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NORTH EAST PUBLIC HEALTH OBSERVATORY

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Cataract Surgery in the North East of England

Background

Cataract is a common and important cause of visual impairment[1]. There is no proven preventive or medical treatment for cataract; the only effective way to restore or maintain vision is surgical removal of the clouded part of the lens (cataract surgery)[1,2]. Cataract surgery is the commonest surgical operation carried out in England[3] and is commonly performed on older people, since most cataracts are age-related[1,4]. The benefits of cataract operations on older people are immense; loss of vision threatens independence[5] and long periods with impaired vision and impaired quality of life increase the likelihood of deterioration in general health[6].

Cataract is a clouding of the lens of the eye which results in loss of visual function. Patients with cataract commonly complain of blurring of vision, being dazzled by bright lights, reduced colour appreciation, and occasionally double vision.

Overall, 30% of persons aged 65 and over are likely to have at least one eye with a visually impairing cataract[4]. Prevalence of visually impairing cataract rises with age, and is greater in women when adjusted for age.

In 2000, the Department of Health published *Action on Cataracts*[6]. This document contains advice about how to design and operate an efficient and patient sensitive cataract service and target measures of what a good cataract service should look like.

In 2003/04 the Department of Health gave Public Health Observatories responsibility for providing Regional Hospital Episode Statistics (HES) services.

In this report, we use HES data to assess to what extent hospital trusts and primary care trusts (PCTs) are meeting the targets set out in *Action on Cataracts*[6] to assess how well we are doing with cataract surgery in this region. The analysis in this paper is restricted to elective procedures (inpatients and day cases) in patients aged 65 and over, and excludes congenital cataracts.

Future reports using HES data are planned on heart operations and on hip and knee replacement surgery in the region.

Contents

Summary

- There has been good progress towards achieving the national targets on cataract surgery. However, there is considerable variation between primary care trusts (PCTs).
- There were no breaches of the official target for waiting time from outpatient assessment to admission in 2002/03; 326 (2.3%) patients had a total wait in excess of 12 months. Mean waits varied considerably between PCTs and between trusts. PCTs continue to monitor waiting times quarterly.
- Trusts in the region are implementing the recommendation that optometrists should directly refer patients requiring cataract surgery to outpatients.
- Over 95% of cataract operations are carried out as day cases.
- There is still scope for providing a better service for patients requiring cataract surgery.
- Outcomes should be audited.

Guidance

The Royal College of Ophthalmologists produced *Cataract Surgery Guidelines*[1] and the Scottish Intercollegiate Guideline Network produced guidelines for *Day Case Cataract Surgery*[2] in 2001. These documents identify good clinical practice, set standards of patient care and provide outcome data to act as a framework within which modern and professional cataract surgery can be practised. Both are underpinned by evidence of effectiveness and cost effectiveness.

In 2000, the NHS Executive published *Action on Cataracts*[6]. This provides guidance about how services for cataract surgery should be organised and should be read alongside the Royal College of Ophthalmologists' *Cataract Surgery Guidelines*[1]. *Action on Cataracts*[6] aims to identify where services can be made more effective, and how access to services can be improved. It gives a number of key messages for both NHS Trusts and PCTs in relation to:

- Improving patient access – increasing the number of procedures undertaken and reducing waiting times;
- Improving the patient pathway – implementing direct referral by optometrists, reducing the number of pre- and post-operative outpatient appointments, and increasing the proportion of procedures undertaken as day cases;
- Ensuring that outcomes are audited.

The recommendations from the report are described in detail below.

Improving patient access

- Increase the numbers of procedures undertaken so that all areas are achieving a rate of at least 3,200 per 100,000 population aged 65 and over - the assumption being that this can be done through modernisation, efficiency improvements and by improving facilities.

- Reduce waiting times, both from referral to outpatient assessment and from outpatient assessment to surgery:

    - The waiting time from referral to outpatient assessment should be no more than 4 weeks;

    - The waiting time from outpatient assessment to surgery should ideally be no more than 3 months and no patient should wait more than 6 months for surgery.

Improving the patient pathway

- Review whether there has been local implementation of the recommendation that optometrists should directly refer patients requiring cataract surgery to outpatients (rather than referring via GPs).

- Improve hospital outpatient assessments with the aim of reducing the number of preoperative outpatient appointments.

- Increase the proportion of operations carried out as day cases - 85-95% is the norm.

- Minimise the number of post-operative outpatient assessments.

Outcomes

- Audit outcome of cataract surgery and benchmark with other provider units.

Where possible we have used HES data to assess the extent to which hospital trusts and PCTs in the North East of England are meeting these recommendations.

Patterns of patient flow for Cataract Surgery in the North East

Table 1 gives a summary of the provision of cataract surgery for each of four trusts providing this service in the region. The table states the PCTs of residence for patients receiving cataract operations at each trust along with comments on the volume of provision, which are more fully explained in the Analysis section of this report.

Table 1: Summary of Provision of Cataract FCEs at ages 65 and over, 2002/03

Provider Name	Summary of Provision
Newcastle upon Tyne Hospitals (Royal Victoria Infirmary)	The main provider for Derwentside, Gateshead, Newcastle, North Tyneside and Northumberland. All of these PCTs are achieving the DH recommended rate of cataract operations, although there is variation between PCTs. Provision was increased between 1999/2000 and 2000/01, and again between 2001/02 and 2002/03.
City Hospitals Sunderland (Sunderland Eye Hospital)	The main provider for Durham & Chester-le-Street, Easington, Hartlepool, South Tyneside and Sunderland. All of these PCTs are achieving above the DH recommended rate of cataract operations in 2002/03.
County Durham & Darlington Acute Hospitals (Darlington Memorial Hospital)	The main provider for Darlington, Durham Dales and Sedgefield PCTs. None of these PCTs was achieving the DH target in 2002/03.
South Tees Hospitals (James Cook University Hospital)	The main provider for North Tees, Langbaurgh, and Middlesbrough PCTs. None of these PCTs was achieving the DH target in 2002/03.

Table 2 on the following page shows the main provider trusts and hospital sites for cataract surgery that are the destination for residents of the region's 16 primary care organisations. The table shows that residents of some PCTs almost exclusively used a single trust for provision of cataract surgery in 2002/03 (e.g., residents of North Tyneside PCT used only Newcastle upon Tyne Hospitals NHS Trust), whilst other PCTs made use of a number of providers (e.g., residents of Sedgefield PCT used County Durham & Darlington Acute Hospitals NHS Trust, City Hospitals Sunderland NHS Trust, and South Tees Hospitals NHS Trust). During 2002/03, 49 cataract FCEs for North East residents were carried out by providers from outside the region.

