

4.3.4.6 Circulation with haemorrhage control
C6_1 to C6_15; D6_1 to D6_15

This question will be analysed in six separate parts because the actions are related to each other and to simplify the figures.

a) Part 1 C6_1 to C6_4; D6_1 to D6_14

Part 1 provides the results and analysis of performance of four skills pertaining to circulation with haemorrhage control: haemodynamic monitoring of the critically ill patient, analyse 12-lead ECG: myocardial infarction, analyse ECG strips: lethal rhythms and analyse ECG strip: non-lethal strips.

Figures 4.47 and 4.48 illustrate the skills visually by indicating the mean score for each variable.

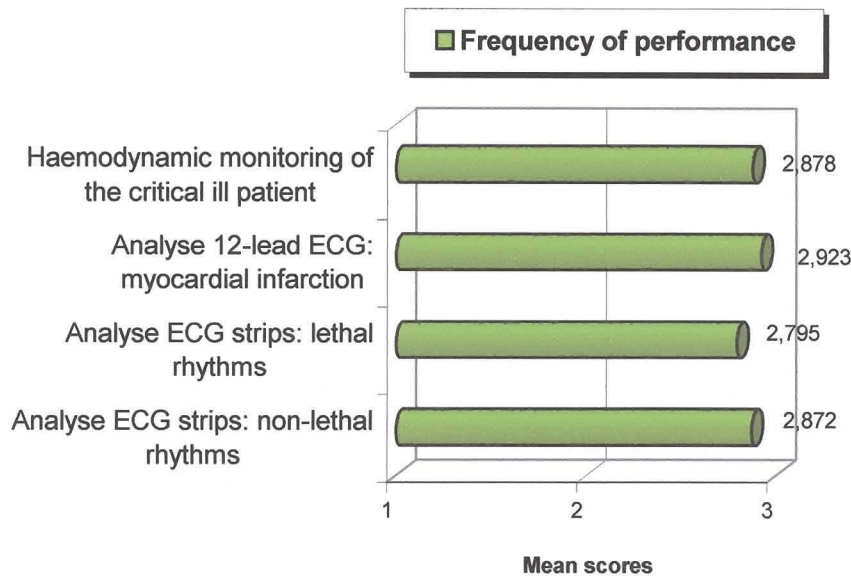


Figure 4.47- Circulation with haemorrhage control (Part 1)

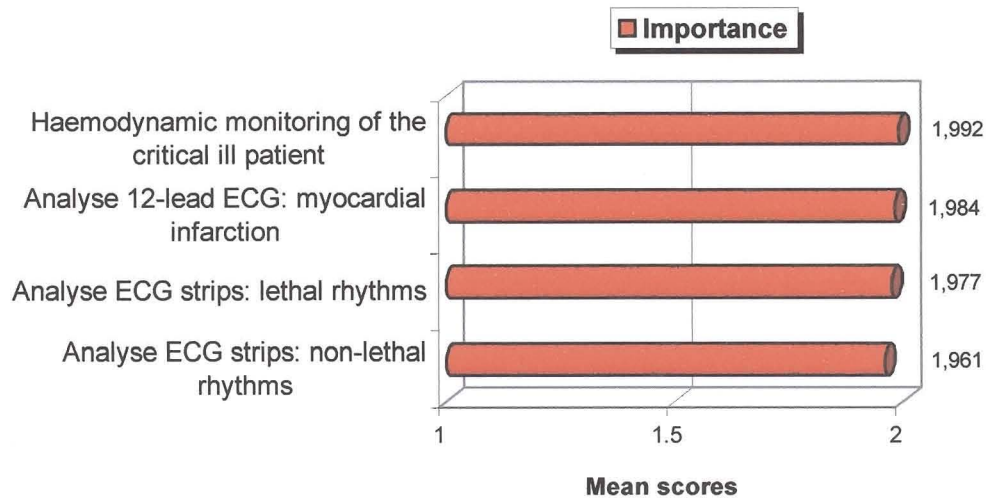


Figure 4.48 - Circulation with haemorrhage control (Part 1)

Table 4.19 reflects the *frequency of performance* of advanced life-support skills pertaining to circulation with haemorrhage control. Note that the majority of the respondents indicated that they frequently perform the skills pertaining to assessment and recording.

