

## **Areas of local concentration**

### ***A note to the Office of Fair Trading***

#### ***Introduction***

The OFT has carried out initial work showing that, in some postcode areas, the concentration of community pharmacies (CPs) owned by a particular company can be quite high. This could be a concern from the perspective of the OFT Pharmacy Investigation if the regulations surrounding the award of NHS contracts were to encourage the development of areas of local concentration, and if high concentration were in turn related to a restriction of choice, reduced service and innovation, and/or higher prices.

Frontier Economics has been asked to develop a list of areas of local concentration using the electronic map created in Study 1<sup>1</sup>. The map was employed to construct catchment areas for all CPs owned by major chains in Great Britain, within which CP concentration may be observed. The analysis considers five major operators in the CP business in GB:

- (i) Boots the Chemists Plc
- (ii) Lloyds Pharmacy Ltd/AAH Retail Pharmacy Ltd
- (iii) E. Moss Ltd
- (iv) L. Rowland & Co. Ltd
- (v) Superdrug Stores Ltd

The results show that there are some areas in which local CP chains have high concentration. However, the finding of concentration is quite sensitive to the definition of local area. This note briefly describes the methodology employed in the analysis and reports the results in detail. The Annex contains background material and summary statistics.

#### ***Methodology***

To investigate local concentration, it is necessary to define a local area within which concentration may be measured. It is also necessary to define a measure of concentration in this area.

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<sup>1</sup> Frontier Economics, Creating an electronic map of pharmacy locations, November 2002.

For this analysis, local areas are defined to be “buffers” around a CP. A buffer is an area or zone generated around a fixed point, such that the area enclosed by the buffer is within a specified distance from the centre. Whilst it is not clear what the appropriate radius of this buffer should be, for the purposes of analysing concentration the buffer should ideally reflect the local catchment of a pharmacy. The OFT Consumer Survey shows that around 80% of the population travel to a pharmacy within 1 mile, whilst 96% travel to a pharmacy within three miles<sup>2</sup>.

Since it is not clear which of these figures is more appropriate, two types of buffers are used in the analysis. The first is a buffer where all points are within 1.5km of the centre, and the second is one where all points are within 5km of the centre. These correspond approximately to distances of 1 mile and 3 miles respectively.

Within each buffer we calculate, for each CP in the five national chains:

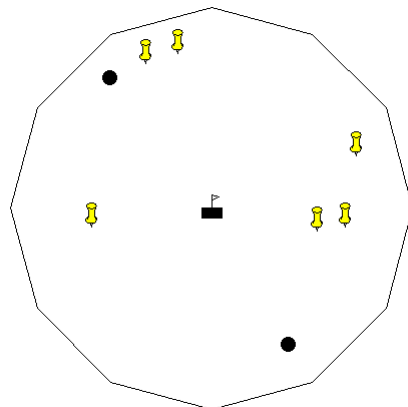
- the number of other CPs in that area; and
- the number of CPs that are owned by the same company.

Local concentration is then defined to be the ratio of the number of CPs of the same company to the total number of CPs in the area (including the CP around which the buffers are being drawn). For example, if there were 8 other CPs in an area around a particular CP, and the same company owned 6 of them, concentration would be defined to be  $6/14 = 43\%$ . Figure 1 gives an illustrative example.

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<sup>2</sup> OFT Pharmacy Investigation, Annex D.

**Figure 1: Illustration of 1.5km buffer with a concentration ratio of 77%**



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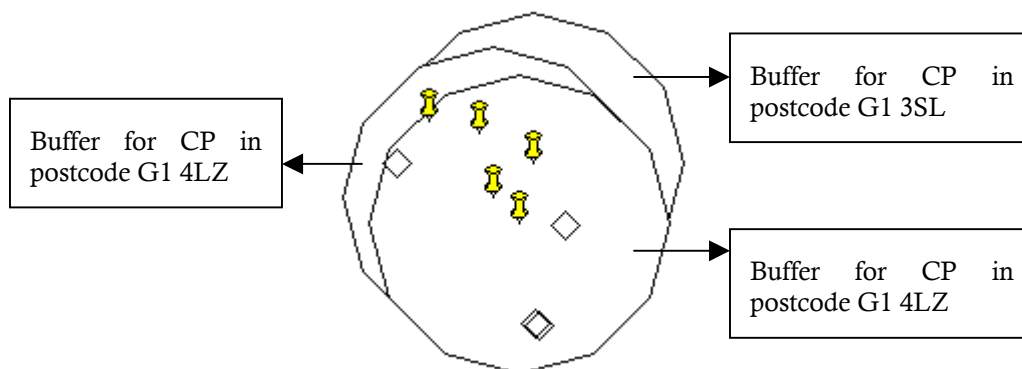
*Notes:* The mid-point with the flag represents the CP in question. The yellow pins are other CPs within the buffer that are owned by the same company. The black circles represent other CPs within the buffer that are not owned by the same company.

