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# Cooperation between ambulance personnel and doctors in out-of-hours services


## Abstract

**Background.** During the last decade, the ambulance services in Norway have upgraded their competence substantially and have become notably more professional. The purpose of this survey was to obtain new knowledge of how ambulance workers perceive their own professional competence and their relationship with other occupational groups with whom they cooperate.

**Material and method.** A questionnaire was sent to 300 persons who received authorisation as ambulance workers in the period 2002–2005. They were asked to evaluate inter-professional cooperation, professional appreciation and the competence different occupational groups have in practical handling of patients.

**Results.** The response rate was 52 %. The ambulance workers regarded the most problematic relationships to be with nurses and doctors in the out-of-hours services and with doctors at accident sites and in other emergency situations. 78 % of the ambulance workers claimed that their own occupational group has the highest competence in practical handling of patients with acute disease and injuries outside of hospitals. Nevertheless, only 19 % of them felt that occupational groups with whom they cooperate appreciate their competence.

**Interpretation.** Strengthened formal competence combined with increased possibilities for medical treatment in ambulances, may have contributed to an expanded role for ambulance personnel within prehospital emergency care. Smooth cooperation between doctors in the out-of-hours services and ambulance workers requires more knowledge of each other's procedures and increased awareness of the other party's role, something that could be partly achieved by training together in the local setting.


*The article is based on results from the project «Competence development and job situation for certified ambulance personnel» (1)*

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The ambulance services, the emergency health communication system and the municipal out-of-hours services comprise the «pillars» of the Norwegian medical emergency services outside of hospitals (2, 3). A good cooperation between these «pillars» are therefore of utmost importance to ensure that the population is offered acute medical services of high quality.

Until the end of the 1990s, the majority of ambulance workers had an education consisting of various courses taken outside of the official educational system. From 1998 and onwards, ambulance personnel have been educated in upper secondary school, which implies obtaining a certificate of completed apprenticeship in ambulance subjects and status as health personnel (founded in legislation (4)). Ambulance workers certified in this way have in a short time become the dominant group of health personnel in the ambulance services; they constituted 49 % in 2003 and 67 % in 2007, but there are regional differences (5). From 2003, certified ambulance personnel have also had the option to supplement their education with paramedic courses on a university college level (6). In addition to education through the school system, several health trusts offer their own courses for certification. Other countries have also moved towards strengthening the education of ambulance personnel; various bachelor programmes have emerged (3, 6–8). The Norwegian Health Directorate now opens up for educating ambulance personnel at a bachelor level (6). The increased competence has changed the service from being a transport service for patients who need a stretcher to become an important part of the acute medical treatment chain. These changes may have contributed to strengthening the ambulance personnel's confidence in their own competence within the multidisiciplinary cooperation outside of hospitals and expanded their sphere of authority. We have studied how ambulance workers' perceive their cooperation with other occupational groups, especially that with doctors, and how they regard their own competence.

## Material and methods

The sample investigated consisted of ambulance workers who had certificates of completed apprenticeship. We requested the Social and Health Directorate for names of all ambulance workers who were granted authorisation in the period 2002–2005. In the summer of 2006, questionnaires were sent to two groups; students enrolled in programmes for ambulance subjects in upper secondary school and candidates for practice. The first group consisted of all who became certified ambulance workers after completing the upper secondary school curriculum in the period 2002–05 (totally 149 persons). The other group consisted of a random sample of candidates for practice who received authorisation after having received certificates of completed apprenticeship

## Main message

- Ambulance workers consider the cooperation with doctors in the out-of-hours services to be especially challenging, and the feeling of professional acknowledgement correlates with their perception of this cooperation
- Ambulance workers feel they are highly competent in practical handling of patients
- Strengthening of formal competence and an expanded area of authority requires a new awareness of roles in the cooperation between ambulance workers and doctors

**Table 1** Ambulance workers' assessment of multidisciplinary cooperation. N=140–151

| *Cooperating occupational group* | *Very or quite good cooperation relations, n (%)* | *Medium good cooperation relations, n (%)* | *Quite or very bad cooperation relations, n (%)* |
|---|---|---|---|
| Firemen | 140 (93) | 10 (7) | 1 (1) |
| Health personnel in the air ambulance | 132 (87) | 13 (9) | 6 (4) |
| Police officers | 124 (82) | 24 (16) | 3 (2) |
| Health personnel in accident and emergency dept. in hospital | 117 (79) | 28 (19) | 4 (3) |
| Employees at the EMCC | 107 (71) | 31 (21) | 13 (9) |
| Doctors in their own prehospital department | 100 (71) | 32 (23) | 8 (6) |
| Doctors in the out-of-hours services | 96 (64) | 42 (28) | 12 (8) |
| Doctors in the field in connection with accidents and emergencies | 91 (62) | 42 (29) | 14 (10) |
| Nurses in the out-of-hours services | 91 (61) | 45 (30) | 14 (9) |

