Supplementary file 1.

Round 1. Questionnaires for Tutor Doctors (trainers) and Residents (trainees).

Tutor doctors

Demographic questions:		_
Age		
Years as a tutor doctor		
Postgraduate training region of Denmark	□ North □ South □ East	
Type of specialist practice	☐ Solo practice☐ Shared clinic	
a. How much time do you	-	orhinolaryngology (ORL) specialist practice. ent on a weekly average (Including theoretical nowledge)
		the residents in your ORL specialist practice? nic material, training models, simulators)?

c. How do you train the residents in your ORL specialist practice (e.g. "see one, do one", direct observation with immediate or subsequent feedback)?

d.	How much time available for learning do the residents have within working average? (e.g. allocated time to study a subject, prepare for patients, practice	
e.	How much time do you expect the residents spend on education/learning out study a subject, prepare for patients, practice on models and so on)?	side working hour
<u> </u>		
prac		ORL specialist
(list as illa	ny as you can. You may add additional rows)	

	In your opinion, what are the weaknesses/barriers of the learning environment specialist practice? t as many as you can. You may add additional rows)	in your ORL
(113	t as many as you can. Tou may add additional tows)	
1.	Do you use structured competency assessment tools in evaluation of the re specialist practice?	sidents s in your OR
	(Please tick the box and elaborate).	
	umples of validated tools: mini-CEX, OSATS, NOTSS. Examples of non-structured tools in this d methods like clinical observation with feedback, use of logbooks, case presentations examin	

.

☐ Yes. Name the specific tools for structured assessment:	
☐ No. Describe how assessments are performed	
2. What is your previous experience with and expectations to simulation-based tra	ining?
3. Without any consideration of practical or economical barriers, please list all tec	hnigal skills that you
think could be supported by simulation training in your ORL specialist practice	
necessary)	c. (you may add lows if
In this context, technical skills are skills/procedures that involve patients and are a "hands-on skil	l" that demands practice.
An example of a technical skill: Flexible fiberoptic rhinopharyngolaryngoscopy. An example of a	
able to use the electronic patient chart.	J

Thank you very much for your participation.

Residents

Demographic questions:	
Age	
Number of years and months of otolaryngological (ORL) experience	
Number of month since you ended your employment in the ORL specialist practice	
Postgraduate training region of Denmark	□ North □ South □ East
Type of practice	☐ Solo practice ☐ Shared practice
practice	environment during your employment in the ORL specialist Supervision per week (Including theoretical and practical education nowledge)
	esources were available during your employment in the ORL special ntorship, books, journals, electronic material, training models,

c. How were you trained during your employment in the ORL specialist practice (e.g. "see one, do one", direct observation with immediate or subsequent feedback)?

d. How much time on a weekly average was allocated to education/learning (e.g. allocated time to study a subject, prepare for patients, practice on mo	_
e. How much time per week did you spend on education/learning outside we employment in the ORL specialist practice (e.g. time to study a subject, practice on models etc.)?	
2. In your opinion, what were the strengths of the learning environment during	vour employment at the
ORL specialist practice (List as many as you can. You may add additional rows)	
	1

3.	In your opinion, what were the weaknesses/barriers of the learning environmen	nt during your
	employment at the ORL specialist practice?	9,
(Li	st as many as you can. You may add additional rows)	
	<u></u>	
4	Were you subject to the use of validated structured competency assessment	tools during your
7.	employment in the ORL specialist practice?	tools during your
	(Please tick the box and elaborate).	

Examples of validated tools: mini-CEX, OSATS, NOTSS. Examples of non-structured tools in this context are commonly used methods like clinical observation with feedback, use of logbooks, case presentations/examinations and the like)

	Yes. Name the specific tools for structured assessment:	
	No. Describe horr assessments were northwest	
	No. Describe how assessments were performed	
5.	What is your previous experience with and expectations to simulation-based tr	ainina?
	What is your previous experience with and expectations to simulation-based tr	anning:
6.	Without any consideration of practical or economical barriers, please list <u>all</u> te	chnical skills that you
0.	think could be supported by simulation training during the employment at the	
	practice: (you may add rows if necessary)	отш оргонизог
In th	his context, technical skills are skills/procedures that involve patients and is a "hands-on skill	" that demands practice.
	example of a technical skill: Flexible fiberoptic rhinopharyngolaryngoscopy. An example of a	non-technical skill: being
able	e to use the electronic patient charts.	

Thank you very much for your participation.

Supplementary file 2.

Round 2

Tutor Doctors

Dear tutor doctor,

Thank you very much for your answers in the first round. We have collected the responses, and in this table we present all of the procedures and technical skills mentioned in the first round.

In the following table, please assess the three questions/statements for each procedure mentioned, and tick the box.

If the procedure is not performed in your otorhinolaryngology (ORL) specialist practice (question one), questions two and three can be disregarded.