A large number of concentration figures were calculated. To aid interpretation, only those areas with reasonable level of concentration, defined to be areas where a single company owns 50% or more of the CPs, were considered. These are defined to be “areas of local concentration” for the purposes of this analysis.

This definition is quite sensitive when considering areas where the total number of CPs is quite small. For example, owning 1 out of 2 CPs would be considered to be an area of local concentration. As a result, we further restrict our attention to areas where the total number of CPs is at least 5.

Figure 2 illustrates the way in which each area of local concentration is constructed. The buffers are drawn for three Boots CPs in Glasgow, G1 2GF, G13SL and G1 4LZ. The figure clearly shows that the three CPs should be viewed as being in one area of local concentration and not three. We follow a similar approach to identifying all of the areas of local concentration in GB.

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**Figure 2: Illustration of construction of areas of local concentration**



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Notes: *The yellow pins represent Boots CPs within each buffer, the diamonds represent CPs not owned by Boots.*

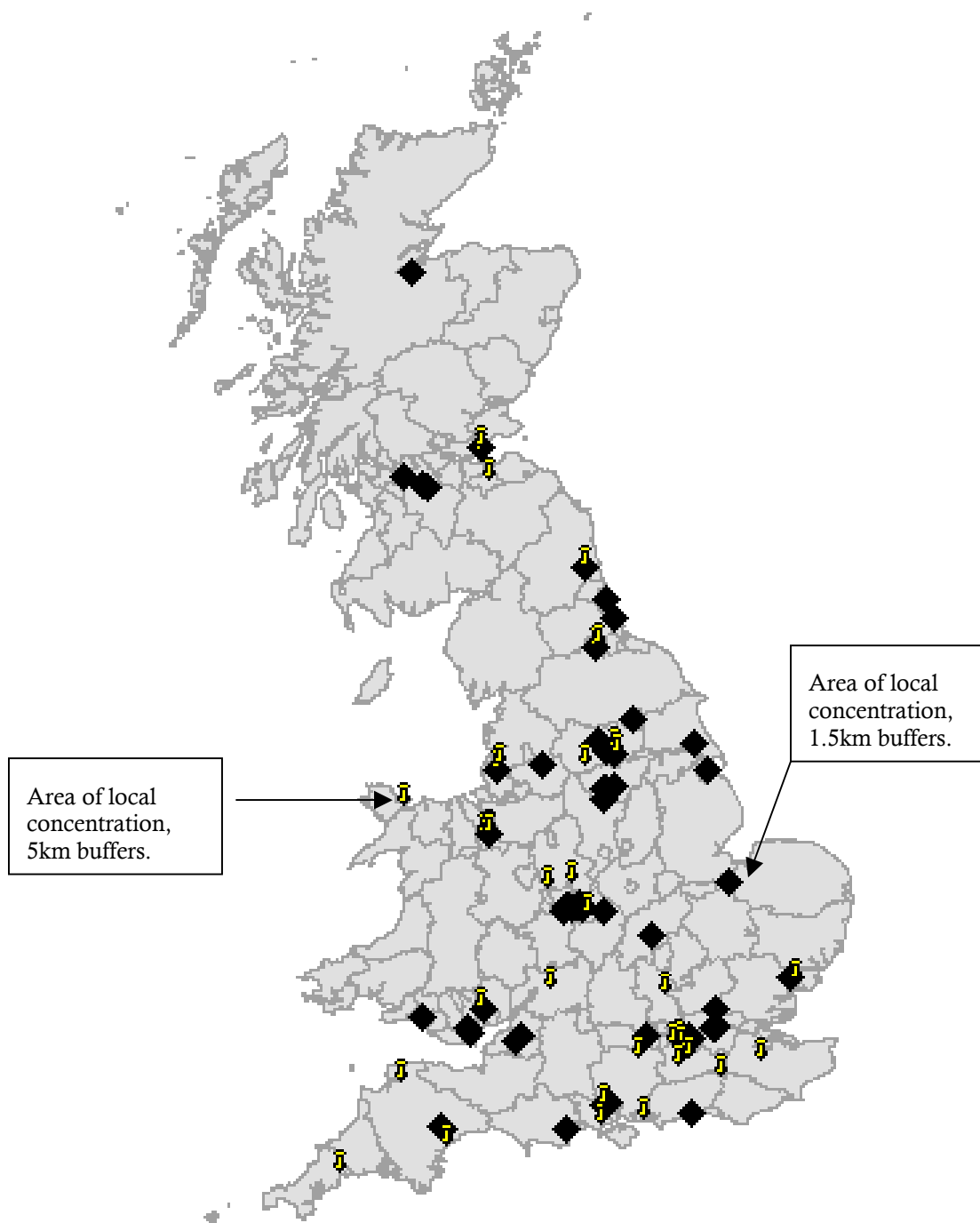
## Results

Using this methodology, there are 94 CPs in areas of local concentration using the 1.5km buffer, and 52 CPs in areas using the 5km buffer. However, this does not imply 94 (52) separate areas of local concentration, as many of these CPs are extremely close to one another and are in buffers where there is a considerable degree of overlap. Grouping CPs together results in a smaller number of separate areas of local concentration.

