Translation of original article published in The Journal of the Norwegian Medical Association:
Nieber T, Hansen EH, Bondevik GT, Hunskår G, Blinkenberg J, Thesen J, Zakariassen E. Organization of Norwegian out-of-hours primary health care services. Tidsskr Nor Lægeforen 2007; 127: 1335–8

Original article

Organization of Norwegian out-of-hours primary health care services

Abstract

Background. The organization of out-of-hours primary health care services in Norway is currently changing from municipal-based to larger inter-municipal co-operations with regular employees and improved competence. The Norwegian Medical Association and others have encouraged the establishment of larger out-of-hours primary health care units that include all municipalities and regular GPs and serve the entire population. More data are needed to study the situation for out-of-hours services in Norway.

Material and methods. The National Centre for Emergency Primary Health Care sent questionnaires to all 433 municipalities in Norway the autumn of 2005 to study how the out-of-hours primary health services are organized.

Results. Out-of-hours primary health services are an inter-municipality endeavour in two-thirds of Norwegian municipalities and one third of the remaining municipalities have plans to start such co-operation. Regular GPs participate in out-of-hours services to a varying degree. In half of the municipalities all regular GPs participate in out-of-hours duty. Participation decreases with increasing numbers of inhabitants and regular GPs in the municipalities. We found a distinct variation in the number of phone calls per inhabitant to municipal out-of-hours services. Due to geographical factors, there are also variations in patient transport time and availability of ambulances to the out-of-hours offices.

Interpretation. We observed distinct variations in the organization of the out-of-hours emergency primary health services in Norway. Some of these differences are due to differences in population density and geographical factors.

Conflict of interests: None

Tobias Nieber
tobias.nieber@isf.uib.no
Elisabeth Holm Hansen
National Centre for Emergency Primary Health Care
Kalfarveien 31
5018 Bergen

Gunnar Tschudi Bondevik
Steinar Hunskår
National Centre for Emergency Primary Health Care
and
Section for General Practice
Department of Public Health and Primary Health Care
University of Bergen

Jesper Blinkenberg
Janecke Thesen
Erik Zakariassen
National Centre for Emergency Primary Health Care

Since Norway implemented the Municipal Health Services Act in 1984, municipalities have been responsible for organizing out-of-hours primary health care services (1). The municipalities are responsible for providing adequate health care services to all who live or stay in the municipality. Doctors are obliged by the Health Personnel Act to give immediate help and to participate in the local out-of-hours service (2). Municipal out-of-hours services are also regulated by agreements between the Norwegian Association of Local and Regional Authorities and the Norwegian Medical Association (4) and the Regulation on requirements for acute medical services outside the hospital (3). When the Ministry for Health and Social Affairs collected data on the out-of-hours service in Norway (5) in 1998, 50 % of the municipalities were involved in intermunicipal co-operation. In recent years an increasing number of municipalities have organized their out-of-hours primary health care services in intermunicipal co-operations. However, the setting up of larger out-of-hours emergency districts has been limited by geographical conditions and the economic burden involved (6). The Medical Association has worked for a long time to improve out-of-hours organization for regular general practioners (RGPs), and believes that intermunicipal co-operation will give better quality, accessibility and stability in the out-of-hours service. Recruiting problems, a heavy on-call workload and lack of support characterize large parts of the service. This reduces the quality of service on offer in the evening and at night (6).

Intermunicipal co-operation is expected to improve the quality of out-of-hours work and increase doctor accessibility by establishing duty bases with a second-call backup system, strengthen recruitment and regulate hours and working conditions. The Medical Association's National Board wants the intermunicipal out-of-hours service to be a GP service for the entire population, all municipalities and all RGPs (6). It is claimed that emergency work is a heavy extra burden for many RGPs. Use of locums and hospital doctors is therefore not unusual, even when there is no authorized reason to do so.

