

Netechnické dovednosti v přednemocniční neodkladné péči

Roman Sýkora



KLINIKA
ANESTEZIOLOGIE
A RESUSCITACE
3. LF UK a FNKV



Netechnické dovednosti ...

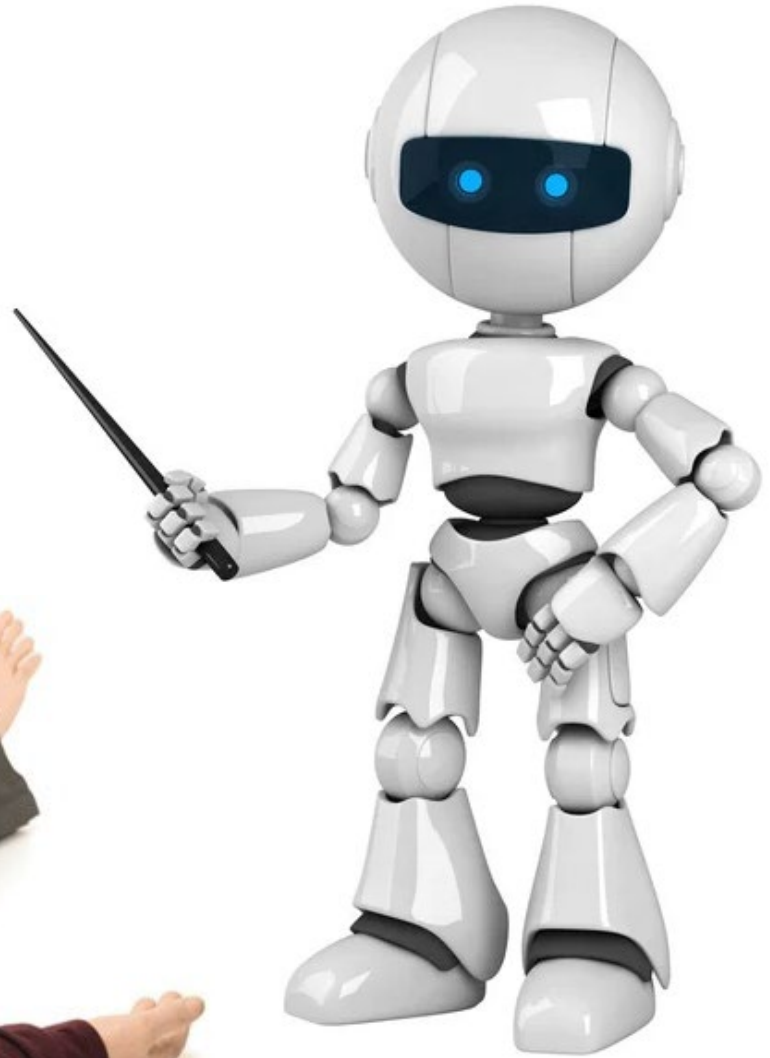
... v přednemocniční péči

Co to je?

K čemu to je?

... a lze se to naučit?

... a jde to i měřit?





Prostředí přednemocniční péče (PNP)

Nepředvídatelné

Široké spektrum

Limitované zdroje, čas

Emoce – chování: zdravotníků, pacienta, okolí

Stres ... vyhoření

Netechnické dovednosti

Sociální

komunikace, vedení, spolupráce

Kognitivní

rozhodování, situační povědomí, řízení úkolů, kognitivní připravenost

Osobnostní

empatie, zvládání stresu, únavy, ... behaviorální

Non-technical skills in paramedicine: A scoping review

Ryan Bennett BPara (Hons) | Niall Mehmed BPara | Brett Williams PhD 

Důležité NTS pro PNP

2004 → 2020

n = 93

extrémní heterogenita studií

studenti

70% (USA, Canada, UK)

... 26 NTS

Decision-making

Teamwork

Respect

Adaptive

Communication

Situational awareness

Reflection

Non-discriminatory

Empathy

Professional

Rapport

Mentor

Leadership

Compassion

Assertive

Task management

Ethical

Interpersonal

Problem solving

Emotional intelligence

Coping with stress

Listening

Time management

Resilience

Scene management

Integrity

Transport decisions
End of life (vč. KPR)

S pacientem
Nedostatky (kritické situace v pediatrii)
Pozitivní vliv edukace studentů
(geriatrie, pediatrie)

Kvalita spánku
Nízká míra empatie k abuzu
Nižší empatie paramediků vč. studentů vs kontrola
Studenti prvního ročníku
Pozitivní vliv edukace

Důležitost leadershipu a mentoringu
Předpoklad profesní zkušenosti pro leadership
(+ podpora, vedení a rada mentora)
Leader: komunikace, přizpůsobivost, klid a
schopnost kritického myšlení

Decision-making

Teamwork

Respect

Adaptive

Communication

Situational awareness

Reflection

Non-discriminatory

Empathy

Professional

Rapport

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Task management

Ethical

Interpersonal

Problem solving

Emotional intelligence

Coping with stress

Listening

Time management

Resilience

Scene management

Integrity

„Lepší NTS = bezpečná péče“ ?

