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Simulation-based training and assessment of non-technical skills in the Norwegian Helicopter Emergency Medical Services: a cross-sectional survey

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ABSTRACT

Background Human error and deficient non-technical skills (NTSs) among providers of ALS in helicopter emergency medical services (HEMS) is a threat to patient and operational safety. Skills can be improved through simulation-based training and assessment.

Objective To document the current level of simulation-based training and assessment of seven generic NTSs in crew members in the Norwegian HEMS.

Methods A cross-sectional survey, either electronic or paper-based, of all 207 physicians, HEMS crew members (HCMs) and pilots working in the civilian Norwegian HEMS (11 bases), between 8 May and 25 July 2012.

Results The response rate was 82% (n=193). A large proportion of each of the professional groups lacked simulation-based training and assessment of their NTSs. Compared with pilots and HCMs, physicians undergo statistically significantly less frequent simulation-based training and assessment of their NTSs. Fifty out of 82 (61%) physicians were on call for more than 72 consecutive hours on a regular basis. Of these, 79% did not have any training in coping with fatigue. In contrast, 72 out of 73 (99%) pilots and HCMs were on call for more than 3 days in a row. Of these, 54% did not have any training in coping with fatigue.

Conclusions Our study indicates a lack of simulation-based training and assessment. Pilots and HCMs train and are assessed more frequently than physicians. All professional groups are on call for extended hours, but receive limited training in how to cope with fatigue.

INTRODUCTION

In Norway, physician-manned air ambulance helicopters support ground ambulances in emergency missions for care and retrieval, and provide inter-hospital transfer of patients. The provision of ALS to critically ill and injured patients in helicopter emergency medical services (HEMS) is a complex process characterised by shifting workload and goals, ill-structured problems, uncertainty, intense time pressure, high stakes and a set of individually complex and interacting tasks of flight-operative, medical, technical, rescue and multidisciplinary character.¹ This process is prone to human error, adverse events and ultimately iatrogenic injury,^{2,3} which are to a large degree preventable.^{1,4,5} The Norwegian HEMS conduct more than 7500 urgent and interhospital air medical patient transfers annually. More than 60% of these patients are critically ill or injured (National Advisory Committee for Aeronautics (NACA) score 4–6), and more than 12% are mechanically ventilated.⁶

Key messages

What is already known on this subject?

- Human error and deficient non-technical skills among providers of ALS in helicopter emergency medical services (HEMS) is a threat to patient and operational safety.
- Skills can be improved through simulation-based training and assessment.
- Crew resource management is a safety management strategy, mandatory for crew members in HEMS, intended to train and assess non-technical skills.

What might this study add?

- A significant number of crew members in the Norwegian HEMS lacked simulation-based training in, and assessment of, generic non-technical skills.
- All professional groups in HEMS are on call for extended hours but receive limited training in how to cope with fatigue.

Major adverse events in HEMS are rare, but the overall incidence of adverse events remains unknown.² Poor interdisciplinary communication seems to be a significant factor in adverse events in air ambulance services⁷ and during trauma resuscitation.⁸ Baseline haemodynamic instability, mechanical ventilation and on-scene calls are factors associated with increased risk of life-threatening events in transit.⁹ Human error in any of these settings can be fatal.

Crew resource management (CRM) is a conglomerate of multidisciplinary, safety-management principles and training interventions designed to reduce human error by enhancing non-technical skills (NTSs).^{10,11} NTSs can be defined as 'the cognitive, social and personal resource skills that complement technical skills, and contribute to safe and effective task performance'.^{5,12} Seven generic categories of NTSs have been suggested: situation awareness, decision-making, communication, teamwork, leadership, managing stress and coping with fatigue.¹² Systematic training and assessment of NTSs in HEMS has received little attention in the past, although CRM training is required for all crew members. The time-pressured HEMS environment is not particularly suited for experiential training of NTSs.



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Simulation-based training and assessment of NTSs, as one of several CRM training interventions, is called for and recommended.^{13–16} Multiprofessional simulation allows repetitive practice in rare conditions and potentially dangerous operations in a safe environment, reinforces understanding across disciplines, and permits real teams to train based on the knowledge of challenges and deficiencies.^{15–16} Simulation-based trauma team training has shown a significant effect on learning and team performance.^{15–17} Simulation is a useful tool for developing NTSs.¹⁴

The aim of this study was to document the current level of simulation-based training and assessment of a generic set of basic NTSs among crew members of the Norwegian HEMS. We hypothesised that crew members lacked simulation-based training in, and assessment of, NTSs. We also hypothesised that the extent of simulation-based training and assessment of these skills differed across the professional groups in this service.

METHODS

Setting

Eleven civilian HEMS bases operate in Norway today. Work is carried out by a small team (crew). Three crew members is the main crew concept. Each individual belongs to a separate profession. All of these professionals have their own group cultures and team dynamics, with different backgrounds and expertise, and they often work together only for a short period of time. The individual with his/her professional background is the basic building block from which HEMS crews are formed.¹² In addition, team composition is continually shifting. This is why we chose to stratify our analysis by profession.

The pilot is the mission commander and has primary responsibility for flight safety and navigation; the HEMS crew member (HCM) is responsible for rescue operations and assists the physician on-scene and the pilot during flight operations; meanwhile, the physician is a certified or in-training anaesthesiologist responsible for patient treatment and care on-scene and during transportation to the hospital. Only one base operates with a nurse on board in addition to the aforementioned three-man crew. This is a local adaptation and is thus not representative of the general crew composition.

Questionnaire

Eight question categories relating to education and training in NTSs were presented as an extension of a patient safety climate questionnaire (see online supplementary appendix, section I). The present study focuses on the two question categories documenting the overall extent of simulation-based training (question I6) and assessment (question I7) on a four-point ordinal scale (0, 1–2, 3–5, >5 times per year). Both question categories contained seven questions, one for each of the aforementioned seven generic NTS categories: (1) decision-making, (2) leadership, (3) communication, (4) situation awareness, (5) teamwork, (6) managing stress and (7) coping with fatigue.¹²

The questionnaire contained information on one possible explanatory variable: the maximum number of consecutive on-call duty hours, reported on a seven-point ordinal scale.

Data collection

Between 8 May and 25 July 2012, we conducted an anonymous, cross-sectional survey among all 207 physicians, HCMs and pilots working in the civilian Norwegian HEMS. To maximise the response rate, a commentary on the upcoming study was published in the *Norwegian Medical Journal*.¹⁸ The survey was distributed via both e-mail, with a link to a web-based

questionnaire (Questback), and an identical paper version (see online supplementary appendix) along with prepaid stamped return envelopes. After 2–4 weeks, all crew members received a follow-up phone call as a reminder and encouragement to answer.

Questionnaires returned with missing data on occupation or profession were excluded. We also excluded those with more than 50% missing values in order to maintain consistency with an upcoming psychometric analysis from other parts of the questionnaire relating to safety climate, but not within the scope of this survey (see online supplementary appendix). Respondents were excluded if they did not work in the civilian HEMS (eg, military search and rescue helicopter or aeroplane) and if they did not belong to the aforementioned target group of professionals (eg, nurses and paramedics).

Statistical analysis

Our unit of analysis is the professional groups rather than the HEMS crew as a whole. Descriptive data are presented as ratios or numbers. Spearman's correlation (r_s) was calculated to assess the inter-item association between each of the seven items in question categories I6 and I7. Frequency of simulation-based training and assessment of NTSs across all professional groups is presented as bar charts. The group of nurses was considered too small ($n=6$) to allow comparison of professional groups in a rigorous statistical analysis.

To assess possible differences in simulation-based training and assessment between professions, we dichotomised the items (0=no training/assessment, 1=some training/assessment) and used them as dependent variables in a series of logistic regression models, with crew type as a three-level nominal explanatory variable: physician, HCM and pilot. The last of these was used as the reference group, since the aviation industry has led the field and driven formal assessment of individual pilot's NTSs.¹⁹ Results are presented as OR with 95% CI.

Fisher's exact test was used to explore the association between crew members working for the health enterprise (physicians) or the flight operators (HCMs and pilots) and three dichotomised variables by using a two-by-two design: on-call duty hours (0=less than or equal to 72 h, 1=more than 72 h); simulation-based training and assessment (0=no training/assessment, 1=some training/assessment). Results are presented as ratios (%) and numbers, and a p value less than 0.05 was considered significant.

