



# Right Place, Right Time, Right Team

A review of the quality of the care provided to children needing emergency surgery

## **TABLES AND FIGURES**



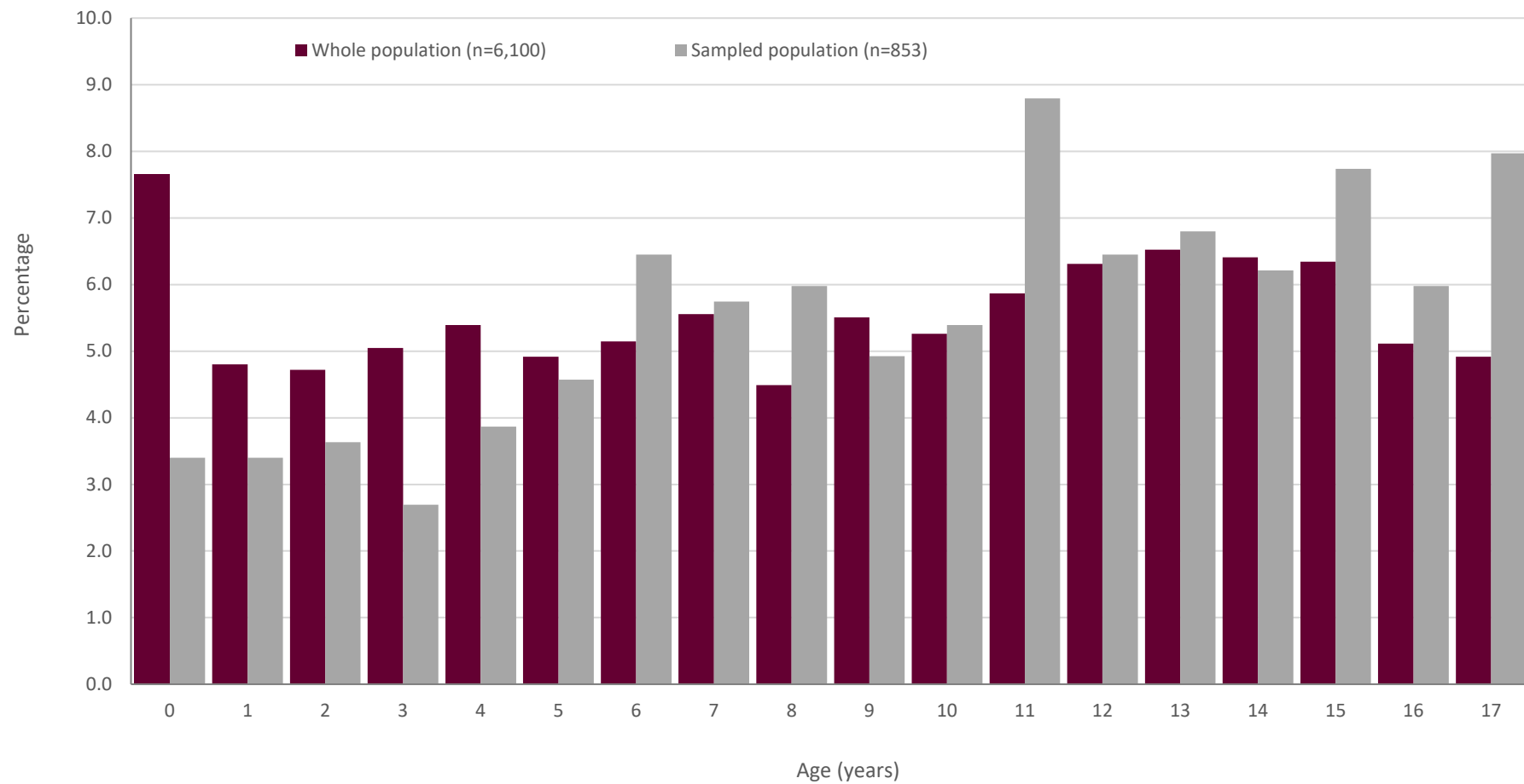


Figure 2.1 Age of the patient at the time of the procedure (years)  
*Database and reviewer assessment form data*

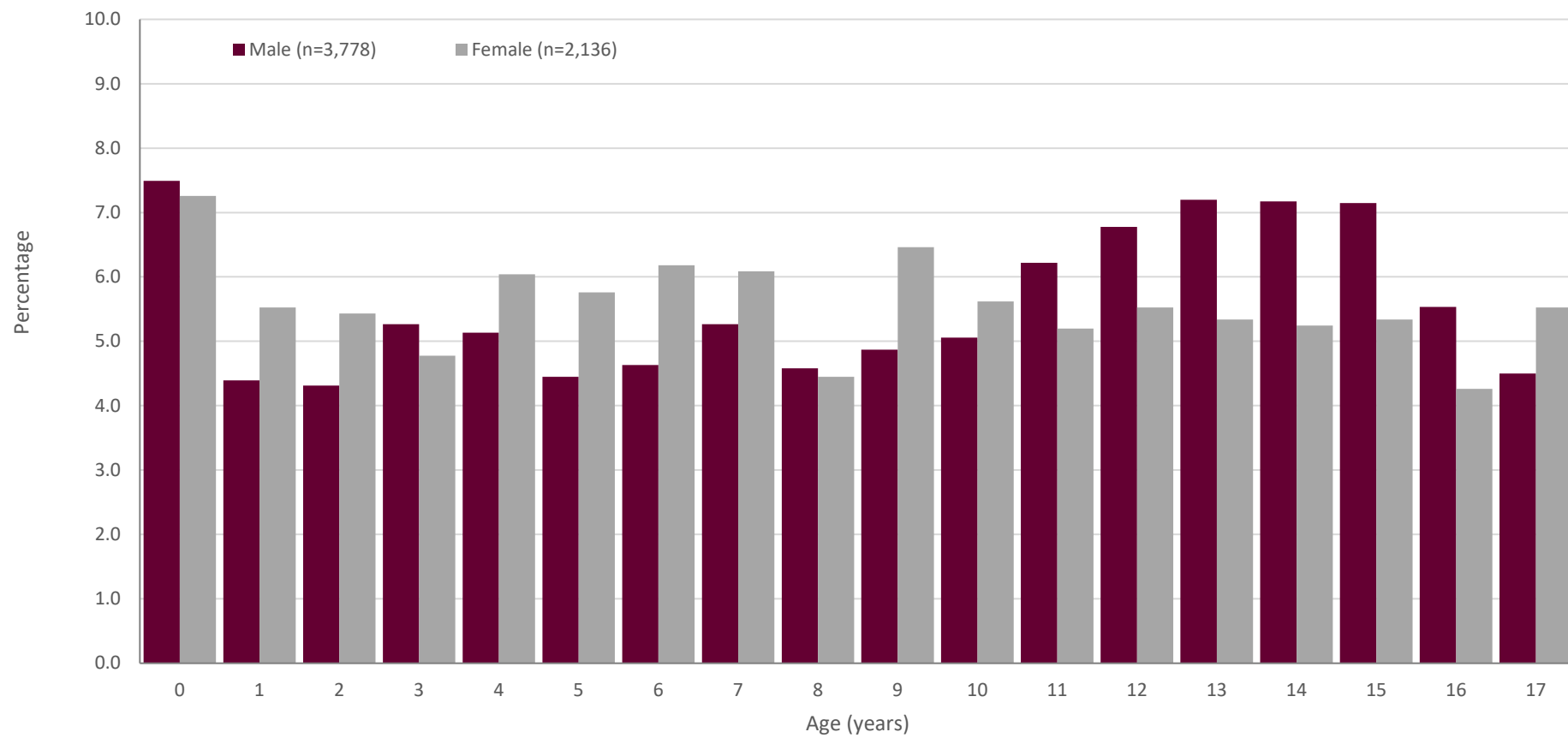


Figure 2.2 Age of the patient at the time of the procedure (years) by sex  
*Database data*

Table 2.1 Most common procedures undertaken by sex (whole population)	Male		Female	
	Number of patients	%	Number of patients	%
Manipulation/fixation of joints	845	22.3	407	19.0
Suture laceration/wound washout/debridement	423	11.2	273	12.7
Scrotal exploration/orchidectomy/orchidopexy	411	10.9	0	0.0
Appendicectomies	393	10.4	265	12.4
Incision/drainage of abscesses	152	4.0	135	6.3
Oral and maxillofacial surgery procedures	123	3.2	75	3.5
Nail bed repairs	113	3.0	66	3.1
Insertion/removal of lines	98	2.6	77	3.6
Removal of foreign bodies	88	2.3	84	3.9
Endoscopies/colonoscopies	54	1.4	46	2.1
Other procedures	1087	28.7	717	33.4
<b>Total</b>	<b>3,787</b>		<b>2,145</b>	

Database data (not answered for 204 patients)

Table 2.2 Most common procedures undertaken by sex (sampled population)	Male		Female	
	Number of patients	%	Number of patients	%
Manipulation/fixation of joints	167	29.6	61	21.1
Appendicectomies	97	17.2	74	25.7
Scrotal exploration/orchidectomy/orchidopexy	85	15.0	0	0.0
Suture laceration/wound washout/debridement	55	9.7	32	11.1
Incision/drainage of abscesses	31	5.5	20	6.9
Removal of foreign bodies	17	3.0	15	5.2
Nail bed repairs	11	2.0	3	1.0
Oral and maxillofacial surgery procedures	8	1.4	8	2.8
Tendon/ligament/nerve repairs	5	<1	6	2.1
Gynaecological procedures	0	0.0	9	3.1
Other	89	15.8	60	20.8
<b>Total</b>	<b>565</b>		<b>288</b>	

Reviewer assessment form data

Table 2.3 Ethnicity	Sampled population		Census data	
	Number of patients	%	Number of patients	%
White British/White - other	555	82.8	9,096,920	73.4
Asian/Asian British (Indian, Pakistani, Bangladeshi, Chinese, other Asian)	74	11.0	1,472,100	11.9
Black/African/Caribbean/Black British	24	3.6	679,255	5.5
Mixed/Multiple ethnic groups	15	2.2	823,415	6.6
Other	2	<1	320,550	2.6
<b>Subtotal</b>	<b>670</b>		<b>12,392,240</b>	
Unable to answer	183			
<b>Total</b>	<b>853</b>			

Reviewer assessment form data

<b>Table 3.1 Mode of admission</b>	<b>Number of patients</b>	<b>%</b>
Self-referral (via the emergency department)	556	68.3
Transfer from another hospital	100	12.3
GP referral	67	8.2
Via a specialist clinic	27	3.3
111 referral	15	1.8
Via an urgent treatment centre	14	1.7
Other	34	4.2
<b>Subtotal</b>	<b>813</b>	
Unable to answer	40	
<b>Total</b>	<b>853</b>	

*Reviewer assessment form data*

Table 3.2 Children who require emergency procedures are transferred to another hospital because of their age	Surgeon		Anaesthetist		Physician	
	Number of respondents	%	Number of respondents	%	Number of respondents	%
Yes	157	57.7	140	54.5	16	72.7
No	115	42.3	117	45.5	6	27.3
<b>Subtotal</b>	<b>272</b>		<b>257</b>		<b>22</b>	
Not answered	6		6		0	
<b>Total</b>	<b>278</b>		<b>263</b>		<b>22</b>	

*Clinician survey data*



Table 3.3 Children who require emergency procedures are transferred to another hospital because of their age	A standalone tertiary paediatric centre		A tertiary paediatric centre in a trust/health board that also treats adults		A university teaching hospital in a trust/health board that delivers surgical care to children		A district general hospital that delivers surgical care to children	
	n	%	n	%	n	%	n	%
Yes	1	1.9	8	7.8	92	50.8	221	87.4
No	53	98.1	94	92.2	88	49.2	32	12.6
<b>Subtotal</b>	<b>54</b>		<b>102</b>		<b>180</b>		<b>253</b>	
Not answered	0		0		3		8	
<b>Total</b>	<b>54</b>		<b>102</b>		<b>183</b>		<b>261</b>	

*Clinician survey data. Answers may be multiple by hospital type; n=number of responses*

Table 3.4 Clinicians working outside tertiary paediatric centres felt supported by their local paediatric centre in the acceptance of referrals	Surgeon		Anaesthetist		Physician	
	Number of respondents	%	Number of respondents	%	Number of respondents	%
Yes	126	82.4	123	91.1	12	75.0
No	27	17.6	12	8.9	4	25.0
<b>Subtotal</b>	<b>153</b>		<b>135</b>		<b>16</b>	
Unknown	20		45		0	
Not applicable - consultant	8		7		1	
Not answered	97		76		5	
<b>Total</b>	<b>278</b>		<b>263</b>		<b>22</b>	

*Clinician survey data*

Table 3.5 Clinicians working outside tertiary paediatric centres felt supported by their local paediatric centre to provide advice	Surgeon		Anaesthetist		Physician	
	Number of respondents	%	Number of respondents	%	Number of respondents	%
Yes	137	85.1	141	91.0	13	76.5
No	24	14.9	14	9.0	4	23.5
<b>Subtotal</b>	<b>161</b>		<b>155</b>		<b>17</b>	
Unknown	20		32		0	
Not applicable	95		75		5	
Not answered	2		1		0	
<b>Total</b>	<b>278</b>		<b>263</b>		<b>22</b>	

*Clinician survey data*

Table 3.6 The reason for the transfer	Number of patients
No surgeon competent to undertake procedure	61
No anaesthetist competent to anaesthetise patient	28
No emergency surgical services at the referring site	18
No appropriate critical care bed or facilities	14
Specialist surgery undertaken in another trust/health board	11
Other	5
<b>Subtotal</b>	<b>88</b>
Unknown	12
<b>Total</b>	<b>100</b>

*Reviewer assessment form data. Answers may be multiple; n=88*

Table 4.1 Specialty of the clinician who first assessed the patient on arrival in the operating hospital	Number of patients	%
Emergency medicine (paediatric and adult)	307	45.2
Trauma and orthopaedics	106	15.6
General surgery	65	9.6
Other specialist surgery	45	6.6
Paediatric medicine	34	5.0
Paediatric surgery	26	3.8
Plastic surgery	26	3.8
Urology	24	3.5
Otorhinolaryngology (ear, nose and throat)	23	3.4
Specialist medicine	13	1.9
General medicine	2	<1
Other	8	1.2
<b>Subtotal</b>	<b>679</b>	
Unable to answer	174	
<b>Total</b>	<b>853</b>	

