

# Μη χειρουργικές δεξιότητες (NTSS: Non-surgical technical skills)

Διονύσης Μητρόπουλος

Καθηγητής Ουρολογίας

Α' Ουρολογική Κλινική

Ιατρική Σχολή Πανεπιστημίου Αθηνών

## Σύγκρουση συμφερόντων

Travel grants and/or advisor/lecturer:

Astellas, Amgen, Ferring, GSK, Genekor,  
Eli Lilly, Sanofi-Aventis, Specifar, Pfizer,  
Pharmanel, Janssen, Rafarm

- Η χειρουργική, ίσως περισσότερο από κάθε άλλο κλάδο της ιατρικής, καθορίζεται από τις τεχνικές δεξιότητες των λειτουργών της, κάτι που πήρε προτεραιότητα στην εκπαίδευσή τους.
- Η πρακτική της χειρουργικής όμως απαιτεί, εκτός από τις τεχνικές δεξιότητες, και την ύπαρξη μη τεχνικών δεξιοτήτων όπως όπως η ικανότητα επικοινωνίας, ομαδικής δουλειάς και λήψης αποφάσεων.
- Οι μη τεχνικές δεξιότητες επηρεάζουν την απόδοση της ομάδας,<sup>1,2</sup> τις χειρουργικές δεξιότητες<sup>3</sup> και την ασφάλεια των ασθενών στο χειρουργείο δεδομένου ότι οι ανεπαρκείς μη τεχνικές δεξιότητες ευθύνονται για περισσότερα λάθη στη χειρουργική αίθουσα συγκριτικά με τις χειρουργικές δεξιότητες.<sup>2</sup>

*1. Gawande AA et al. Surgery 2003; 133: 614-21*

*2. Rogers Jr SO et al. Surgery 2006; 140:25-33*

*3. Hull L et al. J Am Coll Surg 2012; 214:214-30*



Οι μη τεχνικές δεξιότητες μπορούν να ταξινομηθούν σε νοητικούς παράγοντες (λήψη αποφάσεων, αντίληψη κατάστασης, σχεδιασμός), κοινωνικούς παράγοντες (επικοινωνία, ομαδική δουλειά, ηγετικά προσόντα) και προσωπικούς (δυνατότητα διαχείρισης stress και κόπωσης).

*Flin R, O'Connor P, Crichton M. Safety at the sharp end. A guide to non-technical skills. Farnham: Ashgate Publishing Limited; 2008.*

Table 3

Examples of non-technical skills for the operating room (adapted from 32 to 34).

Non-technical skill	Description	Examples of good behaviours
Communication (social skill)	Ability to clearly deliver and receive information	Clear and concise instructions Waits for check back
Teamwork (social skill)	Co-ordination of activities to optimize performance.	Supportive of other team members Values and utilises contribution of other team members
Leadership (social skill)	Ability of the team leader to optimize team performance.	Does not permit corner cutting Utilisation of resources Manages time well
Situational Awareness (cognitive skill)	Ability of the individual or team to accurately perceive the environment	Continuous monitoring of patient parameters Verbalses what is needed in the future
Decision Making (cognitive skill)	The process of reaching a judgment or deciding on a course of action	Verbalses problem Communicates & implements decision Reviews/monitors outcome

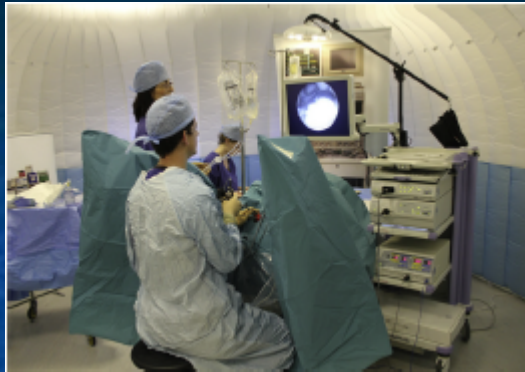
*Flin R, et al. Safety at the sharp end. A guide to non-technical skills. Farnham: Ashgate Publishing Limited; 2008.*  
*Sevdalis N, et al. Am J Surg 2008;196:184-90.*  
*Yule S, et al. World J Surg 2008;32:548-56*

➤ Έχει πλέον δημιουργηθεί η αναγκαιότητα για εστιασμένη εκπαίδευση για την κάλυψη των κενών στις μη τεχνικές δεξιότητες

➤ Η προσομοίωση της λειτουργίας της ομάδας αρχίζει να διαφαίνεται σαν ένα ισχυρό εκπαιδευτικό εργαλείο που θα βοηθήσει στην απόκτηση μη τεχνικών δεξιοτήτων

*Youngson GG et al. Patient Saf Surg 2010 ; 4:4*





Η δυνατότητα ομαδικής δουλειάς δεν αποτελεί εγγενές συστατικό της προσωπικότητας και μπορεί να διδαχθεί και να αναπτυχθεί.

