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Original article

Locations, facilities and routines in Norwegian out-of-hours services

Summary

Background. Limited data are available on casualty clinic facilities and localization, inter-municipal co-operation and routines for out-of-hours services in the 433 Norwegian municipalities. The National Centre for Emergency Primary Health Care collected data on these issues from October 2005 until February 2006.

Method. Questionnaires concerning organization of the out-of-hours services, casualty clinic facilities, locations and routines were sent to every Norwegian municipality.

Results. 282 of the 433 municipalities are in charge of out-of-hours services in 262 municipalities in the evenings and 230 during nights and weekends. There is inter-municipal cooperation in 100 of the municipalities. Most out-of-hours services are located in one casualty clinic in the host municipality and have the same locations as GP surgeries and laboratories. Most clinics offered the same services, but some routines were different. About half of the casualty clinics had a system for training of doctors and other health personnel. Half of the doctors on duty were available on the emergency communications system (radio). User assessments were collected, telephone calls documented and discrepancies reported to a varying degree, and medical histories were not consistently sent to regular GPs.

Interpretation. Inter-municipal co-operations are most common in areas with a high population density, i.e. in southern and eastern parts of Norway. Varying routines in out-of-hours service districts indicate that several municipalities do not fulfil all the obligations in regulations from the Ministry of health and care services in Norway.

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Municipalities have been responsible for organizing out-of-hours services since the Municipal Health Services Act of 1982 was implemented 1.4.1984 (1). The municipalities are responsible for organizing the out-of-hours services, providing doctors, premises, equipment and staff. The Municipal Health Services Act requires a professional organization of emergency services. Internal control is a key to good quality and is specifically explained in the regulation on internal control in the health and social services (2). Municipal out-of-hours services are defined as part of acute medical care outside of hospitals. Requirements are defined in the regulation on requirements to the acute medical services outside the hospital (3).

Organization of the out-of-hours services in primary health care is a topic of current political and professional interest. The requirements for good quality in the form of premises, equipment and routines have been less in focus than for example the workload involved for regular general practioners (RGPs). The National Centre for Emergency Primary Health Care therefore collected data from emergency services to form the basis for a national register. This article considers data on the geographical location of out-of-hours services and their routines such as staff training and equipment. Such conditions can make a big difference in the way patients are treated in a district. The first part of this study (results at the municipal level) is also presented in this issue of the Norwegian Medical Journal (4).

Material and methods

An out-of-hours district is the geographical area covered in the evening, at night and weekends, be it municipal or intermunicipal. The host municipality is where the out-of-hours service is located. In an out-of-hours district with intermunicipal cooperation several municipalities may share being the host. The National Centre for Emergency Primary Health Care used a structured multiple-choice questionnaire (5) to collect data from all 433 municipalities in Norway from October 2005 to February 2006 (4). All host municipalities were asked to submit information about geographical location, premises, equipment, training of staff and routines/characteristics. Repeated reminders were sent. Further information came in by phone and e-mail from those in charge of the out-of-hours district.

Categories for population size and density are in accordance with Statistics Norway. Municipalities with fewer than 5000 inhabitants are defined as small; medium-sized have 5000 to 19 999 and large ones have more than 20 000 inhabitants. The population density varies largely between the health regions: Eastern Norway Regional Health Authority (Health East) had the highest and the health regions Central Norway and Western Norway the lowest.

The statistics programme SPSS version 13.0 was used for all data analysis and the data were presented as simple frequency analyses. Data comparison between health regions and between districts of varying size was analyzed with the chi square test. The statistical significance level was set at $p < 0.05$. The Data Inspectorate approved the study.

Results

The data cover all 433 municipalities in Norway. At the turn of the year 2005/2006 there were 260 out-of-hours districts in the eve-

Main message

- An ordinary GP centre in a municipality is most often used as the out-of-hours service in Norway
- There is great variation between out-of-hours services in the form of staff training and discrepancy reporting
- Few municipalities conduct patient surveys and the routine for using radio communication is inadequate in several host municipalities

Table 1 Number of municipal and intermunicipal out-of-hours districts by health region

	Afternoon and evening, No. (%)			Night and weekend (%)		
Health region	Inter-municipal	Municipal	Total	Inter-municipal	Municipal	Total
East	27 (62)	16 (38)	43	24 (65)	13 (35)	37
South	22 (66)	11 (34)	33	21 (66)	11 (34)	32
West	20 (36)	35 (64)	55	20 (38)	32 (62)	52
Central-Norway	20 (38)	33 (62)	53	20 (40)	31 (60)	51
North	10 (13)	66 (87)	76	15 (25)	45 (75)	60
Sum	*99* (38)	*161* (62)	*260*	*100* (43)	*132* (57)	*232*

ning and of these 161 were without intermunicipal cooperation. There were 232 out-of-hours districts at night and weekends and of these 132 were without intermunicipal cooperation. Altogether 282 municipalities had the status of being host municipality. Results presented in this article are based on replies from all the host municipalities. Table 1 shows the number of out-of-hours districts by health region and how many of these were intermunicipal cooperations. Southern Norway Regional Health Authority (Health South) had most intermunicipal cooperations, whereas Northern Norway Regional Health Authority (Health North) had the least.

