choice. In orthopaedics a larger proportion of activity (between 37 and 50 percent) is represented by the Choice HRGs. This may be why we were unable to detect any successful reductions in mean waiting times for general surgery under the LPCP regime, simply because only a small part of waiting times in the specialty are actually covered by Choice procedures. The low frequency of choice procedures in general surgery may be due to the dominance in this specialty of procedures considered clinically unsuitable for choice. The specialty includes many cancer related procedures, planned programmes of multiple operations and operations resulting from chronic conditions where separating the medical and surgical treatments could present a risk to the patient. It may be the case that waiting times in general surgery for LPCP activity did fall significantly for originating Trusts, but with waiting times data at specialty level, we have been unable to detect this.



**Table 6.11: Proportion of finished consultant episodes which are LPCP procedures in ophthalmology, general surgery and orthopaedics, 2002/03**

HRG procedure	HRG code	Trust group	n	mean	std. dev	min	max
<b>Ophthalmology</b>							
Phako cataract extraction with lens implant	B02	Recipients	4	0.635	0.140	0.540	0.843
Other cataract extraction with lens implant	B03	Originators	9	0.615	0.193	0.193	0.796
		Others	6	0.727	0.106	0.564	0.818
		Rest of England	115	0.632	0.155	0.024	0.989
<b>General surgery</b>							
Repair of hernias	F74, F73	Recipients	4	0.223	0.049	0.152	0.265
Varicose Veins	Q11	Originators	19	0.268	0.074	0.168	0.398
Laparoscopic cholecystectomy	G13, G14	Others	5	0.207	0.141	0.002	0.396
Haemorrhoidectomy	F92, F93, F94, F95	Rest of England	132	0.259	0.074	0.022	0.639
Pilonidal sinus	F92, F93, F94, F95						
<b>Orthopaedics</b>							
Hip replacement	H02	Recipients	5	0.497	0.130	0.335	0.672
Knee replacement	H04	Originators	20	0.479	0.071	0.277	0.559
Knee arthroscopy	H10	Others	4	0.368	0.241	0.006	0.503
Shouler replacement (from June 2004)	H07	Rest of England	137	0.490	0.112	0.011	0.684
Shoulder arthroscopy	H10						
Revision of hip replacement (from June 2004)	H05, H06						
Hand surgery (from June 2004)	H13, H14						

## 6.9. Conclusions

This section has presented the results for modelling the response of Trusts to Choice. The purpose of Patient Choice has been to reduce waiting times for Trusts with long waits by giving patients the option of moving to Trusts with lower waiting times in the particular specialty. We have tested whether Choice (LPCP) has had a significant effect on mean inpatient waiting times in the three specialties ophthalmology, general surgery and orthopaedics. We tested whether Choice was successful as an instrument for reducing waiting times using two different sets of treatment groups:

- 1.) LPCP Trusts as a whole, and
- 2.) within London - recipients, originators, and others.

We used the difference in difference (DID) methodology to test whether the change in waiting times for our respective treatment groups between the treatment year (the introduction of the LPCP regime) and the pre-treatment year was significantly different from the change in waiting times for our control groups. We used three types of comparator or control groups in this study (non-LPCP Trusts):

- 1.) Rest of England
- 2.) Matched control
- 3.) Metropolitan areas

We used several different estimation techniques to test the stability of coefficient estimates across different model specifications. We applied the usual tests of model specification.

Three datasets were constructed, one for each specialty, covering quarterly mean inpatient waiting times in the particular specialty, as well as a large set of observable factors which affect waiting times. The datasets were constructed to cover three years prior to the LPCP intervention as well as the 1 year of the LPCP intervention respectively.

It is difficult to generalise across all three specialties since the results were different for each. However, from the descriptive statistics, across the board, there were large reductions in mean waiting times for LPCP Trusts. This was particularly the case for originating Trusts between years 3 and 4. Furthermore, there was a reduction in the coefficient of variation for most groups of Trusts, though this was often quite small. This trend provides an important indication of convergence in mean waiting times within each of these groups towards their mean waiting time respectively. From the boxplots there did appear to be important reductions in variation in mean waiting times for the different groups of Trusts in all three specialties. This in itself can be considered an important improvement within the system, since it provides greater equity across Trusts with respect to the length of wait which patients are likely to receive and removes some of the randomness of patients potentially waiting much longer at certain Trusts than others simply by virtue of their being referred to one Trust rather than another.

The reduction in waiting times along with the reduction in variation are therefore two distinct and important trends in the data.

In terms of the DID results for LPCP as a whole, ophthalmology results suggest that waiting times for LPCP Trusts were around a week lower in the treatment year compared to the pre-treatment year relative to comparator groups, although this effect only had a weak significance. In orthopaedics

a similar result was obtained, but the effect was stronger, while in general surgery, there was no significant effect of LPCP Trusts having different waiting times relative to comparator groups over this period.

In terms of the DID results within London, ophthalmology results suggest that waiting times for originating Trusts were around 3 weeks lower in the treatment year compared to the pre-treatment year relative to comparator groups and this was highly significant in virtually all specifications. A similar result holds for orthopaedics, except the reduction is around 1 week. In both specialties, recipient and other Trusts have insignificant changes over this period, suggesting that these reductions were beneficial to the London system as a whole - other waiting times did not rise in response to accommodate the additional Choice activity. Thus the policy intervention of offering patients the choice of an alternative provider for their elective care made an impact in the way it was intended to, by acting as an effective instrument to reduce waiting times.

The results for general surgery, however, are more disappointing since not only do these suggest no significant reduction in waiting times for originating Trusts, but a significant rise in waiting times for recipient Trusts over the treatment period. This result raises questions about the impact on equity for London patients between years 3 and 4.

One reason which has been posited for this result is that only a small proportion of waiting times in general surgery (between 21 and 27 percent) are actually covered by Choice procedures, whereas the waiting times we report are for the specialty as a whole and include the non-LPCP procedures. In ophthalmology and orthopaedics, the proportion of Choice procedures within the specialties are much higher, ranging from around 40 to 70 percent.

The overall effect for ophthalmology and orthopaedics is therefore a convergence within London of inpatient waiting times with originators moving closer to the other two London groups. This would appear to be the main achievement of LPCP over this period, by increasing equity with respect to waiting times between patients in London Trusts. These preliminary results appear to be very encouraging for the LPC Project since they suggest Choice has been a successful instrument for reducing waiting times for Trusts with long waits in these two specialties.

## **7. Modelling the response to Choice: Referrals**

### **7.1. Introduction**

At the beginning of LPCP there was interest in the question of whether, under a choice regime, clinicians would change their referral behaviour. In particular, there was concern that the introduction of choice might lead GPs and consultants to increase their referral rates.