Table 2: Main Trust of provision for residents of North East PCTs for Cataract FCEs at ages 65 and over, 2002/03

PCT Name	Main Provider(s)
Newcastle PCT	Newcastle upon Tyne Hospitals NHS Trust - RVI (99%)
North Tyneside PCT	Newcastle upon Tyne Hospitals NHS Trust - RVI (100%)
Northumberland CT	Newcastle upon Tyne Hospitals NHS Trust - RVI (98%)
Gateshead PCT	Newcastle upon Tyne Hospitals NHS Trust - RVI (98%)
Derwentside PCT	Newcastle upon Tyne Hospitals NHS Trust - RVI (85%) City Hospitals Sunderland NHS Trust – Sunderland Eye Hospital (14%)
Sunderland Teaching PCT	City Hospitals Sunderland NHS Trust – Sunderland Eye Hospital (99%)
South Tyneside PCT	City Hospitals Sunderland NHS Trust – Sunderland Eye Hospital (91%) Newcastle upon Tyne Hospitals NHS Trust - RVI (9%)
Durham & Chester-le-Street PCT	City Hospitals Sunderland NHS Trust – Sunderland Eye Hospital (82%) Newcastle upon Tyne Hospitals NHS Trust - RVI (17%)
Easington PCT	City Hospitals Sunderland NHS Trust – Sunderland Eye Hospital (96%)
Hartlepool PCT	City Hospitals Sunderland NHS Trust – Sunderland Eye Hospital (97%)
Darlington PCT	County Durham & Darlington Acute Hospitals NHS Trust - Darlington Memorial (99%)
Durham Dales PCT	County Durham & Darlington Acute Hospitals NHS Trust – Darlington Memorial (99%)
Sedgefield PCT	County Durham & Darlington Acute Hospitals NHS Trust - Darlington Memorial (77%) City Hospitals Sunderland NHS Trust – Sunderland Eye Hospital (12%) South Tees Hospitals NHS Trust - James Cook University Hospital (11%)
Middlesbrough PCT	South Tees Hospitals MHS Trust - James Cook University Hospital (100%)
Langbaurgh PCT	South Tees Hospitals MHS Trust - James Cook University Hospital (100%)
North Tees PCT	South Tees Hospitals MHS Trust - James Cook University Hospital (98%)

Analysis of HES data

Improving patient access

Target rate of procedures

The recommended level of cataract operations is 3,200 per 100,000 population aged 65 and over. Figure 1 shows the increasing rates of cataract surgery undertaken in the North East of England in recent years. Figure 2 shows the way in which this target is being achieved by PCTs in the North East in 2002/03.

Figure 1: Finished Consultant Episodes (FCEs) of cataract operations per 100,000 population aged 65 and over, 1999/2000 – 2002/2003 for the North East of England

