Out of hours service: the Danish solution examined

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In Denmark the provision of out of hours care by general practitioners came under increasing pressure in the 1980s because of growing demand for services by the public and increasing complaints from rural doctors about their heavy workload and disproportionately low remuneration in comparison with urban doctors. As a result, the out of hours service was reformed at the start of 1992: locally negotiated rota systems were replaced with county based services. Each county now has a coordination centre, where all patients' calls are received by a team of doctors. The doctors may give a telephone consultation, advise the patient to attend one of the emergency clinics strategically placed about the county, or arrange for a home visit. Doctors on home visiting duty are located at bases throughout the county and keep in touch with the coordination centre with mobile telephones. Graded fees mean that doctors are encouraged to give telephone consultations rather than arrange for clinic consultations or home visits. The reforms have reduced doctors' out of hours workload and the number of home visits made and have proved acceptable to patients, doctors, and administrators.

The provision of out of hours care by general practitioners has been the subject of recent debate in Britain as patients' demands of the service increase.[1-3] To help with this debate we describe the reforms of out of hours provision of primary care in Denmark which culminated in the launch of a new service on 1 January 1992.

The Danish National Health Insurance is based on principles of equity with no payment by patients, similar to those of the British NHS.[4] More than 96% of the Danish population have chosen group one health insurance whereby the patient accepts being listed with a general practitioner, who acts as gatekeeper to secondary care, in return for free access to all health care. General practitioners each have on average 1600 registered patients, for whom they are fully responsible for primary care for 24 hours a day. In Denmark out of hours care is from 4 pm to 8 am, Monday to Friday, and for all of Saturday and Sunday.

Out of hours services before reform

Before the reforms of January 1992 there were three main patterns of delivery of out of hours service in Denmark. Telephone consultations, surgery consultations, and home visits were available countrywide, each with an increasing service fee.

CATEGORY A SERVICE (MAINLY CONFINED TO LARGE TOWNS)

A locally organised rota system provided out of hours care for the registered patients of 50 to 200 general practitioners. Doctors' duty sessions lasted 8-12 hours, and those doctors who chose not to participate in the rota could opt out with consequent loss of earnings. Consequently, in some areas hospital doctors were employed to help provide the service. General practitioners contracted with the ambulance service to handle the patients' calls. Occasionally, it was suggested that a patient should talk to the doctor on call to get advice. In some towns there were emergency consultation centres, but these were rarely used and 90-95% of patients received home visits.

CATEGORY B SERVICE (MAINLY CONFINED TO VILLAGES AND RURAL AREAS)

In this system between three and eight doctors cooperated to provide out of hours cover according to a rota. Calls from patients were answered by the doctors or their spouses. Three services were offered—telephone and surgery consultations and home visits. As many as half of patients' calls culminated in telephone advice. Surgery consultations were common, and home visits were kept to a minimum. Duties were long, typically from 4 pm one day until 8 am the next or from 4 pm on Friday until 8 am on Monday. The system was cheap to run compared with the category A service.

CATEGORY C SERVICE (MAINLY CONFINED TO TOWNS AND WELL POPULATED AREAS)

A combination of service categories A and B existed so that doctors in these areas could sometimes opt out of the rota system by paying others to do their duties.

Reasons for reform

During the 1980s general practitioners faced an increasing demand for out of hours services, particularly from young people, and there were increasing complaints from rural doctors about the heavy workload and the disproportionately low remuneration for out of hours care in comparison with doctors in cities. In response general practitioners in the medical association started to negotiate a new contract with politicians, whose main reasons for entering into discussions were to increase general practitioners' services within contracted hours and to curb patients' increasing demands for out of hour services. A new service was agreed with the National Health Insurance to be implemented by 1 January 1992.

Reformed out of hours services

The new service applied to all 16 county administrations, which run the Danish primary care service, but counties could tailor the system. Although the basic principles were adhered to throughout Denmark, the city administrators for Copenhagen and Frederiksberg have yet to provide consultation access.