Procedure/technical skill	pro	ocedu our (y ofter are pe ORL s	rforn specia	ned	co p res the	cedur	l it be or a s ure the can pedure en tha	for a surgice that the performant of the erformant of the	cal ne rm kly	3. This procedure would be very unpleasant or dangerous if trained on a patient.			very nt or raine		Comments
	Never	Annually	Monthly	Weekly	Daily	Not at all	A little	Some	Much	Very much	Strongly disagree	Disagree	Neither/neutral	Agree	Strongly agree	
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
1. Adenoidectomy																
Basal surgical skills (incisions, sutures, knots)																
3. Nasal biopsy																

4.	Biopsy in the rhinopharynx																
5.	Bronchoscopy																
6.	Diagnostic ultrasound examination of the head and neck																
7.	Direct laryngoscopy																
	Procedure/technical skill	pro	. How ocedu our (re pe	rforn specia	ned	co p res the	cedur	l it be or a s ure th can p edure n tha	for a surgice that the quice the the erform	cal ne rm kly		woul unpl gerou	ld be leasai	nt or raine		Comments
		Z	Anı	Мо	We	D	Not	A	Sc	Much	Very much	Strongly disagree	Disagree	Neither/neutral	Agree	Strongly agree	
		Never	Annually	Monthly	Weekly	Daily	Not at all	A little	Some	ıch	much	disagree	gree	neutral	ree	ly agree	
		ever 1	nually 2	nthly 3	ekly 4	aily 5	at all	little 2	me 3	ich 4	nuch 5	disagree 1	gree 2	neutral 3	ree 4	y agree 5	
8.	Dix-Hallpike's manoeuvre																
8.	Dix-Hallpike's manoeuvre Endoscopic guided removal of nasal polyps																
	Endoscopic guided removal of nasal																
9.	Endoscopic guided removal of nasal polyps Functional endoscopic sinus surgery																

13. 14.	Removal of polyp with snare Flexible fiberoptic rhino-pharyngo-laryngoscopy Fine needle aspiration (not															
16.	ultrasound-guided) Fine Needle Aspiration (Ultrasound															
	guided)															
17.	Gastroscopy															
18.	Core Needle Biopsy															
19.	Insertion of tube in maxillary sinus															
							co p	. How would nsult roced	l it be or a s ure tl	for a surgic hat th perfor	cal eerm	3	. This	s proc	redur	
	Procedure/technical skill	pro	ocedu our (often re pe ORL s ractic	rforn specia	ned	the	proce (give cedur	edure n tha	t the erfor	J	dan	unpl gerou	d be easar s if tr patier	very nt or raine	Comments
	Procedure/technical skill	pro	ocedu our (re pe ORL s	rforn specia	ned	the	proce (give cedur	edure n tha e is p	t the erfor	J	dan Strongly disagree	unpl gerou	easar s if tı	very nt or raine	Comments

22. Lip biopsy 23. Spirometry 24. Local anaesthesia for tubulation and myringotomy 25. Nasal packing 26. Ear wick installation 27. Myringoplasty 28. Myringoplasty with rice paper 29. Cleaning of radical cavity 30. Otomicroscopy 31. Otoscopy 2. How important would it be for a consult or a surgical procedure that the	
24. Local anaesthesia for tubulation and myringotomy 25. Nasal packing 26. Ear wick installation 27. Myringoplasty 28. Myringoplasty with rice paper 29. Cleaning of radical cavity 30. Otomicroscopy 31. Otoscopy 2. How important would it be for a consult or a surgical procedure that the	
myringotomy 25. Nasal packing 26. Ear wick installation 27. Myringoplasty 28. Myringoplasty with rice paper 29. Cleaning of radical cavity 30. Otomicroscopy 31. Otoscopy 2. How important would it be for a consult or a surgical procedure that the	
26. Ear wick installation 27. Myringoplasty 28. Myringoplasty with rice paper 29. Cleaning of radical cavity 30. Otomicroscopy 31. Otoscopy 2. How important would it be for a consult or a surgical procedure that the	
27. Myringoplasty 28. Myringoplasty with rice paper 29. Cleaning of radical cavity 30. Otomicroscopy 31. Otoscopy 2. How important would it be for a consult or a surgical procedure that the	
28. Myringoplasty with rice paper 29. Cleaning of radical cavity 30. Otomicroscopy 31. Otoscopy 2. How important would it be for a consult or a surgical procedure that the	
29. Cleaning of radical cavity 30. Otomicroscopy 31. Otoscopy 2. How important would it be for a consult or a surgical procedure that the	
30. Otomicroscopy 31. Otoscopy 2. How important would it be for a consult or a surgical procedure that the	
31. Otoscopy 2. How important would it be for a consult or a surgical procedure that the	
2. How important would it be for a consult or a surgical procedure that the	
would it be for a consult or a surgical procedure that the	
1. How often is the procedure quickly would be very given that the in your ORL specialist procedure is performed dangerous if trained on	unpleasant or dangerous if trained on