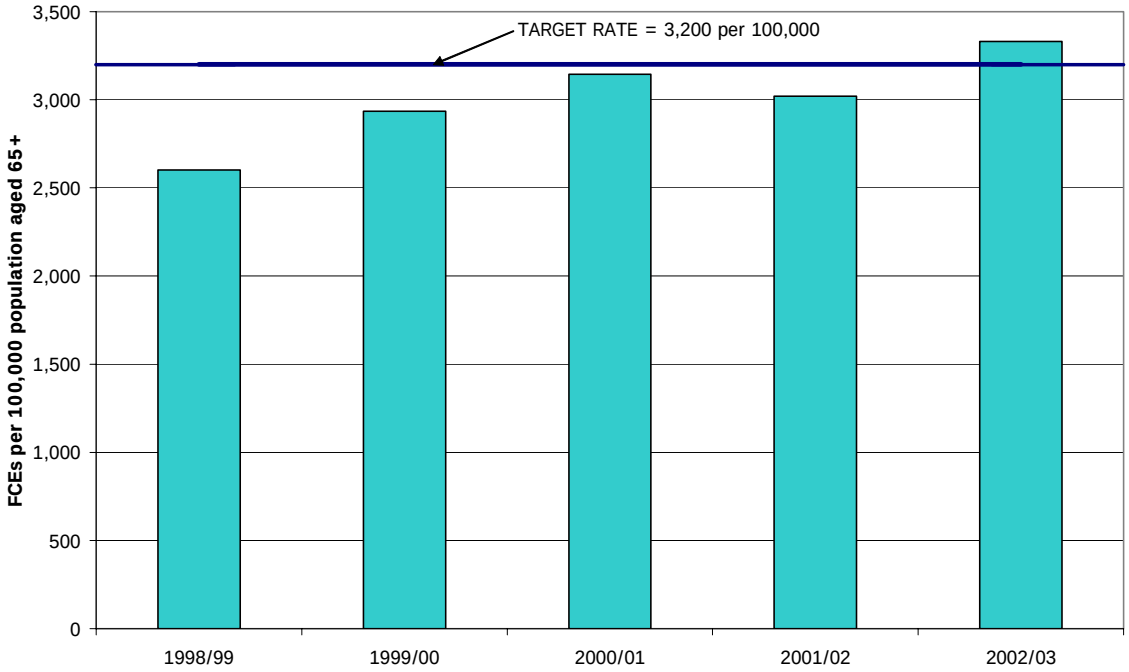
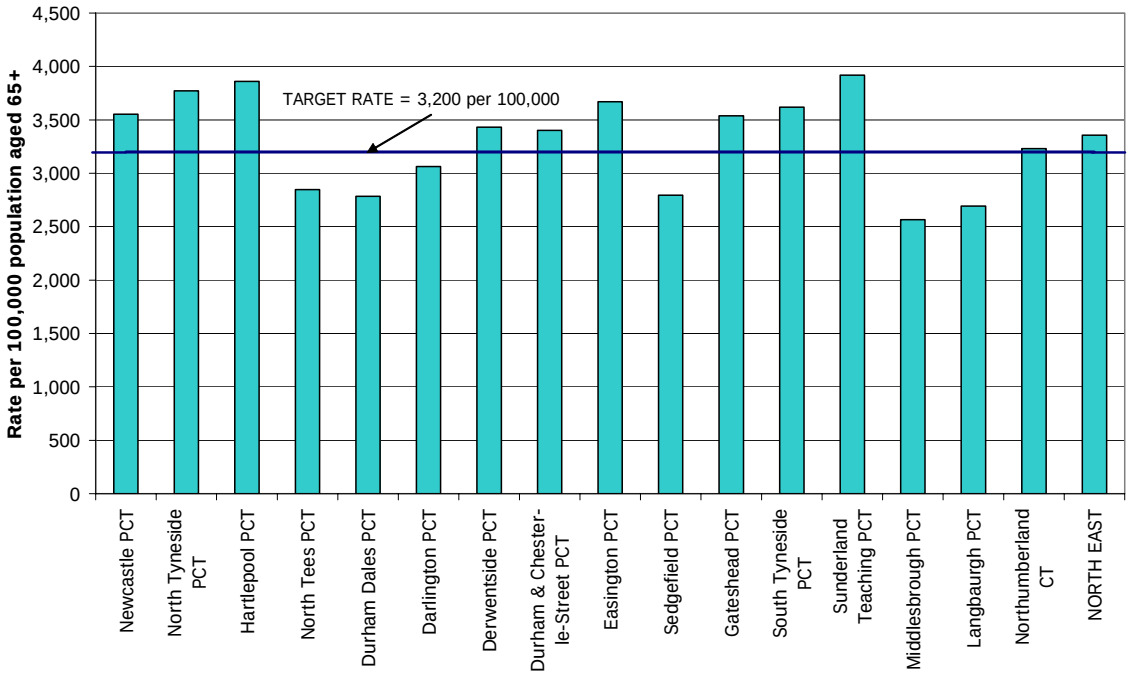
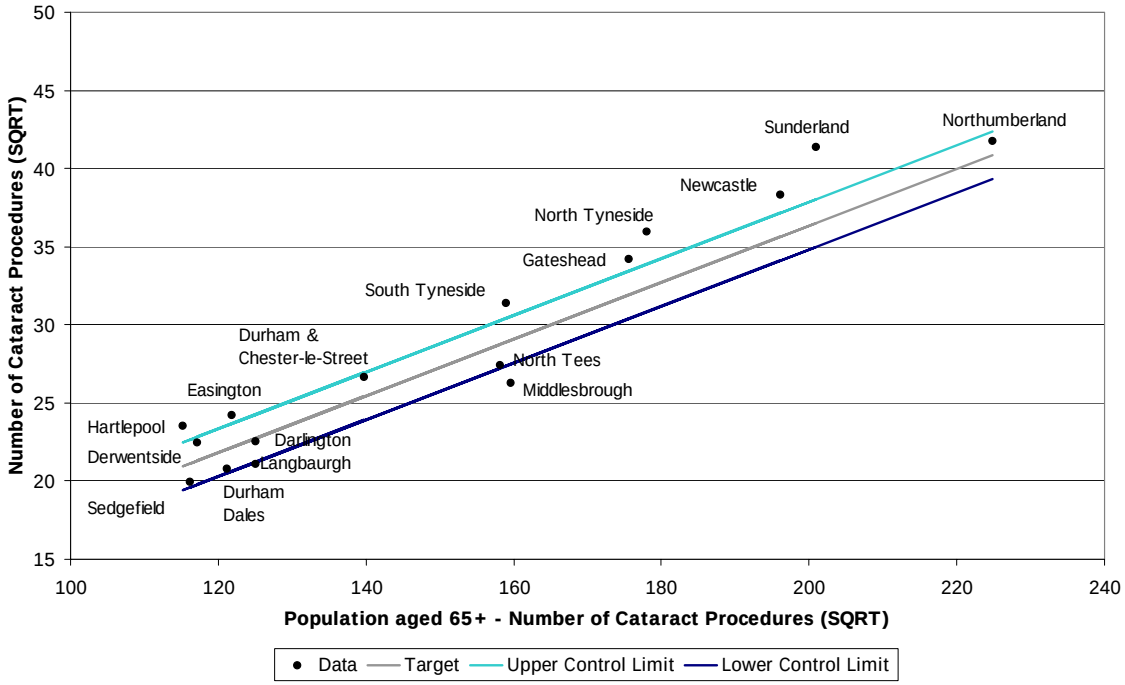


Figure 2: Finished Consultant Episodes (FCEs) of cataract operations per 100,000 population aged 65 and over, 2002/03 for PCTs in the North East of England



Broadly there is progress towards the target in the region. Those PCTs with low procedure rates have moved towards the target rate in recent years. Some PCTs are exceeding the target rate. This may be due a range of possibilities including excess need, different referral patterns or supply driven factors. These differences should be explained and commissioning arrangements altered if necessary. This message is further reinforced by a control chart analysis of these data, show in Figure 3.

Figure 3: Control Chart of Finished Consultant Episodes (FCEs) of cataract operations 2002/03 for PCTs in the North East of England compared to the target rate of 3,200 per 100,000 population aged 65+



In Figure 3, the central grey line represents the target rate of 3,200 per 100,000 and the green and blue lines represent the upper and lower control limits set at 3 standard deviations about the target rate. This shows that:

- Northumberland CT, Durham & Chester-le-Street PCT, Derwentside PCT, Durham Dales PCT, Sedgefield PCT and North Tees PCT have rates of cataract operations that are not statistically significantly different (at the 99.9% level) from the target rate of 3,200 per 100,000 aged 65 and over;
- Newcastle PCT, North Tyneside PCT, Gateshead PCT, South Tyneside PCT, Sunderland Teaching PCT, Easington PCT and Hartlepool PCT have rates of cataract operations that are statistically significantly higher (at the 99.9% level) than the target rate; and
- Middlesbrough PCT and Langbaurgh PCT have rates of cataract operations that are statistically significantly lower (at the 99.9% level) than the target rate.

Waiting times

Action on Cataracts[6] states that the waiting time from referral to outpatient assessment should be no more than 4 weeks. At present, HES does not include outpatient data and so this target cannot be measured using this data source. It is expected, however, that outpatient data will begin to be available through the regional HES service from Autumn 2004; it should then be possible to assess progress towards this target.

Action on Cataracts[6] also states that the waiting time from outpatient assessment to surgery should ideally be no more than 3 months and that no patient should wait more than 6 months for surgery. PCTs receive information on official waiting time statistics (QF01 and KH07) every quarter. The analysis included below which relates to 2002/03, the year used for all analysis in this paper, should be viewed as historic.

HES does include data on the time from outpatient assessment to admission for surgery; this measures the total time from the date of the initial outpatient assessment to the date of admission for surgery. In this respect, waiting time data from HES differ from official waiting time statistics (QF01 and KH07), which are adjusted to discount the time that patients were suspended from the waiting list. Patients may be suspended from the waiting list for medical reasons (such as being unfit for surgery) or for social reasons (such as inability to attend because of holidays or family commitments).