SPSS V.18.0 and the freeware R 2.12 were used for all calculations.

Ethics

This study was conducted in compliance with the ethics guidelines of the Helsinki Declaration. All participants received written information about the purpose of the study, and were told that the data would be collected anonymously and treated in confidence. The regional ethics committee of South-Eastern Norway (reference number 2010/3326) and the Norwegian Social Science Data Services reviewed and approved the study. Written informed consent was considered unnecessary, since responding to the questionnaire was voluntary.

RESULTS

Of the 207 people working at the 11 Norwegian HEMS bases, 172 responded (150 electronically, 22 on paper via mail), of which 158 were eligible for inclusion. Accordingly, the response rate was 81.8% (figure 1). All HEMS bases were represented among the respondents. Of the included respondents, 82

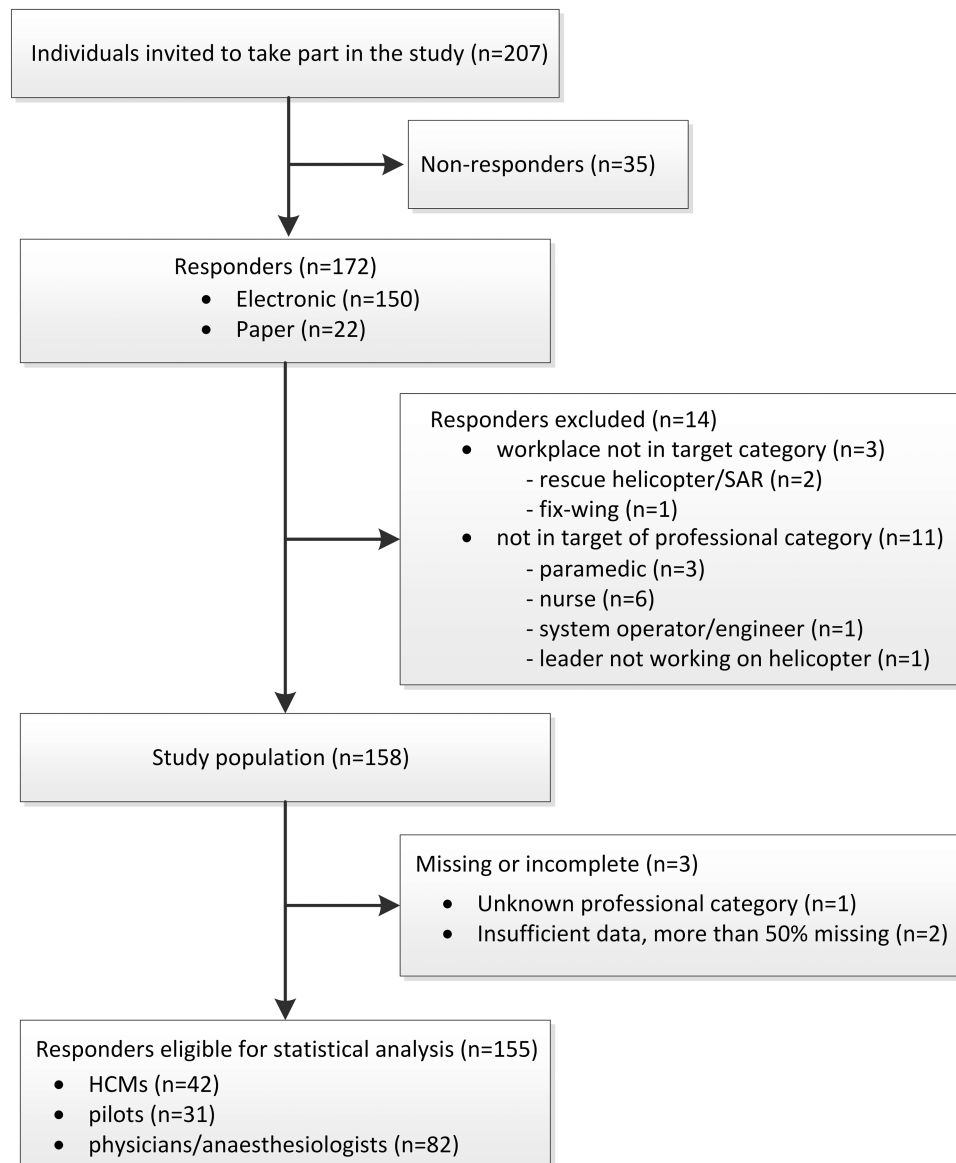


Figure 1 Participant flow through the study illustrating inclusion/exclusion of respondents. HEMS, helicopter emergency medical service; HCM, HEMS crew member; SAR, search and rescue.

(52.9%) were working for the health enterprise, and 73 (47.1%) for the flight operator. None of the HCMs had less than 5 years of prehospital experience. In contrast, 26 of the 82 physicians (31.7%) and 13 of the 32 pilots had less than 5 years of prehospital experience. Of the HCMs, 33 (78.6%) had more than 10 years of prehospital experience.

There is a strong correlation ($0.68 \leq r_s \leq 0.89$) between the generic NTS categories 1–6 related to the simulation-based training of NTSs (table 1, question category I6). Correlation between these six categories and the skill category ‘coping with fatigue’ was generally somewhat smaller ($0.53 \leq r_s \leq 0.78$). There is also a strong correlation ($0.77 \leq r_s \leq 0.91$) between the NTS categories 1–6 related to the assessment of NTSs (table 1, question category I7). Correlation between these six categories and the skill category ‘coping with fatigue’ was distinctly smaller ($0.62 \leq r_s \leq 0.76$).

Visual inspection of the bar charts of the frequency of simulation-based training (figure 2) and assessment (figure 3) indicate that HCMs generally appear to train and undergo

assessment more frequently, and physicians less frequently, than pilots.

These apparent differences in simulation-based training between groups of crew members are, however, not statistically significant (table 2, question category I6). The tendency for ORs to be larger for HCMs and smaller for physicians can be seen across all skill categories, but CIs are wide.

Physicians are assessed significantly less frequently than pilots (table 2, question category I7), but the differences between HCMs and pilots are not statistically significant. There is, however, also a tendency here for ORs to be larger for HCMs and smaller for physicians across all skill categories.

Compared with employees working for the flight operator (pilots and HCMs), employees working for the health enterprise (physicians) undergo statistically significantly less frequent simulation-based training (table 3, question category I6) and assessment (table 3, question category I7).

All professional groups work longer hours and are exposed to significant fatigue. Of the hospital employees, 50 out of 82

Table 1 Inter-item correlations (Spearman r , r_s) between each of the seven generic non-technical skills (NTSs) in the question categories I6 and I7

Question category	NTS category	1	2	3	4	5	6	7
I6: Simulation-based training of NTSs (144≤n≤150)	1. Decision-making	–						
	2. Leadership	0.85	–					
	3. Communication	0.89	0.88	–				
	4. Situation awareness	0.81	0.80	0.85	–			
	5. Teamwork	0.85	0.77	0.85	0.83	–		
	6. Managing stress	0.77	0.71	0.71	0.74	0.68	–	
	7. Coping with fatigue	0.59	0.60	0.56	0.61	0.53	0.78	–
I7: Assessment of NTSs (145≤n≤149)	1. Decision-making	–						
	2. Leadership	0.91	–					
	3. Communication	0.90	0.89	–				
	4. Situation awareness	0.86	0.81	0.90	–			
	5. Teamwork	0.88	0.87	0.83	0.82	–		
	6. Managing stress	0.80	0.80	0.77	0.80	0.82	–	
	7. Coping with fatigue	0.65	0.66	0.62	0.68	0.62	0.76	–

Missing values were excluded pairwise. All correlations (I6 and I7) reached statistical significance at the 0.01 level (two-tailed).

(61%) were on call for more than 72 consecutive hours on a regular basis. Of these, 79% did not have any training in coping with fatigue. In contrast, 72 out of 73 (99%) pilots and HCMs were on call for more than 3 days in a row. Of these, 54% did not have any training in coping with fatigue.

DISCUSSION

This is the first study of simulation-based training and assessment of NTSs in the Norwegian HEMS. We found considerable variation in the extent of simulation-based training and assessment of NTSs among the crew members. A significant number of crew members reported complete absence of simulation-based training and assessment.

The strength of correlations between the NTS categories was generally high. That is, the more respondents train or undergo assessment in one of the NTS categories, the more they

generally train or undergo assessment in other NTS categories. The item 'coping with fatigue' differs from the other skill categories, which might reflect the fact that it is not an explicit skill category but rather an item that influences the others.