Reviewer assessment form data

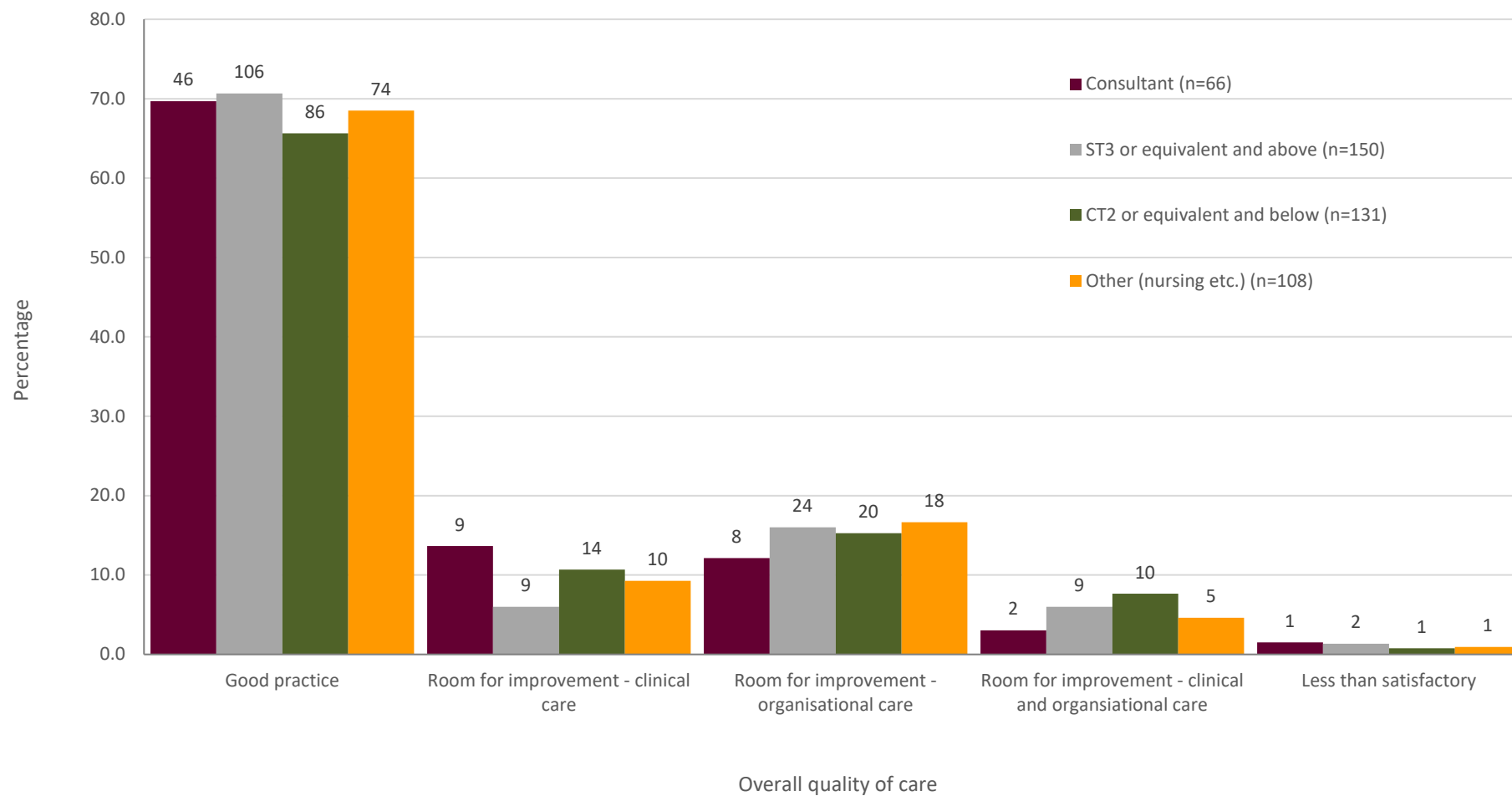


Figure 4.1 The grade of clinician who undertook the first assessment on arrival in the operating hospital by overall quality of care  
 Reviewer assessment form data

Table 4.2 Grade of the clinician who first assessed the patient and whether there was any delay	Consultant		ST3 or equivalent and above		CT2 or equivalent and below		Other (e.g. nursing)	
	Number of patients	%	Number of patients	%	Number of patients	%	Number of patients	%
Yes	9	13.6	30	19.9	19	14.5	25	23.1
No	57	86.4	121	80.1	112	85.5	83	76.9
<b>Subtotal</b>	<b>66</b>		<b>151</b>		<b>131</b>		<b>108</b>	
Unable to answer	3		0		1		1	
<b>Total</b>	<b>69</b>		<b>151</b>		<b>132</b>		<b>109</b>	

Reviewer assessment form data

Table 4.3 The diagnosis	Number of patients	%
Fracture	227	26.6
Appendicitis	168	19.7
Laceration	85	10.0
Testicular torsion/scrotal pain	79	9.3
Abscess	64	7.5
Ingestion/insertion of foreign body	31	3.6
Other	199	23.3
<b>Total</b>	<b>853</b>	

*Reviewer assessment form data*



<b>Table 4.4 An incorrect diagnosis contributed to a delay</b>	<b>Number of patients</b>	<b>%</b>
Yes	33	4.3
No	743	95.7
<b>Subtotal</b>	<b>776</b>	
Unknown	10	
NA - no incorrect diagnosis made	67	
<b>Total</b>	<b>853</b>	

*Reviewer assessment form data*

Table 4.5 The incorrect diagnosis	Number of patients
Appendicitis	12
Testicular torsion/scrotal pain	4
Abscess	4
Fracture	2
Other	11
<b>Total</b>	<b>33</b>

*Reviewer assessment form data*

<b>Table 4.6 The patient was under the joint care of a paediatrician and a surgeon</b>	<b>Number of patients</b>	<b>%</b>
Yes	190	37.1
No	322	62.9
<b>Subtotal</b>	<b>512</b>	
Unknown	32	
<b>Total</b>	<b>544</b>	

*Surgical questionnaire data*

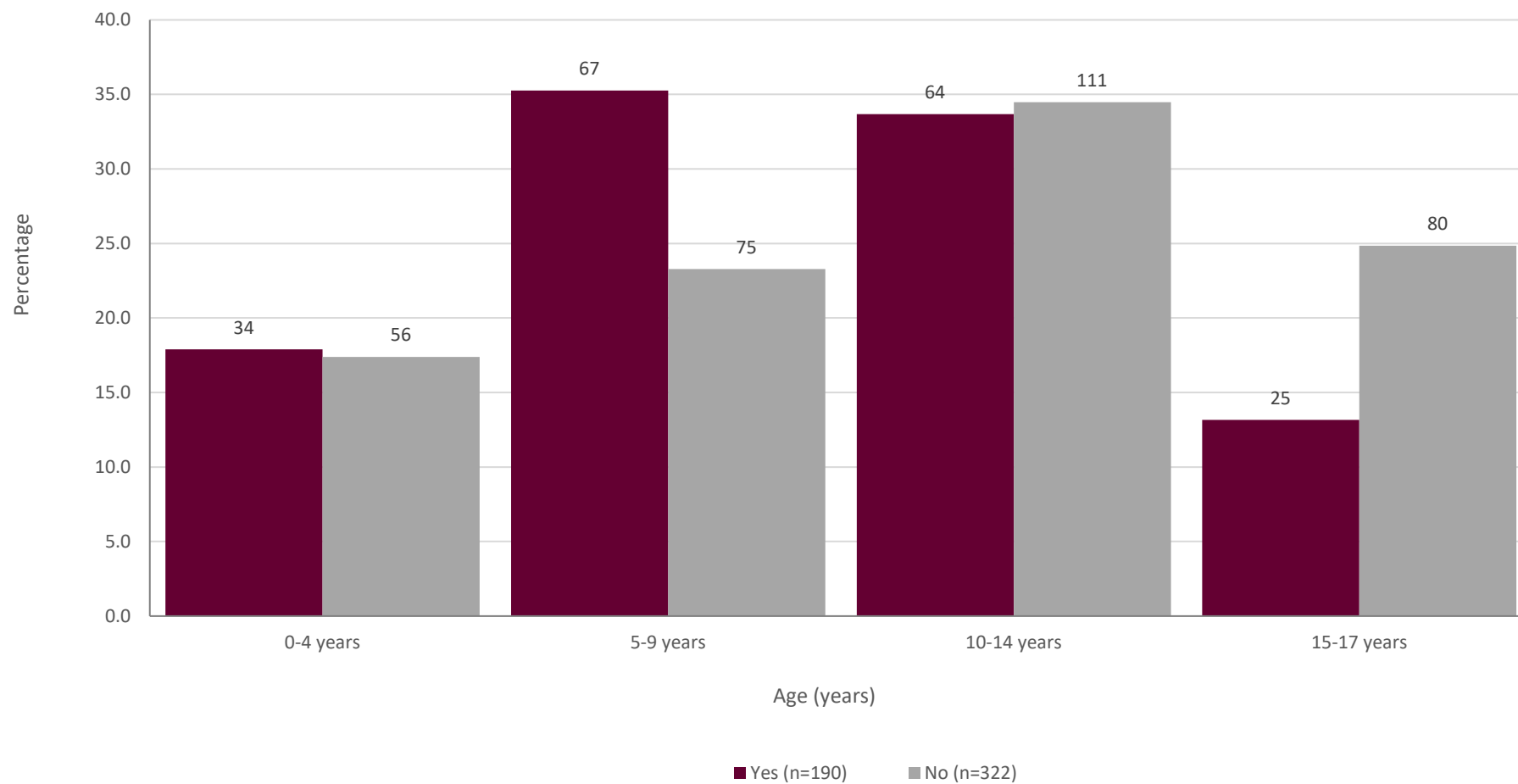


Figure 4.2 The patient was under the joint care of a paediatrician and a surgeon by age of the patient at the time of the procedure  
*Surgical questionnaire data*

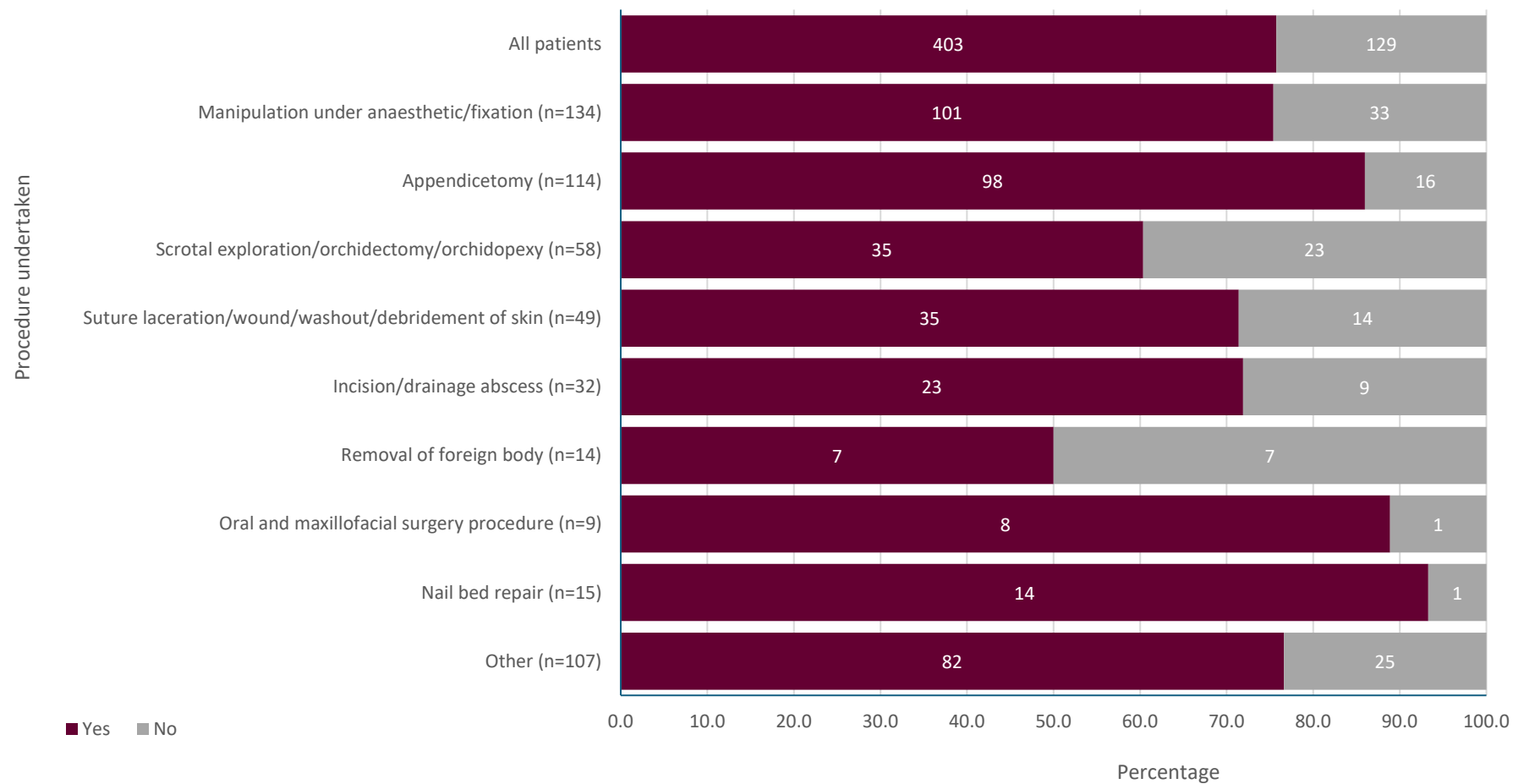


Figure 4.3 Formal paediatric early warning scores used were used by operation undertaken  
*Anaesthetic questionnaire data*

Table 4.7 Formal paediatric early warning scores used	Immediate		Urgent		Expedited	
	Number of patients	%	Number of patients	%	Number of patients	%
Yes	29	64.4	170	78.7	183	74.4
No	16	35.6	46	21.3	63	25.6
<b>Subtotal</b>	<b>45</b>		<b>216</b>		<b>246</b>	
Unknown	12		93		110	
<b>Total</b>	<b>57</b>		<b>309</b>		<b>356</b>	

*Anaesthetic questionnaire data*

Table 4.8 The patient was under the joint care of a paediatrician and a surgeon	Yes		No	
	Number of patients	%	Number of patients	%
Paediatric early warning score used	93	86.1	143	74.5
Paediatric early warning score not used	15	13.9	49	25.5
<b>Subtotal</b>	<b>108</b>		<b>192</b>	
Unknown	50		67	
<b>Total</b>	<b>158</b>		<b>259</b>	

*Surgical and anaesthetic questionnaire data*

Table 4.9 Aspects of care included in the management plan	Number of patients	%
Fasting	425	71.0
Urgent referral to a surgeon	340	56.8
Monitoring vital signs	307	51.3
Other	133	22.2
<b>Subtotal</b>	<b>599</b>	
Unknown	25	
<b>Total</b>	<b>624</b>	

*Anaesthetic questionnaire data. Answers may be multiple; n=599 (unknown for 25)*



Table 4.10 The patient was fasted for too long	Immediate		Urgent		Expedited	
	Number of patients	%	Number of patients	%	Number of patients	%
Yes	3	6.3	37	13.5	70	22.8
No	45	93.8	238	86.5	237	77.2
<b>Subtotal</b>	<b>48</b>		<b>275</b>		<b>307</b>	
Unable to answer	5		23		49	
Not applicable - not fasted	16		11		3	
<b>Total</b>	<b>69</b>		<b>309</b>		<b>359</b>	

Reviewer assessment form data

Table 5.1 There was an ST3+ or equivalent review	Number of patients	%
Yes	617	96.3
No	24	3.7
<b>Subtotal</b>	<b>641</b>	
Unable to answer	212	
<b>Total</b>	<b>853</b>	

*Reviewer assessment form data*

Table 5.2 There was a delay in ST3+ or equivalent assessment	Number of patients	%
Yes	64	11.2
No	506	88.8
<b>Subtotal</b>	<b>570</b>	
Unable to answer	47	
<b>Total</b>	<b>617</b>	