Table 4.20 reflects the *importance* of these skills to be included in the curriculum and the majority of the respondents indicated that they agree that these skills are important and should be included in the curriculum.

b) Part 2 C6_5 to C6_8; D6_5 to D6_8

Part 2 provides the results and analysis of performance of four skills pertaining to circulation with haemorrhage control: control external bleeding, suturing of skin lacerations, administration of resuscitation fluids and MAST suit application.

Figures 4.49 and 4.50 illustrate the skills visually by indicating the mean scores for each variable.

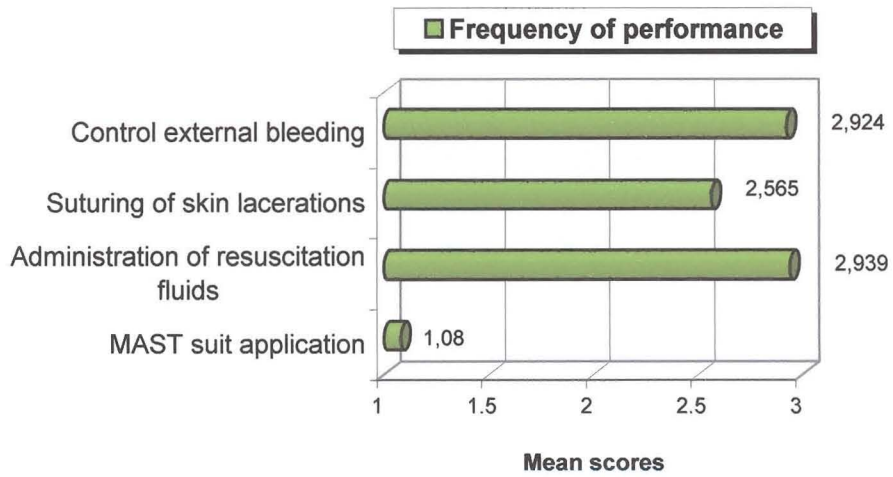


Figure 4.49 - Circulation with haemorrhage control (Part 2)

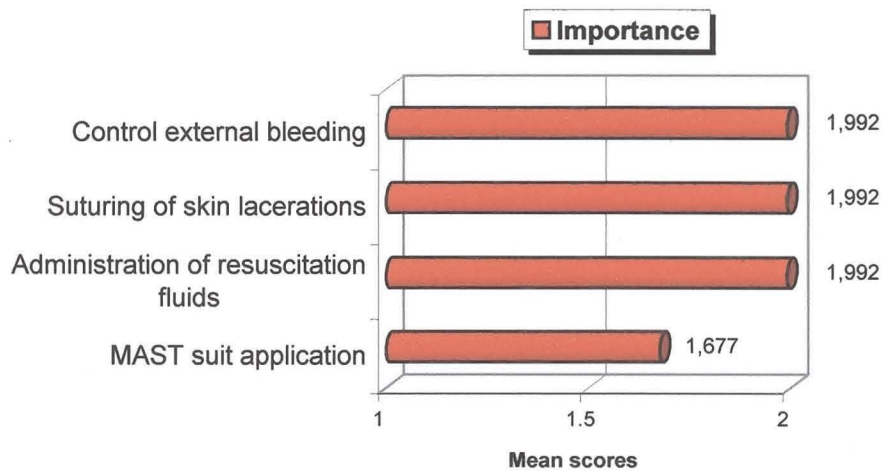


Figure 4.50 - Circulation with haemorrhage control (Part 2)

Table 4.19 reflects the *frequency of performance* of advanced life-support skills pertaining to circulation with haemorrhage control. Note that the majority of the respondents indicated that they frequently perform the skills, except the MAST suit application. This skill was performed seldom/never according to the majority of the respondents (92,6%).

Table 4.20 reflects the *importance* of these skills to be included in the curriculum and the majority of the respondents indicated that they agree that these skills are important and should be included in the curriculum. However, only 67,7% of the respondents agreed and 32,5% of the respondents disagreed that MAST suit application should be included in the curriculum.

c) Part 3 C6_9 to C6_94; D6_5 to D6_94

Part 3 provides the results and analysis of performance of four skills pertaining to circulation with haemorrhage control: peripheral line access, internal jugular venous access, external jugular venous access and femoral venous access.