It is often argued that attempts to reduce waiting times by increasing activity levels will ultimately fail as the initial reduction in waiting time will prompt GPs to increase their referral rates and consultants to increase their decision to admit rates (that is, to refer and admit less clinically severe cases). Although these treatment threshold reduction hypotheses are much cited in the waiting time literature, direct empirical tests are rare. The London Patient Choice project, however, offers an opportunity to examine these ideas.

Examination of the number of GP referrals and consultant decisions to admit before and after the introduction of Patient Choice provides prima facie evidence of reduced treatment thresholds in, for example, ophthalmology. However, this 'before and after' comparison does not hold constant all other factors. In an attempt to achieve this, this study estimates both outpatient and inpatient demand functions for three individual specialties across all English acute NHS Trusts over the period June 1995 - March 2004. This facilitates a robust statistical test of whether the London Patient Choice project has been associated with GP referral and consultant decision to admit behaviour different to that observed previously (holding constant all other factors).

### **7.2. GP referral and consultant decision to admit rates pre- and post-Choice**

There is some anecdotal evidence that local GPs and consultants have responded to the London Patient Choice programme by lowering their referral and treatment thresholds, thus increasing their referral and treatment rates. A comparison of the number of GP referrals and consultant decisions to admit for ophthalmology for 18 months before and after the introduction of Patient Choice provides some prima facie supporting evidence. As Table 7.1 shows, GP referrals increased by 1.5% in London following the introduction of London Patient Choice but at the same time fell by 0.7% in the rest of England. Similarly, consultant decisions to admit increased by 12.3% in London following the introduction of Patient Choice but rose by only 2.8% outside London over the same time period.

**Table 7.1: GP referrals and consultant decisions to admit before and after the introduction of London Patient Choice**

	April 2001 - September 2002		October 2002 – March 2004	
	London	Rest of England	London	Rest of England
GP referrals (000s)	187	1032	189 (+1.5%)	1025 (-0.7%)
Consultant decisions to admit (000s)	74	502	83 (+12.3%)	517 (+2.8%)

However, these figures are not necessarily indicative of reduced referral and treatment thresholds in the capital. The introduction of Patient Choice has been associated with a substantial fall in waiting times, both for outpatients and inpatients, and these falls will have stimulated NHS demand *even with constant referral and treatment thresholds* as patients switch from private health care to the NHS. For example, although the number of decisions to admit increased by 12.3% in London, average waiting times fell by a substantial 27.3%. Outside London decisions to admit increased by a much more modest 2.8% but here average waiting times fell by less than in London (down by 16.5%).

Waiting time will tend to be negatively related to the demand for NHS care for two reasons. As NHS waits decline patients will be less inclined to seek private treatment and consultants might be more willing to add less clinically severe cases to their waiting list. Given the data available, we cannot distinguish between these two effects but what we can do is to examine whether demand in the LPC area since the introduction of Choice has been greater than previous demand levels given local waiting times and other relevant factors. In other words, we can examine whether there is any evidence of LPC affecting the relationship between waiting time and demand, and whether referral and decision to admit behaviour in London has started to diverge from that observed previously. To do this we estimate models of the demand for outpatient and inpatient care where the impact of waiting time on demand can be separated from the impact of other factors including the introduction of London Patient Choice.

### 7.3. Model of the demand for NHS elective surgery

In a study of the demand for routine elective health care, Martin *et al* (2003) estimated both outpatient and inpatient demand functions for three surgical specialties - urology, orthopaedics and ENT - across all English acute NHS Trusts over the seven year period June 1995 - March 2002. In this study we estimate similar demand functions for ophthalmology, for general surgery, and for orthopaedics, and extend the study period to March 2004. With this extension we are able to test whether the introduction of the London Patient Choice initiative in 2002-03 has been associated with increased GP referral rates and/or consultant decision to admit rates relative to those observed previously.

The Martin *et al* (2003) demand model is based on the notion that hospital treatment will yield a benefit to the patient and that the present value of this treatment declines the longer treatment is delayed. Private care offers immediate treatment but incurs a financial cost, whereas NHS care is free at the point of consumption but is only available with delay. As the local NHS waiting time increases, patients will move both from one NHS provider to another, and from the NHS to the private sector. In addition, there is also the possibility that GPs and consultants might change their clinical severity thresholds so that as waits shorten less clinically severe cases are both referred by GPs and placed on the waiting list by consultants.

Local NHS outpatient and inpatient demand is therefore likely to be negatively affected by the anticipated local waiting time for such services. In addition, the demand for elective care will depend upon various demand shifters such as population morbidity, the cost of private treatment, and the perceived quality and convenience of NHS care. In principle, our demand models should include all these factors but data limitations restrict which factors can be included in practice.

The models to be estimated will also include several dummy variables. There are eight year dummies to detect national trends in GP referral and decision to admit rates. There are three quarterly dummies to pick up any seasonal patterns. There is a London dummy to detect whether referral and decision to admit rates in the capital differ from those in the rest of England. And there are several London Patient Choice dummies, one for each quarter following the introduction of LPC, for Trusts in London. These are to detect whether there is any LPC effect on GP referral rates and/or decision to admit rates that cannot be explained by other factors.

#### **7.4. Data and estimation**

Since June 1995, the Department of Health has gathered Trust-level quarterly data on the number of GP referrals, outpatient waiting times, the number of consultant decisions to admit, and inpatient waiting times by specialty.

The inpatient waiting time data is based on a snapshot of how long patients, still awaiting admission, have waited as at the quarterly census date. The mean wait can be used as a proxy for the anticipated wait of those patients added to the waiting list in that quarter. The construction of the variable mean wait is described earlier in Section 5 of this report.

A similar approach can be employed to estimate the mean wait for an outpatient appointment following a GP referral. Here, the waiting time data refer to those patients actually seen in outpatients during the quarter and this mean wait can be used as a proxy for the wait anticipated by those referred during the quarter.

Because Trusts serve different populations, the GP referral and consultant admission data need to be deflated by some measure of the size of the population served by the Trust. Attaching a catchment population to each acute Trust is not straightforward. Full details of the procedure adopted can be found in Martin *et al* (2003) and are not repeated here. Briefly, a purchaser-provider matrix based on HES data for 1999-2000 was used to convert population data based on purchaser (Health Authority) geographical boundaries (which is readily available) to population estimates for the catchment area for each provider (acute Trust). The purchaser-provider matrix shows the total cost, at national average prices, of all acute inpatient episodes of care purchased by each Health Authority from each Trust. The size of population served by each Trust is calculated as a weighted average of the population served by each Health Authority for which the Trust provides services, with the weights reflecting the proportion of each Health Authority's total spend that the Trust receives.