NTS

Chyba

NTS

Job satisfaction

Empatie

Diagnostika

Bezpečná péče

Empatie

Compliance

BMJ Open Association between measured teamwork and medical errors: an observational study of prehospital care in the USA

Simone Herzberg,¹ Matt Hansen,² Amanda Schoonover,³ Barbara Skarica,³ James McNulty,⁴ Tabria Harrod,³ Jonathan M Snowden,⁵ William Lambert,⁶ Jeanne-Marie Guise ³

n=176 simulací 44 dvoučlenných týmů profesionálů
top high fidelity in the field: NLS, PALS, NAT, AT + prof. herci

CTS

Error measurement

Table 2 Taxonomy of observed errors

Errors	Type
Diagnostic and management	Assessment, algorithm, diagnostic, management, decision-making
Medication	Wrong medication, dose, route, sequence, type, intravenous fluid issue, etc
Technical	Wrong device, size, bagging, intubation, CPR, defibrillator, immobilisation
Scene/environment	Scene safety, scene time, positioning, patient/family

Table 5 CTS domain-specific ratings in simulations with and without any observed error

Error	CTS item rating		
	No error (mean, SD)	One or more errors (mean, SD)	P value
Overall communication*	7.13 (2.21)	5.89 (2.00)	0.002
Overall situational awareness†	7.31 (2.07)	6.26 (2.25)	0.01
Overall decision-making‡	7.26 (2.07)	5.49 (2.35)	<0.001
Overall role responsibility (leader/helper)§	7.25 (1.74)	6.06 (1.92)	0.001
Patient friendliness§	7.13 (2.56)	6.44 (2.17)	0.16

Safety issues

Table 3 Comparing CTS overall teamwork score between teams with and without errors by simulation scenario

Simulation scenario	No error	One or more errors	T*	P value
	(mean, SD)	(mean, SD)		
Motor vehicle collision	6.20 (2.25)	5.91 (1.96)	0.37	0.72
Non-accidental trauma	8.20 (1.10)	5.57 (2.03) 89%	4.39	0.0019†
Newborn cardiac arrest	7.55 (1.97)	5.79 (2.18) 75%	2.5	0.022†
Six-year-old cardiac arrest	7.17 (1.60)	5.78 (2.09)	1.88	0.097
All simulations	7.16 (1.95)	5.76 (2.04)	3.61	0.0007†

Teamwork performance can be enhanced by practice ... (and training)



Simulace

Escape room

Strukturovaný ...

... video debriefing

Objektivizace
(assessment tool?)



personálně náročné
train the trainers +



osobnosti frekventantů
výběr nástroje

RESEARCH

Open Access

A study of validity and usability evidence for non-technical skills assessment tools in simulated adult resuscitation scenarios



Helen Higham^{1*}, Paul Greig¹, Nick Crabtree², George Hadjipavlou³, Duncan Young¹ and Charles Vincent⁴

Skórovací systémy

Team Emergency Assessment Measure (TEAM)

11 položek, 3 domény: vedení, spolupráce, task management, rating 0-4, global & total score

Non-technical skills scoring systém (NOTECHS)

15 položek, 5 domén: vedení, kooperace a CRM, komunikace a interakce, hodnocení a rozhodování, situační povědomí a zvládání stresu 1-5 (behavioral marker: acceptable/unA)

Clinical teamwork scale (CTS)

15 položek, 5 domén: komunikace, rozhodování, role responsibility, leader/followership, situační povědomí, patient friendliness, 0-10, + overall teamwork

Anaesthetists' Non-Technical Skills (ANTS)

Non-Technical Skills for Surgeons (NOTSS)

... behavioral assessment tool

REVIEW

Open Access

Cognitive skills of emergency medical services crew members: a literature review



Martin Sedlár

RESEARCH

Collecting evidence of validity for an assessment tool for Norwegian medical students' non-technical skills (NorMS-NTS): usability and reliability when used by novice raters

Katrine Prydz^{1,2*}, Peter Dieckmann^{3,4,5}, Hans Fagertun⁶, David Musson⁷ and Torben Wisborg^{1,2}

However, only three articles developed rating tools containing behavioral markers of cognitive skills, such as specific acts and verbalizations, that could be considered as examples of good behavior. One focused solely upon

NEAR PEER
PNP / in field ...