**Table 2** Co-variation between ambulance workers' assessment of cooperation relationships and their feeling of being acknowledged by other health workers (Spearman's correlation coefficient)

| *Who the cooperation concerns* | *Spearman's correlation coefficient* |
|---|---|
| Doctors in the field in accidents and emergencies | 0,36[1] |
| Doctors in the out-of-hours services | 0.28[1] |
| Nurses in the out-of-hours services | 0.28[1] |
| Health personnel in accident and emergency departments | 0.25[1] |
| Employees in EMCCs | 0.23[1] |
| Doctors in their own prehospital department | 0.23[1] |
| Health personnel in the air ambulance | 0.13 |
| Police offers | 0.09 |
| Firemen | 0.003 |

[1] P < 0.01

between 2003 and 05, i.e. 151 persons. A candidate for practice is a term for those who become certified «on the basis of diverse practice in the subject which is 25 % longer than the specified training time», without having followed the ordinary training from upper secondary school (which includes a training period) (9). Therefore, the total sample, consisting of the two groups, contained 300 certified ambulance workers. The Privacy Ombudsman for Research in NSD (Norwegian social scientific data service) approved the project.

The questionnaire contained questions about the ambulance workers' assessment of their own cooperation with: doctors and nurses in the out-of-hours services, doctors in the field in connection with accidents and emergencies; health personnel at EMCC (emergency medical communication centres), at accident and emergency departments and at the air ambulance; as well as with fire and police forces. The Likert's scale was used with values 1–5, where 1 = very good cooperation and 5 = very bad cooperation. The participants also gave their opinion on the statement: «I feel that ambulance workers are acknowledged professionally by other health professionals». For this, the Likert's scale values (1–5) were 1 = strong agreement and 5 = strong disagreement. The ambulance workers also assessed doctors' versus their own occupational group's competence in handling of patients with acute disease and injuries outside of hospitals.

The statistics programme SPSS 15.0 was used for the analyses. Differences between sample subgroups (e.g. sex, age, place of living, educational background and employment conditions) were examined by using Pearson's chi square test. Possible associations between how ambulance workers' regard their own cooperation with other occupational groups and whether they feel acknowledged as professionals by the groups with whom they cooperate was assessed by use of Spearman's correlation coefficient. Other aspects of the study are presented by descriptive statistics.

## Results

The response rate among the candidates from upper secondary school was 58 and that for the candidates for practice was 46, the total response rate was 52. The mean age at the time of authorisation was 25 years for those educated in upper secondary school and 40 years for the candidates for practice. 55 % of the candidates from upper secondary school and 23 % of the candidates for practice were women. An analysis of the dropout rate showed small differences between the total sample and those who responded to the questionnaire with respect to sex, age and place of living.

The ambulance workers assessed their cooperation relations to the nurses and doctors in the out-of-hours services and to the doctors in the field at accidents and emergencies as more problematic than other cooperation relationships (tab 1). Among the candidates for practice, 78 % meant they had a «very good» or «quite good cooperation» with doctors in the out-of-hours services, versus 53 % of the candidates from upper secondary school (p = 0.007). 75 % of the candidates for practice assessed the relationship to the doctors in the field in connection with accidents and emergencies as «very good» or «quite good», versus 51 % of the candidates from upper secondary school (p = 0.009).

A minority of 19 % felt that other health workers, with whom they cooperate, acknowledge their occupational group. On the other hand, 41 % felt that their occupational group was *not* acknowledged professionally and 40 % that it was partly acknowledged (middle of the scale). Pearson's chi square test showed no significant differences in the feeling of professional acknowledgement with respect to sex, age or type of candidate (upper secondary school or candidate for practice).

The feeling of being acknowledged by other professionals correlates strongly with the assessment of cooperation with doctors in the field in connection with accidents and emergencies (tab 2). Those who consider the cooperation with doctors to be good, have a tendency to feel that other health professionals acknowledge their occupational group and, on the contrary, ambulance workers who assess the cooperation as bad have a tendency to not feel acknowledged by others. The co-variation is weaker, but still significant between the feeling of being acknowledged by other professionals and the assessment of cooperation with doctors and nurses in the out-of-hours services, health personnel in accident and emergency departments in hospitals, employees in EMCC and doctors in pre-hospital departments.

78 % of the ambulance workers meant that their own occupational group had the best competence in handling of patients with acute disease and injury outside of hospitals.

14 % meant that doctors have the best competence, 3 % another type of health worker and 5 % were not sure. 26 % of those employed in private ambulance services, meant that doctors have the best competen-

ce, but this only concerned 9 % of those who were employed in national health trusts ($p = 0.031$).

## Discussion

The population studied consisted of a random sample of ambulance workers, certified from all parts of Norway. The findings should be interpreted with caution in light of the low response rate, even if the analysis of drop-outs showed very small differences between all who received questionnaires (total population) and those who responded (net population) with respect to sex, age and place of living.