Figure 4: Percentage of Finished Consultant Episodes of cataract operations with waits of up to 3 months and 6 months between outpatient assessment and admission for surgery, 2002/03 for PCTs in the North East of England

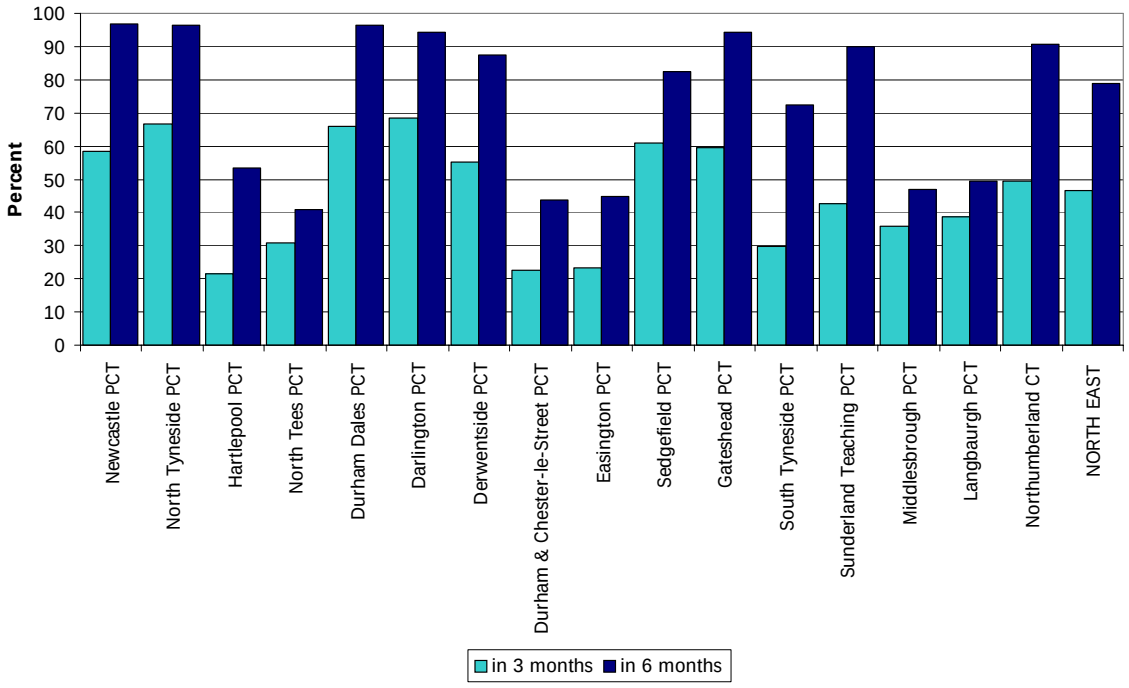


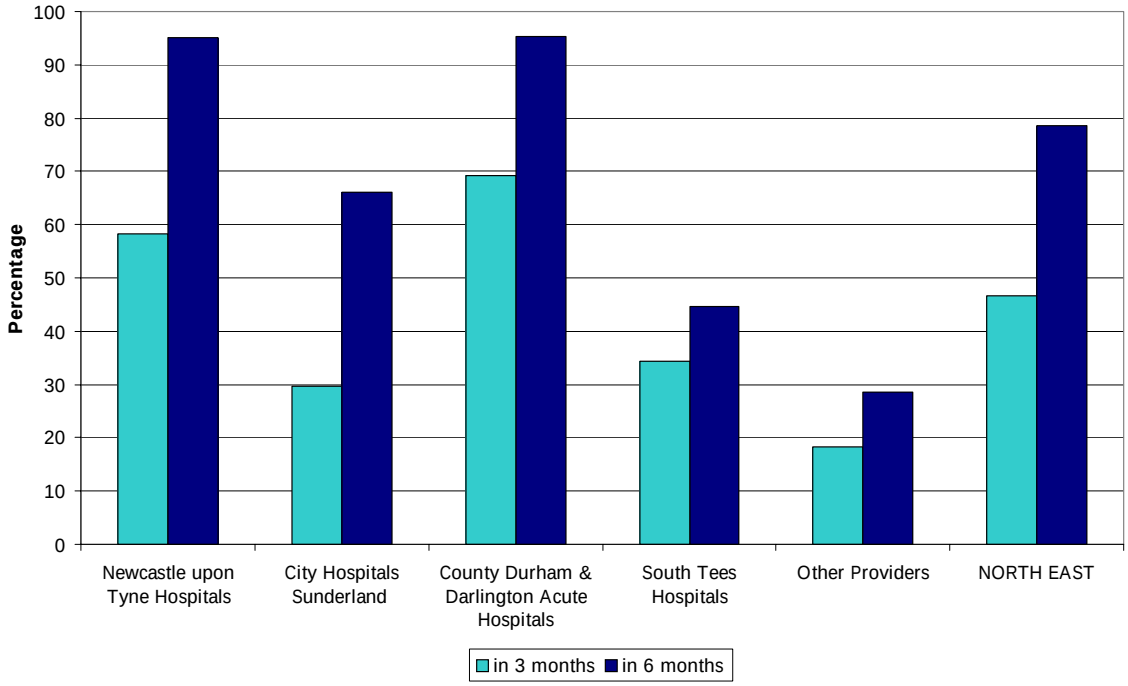
Figure 4 shows that the following six PCTs had waits of less than 6 months between first outpatient appointment and surgery for over 90% of cataract FCEs: Newcastle PCT, North Tyneside PCT, Durham Dales PCT, Darlington PCT, Gateshead PCT, and Northumberland CT. Five PCTs had less than 50% of FCEs with waits of less than 6 months between first outpatient appointment and surgery: North Tees PCT, Durham & Chester-le-Street PCT, Easington PCT, Middlesbrough PCT and Langbaurgh PCT.

Figure 5 shows the waits from the perspective of the provider trusts. This shows that the following two trusts had waits of less than 6 months between first outpatient appointment and surgery for over 90% of cataract FCEs: Newcastle upon Tyne Hospitals NHS Trust and County Durham & Darlington Acute Hospitals NHS Trust. These trusts were also providing a substantial percentage of cataract procedures within 3 months of outpatient assessment. South Tees Hospitals NHS Trust had less than 50% of FCEs with waits of less than 6 months between first outpatient appointment and surgery.

