PREHOSPITAL CARE

Does setting up out of hours primary care cooperatives outside a hospital reduce demand for emergency care?

C J T van Uden, H F J M Crebolder

Emerg Med J 2004;**21**:722–723. doi: 10.1136/emj.2004.016071

Objective: To investigate whether the reorganisation of out of hours primary care, from practice rotas to GP cooperatives, changed utilisation of primary and hospital emergency care.
Methods: During a four week period before and a four week period after the reorganisation of out of hours primary care in a region in the south of the Netherlands all patient contacts with general practitioners and hospital accident and emergency (A&E) departments were analysed.
Results: A 10% increase was found in patient contacts with out of hours primary care, and a 9% decrease in patient contacts with out of hours emergency care. The number of self referrals at the A&E department was reduced by about 4%.
Conclusions: The reorganisation of out of hours primary care has led to a shift in patient contacts from emergency care to primary care.

The organisation of out of hours primary care in the Netherlands has changed substantially during the past decade. Formerly, general practitioners (GPs) provided out of hours care to their patients in small groups of GPs (six to eight GPs), using a rota system. In recent years, large GP cooperatives have been set up following British and Danish examples.[1 2] Generally, 40 to 120 GPs participate in these services, providing care for populations ranging from 80 000 to 300 000. Currently, GP cooperatives in the Netherlands cover over 90% of the population.

There has been debate on how the establishment of these cooperatives influences utilisation of emergency care services by patients with non-urgent health problems—that is, problems that are not life threatening and do not require immediate care.[3] In the Dutch healthcare system the GP acts as a gatekeeper to secondary care. As a rule, patients need a GP's referral to use hospital services. However, to attend an emergency department a referral is recommended but not strictly required. Research shows that over 40% of all patients attending the emergency department present with non-urgent problems that can be managed in general practice.[4] Non-urgent patients have been recognised to be one of the main contributors to the problem of overcrowding at the emergency department.[5]

In the Netherlands most cooperatives are situated separately from the local hospital's emergency department. Based on patient interviews, Coleman *et al*[6] suggested that alternative facilities have little effect on the use of emergency services by patients with non-urgent problems. However, no data are available to support this assumption. In an earlier study we have shown that GPs working at a cooperative within the A&E department handle comparatively more patients as compared with their colleagues in a cooperative separate from the A&E department. In addition, this integrated organisation reduced the number of self referrals at the A&E department.[7] Still, it remains unclear to what extent cooperatives separate from the A&E department have an effect on emergency services utilisation. The organisation and positioning of GP cooperatives has mainly been the result of local preferences.

The objective of this study is to gain insight into the impact of GP cooperatives on the use of hospital emergency services and primary care during out of hours.

METHODS

This study was conducted in the south of the Netherlands in the province of Limburg, a region with about 400 000 inhabitants, of whom about 70% live in rural areas. The area's size is about 840 km^2, with roughly 190 houses per square kilometre. In this region, 173 GPs are registered. Until September 2001, out of hours primary care was organised in 24 small practice rotas. At that point in time, out of hours care was reorganised and three large GP cooperatives were created. All cooperatives are located near, but function fully independently of, the only three hospital's emergency departments. The public was informed about the out of hours care reorganisation by posters at their own GP's practice and by the GPs' answering services.

Out of hours are defined as between 5 pm and 8 am on working days and from 5 pm Friday to 8 am Monday.

During a four week period in May and June 2001 (before the reorganisation) and during the same period in 2002 (after the reorganisation) we investigated all patient contacts with out of hours primary and emergency care. During the first assessment period there were two bank holidays; during the second period there was one bank holiday. To improve comparability between these two periods, we excluded all patient contacts from 8 am to 5 pm on one of the two bank holidays during the first assessment period. In the 2001 study period, GPs in this region were asked to register all patient contacts when they were on call. With respect to patient contacts with emergency care, contacts between 8 am and 5 pm were excluded.

In the registration period in 2002 we extracted the data from the GP cooperatives' computer system. Data from the emergency departments were extracted from the hospitals' computer systems.

Eighty three per cent (143 of 173) of all GPs participated during the first assessment period. To estimate total number of patient contacts with out of hours primary care during this period, a correction factor was applied to all absolute numbers; absolute numbers were divided by the number of participating GPs and multiplied by the total number of GPs working in that area.

Table 1 Number of patient contacts with out of hours care during the two four week assessments before and after the reorganisation (2001 numbers adjusted for GP participation)

	Before (2001)	After (2002)	Absolute change
	Number (% (95%CI))	Number (% (95%CI))	Number (%)
Primary care	8496 (72.1 (71.3 to 72.9))	9326 (75.7 (74.9 to 76.5))	+830 (9.8)
Emergency care	3285 (27.9 (27.1 to 28.7))	2993 (24.3 (23.5 to 25.1))	−292 (8.9)
Total	11781	12319	+538 (4.6)

We used χ^2 tests to test for relative changes. The level of significance was set at 0.05.