*Reviewer assessment form data*

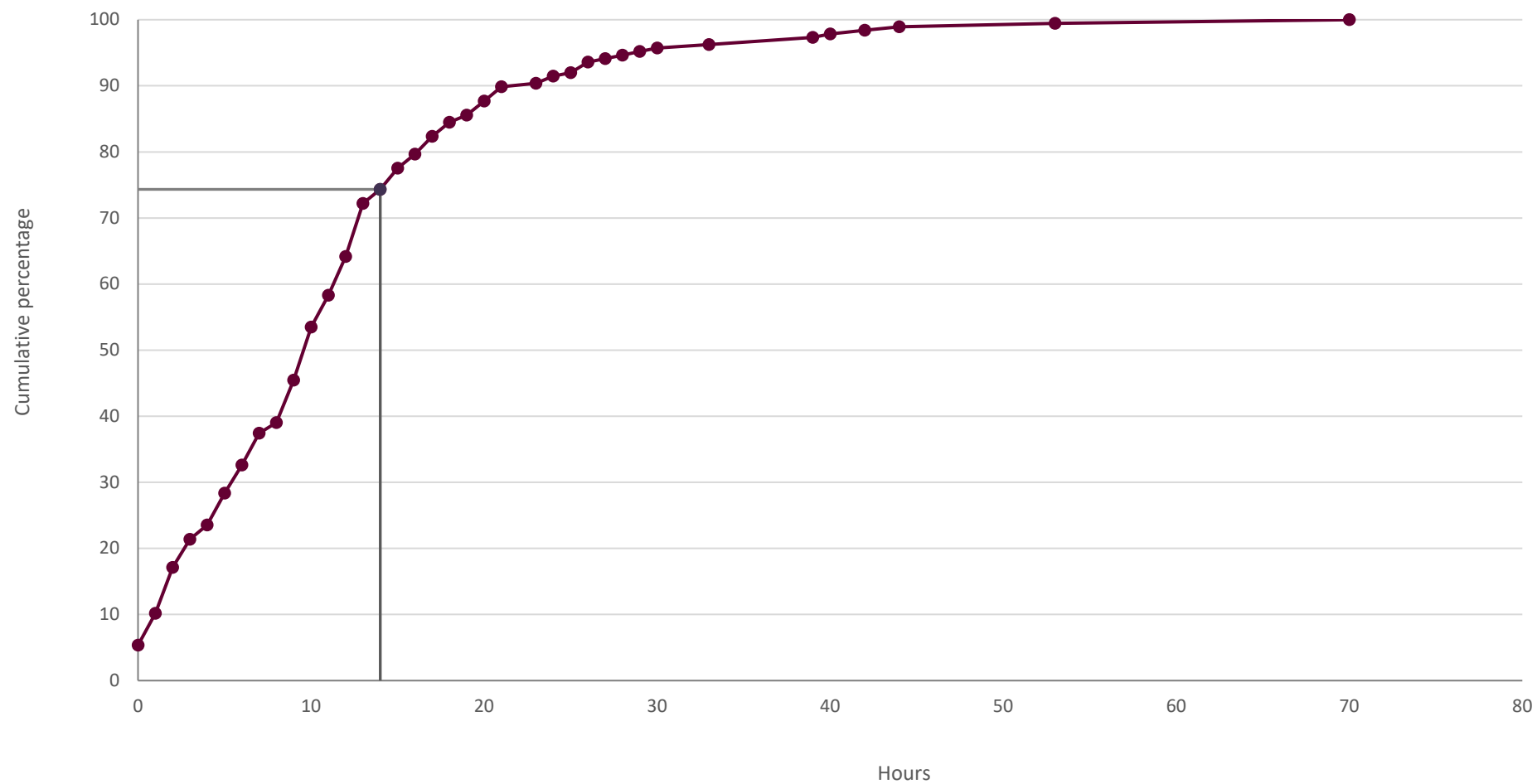


Figure 5.1 Time from admission to first consultant review (n=187)  
*Reviewer assessment form data (vertical line at 14 hours)*

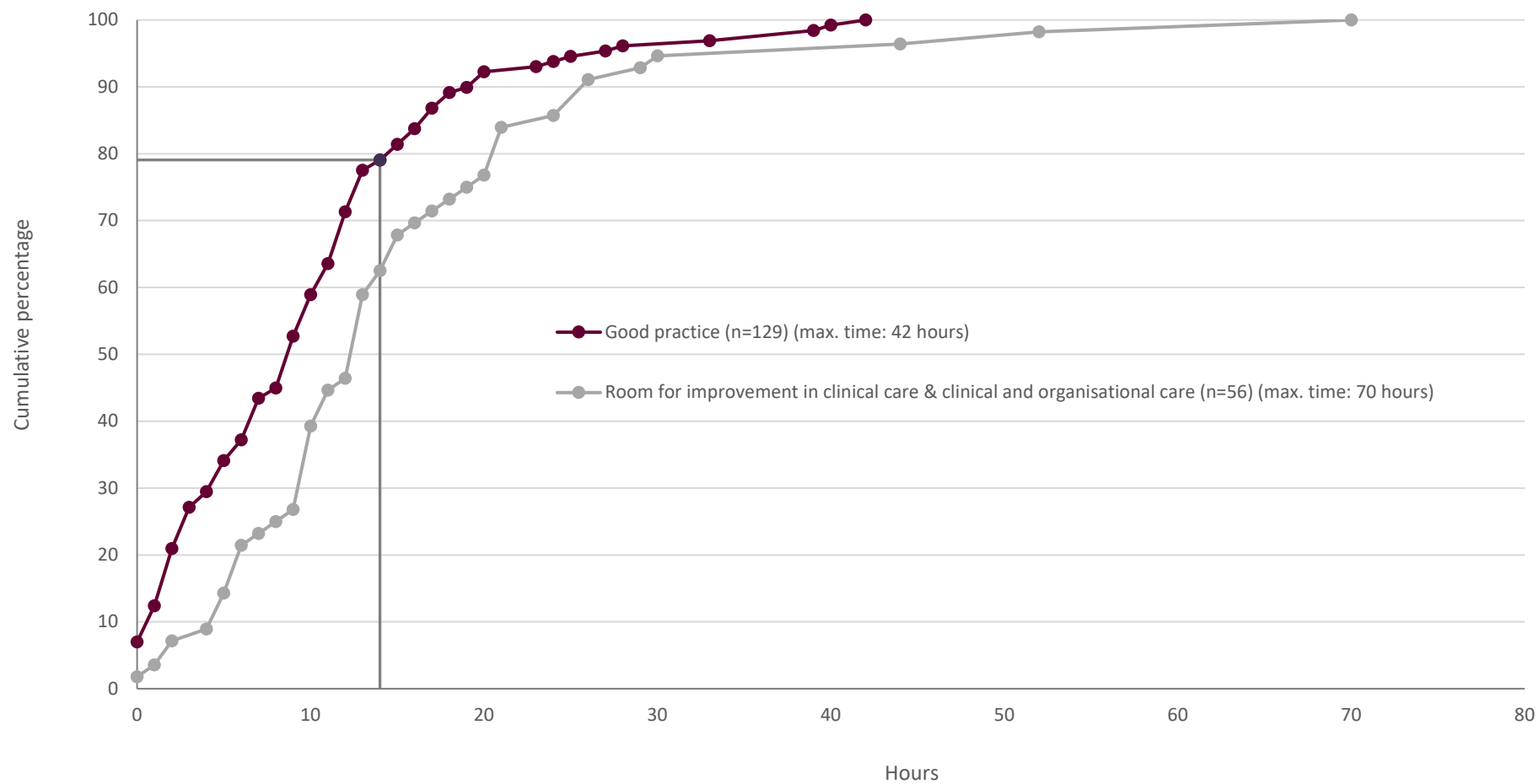


Figure 5.2 Time to the first consultant review by overall quality of care  
 Reviewer assessment form data (vertical line at 14 hours)

<b>Table 5.3 The grade of the clinician who made the decision to perform the procedure</b>	<b>Number of patients</b>	<b>%</b>
Consultant	270	47.0
Doctor at ST5+ or equivalent	129	22.4
Doctor ST1/2 or core trainee equivalent	71	12.3
Doctor at ST3/4 or equivalent	65	11.3
Specialty and associate specialist (SAS) doctor	30	5.2
Advanced nurse practitioner	3	<1
Resident doctor with a certificate of completion of training (CCT)	2	<1
Specialist nurse	2	<1
Other	2	<1
Physician associate	1	<1
Advanced clinical practitioner	0	<1
Senior staff nurse	0	0
<b>Subtotal</b>	<b>575</b>	
Unable to answer	278	
<b>Total</b>	<b>853</b>	

Reviewer assessment form data

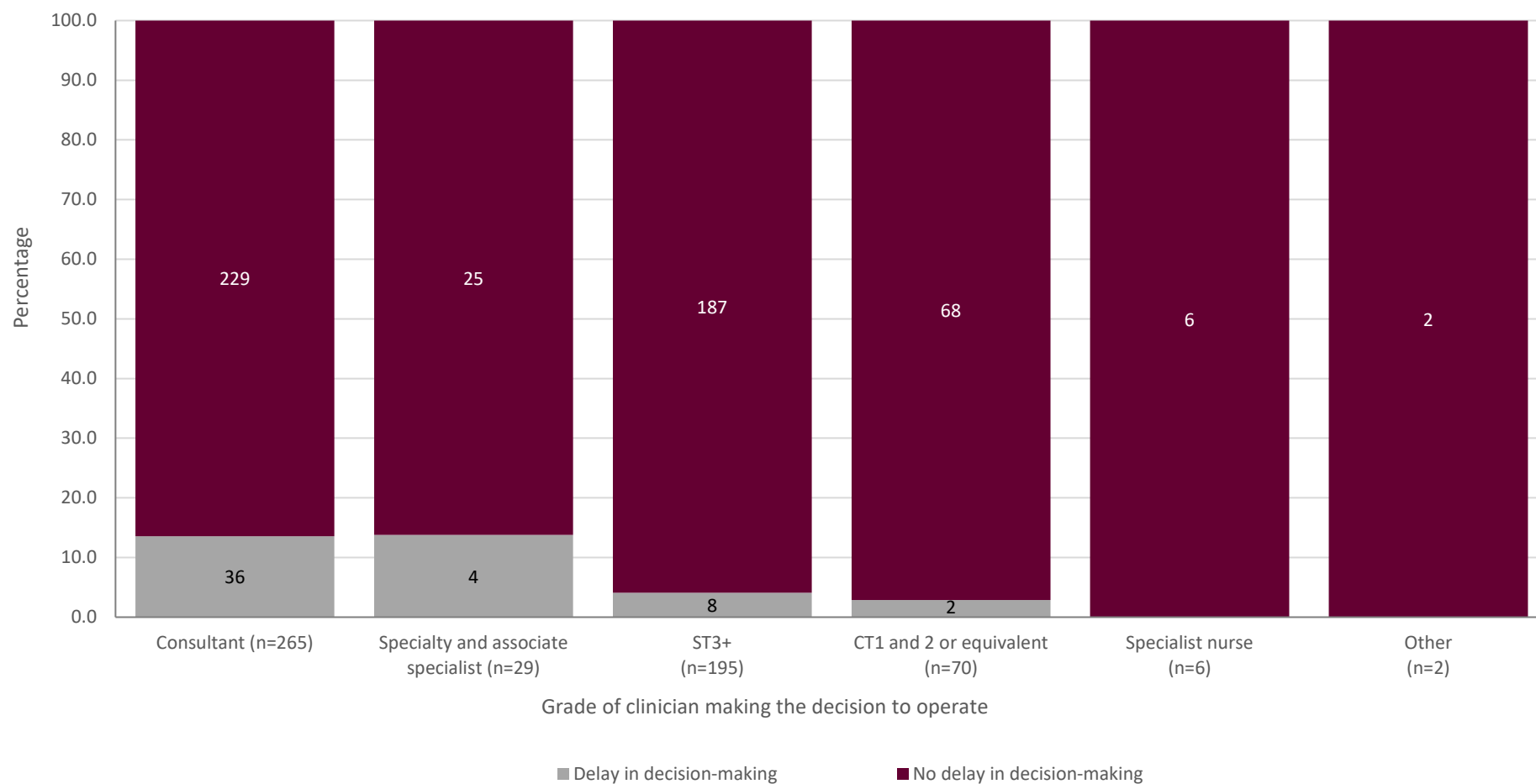


Figure 5.3 The grade of clinician who made the decision to perform the procedure by presence of a delay  
 Reviewer assessment form data

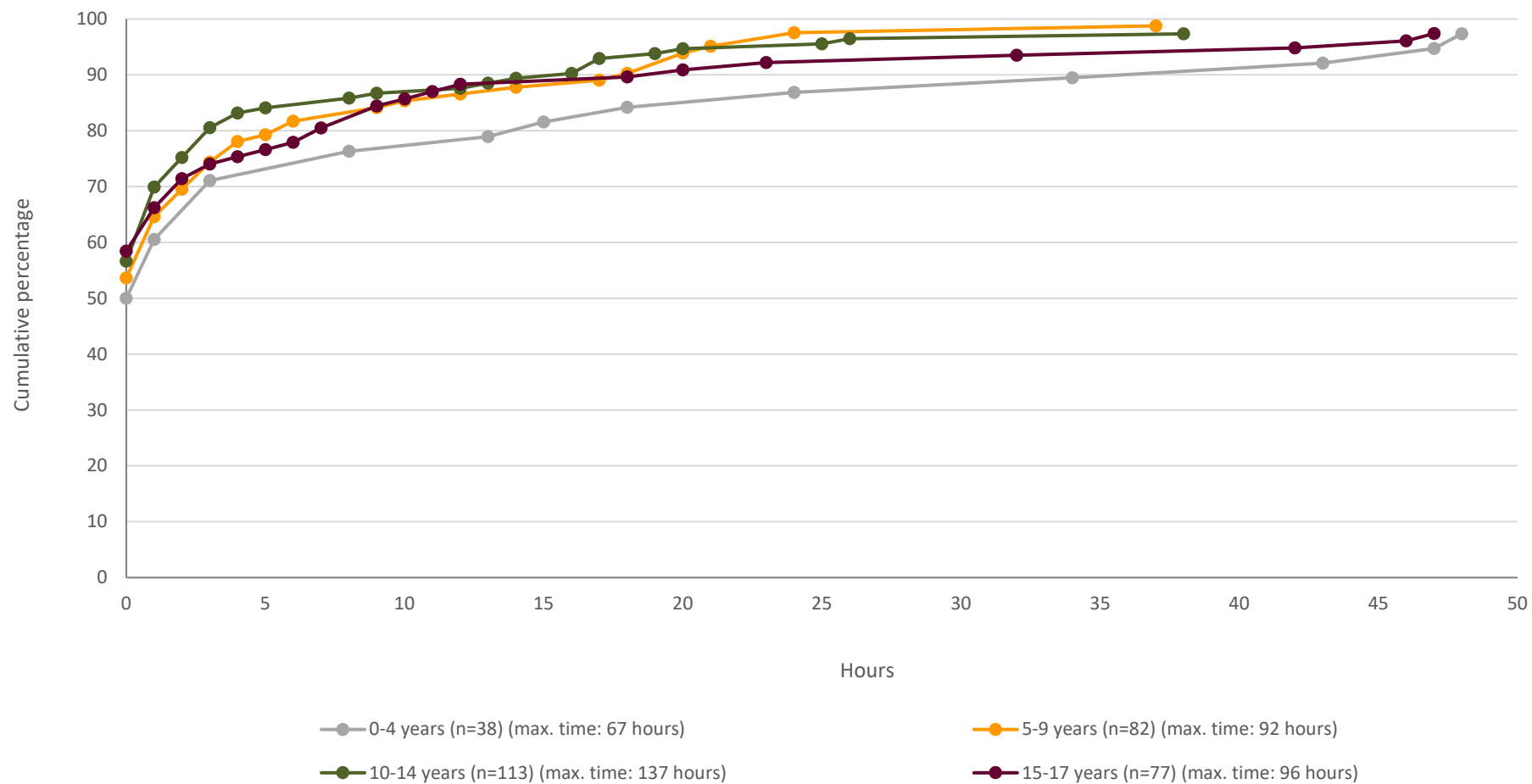


Figure 5.4 Time from first ST3+ or equivalent review to decision to operate  
 Reviewer assessment form data (data not shown for 7 patients)



Table 5.4 There was a delay from booking the case to the start of the procedure	ST3 or equivalent and above		CT2 or equivalent and below		Subtotal
	Number of patients	%	Number of patients	%	Number of patients
Yes	48	12.0	12	10.7	60
No	351	88.0	100	89.3	451
<b>Subtotal</b>	<b>399</b>		<b>112</b>		<b>511</b>
Unable to answer	17		2		19
<b>Total</b>	<b>416</b>		<b>114</b>		<b>530</b>