Lack of simulation-based training

The need for training in complex environments is often underestimated.⁴ Our data indicate that, compared with HCMs and pilots, a statistically significantly smaller proportion of HEMS physicians have undergone simulation-based NTS training. Similarly, as early as 2001, it was suggested that anaesthesiologists lacked training in NTSs for critical situations in hospitals.¹⁰ To overcome this, Gaba and colleagues created a simulation-based curriculum based on key principles from aviation CRM training.¹⁰ Differences in task environment and professional cultures may help to provide an answer to what we have revealed.

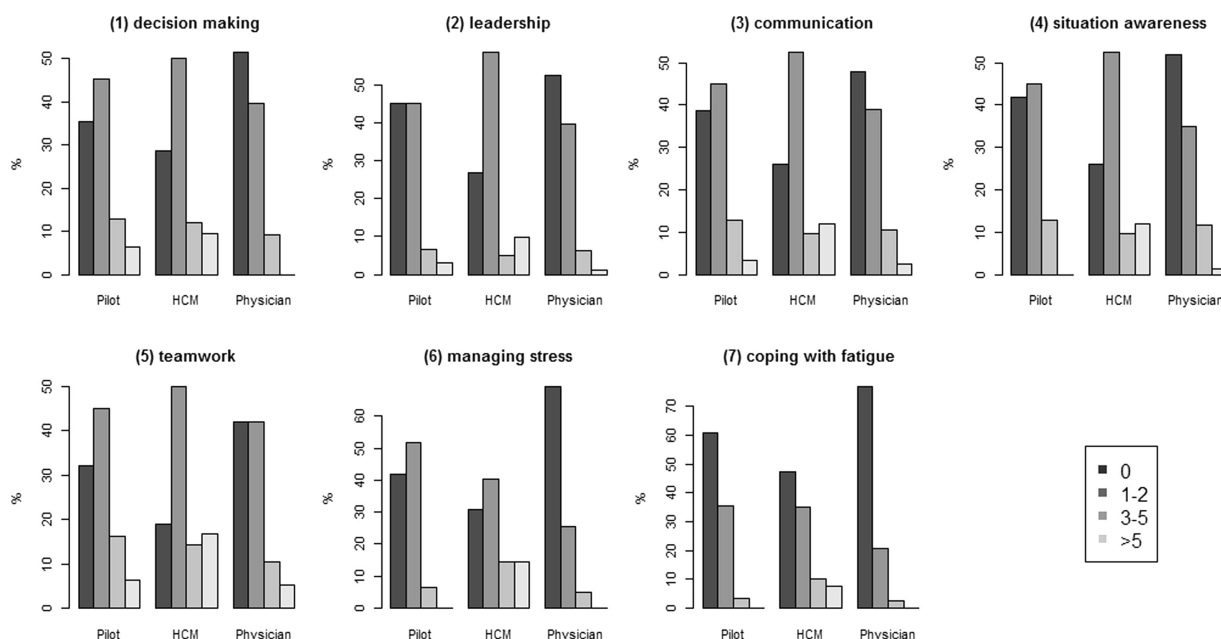


Figure 2 Multidisciplinary, prehospital simulation-based training of generic non-technical skills (1–7) in 2011.¹ Complete answers from each of the three professional groups in a HEMS crew (horizontal axis) across four ordinal categories of frequency within a year (box). Proportion of individuals (relative frequency, %) within each professional group on vertical axis. HEMS, helicopter emergency medical service.

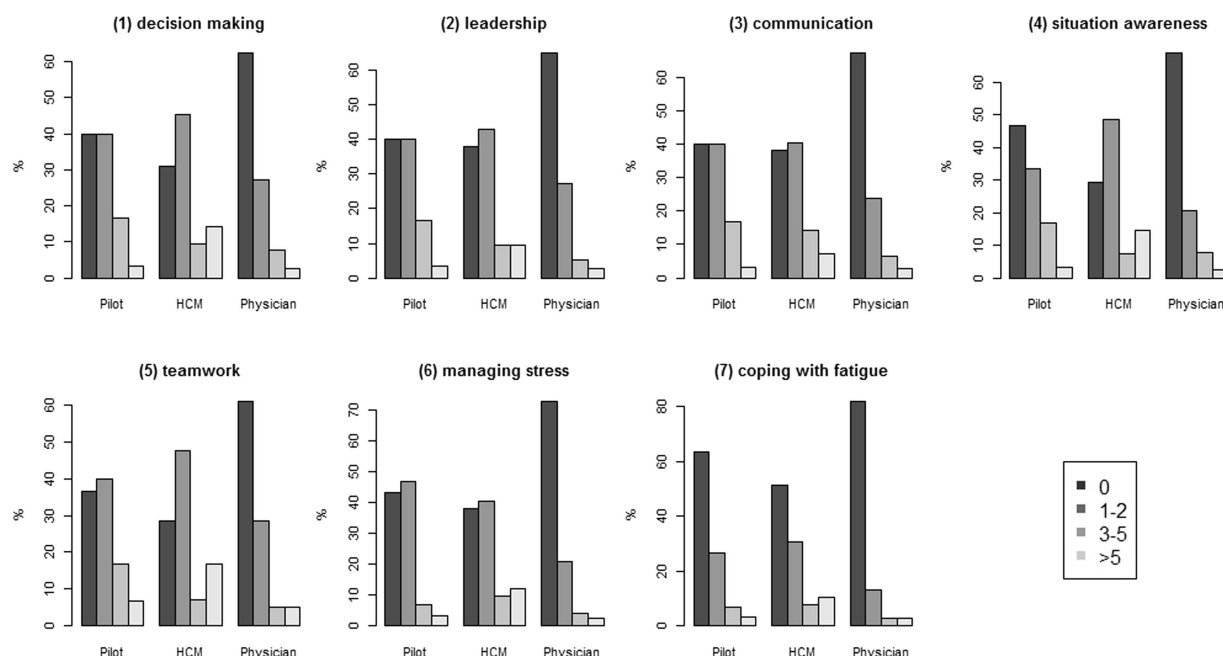


Figure 3 Assessment of seven (1–7) generic non-technical skills in 2011.¹ Complete answers from each of the three professional groups in a HEMS crew (horizontal axis) across four ordinal categories of frequency within a year (box). Proportion of individuals (relative frequency, %) within each professional group on vertical axis. HEMS, helicopter emergency medical service.

It is claimed that aviation is more procedure-based than prehospital critical care, and hence it is easier to train and assess crew in its process. Airline staff also have longer traditions of recurrent training in, and evaluation of, NTSs than medical staff.¹⁰ In addition, the professional cultures differ markedly. Aviation staff have managed to change the professional culture into one that recognises human limitations and the need for NTS training,²⁰ while cultural resistance against extending CRM training into the medical domain has been reported.²¹ Another obstacle to training is that simulation-based training is a time-consuming and often costly activity that will disrupt clinical duties. A competent facilitator is needed to design and prepare a scenario, and the crew members need time for training and debriefing.

Lack of assessment

Similar to our findings on simulation-based training, physicians undergo NTS assessment significantly less often than the other professional groups. Domain-specific NTSs have been identified, and assessment tools have been developed, for teams and individuals in medical teams, but not in the context of prehospital critical care²² and HEMS. Without a frame of reference, the description and evaluation of NTSs will be ambiguous. What is assessed, how it is assessed and how this information is used will vary—and ultimately training may not be assessed at all. This may well be the reason for the lack of assessment in our data. Without carrying out thorough evaluations, it can be difficult to test skills, to provide feedback on skill development, to

Table 2 OR with 95% CIs for physicians and HEMS crew members (HCMs) having undergone simulation-based training (question category I6) and assessment (question category I7) of seven (1–7) generic non-technical skills (NTSs),¹ compared with the group of pilots

