

Paper 3

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Primary care emergency team training in situ means learning in real context

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ABSTRACT

Objective: The purpose of our study was to explore the local learning processes and to improve in situ team training in the primary care emergency teams with a focus on interaction.

Design, setting and subjects: As participating observers, we investigated locally organised trainings of teams constituted ad hoc, involving nurses, paramedics and general practitioners, in rural Norway. Subsequently, we facilitated focus discussions with local participants. We investigated what kinds of issues the participants chose to elaborate in these learning situations, why they did so, and whether and how local conditions improved during the course of three and a half years. In addition, we applied learning theories to explore and challenge our own and the local participants' understanding of team training.

Results: In situ team training was experienced as challenging, engaging, and enabling. In the training sessions and later focus groups, the participants discussed a wide range of topics constitutive for learning in a sociocultural perspective, and topics constitutive for patient safety culture. The participants expanded the types of training sites, themes and the structures for participation, improved their understanding of communication and developed local procedures. The flexible structure of the model mirrors the complexity of medicine and provides space for the participants' own sense of responsibility.

Conclusion: Challenging, monthly in situ team trainings organised by local health personnel facilitate many types of learning. The flexible training model provides space for the participants' own sense of responsibility and priorities. Outcomes involve social and structural improvements, including a sustainable culture of patient safety.

KEY POINTS

- Challenging, monthly in situ team trainings, organised by local health personnel, facilitate many types of learning.
- The flexible structure of the training model mirrors the complexity of medicine and the realism of the simulation sessions.
- Providing room for the participants' own priorities and sense of responsibility allows for improvement on several levels.
- The participants demonstrated a consistent, long-term motivation to strengthen safety, both for their patients and for themselves.

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Background

Based on recent healthcare reforms,[1] primary healthcare personnel in Norway are expected to engage in more demanding and complex care for sicker patients than previously. This increases the need for the development of good local cultures for learning and patient safety.[2] Norwegian regulations [3] mandate interactive and collaborative training in pre-hospital

emergency medicine, preferably in primary care teams – a demand unique in Norwegian healthcare.

In systematic reviews, three research groups have documented the positive relationship between team training and patient safety. Weaver, Dy, and Rosen [4] underscored how such core aspects of teamwork as situational monitoring, communication, leadership, trust, and shared mental models link to clinical per-

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formance. Schmutz and Manser [5] found statistical evidence of the effects of team processes on clinical performance. Finally, a group supported by the Agency for Healthcare Research and Quality in the US recommends team training as one of the *encouraged* Patient Safety Strategies for the nation.[6] In addition, a Canadian group, demonstrating the local contribution made by first aid training in a remote community, concluded that standardised approaches alone are inappropriate given the significance of local relationships as well as both informal and formal response systems.[7]

The rapidly growing body of literature regarding team training provides recommendations and differing perspectives on how such training is to be performed.[8,9] Lately, some recommendations have been supported by learning theories [10,11] and by acknowledgements that team training efforts are contextual and part of larger processes.[12] This fact has aroused increasing interest in in situ simulation training – involving one’s own colleagues (for improving social factors) and work place (local systems and tangible premises, like equipment) – thus differing from simulation settings in specialised centers outside the local context. In a systematic review of in situ training, Rosen et al. concluded that not only individuals and teams are learning targets but also, “other components of the healthcare delivery system are potentially subject to evaluation, reflection, and improvement and, thus sites for learning.”[13]

Such a site for learning is the rural municipality of Alta, Northern Norway, where in situ emergency team training has been practiced since 2007. These local training settings provide both the site and the material for the present action research study that aimed at exploring and improving the interactions among participants as well as the context bound team training practice in the course of the three and a half years of this study. We participated in monthly training days, comprised of a review and two simulation and debriefing sessions, throughout one year (2010–2011). Subsequently, we performed follow-up focus group discussions to elaborate and challenge our own and the participants’ understanding of three aspects of healthcare teams. In our first paper,[14] we explored patient participation and in the second paper,[15] we explored leadership practice as interaction, designated and distributed. In the final part of the study, presented in this paper, we investigated what kinds of issues the participants chose to elaborate on in these learning situations, why they did so, and whether and how local conditions, social and structural, improved during the course of three and a half years. We also

applied learning theories to explore and challenge our own and the local participants’ understanding of in situ team training, in order to improve the team training practice