Figures 4.51 and 4.52 illustrate the skills visually by indicating the mean score for each variable.

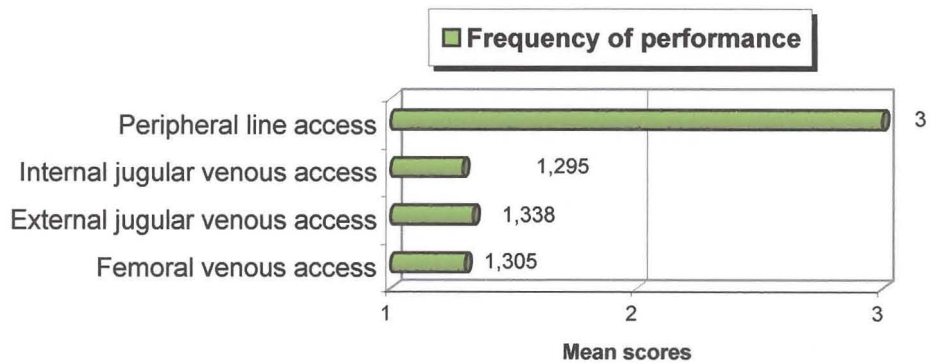


Figure 4.51 - Circulation with haemorrhage control (Part 3)

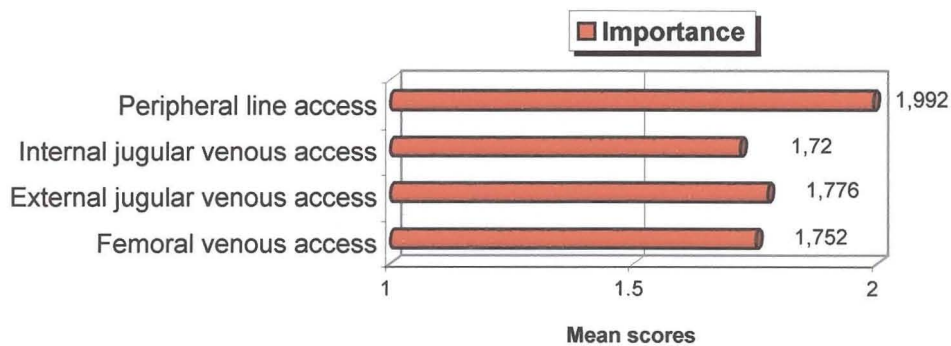


Figure 4.52 - Circulation with haemorrhage control (Part 3)

Table 4.19 reflects the *frequency of performance* of advanced life-support skills pertaining to assessment and recording. Note that the majority of the respondents indicated that they frequently perform peripheral line access. However, respondents indicated that they seldom/never perform internal jugular venous access, external jugular venous access and femoral venous access.

Table 4.20 reflects the *importance* of these skills to be included in the curriculum and the majority of the respondents indicated that they agree that these skills are important and should be included in the curriculum.

d) Part 4 C6_95 to C6_99; D6_95 to D6_99

Part 4 provides the results and analysis of performance of five skills pertaining to circulation with haemorrhage control: intraosseous access, central line access, peripheral vein cutdown, umbilical venous access and umbilical arterial access.

Figures 4.53 and 4.54 illustrate the skills visually by indicating the mean score for each variable.

