

**Observing and Measuring Behaviour:
Non-Technical Skills in the Operating Theatre**

**Observing communication
and problem solving in critical incidents**

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Background

- Project on training anaesthetists non-technical skills when coping with critical incidents → task analysis, observations
- Need to know exactly how anaesthetists communicate → pre/post training

Development of observation tools:

- Problem solving behaviour in teams, based on action psychology. 24 items that allow to categorize every utterance during a scenario, grouped into “action organization”, “team and process management”, “conflict resolution”, formal characteristics.
- Behavioural markers for adequate communication. List of markers specific for the scenarios used (16-22 items). For every phase of the incident a class of communication behaviours was defined that operationalize non-technical skills needed for a good management of the situation.

Observation in the simulator

Data were collected in the patient simulator of the University of Erlangen (Germany) using three different scenarios.

All three scenarios require communication (designed for evaluating the training)

The behavioural observations were categorized by psychologists of the University of Bamberg (Germany). Medical management was judged by expert anaesthetists.

- Scenario 1: Laparoscopic cholecystectomy with volume deficiency reaction and air embolism
- Scenario 2: Occluded perforated abdominal aorta aneurysm
- Scenario 3: Lung embolism after speculum examination of the knee in the recovery room

Specific behavioral markers

	Critical Situation in accordance with script	Behavioral marker
Scenario 1	Before the OP	Gives the OK for the OP only after his/her own preparations are completed
	Changed position (head raised, feet lowered)	Anesthesiologist conveys concern to the surgeon early Anesthesiologist asks for a change of position / release of pressure
Scenario 2	Incision	Requests rapid clamping or conveys problem Asks the surgeon to report
	Clamping	Intermediate briefing with nurse Improvement of circulation conveyed to surgeon
Scenario 3	Anesthesiologist enters recovery room	Anesthesiologist asks nurse what has happened Responsible superior is informed
	Surgeon rejects heparin	Anesthesiologist remains objective Anesthesiologist conveys reasons (acute danger to patient, life takes priority over knee ...vital problem)

Problem solving in the team

Overarching category	Categories
Formal characteristics	Question, statement, directive / order, other New unit of activity, addressing the surgeon on own initiative
Organization of action	Information gathering, model formation, conveying information (facts), decision, explanation of own activity, commentary on activity, conveying problem and situation, conveying problem and situation with model, redundance, control, confirming understanding, hypothesis, anticipation, goal, plan
Relation to team and process	Utterances related to team and relationship, process organization Reflection / emotional utterances / own feelings
Conflict management	Offer to engage in conflict; anesthiologist: objective, escalating, ignoring, de-escalating
Other	

Some findings

- Anaesthetists talked more than they thought they would (average 8.2 utterances per minute) in all scenarios
- Almost half of all utterances help pacing or establishing shared mental models
- Nearly no team briefings or explicit addressing of the team
- Nearly no talking about aims and plans (more than one step)
- Very few real questions
- Taking the initiative for communication seems to be difficult
- High correlation (.56) between quality of clinical management and communication measured with the behavioural markers

Observation in the emergency department

Observational study on management in the emergency department (diploma thesis, university of Regensburg)

Aim: how do they organise? → hints for better management

- Observations in 2 university and 2 community hospitals
- Cognitive Interviews with doctors and nurses (15)
- Additional questionnaire (4 hospitals)

Open questions

- Team approach – limited observational capacity → adaptation of tools
- Behavioural markers on an intermediate level for several real-life scenarios