Non-technical Skills for Medical Students: Validating the Tools of the Trade

Lysander J. Gourbault¹, Erin L. Hopley¹, Francesca Finch¹, Sally Shiels¹, Helen Higham¹

1. Oxford Simulation, Training and Research (OxSTaR), John Radcliffe Hospital, Oxford, GBR

Corresponding author: Lysander J. Gourbault, lysander@gourbault.com



dentistry journal

Article

Peer Mentoring as a Tool for Developing Soft Skills in Clinical Practice: A 3-Year Study

Antonio M. Lluch¹ , Clàudia Lluch² , María Arregui^{3,*} , Esther Jiménez⁴ and Luis Giner-Tarrés

Analyzing interprofessional teamwork in the operating room: An exploratory observational study using conventional and alternative approaches

Sylvain Boet, Joseph K. Burns, Jamie Brehaut, Meghan Britton, Teodor Grantcharov, Jeremy Grimshaw, Meghan McConnell, Glenn Posner, Isabelle Raiche, Sukhbir Singh, Patricia Trbovich & Cole Ethington

Nejen sumativní hodnocení +
behaviorální aspekty ale i okolností

RESEARCH

Open Access



Non-technical skills in pre-hospital care in the Czech Republic: a prospective multicentric observational study (NTS study)

David Peran^{1,2,3,4}, Roman Sykora^{1,3,4*}, Jana Vidunova⁵, Ivana Krsova⁵, Jaroslav Pekara^{2,4}, Metodej Renza^{1,3}, Nikola Brizgalova¹ and Patrik Ch. Cmorej^{6,7}

Organisation	Prague EMS	EMS Karlovy Vary Region	EMS Pilsen Region
Cases observed	162	100	100
Forms excluded	2	0	1
Forms included in analysis	160	100	99
Forms included in total	359		

mTEAM skóre
Multicentrická studie
2 a více VS na místě
Field supervisor

	CPR (n = 110)	TRAUMA (n = 122)	MEDICAL (n = 127)	
Item 1: The team leader let the team know what was expected of them through direction and command	3.0 (2.0–4.0)*	3.0 (2.0–3.0)	3.0 (2.0–3.0)*	$p = 0.02$
Item 2: The team leader maintained a global perspective	3.0 (2.0–3.0)	3.0 (2.0–3.8)	3.0 (2.0–3.0)	$p = 0.32$
Item 3: The team communicated effectively	3.0 (2.0–3.0)	3.0 (2.0–3.0)	3.0 (2.0–3.0)	$p = 0.70$
Item 4: The team worked together to complete tasks in a timely manner	3.0 (3.0–3.0)	3.0 (2.0–3.0)	3.0 (2.5–3.0)	$p = 0.06$
Item 5: The team acted with composure and control	3.0 (2.0–4.0)	3.0 (2.0–3.0)	3.0 (3.0–4.0)	$p = 0.09$
Item 6: Team morale was positive	3.0 (2.0–4.0)	3.0 (2.0–4.0)	3.0 (2.0–3.0)	$p = 0.62$
Item 7: The team adapted to changing situations, monitored and reassessed the situation	3.0 (2.0–4.0)	3.0 (2.0–3.0)	3.0 (3.0–3.0)	$p = 0.33$
Item 8: The team anticipated potential actions and prioritised tasks	3.0 (2.0–3.0)	3.0 (2.0–3.0)	3.0 (3.0–3.0)	$p = 0.10$
Total score	24.0 (19.3–28.0)	22.5 (17.3–27.0)	23.0 (20.0–26.0)	$p = 0.37$

Data are presented as median and interquartile range (25th percentile to 75th percentile); p values are presented for Kruskal Wallis test; * indicates the significant difference between marked subgroups in pairwise comparisons by Mann Whitney U test with Bonferroni correction; CPR Cases of cardiac arrest with ongoing

Tréning observerů – interater variabilita

NTS: KPR > MEDICAL > TRAUMA

... leadership

... task management



ELSEVIER

Available online at www.sciencedirect.com

Resuscitation Plus

journal homepage: www.elsevier.com/locate/resuscitation-plus



Clinical paper

Measuring non-technical skills during prehospital advanced cardiac life support: A pilot study