No systematic overview has been available for the out-of-hours services in Norway until now. The Norwegian Ministry of Health and Care Services established the National Centre for Emergency Primary Health Care in 2005. The Centre works closely with the Section for General Practice at the University of Bergen and the National Centre on Emergency Health Care Communication. The Centre is, in conjunction with other specialties, meant to help enhance and promote knowledge in emergency primary health care through research and development. On the basis of data collected from all local authorities, this article describes how the out-of-hours services were organized in Norway at the end of 2005.

Material and methods

In the autumn of 2005, the National Centre for Emergency Primary Health Care sent out a questionnaire to all the 433 municipalities in Norway. They were asked for information concerning their out-of-hours service, intermunicipal co-operations, the location of their Local Medical Emergency Communication Centre (LEMC), RGP participation in

Main Message

- The National Centre for Emergency Primary Health Care has surveyed the organization of out-of-hours services in the country's 433 municipalities.
- Most municipalities participate in intermunicipal co-operations.
- There is large variation in RGP participation in out-of-hours-services, extent and documentation of telephone requests to the local emergency communication centres vary as well.

Table 1 Municipal and intermunicipal out-of-hours services (afternoon, evening and night/ weekend, population in the municipal district according to number of cooperating municipalities)

Number of municipalities	No. of intermunicipal cooperatives	Total number of municipalities	Mean number of inhabitants
Afternoon/evening			
Municipal out-of-hours services		161	13 612
Intermunicipal cooperatives (number of municipalities)			
2	67	133[1]	14 060
3	15	45	36 655
4	7	27[1]	44 071
5	3	15	48 399
6	2	12	94 040
7	3	21	32 003
9	1	9	100 324
10	1	10	84 947
Night/evening			
Municipal out-of-hours service		132	15 536
Intermunicipal cooperation (number of municipalities)			
2	58	115[1]	14 600
3	18	53[1]	28 270
4	10	38[1]	37 237
5	4	20	43 426
6	4	24	56 371
7	4	28	46 294
10	1	10	84 947
13	1	13	129 008

[1] Some municipalities participate in more than one intermunicipal cooperation

out-of-hours duty, staff at the LEMC, the number of telephone requests received and documented action taken, travel time to the patients and the available means of transport at the emergency clinic. The questionnaire was sent to the one responsible for the out-of-hours emergency service in each municipality; a doctor chosen by the local authority (7). In some municipalities the questionnaire was filled in by the out-of-hours service administrator, usually a nurse or public health director. Details concerning out-of-hours service premises, equipment, training, information and accessibility are presented in another article in this edition of the Journal (8).

By February 2006 we had received answers from all the municipalities. The collected data were linked up to information from the regional Emergency Medical Communication Centre (EMC) and the out-of-hours call centres (retrieved from the Directorate for Health and Social Affairs and the National Centre on Emergency Health Care Communication). Additional information was collected by phone and e-mail. The statistics programme SPSS (version 13.0) was used for data analysis and the results are presented as frequency counts and simple cross tables.

Results

Out-of-hours service organization

All of Norway's 433 municipalities completed the questionnaires, but the percentage of answers to individual questions varied from 40 to 100 %. More than half of the population in Norway were at the time of the survey linked to an intermunicipal co-operation outside the RGPs' normal office hours. About a third of the municipalities had their own out-of-hours district on both workdays and weekends (Table 1). 63 % (272/433) of the municipalities were organized as intermunicipal cooperatives at night and 70 % (301/433) during weekends. Intermunicipal co-operation at night and weekends was most common in places with few inhabitants. 3/4 of the municipalities with fewer than 2 500 inhabitants organized their out-of-hours service in co-operation with other municipalities (Table 2). Of the five largest

Table 2 Proportion of municipalities (%) with municipal and intermunicipal out-of-hours-services in afternoons/evenings, nights/weekends according to number of participating municipalities. Described for all municipalities and according to size of the district (measured in number of inhabitants and area)