PRINCIPLES OF NEW SERVICE

- General practitioners were to retain 24 hour responsibility for patients
- No new money would be made available for the service nationally (indeed, a considerable reduction in costs was anticipated)
- Any money saved would be used to fund the increase in daytime services resulting from the changes
- Health services were to remain free at point of access for patients
- Patients would always have direct telephone access to a general practitioner, who would determine the need for telephone advice, consultation, or home visit
- The service would be offered only by fully licensed general practitioners with five years formal postgraduate education (trainees would work only under the supervision of a general practitioner and would not answer patients' telephone calls)
- Duty was planned so that general practitioners could expect to be kept busy, but duty sessions were to be kept short—typically eight hours

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- General practitioners would be guaranteed no more than one night duty every 35 nights and no more than one in 15 evenings on duty (evening being 4 pm to 10 pm or to 8 pm on Saturday)
- General practitioners would continue to be paid on a fee for service basis and would be responsible for costs relating to out of hours service (such as car phones, etc)
- There would be different fees paid according to type of care provided—doctors answering patients' telephone calls have an incentive to complete calls by offering telephone advice since the fee paid for this is higher than for offering patients a clinic consultation or home visit, when the consulting doctor also receives a fee
- Home visits would prompt greater remuneration if the distance from base to the patient's home was over 10 km (maximum distance 60 km)—in effect doctors would be paid according to the time taken to complete a visit

The county administrations provided economic support for establishing emergency clinics for out of hours services, strategically placed throughout the county so that less convenient daytime clinics would not have to be used. Additional financial support was given, according to local negotiations, to modernise telephone and computer systems.

DETAILED ARRANGEMENTS OF NEW SERVICE (COUNTY OF AARHUS)

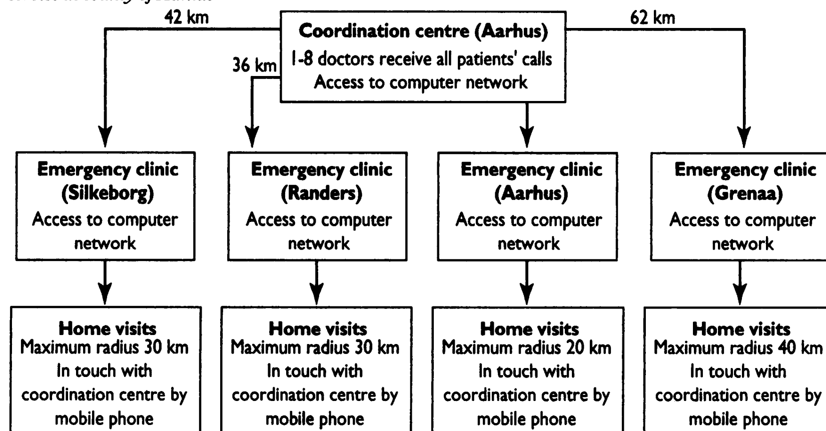
The figure shows how the out of hours service is organised in the county of Aarhus, which has a population of 600 000 served by 380 general practitioners. Before the new service was implemented, four emergency clinics were established at regional hospitals to provide convenient access for all parts of the county. Additionally, a modern telephone system with a queuing system was installed.

Patients call a single telephone number with six to eight lines to reach a doctor. According to expected patient demand, day of the week, and time, between one and eight doctors are on duty at the coordination centre to answer the calls. The planned call rate to each doctor on telephone duty is 10-15 calls an hour. Four emergency clinics operate in different parts of the county, the general practitioners' planned workload in these clinics is four to 10 consultations an hour depending on patient demand. Home visits are relayed by the coordination centre to duty doctors with mobile phones. The doctors on home visiting duty are located at bases throughout the county and make two to four visits an hour depending on the distances involved.

A county based computer network installed in the coordination centre has a listing of all patients by name, address, and insurance number. Duty doctors enter details of all patient contacts. The computer immediately dispatches urgent prescriptions to the pharmacy and next day faxes or posts a copy of the patient's record to his or her registered general practitioner and bills the health insurance. A facility of the computer network enables general practitioners to provide limited information about patients with special needs (for example, terminal care, drug misusers, etc). Duty doctors cannot interrogate general practitioners' records since no direct connection exists between these and the main computer.

The fees earned by being on duty are such that many younger doctors like to do additional duties so that general practitioners who do not wish to be on duty, in particular older doctors nearing retirement, can find a replacement.

Organisation of out of hours service in county of Aarhus



LAUNCH OF NEW SERVICE

Members of the local medical committee, in collaboration with the chief executive of the county administration and sometimes with the College of General Practitioners, mounted local media campaigns to advise patients about the new service. They ran advertisements in local papers, appeared on local television and radio programmes, and made leaflets available to the public in advance of the launch. Some counties ran training courses in telephone consultation for general practitioners.

