

Additional file 3: Non-completion analysis

Non-completion analysis was conducted for questionnaire items considered potentially influential on interns' interest in ultrasound and, consequently, on questionnaire completion and selection bias. The investigated items covered internships undertaken, received ultrasound education, and expectations to future specialization.

The table below displays results of the non-completion analysis. Statistically significant differences at the $p < 0.05$ -level are highlighted in bold typography.

	Non-completers	Completers	Total	P-value*
Overall non-completion rate				
Total: 62/420 (14.8%)				
Drop-out during items included in medical school analyses: 11/420 (2.6%)				
Drop-out during items included in internship and overall analyses: 51/403 (12.7%)				
Formal ultrasound education in medical school				
Total, n (%)	64 (15.2)	356 (84.8)	420 (100.0)	
Ultrasound pictures	46 (71.9)	279 (78.4)	325 (77.4)	0.26
Ultrasound demonstrated	10 (15.6)	67 (18.8)	77 (18.3)	0.60
Lecture-based theoretical education	33 (51.6)	194 (54.5)	227 (54.0)	0.68
Theoretical e-learning	15 (23.4)	124 (34.8)	139 (33.1)	0.08
Practical training	48 (75.0)	253 (71.1)	301 (71.7)	0.55
None	4 (6.3)	12 (3.4)	16 (3.8)	0.28
Other	1 (1.6)	4 (1.1)	5 (1.2)	0.56
Do not know/remember	1 (1.6)	2 (0.6)	3 (0.7)	0.39
Encountered ultrasound in clinical rotations during medical school				
Total, n (%)	57 (13.8)	356 (86.2)	413 (100.0)	
Observed doctors use ultrasound	44 (77.2)	279 (78.4)	323 (78.2)	0.86
Was taught how to use ultrasound	17 (29.8)	92 (25.8)	109 (26.4)	0.52
Performed ultrasound on patients	20 (35.1)	141 (39.6)	161 (39.0)	0.56
Performed ultrasound on figurants/fellow students/phantoms	19 (33.3)	147 (41.3)	166 (40.2)	0.31
No	5 (8.8)	42 (11.8)	47 (11.4)	0.65
Other	0 (0.0)	0 (0.0)	0 (0.0)	.
Do not know/remember	1 (1.8)	4 (1.1)	5 (1.2)	0.53
Internship employments				
Total, n (%)	45 (11.4)	351 (88.6)	396 (100.0)	
Internal medicine	13 (28.9)	117 (33.3)	130 (32.8)	0.62
Cardiology	5 (11.1)	13 (3.7)	18 (4.5)	0.04
Orthopedic surgery	5 (11.1)	41 (11.7)	46 (11.6)	1.00
Abdominal surgery	10 (22.2)	55 (15.7)	65 (16.4)	0.28
Urology	1 (2.2)	17 (4.8)	18 (4.5)	0.71
Emergency medicine	10 (22.2)	93 (26.5)	103 (26.0)	0.59
Geriatrics	0 (0.0)	5 (1.4)	5 (1.3)	1.00
Gynecology	0 (0.0)	0 (0.0)	0 (0.0)	.

	Non-completers	Completers	Total	P-value*
Psychiatry	0 (0.0)	7 (2.0)	7 (1.8)	1.00
General practice	40 (88.9)	315 (89.7)	355 (89.6)	0.80
Other				
Neurology	1 (2.2)	10 (2.8)	11 (2.8)	
Hematology	0 (0.0)	1 (0.3)	1 (0.3)	
Surgery	0 (0.0)	1 (0.3)	1 (0.3)	1.00
Formal ultrasound education during internship				
Total, n (%)	35 (9.1)	348 (90.9)	383 (100.0)	
Obligatory course	4 (11.4)	32 (9.2)	36 (9.4)	0.56
Voluntary course	3 (8.6)	61 (17.5)	64 (16.7)	0.24
Obligatory theme day/seminar	2 (5.7)	30 (8.6)	32 (8.4)	0.75
Taught in the unit	10 (28.6)	103 (29.6)	113 (29.5)	1.00
Taught in the practice	2 (5.7)	11 (3.2)	13 (3.4)	0.34
Did not receive formal ultrasound education in my internship	16 (45.7)	186 (53.4)	202 (52.7)	0.48
Other				
Received education, but not formal	1 (2.9)	6 (1.7)	7 (1.8)	0.49
Do not know/remember	2 (5.7)	2 (0.6)	4 (1.0)	0.04
Encountered ultrasound in clinical work				
Total, n (%)	62 (15.0)	352 (85.0)	414 (100.0)	
Yes, in the unit	23 (76.7)	257 (73.0)	280 (73.3)	0.83
Yes, in the practice	7 (23.3)	35 (9.9)	42 (11.0)	0.03
No	5 (16.7)	83 (23.6)	88 (23.0)	0.50
Other				
On a focused stay as part of the internship	0 (0.0)	6 (1.7)	6 (1.6)	1.00
Had the opportunity to use ultrasound during internship				
Total, n (%)	62 (15.0)	352 (85.0)	414 (100.0)	
Yes, and used it	20 (64.5)	172 (48.9)	192 (50.1)	
Yes, but did not use it	1 (3.2)	73 (20.7)	74 (19.3)	
No	8 (25.8)	101 (28.7)	109 (28.5)	
Do not know/remember	2 (6.5)	6 (1.7)	8 (2.1)	0.02
Received supervision for ultrasound use during internship				
Total, n (%)	19 (9.9)	172 (90.1)	191 (100.0)	
Yes, while scanning	15 (78.9)	123 (71.5)	138 (72.3)	0.60
Yes, via saved images/video	5 (26.3)	40 (23.3)	45 (23.6)	0.78
No	2 (10.5)	40 (23.3)	42 (22.0)	0.26
Other	0 (0.0)	0 (0.0)	0 (0.0)	.
Do not know/remember	0 (0.0)	0 (0.0)	0 (0.0)	.
Frequency of supervision				
Total, n (%)	17 (11.6)	129 (88.4)	146 (100.0)	
Always	2 (11.8)	15 (11.6)	17 (11.6)	
Sometimes	6 (35.3)	48 (37.2)	54 (37.0)	
A few times	2 (11.8)	17 (13.2)	19 (13.0)	
Only if searching for it independently	7 (41.2)	38 (29.5)	45 (30.8)	
Only if finding an available and able colleague	0 (0.0)	11 (8.5)	11 (7.5)	0.79