Reviewer assessment form data

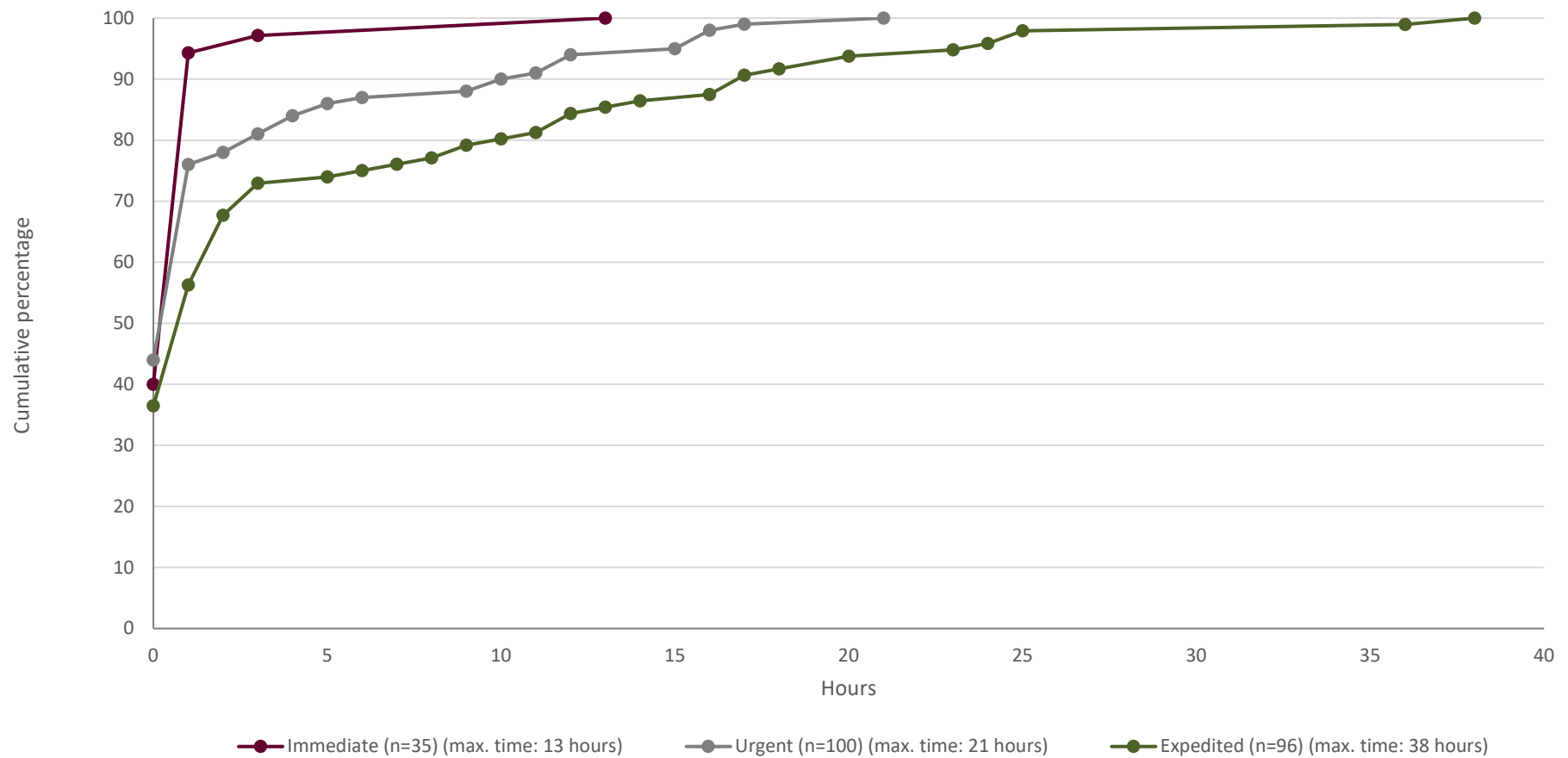


Figure 5.5 Time between the decision to operate and the theatre booking  
*Reviewer assessment form data*

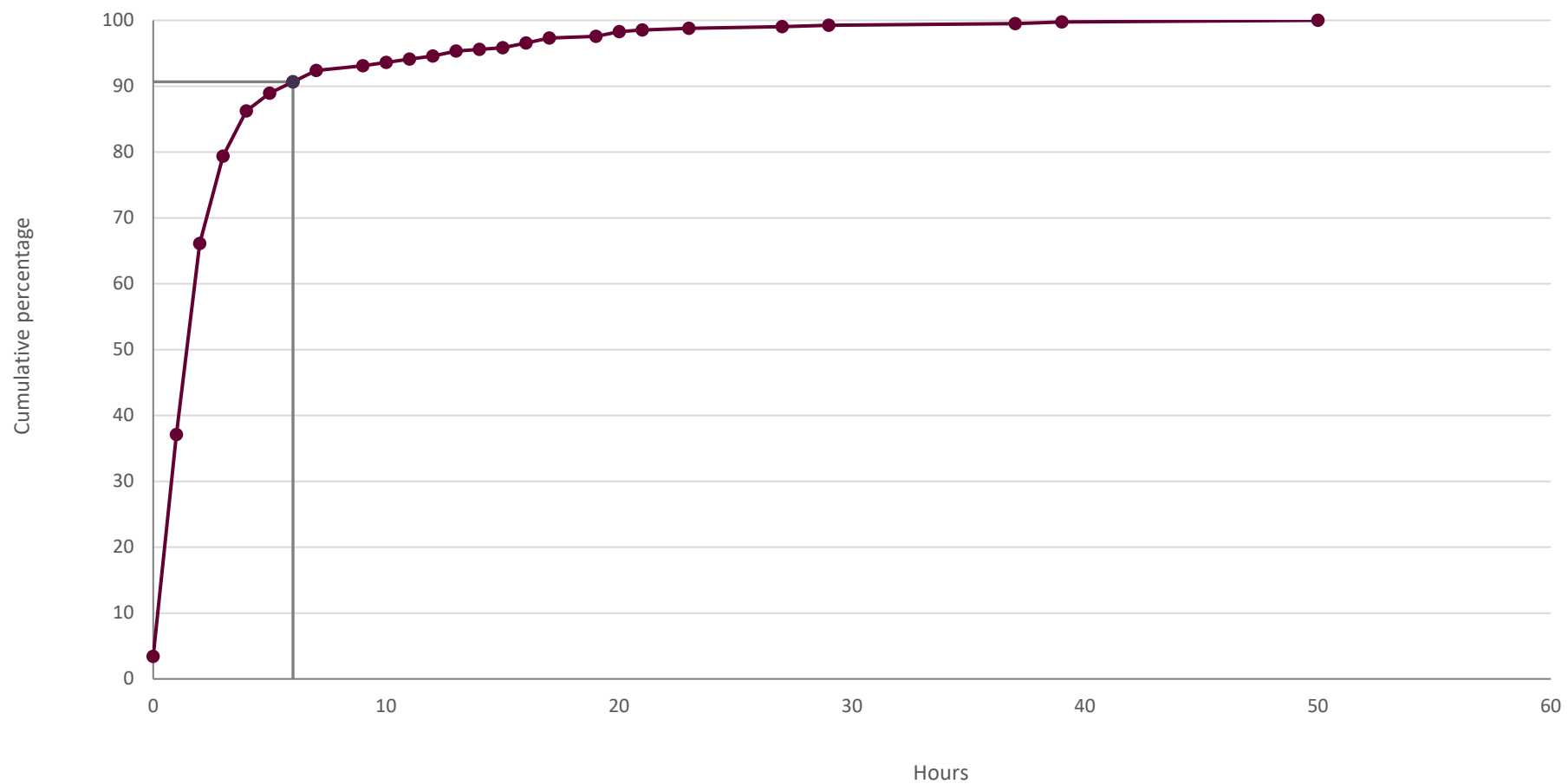


Figure 5.6 Time from first anaesthetic review to commencement of anaesthetic (n=407)  
*Reviewer assessment form data (vertical line at 6 hours)*

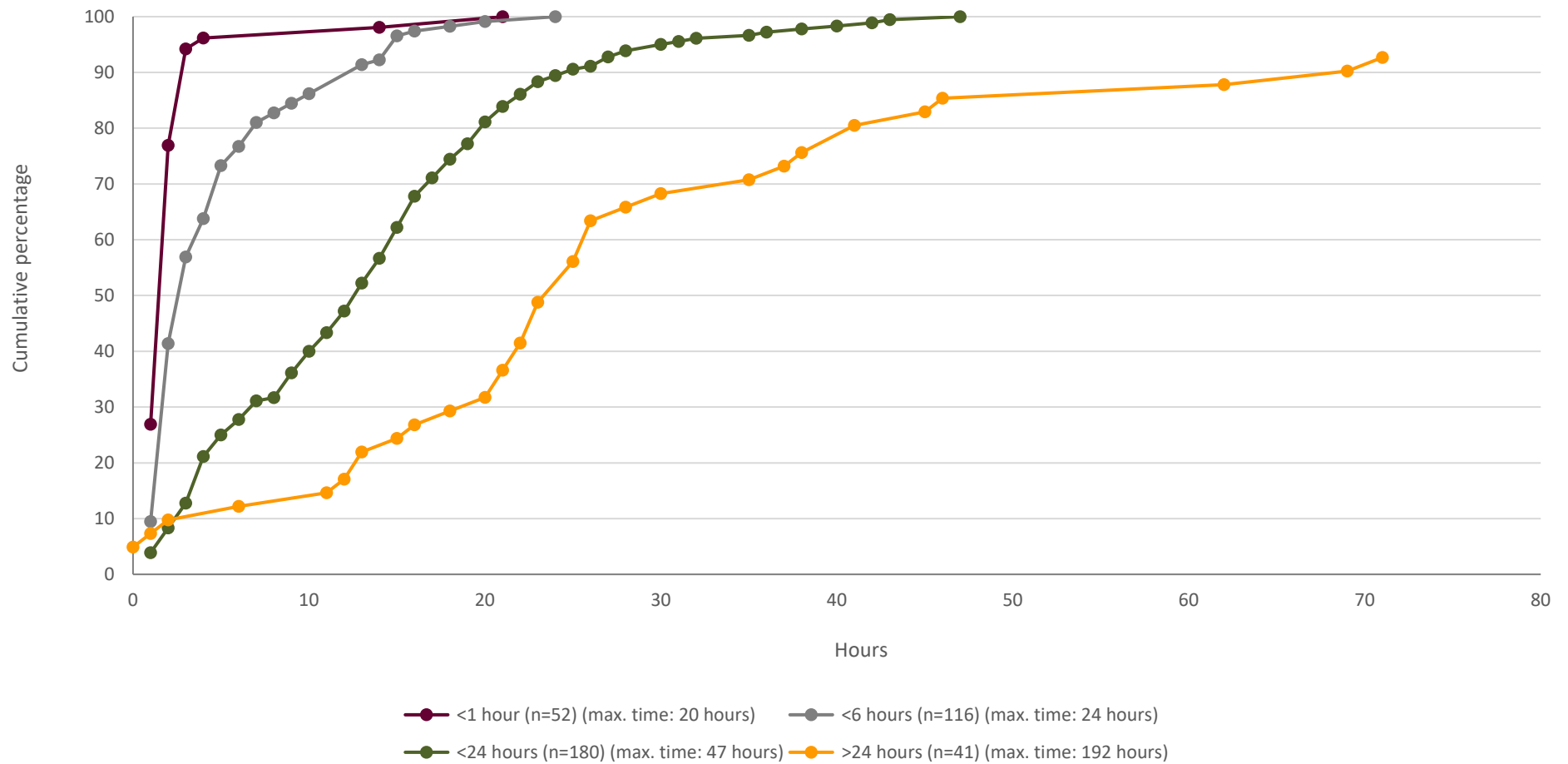


Figure 5.7 Time from decision to operate to commencement of anaesthetic by urgency of surgery  
 Reviewer assessment form data (data not shown for 3 patients)

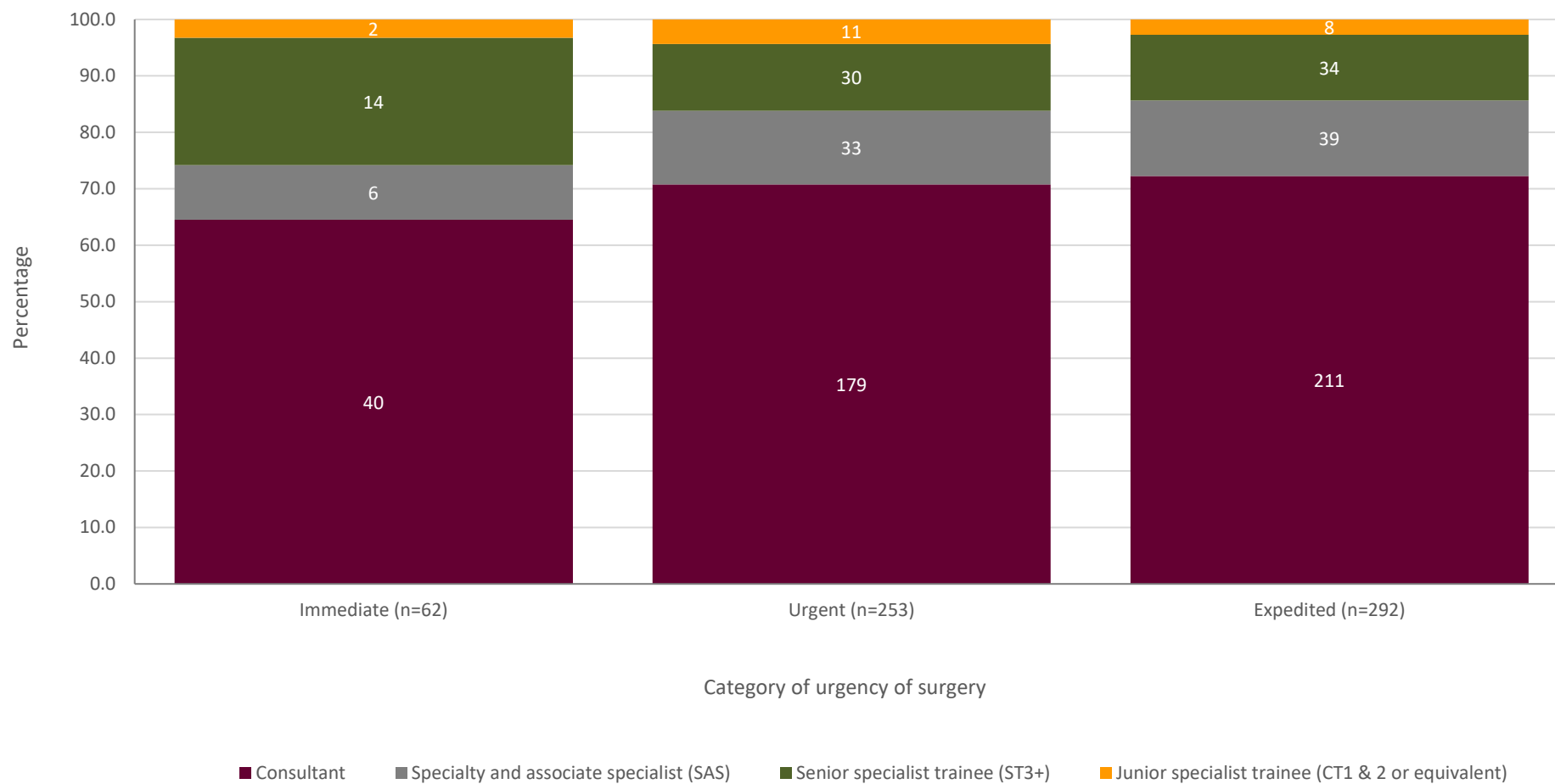


Figure 5.8 Grade of anaesthetist by category of urgency of surgery  
 Reviewer assessment form data