Other types of studies have also shown that cooperation between ambulance personnel and the out-of-hours services is challenging, especially the experience ambulance personnel have with lack of availability, support and participation from doctors in the out-of-hours services during medical emergencies (10–13). The regulation on requirements to acute medical services outside of hospital (2) demand that the ambulance services and the out-of-hours services cooperate in the event of emergencies and are obliged to be immediately available in a nationwide radio communication system (health radio). A Norwegian study still shows that health radio is used to a varying degree by out-of-hours doctors, especially in the out-of-hours districts (14). In addition, the EMCCs do not notify doctors in the out-of-hours services sufficiently (15). These communication problems may be part of the explanation for ambulance personnel's assessment of their cooperation with out-of-hours services being more problematic than other cooperation relationships. The organisational placement of ambulance and out-of-hours services in two different organisations and health service levels represents a clear challenge when it comes to cooperation.

Ambulance workers, certified from upper secondary school, assessed the cooperation with doctors in out-of-hours services to be more problematic than the candidates for practice. The candidates for practice were 15 years older on average than those certified from upper secondary school and had a longer experience in the profession before they received their certificate. This may have contributed to their experience of the cooperation having «come around» compared with those who had recently received authorisation from upper secondary school. The findings indicate that the ambulance worker-doctor relationship should be emphasised more in the education of ambulance personnel and shortly after they have been educated.

Cooperation between occupational groups demand a clarification of what Andrew Abbott mentions as the profession's «jurisdiction», i.e. their area of responsibility and authority (16). Health legislation clearly states that when medical doctors cooperate with other health personnel, it is the doctor's responsibility to make decisions on medical issues regarding examination and treatment of the individual (4). A formal and legally established jurisdiction is, however, a static thing which is not necessarily in accordance with the complexity of the profession's informal cooperation in practice (16). Studies have shown that new medical technology may contribute to change established functions and roles (17) and that ambulance personnel have an expanded and more independent role than what is formally written in their job description (18, 19).

When almost 8 of 10 ambulance workers in our sample meant that their own profession have «the best competence to treat patients with acute disease and injuries outside of hospital» we believe that this expresses an understanding among them that handling of these patients is their main area of work and their domain. The expression «handle» is not explicit and may have been perceived differently by the respondents, but it is reasonable to relate it to knack, special grips and practical skills. Practical handling of patients is the everyday- life for ambulance workers. They can, especially in places where the out-of-hours doctor rarely comes out, feel that they «own» the acute medical field.

It is different when the doctor from the out-of-hours services accompanies the ambulance personnel. The ambulance worker who is used to adhering strictly to predefined acute medical protocols and to be given delegated duties from hospitals are then placed under direct professional supervision by the doctor from the out-of-hours services. The out-of-hours service doctors, who have a varying training and experience with emergency care assess the patient's situation on a broad basis and decide the handling without necessarily knowing these protocols and delegation routines. This is clearly a professional challenge for both groups. The doctor from the out-of-hours service has the right to take the leading role, as the ambulance worker has only been delegated the authority to perform medical treatment in the absence of a doctor from the out-of-hours district. Despite the existence of descriptions and legal regulations, this does not necessarily mean that roles are perceived as clear and restricted in all situations (16). Such lack of clarity may be an explanation for the ambulance workers' experience of cooperation problems in relation to the doctors from the out-of-hours services.

Questions have been asked about whether general practioners, especially in cities and larger intermunicipal out-of-hours districts participate in the prehospital acute medical field to a lesser degree and leave this more to the ambulance workers (11, 12, 22). When the doctors on duty in the out-of-hours services do not listen to the health radio and therefore do not hear the doctor/ambulance alarm (14), they have excluded themselves from participation. The result can be lack of experience from emergency medicine, which would make the doctor feel uncertain during such events (20). This leads to a situation where ambulance workers, who are becoming increasingly more competent and have much practical experience, become the occupational group that takes most responsibility during medical emergencies (23).

Despite much confidence in their own profession's competence with handling of acute medical events, only 19 % of the ambulance workers felt that their competence was appreciated by other cooperating professionals in the multidisciplinary team. The strongest correlation is between the feeling of professional acknowledgement and the relationship with the doctors. These quantitative results confirm findings in previous qualitative studies from Oslo and Southwest-England (19, 24). They showed that ambulance personnel often felt that their experience-based knowledge and skills were not much appreciated by other health professionals, especially not doctors. In the study from Oslo it was remarked that the feeling of not being acknowledged may have contributed to the culture «we are capable of everything» in the ambulance service, a culture which does not promote multidisciplinary cooperation.

Acknowledgement of each other's qualifications, roles and tasks is of utmost importance for the cooperation climate between the service levels and the occupational groups. Legal regulations and job descriptions constitute the frame for the cooperation, but the concrete role must evolve locally and requires practice. Regulations require both parties to work together and also have mutual training (2). It is a challenge to establish locally based acute emergency teams that have trained together *before* the day something happens, and who are familiar and feel comfortable with each other's roles and procedures.

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