By dividing the number of GP referrals by the Trust's catchment population we obtain a measure of outpatient demand, and by dividing the number of consultant decisions to admit by the catchment population we obtain a measure of inpatient demand. These will be the dependent variables in the two regression equations to be estimated for each specialty.

As explanatory variables we have the anticipated mean waiting time and any measures of population morbidity, the cost of private treatment, and the perceived quality and convenience of NHS care that can be constructed. Here we are restricted by data limitations. Geographic variations in population morbidity are unlikely to change rapidly and the best that can be done is to construct a measure of the need for health care, again using the same purchaser-provider matrix to convert a measure of health need based on purchaser (Health Authority) geographical boundaries (which is readily available) to one based upon the population served by each provider (acute Trust). The cost of private treatment does not vary greatly across the country but the availability of such facilities does and, for each Trust, we therefore constructed a measure of the availability of private beds relative to the availability of NHS beds. Various measures of the quality and convenience of NHS care can be constructed for each Trust and these included:

1. the day case rate (day cases as a proportion of all HES spells)
2. Brian Jarman's age/sex standardised death rate
3. the nurse vacancy rate
4. the proportion of total expenditure spent on agency nurses
5. the emergency re-admission rate within 28 days of discharge
6. the death rate within 30 days of surgery for non-emergency admissions
7. the death rate within 30 days of surgery for emergency admissions
8. the DoH/CHI performance (star) rating

The day case rate is readily available for the entire study period and is therefore included as a proxy for the quality and convenience of NHS care. The other measures, however, suffer from a number of shortcomings. They are either only available for a part of the study period (e.g. the DoH/CHI performance rating is only available for 2001, 2002 and 2003) and/or the precise method used to construct the variable changes between years. To include those variables for which we only had a limited number of observations would dramatically reduce the sample size and we therefore employed the day case rate as the sole indicator of quality in the demand models.

Both the inpatient and outpatient demand equations were estimated using standard panel data techniques with the inclusion of a dummy variable for each Trust to capture Trust specific effects. The 140 or so Trust dummies in each equation are not reported below. They will capture the time invariant element of those factors, such as the need for health care that we have omitted from the estimating equation. Models based on the logarithms of all variables performed best and these are the ones reported below. Similarly, we experimented with the use of various lagged measures of waiting time (as proxies for the anticipated wait) but these did not perform as well as the current period wait although the results, particularly the impact of LPC, were qualitatively the same as those using current period waits.

## 7.5. Results

Inpatient and outpatient demand functions were estimated for three individual specialties: ophthalmology, general surgery, and orthopaedics.

### 7.5.1. Ophthalmology

The following Table 7.2 shows the estimated ophthalmology inpatient demand function. Waiting time has the anticipated negative effect on NHS demand and the elasticity (-0.176) is in line with that obtained previously for other specialties (for example, Martin *et al* (2003) obtained an inpatient elasticity of demand of -0.135 for ENT, -0.177 for urology and -0.235 for orthopaedics). The day case rate - an indicator of the quality and convenience of NHS care - has a positive effect on demand but is not statistically significant. The London dummy variable is significant but this reflects the inclusion of the specialist Moorfields Eye hospital in the London sample. If this Trust is dropped from the analysis the coefficient on the London dummy falls from 3.59 to -0.40 although the other coefficients remain largely unchanged.

London Patient Choice in ophthalmology commenced in October 2002 and there are, therefore, six quarterly LPC dummies to be estimated. These are not significantly different from zero and the implication is that consultant decision to admit behaviour in the capital has not changed significantly since the introduction of Patient Choice. The year dummies suggest that national decision to admit rates were significantly greater between 1998 and 2002 than they were in the base year (1995). There is no dummy for 1997 because quarterly inpatient activity data by specialty and Trust were not collected in that year. Ramsey's reset test reveals no evidence of mis-specification in the estimated equation.



**Table 7.2: Inpatient demand for ophthalmology, 1995-2004**

Regression with robust standard errors		Number of obs = 3289				
		R-squared = 0.8914				
		Number of hospital Trusts = 128				
		Root MSE = 0.1997				
Dependent variable = GP referrals per head of population						
Explanatory variables	Robust Coef.	Std. Err.	T	P> t	[95% Conf. Interval]	
mean wait	-0.176	0.046	-3.82	0.000	-0.267	-0.085
day case %	0.185	0.117	1.57	0.118	-0.048	0.417
year96	0.032	0.026	1.25	0.213	-0.019	0.084
year97	(dropped)					
year98	0.081	0.033	2.44	0.016	0.015	0.147
year99	0.128	0.037	3.48	0.001	0.055	0.201
year00	0.141	0.040	3.55	0.001	0.063	0.220
year01	0.137	0.044	3.13	0.002	0.050	0.223
year02	0.168	0.045	3.75	0.000	0.079	0.257
year03	0.097	0.050	1.92	0.057	-0.003	0.197
summer	0.018	0.007	2.65	0.009	0.004	0.031
autumn	0.039	0.008	5.04	0.000	0.023	0.054
winter	0.044	0.008	5.20	0.000	0.027	0.061
londondv	3.596	0.056	63.76	0.000	3.485	3.708
londond02III	-0.063	0.063	-1.00	0.318	-0.188	0.061
londondv02IV	-0.056	0.066	-0.85	0.398	-0.187	0.075
londondv03I	-0.050	0.083	-0.60	0.548	-0.214	0.114
londondv03II	-0.077	0.099	-0.78	0.437	-0.273	0.118
londond03III	-0.059	0.118	-0.50	0.620	-0.292	0.175
londondv03IV	-0.089	0.078	-1.15	0.252	-0.243	0.064

Ramsey RSET test using powers of the fitted values of the dependent variable  
H0: model has no omitted variables  
F(3, 3140) = 1.91  
Prob > F = 0.1257

Table 7.3 shows the estimated ophthalmology outpatient demand function. Waiting time has the anticipated negative effect on NHS demand although the elasticity (-0.068) is rather small but not dissimilar to that obtained previously for other specialties (for example, Martin *et al* (2003) obtained an elasticity of outpatient demand of -0.09 for ENT and -0.067 for urology). The waiting time coefficient implies that a 1% reduction in waiting times will be associated with a 0.068% increase in demand. The day case rate - an indicator of the quality and convenience of NHS care - has no statistically significant effect on demand. The London dummy is significant implying that ophthalmology referral rates in London are, on average, over three times larger than those outside the capital. As was the case for inpatients, this result reflects the relative case mix of the London Trusts and, in particular, the inclusion of the specialist Moorfields Eye hospital in the London sample. If this Trust is dropped from the analysis the coefficient on the London dummy becomes -0.32 but the coefficients on the other variables are largely unchanged. The six LPC dummies are not significantly different from zero. The implication is that GP referral rates in the capital have not changed significantly since the introduction of Patient Choice. The year dummies suggest that national referral rates were significantly greater in every year than they were in the base year (1995). One caveat to be attached to these results is that Ramsey's reset test reveals some evidence of mis-specification in the estimated equation although, as we shall see, they are broadly in line with the results obtained for the two other specialties studied.