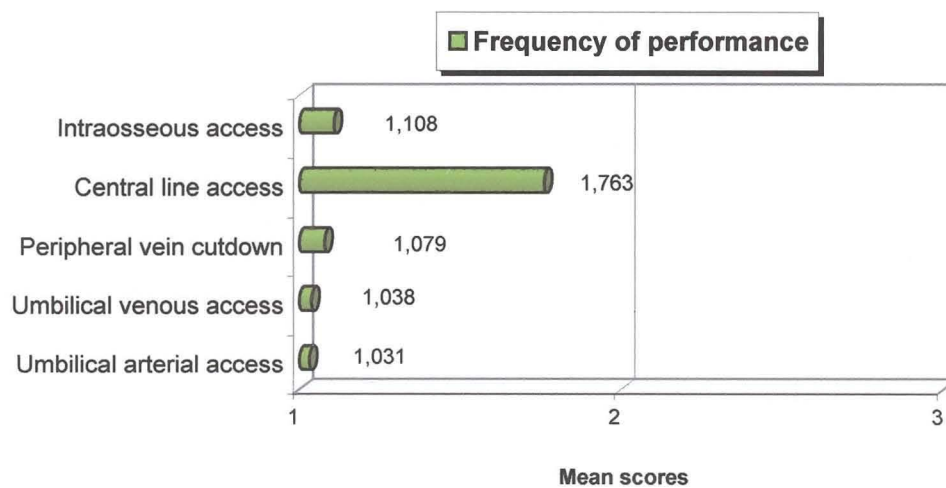


Figure 4.53 - Circulation with haemorrhage control (Part 4)

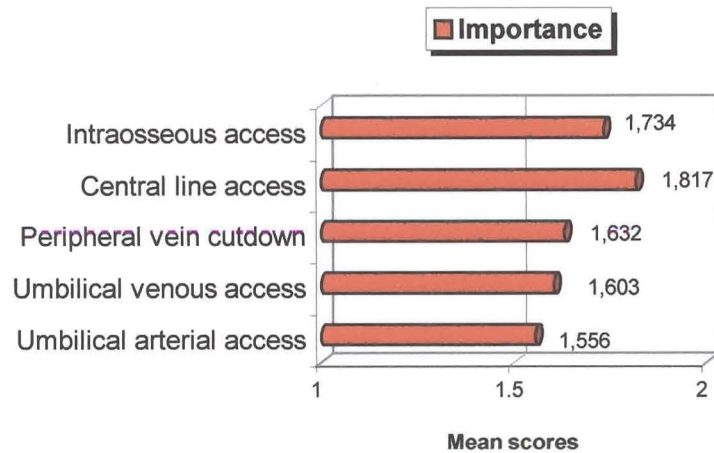


Figure 4.54 - Circulation with haemorrhage control (Part 4)

Table 4.19 reflects the *frequency of performance* of advanced life-support skills pertaining to circulation with haemorrhage control. Note that the majority of the respondents indicated that they perform these skills seldom/never. However, 30,9% respondents indicated that they perform central line access frequently and 15,0% indicated that they perform the skill periodically.

Table 4.20 reflects the *importance* of these skills to be included in the curriculum and the majority of the respondents indicated that they agree that these skills are important and should be included in the curriculum.

e) Part 5 C6_10 to C6_12; D6_10 to D6_12

Part 5 provides the results and analysis of performance of three skills pertaining to circulation with haemorrhage control: emergency pericardiocentesis for treatment of a pericardial tamponade, effective performance of CPR and splinting of limbs.

Figures 4.55 and 4.56 illustrate the skills visually by indicating the mean score for each variable.

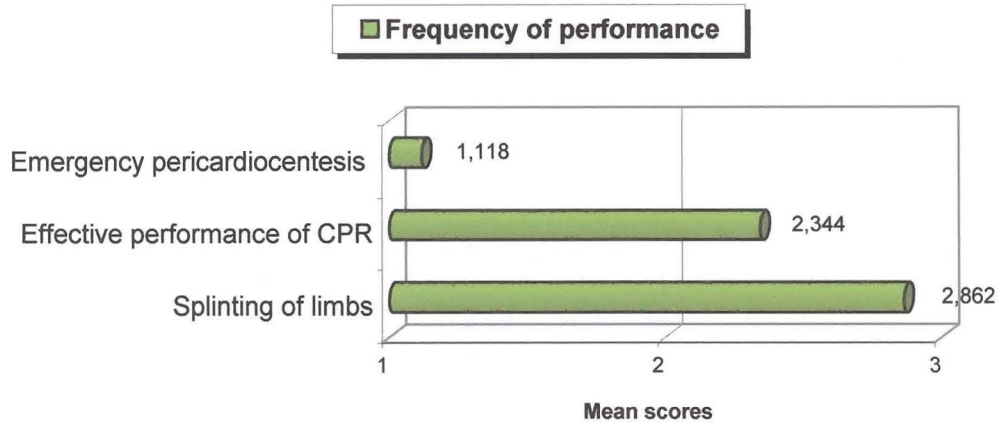


Figure 4.55 - Circulation with haemorrhage control (Part 5)