For the 1.5km buffers, there are 58 areas of local concentration of 50% or more. Of these, 48 are in England, 5 are in Wales, and 5 are in Scotland. For the 5km buffers, there are 39 areas of local concentration of 50% or more. Of these, 31 are in England, 5 are in Wales, and 3 are in Scotland.

Figure 3 plots each of area of local concentration for each definition of local area. The diamonds in the figure represent the areas of local concentration as defined by the 1.5km buffer, and the pins represent the areas of local concentration as defined by the 5km buffer. It can be seen that there is only a limited degree of overlap between the two area definitions.

Figure 3: Areas of local concentration by 1.5km and 5km buffers



The top ten areas of the greatest local concentration for each buffer are listed in Tables 1 and 2.

**Table 2: Top ten areas of local concentration, 1.5km buffers**

Rank	Postcode	CP owner	Country	Address 1	Address 2	Number of same	All CPs	Ratio
10	EC2V 6AB	Boots	England	17-18 Cheapside	London	18	25	0.72
9	LL11 2SA	Rowlands	Wales	Strathmore Surgery	Wrexham, Clwyd	7	9	0.78
8	BH15 2PG	Rowlands	England	14 Parkstone Rd	Poole, Dorset	4	5	0.80
7	SO40 3BX	Lloyds	England	13a Commercial Road	Totton, Southampton	4	5	0.80
6	TW12 3YH	Moss	England	29 Tangle Park Road	Hampton, Middlesex	4	5	0.80
5	SA12 6TH	Lloyds	Wales	6 Morrision Road	Port Talbot, Glamorgan	4	5	0.80
4	HU9 5AQ	Lloyds	England	304 Marfleet Lane	Hull	4	5	0.80
3	WF8 1PG	Lloyds	England	Unit 4	Pontefract, West Yorkshire	4	5	0.80
2	B2 4XB	Boots	England	19-21 The Pallasades	Birmingham	5	6	0.83
1	ML2 7AF	Lloyds	Scotland	19 Main Street	Wishaw, Motherwell	5	5	1.00

*Notes:* Figures based on analysis by Frontier Economics on data from the NHS for England and Wales and SNHS for Scotland. Figure 2 showed that there was a considerable degree of overlap between many of the buffers in an area of local concentration. The pharmacies listed in the table are selected on the basis of the fact that they represent the most concentrated CP/ownership combination in an overall area of local concentration.

**Table 2: Top ten areas of local concentration, 5km buffers**

Rank	Postcode	CP owner	Country	Address 1	Address 2	Number of same	All CPs	Ratio
10	LL11 6LW	Rowlands	Wales	The Phar. 19 Darby Road	Brynteg, Wrexham	12	18	0.67
9	LL12 8NB	Rowlands	Wales	15 Chester Road	Gresford, Wrexham	9	13	0.69
8	RG24 8XJ	Lloyds	England	34 Guinea Court	Chineham North, Basingstoke	5	7	0.71
7	L39 2ES	Rowlands	England	38 Burscough Street	Ormskirk, Lancashire	6	8	0.75
6	LL12 7TF	Rowlands	Wales	26 Borrass Park Road	Wrexham, Clwyd	11	14	0.79
5	HP22 5LB	Lloyds	England	136 London Road	Aylesbury, Buckinghamshire	4	5	0.80
4	HD8 0RL	Rowlands	England	81 North Road	Kirkburton, Huddersfield	4	5	0.80
3	KY3 9UW	Lloyds	Scotland	63 High Street	Kinghorn, Fife	4	5	0.80
2	EH23 4TS	Lloyds	Scotland	105 Hunterfield Road	Gorebridge, Midlothian	5	6	0.83
1	L40 0SA	Rowlands	England	37 Liverpool Road North	Burscough, Lancashire	5	5	1.00

Notes: See notes for Table A6.

## ***Conclusion***

Using data on community CPs in England, Scotland and Wales for 2001 we construct areas of local concentration for two well-defined local areas. For CPs enclosed within an area of 1.5km, there are 58 areas of local concentration, containing 128 CPs. For CPs enclosed within an area of 5km, there are 39 areas of local concentration, containing 81 CPs.