Η εκπαίδευση στην ομαδική δουλειά συνήθως χρησιμοποιεί υψηλής πιστότητας περιβάλλοντα που αναπαριστούν κλινικά σενάρια όπως μιά προσομοιωμένη χειρουργική αίθουσα, η πραγματική χειρουργική αίθουσα ή ακόμη και μιά κινητή χειρουργική μονάδα ("igloo simulator"). Στα περιβάλλοντα αυτά, ο προσεκτικός σχεδιασμός του σεναρίου, η εκπαίδευση της ομάδας σε διαφορετικούς ρόλους και η μαγνητοσκόπηση βοηθούν για την μεγιστοποίηση της μαθησιακής διαδικασίας. Ο σημαντικότερος παράγοντας επιτυχίας είναι η ανάλυση μετά την ολοκλήρωση του σεναρίου. Ο έμπειρος συντονιστής δίνει ανατροφοδότηση, ενθαρρύνει την ανάλυση ειδικών συμπεριφορών και μη τεχνικών δεξιοτήτων, δημιουργεί ένα ασφαλές εκπαιδευτικό περιβάλλον και βοηθά τους εκπαιδευόμενους να εφαρμόσουν την γνώση τους στα δεδομένα της εργασίας τους.

*Brewin J et al. Int J Surg 2014; 12:103-108*

Η αποτελεσματικότητα μίας τέτοιας εκπαίδευσης έχει αναλυθεί σε διάφορες μελέτες, μεταξύ των οποίων και δύο σε ουρολογικά σενάρια προσομοίωσης λαπαροσκοπικής νεφρεκτομής σε ένα υψηλής πιστότητας προσομοιωμένο περιβάλλον χειρουργικής αίθουσας.

Οι συμμετέχοντες εδήλωσαν ότι η εκπαιδευτική διαδικασία ήταν σημαντική (face validity).

Η τεχνική απόδοση αλλά όχι η απόδοση με βάση μη τεχνικές δεξιότητες είχε σχέση με την εμπειρία, πράγμα που σημαίνει ότι ακόμη και έμπειροι ειδικευόμενοι έχουν ανάγκη εκπαίδευσης σε μη τεχνικές δεξιότητες.

Μετά την αρχική εκπαίδευση παρατηρήθηκε σημαντική βελτίωση στην ομαδική δουλειά και την απόδοση της ομάδας στα προσομοιωμένα σενάρια

*Lee JY, et al. J Urol 2012;187:1385-91.  
Gettman MT, et al. J Urol 2009;181:1289-96*



# ➤ UK: SIMULATE: a national simulation based training program

Ahmed K et al. *BJU Int* 2011; 108:1698-702

Khan MS et al. *BJU Int* 2013; 111:518-23

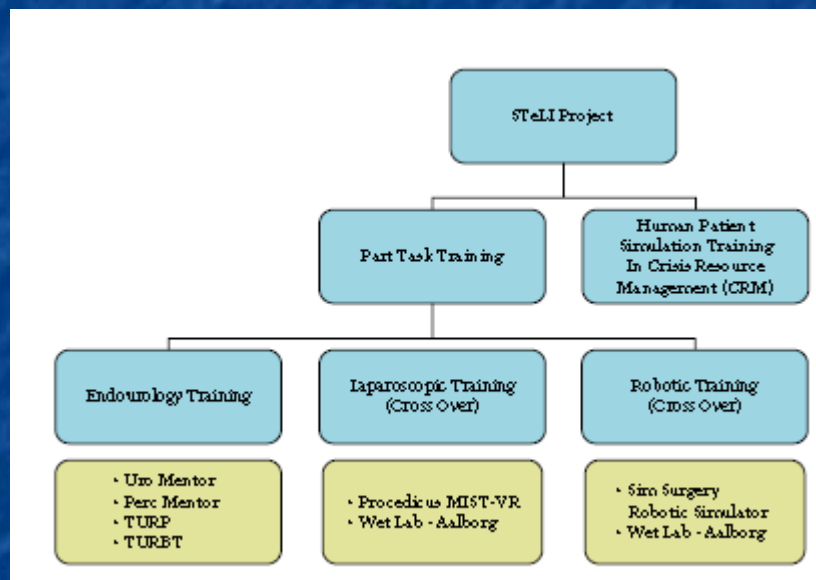


Table 2 Clinical scenarios for training and assessment of non-technical skills.