Out-of-hours service location and facilities varied (Table 2). In Health South more than one third of the out-of-hours services were located in hospitals, as opposed to 4/65 in Health Central Norway. Use of various GP centres (or surgeries) in turn was the norm in Health West and in Central Norway, whereas 10 out-of-hours districts in the country as a whole were based entirely on doctors driving. Premises (space) varied largely between the health regions; nearly all services had enough space for their work, but only one third had sleeping quarters for the doctor. One fifth of the clinics had observation beds for patients. Table 3 shows other characteristics and some routines that were recorded at the clinics. Plans for training of staff differed largely between the health regions, but training for doctors varied less.

Requests were recorded by use of a medical journal system in 227 (89 %) host municipalities, by structured paper forms in 76 (30 %), by audio log in 41 (16 %) and by the acute medical information (IT) system (AMIS, used by all Emergency Medical Communication Centres [EMCC] in Norway) in 15 (6 %). In this case 249/255 host municipalities replied.

An average-sized casualty clinic was 181 m^2. The size varied from 6 to 3700 m^2. The average number of inhabitants in the out-of-hours districts was 18 119 (444 in the smallest and 529 846 in the largest) and the average size of the districts was 1325 km^2 (11 km^2–11 035 km^2).

Small and large host municipalities

Health North had the highest number of small host municipalities in relation to the number of inhabitants (56/75). Large host municipalities dominated in Health South and Health East (11/39 in the South and 10/38 in the East). Characteristics by the size of the host municipality revealed several significant differences. Large host municipalities had most out-of-hours services linked to a hospital, as opposed to the small host municipalities where most services were linked to a GP centre (Table 4).

Out-of-hours services were located in the same place as the call centre and hospital in 12 municipalities. For out-of-hours services located in hospitals, almost all the host municipalities wrote discrepancy reports. 90 % wrote discrepancy reports in municipalities where the service was located in the same place as the call centre. In places with other organizational models, the percentage that wrote discrepancy reports varied from 38 % (only doctors on call driving) to 64 % (one GP centre with a fixed location).

Half of the host municipalities reported always using the health radio (a dedicated and restricted, nation wide communication system/network for communication within the health services) to receive and respond to

Table 2 Localization and facilities for out-of-hours services in 282 host municipalities by health region. Location percentages show the fraction of reply boxes ticked (possible to tick more than one box). Facility percentages show replies given and confirmed for each alternative. P-values give results of chi square tests for differences between health regions. The total number of replies varied from 253 to 260

	Total		East n = 38		South n = 39		West n = 62		Central-Norway n = 65		North n = 78		
	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	P-value
Localization													
With hospital	39	(15)	7	(18)	14	(36)	5	(8)	4	(6)	9	(12)	0.00
With emergency department	9	(3)	3	(8)	0	(0)	2	(3)	0	(0)	4	(5)	0.15
Own premises without call centre (telephone operator)	21	(8)	0	(0)	2	(5)	7	(11)	6	(9)	6	(8)	0.29
Own premises with call centre	54	(21)	15	(40)	14	(36)	8	(13)	6	(9)	11	(14)	0.00
One GP centre in a fixed location	120	(46)	12	(32)	9	(23)	27	(44)	32	(49)	40	(51)	0.01
GP centres in different locations	59	(23)	7	(18)	6	(15)	18	(30)	16	(25)	12	(15)	0.28
Only doctors driving to patients	10	(4)	1	(3)	1	(3)	2	(3)	2	(3)	4	(5)	0.93
Facilities													
Waiting room	251	(98)	37	(97)	34	(87)	56	(90)	58	(89)	66	(85)	0.75
Laboratory	235	(93)	34	(89)	29	(74)	54	(87)	56	(86)	62	(79)	0.37
Operating room	220	(87)	34	(89)	30	(77)	49	(79)	52	(80)	55	(71)	0.56
Sleeping facility for doctors	82	(32)	23	(60)	17	(44)	17	(27)	14	(22)	11	(14)	0.00
Suitable for wheelchair users	246	(97)	37	(97)	34	(87)	54	(87)	59	(91)	62	(79)	0.06
Ambulance entrance	198	(78)	28	(74)	29	(74)	36	(58)	53	(82)	52	(67)	0.09
Observation beds	46	(18)	6	(16)	10	(26)	7	(11)	3	(5)	20	(26)	0.01

emergency calls, but there were large differences according to the size of the district. In small- and medium-sized host municipalities 58 % were always connected to the health radio, as opposed to 19 % in the large municipalities.