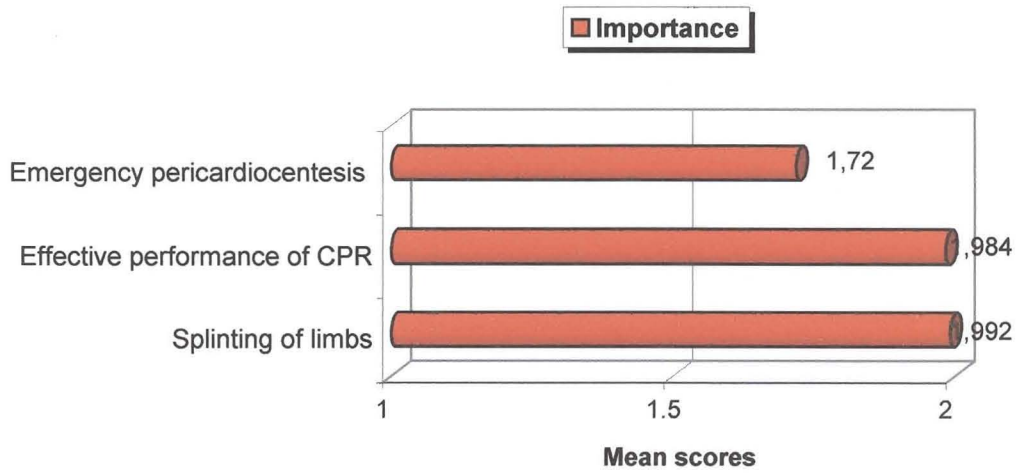


Figure 4.56 - Circulation with haemorrhage control (Part 5)

Table 4.19 reflects the *frequency of performance* of advanced life-support skills pertaining to circulation with haemorrhage control. Note that the majority of the respondents indicated that they perform emergency pericardiocentesis for treatment of a pericardial tamponade seldom/never (92,7%), whereas 45,7% indicated that they perform effective CPR frequently and 44,1% of the respondents indicated that they perform this skill periodically. Splinting of limbs are frequently performed.

Table 4.20 reflects the *importance* of these skills to be included in the curriculum and the majority of the respondents indicated that they agree that these skills are important and should be included in the curriculum.

f) Part 6 C6_13 to C6_15; D6_13 to D6_15

Part 6 provides the results and analysis of performance of four skills pertaining to circulation with haemorrhage control: splinting of pelvis, limb X-ray interpretation and pelvic X-ray interpretation.

Figures 4.57 and 4.58 illustrate the skills visually by indicating the mean score for each variable.

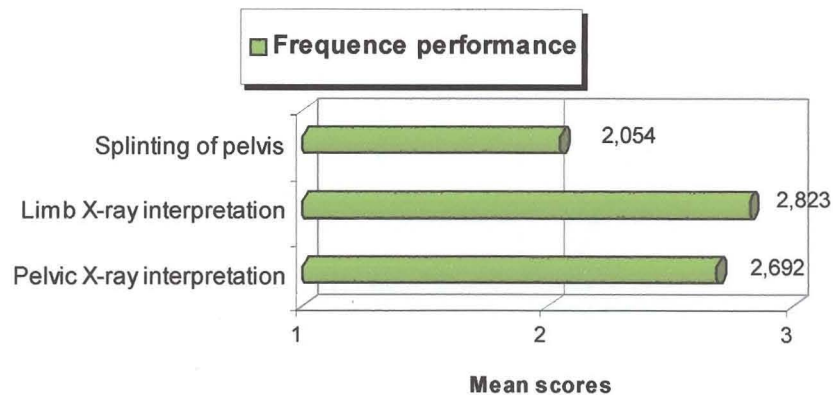


Figure 4.57 - Circulation with haemorrhage control (Part 6)