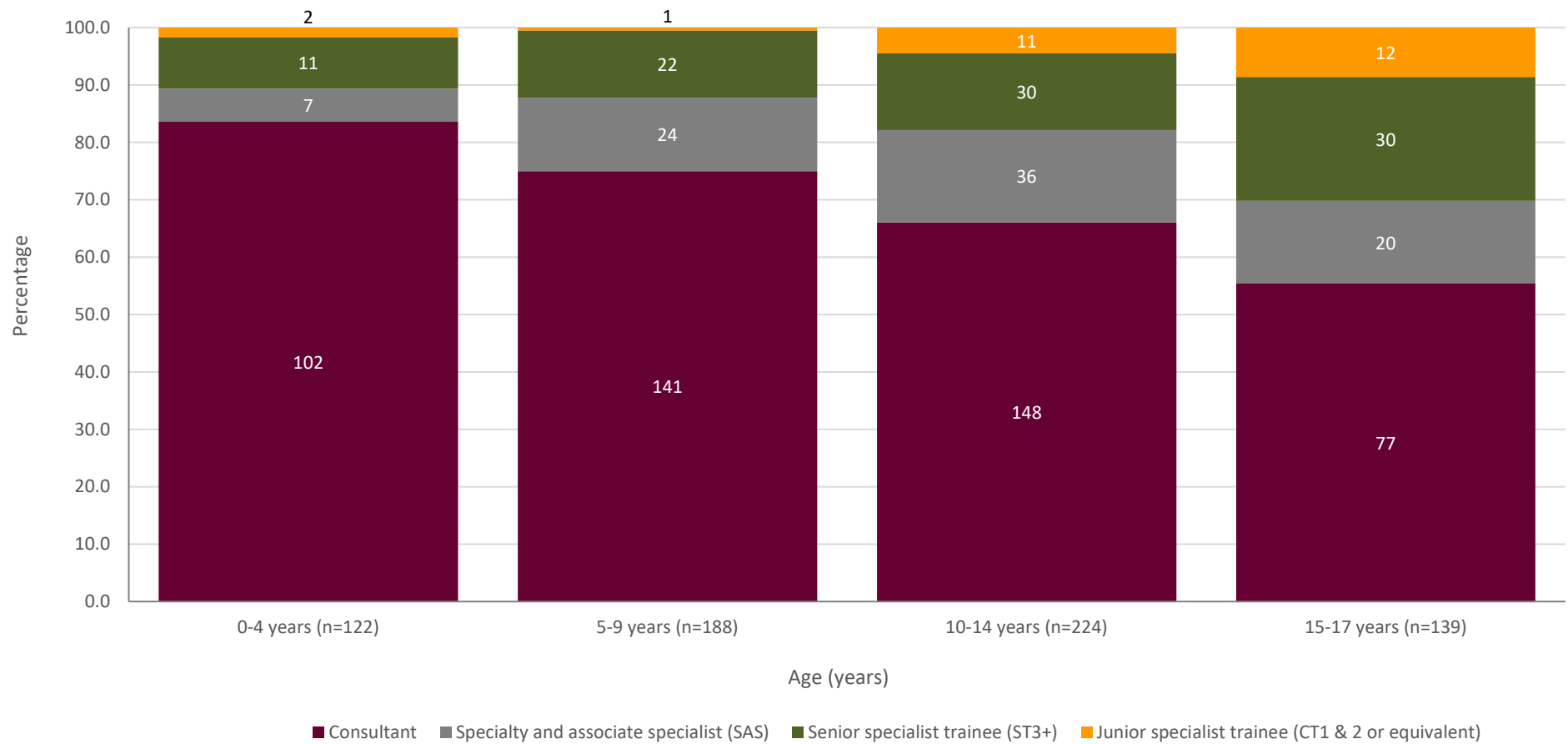


Figure 5.9 Grade of anaesthetist by age of patient at the time of procedure  
 Reviewer assessment form data

<b>Table 5.5 The patient was commenced on a dedicated pathway for emergency surgery in children and young people</b>	<b>Number of patients</b>	<b>%</b>
Yes	287	45.6
No	342	54.4
<b>Subtotal</b>	<b>629</b>	
Unable to answer	224	
<b>Total</b>	<b>853</b>	

*Reviewer assessment form data*

Table 5.6 The patient was not commenced on a dedicated surgical pathway but should have been	Number of patients	%
Yes	83	32.5
No	172	67.5
<b>Subtotal</b>	<b>255</b>	
Unable to answer	87	
<b>Total</b>	<b>342</b>	

*Reviewer assessment form data*



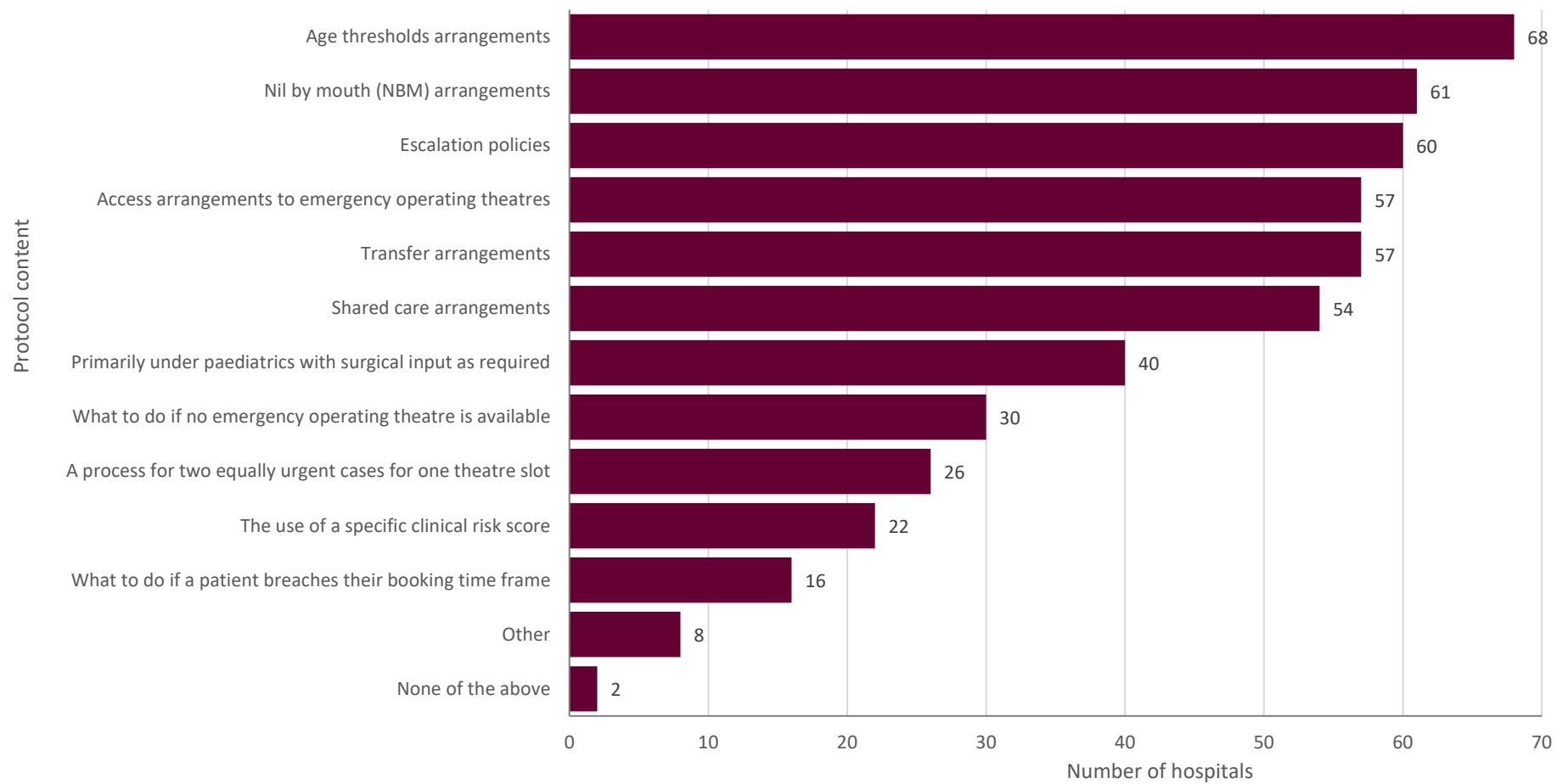


Figure 5.10 Elements of the protocol for children and young people needing emergency procedures  
 Organisational questionnaire data. Answers may be multiple; n=84 (unknown for 8)

<b>Table 6.1 The number of emergency (CEPOD) theatres available</b>	<b>Number of hospitals</b>	<b>%</b>
1 emergency CEPOD theatre	83	68.0
1.5 emergency CEPOD theatres	1	<1
2 emergency CEPOD theatres	25	20.5
3 emergency CEPOD theatres	9	7.4
4 emergency CEPOD theatres	3	2.5
<b>Subtotal</b>	<b>122</b>	
Unknown	21	
<b>Total</b>	<b>143</b>	

*Organisational questionnaire data*

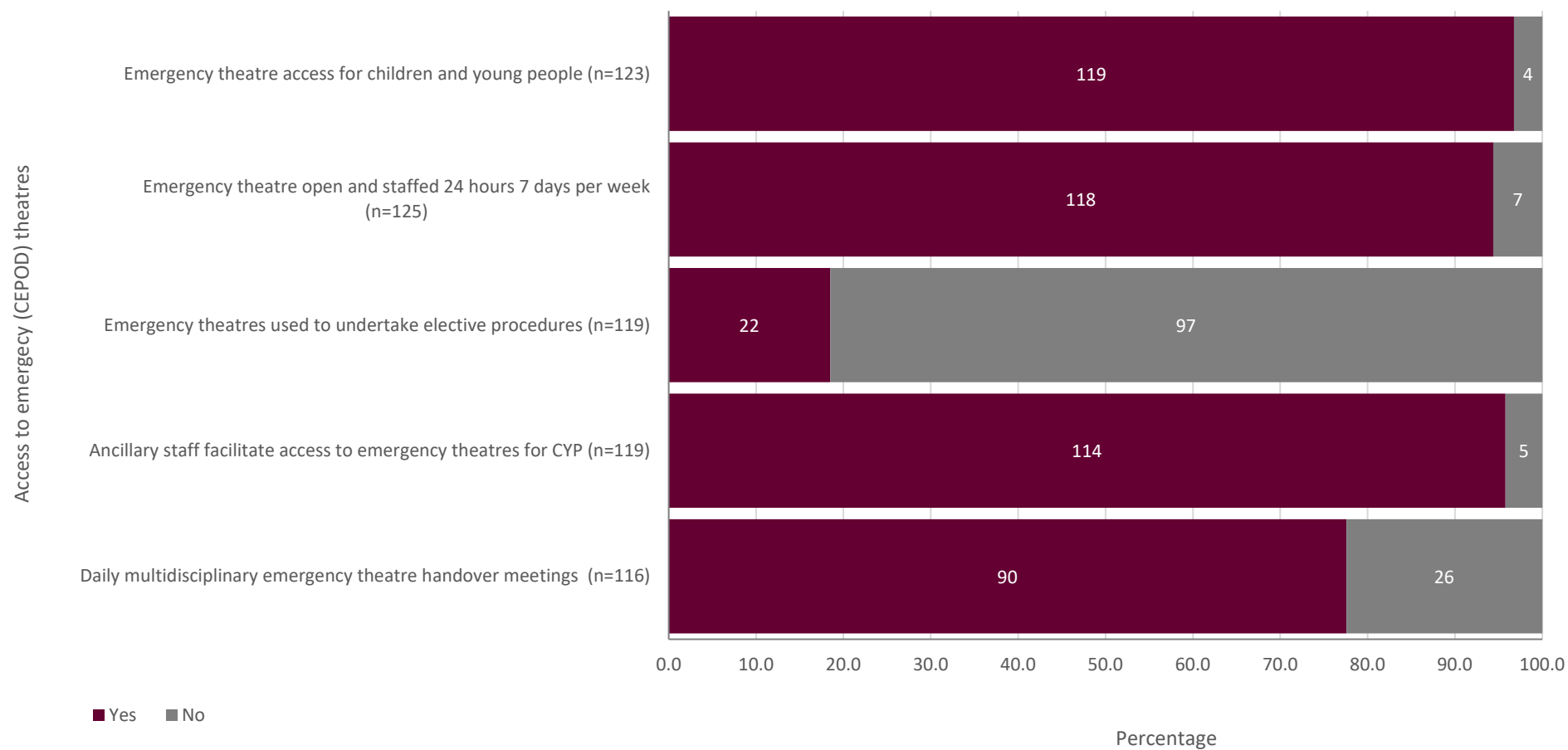


Figure 6.1 Access to emergency (CEPOD) theatres  
Organisational questionnaire data

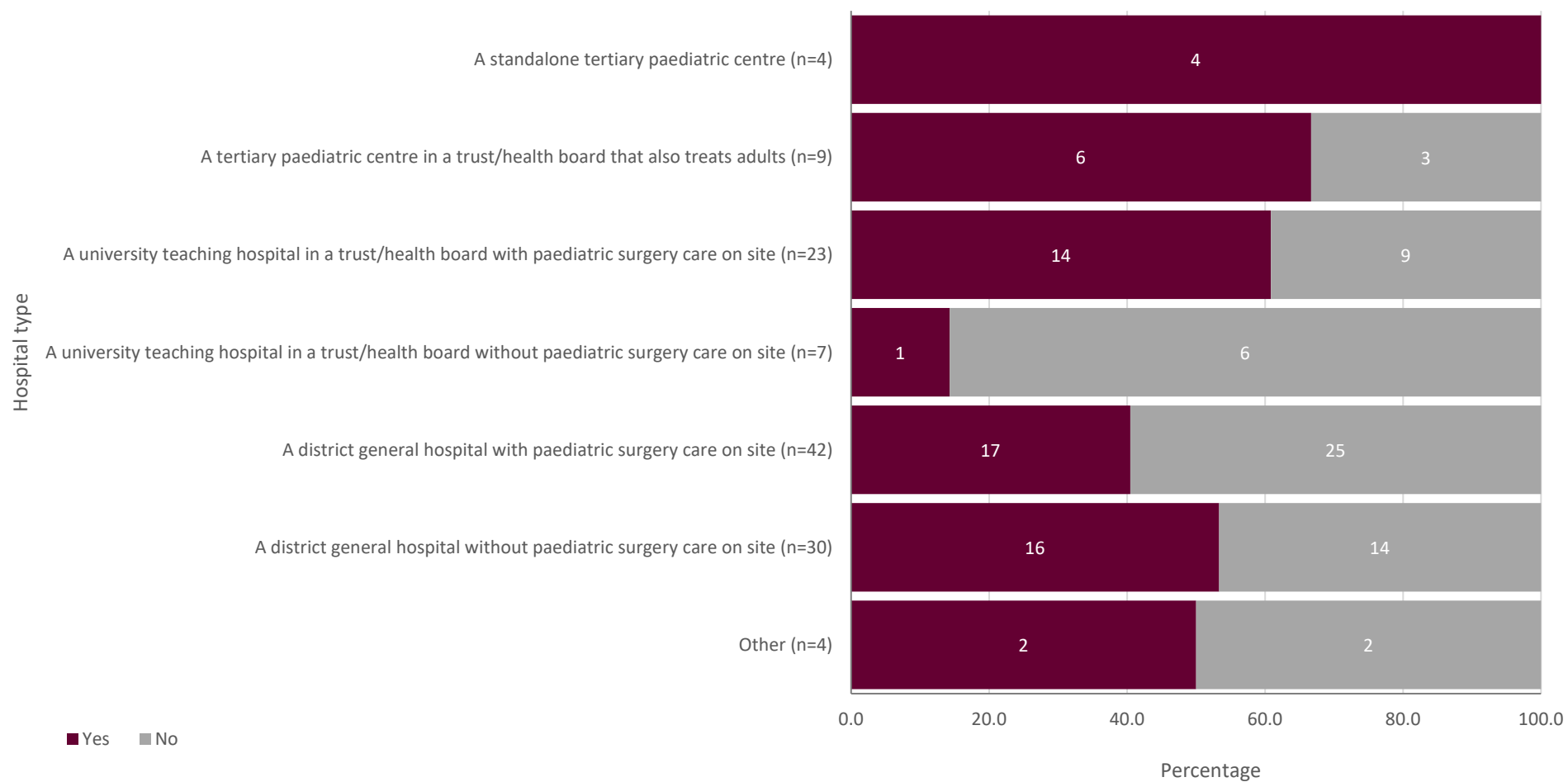


Figure 6.2 Presence of a manager responsible for co-ordinating non-elective procedures in children and young people by hospital type  
Organisational questionnaire data