Theoretical and methodological framework

Since our intention was to explore the learning processes in local training activity, we applied Høyer’s delineation of a continuum from “stable” to “fluid” ontologies,[16] although we use the terms “fixed” and “flexible”. A methodology grounded in a fixed ontology presumes that “certain factors (e.g., gender, education, age) can be expected to have the same effect in almost all cases,” and may aim, for example, at demonstrating and explaining a generalisable effect of standardised training. A *flexible* ontology, on the other hand, denotes the participants’ free will and that “the world is changing according to the participants’ interpretation” (p.18). Such an ontology, allowing for theoretically guided reflections upon questions both as to *what kinds* of learning and change might be achieved, as well as *how*, seemed appropriate for our present study. Hence, we did not aim at identifying what exactly had caused specific changes in a linear way, but rather to unfold the complex and context bound learning activities that the multi-layered dynamics of group activities characteristically involve.

The study was framed as action research (AR), denoting a participatory research design [17,18] aimed at exploring the various layers and improving local training in collaboration with the “experts” – i.e., the local participants. The first author participated as a supportive facilitator, which was in line with the training model that had already been implemented by local health personnel as a “bottom-up innovation” prior to our study, supported by local managers, but differing from “top-down” initiatives.[19] Participatory reflection took place in the review and debriefing sessions, supplemented by the “communicative spaces” [20] that our interprofessional author group and the subsequent focus groups both afforded. By adhering to the *critical* AR tradition,[21] we aimed at challenging our own as well as the local participants’ understanding of our practice by applying specific theoretical perspectives, which, in this present paper, were theories on learning. The team training model and the study design alike are anchored in the democratic principle of equity among participants despite differing roles and competencies – a prerequisite for engaged interaction and advanced learning within groups.[22,23]

For analyses, we adopted Wenger’s Social Theory of Learning [24] that starts with the assumption that,

“engagement in social practice is the fundamental process by which we learn and so become who we are” (Front Free Endpaper). The theory’s core notion relates to a “Community of Practice”, i.e., people who are mutually related through practice, such as a project group or a medical team. The Social Theory of Learning also embraces eight theoretical frameworks from a wide range of disciplines, of which “practice” is only one. The others are social structure, situated experience, identity, collectivity, subjectivity, power, and meaning. According to Wenger, all these dimensions impact on and inform learning processes. Furthermore, he shows how reification and participation function as a duality during the process of *creating meaning*. The interplay between reification and participation is “both distinct and complimentary” (p.62); an increase in one may increase the other. Reification means to give form to – or objectify – a certain understanding (p.59), e.g., some procedure that is particularly useful at the system level. Reification is building *structures* framing the *social* participation.

In order to connect to the local participants’ theoretical basis in the focus groups, we also included the work of two influential Norwegian thinkers: Wittek [25] who emphasises the significance of sociocultural context in learning processes, and Tveiten [26] who points to the body as the salient site of learning.

Material and analysis

The first author (HB) was a participating observer in 10, monthly, one-day training sessions (May 2010–2011) at the primary care emergency clinic in a municipality of 20,000 inhabitants located 140 km from the nearest hospital. An interprofessional group of local health personnel had initiated, implemented and maintained the training scheme. Local nurses and GPs staffed the clinic; the paramedics were stationed next door. These professionals were included in local ad hoc emergency teams when needed. The vast majority participated voluntarily in realistic training, the GPs on average once a year. Each training day opened with a structured review of the basic principles of trauma care and teamwork, including some reflection on recent events and rehearsals of various technical skills, under the instruction of a local GP and a paramedic. Subsequently, two realistic simulation and debriefing sessions were held. The local instructors had chosen and organised in advance two challenging scenarios for the simulations. An instructor simulated a severely injured or ill patient found in the proximity of the emergency clinic, and communicated this patient’s experience during the subsequent debriefing. A

facilitator (HB during our study) provided the structure of the debriefing sessions in focus group discussions through asking three questions: how they experienced the simulation session, what went well and what could have been handled differently. Within this framework, the local participants were free to elaborate on their own topics of interest. HB audiorecorded the discussions and her verbatim and consecutive transcriptions constituted the study’s basic material.