	Non-completers	Completers	Total	P-value*
Expectations to future specialization				
Total, n (%)	14 (3.8)	352 (96.2)	366 (100.0)	
Emergency medicine	3 (21.4)	68 (19.3)	71 (19.4)	0.74
General Practice	7 (50.0)	187 (53.1)	194 (53.0)	1.00
Anesthesiology	4 (28.6)	74 (21.0)	78 (21.3)	0.51
Occupational medicine	0 (0.0)	9 (2.6)	9 (2.5)	1.00
Child and adolescent psychiatry	0 (0.0)	19 (5.4)	19 (5.2)	1.00
Dermatology	1 (7.1)	43 (12.2)	44 (12.0)	1.00
Diagnostic radiology	0 (0.0)	26 (7.4)	26 (7.1)	0.61
Endocrinology	3 (21.4)	55 (15.6)	58 (15.8)	0.47
Gastroenterology and hepatology	1 (7.1)	36 (10.2)	37 (10.1)	1.00
Geriatrics	1 (7.1)	52 (14.8)	53 (14.5)	0.70
Gynecology and obstetrics	5 (35.7)	64 (18.2)	69 (18.9)	0.15
Hematology	0 (0.0)	32 (9.1)	32 (8.7)	0.62
Infectious diseases	1 (7.1)	45 (12.8)	46 (12.6)	1.00
Cardiology	0 (0.0)	51 (14.5)	51 (13.9)	0.23
Vascular surgery	1 (7.1)	11 (3.1)	12 (3.3)	0.38
Surgery	2 (14.3)	39 (11.1)	41 (11.2)	0.66
Clinical biochemistry	0 (0.0)	16 (4.5)	16 (4.4)	1.00
Clinical pharmacology	3 (21.4)	15 (4.3)	18 (4.9)	0.03
Clinical physiology and nuclear medicine	0 (0.0)	8 (2.3)	8 (2.2)	1.00
Clinical genetics	3 (21.4)	17 (4.8)	20 (5.5)	0.03
Clinical immunology	2 (14.3)	7 (2.0)	9 (2.5)	0.04
Clinical microbiology	0 (0.0)	13 (3.7)	13 (3.6)	1.00
Clinical oncology	1 (7.1)	33 (9.4)	34 (9.3)	1.00
Pulmonary medicine	0 (0.0)	42 (11.9)	42 (11.5)	0.38
Nephrology	0 (0.0)	29 (8.2)	29 (7.9)	0.61
Neurosurgery	1 (7.1)	4 (1.1)	5 (1.4)	0.18
Neurology	1 (7.1)	34 (9.7)	35 (9.6)	1.00
Ophthalmology	0 (0.0)	17 (4.8)	17 (4.6)	1.00
Orthopedic surgery	2 (14.3)	35 (9.9)	37 (10.1)	0.64
Pathology	0 (0.0)	14 (4.0)	14 (3.8)	1.00
Plastic surgery	2 (14.3)	26 (7.4)	28 (7.7)	0.29
Psychiatry	1 (7.1)	27 (7.7)	28 (7.7)	1.00
Pediatrics	2 (14.3)	66 (18.8)	68 (18.6)	1.00
Forensic medicine	2 (14.3)	12 (3.4)	14 (3.8)	0.10
Rheumatology	0 (0.0)	27 (7.7)	27 (7.4)	0.61
Community medicine	0 (0.0)	12 (3.4)	12 (3.3)	1.00
Social medicine	0 (0.0)	13 (3.7)	13 (3.6)	1.00
Thorax surgery	0 (0.0)	13 (3.7)	13 (3.6)	1.00
Urology	2 (14.3)	24 (6.8)	26 (7.1)	0.26
Otorhinolaryngology, head and neck surgery	1 (7.1)	39 (11.1)	40 (10.9)	1.00
Other	1 (7.1)	2 (0.6)	3 (0.8)	0.11
Do not know	2 (14.3)	7 (2.0)	9 (2.5)	0.04

* Tested using the Fisher's Exact test