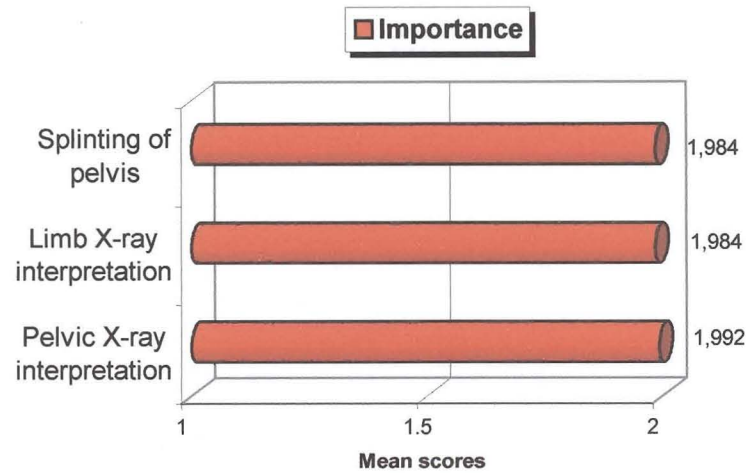


Figure 4.58 - Circulation with haemorrhage control (Part 6)

Table 4.19 reflects the *frequency of performance* of advanced life-support skills pertaining to circulation with haemorrhage control. Note that the skill splinting of pelvis is performed seldom/never (31,2%), periodically (32,0%) and frequently (36,8%). Limb X-ray interpretation (87,3%) and pelvic X-ray interpretation (76,2%) were both performed frequently.

Table 4.20 reflects the *importance* of these skills to be included in the curriculum and the majority of the respondents indicated that they agree that these skills are important and should be included in the curriculum.

The degree of relationship between the frequency of performance and importance of the skills to be included in the curriculum as indicated by the Spearman correlation (see Annexure D – Spearman correlation between the variables in Section C and Section D) illustrated the following:

- MAST suit application indicated a highly significant Spearman correlation coefficient (r_s 0,299)
- Internal jugular venous access indicated a significant Spearman correlation coefficient (r_s 0,183)
- External jugular venous access indicated a highly significant Spearman correlation coefficient (r_s 0,338)

- Femoral venous access indicated a highly significant Spearman correlation coefficient (r_s 0,378)
- Intraosseous access indicated a highly significant Spearman correlation coefficient (r_s 0,319)
- Central line access indicated a highly significant Spearman correlation coefficient (r_s 0,384)
- Peripheral vein cutdown indicated a highly significant Spearman correlation coefficient (r_s 0,343)
- Umbilical venous access indicated a highly significant Spearman correlation coefficient (r_s 0,376)
- Umbilical arterial access indicated a highly significant Spearman correlation coefficient (r_s 0,275)
- Emergency pericardiocentesis for treatment of a pericardial tamponade indicated a highly significant Spearman correlation coefficient (r_s 0,242)
- Splinting of limbs indicated a highly significant Spearman correlation coefficient (r_s 0,250)
- Splinting of pelvis indicated a significant Spearman correlation coefficient (r_s 0,221)
- Limb X-ray interpretation indicated a significant Spearman correlation coefficient (r_s 0,228)

Table 4.19 – Frequency of performance of advanced life-support skills (%) C6_1 to C6_15

Skills	State hospitals						Private hospitals						Total						X ²	df [†]	
	Seldom / Never		Periodically		Frequently		Seldom / Never		Periodically		Frequently		Seldom / Never		Periodically		Frequently				
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%			
Circulation with haemorrhage control																					
Part 1																					
Haemodynamic monitoring of the critically ill patient	4	3,0	4	0,0	25	97,0	2	3,2	6	7,5	85	89,4	4	3,2	7	5,5	116	91,3	2,614	2	
Analyse 12-lead ECG: myocardial infarction	1	3,0	1	3,0	31	93,9	0	0,0	6	6,5	87	93,6	1	0,8	7	5,6	118	93,7	3,332	2	
Analyse ECG strip: lethal rhythms	2	6,3	3	9,4	27	84,4	5	5,5	7	7,7	79	86,8	7	5,7	10	8,1	106	86,2	0,123	2	
Analyse ECG strips: non-lethal rhythms	2	6,5	1	3,2	28	90,3	3	3,3	4	4,4	83	92,2	5	4,1	5	4,1	111	91,7	0,635	2	

† Degrees of freedom

* $p < 0,05$

** $p < 0,01$

Table 4.19 – (continued)