After having explored this material in 2011 and 2012,[13,14] the author group widened its focus to include learning processes while working with this present article. The point of departure was an author group workshop in 2013, which focused on socio-cultural theories of learning, including the perspectives of Wadel [22] and Wittek.[25] We identified statements about learning found within the basic material, anchored in a flexible ontology with regards to both *what kinds* of experiences the participants discussed and *how* they discussed them. In addition, guided by an action research perspective, we identified statements about improvements and changes implemented during the research process. In October 2013, 14 local GPs, nurses and paramedics volunteered for the participatory research, taking part in two follow-up focus groups, facilitated and audiorecorded by HB, aimed at elaborating our preliminary findings and critical remarks. After briefly summarising the results of the entire study and acknowledging that team training sessions are appropriate learning settings, HB asked: “What have you learned during the last three years – individually and collectively?” In addition, the groups probed into two specific topics engendered by the previous debriefings: the degree of precision with which practices were articulated; and, with reference to Tveiten (26), the total absence during the debriefing sessions of reflections on bodily reactions. We, the authors, analysed these two verbatim transcripts in order to identify themes and assertions. This allowed us to develop a deeper understanding of the issues within the basic material. As the last analytical step in the process, AKL, PH, and HB then interpreted the complete material within the framework of Wengers’ Social Theory of Learning.[24]

Results

Participants’ views on the learning situation

The participants in highlighted various elements making training realistic, such as using a simulated patient rather than a manikin, practicing in real time and performing in a familiar environment:

The simulated patients can give us quite direct feedback about how they experienced it. I believe that is salient. How safe or unsafe did the patient feel?

What I like about the model is that we practice in real time. That makes us aware that things take time.

If you're looking for a specific drug, you're searching in the same cupboards that you'll be looking through when you're actually on duty.

Perspectives on the learning process

Wenger's Social theory of learning opened our eyes towards the many dimensions of learning and gave us an indication of why the conversations during the debriefing sessions were multifarious. We found that a variety of topics elaborated in the debriefings and focus groups together accorded with the eight elements of his theory. The participants talked about issues concerning social structure, situated experience, practice, identity, collectivity, subjectivity, power, and meaning (Table 1). The breadth and diversity of themes demonstrate that training in situ had bearing on a variety of learning aspects besides "practice", the main topic in training models that focus on technical and non-technical skills.

Table 1. A display of the breadth and diversity of the participants' topics in the debriefing sessions and focus groups (of the study) organised according to the eight theoretic elements constituting Wenger's Social Theory of Learning.[22]

1. Theoretic element: social structure	<ul style="list-style-type: none"> • Team building through allocating roles and tasks
2. Theoretic element: situated experience	<ul style="list-style-type: none"> • Sense of safety emerging among the participants • Collective interest in improvement • Familiarity with the locality
3. Theoretic element: practice	<ul style="list-style-type: none"> • Practical skills • Team building through inclusion and cooperation • Closed-loop communication, names, voice, and report • Learning to learn, teach oneself and teach others • Debriefing skills applied in other settings.
4. Theoretic element: identity	<ul style="list-style-type: none"> • Appraising one's own situatedness as it relates to that of others
5. Theoretic element: subjectivity	<ul style="list-style-type: none"> • Self-confidence and mutual trust • Awareness of one's own strengths and limitations
6. Theoretic element: collectivity	<ul style="list-style-type: none"> • Relational skills – group knowledge • Team building, inclusion, "commitment" • Building relationships based on trust and respect • Collegial support through instrumental debriefing, defusing, relieving stress through conversation • Insight into others' competence to improve mutual respect and safety
7. Theoretic element: power	<ul style="list-style-type: none"> • Identifying who needs to have an overview
8. Theoretic element: meaning	<ul style="list-style-type: none"> • Non-defensive feedback • Training making it easier to admit mistakes • Finding the expected leadership position, model, and management skills • Reflections on hierarchies
	<ul style="list-style-type: none"> • Management of the patients' and one's own crises