**Table 7.3: Outpatient demand for ophthalmology, 1995-2004**

Regression with robust standard errors		Number of obs = 4058				
		R-squared = 0.9285				
		Number of hospital Trusts = 146				
		Root MSE = 0.1571				
Dependent variable = GP referrals per head of population						
Explanatory variables	Robust Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
mean wait	-0.068	0.025	-2.77	0.006	-0.117	-0.020
day case %	0.076	0.073	1.05	0.298	-0.068	0.221
year96	0.038	0.016	2.44	0.016	0.007	0.069
year97	0.090	0.021	4.33	0.000	0.049	0.131
year98	0.103	0.025	4.16	0.000	0.054	0.151
year99	0.128	0.028	4.62	0.000	0.073	0.183
year00	0.151	0.029	5.11	0.000	0.092	0.209
year01	0.138	0.033	4.14	0.000	0.072	0.204
year02	0.145	0.034	4.25	0.000	0.078	0.212
year03	0.111	0.039	2.84	0.005	0.034	0.188
summer	-0.022	0.005	-4.52	0.000	-0.031	-0.012
autumn	-0.025	0.006	-4.54	0.000	-0.036	-0.014
winter	0.002	0.006	0.28	0.778	-0.010	0.013
londondv	3.446	0.035	98.2	0.000	3.376	3.515
londond02III	-0.058	0.078	-0.74	0.463	-0.213	0.097
londondv02IV	-0.136	0.092	-1.48	0.140	-0.317	0.045
londondv03I	-0.045	0.074	-0.61	0.542	-0.190	0.100
londondv03II	-0.091	0.073	-1.24	0.216	-0.236	0.054
londond03III	-0.229	0.118	-1.94	0.055	-0.463	0.005
londondv03IV	-0.021	0.075	-0.28	0.782	-0.168	0.127

Ramsey RSET test using powers of the fitted values of the dependent variable  
H0: model has no omitted variables  
F(3, 3890) = 6.80  
Prob > F = 0.0001

### *7.5.2. Orthopaedics*

Table 7.4 shows the estimated inpatient demand function for orthopaedics based on data from June 1995 to March 2004. Again, waiting time has the anticipated negative effect on NHS demand and the elasticity (-0.193) is very similar to that obtained for ophthalmology and general surgery (as reported above). Although positive, the coefficient on the day case rate variable is not statistically significant. The LPC project was fully underway for orthopaedics from April 2003 and, with data to March 2004, there are four quarterly LPC dummies in this equation. All four LPC demand dummies are statistically significant but with a negative sign implying that the propensity of consultants in London to add patients to the orthopaedic waiting list fell following the introduction of LPC (relative to that observed previously). One caveat that should be attached to these results is that there is some evidence of mis-specification in the equation.

**Table 7.4: Inpatient demand for orthopaedics, 1995 - 2004**

Regression with robust standard errors		Number of obs = 4617				
		R-squared = 0.9649				
		Number of hospital Trusts = 183				
		Root MSE = 0.1387				
Dependent variable = GP referrals per head of population						
Explanatory variables	Robust Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
mean wait	-0.193	0.030	-6.40	0.000	-0.252	-0.133
day case %	0.034	0.054	0.63	0.532	-0.073	0.141
year96	0.015	0.012	1.31	0.190	-0.008	0.038
year97	(dropped)					
year98	0.056	0.018	3.14	0.002	0.021	0.091
year99	0.080	0.020	4.08	0.000	0.041	0.119
year00	0.095	0.021	4.47	0.000	0.053	0.137
year01	0.109	0.023	4.83	0.000	0.065	0.154
year02	0.155	0.025	6.22	0.000	0.106	0.204
year03	0.198	0.026	7.62	0.000	0.147	0.250
summer	0.009	0.005	1.85	0.066	-0.001	0.019
autumn	0.036	0.005	7.11	0.000	0.026	0.047
winter	0.035	0.005	6.65	0.000	0.025	0.045
londondv	-0.381	0.013	-29.53	0.000	-0.406	-0.355
londondv03I	-0.115	0.043	-2.69	0.008	-0.200	-0.031
londondv03II	-0.115	0.042	-2.77	0.006	-0.197	-0.033
london03III	-0.124	0.044	-2.83	0.005	-0.211	-0.038
londondv03IV	-0.111	0.041	-2.68	0.008	-0.193	-0.029

Ramsey RSET test using powers of the fitted values of the dependent variable  
H0: model has no omitted variables  
F(3, 4415) = 5.64  
Prob > F = 0.0007

Table 7.5 shows the estimated outpatient demand function for orthopaedics. Waiting time has the anticipated negative effect on NHS outpatient demand. The coefficient on the day case rate variable is statistically insignificant. All four LPC demand dummies are negative but are statistically insignificant. The implication is that Patient Choice has had no impact on the propensity of London GPs to refer patients to an orthopaedic outpatient clinic. There is no evidence of mis-specification in this equation.

