

# BMJ Open Team talk and team decision processes: a qualitative discourse analytical approach to 10 real-life medical emergency team encounters

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## ABSTRACT

**Objectives** Explore the function of three specific modes of talk (discourse types) in decision-making processes.

**Design** Ten real-life admissions of patients with critical illness were audio/video recorded and transcribed.

Activity-type analysis (a qualitative discourse analytical method) was applied.

**Setting** Interdisciplinary emergency teams admitting patients with critical illness in a Norwegian university hospital emergency department (ED).

**Participants** All emergency teams consisted of at least two internal medicine physicians, two ED nurses, one anaesthetist and one nurse anaesthetist. The number of healthcare professionals involved in each emergency team varied between 11 and 20, and some individuals were involved with more than one team.

**Results** The three discourse types played significant roles in team decision-making processes when negotiating meaning. Online commentaries (ONC) and metacommentaries (MC) created progression while offline commentaries (OFC) temporarily placed decisions on hold. Both ONC and MC triggered action and distributed tasks, resources and responsibility in the team. OFC sought mutual understanding and created a broader base for decisions.

**Conclusion** A discourse analytical perspective on team talk in medical emergencies illuminates both the dynamics and complexity of teamwork. Here, we draw attention to the way specific modes of talk function in negotiating mutual understanding and distributing tasks and responsibilities in non-algorithm-driven activities. The analysis uncovers a need for an enhanced focus on how language can trigger safe team practice and integrate this knowledge in teamwork training to improve communication skills in ad hoc emergency teams.

## INTRODUCTION

Communication error is a common cause of adverse events in healthcare.<sup>1–6</sup> There has been a growing scientific focus on cognitive and social skills, ‘non-technical skills’ (NTS), for health professionals in an effort to improve patient safety.<sup>7–9</sup> NTS are crucial for avoiding errors, especially in emergency teamwork.<sup>10–14</sup> Crew resource management

## Strengths and limitations of this study

- Audio/video recording of emergency teams during real-life admissions of patients with critical illness ensured authentic samples for analysis.
- The activity-type analysis provided new insight in how team talk influences teamwork in non-algorithm-driven medical emergencies.
- Culture and body language, significant issues in talk–work relationship, were not addressed in this study.

principles (CRM) have been adapted to medical NTS training from aviation in order to improve teamwork in emergency care,<sup>15–17</sup> and communication skills are integrated in CRM-guided team frameworks in several medical specialities.<sup>18–20</sup> Studies show that team training improves team processes<sup>21–24</sup> and evidence connecting team training to improved patient outcomes is accumulating.<sup>25 26</sup> Standardised communication strategies such as closed-loop communication (CLC) are recommended in critical care.<sup>27–29</sup> Recent studies indicate, however, that the use of CLC is limited despite recommendations and extensive training, especially in non-algorithm-driven activities implying high cognitive load (identification of cues, interpretations, integration of existing knowledge and decisions).<sup>13 30–33</sup> Studies of naturally occurring team talk have increased our understanding of the talk–work relationship. Lingard *et al* found communication patterns benefiting safety in interdisciplinary team discussions during presurgical checklist-driven team briefings,<sup>34</sup> and Kolbe *et al* found that high performing anaesthesia teams used monitoring and talking to the room during general anaesthesia induction.<sup>35</sup> Previous reports have also uncovered specific modes of talk constructing and supporting coordination in

**Table 1** Discourse types

Discourse type	Definition	Example
Online commentary	Description or evaluation of real-time observations <sup>42</sup>	'His oxygen-saturation isn't getting any better'
Metacommentary	Implicit message framing the activity type, orienting to next action or a plan <sup>43</sup>	'I think we should intubate'
Offline commentary	Clarification and explanation, building evidence <sup>44</sup>	'A CT-scan can tell us if there are significant signs of brain anoxia'

emergency team activity during standardised scenario in situ simulation training.<sup>36 37</sup>