No PCT or Trust in the North East was in breach of the official waiting list target that by March 2003 no-one should wait more than 12 months from outpatient assessment to admission assessed using QF01 and KH07; 326 (2.3%) patients had a total wait in excess of 12 months. 2,973 patients in the region experienced a total wait of more than 6 months. PCTs continue to monitor waiting times quarterly.

For 2002/03, mean (average) waits varied considerably between provider trusts (Table 3 on page 12) and between PCTs (Table 4 on page 13). Median waits are similar to mean waits showing that the distributions were not significantly skewed by a small number of extreme long waiters.

Figure 5: Percentage of Finished Consultant Episodes of cataract operations with waits of up to 3 months and 6 months between outpatient assessment and admission for surgery, 2002/03 for North East residents, by Provider



Improving the patient pathway

Who is referring?

Action on Cataracts[6] states that there should be a review of local implementation of the recommendation that optometrists should directly refer patients requiring cataract surgery to outpatients.

HES data includes a field for the person referring the patient. This has codes for Consultants, GPs, and Dentists. Additional codes are for other referrers (which include optometrists) and for unknown referrer. While it is not possible to directly identify optometrist referrals from the HES data, consideration of the patterns of referrer indicate where there may be a shift from GP referral to optometrist referrals.

Analysis of the data on person referring the patient shows that around three quarters of the referrals for cataract surgery for North East residents were made by GPs. For less than 1% of FCEs the referrer was unknown, the remainder (about one quarter) were other referrers. We speculate that these are probably mostly optometrist referrals.

Figure 6 shows that five of the PCTs had more than 50% of cataract FCEs where the patient was known to be referred by other referrers: Sunderland Teaching PCT, South Tyneside PCT, Hartlepool PCT, Durham & Chester-le-Street PCT, and Easington PCT.

Figure 7 shows that, in 2002/03, of the region's provider trusts only City Hospitals Sunderland NHS Trust was taking elective referrals from other referrers; the Trust has confirmed that it does accept referrals for cataract surgery directly from optometrists.

South Durham & Darlington Acute Hospitals NHS Trust began accepting referrals directly from optometrists during 2003/04. Newcastle upon Tyne Hospitals NHS Trust and South Tees Hospitals NHS Trust currently accept referrals directly from optometrists for emergencies, but not for elective procedures.

Figure 6: Percentage of Finished Consultant Episodes of cataract operations by referrer, 2002/03 for PCTs in the North East of England

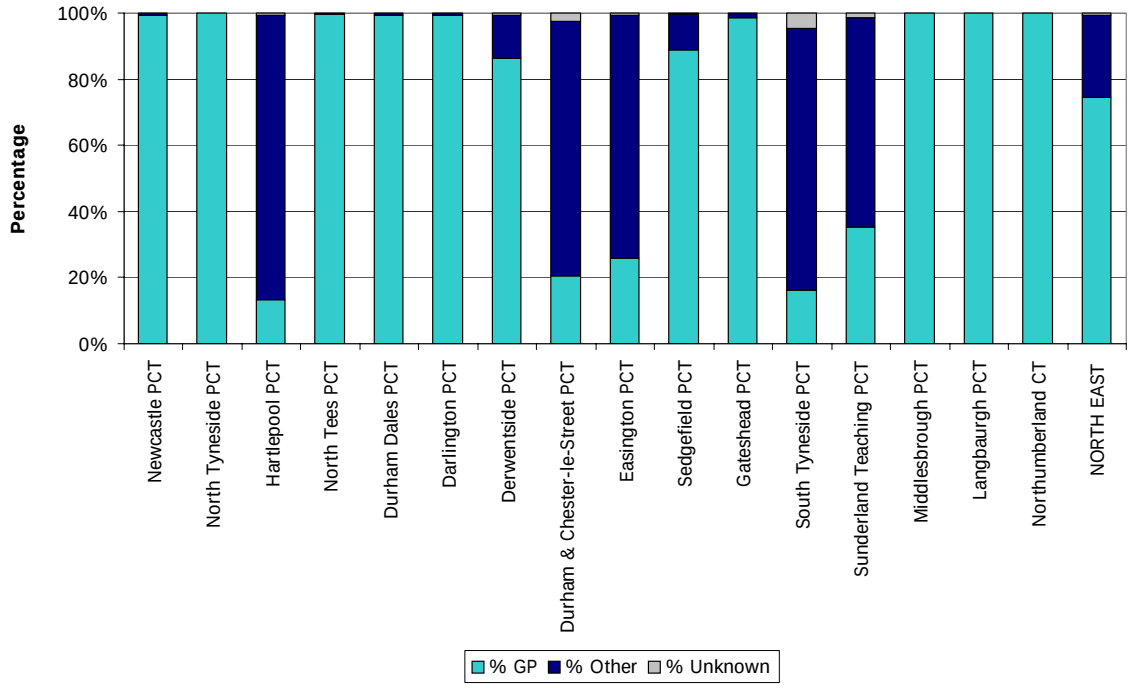
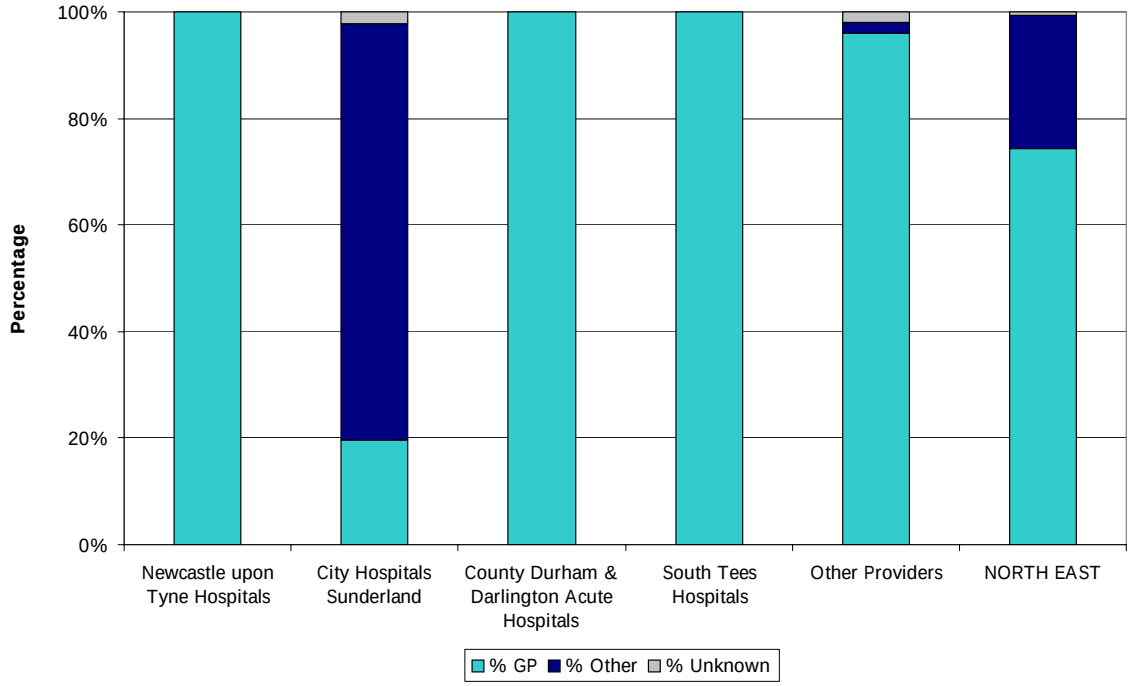


