

## Effect of NHS walk-in centre on local primary healthcare services: before and after observational study

Ronald T Hsu, Paul C Lambert, Mary Dixon-Woods, Jennifer J Kurinczuk

### Abstract

**Objective** To assess the effect of an NHS walk-in centre on local primary and emergency healthcare services.

**Design** Before and after observational study.

**Setting** Loughborough, which had an NHS walk-in centre, and Market Harborough, the control town.

**Participants** 12 general practices.

**Main outcome measures** Mean daily rate of emergency general practitioner consultations, mean number of half days to the sixth bookable routine appointment, and attendance rates at out of hours services, minor injuries units, and accident and emergency departments.

**Results** The change between the before and after study periods was not significantly different in the two towns for daily rate of emergency general practice consultations (mean difference  $-0.02/1000$  population, 95% confidence interval  $-0.75$  to  $0.71$ ), the time to the sixth bookable routine appointment ( $-0.24$  half-days,  $-1.85$  to  $1.37$ ), and daily rate of attendances at out of hours services ( $0.07/1000$  population,  $-0.06$  to  $0.19$ ). However, attendance at the local minor injuries unit was significantly higher in Loughborough than Market Harborough (rate ratio  $1.22$ ,  $1.12$  to  $1.33$ ). Non-ambulance attendances at accident and emergency departments fell less in Loughborough than Market Harborough (rate ratio  $1.17$ ,  $1.03$  to  $1.33$ ).

**Conclusions** The NHS walk-in centre did not greatly affect the workload of local general practitioners. However, the workload of the local minor injuries unit increased significantly, probably because it was in the same building as the walk-in centre.

### Introduction

NHS primary care walk-in centres were introduced in 2000 to improve access to health care.<sup>1</sup> However, general practitioners were concerned that the centres might increase their workload by being an additional source of referrals to them, legitimising demands to treat minor self limiting illnesses, and fragmenting a primary care service based on continuity of care.<sup>2</sup> The centres could also alter how people use minor injuries units, accident and emergency departments, and NHS Direct (a nurse-led telephone helpline service). Research on established North American walk-in cen-

tres could not be used to predict the effect of NHS centres because the NHS centres are mainly run by nurses whereas those in the United States and Canada are led by doctors.<sup>3</sup>

The national evaluation of pilot NHS walk-in centres<sup>4</sup> relied on retrospective and routinely collected data, which limited its ability to determine the effect of the centres on other services. We report a prospective study of the effect of an NHS walk-in centre on local primary and emergency healthcare services.

### Methods

We compared the activity of primary and emergency healthcare services for two towns in Leicestershire: Loughborough, which has an NHS walk-in centre, and Market Harborough, the control town (40 km south of Loughborough). We recruited nine of 13 general practices with patients in Loughborough and three of four practices with patients in Market Harborough. The other practices were not recruited because most of their patients lived outside the towns. Loughborough University practice was also excluded because of its distinctive population. The participating Loughborough practices ranged from one to seven partners and the Market Harborough practices ranged from four to 10 partners. No other initiatives or changes in primary care provision were introduced during the study.

We collected data from participating practices using a combination of daily phone calls, data collection forms, and routine computerised data. We determined the number of emergency consultations (defined as those requested on the day of the consultation) with a general practitioner or nurse practitioner, the date and time of the sixth routine appointment that could be booked in advance (a measure of availability of routine appointments<sup>5</sup>), the number of attendances at or visits by out of hours services, the number of attendances at the minor injuries unit in each town, the number of attendances at the three local major accident and emergency departments, and the number of calls to the local NHS Direct call centre.