Discussion

On the basis of data from all the host municipalities in Norway this study describes routines, locations and equipment in the out-of-hours districts and premises. We found differences in several important variables, both between health regions and municipalities (according to size). These differences included the plans for training medical staff, the use of health radio and the reporting of discrepancies. Many host municipalities did not adhere to some of the regulations on internal control in health and social services and acute medical care outside the hospital. Possible causes are for example that patient surveys were seldom carried out and only half of the host municipalities had doctors on call that were always accessible by radio.

The study is based on replies from all the host municipalities, which makes it fully representative. The data basis was the reply given by those responsible in the host municipality, so the validity of some of the information may be uncertain. The response rate varied for some questions, but for most of the presented data it was very good.

There were many different solutions to locating the out-of-hours service; in most places it was in the same site as a GP centre. Only having doctors driving home to patients was rare, as was combining the out-of-hours service with the accident and emergency department at the hospital. Home visits characterize the situation as it was before in most places. Using the accident and emergency department should be tested out and evaluated more before it can be recommended as a desirable solution. Most out-of-hours services had access to the same type of rooms and equipment. Most large host municipalities had their out-of-hours service linked up with a hospital. This is a viable option when the municipality is geographically small, but densely populated and has a hospital. It means a short distance to the casualty clinic for most of the inhabitants. Many patients can be dealt with at one time and hospital resources are more readily accessible. Another positive effect is the reduced need for ambulances.

In districts where the population is scarce and scattered, as in Health North, other options are probably more feasible. And yet, Health North had more out-of-hours services (percentage-wise) located in hospitals than Health West and Central-Norway. This may partly be explained by the fact that Health North have a higher population percentage in urban settlements. In spite of this most of their out-of-hours services were localized in a GP centre with a fixed location, which reflects the high number of municipal out-of-hours services.

Half of the host municipalities stated that they had a training programme for doctors and other medical staff. We did not ask for details, so we do not know if this concerned administrative routines or if acute medicine was prioritized. One wonders how new recruits, locums, or other staff manage if training is not provided. The regulation on internal control points out that those responsible are to ensure adequate knowledge among their employees (2).

Nearly all host municipalities documented all or nearly all patient contacts. Most recorded them in a medical journal system. The host municipalities could not however give a full answer as to the number of contacts made with the out-of-hours service in the course of one year. This may indicate either that it is not possible to retrieve statistics from the documentation or that this is not an integral part of routine quality assurance.

The out-of-hours service is greatly disadvantaged by the lack of national statistics of contacts and contact patterns. At the National Centre for Emergency Primary Health Care we have now started a monitoring project based on a representative selection of seven out-of-hours districts, with in all 18 municipalities and a population of about 200 000. The aim is also to collect data on the degree of urgency with each contact, i.e. to chart acute help as distinct from consultations of a low priority that the RGP can deal with during office hours.

In more than 80 % of the host municipalities, the out-of-hours services give appointments to patients. This is common for the small- and medium-sized host municipalities. Brügger & Jøsendal claim that in a municipality like Radøy (fewer than 5000 inhabitants) most contacts with the out-of-hours service were not of an acute nature; the doctors mainly practiced low urgency general

Table 3 Characteristics regarding training provided by and management of the out-of-hours services in 282 host municipalities by health region. P-values give results of the chi square tests for differences between health regions. The number of replies to individual questions varied between 239 and 257, apart from priority coding where 105 replies were given

	Total		East n = 38		South n = 39		West n = 62		Central-Norway n = 65		North n = 78		
	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	P-value
Training													
Plan for training doctors	127	(50)	19	(50)	13	(33)	29	(47)	32	(49)	34	(44)	0.78
Plan for training other health personnel	117	(47)	24	(63)	20	(51)	25	(40)	23	(35)	25	(32)	0.04
Training with EMCC	80	(32)	6	(16)	10	(26)	21	(34)	20	(31)	23	(29)	0.31
Training with ambulance staff	143	(60)	10	(26)	19	(49)	33	(53)	35	(54)	46	(59)	0.00
Other characteristics													
Member of NOKLUS	169	(70)	22	(58)	22	(56)	34	(55)	39	(60)	52	(66)	0.13
Write discrepancy reports	167	(67)	26	(68)	27	(69)	34	(55)	34	(52)	46	(59)	0.24
Have routines for discharge letters to RGPs	162	(64)	26	(68)	23	(58)	34	(55)	40	(62)	39	(50)	0.44
Patients receive appointments	206	(82)	26	(68)	27	(69)	50	(81)	47	(72)	56	(71)	0.40
Record number of phone calls	60	(25)	12	(32)	4	(10)	14	(23)	15	(23)	15	(19)	0.40
Conduct patient surveys	53	(21)	7	(18)	17	(43)	10	(16)	8	(12)	11	(14)	0.00
Inform about priority codes on arrival	95	(38)	15	(39)	18	(46)	15	(24)	22	(34)	25	(32)	0.21
Inform about priority coding to patients	61	(58)	8	(21)	13	(33)	8	(13)	12	(18)	20	(26)	0.20
Defibrillator always available	118	(46)	13	(34)	8	(21)	29	(47)	34	(52)	34	(44)	0.02
Own X-ray equipment	26	(10)	5	(13)	5	(13)	1	(2)	4	(6)	11	(14)	0.07