	Never	Annually	Monthly	Weekly	Daily	Not at all	A little	Some	Much	Very much	Strongly disagree	Disagree	Neither/neutral	Agree	Strongly agree	
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
32. Myringotomy																
33. Proetz suction																
34. Reposition in BPPV																
35. Rhinoscopy																
36. Robot surgery																
37. Septoplasty																
38. Stroboscopy																
39. Temporal artery biopsy																
40. Tonsillectomy																
41. Tonsillotomy																
42. Tracheotomy																
43. Insertion of ventilation tubes																

	Procedure/technical skill	pro	ocedu our (v ofter are pe DRL s	rforn specia	ned	co p res the	cedur	l it be or a s lure t can p edure	for a surgice that the performal the erformal the erforma	cal ee rm kly		woul unpl gerou	ld be easar	nt or raine		Comments
		Never	Annually	Monthly	Weekly	Daily	Not at all	A little	Some	Much	Very much	Strongly disagree	Disagree	Neither/neutral	Agree	Strongly agree	
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
44.	Tympanometry																
45.	Video Head Impulse Test (vHIT)																
46.	Videonystagmography (VNG)																

Dear resident,

Thank you very much for your answers in the first round. We have collected all answers and in this table, we present all mentioned procedures/technical skills.

In the following table, we ask you to evaluate/answer three questions/statements for each procedure mentioned

If the procedure was not performed in the otorhinolaryngology (ORL) specialist practice where you were employed (question one), questions two and three can be disregarded.

	Procedure/technical skill	pro	How ocedu the O pr	re pe	rforn pecia	ned	co pro res the	would nsult cedur sident proc (give cedur	w imp or a s re that can p edure en tha re is p afely)	e for a surgicate you perfore quicate the erform	cal as a rm kly		woul unpl gerou	ld be leasar	nt or raine		Comments
		Never	Annually	Monthly	Weekly	Daily	Not at all	A little	Some	Much	Very much	Strongly disagree	Disagree	Neither/neutral	Agree	Strongly agree	
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
1.	Adenoidectomy																
2.	Basal surgical skills (incisions, sutures, knots)																
3.	Nasal biopsy																
4.	Biopsy in the rhinopharynx																
5.	Bronchoscopy																
6.	Diagnostic ultrasound examination of the head and neck																

7.	Direct laryngoscopy																
	Procedure/technical skill	pro	ocedu the O	often ire pe DRL s	rforn pecia	ned	co proc res the	cedur	l it be or a s e that can p edure en tha	e for a surgion to you perform quick the erform	cal as a rm kly		woul unpl gerou	ld be leasai	nt or raine		Comments
		Never	Annually	Monthly	Weekly	Daily	Not at all	A little	Some	Much	Very much	Strongly disagree	Disagree	Neither/neutral	Agree	Strongly agree	
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
8.	Dix-Hallpike's manoeuvre																
9.	Endoscopic guided removal of nasal polyps																
10.	Functional endoscopic sinus surgery (FESS)																
11.	Removal of atheroma																
12.	Removal of mucocele																
13.	Removal of polyp with snare																
14.	Flexible fiberoptic rhino-pharyngo- laryngoscopy																

15.	Fine needle aspiration (not ultrasound-guided)																
16.	Fine Needle Aspiration (Ultrasound guided)																
17.	Gastroscopy																
18.	Core Needle Biopsy																
19.	Insertion of tube in maxillary sinus																
		-		often re pe	was t rforn		co proc	. How would nsult cedur sident proce (give	l it be or a s e that can p	for a surgic t you perfor quic	cal as a rm	3	woul	s prod ld be leasai		e	
	Procedure/technical skill		the O	RL s	pecial		pro	cedur		erfori	med	dan	gerou		raine	d on	Comments
	Procedure/technical skill		the O	RL s	pecial		proo	cedur	e is po	erfori	med Very much	dan Strongly disagree	gerou	ıs if tı	raine	d on Strongly agree	Comments
	Procedure/technical skill	in	the O pi	RL s	pecial e?	list		cedur sa	e is po afely)	erfori ?			gerou a j	s if t patie	raine nt.		Comments
20.	Procedure/technical skill Puncture of the maxillary sinus	in Never	the O pr Annually	PRL s	pecial e? Weekly	list Daily	Not at all	sa A little	e is po afely) Some	erfori ? Much	Very much	Strongly disagree	gerou a] Disagree	ns if the patier Neither/neutral	nt.	Strongly agree	Comments
20.		in Never	the O pr Annually	PRL s	pecial e? Weekly	list Daily	Not at all	sa A little	e is po afely) Some	erfori ? Much	Very much	Strongly disagree	gerou a] Disagree	ns if the patier Neither/neutral	nt.	Strongly agree	Comments
	Puncture of the maxillary sinus	in Never	the O pr Annually	PRL s	pecial e? Weekly	list Daily	Not at all	sa A little	e is po afely) Some	erfori ? Much	Very much	Strongly disagree	gerou a] Disagree	ns if the patier Neither/neutral	nt.	Strongly agree	Comments