	Afternoon/night				Night/ weekend			
	Municipal out-of-hours service	Intermunicipal cooperation			Municipal out-of-hours service	Intermunicipal cooperation		
		2 municipalities	3–5 municipalities	≥ 6 municipalities		2 municipalities	3–5 municipalities	≥ 6 municipalities
All municipalities	37	31	20	12	31	27	26	17
Municipality size (inhabitants)								
≤ 2 500 (n = 132)	35	38	17	10	25	32	24	20
2 501 – 5 000 (n = 108)	39	35	17	9	31	32	24	14
5 001 – 10 000 (n = 90)	45	26	22	7	34	20	31	14
10 001 – 20 000 (n = 58)	40	24	21	15	33	22	21	24
20 001 – 100 000 (n = 40)	35	20	33	13	33	18	33	18
> 100 000 (n = 5)	60	20	20	0	60	20	20	0
Municipality size (area)								
< 200 km^2 (n = 103)	27	27	27	19	21	24	34	20
201 – 500 km^2 (n = 122)	37	30	20	12	28	21	26	25
501 – 1 000 km^2 (n = 103)	42	35	16	7	29	30	22	18
> 1 000 km^2 (n = 105)	50	31	16	2	44	31	20	5

urban municipalities, two cooperated with their neighbouring municipalities.

Intermunicipal co-operations were more common in the smaller municipalities. Of 103 municipalities with an area of < 200 km², 78 % had an intermunicipal co-operation at night and weekends, whereas the percentage for 105 municipalities with an area > 1 000 km² was 56 %. Table 2 shows the relationship between the size of the municipality and the various ways of organizing the out-of-hours service.

Regarding those municipalities not organized in an intermunicipal cooperative, one third had definite plans to do so and one out of eight had made the resolution to do so. On the other hand, 1/4 of the local authorities that had previously had intermunicipal co-operation had discontinued this arrangement.

All municipalities are obliged to have a local Medical Emergency Communication Centre with 24 hour accessibility by phone. The communication centre may be run by a regional EMC, a regular GP surgery, by the casualty clinic, a nursing home or a commercial service. During ordinary office hours, half of the municipalities had their emergency call centre located at one of their regular GP surgeries. In the evening, at night and at weekends about half of the emergency call centres had their own casualty clinic, whereas 1/4 were joined to an EMC.

Staffing

During ordinary office hours 69 % of the call centres were operated by at least one nurse, and those without nurses used other health personnel. In the evening, at night and at weekends about 90 % of emergency phones were operated by a nurse. One doctor alone was responsible for the out-of-hours services for about 90 % of the services, whereas about 10 % of them had two or more doctors on call.

Telephone requests

Only 47 % of the municipalities answered the question about the number of telephone requests to the emergency call centre. For these the annual number of calls varied between 140 and 90 000 (with an average of almost 11 000). A quarter of the emergency call centres received less than 1 800 telephone requests a year; 1/4 received 1 800–4 000 and 1/4 received 4 000–14 000 annual telephone requests. The number of phone calls per inhabitant annually varied largely. Countrywide 1/4 of the emergency call centres received less than 0.44, a quarter received 0.44–0.72 and 1/4 received 0.72–1.24 annual telephone requests per inhabitant. The percentage of telephone requests per inhabitant was greatest in the least populated districts.

Documentation

81 % of the municipalities that answered the question stated that telephone requests to the emergency call centre were always documented; for 15 % of them they were usually documented, and for 4 % they were only occasionally or never documented. Those with incomplete information were mainly smaller municipalities. For 72 % of the municipalities advice given by the call centre was always documented, for 21 % it was usually documented and for 7 % it was only documented now and then or never. LEMCs were able to use several types of documentation for the same telephone request. Two-thirds documented telephone requests in their medical journal system, 4/10 by filling in a prepared paper form, a third with an audio login addition and 1/10 used a special electronic recording tool.

Means of transport

A quarter of the municipalities did not have their own ambulance available. Barely half had one ambulance and 1/4 had two or more. By comparison, 11 % had an ambulance boat. Apart from a slightly better availability of ambulance cars during office hours, there was not much difference in the availability of ambulance cars and boats at different times of the day and night, or between workdays and weekends.