RESULTS

The total number of patient contacts during out of hours increased by 4.6% (see table 1). Before the reorganisation (2001) the GPs registered 7023 patient contacts during out of hours. Adjusted for the GP response rate, the total number of patients for that period was estimated to be 8496. In the year after the reorganisation of out of hours primary care (2002) there were 9326 patient contacts with the three GP cooperatives, an increase of 9.8%.

Before the reorganisation the emergency departments of the three hospitals registered 5454 patient contacts, of which 3285 (60.2%) were during out of hours. After the reorganisation the total number of patient contact with these A&E departments was found to be 5062 with 2993 (59.1%) contacts during out of hours. This indicates a decreased demand for emergency care during normal hours of 8.2% and a decrease during out of hours of 8.9%.

In 2001, 47.6% (2598 of 5454) of all patients at the emergency departments during and outside office hours were self referred, whereas after the reorganisation 44.3% (2242 of 5062) of the patients were self referred; a relative reduction of 3.3% ($p<0.001$; 95%CI: −5.2 to −1.4). The absolute reduction in the number of self referrals was 13.7% (356 of 2598).

During out of hours, there was a 3.6% shift from patients utilising emergency care to primary care ($p<0.001$; 95% CI: 2.5 to 4.7).

DISCUSSION

Although the total demand for out of hours care has increased, we observed a decreased demand for emergency care after the reorganisation of primary care out of hours care in the study region. It seems likely that the reduction of the utilisation of emergency care has mainly been caused by a reduction in self referred patients with non-urgent problems. As a consequence, more patients are being managed by the GPs, because of increased overall demand and the shift of primary care patients from the A&E department to the GP cooperatives. As more information becomes available to the public about how and when to use out of hours medical services, we expect the current shift to grow. As the second assessment was performed shortly after the reorganisation, the public was probably not accustomed to this model of healthcare delivery; thus, the reorganisation's full effect on out of hours medical care may not be fully appreciated.

It is probable that the number of patient contacts with primary care before the reorganisation has been slightly underestimated, as GPs may not have registered all patient contacts during out of hours. If this is the case, the overall increased utilisation of out of hours care may be somewhat smaller. However, our conclusion on the decreased use of emergency care remains unaffected.

Although not investigated in this study, the shift in patient contacts from emergency care to primary care is likely to reduce costs.[3 8]

Future research is warranted to investigate the cost of these out of hours services, quality of care, and satisfaction with these services of patients and care providers.

In conclusion, the reorganisation of out of hours primary care into GP cooperatives has reduced utilisation of emergency care and increased utilisation of primary care.

Authors' affiliations

C J T van Uden, Department of Integrated Care, Research Institute Caphri, University Hospital Maastricht, Netherlands
C J T van Uden, H F J M Crebolder, Department of General Practice, Research Institute Caphri, University of Maastricht, Netherlands

Funding: this study was funded by the Districts General Practitioners Association Limburg.

Conflicts of interest: none declared.

Correspondence to: C J T van Uden, Department of Integrated Care (BZe7), University Hospital Maastricht, PO Box 5800, 6202 AZ Maastricht, Netherlands; caro.vanuden@hag.unimaas.nl

Accepted for publication 30 July 2004

REFERENCES

1 **Hallam L**, Cragg D. Organisation of primary care services outside normal working hours. *BMJ* 1994;**309**:1621–3.
2 **Olesen F**, Jolleys JV. Out of hours service: the Danish solution examined. *BMJ* 1994;**309**:1624–6.
3 **Murphy AW**, Bury G, Plunkett PK, *et al*. Randomised controlled trial of general practitioner versus usual medical care in an urban accident and emergency department: process, outcome, and comparative cost. *BMJ* 1996;**312**:1135–42.
4 **Dale J**, Green J, Reid F, *et al*. Primary care in the accident and emergency department: I. Prospective identification of patients. *BMJ* 1995;**311**:423–6.
5 **Fatovich DM**. Emergency medicine. *BMJ* 2002;**324**:958–62.
6 **Coleman P**, Irons R, Nicholl J. Will alternative immediate care services reduce demands for non-urgent treatment at accident and emergency? *Emerg Med J* 2001;**18**:482–7.
7 **Van Uden CJT**, Winkens RAG, Wesseling GJ, *et al*. Use of out of hours services: a comparison between two organisations. *Emerg Med J* 2003;**20**:184–7.
8 **Dale J**, Lang H, Roberts JA, *et al*. Cost effectiveness of treating primary care patients in accident and emergency: a comparison between general practitioners, senior house officers, and registrars. *BMJ* 1996;**312**:1340–4.