We collected data for the six months before and one year after the NHS walk-in centre opened on 1 July 2000. However, to remove any variation arising from the initial period of operation and season of the year, we compared data for only January to June 2000 (before) and January to June 2001 (after). We

Department of Epidemiology and Public Health, University of Leicester, Leicester LE1 6TP

Ronald T Hsu  
*clinical lecturer in epidemiology and public health*

Paul C Lambert  
*lecturer in medical statistics*

Mary Dixon-Woods  
*senior lecturer in social science and health*

Jennifer J Kurinczuk  
*senior lecturer in reproductive and perinatal epidemiology*

Correspondence to:  
R T Hsu  
rth4@leicester.ac.uk

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**Table 1** Total population and characteristics of patients in participating practices in Loughborough (with walk-in centre) and Market Harborough (control town)

	Loughborough		Market Harborough	
	March 2000	March 2001	March 2000	March 2001
Total population	95 235	95 785	42 948	44 251
Study population	69 863	70 681	39 144	40 441
No (%) aged (years):				
0-64	59 198 (84.7)	59 700 (84.5)	32 955 (84.2)	34 096 (84.3)
65-74	5 620 (8.0)	5 753 (8.1)	3 249 (8.3)	3 332 (8.2)
≥75	5 045 (7.2)	5 228 (7.4)	2 940 (7.5)	3 013 (7.5)
No (%) of deprivation payments	6 035 (8.6)	6 298 (8.9)	514 (1.3)	467 (1.2)

compared changes between the two periods in Loughborough with those in Market Harborough to allow for any trends over time.

We calculated differences in attendance rates per 1000 population for each practice before and after the centre opened. We then compared the means of the differences in the practices in each town. We made similar comparisons for daily availability of routine appointments. For illustration, we applied the results to a hypothetical practice with a population of 5000 people and an average of 15 emergency consultations a day—that is, three daily emergency consultations per 1000 population.

We calculated rate ratios for attendance at local minor injuries units and accident and emergency departments using Poisson random effects models,<sup>6</sup> with and without adjustment for changes in attendance rates in the control town between the two study periods.

Assuming a standard deviation of 0.41 in the differences in daily emergency consultations per 1000 population between the nine practices in the intervention group and the three in the control group, and a power of 80% with a significance level of 5%, we could detect a difference of 0.85 daily emergency consultations per 1000 population. This equates to a difference of 4.25 emergency consultations a day in the hypothetical practice with 5000 patients and an average of 15 emergency consultations a day.

## Results

The participating practices covered about 74% of the population living in and around Loughborough and 91% of the population in Market Harborough, and age distributions were similar in both towns (table 1). Deprivation payments to general practitioners in Market Harborough were much lower than to those in Loughborough, indicating that the practice populations in Loughborough were more economically deprived. The proportion of patients from ethnic minorities was similar in both towns (less than 5%). These characteristics remained constant during the study. During the study, the practice populations increased by 1.2% in Loughborough and 3.3% in Market Harborough.

During January to June 2001, there were 11 693 attendances at the NHS walk-in centre. Of these, 8369 (72%) were by people registered with the study practices, 1049 (9%) by people registered with local non-participating practices, and 2275 (19%) by people from out of the area.

### Emergency general practitioner consultations

There was no mean difference in daily emergency general practice consultations in Loughborough before and after the walk-in centre opened (table 2). Compared with the control practices, intervention practices had 0.02 fewer daily emergency consultations per 1000 population (95% confidence interval -0.75 to 0.71). Thus, a hypothetical practice in the intervention area compared with one in the control area would have experienced 0.10 fewer emergency consultations a day (-3.75 to 3.55).

**Table 2** Mean daily rates of general practice emergency consultations (per 1000 population) before and after opening of NHS walk-in centre in Loughborough

General practice	Jan-Jun 2000 (before)	Jan-Jun 2001 (after)	Difference in consultation rates
Loughborough practices:			
1	4.34	4.18	-0.16
2	2.94	3.11	0.17
3	3.62	3.71	0.09
4	2.93	3.23	0.30
5	13.48	13.94	0.46
6	3.98	4.46	0.48
7	4.42	3.87	-0.55
8	1.27	1.28	0.01
9	2.00	1.19	-0.81
Mean of differences (95% CI)	—	—	0 (-0.34 to 0.34)
Market Harborough practices:			
1	1.54	1.90	0.36
2	2.46	2.54	0.08
3	4.75	4.36	-0.39
Mean of differences (95% CI)	—	—	0.02 (-0.92 to 0.96)
Overall difference (95% CI)	—	—	-0.02 (-0.75 to 0.71)

### Routine appointments

Time to the sixth bookable routine appointment increased during the study in practices in both towns (table 3). The time was slightly shorter for Loughborough practices than for control practices, but the difference was not significant (-0.24 half days, 95% confidence interval -1.85 to 1.37).