Table 4 Characteristics of Norwegian out-of-hours services by size of the host municipality (n = 282). P-values give results of the chi square tests for different municipality sizes. The number of replies to individual questions varied between 239 and 260

	Total (%)	Small n = 140 (%)	Medium-sized n = 106 (%)	Large n = 36 (%)	P-value
Localization					
With hospital	15	2	19	44	0.00
With emergency department	3	1	3	8	0.12
Own premises without call centre (telephone operator)	8	7	11	3	0.17
Own premises with call centre	20	7	22	58	0.00
One GP centre in a fixed location	46	54	40	8	0.00
GP centres in different locations	23	26	22	0	0.00
Only doctors on call driving to patients	4	5	3	0	0.24
Other characteristics					
Plan for training doctors	50	40	47	58	0.43
Plan for training other health personnel	47	22	52	86	0.00
Training with EMCC[1]	32	31	26	25	0.29
Training with ambulance staff	60	56	52	28	0.00
Member of NOKLUS[2]	70	60	55	75	0.02
Write discrepancy reports	67	47	62	97	0.00
Have routines for discharge letters to RGPs	64	56	54	75	0.10
Patients receive appointments	82	73	80	53	0.00
Have recorded number of telephone requests	25	17	24	31	0.42
Have conducted patient surveys	21	9	19	58	0.00
Inform about priority codes on arrival	38	24	36	64	0.00
Informs about priority coding to the patient	25	17	22	39	0.03
Defibrillator always available	46	52	39	11	0.00
Own X-ray equipment	10	13	5	8	0.05

[1] EMCC – Emergency Medical Communication Centre
[2] NOKLUS – Norwegian quality assurance of laboratories outside of hospitals

medicine in the out-of-hours service (6). Less than 40 % of the host municipalities gave patients a priority code on arrival. The large host municipalities with presumably the greatest pressure of patients and perhaps direct access to the out-of-hours services participated more in triaging patients on arrival.

70 % of the host municipalities reported that they were members of Noklus (the Norwegian Quality Improvement of Primary Care Laboratories). In comparison, nearly all of the country's GP centres with laboratories (GPs or practising specialists) took part in Noklus in 2005 (7). A GP centre may be a daytime member of Noklus, but the same routines of quality assurance may not be practiced in the evening, at night or weekends if other staff use the premises for the out-of-hours service.

The Directorate for Health and Social Affairs believes that patient surveys can give the municipalities data on quality, quantity and the population's experience of the health service and that this should be used as a means of measurement and as a guide (8). The regulation on internal control in health and social services points out that the experiences of patients and their families should be used to improve services (2). Patient surveys can be one of several means of collecting information on such experiences, but they are seldom used in the out-of-hours services. In Health South half of the host municipalities did indeed carry out patient surveys and this was twice as many as in any of the other health regions. It was largely the host municipalities that carried out the surveys.

Two thirds of the host municipalities wrote discrepancy reports. This is positive if the reports are used constructively to improve the quality of the out-of-hours service. Most host municipalities that wrote discrepancy reports were connected to out-of-hours call centres and hospitals. It is possible that these host municipalities are under the influence of already existing quality assurance requirements from other larger groups.

The regulation on requirements for acute medical services outside of hospitals explains the municipality's responsibility regarding communications equipment (3). The municipalities are required to have available equipment and emergency communications preparedness. According to this study about half of the host municipalities did not always meet the requirement for communications preparedness. Many doctors on call were not always accessible by radio and did not always respond to alarm calls from the EMCCs or the out-of-hours call centre.

In conclusion, this study has shown that there are both similarities and differences within the organization of out-of-hours services in Norway. Localization varied slightly more between the municipalities than facilities and equipment (organized in similar ways in most municipalities), even though GP centres were the norm. There are also differences in a number of routines in the health regions and in relation to the size of district. Writing discrepancy reports was more common in the larger host municipalities while the use of radio was more common in the small host municipalities. Many municipalities did not adhere to all the legal requirements.

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