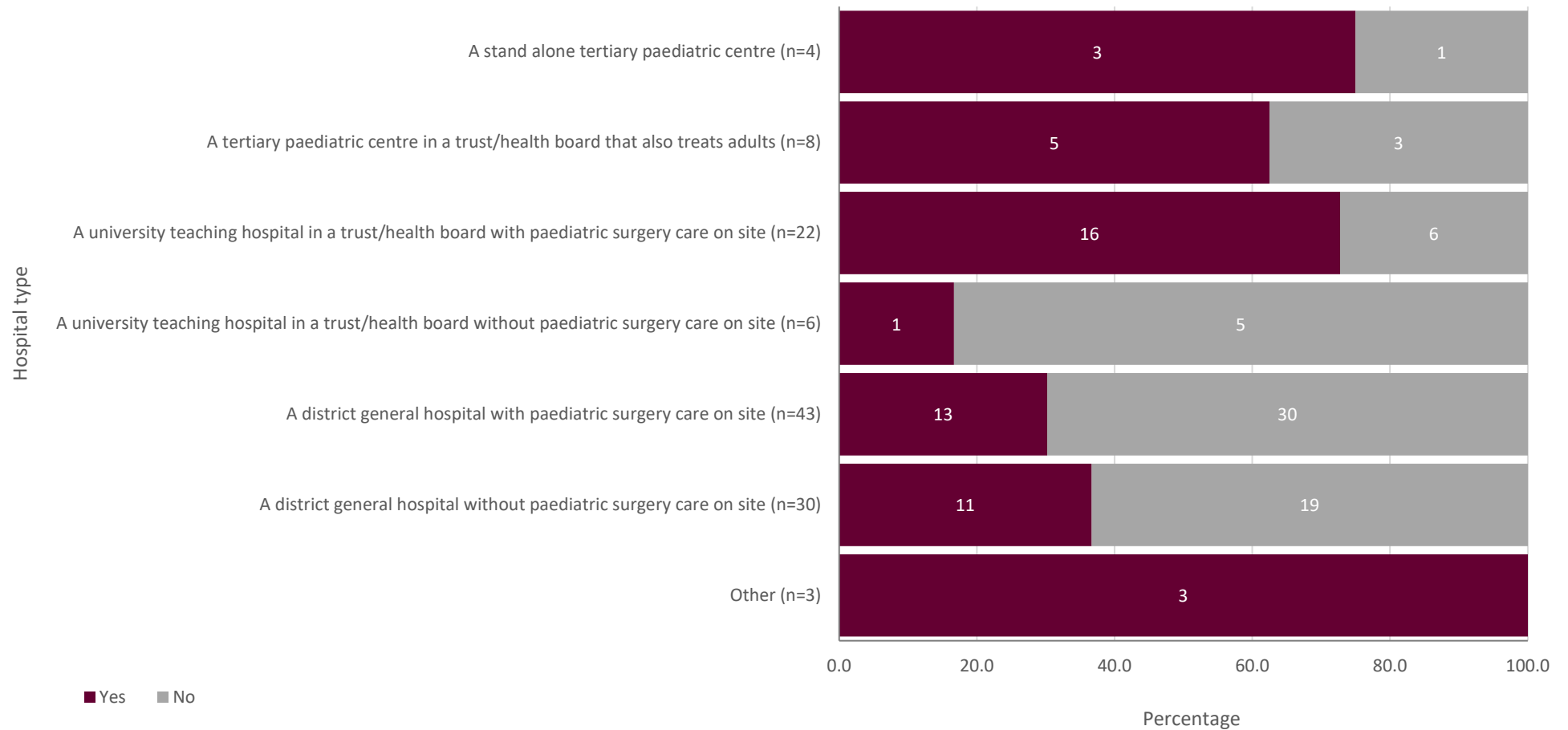


Figure 6.3 Presence of a clinician responsible for assessing capacity in theatres on a daily basis by hospital type  
Organisational questionnaire data

<b>Table 6.2 An emergency surgery co-ordinator was involved in the care of this patient</b>	<b>Number of patients</b>	<b>%</b>
Yes	556	67.7
No	265	32.3
<b>Subtotal</b>	<b>821</b>	
Unknown	151	
Not answered	19	
<b>Total</b>	<b>991</b>	

*Real-time survey data*

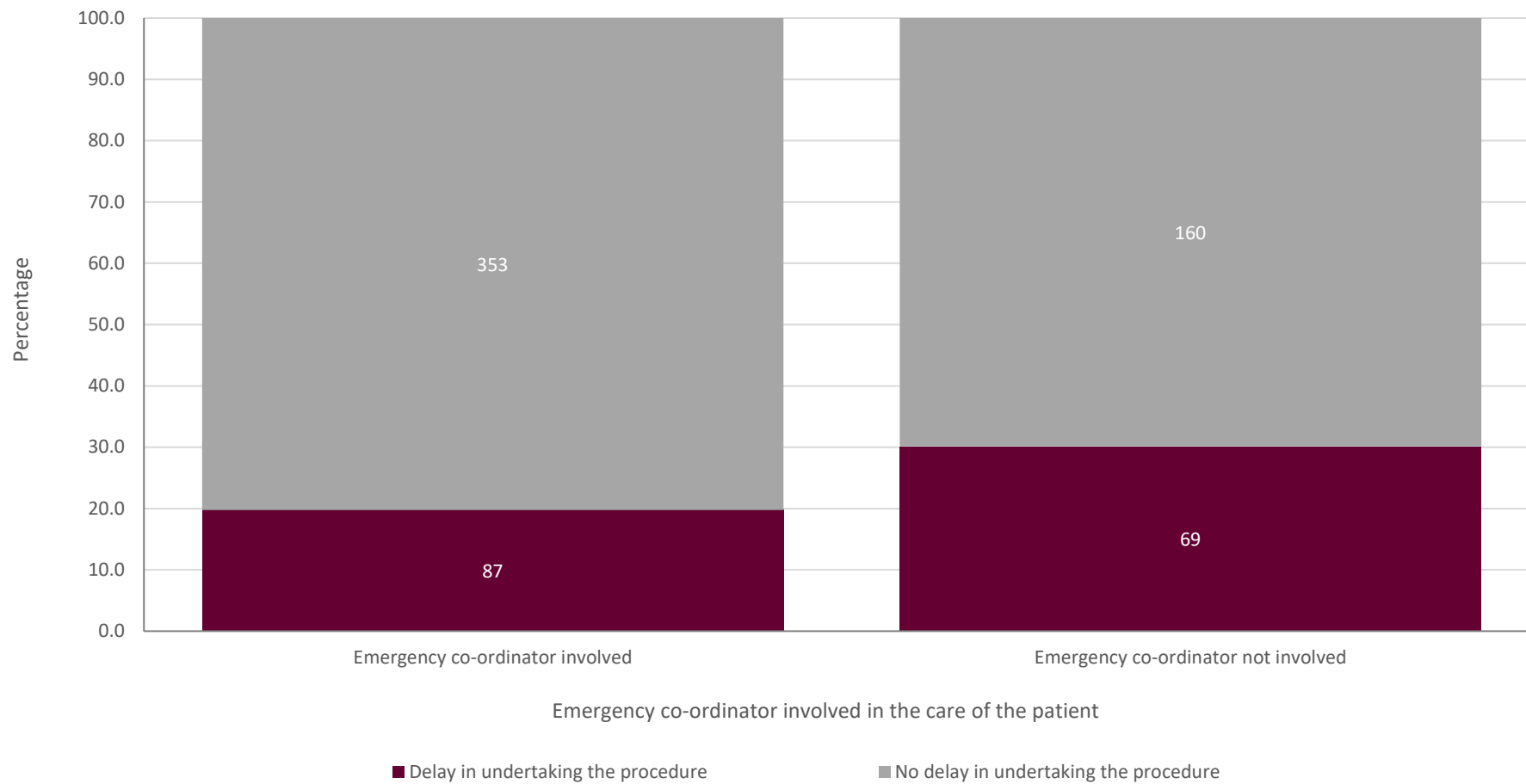


Figure 6.4 An emergency surgery co-ordinator was involved in the care of this patient and the impact on delays in the procedure  
*Real-time survey data*

Table 6.3 The booking urgency	Real-time survey		Reviewer assessment form	
	Number of patients	%	Number of patients	%
Immediate	70	8.6	69	9.4
Urgent	364	44.7	309	41.9
Expedited	354	43.5	359	48.7
Other	26	3.2	0	0.0
<b>Subtotal</b>	<b>814</b>		<b>737</b>	
Unable to answer or not answered	177		116	
<b>Total</b>	<b>991</b>		<b>853</b>	

*Real-time survey and reviewer assessment form data*



Table 6.4 The proposed time frame for procedure commencement from the time of booking	Real-time survey		Reviewer assessment form	
	Number of patients	%	Number of patients	%
<1 hour	120	13.4	74	11.1
<6 hours	206	23.0	193	28.9
<24 hours	406	45.3	297	44.5
>24 hours	165	18.4	103	15.4
<b>Subtotal</b>	<b>897</b>		<b>667</b>	
Unable to answer	94		186	
<b>Total</b>	<b>991</b>		<b>853</b>	

*Real-time survey and reviewer assessment form data*

Table 6.5 The booking urgency was appropriate	Real-time survey		Reviewer assessment form	
	Number of patients	%	Number of patients	%
Yes	865	95.2	675	95.3
No	44	4.8	33	4.6
<b>Subtotal</b>	<b>909</b>		<b>708</b>	
Unable to answer	82		145	
<b>Total</b>	<b>991</b>		<b>853</b>	

*Real-time survey and reviewer assessment form data*

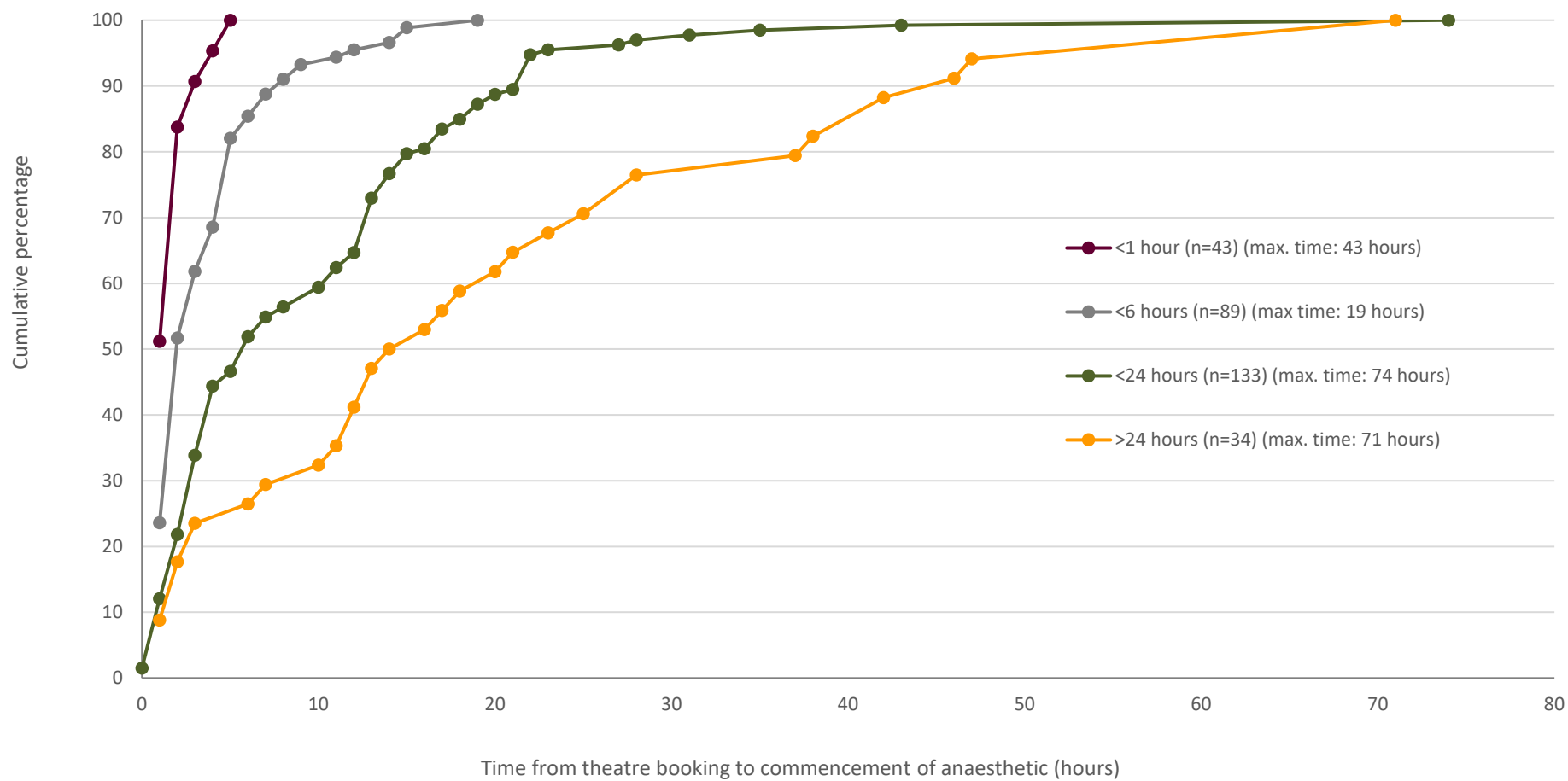


Figure 6.5 Time from booking to the start of the procedure  
 Reviewer assessment form data

Table 6.6 The emergency procedure displaced other surgery	Displaced elective work		Displaced emergency work	
	Number of patients	%	Number of patients	%
Yes	28	3.1	146	16.7
No	872	96.9	728	83.3
<b>Subtotal</b>	<b>900</b>		<b>874</b>	
Unknown	28		74	
Not answered	63		43	
<b>Total</b>	<b>991</b>		<b>991</b>	

*Real-time survey data*

<b>Table 6.7 The operation undertaken displacing other surgery</b>	<b>Number of patients</b>	<b>%</b>
Manipulation/fixation of joints	22	17.9
Suture laceration/wound washout/debridement	21	17.1
Appendicectomies	11	8.9
Scrotal exploration/orchidectomy/orchidopexy	10	8.1
Incision/drainage of abscesses	7	5.7
Oral and maxillofacial surgery procedure	5	4.1
Removal of foreign bodies	4	3.3
Nail bed repairs	4	3.3
Other	39	31.7
<b>Subtotal</b>	<b>123</b>	
Not answered	23	
<b>Total</b>	<b>146</b>	