### Out of hours services

Table 3 shows that there was no significant difference between the two towns in change in use of out of hours services before and after opening of the walk-in centre (0.07 daily attendances per 1000 population, 95% confidence interval -0.06 to 0.19). For a hypothetical prac-

**Table 3** Differences in availability of routine general practice appointments and use of out of hours services in Loughborough and Market Harborough before and after opening of NHS walk-in centre in Loughborough

	Mean of practice differences (95% CI)		Difference between towns (95% CI)
	Loughborough	Market Harborough	
Time to sixth bookable appointment (No of half days)	0.62 (-0.92 to 2.17)	0.86 (0.29 to 1.44)	-0.24 (-1.85 to 1.37)
Out of hours attendances (per 1000 population)	-0.003 (-0.02 to 0.01)	-0.07 (-0.20 to 0.06)	0.07 (-0.06 to 0.19)

tice in the intervention area compared with one in the control area, this would mean 0.35 more out of hours attendances a day (−0.30 to 0.95).

#### Attendance at minor injuries units

Attendance by the Loughborough population at its local minor injuries unit increased by 14% between the two study periods (rate ratio 1.14, 95% confidence interval 1.09 to 1.19). This contrasted with a decrease in use of 7% in Market Harborough (table 4). After we adjusted for the change in attendance rate of the control area population, the Loughborough population had an increase of 22% (12% to 33%).

#### Use of accident and emergency departments

The attendance rate of the Loughborough population at local accident and emergency departments increased by 9% between the two study periods (table 4). When we adjusted for the slight decrease in attendance by the control area population, the attendance rate increased by 10% (adjusted rate ratio 1.10, 1.00 to 1.21).

When we analysed attendances in which patients did not arrive by ambulance, the rate of attendance fell by 7% (rate ratio 0.93, 0.85 to 1.01) in Loughborough and by 21% in Market Harborough (0.79, 0.72 to 0.87). The rate ratio adjusted for changes in the control population was 1.17 (1.03 to 1.33).

#### Calls to NHS Direct

The annual rate of calls to NHS Direct (East Midlands) doubled in both areas, from 20 to 38 per 1000 population in Loughborough (rate ratio 1.88, 1.70 to 2.07) and from 17 to 35 per 1000 population in Market Harborough (2.13, 1.80 to 2.52).

## Discussion

The NHS walk-in centre in our study was well used, averaging almost 2000 attendances a month. However, we found no significant effect on general practice emergency consultations, the availability of routine appointments, use of out of hours services, or the number of calls to NHS Direct. Fears of a huge increase, or hopes for a decrease, in the use of general practitioner services as a result of NHS walk-in centres therefore seem unjustified.

Notable changes did occur in the use of some services, including an increased use of the minor injuries unit in Loughborough. This finding is likely to be explained by the fact that the minor injuries unit was in the same premises as the NHS walk-in centre and shared the same entrance and triage process. It was therefore affected by the publicity and attendances at the walk-in centre, and our findings cannot be generalised to towns where the minor injuries units and walk-in centres are in different places.

The fall in non-ambulance attendances at accident and emergency departments was greater in Market Harborough than Loughborough. Indeed, after we adjusted for the fall in the control group, attendances increased by 17% in Loughborough. Although part of the difference may be explained by the higher baseline rate of attendances in Market Harborough, other reasons require further investigation.