The theoretically founded contribution from Stocker et al. [11] to the debate about the most effective way to provide learning in simulation team training to health professionals, accentuate sociocultural perspectives, emphasising the value of challenging the participants' understanding of their own practice in realistic scenarios and relevant contexts. Table 2 shows how well their statements of the necessary elements in a team training model concord with the ones we have explored.

The training setting involved what we identified as social and structural elements, participation and reifications in the words of Wenger. We identified both consistent non-changing elements as well as improvements.

Changes in socially constituted elements (participation)

Socially constituted premises were implicit in the open and trustful way we observed the participants speaking together, and in their intense, respectful engagement both in the debriefings and the focus group discussions. This pattern was consistent across professions and modes of discussion. These ranged from sharing discursive, reflective, referential, supportive and guidance contributions as well as giving instructional and evaluative input. We noted high, consistent and voluntary attendance rates during the entire study period of three and half years and a strong dedication among all the professionals.

Teamwork

In the review session preceding the simulation sessions, *communication, roles and leadership* were defined as salient aspects of teamwork. The prominent place of these aspects did also not change during the study. In the debriefing sessions, the participants chose to concretise these topics and link principles of interaction to recent personal experiences.

There is a point in using names and closed-loop-communication. In addition, there is a point to rehearse so that you feel it goes smoothly. It was a little strained when we all said ... (name of a nurse).

In the subsequent focus groups, the members maintained more distance to their own experiences, discussing these in a more collective manner than while debriefing. In addition, they introduced abstract themes, such as respect among professionals:

The respect we have for our EMTs comes from the fact that we have seen what they can

Table 2. Correspondence between the model explored and statements made by Stocker et al. [10] concerning optimal simulation team training.

Statement 1 from Stocker et al.	"Scenario for concrete experience, followed by a debriefing with a critical, reflective observation and abstract conceptualization phase, and ending with a second scenario for active experimentation."
Our model	Good correspondence: the model commences with a review session, continues with a "scenario for concrete experience, followed by a debriefing" and "a second scenario for active experimentation". But our model adds a second debriefing session which is not explicitly divided into two phases, with more weight being given to "critical, reflexive observation" than to "abstract conceptualization".
Statement 2	"The scenario needs to challenge participants to generate failures and feelings of inadequacy to drive and motivate team members to critical reflect and learn."
Model explored	Very good correspondence: the scenarios seem to be challenging. Failures and feelings of inadequacy are revealed during the debriefing sessions and linked to critical reflection.
Statement 3	"There is a need for participants to challenge their existing frameworks and principles. Facilitators and peers must guide and motivate participants through the debriefing session, inciting and empowering critical reflexion. To do this, learners need to feel psychologically safe."
Model explored	Good correlation: the participants reflected critically, but <i>all participants</i> , not only facilitators, strived toward creating a safe atmosphere.
Statement 4	"Real multidisciplinary team members acting within their specialty and roles support motivation and preparedness of participants for effective learning."
Model explored	Very good correlation: none of the participants stepped out of their actual roles during any of the simulation sessions.
Statement 5	"It is mandatory to introduce cultural context and social conditions to the learning experience for effective team training."
Model explored	Very good correlation: the training days took place in the participants' own localities.

The *socially constituted premises*, such as teamwork and modes of communication, proved to be the primary issues during the training sessions. The changes at that level, however, were only clearly configured in the follow-up focus group discussions. In the following results, we thus present what the focus group participants themselves found they had learned from team training.