*Real-time survey data*

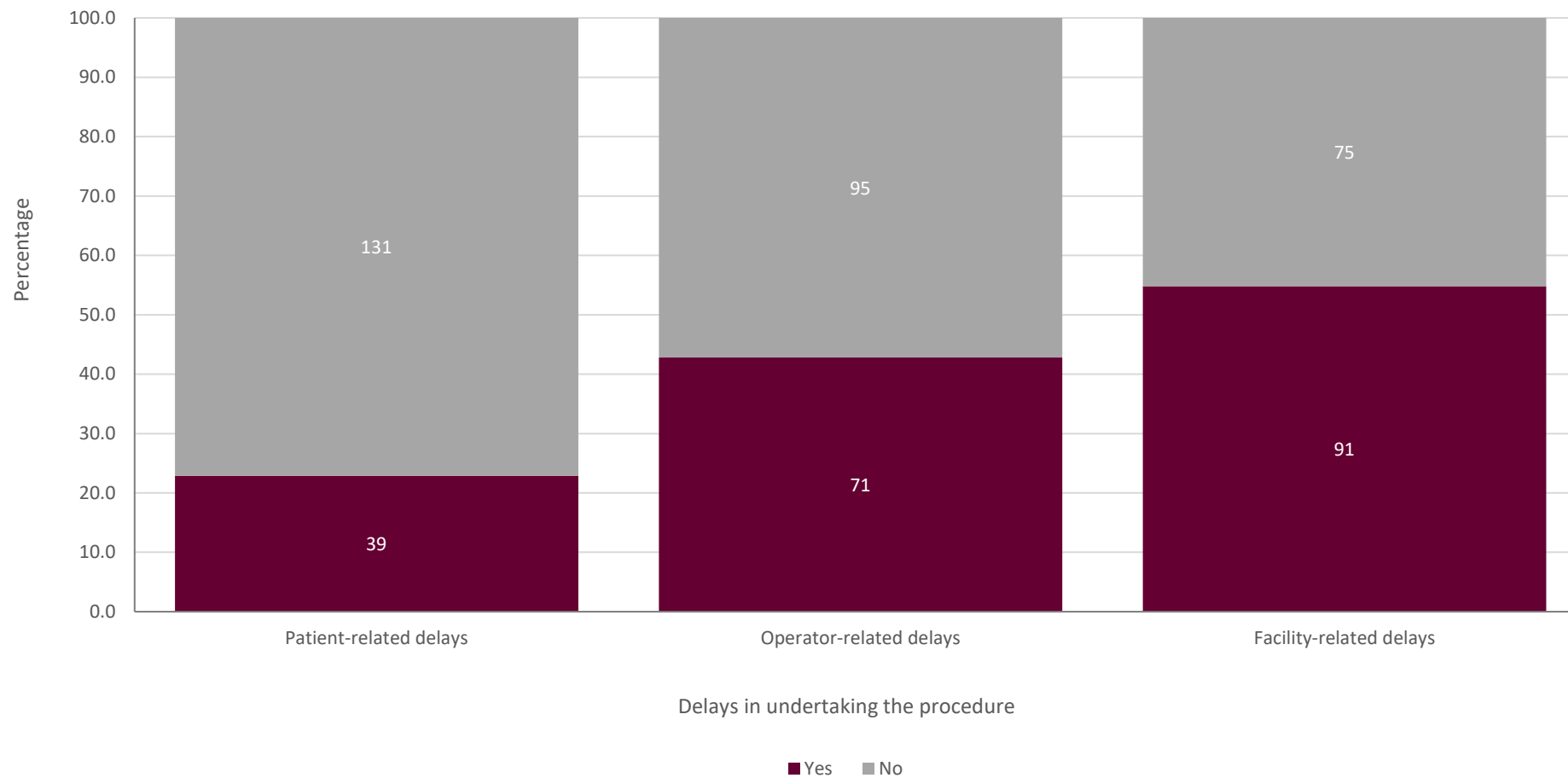


Figure 6.6 Causes of delay in undertaking the procedure  
*Real-time survey data*

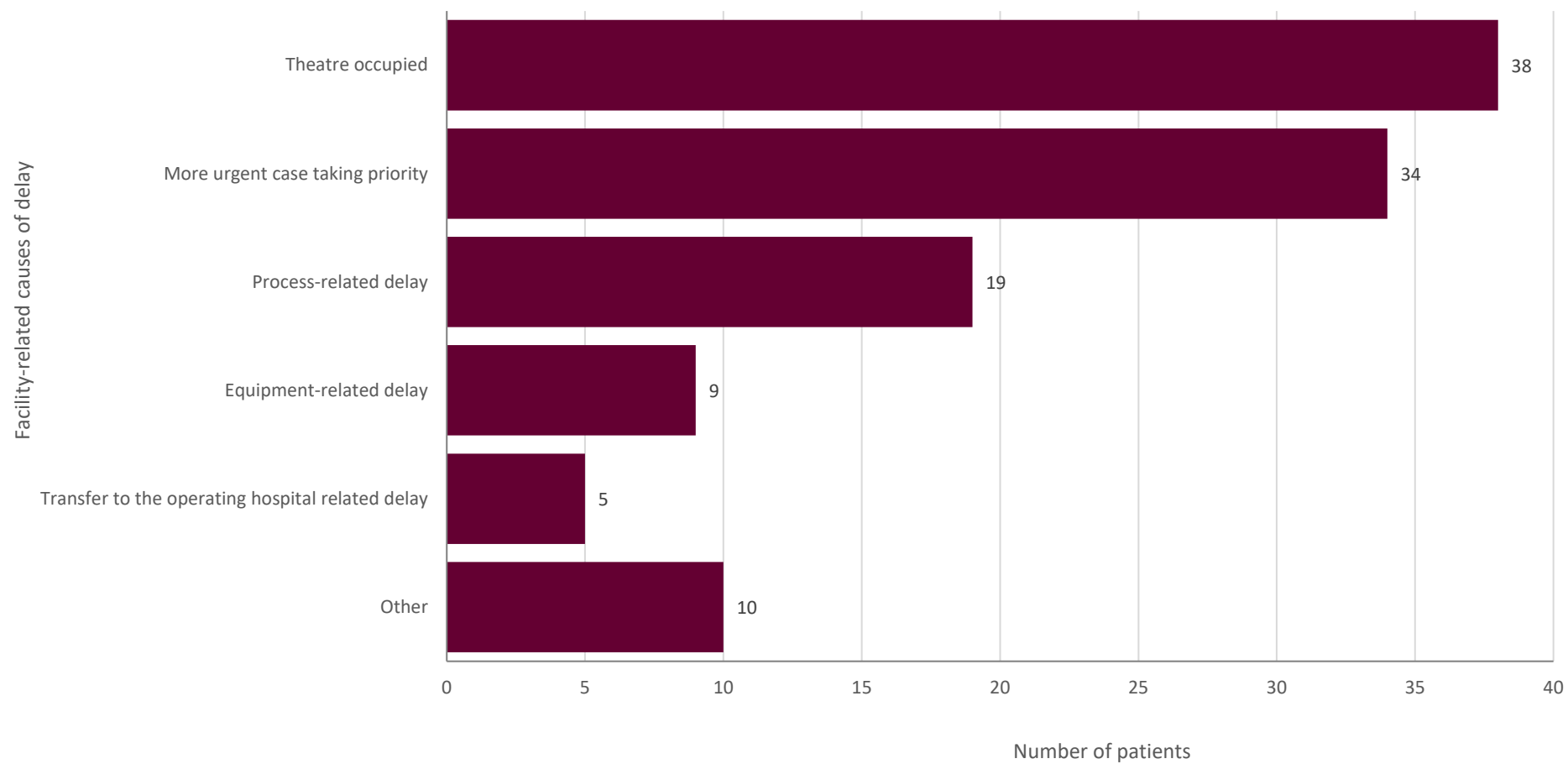


Figure 6.7 The facility-related causes of delay  
*Real-time survey data. Answers may be multiple; n=92*

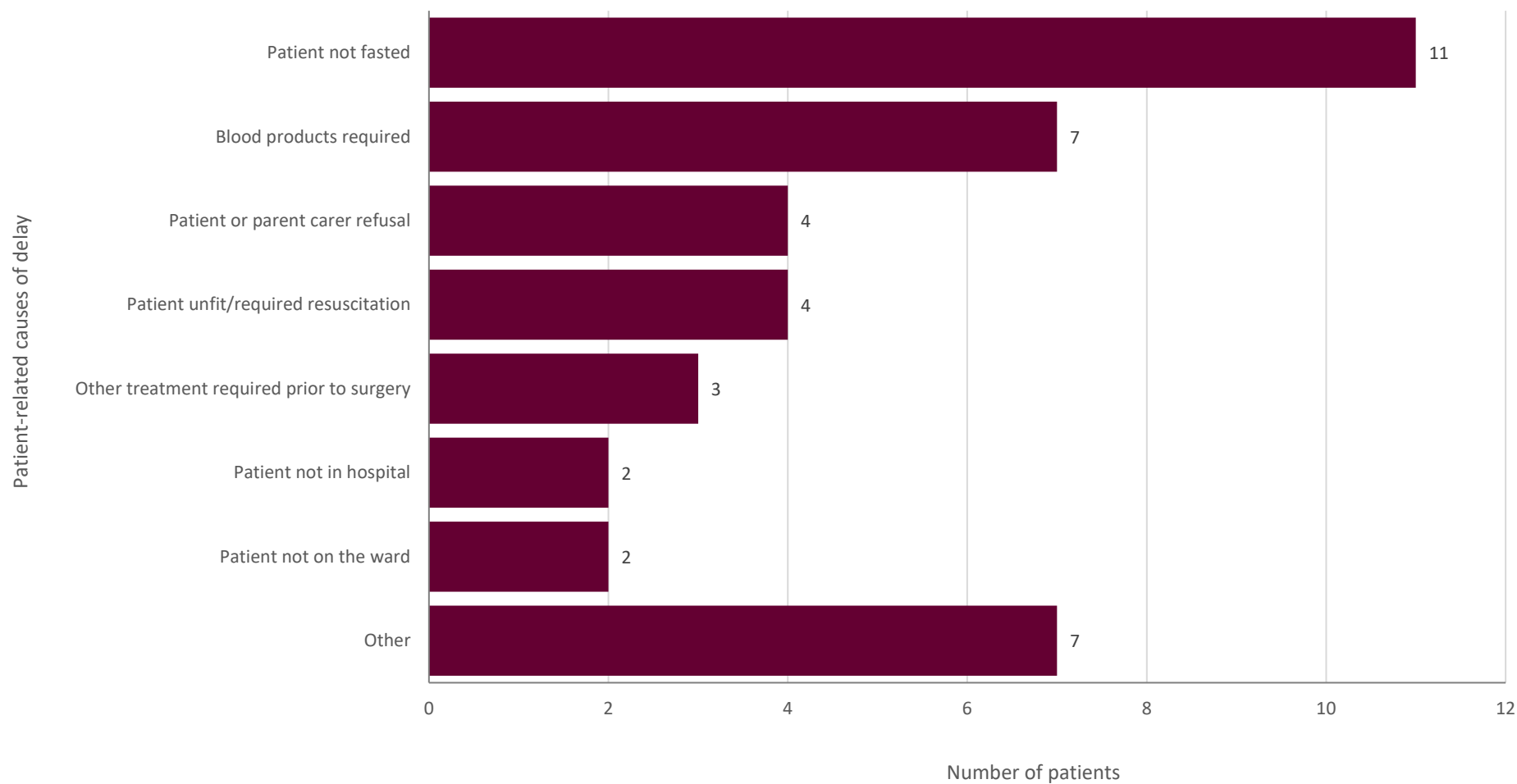


Figure 6.8 Patient-related causes of delay  
Real-time survey data. Answers may be multiple; n=39



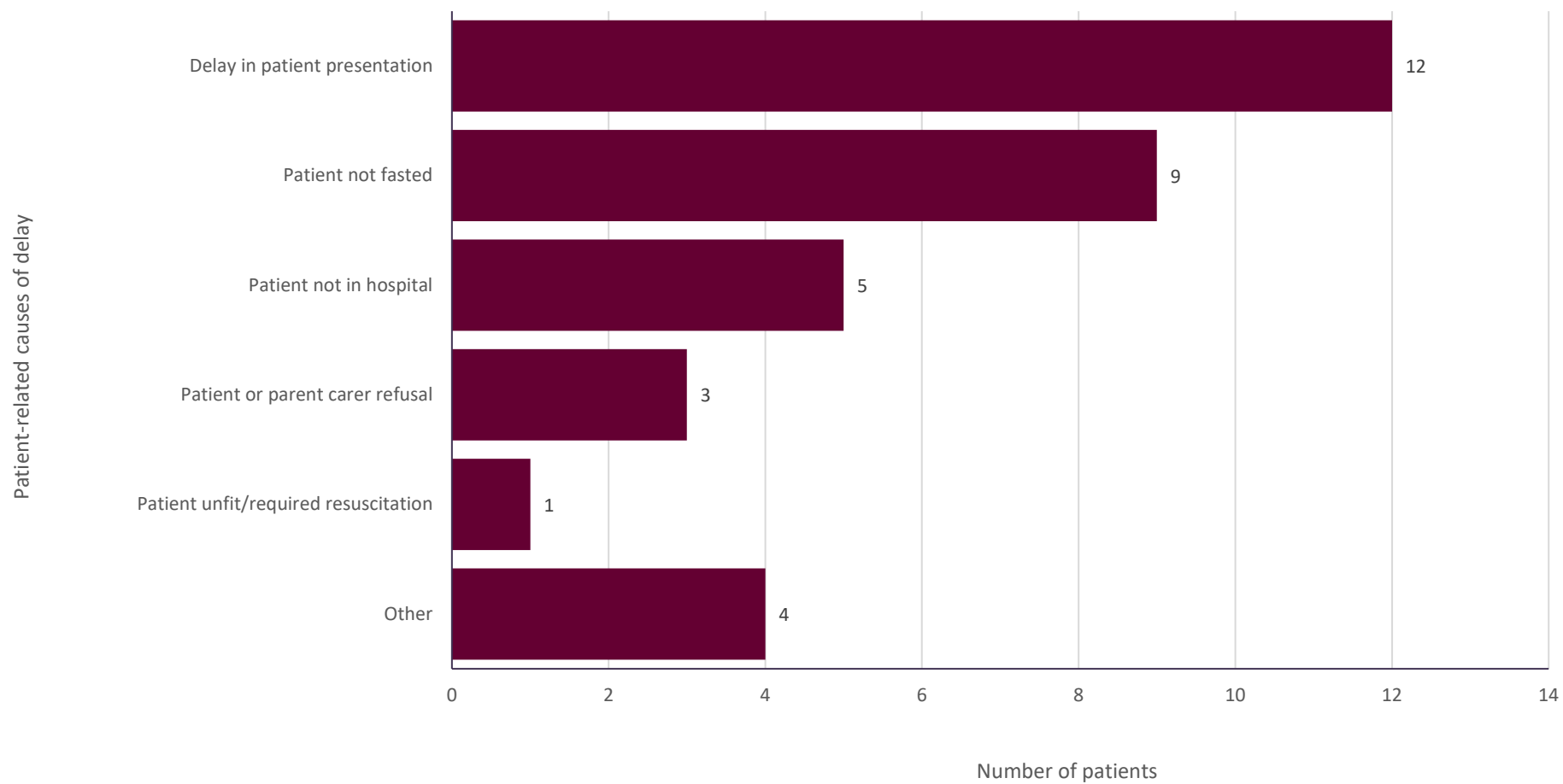


Figure 6.9 Patient-related causes of delay

Reviewer assessment form data. Answers may be multiple; n=30 (unable to answer for 10)