In emergencies, about half of the doctors on call mainly used their own car and 1/4 used an ambulance. An emergency service car, taxi or boat was used less often. For home visits, about 70 % of the doctors on call most often or always used their own car and 15 % used the out-of-hours service car; taxis, boats or ambulances were seldom used.

Travelling time

Table 3 gives an overview of the longest time needed to drive from the ambulance

Table 3 Longest journey time (in minutes) from ambulance station to patient, and from the patient to the casualty clinic. Described for all municipalities and according to size of the district (measured in number of inhabitants and area)

	Ambulance to patient Mean (max)	Patient to casualty clinic Mean (max)
All municipalities	41 (120)	51 (180)
Municipality size (inhabitants)		
≤ 2 500 (n = 132)	45 (120)	60 (180)
2 501 – 5 000 (n = 108)	44 (110)	53 (120)
5 001 – 10 000 (n = 90)	40 (120)	46 (150)
10 001 – 20 000 (n = 58)	35 (120)	42 (120)
20 001 – 100 000 (n = 40)	33 (90)	41 (90)
> 100 000 (n = 5)	24 (30)	31 (45)
Municipality size (area)		
< 200 km² (n = 103)	27 (75)	31 (120)
201 – 500 km² (n = 122)	40 (120)	48 (150)
501 – 1 000 km² (n = 103)	44 (120)	55 (180)
> 1 000 km² (n = 105)	52 (120)	67 (180)

Table 4 RGP participation in out-of-hours services by municipality size (number of inhabitants and area)

	Percentage of municipalities where all RGPs participate in out-of-hours services	Percentage of RGPs participating in out-of-hours services	Percentage of RGPs exempted from out-of-hours services
All municipalities (n = 433)	47	72	20
Municipality size (inhabitants)			
≤ 2 500 (n = 132)	78	85	10
2 501 – 5 000 (n = 108)	60	87	14
5 001 – 10 000 (n = 90)	29	76	22
10 001 – 20 000 (n = 58)	8	72	24
20 001 – 100 000 (n = 40)	5	66	28
> 100 000 (n = 5)	0	66	11
Municipality size (area)			
< 200 km² (n = 103)	40	74	24
201 – 500 km² (n = 122)	46	69	15
501 – 1 000 km² (n = 103)	52	77	20
> 1 000 km² (n = 105)	50	70	28

station to the patient's home, and from the patient's home to the out-of-hours service building (the casualty clinic). The longest average time for driving was about 45 minutes. In nearly half of the country's municipalities the ambulance could reach all patients within half an hour, and in about 90 % of them within an hour. In a third of the districts the patients could manage the journey to the clinic within half an hour and in a good 80 % of them within an hour.

RGP participation

Half of the country's municipalities answered that all their RGPs took part in out-of-hours work (Table 4). In a third of the municipalities 75 % participated and in 1/6 50 % or less. The proportion of RGPs participating in out-of-hours services was greatest in municipalities where the population was smallest.

Discussion

The results of this study show that at the end of 2005 there was great variety in the way out-of-hours emergency services were organized in Norway. We received completed questionnaires from all of the country's municipalities, but the percentage of replies to individual questions varied greatly. The reason for this may be that certain replies were only recorded to a limited degree at a local level. In spite of this, we believe the survey has covered most of the relevant points concerning the organization of out-of-hours service in Norway.

Most municipalities were already participating in intermunicipal cooperations and this was clearly most common in the smaller ones. It has been argued that such cooperation improves the service in terms of staffing, equipment and security and has a positive effect on recruitment, as well as easing the duty load (9). Work is being done to bring more municipalities into such cooperation, although this was already occurring to a greater degree than realized beforehand (6, 10). There are many small intermunicipal co-operations, some of which could be expanded. Others will be able to function well alone because of their size, or may have problems co-operating due to geographical considerations.