**Table 7.5: Outpatient demand for orthopaedics, 1995 - 2004**

Regression with robust standard errors		Number of obs = 4650 R-squared = 0.9227 Number of hospital Trusts = 176 Root MSE = 0.1354				
Dependent variable = GP referrals per head of population						
Explanatory variables	Robust Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
mean wait	-0.155	0.024	-6.48	0.000	-0.202	-0.108
day case %	0.031	0.077	0.40	0.688	-0.121	0.184
year96	-0.013	0.013	-1.00	0.317	-0.040	0.013
year97	0.020	0.019	1.04	0.298	-0.018	0.057
year98	0.035	0.024	1.45	0.150	-0.013	0.083
year99	0.065	0.027	2.40	0.017	0.012	0.118
year00	0.075	0.031	2.39	0.018	0.013	0.136
year01	0.067	0.030	2.28	0.024	0.009	0.126
year02	0.118	0.030	4.00	0.000	0.060	0.177
year03	0.142	0.032	4.42	0.000	0.079	0.206
summer	-0.011	0.004	-2.47	0.014	-0.019	-0.002
autumn	-0.065	0.005	-12.79	0.000	-0.075	-0.055
winter	-0.026	0.005	-4.90	0.000	-0.037	-0.016
londondv	-1.074	0.025	-42.41	0.000	-1.124	-1.024
londondv03I	-0.050	0.051	-0.98	0.329	-0.150	0.051
londondv03II	-0.053	0.051	-1.04	0.299	-0.154	0.048
londond03III	-0.062	0.046	-1.34	0.180	-0.154	0.029
londondv03IV	-0.032	0.049	-0.66	0.511	-0.128	0.064

Ramsey RSET test using powers of the fitted values of the dependent variable  
H0: model has no omitted variables  
F(3, 4454) = 1.29  
Prob > F = 0.2774

### *7.5.3. General surgery*

Table 7.6 shows the estimated inpatient demand function for general surgery. Waiting time has the anticipated negative effect on NHS demand and the elasticity (-0.189) is very similar to that obtained for ophthalmology above and by previous studies for other specialties (Martin *et al*, 2003). The coefficient on the day case rate variable is positive as anticipated and statistically significant at the 5% level. The LPC project was fully underway for general surgery from April 2003 and, with data to March 2004, there are four quarterly LPC dummies in this equation. All four LPC demand dummies are statistically insignificant implying that Patient Choice has not induced any change in consultants' decision to admit behaviour in London. The equation shows no evidence of mis-specification.



**Table 7.6: Inpatient demand for general surgery, 1995 - 2004**

Regression with robust standard errors		Number of obs = 4522				
		R-squared = 0.8758				
		Number of hospital Trusts = 179				
		Root MSE = 0.1484				
Dependent variable = GP referrals per head of population						
Explanatory variables	Robust Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
mean wait	-0.189	0.036	-5.24	0.000	-0.261	-0.118
day case %	0.168	0.082	2.05	0.042	0.006	0.330
year96	-0.017	0.011	-1.58	0.116	-0.038	0.004
year97	(dropped)					
year98	-0.009	0.020	-0.43	0.668	-0.048	0.031
year99	-0.016	0.022	-0.73	0.465	-0.060	0.027
year00	-0.081	0.025	-3.23	0.001	-0.130	-0.031
year01	-0.133	0.029	-4.53	0.000	-0.190	-0.075
year02	-0.136	0.031	-4.35	0.000	-0.198	-0.074
year03	-0.198	0.035	-5.70	0.000	-0.266	-0.130
summer	0.016	0.004	4.46	0.000	0.009	0.024
autumn	0.021	0.004	4.74	0.000	0.012	0.030
winter	0.009	0.005	1.75	0.082	-0.001	0.018
londondv	-0.345	0.014	-24.97	0.000	-0.372	-0.318
londondv03I	0.019	0.047	0.41	0.679	-0.073	0.111
londondv03II	0.026	0.049	0.53	0.594	-0.070	0.122
londond03III	-0.012	0.045	-0.26	0.795	-0.101	0.077
londondv03IV	0.015	0.057	0.26	0.799	-0.097	0.127

Ramsey RSET test using powers of the fitted values of the dependent variable  
H0: model has no omitted variables  
F(3, 4324) = 1.89  
Prob > F = 0.1291

Table 7.7 shows the estimated outpatient demand function for general surgery. Waiting time has the anticipated negative effect on NHS demand. Although the elasticity (-0.052) is small it is similar to that obtained for outpatients by other studies (Martin *et al*, 2003). The coefficient on the day case rate variable is statistically insignificant. The LPC project was fully underway for general surgery from April 2003 and, with data to March 2004, there are four quarterly LPC dummies in this equation. The first three LPC demand dummies are negative and statistically significant. The implication is that, in the first three quarters of the project, the propensity of London GPs to refer patients to an outpatient clinic was lower than that observed previously (holding constant all other factors). There is no evidence of mis-specification in this equation.

**Table 7.7: Outpatient demand for general surgery, 1995 - 2004**

Regression with robust standard errors		Number of obs = 5078				
		R-squared = 0.9055				
		Number of hospital Trusts = 186				
		Root MSE = 0.1043				
Dependent variable = GP referrals per head of population						
Explanatory variables	Robust Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
mean wait	-0.052	0.023	-2.31	0.022	-0.097	-0.008
day case %	0.068	0.048	1.41	0.160	-0.027	0.163
year96	-0.048	0.011	-4.32	0.000	-0.070	-0.026
year97	-0.041	0.016	-2.50	0.013	-0.073	-0.009
year98	0.009	0.019	0.49	0.625	-0.029	0.048
year99	0.023	0.022	1.05	0.293	-0.020	0.066
year00	0.024	0.022	1.06	0.291	-0.020	0.068
year01	0.039	0.024	1.64	0.103	-0.008	0.085
year02	0.032	0.024	1.32	0.190	-0.016	0.080
year03	0.051	0.024	2.08	0.039	0.002	0.099
summer	0.009	0.003	3.23	0.001	0.004	0.015
autumn	-0.028	0.004	-7.88	0.000	-0.036	-0.021
winter	-0.013	0.004	-3.59	0.000	-0.021	-0.006
londondv	0.515	0.006	81.17	0.000	0.503	0.528
londondv03I	-0.097	0.033	-2.90	0.004	-0.163	-0.031
londondv03II	-0.079	0.029	-2.69	0.008	-0.137	-0.021
londondv03III	-0.051	0.025	-2.08	0.039	-0.100	-0.003
londondv03IV	-0.032	0.030	-1.07	0.285	-0.091	0.027

Ramsey RSET test using powers of the fitted values of the dependent variable  
H0: model has no omitted variables  
F(3, 4872) = 1.87  
Prob > F = 0.1319

## 7.6. Summary

It is often alleged that attempts to reduce waiting times will ultimately prove unsuccessful as GPs and consultants will adjust their referral and treatment thresholds downwards. This threshold adjustment will boost demand and will tend to offset any initial positive impact that activity growth had on waiting times. Tests of these hypotheses are rare but the introduction of Patient Choice in London offers an opportunity to undertake just such an exercise.

A cursory study of the number of GP referrals and consultant decisions to admit in ophthalmology before and after the introduction of Patient Choice provided prima facie evidence in support of the threshold adjustment hypotheses. However, the problem with this approach is that an increase in referrals and decisions to admit is to be expected following the introduction of Patient Choice because waiting times fell. This will have stimulated NHS demand *even with constant referral and treatment thresholds*.