Interdisciplinary ad hoc teams comprised to meet specific patient needs in critical and complex medical situations attend most in-hospital medical emergencies. Communication is crucial in such teams to converge joint expertise in support of team decisions, defined as 'a team process that involves gathering, processing, integrating and communicating information in support of arriving at a task-relevant decision'.<sup>38–41</sup> Here, we investigate how three discourse types defined as 'online commentary' (ONC), 'metacommentary' (MC) and 'offline commentary' (OFC) influence team decision-making processes in real-life interdisciplinary medical emergency teams while admitting non-trauma patients with critical illness to the hospital. ONC was defined by Heritage and Stivers<sup>42</sup> as descriptions or evaluations of real-time observations,<sup>42</sup> Bateson<sup>43</sup> described MC as implicit messages framing the activity type orienting to next action or a plan,<sup>43</sup> and OFC is defined by Sarangi as clarifications and explanations implying a pedagogical role.<sup>44</sup> Examples of these discourse types are summarised in [table 1](#).

## METHODS

Data were collected in the emergency department (ED) of a Norwegian university hospital from May 2015 to March 2016. Information was provided to all health professionals with potential for involvement in the study, and written informed consent from the participating healthcare professionals was collected at the scene or ahead of time. Although patients were not objects of this study, both patients and relatives gave their informed consent to participate. The next of kin gave consent on behalf of four of the patients who were unable to do so because of their medical condition, in accordance with the ethical approvals. No participants, patients or relatives chose to withdraw from the study.

### Patient and public involvement statement

Patients and the public were not objects of this study and thus not involved in study design or conduct of this research.

### Context

According to hospital procedure, the emergency team is activated when non-trauma patients are admitted to the hospital with imminent problems with airways, breathing and/or circulation. All teams consisted of at least two

internal medicine physicians, two ED nurses, one anaesthetist and one nurse anaesthetist.

### Data collection

The first author attended the ED with a mobile video camera and two microphones. A research assistant placed one of the microphones in the emergency room and provided information and written consent forms to participants. Ten teams admitting patients with critical illness were recorded and observed to capture the interconnections between team talk and actions. Patient ages ranged from 19 to 88 with a median of 73, and five were women. The number of healthcare professionals involved in each emergency team varied between 11 and 20 people, and some individuals were involved with more than one team. The 10 videos covered 144 health professional roles, including 65 physicians from various specialities (cardiology, pulmonary, internal medicine, neurology, ED, radiology, thoracic surgery, anaesthesiology, prehospital emergency), 46 nurses (ED, anaesthesiology and intensive care), seven radiographers, four medical students and 22 paramedics.

### Analysis

The four authors have comprehensive experience in critical care and applied linguistics. We followed a standard procedure previously described.<sup>36 37</sup> Briefly, all 10 videotapes were first viewed repeatedly before making detailed depersonalised transcriptions marking parallel talk, pauses and non-verbal activities. All authors reviewed the transcripts, and the first and the second author performed the analyses together. The analytical method is inspired by Levinson's sociopragmatic theory of the role and function of speech in different social activity types.<sup>45</sup> Activity-type analysis is a version of discourse analysis used to perform sequential studies of the interconnections between naturally occurring language and professional practices, revealing the structural and interactional organisation of the speech,<sup>46–48</sup> and builds on a perspective in which language is understood as principal for negotiating meaning.<sup>49 50</sup> First, we mapped the data across all teams into general recursive key activity phases defined as an overarching structure with associated subphases. Then SG and GT individually performed a sequential approach to identify phases of both medical and linguistic relevance to the decision-making processes. Concurrency was shown by both authors in identifying the same phases in the extensive data corpus, and all

authors reached a consensus of interpretations through discussions.<sup>51</sup> A professional translator translated the transcripts from Norwegian to English for publication.

## RESULTS

Structural mapping of all 10 videos illuminated four overarching activity phases with associated subphases. Phase 1 is characterised as opening activity: greeting both patient and colleagues, information handover, and patient movement from the stretcher to a hospital bed. Phase 2 is characterised as initial activity: monitoring the patient and performing primary ABC. Phase 3 is core activity: planning and accomplishing diagnostic examinations and treatment. Finally, phase 4 is closing activity: conclusions/tentative diagnosis, and patient preparation and movement from the ED for further examination and treatment.