Figure 7: Percentage of Finished Consultant Episodes of cataract operations by referrer, 2002/03 for North East residents, by Provider



Reducing the number of preoperative and post-operative outpatient appointments

Action on Cataracts[6] states that where there are no complicating co-morbidities or post-operative complications, the number of pre-operative and post-operative outpatient appointments should be kept to a minimum. At present, HES does not include outpatient data and so these targets cannot be measured using this data source. It is expected, however, that outpatient data will begin to be available through the regional HES service from Autumn 2004; it should then be possible to assess progress towards these targets.

Increasing the proportion of operations carried out as day cases

The Royal College of Ophthalmologists' *Cataract Surgery Guidelines*[1] and the Scottish Intercollegiate Guideline Network's guidelines for *Day Case Cataract Surgery*[2] state that cataract surgery should usually be carried out as a day case procedure; guidance is given in both sets of guidelines for when this would be inappropriate. *Action on Cataracts*[6] states that the proportion of operations carried out as day cases should be increased, such that 85-95% is the norm.

Figure 8: Percentage of Finished Consultant Episodes (FCEs) of cataract operations carried out as day cases, 1998/99 – 2002/03 for the North East of England

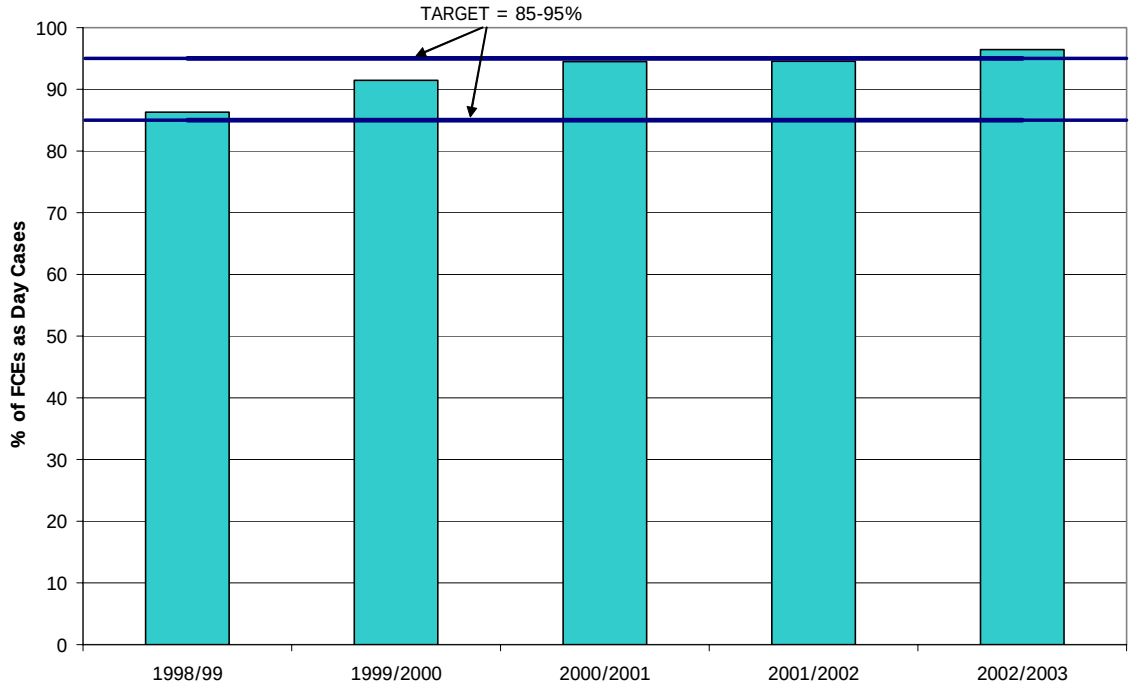
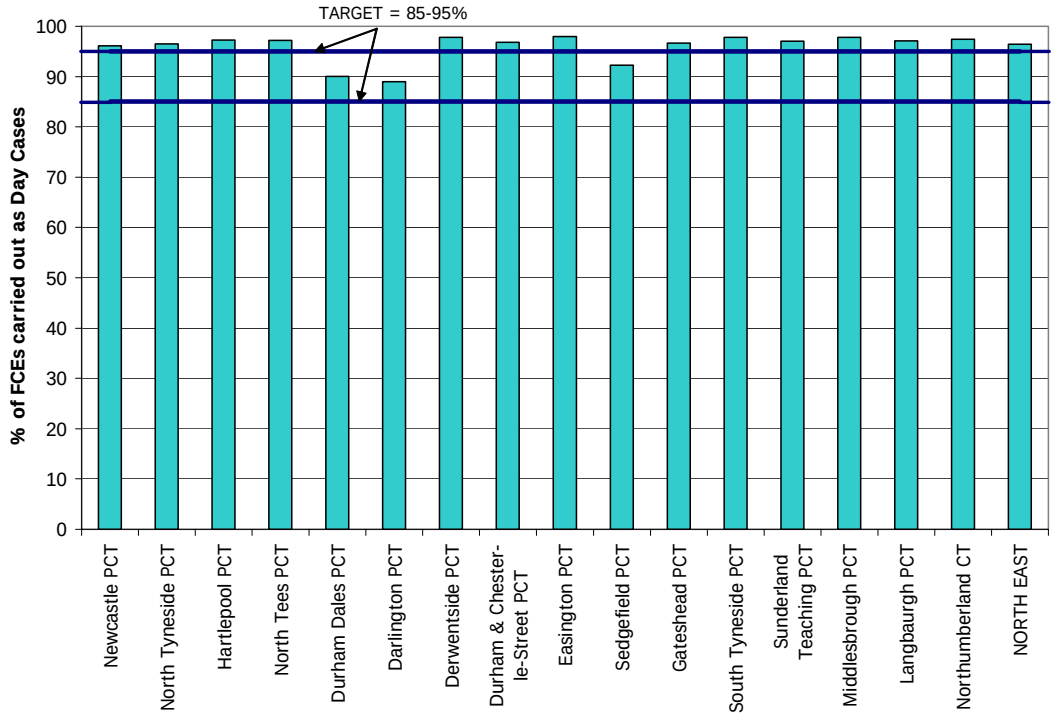