#### Limitations and strengths

As an observational study of one NHS walk-in centre, our evaluation clearly has limitations. Many of the

**Table 4** Annual rates of attendance (per 1000 population) at local minor injuries units and accident and emergency departments before and after opening of NHS walk-in centre in Loughborough

	Jan-June 2000 (before)	Jan-June 2001 (after)	Rate ratio (95% CI)	Adjusted rate ratio* (95% CI)
<b>Minor injuries units</b>				
Loughborough	138	156	1.14 (1.09 to 1.19)	1.22 (1.12 to 1.33)
Market Harborough	105	95	0.93 (0.87 to 1.00)	—
<b>Accident and emergency departments</b>				
All attendances:				
Loughborough	63	67	1.09 (1.03 to 1.16)	1.10 (1.00 to 1.21)
Market Harborough	79	76	0.99 (0.92 to 1.06)	—
Non-ambulance attendances:				
Loughborough	35	32	0.93 (0.85 to 1.01)	1.17 (1.03 to 1.33)
Market Harborough	52	40	0.79 (0.72 to 0.87)	—

\*Adjusted for changes in attendances in control area (Market Harborough).

limitations, such as bias and confounding, are those commonly associated with observational studies. However, observational studies are likely to continue to be one of the primary means of investigating the effects of changes in the organisation of care, particularly when changes are introduced quickly in response to rapidly evolving government policy. More powerful techniques, such as randomised controlled trials, are not feasible in these circumstances.

The small number of practices in the study means that some of our analyses, including those on emergency general practice attendances, out of hours services, and availability of routine appointments, have limited power to detect important clinical differences. Changes in populations over the study also make it difficult to interpret shifts in use of services.

The strengths of our study are that we collected contemporaneous data, compared the behaviour of specific populations at various points of contact with the NHS, and included a control area. We chose Market Harborough as the control area because it was similar geographically and demographically to Loughborough, apart from its lower level of deprivation. This study therefore has the advantage of having identified two discrete communities rather than parts of a large conurbation. However, Market Harborough's small number of practices limited the power of our study. This was unavoidable as no other local town was a suitable match.

#### Implications

Further research is clearly needed to understand how different types of services influence use of healthcare

#### What is already known on this topic

Walk-in centres are well established in North America but differ from NHS centres as they are run by doctors not nurses

#### What this study adds

Introduction of an NHS walk-in centre did not affect the workload of local general practitioners

Attendance increased at the minor injuries unit, which was in the same building

Non-ambulance attendances at accident and emergency departments decreased but not by as much as in the control area

services. Sociological research has recognised for some time that demand for services is influenced by the availability and range of services provided.<sup>7</sup> Not only can services directly change the workload of others, but they can also change the environment in which people decide whether to seek formal health care.

Our data suggest that NHS walk-in centres are unlikely to have a great effect on demand for general practitioners' services but may have little understood effects on demand for other healthcare services. The walk-in centre was well used during the study, including by people not registered with a local general practitioner. These centres may therefore have a role in satisfying particular needs for primary care services. Whether this is a cost effective use of primary care resources, in both financial and staff terms, remains to be determined.

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- 1 NHS Executive. *NHS primary care walk-in centres*. Leeds: NHSE, 1999. (HSC 1999/116).
- 2 Royal College of General Practitioners. *Discussion paper on the implications for general practice of NHS Direct and walk-in centres*. London: RCGP/NHS Alliance, 1999.
- 3 Jones M. Walk-in primary medical care centres: lessons from Canada. *BMJ* 2000;321:928-31.
- 4 Team for the National Evaluation of NHS Walk-In Centres. *National evaluation of NHS walk-in centres*. Bristol: Division of Primary Health Care, University of Bristol, 2000.
- 5 Oldham J. Advanced access in primary care. NHS National Primary Care Development Team, 2001. [www.npdt.org/1626/advancedaccess.pdf](http://www.npdt.org/1626/advancedaccess.pdf) (accessed 20 January 2003).
- 6 Goldstein H. *Multilevel statistical models*. London: Edward Arnold, 1995.
- 7 Rogers A, Hassell K, Nicolaas G. *Demanding patients? Analysing the use of primary care*. Buckingham: Open University Press, 1999:39-45.

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