Communication

In the groups, feedback emerged as a central issue: the participants found talking about their own and others' mistakes to be easier during their training than in real emergencies because the situational frame focused on learning and space was given to debriefing. In addition, they considered their acquired debriefing skills to be useful also in their everyday work. Further principles formulated by the group were that the GPs ought to share their thinking aloud for everyone to hear, including the patient:

I believe I have to get better at involving others along the way. Just short, quick comments concerning that we have to think of this and that, and do this and that. Also in front of the patient. Just short sentences.

Likewise, the participants found out that it was essential to the teamwork that someone gave a summary (report) when changing rooms or entering a new phase:

Some might be prepared to work long before the report is given, but the training sessions have shown that it's best to allow time for reporting.

Leadership role

Both doctors and paramedics admitted that they found it challenging to assume the role of designated leader, that is, both as the team leader responsible for keeping an overview and as an "action leader".

It feels great when you are challenged. You get the sense of your own shortcomings. It happens every time – like taking the leadership role, which can be difficult in a situation where many skilled people are standing there with you.

You work in a team, and you know which way you want to go, but then there are three others who ought to move in the same direction.

The participants in these final focus groups, however, discussed distributed leadership (our theme in a focus group the year before) only indirectly:

There is no hierarchy in the emergency clinic. All share a mutual respect for the different groups of professions and realise that all are important.

Changes in structurally constituted elements (reifications)

Whereas improvements in the socially constituted premises were revealed in the follow-up focus groups, changes in structural elements were easier to identify from the perspective as a participating observer.

A new local procedure emerged during the course of the study concerning how to distribute tasks during the initial phase of contact with the patient, outlined by the paramedic instructor in a debriefing as follows:

- the paramedic who is not driving immediately goes to the patient and holds the head. The second person to approach the patient is the physician who then begins the primary survey. The third person approaching is the one who puts on the white vest, as the action leader, and he brings all the equipment and gives assistance. Everything goes faster when we manage to establish these roles.

We also observed changes in the framework, initiated by the local participants during the course of the study: (1) A new training site (the public swimming hall) and new scenarios were introduced (including chest pains, bleeding after childbirth, and near drowning). (2) A nurse also assumed the role of instructor. (3) An emphasis on leadership was added to the initial review. (4) The paramedics had their participation in team training sessions added to their employment contracts.

Reflections on a suggestion for change

The participants in the follow-up focus groups were clearly ambivalent regarding the issue of describing one's own bodily reactions during the simulations in the debriefing sessions. Whereas an experienced GP said that it would feel humiliating to be obliged to discuss such perceptions, a younger doctor presumed such discussions would be useful. Two instructors (non-GPs) were positive and practiced it right away by describing their experiences of their own bodily reactions in stressful situations. The participants agreed, however, that the team training *enabled* them to conceptualise and put words to emergency teamwork in a better, more precise way, and *encouraged* them to talk to each other more openly outside the training sessions as well.

Is it as simple as that we have become better at expressing ourselves. That is a good thing. Then we've learned something

Discussion

We found that in situ team training was experienced as challenging, engaging, and enabling. The local participants engaged in the training sessions and subsequent focus group discussions in an intense, open and trustful way, examining a wide range of topics that are constitutive both for learning in a sociocultural perspective and for a Patient Safety Culture. They improved the social and structural elements in the course of the study period of 3.5 years.

A variety of issues

The local health personnel have participated in team training sessions continuously since 2007, indicating that they find them useful. The increased attendance in the last follow-up focus groups (2013) as compared to the first (2011) may reflect a rising acceptance of both the model and the study among local professionals. Nevertheless, according to, e.g., Motola et al., [8] the abundance of issues addressed during the debriefing sessions might testify to a lack of focus, stringency and curriculum. We regard that variety, however, as a mirror of the complexity of emergency medicine in general and of the realism in the team training sessions in particular. Weaver et al. [4] further support the value of a plurality of themes. They found that the most facilitative team training structures involve *bundled* interventions (involving, for example, pre-planning, readiness, assessment, interdisciplinary work, and the transfer of skills into daily care).