Figure 9: Percentage of Finished Consultant Episodes (FCEs) of cataract operations carried out as day cases, 2002/03 for PCTs in the North East of England

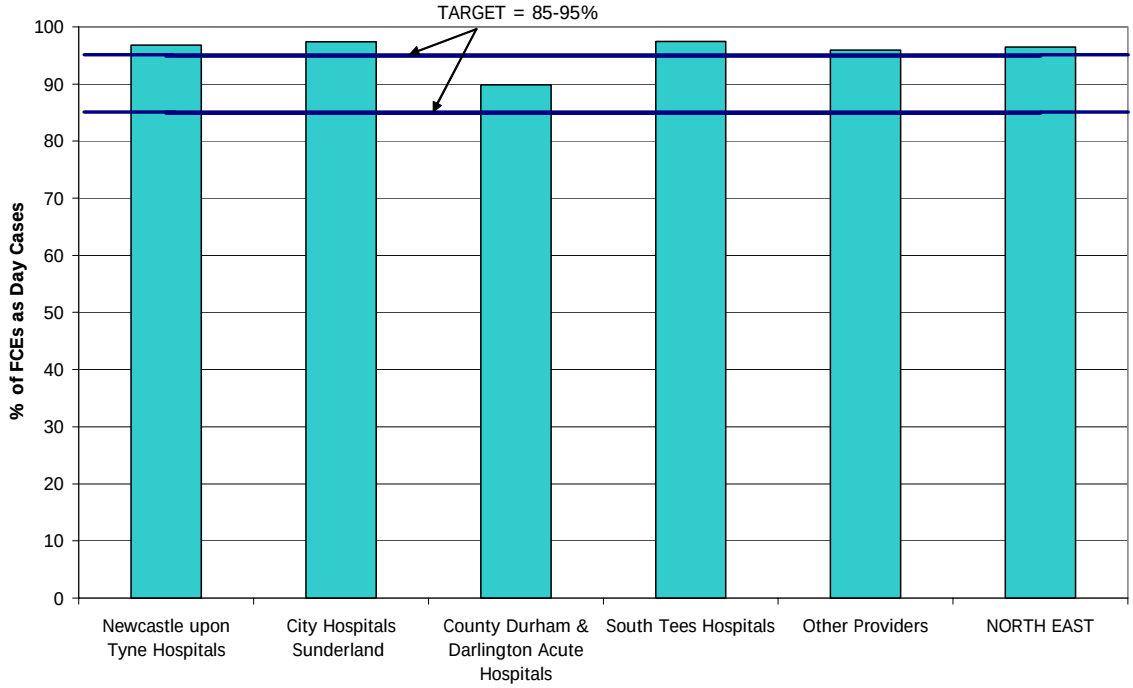


Overall, there has been good progress towards this target. Figure 8 shows the increasing percentages of cataract operations carried out as day cases over the period 1998/99 to 2002/03. In 1998/99 the percentage for residents of the North East region was within the target range of 85-95% (at 86.3%); in 2002/03 the percentage was above the target range (at 96.4%).

Figure 9 shows that 13 out of 16 PCTs had over 95% of their FCEs for cataract operations carried out as day cases. The remaining three PCTs (Durham Dales PCT, Darlington PCT and Sedgefield PCT) were within the target range.

Similarly, Figure 10 shows that three of the four provider trusts within the region were performing over 95% of their FCEs for cataract operations as day cases. County Durham & Darlington Acute Hospitals NHS Trust was performing within the target range for day cases.

Figure 10: Percentage of Finished Consultant Episodes (FCEs) of cataract operations carried out as day cases, 2002/03 for North East residents, by Provider



Outcomes

Action on Cataracts[6] states that the outcomes of cataract surgery should be audited and benchmarking should be undertaken. The following suggested outcome measures for cataract surgery are based on the findings of the UK National Cataract Survey[7,8] and guidance in *Day Case Cataract Surgery*[2]:

- Best-corrected visual acuity at discharge (taking account of co-morbidity as a significant risk factor for poor visual outcome);
- Mean induced astigmatism >1.00D;
- Quality of life and visual function;
- Use of anterior chamber intraocular lenses (usually indicates complications during surgery);
- Peri-operative complication rates for posterior capsule rupture, vitreous loss, and loss of nuclear fragments;
- Post-operative complication rates for endophthalmitis, corneal oedema which fails to clear, and retinal detachment;
- Number of patients readmitted as emergencies within 28 days of discharge.

Clearly, most of these measures cannot be assessed using HES data, but require detailed audit data. PCTs and provider trusts should be encouraged to work together to audit the outcomes of cataract surgery for their populations.

Emergency Readmissions within 28 days of Surgery

Analysis of the HES data for 2002/03 shows that in the North East region there were 37 emergency readmissions within 28 days of discharge for reasons related to cataract surgery; this equates to a rate of 0.26 percent of FCEs for cataract surgery.

Figure 11: Percentage of Finished Consultant Episodes (FCEs) of cataract operations resulting in an emergency readmission within 28 days, 2002/03 for North East residents, by Provider