To ascertain whether the London Patient Choice project has been associated with a change in GP referral and/or consultant decision to admit behaviour relative to that observed across the rest of England, outpatient and inpatient demand functions for three individual specialties were estimated across all English Trusts over the period June 1995 - March 2004. Dummy variables were employed to test whether demand in London, following the introduction of Choice, exceeded demand levels observed previously holding constant all other factors. No evidence was found to support the hypothesis that Choice has been associated with either reduced referral or treatment thresholds. Indeed, if anything there was some evidence (for orthopaedic inpatients and for general surgery outpatients) that the LPC project has been associated with a decline in GP referral and consultant admission rates.

Of course, these results are subject to the usual caveats applicable to all empirical work. However, the fact that the estimated demand models are both plausible in their own right and yield similar demand elasticities to those obtained previously for other specialties, suggests that the results are reasonably robust and can be viewed with a fair degree of confidence. This is not to say that referral and decision to admit behaviour will not change in the future as GPs and consultants become more aware of the impact of Patient Choice. However, after a year of choice, there is no evidence that the response of London GPs and consultants to declining waiting times is any different to that observed previously.

## **8. Conclusions and lessons for the future**

The primary remit of the evaluation was to assess performance of LPCP against objectives and identify unintended effects. In addition we were to identify lessons for the future roll out of choice in the NHS.

LPCP was one element in the package of NHS initiatives to reduce waiting times for elective surgery in recent years. The importance of this particular pilot was to address the question: Could establishment of an infrastructure to facilitate choice of provider contribute to a reduction in waiting time? Waiting times in London as a whole differed little from those in the rest of England. However, within London there were significant differences between Trusts. It appeared a “post-code lottery” for London patients. If a patient’s PCT contracted primarily with local Trusts with long waiting times, the patient could expect to wait longer than another London patient whose PCT contracted with local Trusts with short waits. The gap in waiting time between Trusts existed for several years before the introduction of LPCP. This raised the obvious question of why Health Authorities and then PCTs had not taken advantage of the difference in waiting time and costs to seek out earlier treatment for their patients.

London Choice is associated with two important changes to the London health care market. First, for choice procedures, it introduced in effect a single purchaser in place of decentralised local purchasing. It identified patients in Trusts where there were long waits and facilitated their transfer to Trusts with shorter waits. Second, LPCP coincided with bringing on stream a considerable DH investment in new capacity for elective surgery, the TC programme. This new capacity was located at Trusts with relatively short waits. If the new capacity had gone into Trusts with long waits, the gap in waiting times within London might have been reduced or closed without introducing choice. However, given the location of the new capacity and the previous failure of the market to respond to differences in London wide waiting times and costs, a central purchaser was probably key to making effective use of this new capacity.

Our analysis suggests that the LPCP regime was successful in generating convergence within London. For ophthalmology and orthopaedics, waiting times at recipient Trusts continued to fall while waiting times at originating Trusts fell even faster. Equity within London was improved. Convergence was achieved not by raising waiting times at recipient trusts and reducing them at originators but by bringing down waiting times at originating Trusts to the level of recipients. Our statistical analysis suggests that recipient and non-participating Trusts continued to reduce waiting times in line with the rest of England and other urban conurbations. The reduction in waiting times at originating Trusts was statistically significant relative to both the rest of England and other conurbations. The statistical evidence is weak on whether London as a whole, employing a choice regime, reduced waiting times relative to the comparator groups. However, the impact on convergence is clear.

There were important reductions in the variation in mean waiting times in London in all three specialties. This in itself can be considered an important improvement in the system since it provides greater equity of access across Trusts in terms of waiting times, reducing the apparent “post-code lottery” for London patients. The reduction in waiting times along with the reduction in variation are two distinct and important trends in London waiting times.

There is no evidence that during the period of London choice GPs and consultants increased referral rates. There had been concern that once GPs became aware of the fact that with LPCP waiting times for their patients might be reduced, they would increase referrals and undermine the waiting time objective of the choice project. Our research suggests this did not happen. Surprisingly, the only LPCP effect that emerged from the statistical analysis was a reduction in GP referrals for general surgery and in consultant decisions to admit in orthopaedics. However, it may be that it takes longer than eighteen months for GPs to learn about and react to the implications of choice. Given the importance of this issue for demands on the NHS, GP responses to choice should be monitored over a longer time period.

A concern with the introduction of choice had been that patients not offered choice would be disadvantaged relative to those that exercised choice. At one level our research suggests this did not happen. We monitored changes in waiting times for *all* patients, not just those exercising choice. The statistically significant fall in waiting times at originators related to all patients on the Trust waiting lists. Interviews conducted by Royal Holloway as part of the LPCP evaluation recorded comments by some clinicians that waiting time targets in general and choice in particular were unfair and some patients would be treated faster than others who should have priority on clinical grounds. We have not examined the equity of using waiting time targets or in this case of targeting particular procedures. However the evidence presented in this report suggests little support for the view that Trusts treating choice patients needed to make their own patients wait longer. Of the capacity booked and paid for by LPCP, 34% was excess to choice need and was used by recipients to treat their own local patients, over and above the activity contracted by local purchasers.

Our conclusion that LPCP contributed to improving equity of access in London will not necessarily hold with the national roll out of choice. The favourable outcome in London was strongly influenced by the financial incentives of the system which will not apply in future. Under LPCP there was a financial benefit for recipient Trusts that used capacity to treat more of their own patients. Under the more restrictive financial incentives applying in 2004/05 in London and to be applied throughout the country, tensions may arise between treating choice and local patients. It is important that activity under the new financial regime be monitored.

As choice is rolled out, an important issue is how much excess capacity is needed to accommodate choice. The LPCP project team had estimated that 15% excess capacity might be required. Because of falling numbers offered choice, capacity contracted was far in excess of 15%. It will be important to monitor the use of capacity under the new financial regime if we are to gain insight into the capacity requirements of the planned NHS choice regime.

LPCP offered choice to patients already on Trust waiting lists. The NHS plans to offer a different type of choice, choice at the point of GP referral. At one level, choice at the point of referral may simply amount to choice of where to go for a first outpatient appointment. After that, the patient would be locked into the Trust of referral as has usually been the case in the NHS. Perhaps, as the NHS develops choice policy, choice will be extended to patients after they have made first contact with a Trust. If so, that will increase relevance of evidence from the evaluation of LPCP. Irrespective of future policy change, there are three lessons from our evaluation of LPCP that are important for current policy. First, the unit relevant for operation of choice is the specialty, not the Trust. The responsiveness of Trusts to choice varies by specialty. This is likely to complicate contracting (SLAs) for PCTs when GPs must offer 4-5 choices of Trust for patients suspected of requiring different procedures. Second, the location of new capacity will be an important influence on the extent to which choice encourages greater geographical change in the Trust of treatment relative to traditional referral patterns. Third, the behaviour of Trusts in responding to choice will be sensitive to the financial regime. Risk sharing arrangements in place during this evaluation were particularly favourable to Trusts accepting choice patients.