How adults learn

In an article about teaching adults, Mahan and Stein [27] claim there are several types of learning: Non-associative and Associative (so called stimulus-response learning), Perceptual (pattern recognition), Motor Learning (practical skills), Facts, and Experiences. During a day of the in situ team training explored here, the participants are exposed to most of these modes of learning. Furthermore, Mahan and Stein claim that all learners bring their own knowledge to the learning situation, but *adult* learners prefer to build on this specifically, to learn new concepts they can apply immediately and integrate into other aspects of their lives. Finally, they learn best when they are fully engaged. These conditions, we find, are characteristics of the model explored and make the team training context a saturated learning setting. This suggests that what the participants chose to explore in the debriefing sessions and focus groups is what they find worthwhile to learn in these specific settings.

Teams negotiate meaning and sense together

Arrow and Henry [28] underline that a diversity of roles and professions, and a distribution of power within a team can be supportive of the performance of complex tasks. At the same time, this plurality needs to be balanced by *integration*: team members self-organise to collaborate as a, "coherent, coordinated whole, connecting and situating divergent ideas and perspectives

in a larger context in which they make sense together” (p. 846).

We made use of Wenger’s model of the complex and dual processes *reification* and *participation* [24] in order to explore how our teams negotiated meaning and “made sense together” (in the words of Arrow and Henry above). The medical procedure developed during our study is an example of reification: the participants gave a lasting form to a certain understanding. The variety of issues identified in our analyses demonstrates the breadth of sense making and negotiating. Participation, interactions between individual agents, interplay of systems, and reification of situated understanding occur simultaneously: they mirror and may well augment one another, according to Wenger. That a richness of topics was discussed in a consistently respectful and trustful manner, across diverse settings and professions, may indicate that the participants shared a sense of responsibility to create an appropriate and sustainable learning environment, depicting a culture for learning in the sense of Wenger.

Patient safety culture

In a review of properties of patient safety culture,[2] the authors identified so-called “subcultures”, denoting leadership, teamwork, communication, and learning in a framework that is just, evidence-based and patient centred. In our study, most of these are mentioned explicitly while two of them are implicit in the participants’ actions: “Evidence-based” practice is the basis for both review and debriefing connected to the instructor’s knowledge of correct procedures. Their intention to be “just” manifests in how the participants share mistakes and successes without conflict.

Patient safety on an individual, a team or a unit level

Although the literature emphasises a variety of elements regarding learning and patient safety culture, most empirical studies of team training have a more narrow focus, in situ training included. Rosen et al. [13] showed in a 2012-review that only 14% of the studies included involved learning on individual, team, and unit levels. In a more recent study of in situ simulation of interprofessional teams in a hospital department, the participants expressed great satisfaction with the training activity and the realistic scenarios and showed improved skills after only 100–115 min of training.[29] However, the authors do not mention more contextually grounded learning effects. In an RCT conducted in 12 maternity wards, in situ training of 80% of staff

in resuscitation settings showed significantly improved overall team performance, both in terms of skills and teamwork. Other salient effects, however, were not investigated.[30] If important levels or modalities of a safety culture were left unexplored in research settings, they may also have been neglected as training topics, and be excluded from future trainings as well. A narrow training focus might jeopardise the sustainability of initiatives for improvement.

Ambivalence as part of a democratic ethos

In critical AR, introducing new ideas or theories which evoke scepticism is conceptualised as an attempt to engender “eye opening” dissent.[21] Our proposals for changes in social constellations caused ambivalence among some participants in our study. For example, some were reluctant to talk about their own bodily reactions while others accepted the idea readily. We did not explore further whether the local health personnel started to talk about their own bodily reactions in stressful settings after this focus group, but this finding probably demonstrates a culture in which learning, negotiating and legitimating disagreement are aspects of the participants’ emphasis on safety. This concurs with Molander’s [31] claim that the *democratic ethos* within academia is one of learning together while striving for the best, and openly revising what that “best” might be.