Evaluation of reformed service

ANALYSIS OF PATIENTS' CALLS AND OUTCOMES

For each of the 16 counties there is a detailed analysis of out of hours calls for the two years before and two years after introduction of the new service.[5] The table shows the total number of emergency calls made by patients with group one health insurance (96% of the population), during 1990-3 and their outcome (the percentage which resulted in a consultation in an emergency centre, which were managed by telephone advice alone, and which resulted in a home visit). Comparison of data for 1990-1 with those for 1992-3 shows that, with the exception of Copenhagen city and Frederiksberg city, introduction of the new service resulted in a pronounced reduction in the percentage of calls resulting in a home visit and an increase in the percentage of calls dealt with by telephone advice or consultation at an emergency centre. The number of out of hours calls initially fell after the new service was introduced but then rose again in all counties.

PATIENT SATISFACTION

Two counties surveyed patient satisfaction before and after implementation of the new service; their findings were not dissimilar to those of Gallup polls conducted by the National Health Insurance. The surveys suggested that patient satisfaction was still high (>90%) though a substantial proportion of respondents thought that the new service was poorer for having fewer home visits.[6,7] The number of patients who stated that they did not have the service they wished increased.

The new service has been much debated. Politicians have expressed their dissatisfaction that patients, in particular parents with young children, are asked to attend emergency clinics. Media reports of these discussions have temporarily resulted in higher rates of home visiting.

DOCTOR SATISFACTION

Although not formally assessed, satisfaction among professionals has been high, particularly among rural general practitioners, and few complaints have been made to the medical association.

COST

Equipment had to be purchased and emergency

Patients' telephone calls for out of hours primary care and outcome of the calls in the two years before and two years after reform of service. Values are percentages unless stated otherwise

County (population)	1990				1991				1992				1993			
		Result of call				Result of call				Result of call				Result of call		
	No of calls	Consultation at clinic	Telephone advice	Home visit	No of calls	Consultation at clinic	Telephone advice	Home visit	No of calls	Consultation at clinic	Telephone advice	Home visit	No of calls	Consultation at clinic	Telephone advice	Home visit
Aarhus (605 000)	283 020	23	30·8	46·2	287 888	23·3	33·4	43·2	241 998	28·3	47·1	24·6	268 619	25·8	48·8	25·4
Copenhagen (603 000)	196 544	3·9	9·5	86·6	205 549	3·8	13·0	83·1	233 290	16·5	49·1	34·4	246 872	18·7	50·1	31·1
North Jutland (486 000)	246 289	36·5	28·8	34·7	260 211	36·9	29·8	33·3	223 792	46·8	36·9	16·3	240 605	46·9	39·1	14·1
Copenhagen (465 000)	178 998	1·6	32·5	65·9	195 588	1·3	35·0	63·7	184 306	0	37·8	62·2	201 011	0·9	39·3	59·8
Fune (463 000)	235 467	19·2	19·7	61·1	237 034	21·4	22·1	56·4	203 274	29·0	48·2	22·9	211 787	27·4	52·4	20·2
Fredriksborg (345 000)	153 060	19·3	21·9	58·8	153 293	19·8	22·1	58·0	131 012	26·6	46·0	27·4	153 053	28·5	47·8	23·8
Vejle (333 000)	158 362	24·3	36·0	39·7	160 253	24·1	38·3	37·6	137 213	22·1	48·1	29·7	152 867	22·6	51·4	26·0
West Zealand (285 000)	155 164	30·2	27·2	42·6	160 165	30·8	28·6	40·6	134 396	40·1	41·1	18·8	144 642	41·5	42·1	16·4
Ringkobing (268 000)	148 344	44·2	26·2	29·7	157 644	44·6	28·2	27·2	126 461	36·9	42·4	20·7	135 351	32·1	46·5	21·4
Storstroms (257 000)	127 701	19·3	24·4	56·3	127 806	20·0	26·8	53·2	109 960	44·2	40·8	15·0	120 882	47·4	41·2	11·4
South Jutland (251 000)	135 476	38·2	30·6	31·2	141 014	40·4	32·2	27·3	119 231	48·4	37·2	14·4	130 742	48·6	39·5	11·9
Viborg (230 000)	125 217	38·2	29·4	32·4	132 033	38·3	31·0	30·8	93 714	36·0	44·3	19·7	302 478	37·4	44·4	18·2
Roskilde (220 000)	91 114	14·7	28·5	56·8	95 460	15·9	30·0	54·1	92 050	40·5	39·8	19·7	106 341	42·1	41·5	16·4
Ribe (220 000)	131 205	36·8	36·3	26·9	131 624	39·0	38·5	22·5	107 605	46·9	42·1	11·0	120 915	48·2	42·8	9·0
Fredriskberg City (86 000)	29 325	2·0	32·4	65·6	29 475	2·1	36·1	61·9	28 278	0·1	39·8	60·1	30 189	0·3	44·3	55·4
Bornholm (45 000)	20 902	32·1	27·7	40·3	18 413	40·4	26·1	33·5	17 177	50·6	42·8	6·5	17 386	51·2	43·4	5·4
All Denmark (5 162 000)	2 416 188	24·2	26·9	48·9	2 493 450	24·9	29·0	46·1	2 183 757	30·8	43·3	25·9	2 383 740	31·1	45·2	23·7