Analysing the function of ONC, MC and OFC in team-work show the complexity in talk-work relationship. An abbreviated summary of the findings is presented in [table 2](#). We have selected four excerpts to illustrate the data and support the findings. The excerpts are taken from phase 3 and come from four different teams. Full transcripts can be found in online supplementary appendices 1–4, and utterances specified in the results section are referred to with numbers taken from the relevant appendix. XX: words not audible, (( )): author's supplement.

### Excerpt A

This extensive excerpt is divided in two, for presentation of the results (online supplementary appendix 1).

#### Part 1: before the anaesthetist's involvement in the CT decision

Situation: Patient is <40 years old. Indication for hospital admission: cardiac arrest. Cardiopulmonary resuscitation (CPR) was performed and return of spontaneous circulation (ROSC) occurred prior to hospital transport. The patient was unconscious and breathing inadequately at ED arrival. Team members are separated in two 'working groups' during this phase of work; ED nurse 1, nurse anaesthetist, ED physician 1 and the anaesthetist are all involved in patient-related practical tasks (ECG, suctioning, establishing an arterial line and sedation), while ED physician 1, physicians 1, 2 and 3 from internal medicine, and ED nurse 2 are standing next to the logging desk. Physician 3 is standing in a small distance from the latter group answering his telephone.

The excerpt begins with physician 3 answering the caller with MC: 'Yes. He is going to have a head CT-scan down here now.' He then addresses the group of physicians at the foot of the bed, 'Is he?' distributing responsibility to physician 2 by sight (276). The response uncovers diversities among the physicians: ED physician 1 agrees (277) while physician 2 disagrees (278). Physician 3's MC trigger action and the physicians start negotiating

a mutual understanding. ED physician 1 and physician 2 contribute verbally, while physician 1 and physician 3 both contribute by bodily conduct (288, 294). ED physician 1's question 'Are we 100 % sure that it is the heart?' (284) challenges physician 2's view by seeking more evidence. In his next utterance, 'It isn't hypoxia' (OFC 287), he provides an explanation framing his expertise and putting the decision temporarily on hold, seeking ONC. Physician 2 responds 'Yes, but you have this and this,' while pointing twice at something placed on the logging desk (ONC 288). ED physician 1 responds with an OFC, 'But we would like to have a XX,' using 'we' as a strengthening factor (289) and again challenging the grounds of the decision and seeking more evidence. Physician 2 later distributes tasks and responsibilities to the other team-members framed as MC: 'You can investigate but I XX up to the ICU myself' (294).

#### Part 2: after the anaesthetist's involvement in the CT decision

Negotiations of how to understand the available evidence continues with ED physician 1 seeking clarification about the necessity of cerebral CT prior to introducing hypothermia (OFC 298). The three physicians at the foot of the bed and the anaesthetist agree that CT is not necessary (299–301). The anaesthetist suspends his attempt to insert an arterial line and walks over to the other physicians, expressing his expertise with OFC: 'It's more out of- If there's doubts about the diagnosis X.' Physician 2 uses MC to continue to argue for direct transfer to the ICU: 'Sedated. Get him up to the ICU,' seeking to create progress (305). The anaesthetist responds with OFC: 'But there is no rush to get him up to the ICU either,' putting the decision temporarily on hold (310). Physician 2 challenges the decision-making basis by adding evidence for direct transfer to the ICU: 'We're going to get him into hypothermia after all just get him up to the ICU,' then continuing with an MC: 'If you want to get him to CT then-' seeking progress and distributing tasks and responsibility (314). The nurse anaesthetist observes blood in the patient's mouth and tracheal-tube and calls for action in parallel with the CT-discussion: 'It is bleeding in the mouth here.' (ONC 304). The ONC triggers redistribution of team resources when recognised, and the anaesthetist walks up to the nurse anaesthetist and works on the bleeding problem. Physician 3 summarises the grounds for CT-scanning by 'thinking out loud' (OFC 323). This OFC puts the decision temporarily on hold and initiates physician 1 to ask about arterial blood gas (MC 324). The excerpt ends with consecutive MC, starting with physician 2: 'But (micropause) XX make a decision. If we are going to get him to CT then we get him to CT. Not XX.' (343), building up to a mutual understanding.