Philippe Dewolf^{a,b,1,}, Maité Vanneste^{a,1}, Didier Desruelles^a, Lina Wauters^a*

Observační

Videonahrávka z pohledu lídra týmu

114 OHCA, TEAM

Leadership a komunikace nízká skóre

Mezi TEAM a ROSC, 28 denním přežití – θ korelace

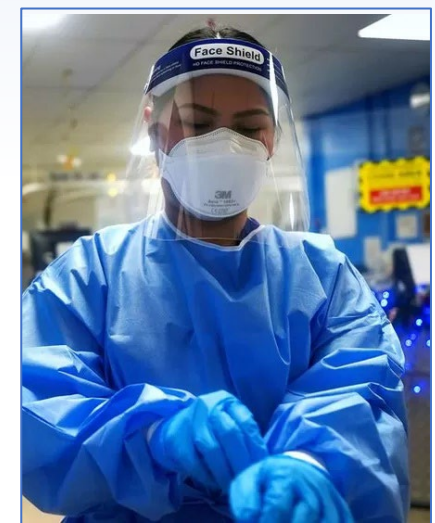
... 44 a 9%

Influence of additional personal protective equipment on team performance in simulation-based emergency scenarios: a randomised controlled trial

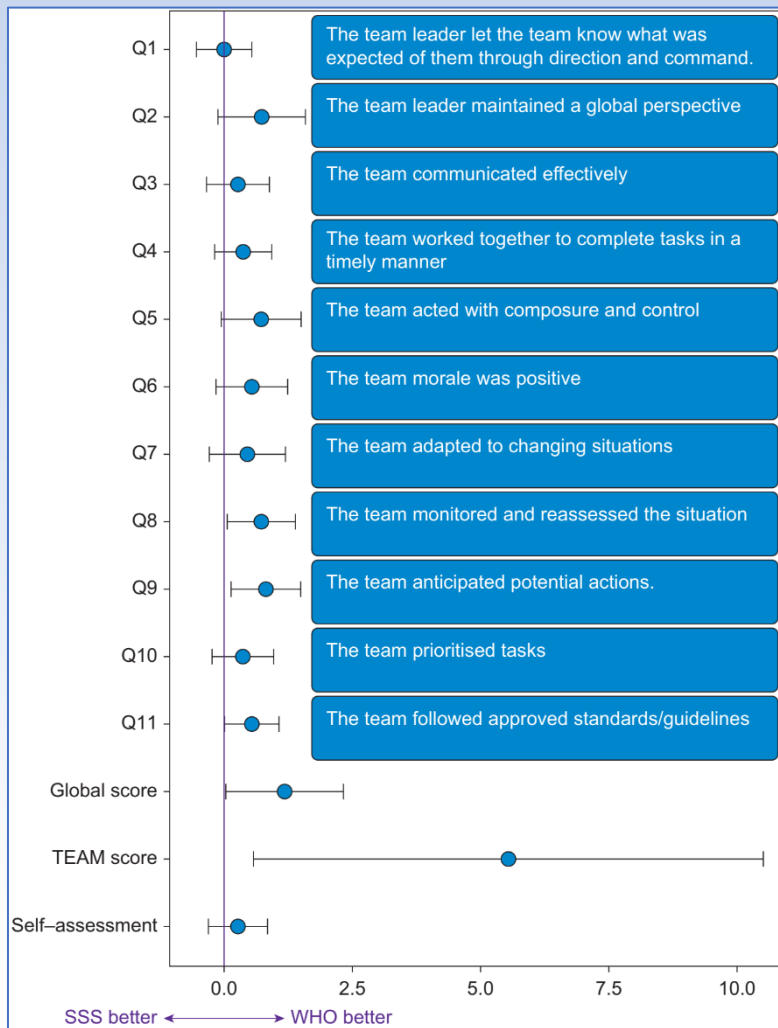
Metoděj Renza¹ , David Peřan^{1,2}, Roman Sýkora^{1,2}, Michael Stern¹, Václav Zvoníček¹, Petr Waldauf¹  and František Duška^{1,*} 

