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Trends in demand for emergency ambulance services in Wiltshire over nine years: observational study

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What is already known on this topic

Decision aids can help patients to participate in their care

Ten evidence based leaflets (*Informed Choice*) are used by maternity services in the United Kingdom to promote informed choice in women using these services

What this paper adds

The leaflets did not help to promote informed choice in maternity care

Decision aids may not be effective in the real world

Practicality and quality of implementation

We carried out this trial in everyday practice. We included thousands of women who might have received the 10 leaflets, but only 70% reported receiving one of them. Studies reported in the systematic review of decision aids were explanatory trials, with the implicit assumption that all patients received the intervention.³ One conclusion might be that the systematic review showed that decision aids can be effective under certain circumstances but that our study showed that they are not necessarily effective in

the real world.⁷ The pragmatic nature of our design may have affected the outcome, but that outcome represents a true picture of the impact of introducing the leaflets into routine practice.

We thank midwives, managers, and administrative staff in the maternity units in Wales (unnamed to ensure confidentiality of participating units), who worked so hard to help us with data collection. We thank the thousands of women who completed our questionnaires at such an important time in their lives.

Contributors: See bmj.com

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Competing interests: None declared.

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Trends in demand for emergency ambulance services in Wiltshire over nine years: observational study

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Demand for emergency medical services in the United Kingdom is rising.¹ Research into the type of patients transported by emergency ambulances and the severity of their illness has tended to focus on identifying people who use the service inappropriately rather than factors influencing demand, and our understanding of the increase in demand is poor.^{2 3}

In Wiltshire, a largely rural county in the south west of England, the number of emergency transports of patients increased from 11 268 in 1988 to 16 814 in 1996, a crude increase of 49%.⁴ This increase is often attributed to general practitioners redirecting patients with urgent problems to the ambulance service, particularly out of surgery hours. Over the same period, however, urgent transports booked by general practitioners rather than in response to a 999 call rose from 9982 to 13 951 (40%). We examined the reasons for this rise.

Methods and results

We conducted a retrospective analysis of emergency ambulance despatches using a random sample of records held by Wiltshire Ambulance Service NHS Trust. From each year in nine years' records (1988-96) we sampled 14 days, stratified by season, providing a

dataset of 126 days of calls. Data were drawn from AS1 forms (completed by call takers) and from patient report forms (completed by paramedics). We used the system of call classification used by the trust to categorise data on the nature of incidents for analysis. We used indirect age standardisation based on the year with the most complete age data (1994) to account for demographic changes over the nine years (see methodological supplement on bmj.com). We calculated significance of trends with EpiInfo 6.03, using χ^2 for trend.

Our sample contained details of 6100 calls relating to 5821 incidents. For 1225 (21%) of these, patient report forms rather than AS1 forms had been filled in. The table shows the numbers of vehicles despatched, incidents, and patients transported in each year.

A 72% increase in incidents attended over nine years reduced to 53% after standardisation for age. The proportion of incidents in response to a call from a general practitioner, or incidents where one was present, remained fairly constant over the study period, whereas the proportion of calls made by patients and relatives rose from 11.8% to 20.1% (see tables A and B on bmj.com). Calls from other emergency services peaked in 1990. The category showing an increase out of line with that seen overall was "sudden illness at



Extra tables and a methodological supplement appear on bmj.com

Use of ambulance services in Wiltshire. Values are numbers (percentages) unless otherwise specified