Scenario number	Scenario description
1	Urological sepsis in an elderly patient
2	Complication after laparoscopic nephrectomy. Discussion with family about complications after surgery for scenario 1
3	Ward based chest pain after cystectomy with progression to ventricular fibrillation arrest
4	Transurethral resection syndrome
5	Transfusion reaction in a patient bleeding after nephrectomy
6	Anuric patient secondary to catheter misplacement leading into opiate toxicity

Η αξιολόγηση των μη τεχνικών δεξιοτήτων μπορεί να γίνει με σταθμισμένα εργαλεία όπως το OTAS (Observational Teamwork Assessment for Surgery), το NOTECHS (Oxford Non Technical Skills) και το NOTSS (Non Technical Skills for Surgeons).

Προς το παρόν δεν υπάρχουν επαρκείς αποδείξεις για την ενσωμάτωσή τους στη σύγχρονη εκπαίδευση.

Υπάρχει ανάγκη για έμπειρους αξιολογητές των μη τεχνικών δεξιοτήτων δεδομένου ότι ακόμη και έμπειροι χειρουργοί αδυνατούν να αξιολογήσουν αντικειμενικά τις συμπεριφορές τους.

*Arora S, et al. Am J Surg 2011; 202:500-506.*

*Hull L, et al. J Am Coll Surg 2011; 212:234-243[e1-5].*

**TABLE 3.** Examples of Validated Assessment Tools for Nontechnical Skills<sup>39-41</sup>

<b>Study</b>	<b>Skills Training</b>	<b>Procedure Type</b>	<b>Participants</b>	<b>Mode of Validation</b>
Mishra et al. <sup>41</sup>	Teamwork behavior	Oxford NOTECHS system	Teams performing laparoscopic cholecystectomy	Construct and concurrent validities and interobserver reliability
Hull et al. <sup>37</sup>	Teamwork in operating room	OTAS	Teams conducting elective procedures	Construct validity
Arora et al. <sup>36</sup>	Technical and nontechnical skills	OSATS, NOTSS	Novice and expert surgeons	Construct validity and interobserver reliability
Shamim et al. <sup>40</sup>	Technical and nontechnical skills	CRM	Specialist registrars of different grades and urological nurses	Construct validity and feasibility

NOTECHS, nontechnical skills; OTAS, observational teamwork assessment for surgery; OSATS, objective structured assessment of technical skill; NOTSS, nontechnical skills for surgeons.

*Shepherd W, et al. J Surg Educ 2014; 71:289-296.*



## Η εκπαίδευση στην Ουρολογία δεν εξαντλείται στην απόκτηση τεχνικών δεξιοτήτων

- Απόκτηση γνώση και δεξιοτήτων της ειδικότητας
- Απόκτηση γενικότερων ικανοτήτων

RCPSC	ACGME
Medical expert/clinical decision maker	Patient care
Communicator	Medical knowledge
Collaborator	Practice-based learning
Manager	Interpersonal and communication skills
Health advocate	Professionalism
Scholar	System-based practice
Professional	

*Καναδάς: Royal College of Physicians and Surgeons of Canada (RCPSC)*

<http://rcpsc.medical.org>

*USA: Accreditation Council for Graduate Medical Education (ACGME)*

<http://www.acgme.org>

## ➤ 360° Rating Form

Is completed by any person in the resident's sphere of influence (other physicians, nurses, clerical and ancillary staff) and assesses Professionalism and Interpersonal & Communication skills

SYSTEM FOR EVALUATION OF COMPETENCIES IN RESIDENCIES FOR UROLOGY

### 360° Rating Form

Resident: \_\_\_\_\_ Rotation: \_\_\_\_\_

Staff: \_\_\_\_\_ Date: \_\_\_\_\_

*For each item, circle the number that corresponds with how characteristic the behavior is of the resident you are evaluating.*