### Excerpt B

Situation (online supplementary appendix 2): Patient is >80 years old, living at home. Indication for hospital admission: inguinal pain and syncope. The patient was nodding adequately when spoken to (yes/no) and had

**Table 2** Influence of online commentaries (ONC), metacommentaries (MC) and offline commentaries (OFC) in team decision-making processes, abbreviated summary of findings

Discourse types	Findings	Examples
ONC	Created attention and indicated critical situations. Triggered action. (Re)distributed tasks and responsibility. Created progression in team decision processes.	Nurse anaesthetist: 'It is bleeding in the mouth here.' Leading to: The anaesthetist leaves the CT-discussion and walks up to the nurse anaesthetist to manage the bleeding problem (excerpt A, online supplementary appendix 1, utterance 304 and following).
MC	Triggered action. (Re)distributed tasks and responsibility. Oriented both towards acknowledgements and doubts of expertise. Created progression in team decision processes. Consecutive MC signalled urgency.	Anaesthetist: 'I haven't fetched the defibrillator.' Leading to: emergency department (ED) nurse 1 announces that she will fetch the defibrillator and the automatic chest compression machine, and the nurse anaesthetist asks for a bag-valve-mask. (Excerpt B, online supplementary appendix 2, utterance 293 and following). Anaesthetist: 'But is it-. Should a pericardiocentesis be done, or is it-?' acknowledging the present team's expertise in decision-making. The lack of response results in her rephrasing the question: 'Has a thoracic surgeon been called? Or a thoracic anaesthetist- to come and assess- (3 s pause) In terms of status.', challenging the present expertise including her own, and distributing the responsibility of seeking necessary expertise to the others. (Excerpt C, online supplementary appendix 3, utterance 395 and following). Anaesthetist: 'Must have suction now!', 'I need it now! (8) Can you watch out for his arm.', 'Suction in the mouth.', 'Suxamethonium and fentanyl' Leading to: ED nurse 1 sets up the suction device and starts suctioning secretions from the patient's mouth, the nurse anaesthetist delegate inserting a stylet in the tube to the nurse anaesthetist student while managing the medication herself. (Excerpt D, online supplementary appendix 4, utterance 228 and following).
OFC	Expressed the speaker's expertise. Sought mutual understanding. Created a broader base for decisions. Put the team decision processes temporarily on hold.	ED physician 1 question: 'Are we 100% sure that it is the heart?' seeking more evidence. And in his next utterance, 'It isn't hypoxia' he provides an explanation framing his expertise putting the decision temporarily on hold. (Excerpt A, online supplementary appendix 1, utterance 284 and following).
ONC conflating into MC	Seemed to 'speed up' team decision processes.	Anaesthetist: 'No contact. I think we'll intubate.' Leading to: Physician one turns towards the anaesthetist nodding, the nurse anaesthetist asks for confirmation and starts preparing for the intubation, and ED nurse one reports the patient's oxygen saturation. (Excerpt D, online supplementary appendix 1, utterance 223 and following).