Question category	NTS category (n)	Physician			HCM		
		OR (95% CI)	p Value	n _{phys} (missing)	OR (95% CI)	p Value	n _{HCM} (missing)
I6: Simulation-based training of NTSs	1. Decision-making (n=149)	0.52 (0.22 to 1.24)	0.139	76 (6)	1.38 (0.51 to 3.72)	0.530	42 (0)
	2. Leadership (n=150)	0.74 (0.32 to 1.71)	0.486	78 (4)	2.25 (0.84 to 6.04)	0.109	41 (1)
	3. Communication (n=150)	0.68 (0.29 to 1.60)	0.379	77 (5)	1.78 (0.66 to 4.83)	0.257	42 (0)
	4. Situation awareness (n=150)	0.67 (0.29 to 1.55)	0.348	77 (5)	2.04 (0.76 to 5.48)	0.160	42 (0)
	5. Teamwork (n=149)	0.66 (0.27 to 1.58)	0.346	76 (6)	2.02 (0.69 to 5.94)	0.200	42 (0)
	6. Managing stress (n=151)	0.32 (0.14 to 0.76)	0.010	78 (4)	1.61 (0.61 to 4.24)	0.334	42 (0)
	7. Coping with fatigue (n=146)	0.46 (0.18 to 1.17)	0.103	78 (4)	1.71 (0.64 to 4.55)	0.284	40 (2)
I7: Assessment of NTSs	1. Decision-making (n=149)	0.40 (0.17 to 0.96)	0.039	77 (5)	1.49 (0.56 to 3.97)	0.428	42 (0)
	2. Leadership (n=149)	0.36 (0.15 to 0.86)	0.021	77 (5)	1.08 (0.42 to 2.83)	0.870	42 (0)
	3. Communication (n=148)	0.33 (0.14 to 0.78)	0.012	76 (6)	1.08 (0.42 to 2.83)	0.870	42 (0)
	4. Situation awareness (n=148)	0.40 (0.17 to 0.94)	0.036	77 (5)	2.12 (0.79 to 5.65)	0.136	41 (1)
	5. Teamwork (n=149)	0.37 (0.15 to 0.88)	0.025	77 (5)	1.45 (0.58 to 3.93)	0.469	42 (0)
	6. Managing stress (n=149)	0.29 (0.12 to 0.69)	0.005	77 (5)	1.24 (0.48 to 3.23)	0.655	42 (0)
	7. Coping with fatigue (n=146)	0.38 (0.15 to 0.98)	0.046	77 (5)	1.64 (0.64 to 4.34)	0.318	39 (3)

Significance at level 0.05.

Table 3 Proportion (%) of crew members in helicopter emergency medical services (HEMS) working for the health enterprise (physicians) and for the flight operator (HEMS crew members (HCMs) and pilots) who have undergone simulation-based training (question category I6) and assessment (question category I7) of seven (1–7) generic non-technical skills (NTSs)¹

Question category	NTS category	Health enterprise employee	Flight operator employee	N (missing)	p Value (2-sided)
I6: Simulation-based training of NTSs	1. Decision-making	37/76 (48.7%)	50/73 (68.5%)	149 (6)	0.020
	2. Leadership	37/78 (47.4%)	47/72 (65.3%)	150 (5)	0.033
	3. Communication	40/77 (51.9%)	50/73 (68.5%)	150 (5)	0.046
	4. Situation awareness	37/77 (48.1%)	49/73 (67.1%)	150 (5)	0.021
	5. Teamwork	44/76 (57.9%)	55/73 (75.3%)	149 (6)	0.037
	6. Managing stress	24/78 (30.8%)	47/73 (64.3%)	151 (4)	<0.001
	7. Coping with fatigue	18/78 (23.8%)	32/68 (47.1%)	146 (9)	0.003
I7: Assessment of NTSs	1. Decision-making	29/77 (37.7%)	47/72 (65.3%)	149 (6)	0.001
	2. Leadership	27/77 (35.1%)	44/72 (61.1%)	149 (6)	0.002
	3. Communication	25/76 (32.9%)	44/72 (61.1%)	148 (7)	0.001
	4. Situation awareness	24/77 (31.2%)	45/71 (63.3%)	148 (7)	<0.001
	5. Teamwork	30/77 (38.9%)	49/72 (68.1%)	149 (6)	<0.001
	6. Managing stress	21/77 (27.3%)	43/72 (59.7%)	149 (6)	<0.001
	7. Coping with fatigue	14/77 (18.2%)	30/69 (43.5%)	146 (9)	0.001

Comparison of health enterprise employees with flight operator employees using Fisher's exact test (two-sided). Significance at level 0.05.

point out strengths and identify training needs, and to determine whether an NTS training programme (CRM) is effective at improving the skills in question.¹²

Teamwork

Single- and multi-disciplinary team training are complementary methods, and personnel should participate in both to develop teamwork skills.¹⁰ Our data imply that not all simulation training takes place within the framework of a complete multidisciplinary HEMS crew.

Team performance may directly affect patient safety.^{10–16} A shared understanding—a shared mental model—of the task in hand and of the other team members' roles has been identified as one important characteristic of a high-performance team.^{10–12} The physician and the HCM are primarily responsible for providing patient care on-scene. The pilot is the only crew member with no formal medical skill competencies, and he is thus least qualified to take part in the medical treatment. However, the pilot is often involved in simpler patient-related tasks to assist the medical crew, such as checking of medical equipment, resuscitation and preparing the patient for transport on the stretcher. This is similar to the physician, who does not have formal flight training, but has responsibilities related to flight safety both during take-off and landing and in-flight in order to supplement the pilot and the HCM. These tasks require teamwork and understanding across disciplines.

Duty hours

Regularly scheduled on-call duty for Norwegian HCMs lasts for up to 7 consecutive days around the clock. This is much longer than similar rotor-wing air medical programmes in the USA, where the maximum shift length has been reported to be 48 h.²³ A high number of duty hours a week is common among emergency medical service providers, and has been suggested to be in part culturally determined. Long shifts and on-call working is recognised as a risk to patients and operational safety.^{23–24} The workload and frequency of HEMS missions will vary during the on-call period. On-duty rest and sleep is permitted for all crew members in Norway and must be obtained between missions. Working at night, for irregular hours, is inevitable and results in disrupted sleep and a displaced sleep schedule, which might affect mental performance, health and the risk

of adverse events.^{23–24} To prevent fatigue, pilots and HCMs are protected by flight time limitations and rest time rules,²⁵ but these regulations do not deal with quality of rest and sleep between missions. HEMS physicians in Norway are protected by the same rest and sleep regulations as pilots and HCMs, but the regulations are enforced differently in different HEMS bases. Crew members in our study reported that they receive limited training on how to recognise and cope with fatigue.

Strengths and limitations of the study

The response rate for the survey was 81.8%, with few data missing, which is considered satisfactory and is a strength of the study. The study is limited by its small sample size. Despite a high response rate, which increases effective sample size and reduces non-responder bias, the number of respondents was too small to detect statistically significant differences between all the professional groups.

The study was limited to a set of seven broad generic NTS categories claimed to have general applicability across a wide range of high-risk work settings.¹² The questions did not differentiate between composite team assessment and individual performance assessment.¹²

We did not include conceptual explanations and definitions in our questionnaire. We assumed that the crew members already shared a common vocabulary for discussing the basic principles of NTSs, since CRM training is mandatory for all crew members in Norway.

In order to achieve maximum response rates, both a paper version and an electronic version of the questionnaire were made available at the same time in the data-collection period. We emphasised that each respondent had to fill out only one form each, either paper or electronic. We considered the likelihood of multiple responses from one individual very small and the advantage of a high response rate correspondingly large. There is still a possibility that a single respondent may have filled out more than one form.

The questionnaire was anonymous, and responding to the questionnaire was voluntary. However, there is a possibility that respondents to this type of questionnaire do not respond truthfully, or do not remember details exactly. This may result in under- or over-reporting. We do not have any information about the non-responders.

Implications

This study has implications for current practice and future research. Existing training requirements, and assessment criteria, for Norwegian HCMs are based on generalised statements of performance outputs. They do not clearly specify how often training for and assessment of NTSs should be. Mandatory NTS training requirements for crew members in the civilian Norwegian HEMS need to be specified as an incentive to train, with a view to licensing and registration. Special emphasis needs to be placed on patient safety issues relating to fatigue and sleep homeostasis among crew members in HEMS. Future research might explore how to increase frequency of simulation-based NTS training with minimal disruption to clinical duties and with little expense.

