Conditions for learning non-technical skills (NTS) / teamwork competencies using simulation and transferring the learned skills to the clinical workplace. [Protocol].

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Conditions for learning non-technical skills (NTS) / teamwork competencies using simulation and transferring the learned skills to the clinical workplace

Citation

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Review question

Do positive conditions (e.g., manager/ leader/peer support; collaborative work culture, safety culture, post-training feedback (does this go with methods)/coaching post/ reinforcement/ practice/resources/staffing levels/safety culture prior to training/work culture) facilitate transfer of learning?

Searches

CINAHL, embase, MEDLINE. Inclusion: systematic reviews, RCTs, comparative observational studies, non-comparative studies of intervention/ comparator (correlational), case series (>5 cases), qualitative studies. Exclusion: case reports, conference abstracts, trial protocols, editorials. No restrictions of language and year.

Types of study to be included

Inclusion: systematic reviews, RCTs, comparative observational studies, non-comparative studies of intervention/ comparator (correlational), case series (>5 cases), qualitative studies.

Exclusion: case reports, conference abstracts, trial protocols, editorials

Condition or domain being studied

Training of non-technical skills/ teamwork competencies will be defined as training that is intended to build knowledge, skills, and/or attitudes relating to NTS in a team context/ teamwork such as communication skills, decision making, structured handovers, situation awareness, coordinated behaviors, (task allocation), sharing the mental model (briefs, recaps), team leadership , speaking up with concerns (and acknowledgment by receiver), performance monitoring, backup behavior, mutual trust.

Non-technical skills will be defined as ‘the cognitive, social and personal resource skills that complement workers’ technical skills, and contribute to safe and efficient task performance.’ (Flin et al 2008, Safety at the Sharp End A Guide to Non-Technical Skills, p1). For the purposes of this review, the NTS skills will be considered in a team context.

Conditions will be defined as factors being present in the work environment or being facilitated by the work environment (e.g. leader/peer support; collaborative work culture; post training coaches) that can aid learning and the transfer of learning from training activities.

Participants/population

Primary population. Healthcare professionals participating in simulation-based training of NTS/teamwork competencies. Healthcare professionals will be defined as any healthcare professional working in the pre-hospital or in-hospital setting (e.g., nurses, physicians, paramedics). Students enrolled in healthcare educations will be included as well but coded differently than healthcare professionals in clinical practice.

Intervention(s), exposure(s)

Any conditions before- or after NTS/ team training including resource availability pre- or post training. Conditions will be defined as factors being present in the work environment or being facilitated by the work environment (e.g. leader/peer support; collaborative work culture; post training coaches) that can aid learning and the transfer of learning from training activities.

Comparator(s)/control

Other conditions being present before- or after NTS/ team training including resource availability pre- or post-training. Conditions will be defined as factors being present in the work environment or being facilitated by the work environment (e.g. leader/peer support; collaborative work culture; post training coaches) that can aid learning and the transfer of learning from training activities.

Context

Healthcare professionals will be defined as any healthcare professional working in the pre-hospital or in-hospital setting (e.g., nurses, physicians, paramedics). Students enrolled in healthcare educations will be included as well but coded differently than healthcare professionals in clinical practice.

Simulation-based training will be defined as any educational activity involving manikins; simulated patients, teammates, or other key stakeholders; virtual reality experiences; or task trainers as the whole training or as part of a larger course curriculum e.g., classroom teaching, lectures, and/ or e-learning.

Training of non-technical skills/ teamwork competencies will be defined as training that is intended to build knowledge, skills, and/or attitudes relating to NTS in a team context/ teamwork such as communication skills, decision making, structured handovers, situation awareness, coordinated behaviors, (task allocation), sharing the mental model (briefs, recaps), team leadership , speaking up with concerns (and acknowledgment by receiver), performance monitoring, backup behavior, mutual trust.