possible face drooping at ED admission. An oropharyngeal airway is established, and intravenous fluid is ongoing. During this phase of work, the nurse anaesthetist is standing at the head of the bed providing the patient with oxygen, the anaesthetist is palpating the patient's inguinal pulse, physician 1 and ED nurse 1 are standing beside the bed, and ED nurse 2 is standing by the logging desk while physician 2 is outside the room checking CT laboratory availability. Physician 1, an intern at the hospital, activated the emergency team, and physician 2 is a senior physician. The excerpt begins when the patient's medical condition is progressing to a life-threatening phase. Breathing is deteriorating, the inguinal pulse is weak and it is difficult to measure blood pressure. The anaesthetist seeks attention to the patient's deteriorating medical condition with ONC (288): 'we are in the process of ((collapsing)).' This ONC draws attention and triggers action, physician 1 agrees (291) and the nurse anaesthetist encourages the patient to take a deep breath while ED nurse 2 places herself in a 'stand-by' position at the foot of the bed. The anaesthetist triggers action and distributes tasks and responsibility with MC (293): 'I haven't fetched the defibrillator.' ED nurse 1 announces that she will fetch the defibrillator and the automatic chest compression machine (MC 294), and the nurse anaesthetist asks for a bag-valve-mask (MC 295). Both utterances indicate a mutual understanding of the situation and acknowledge the anaesthetist's expertise. While the nurse anaesthetist and ED nurse 2 are about to connect the bag-valve-mask, the anaesthetist seeks attention to her observation of a weak carotid pulse (ONC) and then offers an MC related to the next step of action: 'I'm about to lose the radial, no carotid pulse. I'll just X. Start X.' (298). Physicians 1 and 2 are standing outside the room and the anaesthetist goes to the doorway and calls out the same message twice (300, 302). ONC conflating to a MC triggers action in the team and distributes tasks and responsibility, resulting in the decision expressed by physician 2: 'He's living at home and active and must start CPR (3 s pause) and intubate him.' This results in confirmation from physician 1 and the anaesthetist, and the nurse anaesthetist engages in the intubation while ED nurse 1 connects the defibrillator.

### Excerpt C

Situation (online supplementary appendix 3): Patient is >70 years old. Indication for hospital admission: syncope. The patient was awake and adequate with no pain at arrival. The anaesthetist is performing an ultrasound and preparing to place a central venous line in the patient's neck area. ED nurse 1 is preparing to insert a urine catheter, and the ED physician is standing beside the bed. The nurse anaesthetist is securing the patient's arterial cannula, and physicians 1 and 2 are standing beside ED nurse 2 at the logging desk. The bed is not functioning properly and cannot be tilted head down for the central venous line procedure, and a chest X-ray has just been taken. The excerpt begins with the anaesthetist's ONC: 'Her venous volume is good' seeking attention to her

observation of high venous volume on the ultrasound screen (311). This utterance distributes responsibility and triggers action as ED physician leans over to see the anaesthetist's ultrasound screen. ED physician responds by offering an OFC framed as a question negotiating mutual understanding: 'Is it cardiogenic shock?' (312). The anaesthetist replies with an OFC in a pedagogical frame, building evidence: 'If you look at the vein here. Can you see it?' (313). ED physician follows with an ONC: 'Yes, I see. It's enormous,' implying an understanding of a critical situation (314). The anaesthetist agrees and they both put the decision temporarily on hold with further OFC, building evidence for what to do next (316, 317). The radiographer announces that the chest X-ray is ready for examination and the anaesthetist seeks attention from the ED physician while looking at the X-ray screen: 'Come and look at the X-ray here. The mediastinum is widened.' (ONC 326). The ONC triggers action and redistributes tasks and responsibility, manifested by ED physician stopping his preparations for vena cava scanning and moving to the X-ray screen, followed by physicians 1 and 2. After explaining her evaluation of the X-ray (OFC 330 and 332), the anaesthetist directs attention to the patient's decreasing blood pressure and presents an ONC conflating to an MC: 'Now her blood pressure is falling. Do we have some pressor-?' (335) indicating a critical situation. This utterance triggers action and distributes tasks and responsibility to the nurse anaesthetist, who shifts focus from communicating with the radiographer to informing the anaesthetist about available medication (OFC 339). While the anaesthetist and the nurse anaesthetist are handling the patient's low blood pressure, ED physician, physician 1 and physician 2 are deciding about the chest X-ray. Framed as an ONC supported by an OFC, ED physician announces their mutual understanding to the team: 'Chest X-ray shows widened mediastinum. So, we must suspect there's an aortic dissection causing her low blood pressure' (343). This puts the decision temporarily on hold while many parallel activities are following. ED physician interviews the patient before continuing the vena cava examination, and the anaesthetist continues preparing for a central venous line while discussing norepinephrine administration and communicating about the vena cava examination. At the same time, ED nurse 1 proceeds with inserting a urine catheter. Framed as an ONC conflating into an OFC, the ED physician evaluates the ultrasound image: 'The vena cava inferior is hardly moving. So it is obstructive or cardiogenic shock.' (394). This utterance triggers action by the anaesthetist, asking 'But is it-. Should a pericardiocentesis be done, or is it-?' (MC 395), acknowledging the present team's expertise in decision-making. The lack of response results in her rephrasing the question: 'Has a thoracic surgeon been called? Or a thoracic anaesthetist- to come and assess- (3s pause) In terms of status.' (MC 402), challenging the present expertise including her own, and distributes the responsibility of seeking necessary expertise to the