Strengths and limitations

There are important limits in our study, as well as certain strengths. If we had included more of the local conditions, such as municipal healthcare authorities, and authentic patients, we might have increased the team trainings’ range of perspectives. We could also have heightened the authorities’ awareness of their responsibility for patient safety. Supplementary modes for health personnel to participate might have added nuances to our findings and further strengthened the processes of improvement. The author group had some insider knowledge: PAH is a local GP; HB has participated in developing the model for several years (2003–2008) elsewhere in Northern Norway, working at times with two of the local instructors in this study. This afforded certain advantages, though perhaps also some constraints. The researchers’ long experience within the context, as well as their consistent and participatory roles, seemed to have had an impact on the discussion of various topics and on the implementation of local change, one that apparently was more facilitative than obstructive.

Though action research is based on a participatory design, we chose a somewhat less participatory form. We could have arranged local dialogue meetings, workshops etc. in addition to the focus groups, to engage with the local participants even more. Instead, we leaned toward the critical tradition in AR that allows issues of theory to be “a participant”, integrated as a means of promoting change in all participants’ understanding of practice, including our own. A major strength of this study lies in its spanning of three and a half years, involving (almost) all the relevant health-care professionals in charge of real emergency cases. The interest among the participants was not observed to have decreased during that long span of time, as might have been expected, but rather to have increased. Since the model is flexible, and may be adapted to local contexts and learning needs without requiring expensive equipment or specialised instructors, these findings should be of interest in most parts of the world. To our knowledge, such an approach to exploring local emergency team training has not been carried out anywhere else.

Conclusion

Our study indicates that challenging, monthly emergency in situ team trainings, including a review, realistic simulations and debriefings, and organised by local health personnel, facilitate many types of learning. In the training sessions and later focus groups, the participants discussed a wide range of topics constitutive for learning in a sociocultural perspective and of topics constitutive for patient safety culture. The flexible structure of the present training model mirrors the complexity of emergency medicine and the realism of the team training sessions, and it provides space for the participants’ own sense of responsibility, priorities and change making – socially and structurally. The participants evinced a consistent and continuous motivation to strengthen the patients’ safety as well as their own as professionals within the community to which they all belong through maintaining these team trainings. We recommend a wider dissemination of such local interaction trainings. Potential outcomes might involve improvements on various levels, including a sustainable culture of patient safety.

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References

- [1] Norwegian Ministry of Health and Care Services. St.meld.nr.47 (2008–2009) Samhandlingsreformen [White paper No. 47, The Coordination Reform]; 2009.
- [2] Sammer CE, Lykens K, Singh KP, et al. What is patient safety culture? a review of the literature. *J Nurs Scholarsh.* 2010;42:156–165.
- [3] Norwegian Ministry of Health and Care Services. Forskrift om krav til og organisering av kommunal legevaktordning, ambulansetjeneste, medisinsk nødmeldetjeneste m.v. (akuttmedisinforskriften) [The emergency medicine regulation] 2015.
- [4] Weaver SJ, Dy SM, Rosen MA. Team training in health-care: a narrative synthesis of the literature. *BMJ Qual Saf.* 2014;23:359–372.
- [5] Schmutz J, Manser T. Do team processes really have an effect on clinical performance? A systematic literature review. *Br J Anaesth.* 2013;110:529–544.
- [6] Shekelle PG, Pronovost P, Wachter RM, et al. The top patient safety strategies that can be encouraged for adoption now. *Ann Intern Med.* 2013;158:365–368.
- [7] VanderBurgh D, Jamieson R, Beardy J, et al. Community-based first aid: a program report on the intersection of community-based participatory research and first aid education in a remote Canadian Aboriginal community. *Rural Remote Health.* 2014;14:25–37.
- [8] Motola I, Devine LA, Chung HS, et al. Simulation in healthcare education: a best evidence practical guide. *AMEE Guide No. 82. Med Teacher.* 2013;35:e1511–e1530.
- [9] Gjeraa K, Møller TP, Østergaard D. Efficacy of simulation-based trauma team training of non-technical skills. A systematic review. *Acta Anaesthesiol Scand.* 2014;58:775–787.
- [10] Stocker M, Burmeister M, Allen M. Optimisation of simulated team training through the application of learning theories: a debate for a conceptual framework. *BMC Med Educ.* 2014;14:69.
- [11] Salas E, Rosen MA. Building high reliability teams: progress and some reflections on teamwork training. *BMJ Qual Saf.* 2013;22:369–373.
- [12] Salas E, King HB, Rosen MA. Improving teamwork and safety: toward a practical systems approach, a commentary on Deneckere et al. *Soc Sci Med.* 2012;75:986–989.
- [13] Rosen MA, Hunt EA, Pronovost PJ, et al. In situ simulation in continuing education for the health care professions: a systematic review. *J Contin Educ Health Prof.* 2012;32:243–254.
- [14] Brandstorp H, Kirkengen AL, Halvorsen PA, et al. Training interaction in primary care teams: the role of the patient. *Int J Pers Cent Med.* 2012;4:656–663.
- [15] Brandstorp H, Kirkengen AL, Sterud B, et al. Leadership practice as interaction in primary care emergency team training. *Action Res.* 2015;13:84–101.