Incident (n=5821)	1988 (n=474)	1989 (n=546)	1990 (n=590)	1991 (n=577)	1992 (n=580)	1993 (n=709)	1994 (n=773)	1995 (n=759)	1996 (n=813)	P value (χ^2 for trend over time)
GP made call	31 (6.5)	26 (4.8)	29 (4.9)	23 (4.0)	25 (4.3)	32 (4.5)	41 (5.3)	39 (5.1)	36 (4.4)	0.49 (0.47)
GP was present	46 (9.7)	49 (9.0)	43 (7.3)	43 (7.5)	52 (9.0)	52 (7.3)	87 (11.3)	72 (9.5)	83 (10.2)	0.12 (2.49)
Category of incident:										
Sudden illness at home	106 (22.4)	101 (18.5)	123 (20.1)	126 (21.8)	146 (25.2)	180 (25.4)	219 (28.3)	184 (24.2)	228 (28.0)	<0.0001 (20.43)
Sudden illness, public place	73 (15.4)	80 (14.7)	74 (12.5)	88 (15.3)	93 (16.0)	101 (14.3)	109 (14.1)	132 (17.4)	139 (17.1)	3.04 (0.08)
Obstetric or gynaecological problem	20 (4.2)	22 (4.0)	14 (2.4)	28 (4.9)	22 (3.8)	22 (3.1)	20 (2.6)	27 (3.6)	21 (2.6)	0.09 (2.81)
Overdose or self harm	29 (6.1)	36 (6.6)	29 (4.9)	32 (5.6)	41 (7.1)	52 (7.3)	53 (6.9)	39 (5.1)	54 (6.6)	0.66 (0.19)
Fall (assistance required)	5 (1.1)	7 (1.3)	6 (1.0)	12 (2.1)	6 (1.0)	12 (1.7)	11 (1.4)	6 (0.8)	10 (1.2)	0.82 (0.05)
Accident at home	42 (8.9)	37 (6.8)	62 (10.5)	59 (10.2)	64 (11.0)	72 (10.2)	80 (10.4)	76 (10.0)	73 (9.0)	0.41 (0.69)
Accident in public place	41 (8.7)	51 (9.3)	41 (7.0)	28 (4.9)	47 (8.1)	57 (8.0)	51 (6.6)	56 (7.4)	72 (8.9)	0.97 (0.00)
Road traffic accident	86 (18.1)	108 (19.8)	110 (18.7)	96 (16.6)	64 (11.0)	112 (15.8)	76 (9.8)	115 (15.2)	112 (13.8)	<0.0001 (18.90)
Sports accident	12 (2.5)	7 (1.3)	9 (1.5)	11 (1.9)	12 (2.1)	14 (2.0)	11 (1.4)	10 (1.3)	9 (1.1)	0.14 (2.21)
Industrial accident	9 (1.9)	9 (1.7)	5 (0.9)	8 (1.4)	8 (1.4)	11 (1.6)	11 (1.4)	13 (1.7)	10 (1.2)	0.83 (0.05)
Assault	14 (3.0)	20 (3.7)	22 (3.7)	22 (3.8)	13 (2.2)	17 (2.4)	32 (4.1)	23 (3.0)	21 (2.6)	0.43 (0.62)
Drunkenness	4 (0.8)	4 (0.7)	11 (1.9)	11 (1.9)	9 (1.6)	5 (0.7)	21 (2.7)	16 (2.1)	11 (1.4)	0.11 (2.52)
Fire call	6 (1.3)	25 (4.6)	31 (5.3)	36 (6.2)	28 (4.8)	29 (4.1)	28 (3.6)	37 (4.9)	15 (1.9)	0.28 (1.18)
Hoax call	0	0	0	0	0	0	0	0	1 (0.1)	—
Total valid cases	447	507	537	557	553	684	722	734	776	—
Missing or unclassifiable	27	39	53	20	27	25	51	25	37	—

home.” In this category, incidents described in general terms such as “collapse” fell from 35% to 20%, whereas those attributed more specifically to cardiac problems rose from 22% to 31% and those attributed to respiratory problems from 12% to 21% (see table C on bmj.com).

Comment

Demand for emergency ambulances has risen, and there is evidence that people are using more specific terminology to describe emergency incidents. We found no evidence of a transfer of general practitioners' workload to the emergency ambulance service. The fall in mortality across all age groups in Western society leads us to conclude that the demand threshold is falling.⁵

Callers' perceptions of urgency are known to be unreliable, and a wider range of responses from service providers may be the most appropriate way to manage rising demand.³ The integration of the gateway to primary care out of hours with NHS Direct might provide one way of accomplishing this. Research identifying influences on callers' perceptions of urgency is necessary if we are to improve our understanding of the demand for emergency care and our ability to plan for the future.

We thank members of Wiltshire Ambulance Services Trust who provided data, tea, and moral support during long days of searching for records. We also thank the NHS Executive South and West Research and Development Directorate for funding this study. The opinions expressed, however, are those of the authors alone.

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Competing interests: None declared.

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Corrections and clarifications

Filler

A missing letter escaped our notice in the endpiece “Choosing a doctor” by W H Auden (5 January, p 38). The first line should read: “Give me a doctor partridge-plump [not “partridge-pump”].

Minerva

Having corresponded with author David Bourne about the details relating to the Minerva picture (2 February, p 308), we then forgot to include the name of his coauthor, P Bannister, consultant physician and geriatrician at Manchester Royal Infirmary, Manchester M13 9WL. We apologise for this omission.

Biological warfare and bioterrorism

In this article by Nicholas J Beeching and colleagues (9 February, pp 336-9) we wrongly attributed the street depicted on p 337 to North Korea. The street is in fact in Seoul, South Korea.

Children of war: the real casualties of the Afghan conflict

Captions to pictures can be bothersome for us. We mixed up our countries in the caption to figure 2 in this article by Zulfiqar Ahmed Bhutta (9 February, pp 349-52). Baluchistan and North-West Frontier Province are both in Pakistan, not Afghanistan. The second sentence in the caption should therefore read: “The Taliban movement arose among Afghan children attending madrassahs in neighbouring Baluchistan and North-West Frontier Province, Pakistan.”

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