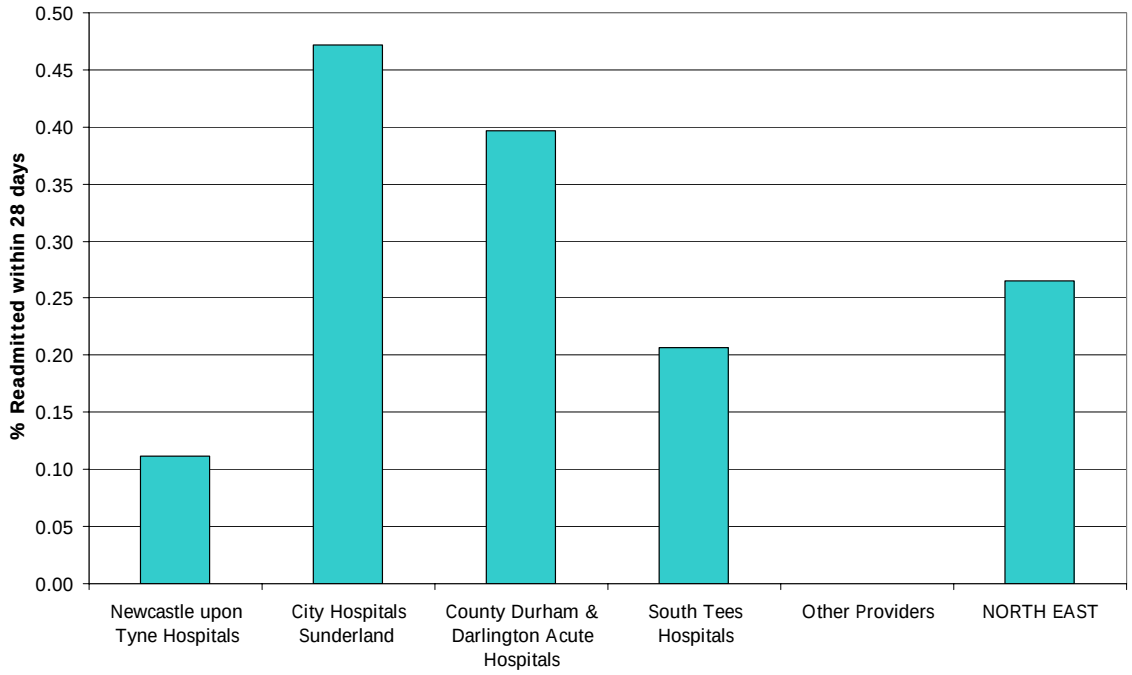


Figure 11 shows that emergency readmissions within 28 days of cataract surgery are relatively rare events. There is variation between providers, but numbers are small. The pattern of emergency readmission could be investigated further to assess the effect of case mix since patients with ocular co-morbidity are at greater risk of experiencing a surgically related complication[1].

Summary of Findings

Table 3: Summary of Cataract FCEs at ages 65 and over, 2002/03, by Provider

Provider Name	Cataract FCEs	% waiting > 6 months from OP to surgery	Mean wait (days)	% referred by other referrer	% day cases
Newcastle upon Tyne Hospitals (Royal Victoria Infirmary)	6,287	5.0	87	0.0	96.8
City Hospitals Sunderland (Sunderland Eye Hospital)	4,449	33.9	154	78.1	97.4
County Durham & Darlington Acute Hospitals (Darlington Memorial Hospital)	1,259	4.6	77	0.0	89.8
South Tees Hospitals (James Cook University Hospital)	1,935	55.4	210	0.0	97.5

Table 4: Summary of Cataract FCEs at ages 65 and over, 2002/03, by PCT

PCT Name	Number	Rate per 100,000	% waiting > 6 months from OP to surgery	Mean wait (days)	% referred by other referrer	% day cases
Newcastle PCT	1,470	3,553.3	3.4	85	0.5	96.1
North Tyneside PCT	1,293	3,771.4	3.6	78	0.1	96.5
Northumberland CT	1,746	3,230.9	9.2	104	0.2	97.4
Gateshead PCT	1,173	3,539.1	5.8	86	1.4	96.7
Derwentside PCT	506	3,431.2	12.5	102	13.0	97.8
Sunderland Teaching PCT	1,715	3,917.7	10.2	109	63.6	97.0
South Tyneside PCT	986	3,618.9	27.5	144	79.1	97.8
Durham & Chester-le-Street PCT	713	3,401.7	56.4	196	77.3	96.8
Easington PCT	588	3,670.4	55.3	192	73.3	98.0
Hartlepool PCT	555	3,859.8	46.7	176	86.1	97.3
Darlington PCT	510	3,062.0	5.9	77	0.8	89.0
Durham Dales PCT	433	2,784.9	3.7	78	0.7	90.1
Sedgefield PCT	399	2,795.1	17.5	108	11.0	92.2
Middlesbrough PCT	689	2,565.6	53.1	208	0.0	97.8
Langbaurgh PCT	445	2,692.9	50.6	202	0.0	97.1
North Tees PCT	754	2,846.0	59.2	215	0.1	96.5
NORTH EAST	**13,975**	**3,356.8**	**21.3**	**125**	**24.9**	**96.4**

Conclusions

Cataract surgery is a common procedure commonly performed on older people. The benefits of cataract operations on older people are immense. In this paper, we use HES data to assess to what extent hospital trusts and primary care trusts in the North East of England are meeting the targets set out in *Action on Cataracts*[6]. The key messages are as follows:

- There has been good progress in the region towards achieving the national targets on cataract surgery. However, there is considerable variation between the number of operations commissioned in each primary care trust (PCT).

- While no PCT or Trust in the North East was in breach of the official waiting list target that by March 2003 no-one should wait more than 12 months from outpatient assessment to admission assessed using QF01 and KH07, 326 (2.3%) patients had a total wait in excess of 12 months. A further 2,973 (21.3%) patients in the region had a total wait of more than 6 months. The target of 3 months between outpatient assessment and surgery is still some way off. Mean waits varied considerably between PCTs and between trusts.

- Analysis of the HES data for the person referring the patient shows that for 2002/03 only City Hospitals Sunderland NHS Trust was taking elective referrals from other referrers; the other three provider trusts in the region only took elective referrals from GPs. Durham & Darlington NHS Trust implemented direct referral from optometrists during 2003/04. Newcastle upon Tyne Hospitals NHS Trust and South Tees Hospitals NHS Trust accept direct referrals from optometrists for emergencies but not for elective procedures. PCTs should work with the provider Trusts to fully implement this recommendation.

- There has been good progress in the region towards achieving the targets for increasing the proportion of operations carried out as day cases to around 85-95%. In 2002/03, 13 out of 16 PCTs and 3 out of 4 provider trusts were carrying out more than 95% of cataract operations as day cases. The remaining 3 PCTs and provider trust were within the target range of 85-95%.

- At present, HES does not include outpatient data and so progress on targets to reduce the waiting time to first outpatient appointment and to reduce the number of pre-operative and post-operative outpatient appointments cannot currently be measured. Outpatient data will begin to be available through the regional HES service from Autumn 2004; it should then be possible to assess progress towards these targets.

- PCTs and provider trusts should be encouraged to work together to audit the outcomes of cataract surgery for their populations. In 2002/03 there were 37 emergency readmissions within 28 days of surgery, giving a rate of 0.26 percent of FCEs for cataract surgery.

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