others. ED physician interprets the anaesthetist's MC as a decision and confirms.

### Excerpt D

Situation (online supplementary appendix 4): Patient is >70 years old, living at home. Indication for hospital admission: cardiac arrest. CPR and ROSC prior to hospital transport. The patient was unconscious but breathing spontaneously at ED arrival and the airway was secured with a supraglottic airway device. During this phase of work, physician 1 is standing beside ED nurse 2 at the logging desk and two physicians from the thoracic surgical department are called and stand a small distance from the bed. Two radiographers are standing in the back of the room. The anaesthetist is standing near the patient's head and the nurse anaesthetist, nurse anaesthetist student and ED nurse 1 stand close to the anaesthetist. The excerpt begins with the anaesthetist's question to the radiographers: 'X haven't you taken the chest X-ray yet?' (MC 186), distributing responsibility for progress to the radiographers. The anaesthetist's next MC is framed as a question and directed to physician 1, reflecting his understanding of the situation while specifying his opinion of necessary task priority: 'Shall we take it now before we intubate him?' (192). Physician 1 decides: 'Yes, we'll do that. We'll take a chest X-ray.' (MC 193), resulting in the radiographer preparing to take a chest X-ray while the anaesthetist prepares for intubation. The anaesthetist removes the supraglottic airway device and asks about the patient's name when the X-ray is about to be taken. He then distributes the task to ED nurse 1 with an MC: 'Can you find a suction device for me?' (216). ED nurse 1 confirms and goes to fetch the necessary equipment. The anaesthetist tries to get contact with the patient after the X-ray and then addresses physician 1 with an ONC conflating into an MC: 'No contact NAME ((physician1)) I think we'll intubate.' (223). This utterance triggers action and distributes tasks and responsibility, physician 1 turns towards the anaesthetist while nodding, the nurse anaesthetist asks for confirmation and begins to prepare for the intubation, and ED nurse 1 provides an ONC on the patient's low oxygen saturation repeated by ED nurse 2, who is logging the events. The anaesthetist presents consecutive MC: 'Must have suction now!' (228), 'I need it now! (8) Can you watch out for his arm.' (230), 'Suction in the mouth.' (234), 'Suxamethonium and fentanyl.' (237) and "XX turn up" (243) triggering action, distributing tasks and responsibility and indicating a critical situation.

### DISCUSSION

We observed and videotaped 10 real-life medical emergency teams admitting critically ill patients to the hospital to expand knowledge on the talk-work relationship in emergencies. We used activity type analysis to identify patterns related to the occasioning and functioning of ONC, MC and OFC, and their influence on team decision-making processes.