PROFESSIONALISM (1-10), INTERPERSONAL & COMMUNICATION SKILLS (11-20)	Not at all Characteristic				Highly Characteristic	Don't Know
1. Follows through on tasks he/she agreed to perform	1	2	3	4	5	DK
2. Responds to requests, including pages, in a helpful and prompt manner	1	2	3	4	5	DK
3. Knows the limits of his/her abilities and asks for help when needed	1	2	3	4	5	DK
4. Takes responsibility for actions, admits mistakes and does not blame others	1	2	3	4	5	DK
5. Makes patient care and well-being a priority	1	2	3	4	5	DK
6. Provides equitable care regardless of patient culture and socioeconomic status	1	2	3	4	5	DK
7. Is willing to act on feedback or other information to improve patient care	1	2	3	4	5	DK
8. Maintains respectful demeanor in demanding and stressful situations	1	2	3	4	5	DK
9. Is honest in interactions with others	1	2	3	4	5	DK
10. Takes on extra responsibilities when the need arises	1	2	3	4	5	DK
11. Easily establishes rapport with patients and their families	1	2	3	4	5	DK
12. Is respectful and considerate in interactions with patients	1	2	3	4	5	DK
13. Responds to patients' needs, feelings, or wishes	1	2	3	4	5	DK
14. Uses non-technical language when explaining and counseling	1	2	3	4	5	DK
15. Spends adequate amount of time with patients	1	2	3	4	5	DK
16. Is willing to answer questions and provide explanations	1	2	3	4	5	DK
17. Is courteous to and considerate of nurses and other staff	1	2	3	4	5	DK
18. Discusses patient issues clearly with staff and faculty	1	2	3	4	5	DK
19. Listens to and considers what others have to say about relevant issues	1	2	3	4	5	DK
20. Maintains complete and legible medical records	1	2	3	4	5	DK

SECURE Working Group, 2004

# ➤ Global Resident Competency Rating Form

Assessment of resident performance in 6 competences (professionalism, interpersonal & communication skills, medical knowledge, practice-based learning & improvement, patient care, systems-based practice), rate: 9-point scale, completed by faculty at the end of each rotation

SYSTEM FOR EVALUATION OF COMPETENCIES IN RESIDENCIES FOR UROLOGY  
Global Resident Competency Rating Form

Resident: \_\_\_\_\_ PGY Level: \_\_\_\_\_ Rotation: \_\_\_\_\_  
Faculty: \_\_\_\_\_ Date: \_\_\_\_\_

Please circle the number corresponding to the resident's performance in each area, irrespective of training level

*Unsatisfactory* = Several behaviors performed poorly or missed (ratings 1, 2, or 3)  
*Satisfactory* = Most behaviors performed acceptably (ratings 4, 5, or 6); satisfactory performance is described below  
*Superior* = All behaviors performed very well (ratings 7, 8, or 9)

	UNSATISFACTORY			SATISFACTORY			SUPERIOR		
<b>Professionalism</b>									
1. Accepts responsibility and follows through on tasks	1	2	3	4	5	6	7	8	9
	Accepts responsibilities willingly; is industrious & dependable; completes tasks carefully & thoroughly; responds to requests in a helpful & prompt manner								
2. Practices within the scope of his/her abilities	1	2	3	4	5	6	7	8	9
	Recognizes limits of his/her abilities; asks for help when needed; refers patients when appropriate; exercises authority accorded by position and/or experience								
3. Responds to each patient's unique characteristics and needs	1	2	3	4	5	6	7	8	9
	Is sensitive to issues related to each patient's culture, age, gender & disabilities; provides equitable care regardless of patient culture or socioeconomic status								
4. Demonstrates integrity and ethical behavior	1	2	3	4	5	6	7	8	9
	Takes responsibility for actions; admits mistakes; puts patient needs above own interests; recognizes & addresses ethical dilemmas & conflicts of interest; maintains patient confidentiality								
<b>Interpersonal &amp; Communication Skills</b>									
5. Demonstrates care and concern for patients and their families	1	2	3	4	5	6	7	8	9
	Responds appropriately to patient & family emotions; establishes rapport; provides reassurance; is respectful & considerate; does not rush								
6. Communicates effectively with patients and their families	1	2	3	4	5	6	7	8	9
	Allows patient to tell his/her own story; listens attentively; uses non-technical language when explaining & counseling; involves patient or family in decision-making; encourages questions & checks for understanding								
7. Communicates effectively with other healthcare professionals	1	2	3	4	5	6	7	8	9
	Maintains complete & legible medical records; writes clear & concise consultation reports & referral letters; makes organized & concise presentations of patient information; gives clear & well-prepared presentations at conferences								
8. Works effectively with other members of the healthcare team	1	2	3	4	5	6	7	8	9
	Demonstrates courtesy to and consideration of consultants, therapists, & other team members; invites others to share their knowledge & opinions; makes requests not demands; negotiates & compromises when disagreements occur; handles conflict constructively								
<b>Medical Knowledge</b>									
9. Demonstrates basic science and clinical knowledge	1	2	3	4	5	6	7	8	9
	Is able to identify & discuss pathophysiology of urologic disease processes; can intelligently discuss diagnosis, evaluation & treatment of common urologic disorders; applies knowledge to solve clinical dilemmas; understands rationale for varied approaches to clinical problems								
10. Demonstrates up-to-date knowledge	1	2	3	4	5	6	7	8	9
	Seeks new information by searching the literature & asking questions; cites recent literature when appropriate; asks knowledgeable & well-informed questions								
11. Uses knowledge & analytical thinking to address clinical questions	1	2	3	4	5	6	7	8	9
	Uses effective problem solving techniques; demonstrates sound clinical judgment; applies analytical approach to clinical situations								