24.	Local anaesthesia for tubulation and myringotomy															
25.	Nasal packing															
26.	Ear wick installation															
27.	Myringoplasty															
28.	Myringoplasty with rice paper															
29.	Cleaning of radical cavity															
30.	Otomicroscopy															
31.	Otoscopy															
								. Hov								
	Procedure/technical skill	pro	cedu the O	re pe RL s	was t rforn pecia	ned	co proc res the	nsult cedur sident proc (give cedur	or a see that can pedure that the	t you perfor quic t the erfor	cal as a rm kly		unpl gerou	ld be leasai is if t	very it or raine	Comments
	Procedure/technical skill	pro	cedu the O	re pe	rforn pecia	ned	co proc res the	nsult cedur sident proc (give cedur	or a see that can pedure	surgion tyou performed quicant the erformed and the erfor	cal as a rm kly	dan	woul unpl gerou	ld be leasai	very it or raine	Comments
	Procedure/technical skill	pro	cedu the O	re pe RL s	rforn pecia	ned	co proc res the	nsult cedur sident proc (give cedur	or a see that can pedure that the	surgion tyou performed quicant the erformed and the erfor	cal as a rm kly		woul unpl gerou	ld be leasai is if t	very it or raine	Comments

32.	Myringotomy														
33.	Proetz suction														
34.	Reposition in BPPV														
35.	Rhinoscopy														
36.	Robot surgery														
37.	Septoplasty														
38.	Stroboscopy														
39.	Temporal artery biopsy														
40.	Tonsillectomy														
41.	Tonsillotomy														
42.	Tracheotomy														
43.	Insertion of ventilation tubes														
		pro	cedu the O	re pe RL s	was t	ned	co pro res the	cedur	l it be or a se that can pedure that e is pe	e for a surgic tyou perfore quic the erform	cal as a rm kly	woul unpl gerou	ld be leasai is if t	nt or raine	
	Procedure/technical skill		pr	actic	e?			S	afely)	?		a]	patie	nt.	Comments

		Never	Annually	Monthly	Weekly	Daily	Not at all	A little	Some	Much	Very much	Strongly disagree	Disagree	Neither/neutral	Agree	Strongly agree	
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
44.	Tympanometry																
45.	Video Head Impulse Test (vHIT)																
46.	Videonystagmography (VNG)																

Supplementary file 3

Round 3

* INSTRUCTION

1: Step one: Which procedures and technical skills from the list can in your opinion be trained safely in the clinic and do NOT need to be trained by simulation?

Start by reviewing the list and remove all procedures/technical skills, that in your opinion do not need to be trained by simulation, by checking the "Not relevant" box. This can also be procedures that can or should be learned in another part of the specialist training, and not during employment in the otorhinolaryngology (ORL) specialist practice.

2. Step two: Of the remaining procedures/technical skills, which are most important to train by simulation in an ORL specialist practice?

Re-prioritize the remaining procedures/technical skills by using the "drag and drop" function. This way, you can prioritize procedures/technical skills that you believe to be important to train by simulation and downgrade procedures/technical skills that you believe to be less important to train by simulation.

Rank	Procedure/technical skill	Not Relevant
	Flexible fiberoptic rhino-pharyngo-laryngoscopy	
	Otomicroscopy	
	Myringotomy	
	Basal surgical skills (incisions, sutures, knots)	
	Insertion of ventilation tubes	
	Ear wick installation	
	Tympanometry	

Dix-Hallpike´s manoeuvre
Fine Needle Aspiration (Ultrasound guided)
Diagnostic ultrasound examination of the head and neck
Reposition in BPPV
Rhinoscopy
Nasal packing
Cleaning of radical cavity
Lingual frenectomy
Local anaesthesia for tubulation and myrongotomy
Stroboscopy
Video Head Impulse Test (vHIT)
Otoscopy
Nasal biopsy
Removal of atheroma
Lip biopsy
Myringoplasty with rice paper
Removal of mucocele
Fine Needle Aspiration (without ultrasound guide)

Tonsillotomy	
Spirometry	
Videonystagmography (VNG)	
Biopsy in the rhinopharynx	
Endoscopic guided removal of nasal polyps	
Adenoidectomy	
Removal of polyp with snare	
Tonsillectomy	
Puncture of maxillary sinus	
Direct laryngoscopy	
Insertion of tube in maxillary sinus	