# Annex

## Full set of results

This annex contains information on the average number of CPs owned by each of the five major chains within the 1.5km and 5km buffers, and reports summary statistics on the number of CPs in particular definitions of local area. It also discusses the impact of the use of a threshold of 5 CPs before an area may be considered to be an area of local concentration.

Table A1 gives a breakdown by ownership of the number of CPs in England, Scotland and Wales. The table shows that the majority of CPs are not owned by one of the five major businesses. Of the five chains that are considered, the shares of three (Boots, Lloyds and Superdrug) remain fairly constant across the three countries. Moss and Rowlands are the exceptions. Moss has a lower proportion of CPs in Wales and a higher proportion of CPs in Scotland. In contrast, Rowlands has a lower proportion of CPs in England and Scotland and a higher proportion of CPs in Wales.

**Table A1: CPs in England, Scotland and Wales**

	<b>England</b>	<b>Scotland</b>	<b>Wales</b>
Others	6528 (68.8%)	791 (69.8%)	468 (66.5%)
Boots	1016 (10.7%)	107 (9.4%)	74 (10.5%)
Lloyds	1035 (10.9%)	120 (10.6%)	79 (11.2%)
Moss	529 (5.6%)	96 (8.5%)	16 (2.3%)
Rowlands	194 (2.0%)	10 (0.90%)	59 (8.4%)
Superdrug	190 (2.0%)	10 (0.90%)	8 (1.1%)
	<b>9492</b>	<b>1134</b>	<b>704</b>

*Source:* Frontier Economics, Creating an electronic map of pharmacy locations, November 2002.

Tables A2 and A3 show the average number of CPs, by ownership, within the 1.5km and 5km buffers.

**Table A2: Average number of CPs in a 1.5km buffer by ownership**

	England			Scotland			Wales		
	CPs	Min	Max	CPs	Min	Max	CPs	Min	Max
	0.8	0	21	0.6	0	7	0.6	0	6
<b>Lloyds</b>	0.5	0	8	0.5	0	5	0.5	0	4
<b>Moss</b>	0.2	0	4	0.4	0	3	0.1	0	1
<b>Rowlands</b>	0.2	0	3	0.1	0	2	0.1	0	1
<b>Superdrug</b>	0.1	0	5	0.0	0	3	0.2	0	7
<b>Other</b>	4.5	0	37	3.2	0	16	2.6	0	12
<b>All</b>	6.4	1	58	4.8	1	21	4.0	1	15

Frontier Economics, Creating an electronic map of pharmacy locations, November 2002.

**Table A3: Average number of CPs in a 5km buffer by ownership**

	England			Scotland			Wales		
	CPs	Min	Max	CPs	Min	Max	CPs	Min	Max
	5.2	0	74	2.5	0	14	1.6	0	10
Lloyds	2.8	0	23	2.1	0	10	1.7	0	10
Moss	1.3	0	16	1.7	0	8	0.2	0	2
Rowlands	0.5	0	12	0.3	0	5	0.5	0	12
Superdrug	1.0	0	11	0.3	0	2	0.3	0	1
Other	32.3	0	205	17.4	0	79	10.2	0	43
All	43.1	1	283	24.4	1	102	14.5	1	63

Frontier Economics, Creating an electronic map of pharmacy locations, November 2002.

Setting a minimum criterion for inclusion of CPs excludes a large number of potentially high concentration-ratio CPs from the sample. Table A4 shows the total number of CPs in a given buffer, where the proportion of single ownership is at least 50% and the total number of CPs in the area is at least 5. For comparison purposes, we also report the numbers that we would get were we to include all CPs with 50% minimum concentration ratio – regardless of the total number of CPs in the area.

**Table A4: CPs with high concentration**

	CPs in	Minimum number of total CPs = 5	No minimum number of CPs	1**	2**	3**
1.5km buffer	England	72	327	40%	50%	10%
	Scotland	12	37	72%	28%	---
	Wales	10	30	60%	35%	5%
5km buffer	England	35	107	46%	46%	8%
	Scotland	4	21	47%	41%	12%
	Wales	13	23	10%	80%	10%

*Notes:* The numbers in the table should be interpreted as follows. There are 72 CPs in England (1.5km buffer) where the same company owns 50% or more of the CPs in the area. In total, there are never less than 5 CPs in each area. If we relax this last condition, so that there can be less than 5 CPs in total, then this figures rises to 327. \*\* These columns should be interpreted as follows: For 1.5km buffers in the GB there are (327-72)=255 CPs that are in concentrated areas (50% or more of the CPs in the buffer are owned by one company). Of these 255 CPs 102 (40%) are in areas where there is only **1 other CP**, 127 (50%) are in areas where there are only **2 other CPs**, and 26 (10%) are in areas where there are **3 other CPs** (i.e., 4 CPs in total).