	UNSATISFACTORY			SATISFACTORY			SUPERIOR		
<b>Practice-based Learning &amp; Improvement</b>									
12. Tracks and analyzes practice to identify areas for improvement	1	2	3	4	5	6	7	8	9
	Uses systematic approach such as chart or case analysis, or surgical log review to track own practice; compares own outcomes to accepted guidelines & national or peer data; reflects on critical incidents to identify strengths & weaknesses; monitors effects of practice changes & improvements								
13. Engages in ongoing learning	1	2	3	4	5	6	7	8	9
	Determines how learning deficits or weaknesses can be addressed; seeks feedback; does extra reading & surgical practice when needed; seeks information from the literature; critically appraises research evidence for applicability to patient care; uses information technology (IT) resources to aid learning								
14. Implements improvement activities	1	2	3	4	5	6	7	8	9
	Changes practice patterns & other behaviors in response to feedback; applies new skills or knowledge to patient care; tailors research evidence to care of individual patients; uses IT to improve patient care								
15. Facilitates the learning of others	1	2	3	4	5	6	7	8	9
	Explains clinical reasoning & procedures to junior colleagues & medical students; provides clinically useful information in response to learner questions; directs learners to useful resources; provides coaching								
<b>Patient Care</b>									
16. Demonstrates outpatient assessment and management	1	2	3	4	5	6	7	8	9
	Obtains complete & accurate patient histories; performs thorough & appropriate physical exams; orders appropriate laboratory & radiological tests; integrates information meaningfully & coherently; generates appropriate differential dx								
17. Manages hospital inpatients	1	2	3	4	5	6	7	8	9
	Develops appropriate evaluation & treatment plan for preoperative & postoperative patients; anticipates patient needs in the hospital setting; effectively identifies & manages postoperative clinical problems; writes clear & appropriate orders; plans outpatient follow-up visits as needed								
18. Prepares for surgical cases	1	2	3	4	5	6	7	8	9
	Can discuss rationale & risks of commonly performed surgical cases; reads about surgical procedures in advance; demonstrates knowledge of important steps & instruments in specific surgical cases								
19. Demonstrates surgical skill in performing endoscopic procedures	1	2	3	4	5	6	7	8	9
	Demonstrates surgical proficiency & technical ability during endoscopic procedures such as cystoscopy, ureteroscopy & percutaneous renal surgery								
20. Demonstrates surgical skill in performing open surgical cases	1	2	3	4	5	6	7	8	9
	Demonstrates surgical proficiency & technical ability during commonly performed open surgical procedures								
21. Demonstrates surgical skill in performing laparoscopic procedures	1	2	3	4	5	6	7	8	9
	Demonstrates surgical proficiency & technical ability during laparoscopic procedures								
<b>Systems-based Practice</b>									
22. Provides cost-conscious medical care	1	2	3	4	5	6	7	8	9
	Considers costs and benefits of tests & treatments; adheres to established patient care pathways; does not order unnecessary tests; uses appropriate billing codes for outpatient visits & surgical procedures								
23. Works to promote patient safety	1	2	3	4	5	6	7	8	9
	Identifies system causes of medical error; anticipates & responds to patient care problems; adheres to surgical protocols that ensure patient safety; accepts input from the patient care team								
24. Coordinates care with other healthcare providers	1	2	3	4	5	6	7	8	9
	Obtains consultation when needed; communicates with other providers; resolves differences in treatment plans; reconciles contradictory advice								
25. Facilitates patient care in the larger healthcare community	1	2	3	4	5	6	7	8	9
	Understands different healthcare delivery systems & medical practices; assures patient awareness of available care options; makes appropriate referrals; assists with arrangements & follow-up to ensure appropriate care								

COMMENTS (write on other side if needed):