treatment centres provided for the new service. In Aarhus the county administration provides communication systems and clinics at a cost of £320 000 a year. General practitioners each pay a £400 annual service charge to cover the cost of computers, mobile phones, etc. The costs for other counties are similar, but the details vary since they were subject to local negotiation.[6] The savings on doctors' remuneration have been lower than expected because patient demand fell less than predicted and earnings from consultations and telephone advice remain high.

Discussion

The Danish experience shows that out of hours service can be changed substantially and still be acceptable to patients. Patient demand fell initially as anticipated, but the lower demand was not sustained. Full economic assessments have not been conducted, but the new service is thought to cost less to run than the old service when the cost of use of individual doctors' surgeries and technical and administrative expenses are taken into consideration.

General practitioners traditionally provide continuing personal care. The new service theoretically reduces personal care, but, since most general practitioners were already members of cooperatives or shared on call rotas, in practice there has been little change in terms of continuity. The cities of Copenhagen and Frederiksberg have not yet fully adopted the new service because they already had efficient and effective services for emergency primary care that offered telephone advice and home visits. Duty doctors were kept fully occupied, and taxi transport was provided. Even so, the cities are expected to open emergency consultation clinics soon.

Before the new service was introduced, there was considerable variation between individual emergency rotations and cooperatives in how patients' calls were dealt with. The new service provides a much more consistent level of out of hours care. Some members of the public have complained about the reduction in home visits, but there is no evidence of a lowering of clinical standards of the out of hours service. On the contrary, the service benefits from exclusive use of vocationally trained, experienced general practitioners to answer patients' calls, conduct consultations, and make visits. Furthermore, the quality of daytime services must benefit from having well rested general practitioners offering patient care. The reduced number and short duration of sessions on night duty has enabled general practitioners to plan to take time off after night duty. The reforms of the Danish out of hours primary care provide an accessible, equitable, and high quality service that has proved acceptable to patients, doctors, and administrators.

1 General Medical Services Committee. Night calls should be limited to genuine emergencies say general practitioners. *BMJ* 1994;308:1387-92.
2 Hallam L. Primary medical care outside normal working hours: review of published work. *BMJ* 1994;308:249-53.
3 Warden J. Minister is pragmatic on out of hours cover. *BMJ* 1993;307:1234.
4 Whitehead M. Who cares about equity in the NHS? *BMJ* 1994;308:1284-7.
5 National Health Insurance. *National Health Insurance statistics for primary care.* Copenhagen: NHI, 1994.
6 National Health Insurance, Copenhagen. *Patienters oplevelse og vurdering af vagtlaegers service i 2. halvar 1992.* [Patients' experience and assessment of duty service in the second half of 1992]. Copenhagen: Vilstrup Research, 1993. (In Danish.)
7 Laegeragten er ikke et faerdigt produkt [The out of hours service not fully developed]. *Ugeskr Laeger* 1994;156:1676-8. (In Danish.)

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ONE HUNDRED YEARS AGO

THE COST OF A MEDICAL EDUCATION.

The educational course demanded of the medical student of to-day is an affair not to be entered into without due deliberation. At the least it must last five years, and any slip, any failure to satisfy the examiners at any stage, any accidental disablement from ill-health at the time appointed for examinations, must inevitably lengthen it still further adding to the period during which the student must be supported somehow, and rendering more remote the hoped-for goal—the qualification which shall make it possible to earn a living. It is no small matter to fix one's life beforehand for a certain five and a probable six years, and the importance of the decision is in no way lightened by the knowledge that a medical education is peculiarly special, leads to little else but medicine, is of no service in obtaining entry into any other profession or even trade, and that, unless it can be carried through to the end, it is so much loss of time. If a medical education should turn out more expensive than had been anticipated and arranged for, and if from that or any cause it should have to be broken off, not only are the money and the time spent on it thrown away—absolutely wasted from a money-earning point of view—but the student finds himself, at an age which makes an entry into business difficult, stranded without employment or profession, and his little capital gone. It is, then, of the greatest moment that before embarking in the study of medicine an accurate estimate of its probable cost should be formed, otherwise the student runs the risk, of which every year sees sad examples, of dropping out of his course in mid-career, his youth wasted, his future spoilt.

(*BMJ* 1894;ii)