## **9. References**

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## 10. Annex A

**Table 10.1: Reference costs for selected LPCP procedures and finished consultant episodes, ophthalmology, orthopaedics and general surgery, 2003**

Trust code	Trust name	HRG daycase cost	HRG elective inpatient cost	HRG daycase FCE	HRG elective inpatient FCE
<b>Ophthalmology</b>					
<b>B02 - Phako cataract extraction with lens implant</b>					
<i>Recipients</i>					
RJ1	GUY'S AND ST THOMAS' NHS TRUST	481	936	1260	228
RJ5	ST MARY'S NHS TRUST	698	881	1193	610
RJ6	MAYDAY HEALTHCARE NHS TRUST	777	612	2081	45
RP6	MOORFIELDS EYE HOSPITAL NHS TRUST	263	708	9937	878
<i>Originators</i>					
RAP	NORTH MIDDLESEX UNIVERSITY HOSPITAL NHS TRUST	530	1428	620	35
RAX	KINGSTON HOSPITAL NHS TRUST	573	423	2023	10
RF4	BARKING, HAVERING AND REDBRIDGE HOSPITALS NHS TRUST	512	1302	1433	2
RG3	BROMLEY HOSPITALS NHS TRUST	641	.	1561	.
RGC	WHIPPS CROSS UNIVERSITY HOSPITAL NHS TRUST	616	466	1916	184
RGZ	QUEEN MARY'S SIDCUP NHS TRUST	580	947	2115	483
RJ7	ST GEORGE'S HEALTHCARE NHS TRUST	.	613	.	1
RJZ	KING'S COLLEGE HOSPITAL NHS TRUST	744	1354	1588	110
RNJ	BARTS AND THE LONDON NHS TRUST	558	3028	212	14
RVR	EPSOM AND ST HELIER NHS TRUST	675	1163	824	73
<i>Others</i>					
RAL	ROYAL FREE HAMPSTEAD NHS TRUST	753	1455	1451	360
RAS	HILLINGDON HOSPITAL NHS TRUST	905	3554	744	4
RQM	CHELSEA AND WESTMINSTER HEALTHCARE NHS TRUST	988	1808	439	15
RQN	HAMMERSMITH HOSPITALS NHS TRUST	1127	1000	604	8
RRV	UNIVERSITY COLLEGE LONDON HOSPITALS NHS TRUST	940	507	207	1
RV8	NORTH WEST LONDON HOSPITALS NHS TRUST	802	1417	1185	144

**B03 - Other cataract extraction with lens implant**

*Recipients*

RJ1	GUY'S AND ST THOMAS' NHS TRUST	499	815	23	7
RJ5	ST MARY'S NHS TRUST	.	948	.	3
RJ6	MAYDAY HEALTHCARE NHS TRUST	432	.	15	.
RP6	MOORFIELDS EYE HOSPITAL NHS TRUST	268	808	57	15

*Originators*

RAP	NORTH MIDDLESEX UNIVERSITY HOSPITAL NHS TRUST	555	1362	118	6
RAX	KINGSTON HOSPITAL NHS TRUST	589	.	17	.
RF4	BARKING, HAVERING AND REDBRIDGE HOSPITALS NHS TRUST	598	.	3	.
RG3	BROMLEY HOSPITALS NHS TRUST	641	.	6	.
RGC	WHIPPS CROSS UNIVERSITY HOSPITAL NHS TRUST	615	412	206	36
RGZ	QUEEN MARY'S SIDCUP NHS TRUST	585	1035	140	59
RJZ	KING'S COLLEGE HOSPITAL NHS TRUST	757	1195	26	5
RNJ	BARTS AND THE LONDON NHS TRUST	581	2618	21	8
RVR	EPSOM AND ST HELIER NHS TRUST	695	1191	396	52

*Others*

RAL	ROYAL FREE HAMPSTEAD NHS TRUST	1098	1783	9	15
RAS	HILLINGDON HOSPITAL NHS TRUST	905	.	9	.
RQN	HAMMERSMITH HOSPITALS NHS TRUST	818	1060	2	1
RV8	NORTH WEST LONDON HOSPITALS NHS TRUST	.	1968	.	2

**Orthopaedics**

**H02 - Hip replacement**

*Recipients*

RAN	ROYAL NATIONAL ORTHOPAEDIC HOSPITAL NHS TRUST	.	5861	.	342
RG3	BROMLEY HOSPITALS NHS TRUST	.	5453	.	244
RJZ	KING'S COLLEGE HOSPITAL NHS TRUST	.	6293	.	123
RQN	HAMMERSMITH HOSPITALS NHS TRUST	.	6181	.	220
RRV	UNIVERSITY COLLEGE LONDON HOSPITALS NHS TRUST	.	4870	.	146