- [16] Høyer KL. Hvad er teori, og hvordan forholder teori sig til metode? *Forskningsmetoder i folkesundhedsvidenskab*. [What is theory, and how to relate to theory? Research methods in public health science], København: Munksgård Danmark; 2012. p. 17–41.
- [17] Carr W, Kemmis S. *Becoming critical: education knowledge and action research*. London: Falmer Press; 1986.
- [18] Reason P, Bradbury H. *The SAGE handbook of action research: participative inquiry and practice*. 2nd ed. London (UK): Sage Publications; 2008.
- [19] Ringholm T, Teigen H, Aarsæther N. *Innovative kommuner [Innovative municipalities]*. Oslo: Cappelen Damm Akademisk; 2013.
- [20] Kemmis S, McTaggart R, Nixon R. *The action research planner*. New York: E-book Springer; 2014.
- [21] Johansson AW, Lindhult E. Emancipation or workability? Critical versus pragmatic scientific orientation in action research. *Action Res*. 2008;6:95–115.
- [22] Wadel C. En lærende organisasjon. Et mellom menneskelig perspektiv [A Learning Organisation. An intersubjective perspective]. Kristiansand: Høyskoleforlaget; 2011.
- [23] Senge PM. *The fifth discipline: the art and practice of the learning organization*. New York: Doubleday; 1990.
- [24] Wenger E. *Communities of practice. Learning, meaning, and identity*. New York: Cambridge University Press; 1998.
- [25] Wittek L. *Læring i og mellom mennesker. – en innføring i sosiokulturelle perspektiver*. [Learning in and between people –an introduction to socio cultural perspectives]. Oslo: Cappelen Akademisk forlag; 2004.
- [26] Tveiten S. *Veiledning – mer enn ord... [Supervision – more than words...]*. 4th ed. Bergen: Fagbokforlaget; 1998.
- [27] Mahan JD, Stein SS. Teaching adults-best practices that leverage the emerging understanding of the neurobiology of learning. *Curr Probl Pediatr Adolesc Health Care*. 2014;44:141–149.
- [28] Arrow H, Henry KB. Using complexity to promote group learning in healthcare. *J Eval Clin Pract*. 2010;16:861–866.
- [29] Klipfel JM, Carolan BJ, Brytowski N, et al. Patient safety improvement through in situ simulation interdisciplinary team training. *Urol Nurs*. 2014;34:39–46.
- [30] Rubio-Gurung S, Putet G, Touzet S, et al. In situ simulation training for neonatal resuscitation. *An RCT. Pediatrics*. 2014;134:e790.
- [31] Molander B. Politics for learning or learning for politics? *Stud Phil Educ*. 2002; 21:361–376.