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Contributors HBA: guarantor of the manuscript and responsible for the integrity of the data and the accuracy of the data analysis; conceived and designed the study; data collection, statistical analysis and interpretation of the data; and drafting, writing, review and incorporating coauthor feedback, revision, and final approval of the submission. SJMS: contributed to the concept and design, analysis and interpretation of the data, and the writing, review, revision and approval of the manuscript. LSÖ: contributed to the concept and design; analysis and interpretation of the data; and the drafting, writing, review, revision and approval of the manuscript. JR: contributed to statistical analysis and interpretation of the data; and the writing, review, revision of the article for important intellectual content, and approval of the manuscript. GTB: contributed to the concept and design; analysis and interpretation of the data; and the drafting, writing, review, revision and approval of the manuscript.

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Competing interests HBA is employed in a 70% clinical position at Stavanger University Hospital where he works as a consultant doctor at the Department of Anaesthesiology and Intensive Care. He is working in the prehospital services at the air ambulance base in Stavanger as part of his clinical position. HBA is a PhD fellow in a 50% position at the Norwegian Air Ambulance Foundation and the University of Bergen.

Ethics approval The regional ethics committee of South-Eastern Norway (reference number 2010/3326) and the Norwegian Social Science Data Services reviewed and approved the study.

Provenance and peer review Not commissioned; externally peer reviewed.

Data sharing statement There exist additional data on safety climate and crew members' perceptions of simulation-based training and assessment. These data are available to HBA, GTB, SJMS and LSÖ.

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Bakgrunn Menneskelig svikt og mangelfulle ikke-tekniske ferdigheter blant personell som jobber i legehelikopter tjenesten er en trussel mot pasientsikkerhet og operativ sikkerhet. Ferdigheter kan forbedres ved hjelp av simuleringsbasert trening og evaluering.

Målsetting Dokumentere omfanget av simuleringsbasert trening og evaluering av syv generiske, ikke-tekniske ferdigheter blant crewmedlemmer i den norske legehelikopter tjenesten.

Metode Elektronisk og papir basert tverrsnittsundersøkelse blant alle leger, redningsmenn og piloter som jobbet i den norske, sivile legehelikopter tjenesten (11 baser) i perioden mellom 8. mai og 25. juli 2012.

Resultat Respons raten var 82% (n=193). En stor andel av både leger, redningsmenn og piloter hadde ikke gjennomført simuleringsbasert trening av ikke-tekniske ferdigheter eller fått disse ferdighetene evaluert. Sammenliknet med piloter og redningsmenn trener legene signifikant sjeldnere på forbedring av sine ikke-tekniske ferdigheter. Femti av 82 (61%) leger hadde sammenhengende vakt i mer enn 72 timer, hvorav 79% ikke hadde trening i å takle fatigue. Til sammenlikning hadde 72 av 73 (99%) piloter og redningsmenn vakt sammenhengende i tre døgn, hvorav 54% ikke hadde fått trening i å takle fatigue.

Konklusjon Studien indikerer mangel på simuleringsbasert trening og evaluering av slik trening blant personell som jobber i legehelikoptertjenesten. Piloter og redningsmenn trener, og blir evaluert, hyppigere enn leger. Samtlige crew-medlemmer jobber lange vakter, men får begrenset trening i hvordan de kan takle fatigue.



Patient safety in pre-hospital services

Instructions

- This survey maps your opinion to patient safety, adverse events and event-reporting in your pre-hospital service.
- You have received an e-mail with a link to a web based questionnaire. You are free to chose whether you prefer to use this link or answer the identical paper-version of the questionnaire. In case you have not received an e-mail from us it is desirable that you fill out the paper-version.
- The survey is anonymous. Your answers will be handled strictly confidential and your identity will not be traceable.
- Read the statements carefully. Be honest when answering. For each of the statements choose the one that fits best. The questionnaire should take approximately 15 minutes to complete.
- Use black or blue pen. Mark your choice with a cross.
- Please post the questionnaire in pre-paid stamped envelope as soon as possible.

- An **"adverse event"** is defined as an accidental event due to medical examination and/or treatment.
- **"Your unit"** is defined as the pre-hospital base or station where you primarily work. *EXAMPLE: An ambulance station or a helicopter base which geographically is located in the same area and belongs to the same hospital, is considered as different pre-hospital units.*
- The terms **"with us"** and **"management"** refer to the unit where you primarily work, and to the management in this unit, respectively.

A: Your Work Area/Unit and patient safety

Please indicate your agreement or disagreement with the following statements

Think about your unit...	Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
1. People support one another in this unit	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
2. We have enough staff to handle the workload.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
3. When a lot of work needs to be done quickly, we work together as a team to get the work done	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
4. In this unit, people treat each other with respect	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
5. Staff in this unit work longer hours than is best for patient care	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
6. We are actively doing things to improve patient safety.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
7. We use more agency/temporary staff than is best for patient care	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
8. Staff feel like their mistakes are held against them	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

**A: Your Work Area/Unit and patient safety (continued)**

Think about your unit...	Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
9. Mistakes have led to positive changes here	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
10. It is just by chance that more serious mistakes do not happen around here.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
11. When one area in this unit gets really busy, others help out	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
12. When an event is reported, it feels like the person is being written up, not the problem.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
13. After we make changes to improve patient safety, we evaluate their effectiveness.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
14. We work in "crisis mode" trying to do too much, too quickly.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
15. Patient safety is never sacrificed to get more work done	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
16. Staff worry that mistakes they make are kept in their personnel file.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
17. We have patient safety problems in this unit	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
18. Our procedures and systems are good at preventing errors from happening	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
19. I will ask my colleagues to stop work I consider is done in an unsafe manner.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
20. I will report if I become aware of a dangerous situation.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

B: Safety of employees

Please indicate your agreement or disagreement with the following statements?

Think about your unit...	Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
1. My colleagues will stop me if I work in an unsafe manner.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
2. I will stop doing my job if I think it might be dangerous for me or others to continue	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

C: Your Supervisor/Manager

Please indicate your agreement or disagreement with the following statements about your immediate supervisor/manager or person to whom you directly report

	Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
1. My supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
2. My supervisor/manager seriously considers staff suggestions for improving patient safety	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
3. Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
4. My supervisor/manager overlooks patient-safety problems that happen over and over	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

**D: Communications**

How often do the following things happen in your work area/unit?

Think about your work area/unit...	Never ▼	Rarely ▼	Some- times ▼	Most of the time ▼	Always ▼
1. We are given feedback about changes put into place based on event reports.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
2. Staff will freely speak up if they see something that may negatively affect patient care	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
3. We are informed about errors that happen in this unit.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
4. Staff feel free to question the decisions or actions of those with more authority	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
5. In this unit we discuss ways to prevent errors from happening again	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
6. Staff are afraid to ask questions when something does not seem right ...	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

E: Patient Safety Grade

Please give your work area/unit in this hospital an overall grade on patient safety.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A	B	C	D	E
Excellent	Very Good	Acceptable	Poor	Failing

F: Frequency of Events Reported

In your work area/unit, when the following mistakes happen, how often are they reported?

Think about your unit...	Never ▼	Rarely ▼	Some- times ▼	Most of the time ▼	Always ▼
1. When a mistake is made, but is <u>caught and corrected before affecting the patient</u> , how often is this reported?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
2. When a mistake is made, but has <u>no potential to harm the patient</u> , how often is it reported?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
3. When a mistake is made that <u>could harm the patient</u> , but does not, how often is this reported?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

G: Number of Events Reported

In the past 12 months, how many event reports have you filled out and submitted?

<input type="checkbox"/> a. No events reported	<input type="checkbox"/> d. 6 to 10 event reports
<input type="checkbox"/> b. 1 to 2 event reports	<input type="checkbox"/> e. 11 to 20 event reports
<input type="checkbox"/> c. 3 to 5 event reports	<input type="checkbox"/> f. 21 event reports or more

**H: The pre-hospital system**

Please indicate your agreement or disagreement with the following statements about your pre-hospital system.

	Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
Think about your pre-hospital system...					
1. Management provides a work climate that promotes patient safety.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
2. Pre-hospital units do not coordinate well with each other.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
3. Things "fall between the cracks" when transferring patients from one unit	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
4. There is good cooperation among hospital units that need to work together.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
5. Important patient care information is often lost during shift changes.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
6. It is often unpleasant to work with staff from other units.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
7. Problems often occur in the exchange of information across pre-hospital units.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
8. The actions of pre-hospital management show that patient safety is a top priority	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
9. Management seems interested in patient safety only after an adverse event happens	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
10. Prehospital units work well together to provide the best care for patients	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
11. Handovers are problematic for patients in this prehospital system.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

I: Education and training

1. Which of the skills below have you received training in before you started working in the pre-hospital system?

	Training ▼	NO training ▼
One cross for each of the categories a to g.		
a. Decision-making.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
b. Leadership.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
c. Communication.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
d. Situation awareness	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
e. Teamwork.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
f. Managing stress.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
g. Coping with fatigue.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂

2. During the last 12 months, how many times have you observed a colleague at work for exchange of experience

- ☐ a. None ☐ b. 1-2 times ☐ c. 3-5 times ☐ d. More than 5 times

**3. Specify the extent of theoretical training you have been given in each of the pre-hospital skills below.**

	0 hour ▼	0-3 hours ▼	3-7 hours ▼	7-14 hours ▼	More than 14 hours ▼
One cross for each of the categories a to g.					
a. Decision-making	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
b. Leadership	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
c. Communication	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
d. Situation awareness	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
e. Teamwork	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
f. Managing stress	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
g. Coping with fatigue	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

4. Specify the extent of practical training you have been given in each of the pre-hospital skills below.

	0 hours ▼	0-3 hours ▼	3-7 hours ▼	7-14 hours ▼	More than 14 hours ▼
One cross for each of the categories a to g.					
a. Decision-making	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
b. Leadership	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
c. Communication	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
d. Situation awareness	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
e. Teamwork	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
f. Managing stress	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
g. Coping with fatigue	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

5. Do you feel that your pre-hospital skills are deficient related to challenges you have to face in your daily work.

	Deficient ▼	NOT deficient ▼
One cross for each of the categories a to g.		
a. Decision-making.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
b. Leadership.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
c. Communication.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
d. Situasjonsbevissthet.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
e. Teamwork.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
f. Managing stress.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
g. Coping with fatigue.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂



6. How many times during 2011 did you participate in multidisciplinary pre-hospital simulation-based training of one or more of the skills below, along with your professional partners.

	0 times ▼	1-2 times ▼	3-5 times ▼	More than 5 times ▼
One cross for each of the categories a til g.				
a. Decision-making	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
b. Leadership	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
c. Communication	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
d. Situation awareness	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
e. Teamwork	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
f. Managing stress	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
g. Coping with fatigue	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

7. How many times during 2011 were your pre-hospital skills systematically observed and evaluated?

	0 times ▼	1-2 times ▼	3-5 times ▼	More than 5 times ▼
One cross for each of the categories a to g.				
a. Decision-making	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
b. Leadership	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
c. Communication	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
d. Situation awareness	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
e. Teamwork	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
f. Managing stress	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
g. Coping with fatigue	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

8. Do your pre-hospital skills satisfy the skills requirement for your profession?

	Yes ▼	No ▼	Do not know ▼
One cross for each of the categories a to g.			
a. Decision-making	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
b. Leadership	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
c. Communication	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
d. Situation awareness	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
e. Teamwork	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
f. Managing stress	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
g. Coping with fatigue	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3



J: Background Information

1. What is your primary work area/profession? Select ONE option or specify.

- | | | |
|--|--|--|
| <input type="checkbox"/> a. Ambulance helicopter | <input type="checkbox"/> d. Physician manned car ambulance | <input type="checkbox"/> g. Ambulance boat |
| <input type="checkbox"/> b. Search and Rescue helicopter (SAR) | <input type="checkbox"/> e. Intensive care ambulance | <input type="checkbox"/> h. Other, please specify: |
| <input type="checkbox"/> c. Ambulance plane | <input type="checkbox"/> f. Ambulance car | <div style="border: 1px solid black; height: 20px; width: 350px;"></div> |

2. Where is your primary pre-hospital unit located? Select ONE option or please specify.

- | | | |
|---|--|--|
| <input type="checkbox"/> a. Alta | <input type="checkbox"/> h. Florø | <input type="checkbox"/> o. Stavanger |
| <input type="checkbox"/> b. Arendal | <input type="checkbox"/> i. Førde | <input type="checkbox"/> p. Tromsø |
| <input type="checkbox"/> c. Banak | <input type="checkbox"/> j. Gardermoen | <input type="checkbox"/> q. Trondheim |
| <input type="checkbox"/> d. Bergen | <input type="checkbox"/> k. Kirkenes | <input type="checkbox"/> r. Ørland |
| <input type="checkbox"/> e. Bodø | <input type="checkbox"/> l. Lørenskog | <input type="checkbox"/> s. Ål |
| <input type="checkbox"/> f. Brønnøysund | <input type="checkbox"/> m. Rygge | <input type="checkbox"/> t. Ålesund |
| <input type="checkbox"/> g. Dombås | <input type="checkbox"/> n. Sola | <input type="checkbox"/> u. Other, please specify: |
-

3. In your staff position, do you typically have direct interaction or contact with patients?

- ☐ a. YES, I typically have direct interaction or contact with patients.
- ☐ b. NO, I typically do NOT have direct interaction or contact with patients.

4. What is your staff position? Select one answer that best describes your staff position.

- | | |
|--|--|
| <input type="checkbox"/> a. Pilot | <input type="checkbox"/> g. Physician, anaesthesiologist |
| <input type="checkbox"/> b. HEMS Crew Member (HCM) | <input type="checkbox"/> h. Ambulance worker |
| <input type="checkbox"/> c. Nurse anaesthetist | <input type="checkbox"/> i. Paramedic |
| <input type="checkbox"/> d. Nurse, intensive care | <input type="checkbox"/> j. System operator |
| <input type="checkbox"/> e. Registered Nurse | <input type="checkbox"/> k. Engenieer |
| <input type="checkbox"/> f. Physician in training, anaesthesiology | <input type="checkbox"/> l. Other, please specify: |
-

5. How long have you worked in the pre-hospital system?

- | | |
|--|--|
| <input type="checkbox"/> a. Less than 1 year | <input type="checkbox"/> d. 11 to 15 years |
| <input type="checkbox"/> b. 1 to 5 years | <input type="checkbox"/> e. 16 to 20 years |
| <input type="checkbox"/> c. 6 to 10 years | <input type="checkbox"/> f. 21 years or more |



6. How many consecutive hours do your regularly scheduled on-call duty last at most?

- | | |
|--|---|
| <input type="checkbox"/> a. 7-12 hours | <input type="checkbox"/> e. 73-96 hours (3-4 days) |
| <input type="checkbox"/> b. 13-24 hours | <input type="checkbox"/> f. 97-168 hours (4-7 days) |
| <input type="checkbox"/> c. 25-48 hours (1-2 days) | <input type="checkbox"/> g. Over 169 hours (7 days) |
| <input type="checkbox"/> d. 49-72 hours (2-3 days) | |

7. How long have you worked in your current speciality or profession?

- | | |
|--|--|
| <input type="checkbox"/> a. Less than 1 year | <input type="checkbox"/> d. 11 to 15 years |
| <input type="checkbox"/> b. 1 to 5 years | <input type="checkbox"/> e. 16 to 20 years |
| <input type="checkbox"/> c. 6 to 10 years | <input type="checkbox"/> f. 21 years or more |

K: Your comments

Think about threats against patient safety...

1. Which are the three most prevalent events you have observed or caused yourself in the pre-hospital environment?

2. Which are the three measures that you think could improve pre-hospital patient safety.

3. Please feel free to write any comments about patient safety, error, or event-reporting in your pre-hospital system.

Please put the questionnaire in the franked return envelope and post it as soon as possible.

THANK YOU FOR COMPLETING THIS SURVEY!



Spørreundersøkelse om pasientsikkerhet i prehospitale tjenester

Veiledning

- Undersøkelsen kartlegger ditt syn på pasientsikkerhet, uønskede hendelser og hendelsesrapportering i den prehospitale tjenesten der du jobber.
- En lenke til et tilsvarende elektronisk skjema er sendt deg på e-post. Du kan velge om du vil fylle ut elektronisk eller på papir. Om du ikke har fått tilsendt lenke er det ønskelig at du benytter papirskjema.
- Undersøkelsen er anonym, besvarelsen behandles strengt konfidensielt og din identitet vil ikke kunne spores.
- Les utsagnene nøye. Vær ærlig når du svarer. For hvert av utsagnene krysser du av for det alternativet som passer best.
- Det tar ca 15 min å fylle ut skjemaet.
- Bruk blå eller svart penn. Marker dine valg med et kryss.
- Utfylt skjema postlegges i ferdig frankert returkonvolutt snarest

- En "uønsket hendelse" er definert som en utilsiktet hendelse som følge av medisinsk undersøkelse og/eller behandling.
- "Din enhet" er definert som den prehospitale basen eller stasjonen du primært arbeider ved. EKSEMPEL: En ambulansestasjon og en helikopterbase som geografisk er lokalisert på samme sted og tilhører samme helseforetak, betraktes her som ulike prehospitale enheter
- Med uttrykkene "hos oss" og "ledelsen" refereres fortrinnsvis til enheten hvor du arbeider primært, og til lederne i denne enheten.