BJA
British Journal of Anaesthesia

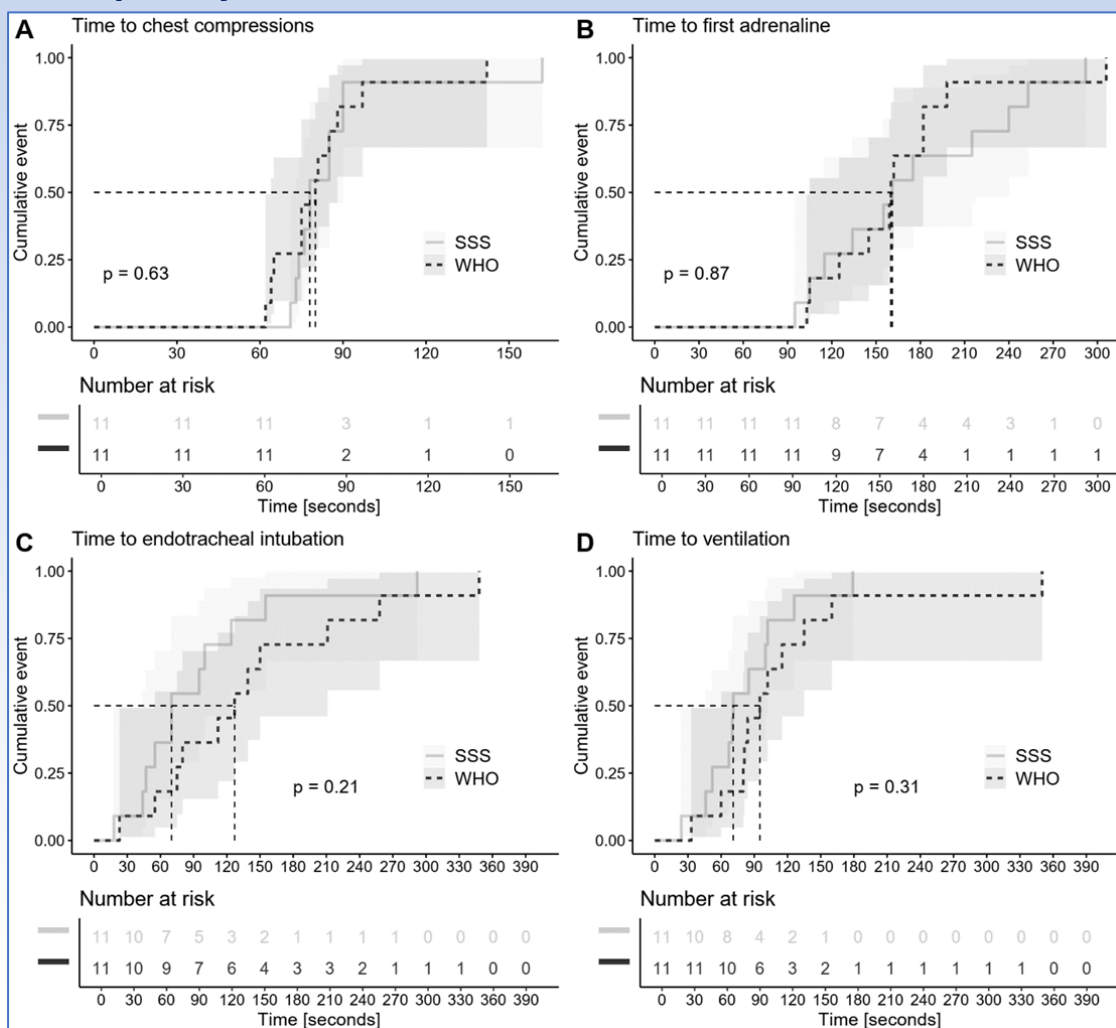
TEAM, kvantitativních měření výkonu a fyziol. funkcí
3 member teams CPR (critical care), simulace
mock (baseline), randomizace SSS vs WHO



TEAM score



CPR quality



Physiological function of rescuers

	WHO (n=33)	SSS (n=33)	p
End-of-session heart rate (change since baseline, bpm)	107±20 (+19±16)	118±23 (+23±16)	0.348
End-of-session SpO ₂ (change since baseline, %)	97.5±1.0 (-0.3±1.8)	97.6±1.3 (-0.3±1.8)	0.945
End-of-session temperature (change since baseline, °C)	36.6±0.4 (-0.2±0.5)	36.8±0.5 (+0.13±0.5)	0.15

Výzvy NTS v PNP

Tréning - simulace – tools, videodebriefing

V terénu – field supervisor, near peer, mentor, video

TEAM, NOTECHS, videodebriefing

NTS: nižší míra chyby

Pacient outcomes / prehospital / design challenge

roman.sykora@zzskvk.cz