Our study has shown that in half of the country's municipalities all RGPs participate in out-of-hours emergency service. Non-participation may be due to disease or age. The highest percentage of RGP participation was found in the smallest municipalities (fewest inhabitants). The reason for this may be that doctors in small districts feel that out-of-hours emergency service is a natural part of general practice and that exemption for one doctor leads to an extra heavy workload for the others. Some head doctors answered in addition that there has been a marked drop in the number of RGPs participating in out-of-hours service, and that those who do participate do so to an ever-decreasing degree. It is possible that in some cases it was not known who actually took the duties, i.e. whether the RGP was really the doctor on call even if the name was on the duty list. RGPs' participation in out-of-hours emergency duty should be studied more closely and followed up over time. The National Centre for Emergency Primary Health Care is particularly interested in this area.

It is disturbing that only a minority of municipal out-of-hours services documented the number of telephone requests received. Moreover, documentation on daytime contacts was often missing, as the RGP surgery mainly dealt with these. It is less than satisfactory that such a comprehensive and important service as emergency primary health care should almost entirely lack a national statistical basis for vital variables such as the number of telephone requests from patients, consultations, diagnoses and finances.

1/5 of the local authorities did not document all telephone requests to the LEMC. This was particularly the case in the smaller municipalities. This may be explained by less established office routines due to fewer telephone requests and/or running the emergency call centre alongside other work, e.g. in a nursing home. There is still a long way to go before all the call centres have telephone recording of incoming phone calls.

Ambulances could not reach all inhabitants within half an hour in half of the country's municipalities. This is probably due to scattered housing in many Norwegian municipalities, with inhabitants living far out from the centre. We requested exact data for the longest travel time in the local district, which implied that we did not receive information about the population with a shorter transport time. According to the instructions for acute medical readiness in emergency situations, an ambulance should reach 90 % of the population in a sparsely populated area within 25 minutes (11). On the other hand, this guideline is understood to be independent of the district's population density.

This study has given an overview of the organization and staffing of emergency operator telephone exchanges and out-of-hours services, accessibility of transport and RGPs' participation. Uncertainty connected to the number of telephone requests indicates a need for additional studies and improvement of the whole service. It will be interesting to follow the development of many of the recorded variables over time.

Literature

1. Lov om helsetjenesten i kommunene. 19.11.1982 nr. 66.
2. Lov om helsepersonell. 2.7.1999 nr. 64.
3. Forskrift om krav til akuttmedisinske tjenester utenfor sykehus. 18.3.2005 nr. 252.
4. Sentral forbundsvis særavtale mellom KS og Den norske lægeforening. SFS 2305 for perioden 2004–2006. Oslo: Den norske lægeforening, 2004.
5. Norges offentlige utredninger. Hvis det haster... NOU 1998; 9: 55–6.
6. Vil ha økt vekt på interkommunal legevakt. Tidsskr Nor Lægeforen 2006; 126: 1807.
7. Smith A, Rogne P. Hvem er faglig ansvarlig for legevakten? Helserådet 2006; nr. 1. (www.unifobhelse.uib.no/admin2/Nyhetsbrevfiler/ukKdJgrk_13_nyhetsbrev%20nr%201–2006.pdf (2.9.2006).)
8. Zakariassen E, Blinkenberg J, Hansen EH. Beliggenhet, lokaler og rutiner ved norske legevakter. Tidsskr Nor Lægeforen 2007; 127: 1339–42.
9. Rapport om utvikling av legevakttjenesten til interkommunale legevakter. Oslo: Den norske lægeforening, 2005.
10. Statens helsetilsyn. Kommunal legevakt – Gjennomgang av tilsynsmyndighetenes funn i perioden 2001–2005, brev med rapport. www.helsetilsynet.no/templates/ArticleWithLinks_8298.aspx (4.9.2006).
11. St.meld. nr. 43 (1999–2000). Om akuttmedisinsk beredskap.

The manuscript was received 2.9. 2006 and accepted 28.3. 2007. Medical editor Geir Jacobsen.