A: Generelt om arbeidet og pasientsikkerhet

Hvor enig eller uenig er du i følgende uttalelser?

Tenk på din enhet...	Helt uenig ▼	Uenig ▼	Både/og ▼	Enig ▼	Helt enig ▼
1. I vår enhet støtter vi hverandre	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2. Vi er tilstrekkelig personell til å håndtere arbeidsmengden	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
3. Når det er mange oppgaver som skal gjøres raskt arbeider vi sammen som et team for å løse oppgavene	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
4. I vår enhet behandler vi hverandre med respekt	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
5. I vår enhet jobber vi lengre vakter enn hva som er best for pasientene ...	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
6. Vi jobber aktivt for å forbedre pasientsikkerheten.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
7. Vi bruker flere vikarer enn det som er til det beste for pasientbehandlingen.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
8. Ansatte føler at feil blir brukt mot dem	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

**A: Generelt om arbeidet og pasientsikkerhet (forts.)****Tenk på din enhet...**

	Helt uenig ▼	Uenig ▼	Både/og ▼	Enig ▼	Helt enig ▼
9. Feil (og uønskede hendelser) er blitt brukt for å få til positive forandringer her	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
10. Det er kun en tilfeldighet at det ikke skjer flere alvorlige feil her i enheten	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
11. Når ett område i enheten er overbelastet hjelper andre i enheten til	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
12. Når en uheldig hendelse blir rapportert, føles det som om personen og ikke problemet, kommer i sentrum	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
13. Når vi har gjennomført endringer for å forbedre pasientsikkerheten, evaluerer vi effekten	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
14. Vi jobber i "krisemodus" hvor vi forsøker å gjøre for mye, alt for raskt	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
15. Pasientsikkerhet blir aldri nedprioritert for å få unna mer arbeid	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
16. Ansatte er bekymret for at feilene de gjør blir registrert i deres personalmapper	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
17. Vi har problemer med pasientsikkerheten i vår enhet	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
18. Våre prosedyrer og systemer fungerer godt for å forhindre uønskede hendelser	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
19. Jeg ber mine kollegaer stanse arbeid som jeg mener blir utført på en risikabel måte	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
20. Jeg melder fra dersom jeg ser farlige situasjoner	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

B: Om sikkerheten til de ansatte**Er du enig eller uenig i følgende uttalelser?****Tenk på din enhet...**

	Helt uenig ▼	Uenig ▼	Både/og ▼	Enig ▼	Helt enig ▼
1. Mine kollegaer stopper meg dersom jeg arbeider på en usikker måte	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
2. Jeg stopper å arbeide dersom jeg mener at det kan være farlig for meg eller andre å fortsette	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

C: Din nærmeste leder**Er du enig eller uenig i følgende uttalelser om din nærmeste overordnede eller den person, du refererer til?**

	Helt uenig ▼	Uenig ▼	Både/og ▼	Enig ▼	Helt enig ▼
1. Lederen min uttrykker seg positivt når han/hun ser arbeidet blir utført i overensstemmelse med våre prosedyrer for å ivareta pasientenes sikkerhet	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
2. Lederen min vurderer personalets forslag om forbedringer av pasientsikkerheten	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
3. Når arbeidspresset øker, ønsker vår leder at vi arbeider raskere selv om det kan bety at man må ta "snarveier"	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
4. Lederen min overser problemer med hensyn til pasientenes sikkerhet selv om en hendelse skjer gang på gang	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

**D: Kommunikasjon**

Hvor ofte skjer følgende innenfor ditt arbeidsområde/fagområde?

Tenk på din enhet...	Aldri ▼	Sjelden ▼	Av og til ▼	Ofte ▼	Alltid ▼
1. Vi får tilbakemeldinger om endringer som blir igangsatt basert på rapporterte uønskede hendelser.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
2. Ansatte snakker åpent ut hvis de ser noe som kan påvirke pasientbehandlingen i negativ retning	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
3. Vi blir informert om uønskede hendelser som skjer i vår enhet.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
4. Ansatte kan fritt stille spørsmål vedrørende beslutninger og handlinger tatt av personer med mer autoritet.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
5. I denne enheten diskuterer vi hvordan vi kan forebygge at de samme uønskede hendelsene gjentas.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
6. Ansatte er redde for å stille spørsmål når det er noe som virker feil	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

E: Vurdering av pasientsikkerheten

Gi en generell vurdering av pasientsikkerheten i din enhet.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A	B	C	D	E
Fremragende	Meget god	Akseptabel	Dårlig	Meget dårlig

F: Hyppighet av rapporterte uønskede hendelser

Hvor ofte blir nærhendelser rapportert (det vil si hendelser som blir oppdaget og avverget før de rekker å skade pasienten)?

Tenk på din enhet...	Aldri ▼	Sjelden ▼	Av og til ▼	Ofte ▼	Alltid ▼
1. Hvor ofte blir nærhendelser rapportert - det vil si hendelser som blir <u>oppdaget og avverget så pasienten ikke rekker å bli skadet?</u>	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
2. Hvor ofte blir feil som på <u>ingen måte kan skade en pasient</u> rapportert?...	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
3. Hvor ofte blir potensielt skadevoldende feil rapportert - det vil si feil som <u>kunne skade pasienten</u> , men som ikke gjorde det?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

G: Antall uønskede hendelser som blir rapportertHvor mange rapporter om uønskede hendelser har du fylt ut og videresendt innenfor de seneste 12 månedene?

<input type="checkbox"/> a. Ingen rapporter	<input type="checkbox"/> d. 6-10 rapporter
<input type="checkbox"/> b. 1-2 rapporter	<input type="checkbox"/> e. 11-20 rapporter
<input type="checkbox"/> c. 3- 5 rapporter	<input type="checkbox"/> f. 21 rapporter eller flere

**H: Om det prehospitale systemet**

Er du enig eller uenig i følgende uttalelser om det prehospitale systemet?.

	Helt uenig ▼	Uenig ▼	Både/og ▼	Enig ▼	Helt enig ▼
Tenk på systemet som helhet...					
1. Systemledelsen tilrettelegger for et arbeidsklima som fremmer pasientsikkerheten	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
2. Prehospitale enheter er ikke flinke til å koordinere seg med hverandre ...	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
3. Ting "faller mellom stoler" når pasienter blir overflyttet fra en enhet til en annen	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
4. Samarbeidet fungerer godt mellom enheter som har behov for å jobbe sammen	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
5. Informasjon som er viktig i pasientbehandlingen går ofte tapt ved pasientoverlevering.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
6. Det er ofte vanskelig å arbeide sammen med personale fra andre enheter.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
7. Det oppstår ofte problemer i forbindelse med utveksling av informasjon mellom prehospitale enheter	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
8. Toppleidelsens handlinger viser at pasientsikkerheten har topp prioritet ..	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
9. Ledelsen virker kun interessert i pasientsikkerhet etter at en uønsket hendelse har skjedd.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
10. Prehospitale enheter arbeider godt sammen for å sikre at pasienten får den beste behandlingen	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
11. Pasientoverlevering er problematisk for pasientene prehospitalt	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

I: Opplæring og trening1. I hvilken eller hvilke av de prehospitale ferdighetene nedenfor fikk du systematisk opplæring FØR du begynte å jobbe prehospitalt?

	Opplæring ▼	INGEN opplæring ▼
Sett <u>ett kryss</u> for hver av kategoriene a til g.		
a. Beslutningstaking.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
b. Ledelse.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
c. Kommunikasjon.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
d. Situasjonsbevissthet.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
e. Teamarbeid.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
f. Mestring av stress.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
g. Mestring av tretthet/fatigue.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂

2. Hvor mange ganger har du, i løpet av de siste 12 månedene, deltatt på reelle prehospitale oppdrag sammen med en kollega fra samme yrkesgruppe, for erfaringsutveksling?