Non-technical skills will be defined as ‘the cognitive, social and personal resource skills that complement workers’ technical skills, and contribute to safe and efficient task performance.’ (Flin et al 2008, Safety at the Sharp End A Guide to Non-Technical Skills, p1). For the purposes of this review, the NTS skills will be considered in a team context.

Conditions will be defined as factors being present in the work environment or being facilitated by the work environment (e.g. leader/peer support; collaborative work culture; post training coaches) that can aid learning and the transfer of learning from training activities.

Main outcome(s)

Knowledge, self-efficacy, psychological safety, skill acquisition, skill retention, performance in simulator, clinical performance, patient outcomes, or organizational /system outcomes (e.g. financial costs, culture, staff retention). (Individual, team, organizational level)

Additional outcome(s)

If no data is identified for the primary population, secondary and tertiary populations will be screened.

Secondary: Healthcare professionals participating in non-simulation-based training of NTS/teamwork competencies

Tertiary: Any learner participating in simulation-based training of any skill.

Data extraction (selection and coding)

Two members of the review team will independently: 1) screen the titles and abstracts, for potential relevance of all studies obtained in the search; and 2) review the full text of identified studies against inclusion and exclusion criteria. Duplicate publications will be removed. Any conflicts will be discussed between these two reviewers and a third author will be consulted to resolve any ongoing conflicts relating to the study's eligibility if necessary.

The study selection process will be documented using a PRISMA flow chart of included and excluded studies. Data extraction will include the main components of study design type, intervention type, context or setting and outcomes and will be conducted by two team members.

Risk of bias (quality) assessment

Two members of the review team will independently perform risk of bias assessment for each included study using the Cochrane Collaboration Risk of Bias 2 (RoB2) tool for randomised controlled trials and the The Risk Of Bias In Non-randomized Studies – of Interventions (ROBINS-I) assessment tool for non-randomized studies. Disagreements were resolved by discussion between the two reviewers and a third author will be consulted to resolve any ongoing conflicts relating to the studies eligibility if necessary. The certainty of evidence was assessed using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system in GRADEpro Guideline Development Tool.

Strategy for data synthesis

We will summarize the outcomes of interest as reported in the included studies. We will report adjusted odds ratios and adjusted risk ratios whenever possible. Whenever possible, having sufficient data for subgroups with reasonable heterogeneity (clinically and statistically), meta-analyses will be performed. Statistical heterogeneity between the studies will be assessed using I^2 statistics.

Analysis of subgroups or subsets

a. Which conditions compared to other conditions are associated with the strongest effects?

b. Are conditions present before training more or less important when compared to conditions present after training?

c. Does the importance of conditions differ depending on the type of teamwork/ non-technical skill being trained?

d. Does the importance of conditions differ depending on the profession or specialty of healthcare providers being trained?

e. Does the importance of conditions differ depending on whether it is in a high-resource setting or a low-resource setting

Contact details for further information

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Organisational affiliation of the review

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Review team members and their organisational affiliations

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Type and method of review

Systematic review

Anticipated or actual start date

23 February 2022

Anticipated completion date

30 June 2022

Funding sources/sponsors

Society for Simulation in Healthcare

Conflicts of interest

Language

English

Country

Denmark

Stage of review

Review Ongoing

Subject index terms status

Subject indexing assigned by CRD

Subject index terms

Clinical Competence; Humans; Simulation Training; Workplace

Date of registration in PROSPERO

24 April 2022

Date of first submission

24 March 2022

Stage of review at time of this submission

Stage	Started	Completed
Preliminary searches	Yes	No
Piloting of the study selection process	Yes	No
Formal screening of search results against eligibility criteria	Yes	No
Data extraction	No	No
Risk of bias (quality) assessment	No	No
Data analysis	No	No

The record owner confirms that the information they have supplied for this submission is accurate and complete and they understand that deliberate provision of inaccurate information or omission of data may be construed as scientific misconduct.

The record owner confirms that they will update the status of the review when it is completed and will add publication details in due course.

Versions

24 April 2022

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