A discourse analytical perspective on team talk in medical emergencies uncovered the dynamics and complexity of interdisciplinary teamwork, and included simultaneous talk, parallel activities, distribution of tasks and responsibility, and negotiation of meaning. Securing mutual understanding and coordinating activities are both dependent on effective communication skills and are highlighted in emergencies to avoid errors.<sup>23</sup> Sharing mutual understanding is crucial for patient safety and gives team members the ability to predict developments in a situation and support team decisions.<sup>27 41</sup> A structure of adjustments in team decision-making processes is an important coordination mechanism that can facilitate progression towards team goals.<sup>27</sup> This study illuminates the ways in which team members negotiate meaning to use collective expertise, creating common grounds for making good decisions. Every utterance is anchored in an understanding of the situation. Negotiating meaning means to acknowledge and challenge understanding within the team.<sup>50</sup> Our analysis clarified the role of OFC to communicate expertise in which the speaker takes on a pedagogical role to seek mutual understanding within the team of experts and create a common basis for decisions. OFC also challenges the existing grounds for making decisions by demanding more evidence, putting decisions temporarily on hold to build mutual understanding and extend the basis for decisions. This mirrors a dilemma found in safe teamworking in non-algorithm-driven activities, specifically sacrificing time to create common grounds for good decision-making. Future studies should focus on how emergency teams communicate when time is a limiting factor and relate this to patient outcome. This study demonstrates how ONC and MC generate attention and indicate critical situations. Both bring progress to the decision-making processes and distribute responsibilities and tasks. Our analysis shows examples of the ways in which team members manoeuvre safely, creating mutual understanding and accelerating the decision-making process by using ONC conflating into MC. MC implies activity-type-specific messages with implicit meaning, already negotiated within the community of practice and thus assumed to be understood within the specific context. 'I think we have to intubate' is a good example of this, as the nurse anaesthetist shows his correct interpretation by immediately providing medication and equipment for oral intubation. MC has similarities to what the anthropologist Gumperz refers to as 'contextualisation cues,' statements signalling contextual presumptions of what will happen next.<sup>52</sup> When discussion time is limited, using MC may appear to be time saving. However, building a mutual communicative practice and negotiating interpretations of implicit meaning may be difficult in interdisciplinary ad hoc emergency teams, and using MC could lead to misunderstandings or time-consuming explanations. There is a need for further investigations of whether team training could improve mutual communicative practice to avoid misunderstandings when time is a limiting factor.

This study illuminates the dynamics, complexity and 'potential risks' connected to naturally occurring team

communication in non-algorithm-driven medical activities. The analysis uncovers the ways that modes of talk function to negotiate meaning in team decision-making processes and to distribute tasks and responsibilities within the team. We must increase our scientific focus on the ways that modes of talk trigger safe team practice and integrate this into team training to improve communication skills in ad hoc emergency teams.

### Strengths and limitations

Video recording live hospital admissions in the ED was challenging due to low accessibility, the risk of disturbing ongoing life-saving activities and the implications of observing patients in vulnerable situations. Data collection was planned comprehensively and the study was carefully discussed with ethical authorities. Much research on emergency teamwork has been performed in standardised simulation scenarios. The most advanced simulators enable highly realistic emergency scenarios, but cannot replace all the complexity present in real life. Collecting real-life data is thus a strength, ensuring adequate samples for analysis. Analysing the talk-work relationship in emergency settings also demands cultural insight into the communicative activity type. Norwegian culture is characterised by informality and decentralised power, including a dislike of control.<sup>53</sup> Although both culture and body language are undeniably significant issues most likely influencing the talk-work relationship,<sup>54,55</sup> they were not addressed in this study.

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**Contributors** SG and PA made the study conception and design. SG made the audio/video recordings in the emergency department and transcribed the recordings. SG and GT operationalised the research design according to principles in discourse analysis. SG, PA, GT and TW were all involved in data analysis and interpretation. SG drafted the article. SG, PA, GT and TW revised the manuscript critically for important intellectual content together, and all approved the final version.

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**Competing interests** None declared.

**Patient consent** Not required.

**Ethics approval** This study was approved by the Regional Committees for Medical and Health Research Ethics, the Data Protection Official for Research at St. Olavs

hospital, University Hospital in Trondheim, Norway, and by the managing authorities at the hospital and in the ED.

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**Data sharing statement** The data supporting our findings are included in online supplementary appendix 1-4.

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