- ☐ a. Ingen ☐ b. 1-2 ganger ☐ c. 3-5 ganger ☐ d. Mer enn 5 ganger

**3. Angi omfanget av teoretisk opplæring du har fått i hver av de prehospitale ferdighetene nedenfor.**

	0 timer ▼	0-3 timer ▼	3-7 timer ▼	7-14 timer ▼	Mer enn 14 timer ▼
Sett <u>ett kryss for hver</u> av kategoriene a til g.					
a. Beslutningstaking.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
b. Ledelse	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
c. Kommunikasjon	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
d. Situasjonsbevissthet	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
e. Teamarbeid.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
f. Mestring av stress.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
g. Mestring av tretthet/fatigue	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

4. Angi omfanget av praktisk opplæring du har fått i hver av de prehospitale ferdighetene nedenfor.

	0 timer ▼	0-3 timer ▼	3-7 timer ▼	7-14 timer ▼	Mer enn 14 timer ▼
Sett <u>ett kryss for hver</u> av kategoriene a til g.					
a. Beslutningstaking.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
b. Ledelse	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
c. Kommunikasjon	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
d. Situasjonsbevissthet	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
e. Teamarbeid.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
f. Mestring av stress.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
g. Mestring av tretthet/fatigue	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

5. Opplever du, per idag, noen av dine prehospitale ferdigheter som mangelfulle i forhold til de utfordringene som er påregnelige i jobben prehospitalt?

	Mangelfull ▼	IKKE mangelfull ▼
Sett <u>ett kryss for hver</u> av kategoriene a til g.		
a. Beslutningstaking.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
b. Ledelse.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
c. Kommunikasjon.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
d. Situasjonsbevissthet.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
e. Teamarbeid.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
f. Mestring av stress.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
g. Mestring av tretthet/fatigue.....	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂



6. Hvor mange ganger i løpet av 2011 deltok du på tverrfaglig prehospital simuleringstrening der du helt spesifikt fikk trent en eller flere av følgende ferdigheter, sammen med dine naturlige samarbeidspartnere?

	0 ganger ▼	1-2 ganger ▼	3-5 ganger ▼	Mer enn 5 ganger ▼
Sett <u>ett kryss for hver</u> av kategoriene a til g.				
a. Beslutningstaking.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
b. Ledelse	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
c. Kommunikasjon	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
d. Situasjonsbevissthet	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
e. Teamarbeid.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
f. Mestring av stress.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
g. Mestring av tretthet/fatigue	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

7. Hvor mange ganger i løpet av 2011 ble følgende av dine prehospital ferdigheter systematisk observert og evaluert?

	0 ganger ▼	1-2 ganger ▼	3-5 ganger ▼	Mer enn 5 ganger ▼
Sett <u>ett kryss for hver</u> av kategoriene a til g.				
a. Beslutningstaking.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
b. Ledelse	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
c. Kommunikasjon	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
d. Situasjonsbevissthet	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
e. Teamarbeid.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
f. Mestring av stress.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
g. Mestring av tretthet/fatigue	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

8. Tilfredstiller dine prehospital ferdigheter gjeldende anbefalinger til kompetanse, for din yrkesgruppe, innenfor kategoriene nedenfor?

	Ja ▼	Nei ▼	Vet ikke ▼
Sett <u>ett kryss for hver</u> av kategoriene a til g.			
a. Beslutningstaking.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
b. Ledelse.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
c. Kommunikasjon.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
d. Situasjonsbevissthet.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
e. Teamarbeid.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
f. Mestring av stress.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
g. Mestring av tretthet/fatigue.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3



J: Bakgrunnsinformasjon

1. Hva er ditt primære arbeidsområde/fagområde? Velg ETT svar eller spesifiser nærmere.

- | | | |
|--|--|--|
| <input type="checkbox"/> a. Ambulansehelikopter | <input type="checkbox"/> d. Legebemannet bil/ambulanse | <input type="checkbox"/> g. Ambulansebåt |
| <input type="checkbox"/> b. Redningshelikopter (SAR) | <input type="checkbox"/> e. Intensivambulanse | <input type="checkbox"/> h. Annet, vennligst spesifiser: |
| <input type="checkbox"/> c. Ambulansefly | <input type="checkbox"/> f. Ambulansebil | |

2. Hvor er din primære prehospitale enhet geografisk lokalisert? Velg ETT svar eller spesifiser nærmere.

- | | | |
|---|--|--|
| <input type="checkbox"/> a. Alta | <input type="checkbox"/> h. Florø | <input type="checkbox"/> o. Stavanger |
| <input type="checkbox"/> b. Arendal | <input type="checkbox"/> i. Førde | <input type="checkbox"/> p. Tromsø |
| <input type="checkbox"/> c. Banak | <input type="checkbox"/> j. Gardermoen | <input type="checkbox"/> q. Trondheim |
| <input type="checkbox"/> d. Bergen | <input type="checkbox"/> k. Kirkenes | <input type="checkbox"/> r. Ørland |
| <input type="checkbox"/> e. Bodø | <input type="checkbox"/> l. Lørenskog | <input type="checkbox"/> s. Ål |
| <input type="checkbox"/> f. Brønnøysund | <input type="checkbox"/> m. Rygge | <input type="checkbox"/> t. Ålesund |
| <input type="checkbox"/> g. Dombås | <input type="checkbox"/> n. Sola | <input type="checkbox"/> u. Annet, vennligst spesifiser: |

3. Er din stilling forbundet med direkte kontakt med pasienter?

- ☐ a. JA, jeg har direkte kontakt med pasienter.
- ☐ b. NEI, jeg har ikke direkte kontakt med pasienter.

4. Hvilken faggruppe tilhører du? Velg det svaret som best beskriver din stilling.

- | | |
|---|---|
| <input type="checkbox"/> a. Pilot | <input type="checkbox"/> g. Lege, spesialist i anestesilogi |
| <input type="checkbox"/> b. Redningsmann | <input type="checkbox"/> h. Ambulansearbeider |
| <input type="checkbox"/> c. Spesialsykepleier, anestesi | <input type="checkbox"/> i. Paramedic |
| <input type="checkbox"/> d. Spesialsykepleier, intensiv | <input type="checkbox"/> j. Systemoperatør |
| <input type="checkbox"/> e. Sykepleier | <input type="checkbox"/> k. Maskinist |
| <input type="checkbox"/> f. Lege i spesialisering, anestesilogi | <input type="checkbox"/> l. Annet, please vennligst spesifiser: |

5. Hvor lenge har du arbeidet prehospitalt?

- | | |
|---|---|
| <input type="checkbox"/> a. Mindre enn 1 år | <input type="checkbox"/> d. 11 til 15 år |
| <input type="checkbox"/> b. 1 til 5 år | <input type="checkbox"/> e. 16 til 20 år |
| <input type="checkbox"/> c. 6 til 10 år | <input type="checkbox"/> f. 21 år eller mer |



6. Hva er det maksimale antallet timer du rutinemessig har sammenhengende vakt prehospitalt?

- | | |
|--|---|
| <input type="checkbox"/> a. 7-12 timer | <input type="checkbox"/> e. 73-96 timer (3-4 døgn) |
| <input type="checkbox"/> b. 13-24 timer | <input type="checkbox"/> f. 97-168 timer (4-7 døgn) |
| <input type="checkbox"/> c. 25-48 timer (1-2 døgn) | <input type="checkbox"/> g. Over 169 timer (7 døgn) |
| <input type="checkbox"/> d. 49-72 timer (2-3 døgn) | |

7. Hvor lenge har du arbeidet i din nåværende spesialitet eller fag?

- | | |
|---|---|
| <input type="checkbox"/> a. Mindre enn 1 år | <input type="checkbox"/> d. 11 til 15 år |
| <input type="checkbox"/> b. 1-5 år | <input type="checkbox"/> e. 16 til 20 år |
| <input type="checkbox"/> c. 6 til 10 år | <input type="checkbox"/> f. 21 år eller mer |

K: Dine kommentarer

Tenk på trusler mot pasientsikkerheten...

1. Nevn de 3 hyppigst forekommende uønskede hendelser som du har observert eller forårsaket prehospitalt?

2. Nevn 3 tiltak som du mener vil kunne bedre pasientsikkerheten prehospitalt.

3. Her kan du fritt skrive dine kommentarer til pasientsikkerhet, feil/uønskede hendelser, rapportering etc.

Vennligst postlegg skjemaet i ferdig frankert returkonvolutt så snart som mulig.

TAKK FOR AT DU SVARTE!