*Originators*

RAL	ROYAL FREE HAMPSTEAD NHS TRUST	.	5179	.	68
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RAS	HILLINGDON HOSPITAL NHS TRUST	.	5807	.	139
RAX	KINGSTON HOSPITAL NHS TRUST	.	5403	.	259
RC3	EALING HOSPITAL NHS TRUST	.	3871	.	74
RF4	BARKING, HAVERING AND REDBRIDGE HOSPITALS NHS TRUST	.	4154	.	292
RFW	WEST MIDDLESEX UNIVERSITY NHS TRUST	.	4285	.	50
RG2	QUEEN ELIZABETH HOSPITAL NHS TRUST	835	6057	1	76
RGC	WHIPPS CROSS UNIVERSITY HOSPITAL NHS TRUST	.	5338	.	136
RGZ	QUEEN MARY'S SIDCUP NHS TRUST	.	4367	.	106
RJ1	GUY'S AND ST THOMAS' NHS TRUST	.	6378	.	191
RJ2	LEWISHAM HOSPITAL NHS TRUST	.	6011	.	78
RJ5	ST MARY'S NHS TRUST	.	4120	.	89
RJ6	MAYDAY HEALTHCARE NHS TRUST	.	4814	.	125
RJ7	ST GEORGE'S HEALTHCARE NHS TRUST	.	8368	.	114
RKE	WHITTINGTON HOSPITAL NHS TRUST	.	4410	.	135
RNH	NEWHAM HEALTHCARE NHS TRUST	.	7462	.	60
RNJ	BARTS AND THE LONDON NHS TRUST	.	4877	.	103
RV8	NORTH WEST LONDON HOSPITALS NHS TRUST	.	5641	.	219
RVL	BARNET AND CHASE FARM HOSPITALS NHS TRUST	.	4835	.	207
RVR	EPSOM AND ST HELIER NHS TRUST	332	5865	1	310
<i>Others</i>					
RAP	NORTH MIDDLESEX UNIVERSITY HOSPITAL NHS TRUST	.	4920	.	85
RP4	GREAT ORMOND STREET HOSPITAL FOR CHILDREN NHS TRUST	.	820	.	1
RQM	CHELSEA AND WESTMINSTER HEALTHCARE NHS TRUST	.	6564	.	162
RQX	HOMERTON UNIVERSITY HOSPITAL NHS TRUST	.	7683	.	53
<b>H04 - Knee replacement</b>					
<i>Recipients</i>					
RAN	ROYAL NATIONAL ORTHOPAEDIC HOSPITAL NHS TRUST	.	6406	.	414
RG3	BROMLEY HOSPITALS NHS TRUST	.	6282	.	328
RJZ	KING'S COLLEGE HOSPITAL NHS TRUST	.	6682	.	176
RQN	HAMMERSMITH HOSPITALS NHS TRUST	.	6181	.	280
RRV	UNIVERSITY COLLEGE LONDON HOSPITALS NHS TRUST	.	4453	.	151

*Originators*

RAL	ROYAL FREE HAMPSTEAD NHS TRUST	.	4809	.	111
RAS	HILLINGDON HOSPITAL NHS TRUST	.	5918	.	174
RAX	KINGSTON HOSPITAL NHS TRUST	.	5735	.	235
RC3	EALING HOSPITAL NHS TRUST	.	5802	.	84
RF4	BARKING, HAVERING AND REDBRIDGE HOSPITALS NHS TRUST	1877	4260	2	358
RFW	WEST MIDDLESEX UNIVERSITY NHS TRUST	.	4588	.	95
RG2	QUEEN ELIZABETH HOSPITAL NHS TRUST	835	6778	1	94
RGC	WHIPPS CROSS UNIVERSITY HOSPITAL NHS TRUST	.	5170	.	140
RGZ	QUEEN MARY'S SIDCUP NHS TRUST	.	4836	.	149
RJ1	GUY'S AND ST THOMAS' NHS TRUST	.	9035	.	215
RJ2	LEWISHAM HOSPITAL NHS TRUST	.	6918	.	150
RJ5	ST MARY'S NHS TRUST	.	4406	.	71
RJ6	MAYDAY HEALTHCARE NHS TRUST	.	5300	.	138
RJ7	ST GEORGE'S HEALTHCARE NHS TRUST	.	9343	.	101
RKE	WHITTINGTON HOSPITAL NHS TRUST	.	4623	.	95
RNH	NEWHAM HEALTHCARE NHS TRUST	.	8638	.	81
RNJ	BARTS AND THE LONDON NHS TRUST	.	5320	.	129
RV8	NORTH WEST LONDON HOSPITALS NHS TRUST	.	6010	.	269
RVL	BARNET AND CHASE FARM HOSPITALS NHS TRUST	.	5202	.	281
RVR	EPSOM AND ST HELIER NHS TRUST	.	7712	.	363

*Others*

RAP	NORTH MIDDLESEX UNIVERSITY HOSPITAL NHS TRUST	.	4146	.	137
RP4	GREAT ORMOND STREET HOSPITAL FOR CHILDREN NHS TRUST	.	4100	.	1
RQM	CHELSEA AND WESTMINSTER HEALTHCARE NHS TRUST	.	6667	.	168
RQX	HOMERTON UNIVERSITY HOSPITAL NHS TRUST	.	6759	.	71

**General surgery**

**Q11 - Varicose Veins**

*Recipients*

RG3	BROMLEY HOSPITALS NHS TRUST	576	1640	120	31
RJ2	LEWISHAM HOSPITAL NHS TRUST	829	1397	65	90

RRV	UNIVERSITY COLLEGE LONDON HOSPITALS NHS TRUST	347	620	105	85
RV8	NORTH WEST LONDON HOSPITALS NHS TRUST	861	1558	179	168
<i>Originators</i>					
RAS	HILLINGDON HOSPITAL NHS TRUST	454	1152	51	174
RAX	KINGSTON HOSPITAL NHS TRUST	586	1261	138	73
RC3	EALING HOSPITAL NHS TRUST	1978	1097	39	37
RF4	BARKING, HAVERING AND REDBRIDGE HOSPITALS NHS TRUST	925	1372	452	168
RFW	WEST MIDDLESEX UNIVERSITY NHS TRUST	857	1722	87	32
RG2	QUEEN ELIZABETH HOSPITAL NHS TRUST	166	1451	80	47
RGC	WHIPPS CROSS UNIVERSITY HOSPITAL NHS TRUST	1061	1595	174	85
RGZ	QUEEN MARY'S SIDCUP NHS TRUST	627	971	13	90
RJ1	GUY'S AND ST THOMAS' NHS TRUST	894	1506	3	117
RJ5	ST MARY'S NHS TRUST	1161	1575	73	58
RJ6	MAYDAY HEALTHCARE NHS TRUST	1076	992	267	109
RJ7	ST GEORGE'S HEALTHCARE NHS TRUST	643	2060	106	37
RJZ	KING'S COLLEGE HOSPITAL NHS TRUST	716	1933	194	68
RNH	NEWHAM HEALTHCARE NHS TRUST	1108	941	30	31
RNJ	BARTS AND THE LONDON NHS TRUST	1527	612	67	100
RQM	CHELSEA AND WESTMINSTER HEALTHCARE NHS TRUST	943	1691	109	60
RQN	HAMMERSMITH HOSPITALS NHS TRUST	447	1174	123	168
RVL	BARNET AND CHASE FARM HOSPITALS NHS TRUST	714	1780	175	149
RVR	EPSOM AND ST HELIER NHS TRUST	464	1037	258	144
<i>Others</i>					
RAL	ROYAL FREE HAMPSTEAD NHS TRUST	882	2952	134	63
RAP	NORTH MIDDLESEX UNIVERSITY HOSPITAL NHS TRUST	845	1697	50	104
RKE	WHITTINGTON HOSPITAL NHS TRUST	1053	1724	58	67
RQX	HOMERTON UNIVERSITY HOSPITAL NHS TRUST	611	1743	18	24

Source: Reference costs, 2003