Skills	State hospitals						Private hospitals						Total						X ²	df [†]
	Seldom / Never		Periodically		Frequently		Seldom / Never		Periodically		Frequently		Seldom / Never		Periodically		Frequently			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%		
Part 2																				
Control external bleeding	0	0,0	4	12,1	29	87,9	1	1,1	3	3,2	90	95,7	1	0,8	7	5,5	119	93,7	4,046	2
Suturing of skin lacerations	1	3,0	0	0,0	32	97,0	17	18,1	20	21,3	57	60,6	18	14,2	20	15,8	89	70,1	15,528**	2
Administration of resuscitation fluids	0	0,0	0	0,0	33	100,0	0	0,0	8	8,5	86	91,5	0	0,0	8	6,3	119	93,7	2,997	1
MAST suit applications	28	93,3	1	3,3	1	3,3	84	92,3	7	7,7	0	0,0	112	92,6	8	6,6	1	0,8	3,684	2
Part 3																				
Intravenous access																				
Peripheral line access	0	0,0	0	0,0	33	100,0	0	0,0	0	0,0	93	100,0	0	0,0	0	0,0	126	100,0	0,000	0
Internal jugular venous access	25	80,7	3	9,7	3	9,7	73	77,7	14	14,9	7	7,5	98	78,4	17	13,6	10	8,0	0,638	2
External jugular venous access	25	75,8	4	12,1	4	12,1	71	75,5	14	14,9	9	9,6	96	75,6	18	14,2	13	10,2	0,287	2
Femoral venous access	23	69,7	2	6,0	8	24,2	79	84,0	10	10,6	5	5,32	102	80,3	12	9,5	13	10,2	9,712	2

† Degrees of freedom

 * $p < 0,05$

 ** $p < 0,01$

Table 4.19 – (continued)

Skills	State hospitals						Private hospitals						Total						X ²	df [†]
	Seldom / Never		Periodically		Frequently		Seldom / Never		Periodically		Frequently		Seldom / Never		Periodically		Frequently			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%		
Part 4																				
Intraosseous access	27	81,8	5	15,2	1	3,0	86	92,5	7	7,5	0	0,0	113	89,7	12	9,5	1	0,8	4,613	2
Central line access	19	57,6	3	9,1	11	33,3	49	52,1	16	17,0	29	30,9	68	53,5	19	15,0	40	31,5	1,210	2
Peripheral vein cutdown	29	93,6	1	3,2	1	3,2	86	93,5	5	5,4	1	1,1	115	93,5	6	4,9	2	1,6	0,884	2
Umbilical venous access	30	90,1	3	9,1	0	0,0	91	97,9	2	2,2	0	0,0	121	96,0	5	4,0	0	0,0	3,079	1
Umbilical arterial access	31	93,9	2	6,1	0	0,0	91	97,9	2	2,2	0	0,0	122	96,8	4	3,2	0	0,0	1,212	1
Part 5																				
Emergency pericardiocentesis for treatment of a pericardial tamponade	30	93,8	0	0,0	2	6,3	84	92,3	3	3,3	4	4,4	114	92,7	3	2,4	6	4,9	1,227	2
Effective performance of CPR (ventilation and compressions)	3	9,1	10	30,3	20	60,6	10	10,6	46	48,9	38	40,4	13	10,2	56	44,1	58	45,7	4,158	2
Splinting of limbs	1	3,0	1	3,0	31	93,9	1	1,1	10	10,8	82	88,2	2	1,6	11	8,7	113	89,7	2,341	2

† Degrees of freedom

 * $p < 0,05$

 ** $p < 0,01$

Table 4.19 – (continued)

Skills	State hospitals						Private hospitals						Total						X ²	df†
	Seldom / Never		Periodically		Frequently		Seldom / Never		Periodically		Frequently		Seldom / Never		Periodically		Frequently			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%		
Part 6																				
Splinting of pelvis	15	45,5	6	18,2	12	36,4	24	26,1	34	37,0	34	37,0	39	31,2	40	32,0	46	36,8	5,598	2
Limb X-ray interpretation	2	6,3	2	6,3	28	87,5	3	3,2	9	9,6	82	87,2	5	4,0	11	8,7	110	87,3	0,865	2
Pelvic X-ray interpretation	5	15,2	5	15,2	23	69,7	3	3,2	17	18,3	73	78,5	8	6,4	22	17,5	96	76,2	5,840	2

† Degrees of freedom

* $p < 0,05$

** $p < 0,01$

Table 4.20 – Importance of advanced life-support skills (%) D6_1 to D6_15

Skills	State hospitals				Private hospitals				Total				X ²	df [†]
	Disagree		Agree		Disagree		Agree		Disagree		Agree			
	N	%	N	%	N	%	N	%	N	%	N	%		
Circulation with haemorrhage control														
Part 1														
Haemodynamic monitoring of the critically ill patient	1	3,2	30	96,8	0	0,0	94	100,0	1	0,8	124	99,2	3,057	1
Analyse 12-lead ECG: myocardial infarction	2	6,5	29	93,6	0	0,0	94	100,0	2	1,6	123	98,4	6,163	1
Analyse ECG strip: lethal rhythms	3	9,7	28	90,3	0	0,0	94	100,0	3	2,4	122	97,6	9,320	1
Analyse ECG strips: non-lethal rhythms	3	10,0	27	90,0	2	2,1	92	97,9	5	4,0	119	96,0	3,642	1
Part 2														
Control external bleeding	1	3,2	30	96,8	0	0,0	94	100,0	1	0,8	124	99,2	3,057	1
Suturing of skin lacerations	1	3,2	30	96,8	0	0,0	94	100,0	1	0,8	124	99,2	3,057	1
Administration of resuscitation fluids	1	3,3	29	96,7	0	0,0	93	100,0	1	0,8	122	99,2	3,125	1
MAST suit applications	10	33,3	20	66,7	30	32,3	63	67,7	40	32,5	83	67,5	0,012	1
Part 3														
Intravenous access														
Peripheral line access	1	3,3	29	96,7	0	0,0	93	100,0	1	0,8	122	99,2	3,125	1
Internal jugular venous access	9	30,0	21	70,0	24	26,4	67	73,6	33	27,3	88	72,7	0,150	1
External jugular venous access	9	30,0	21	70,0	17	18,7	74	81,3	26	21,5	95	78,5	1,713	1
Femoral venous access	5	16,7	25	83,3	24	26,4	67	73,6	29	24,0	92	76,0	1,167	1

† Degrees of freedom

* $p < 0,05$

** $p < 0,01$

Table 4.20 – (continued)

Skills	State hospitals				Private hospitals				Total				X ²	df [†]
	Disagree		Agree		Disagree		Agree		Disagree		Agree			
	N	%	N	%	N	%	N	%	N	%	N	%		
Part 4														
Intraosseous access	9	30,0	21	70,0	22	24,4	68	75,6	31	25,8	89	74,2	0,363	1
Central line access	6	20,0	24	80,0	16	17,4	76	82,6	22	18,0	100	82,0	0,104	1
Peripheral vein cutdown	9	30,0	21	70,0	34	37,4	57	62,4	43	35,5	78	64,5	0,534	1
Umbilical venous access	13	43,3	17	56,7	34	37,0	58	63,0	47	38,5	75	61,5	0,388	1
Umbilical arterial access	13	43,3	17	56,7	40	43,5	52	56,5	53	43,4	69	56,6	0,000	1
Part 5														
Emergency pericardiocentesis for treatment of a pericardial tamponade	8	26,7	22	73,3	26	28,6	65	71,4	34	28,1	87	71,9	0,041	1
Effective performance of CPR (ventilation and compressions)	1	3,3	29	96,7	1	1,1	92	98,9	2	1,6	121	98,4	0,723	1
Splinting of limbs	1	3,3	29	96,7	0	0,0	93	100,0	1	0,8	122	99,2	3,125	1
Part 6														
Splinting of pelvis	2	6,7	28	93,3	0	0,0	93	100,0	2	1,6	121	98,4	6,303	1
Limb X-ray interpretation	1	3,3	29	96,7	1	1,1	92	98,9	2	1,6	121	98,4	0,723	1
Pelvic X-ray interpretation	1	3,3	29	96,7	0	0,0	93	100,0	1	0,8	122	99,2	3,125	1

† Degrees of freedom

 * $p < 0,05$

 ** $p < 0,01$