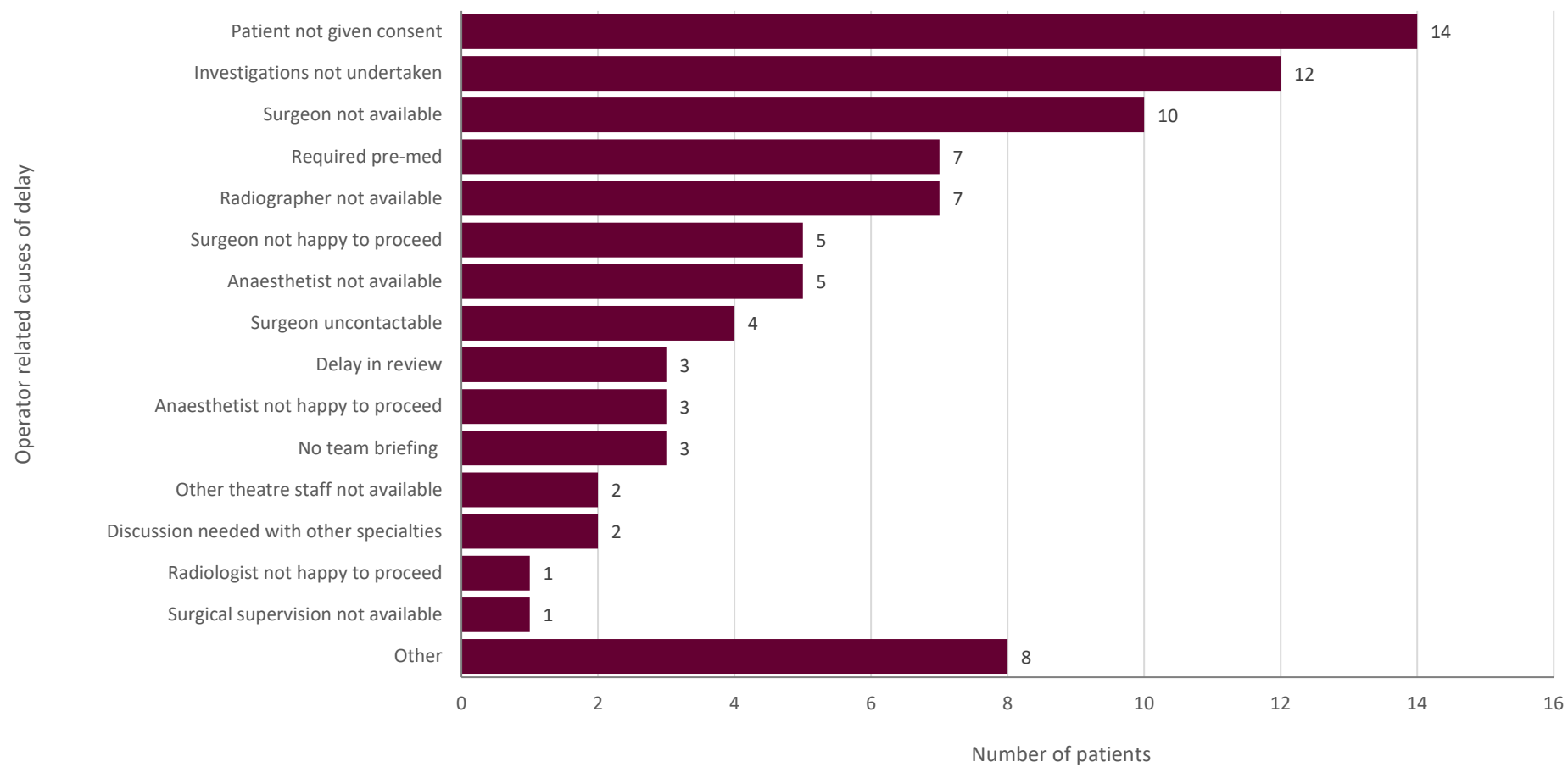


Figure 6.10 Operator-related causes of delay  
*Real-time survey data. Answers may be multiple; n=71*

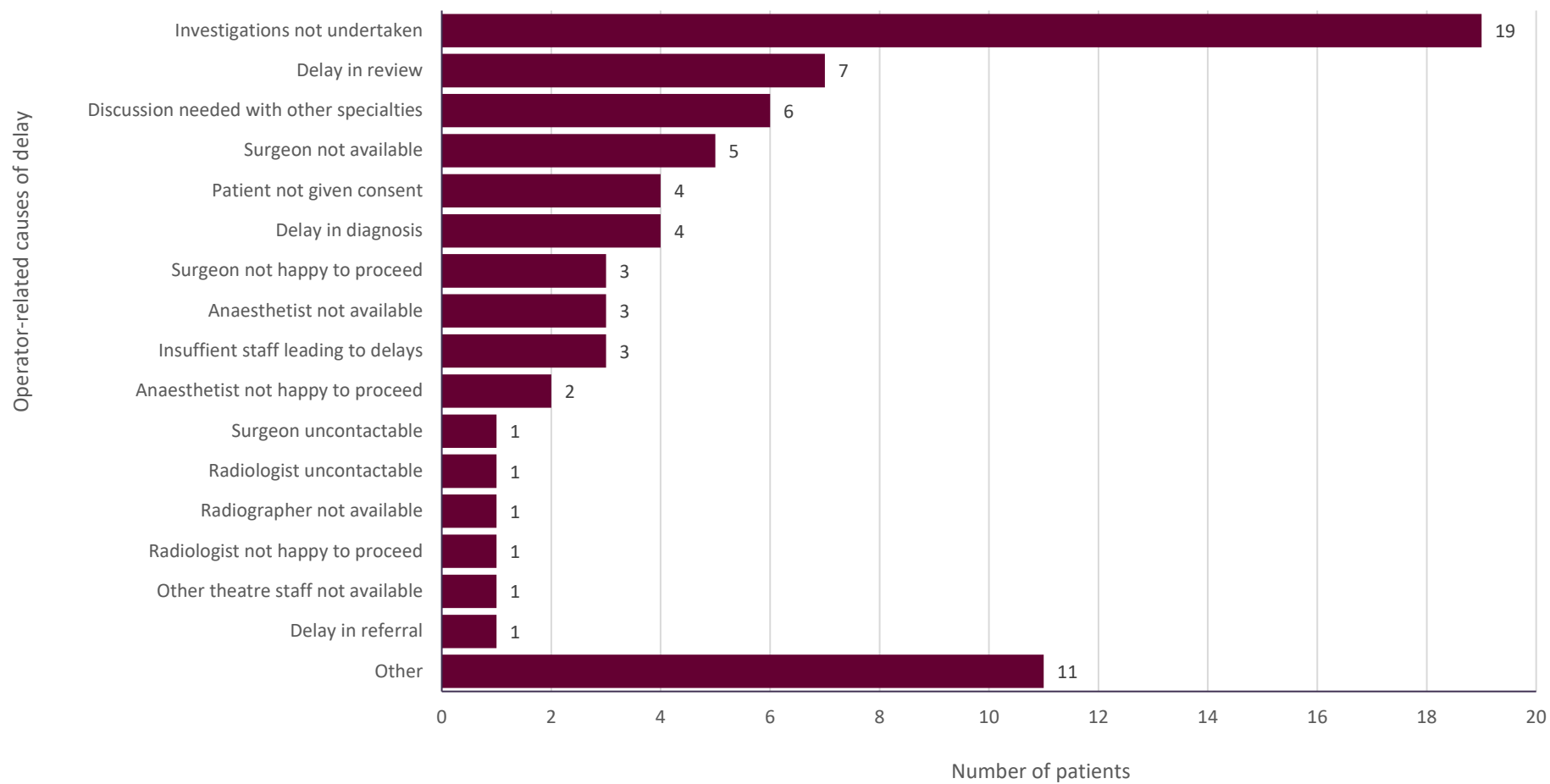


Figure 6.11 Operator-related causes of delay  
 Reviewer assessment form data. Answers may be multiple; n=65 (unable to answer for 22)

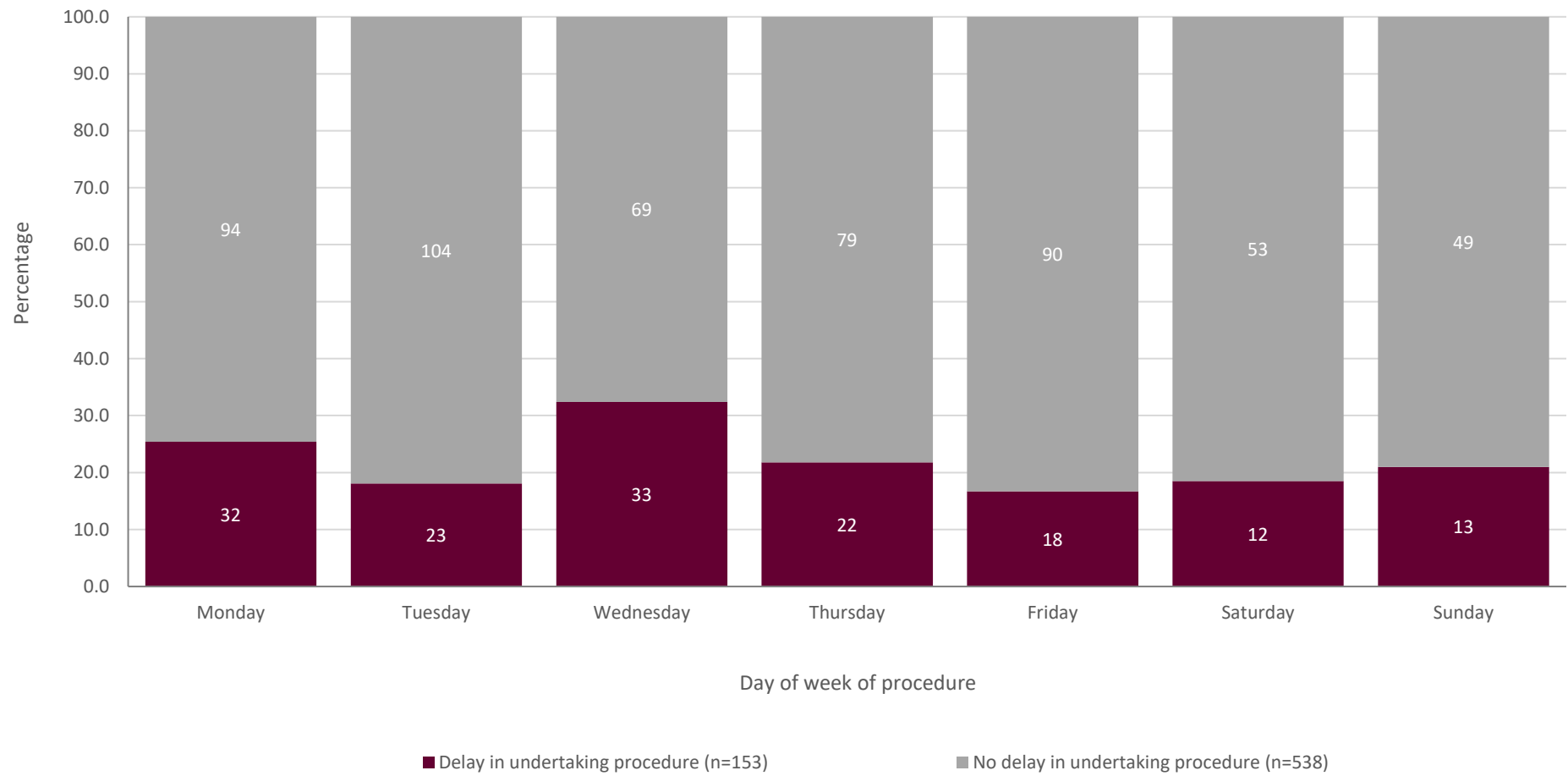


Figure 6.12 Delays in undertaking the procedure by the day of procedure  
*Real-time survey data*

Table 6.8 Cumulative number of delays	Number of patients	%
1 delay	22	13.5
2 delays	53	32.5
3 delays	30	18.4
4 delays	23	14.1
5 delays	12	7.4
6 delays	12	7.4
7 delays	4	2.5
8 delays	5	3.1
9 delays	1	<1
11 delays	1	<1
<b>Total</b>	<b>163</b>	

*Reviewer assessment form data*

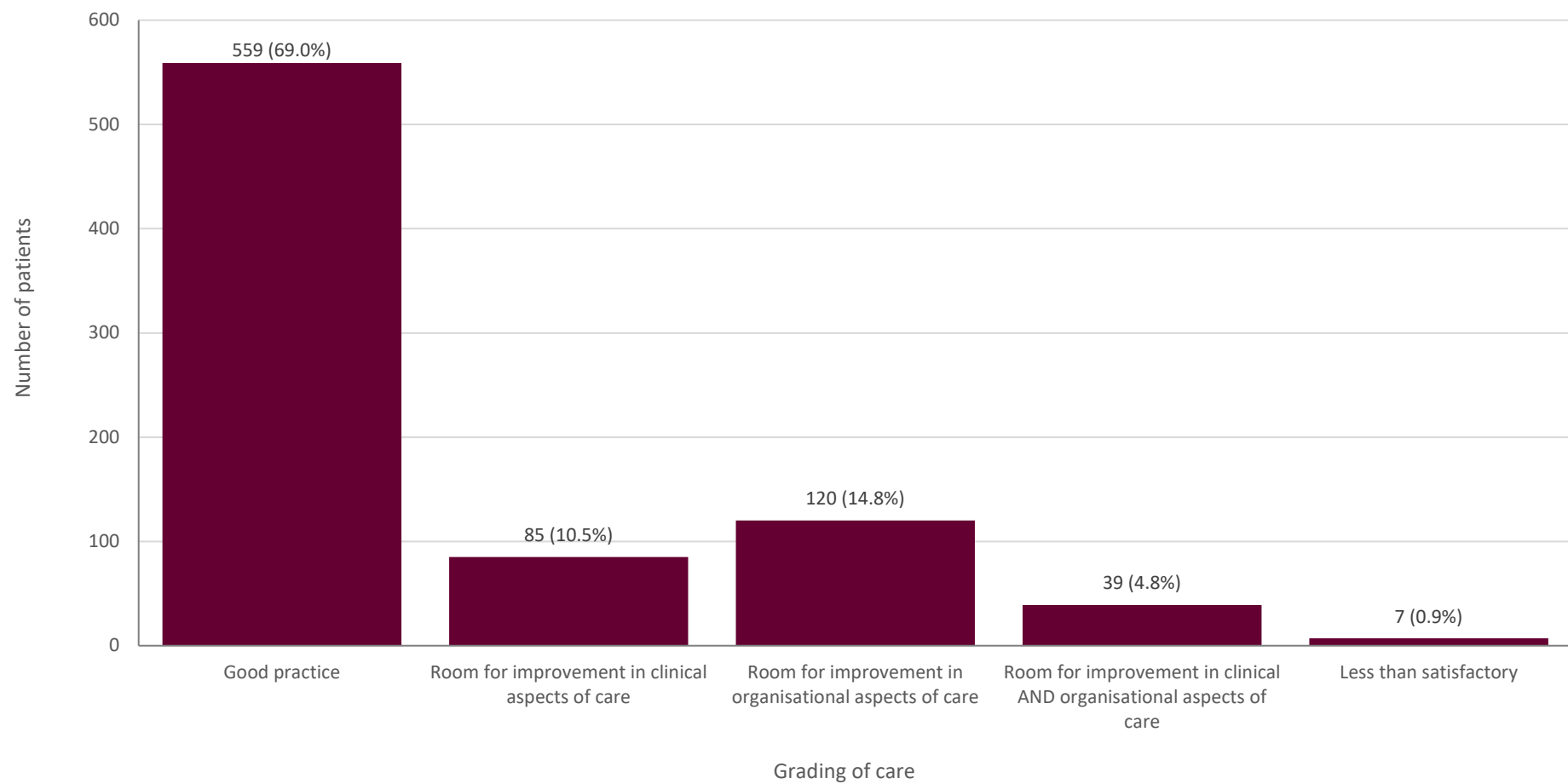


Figure 6.13 The overall quality of care provided to patients undergoing emergency surgery  
*Reviewer assessment form data*

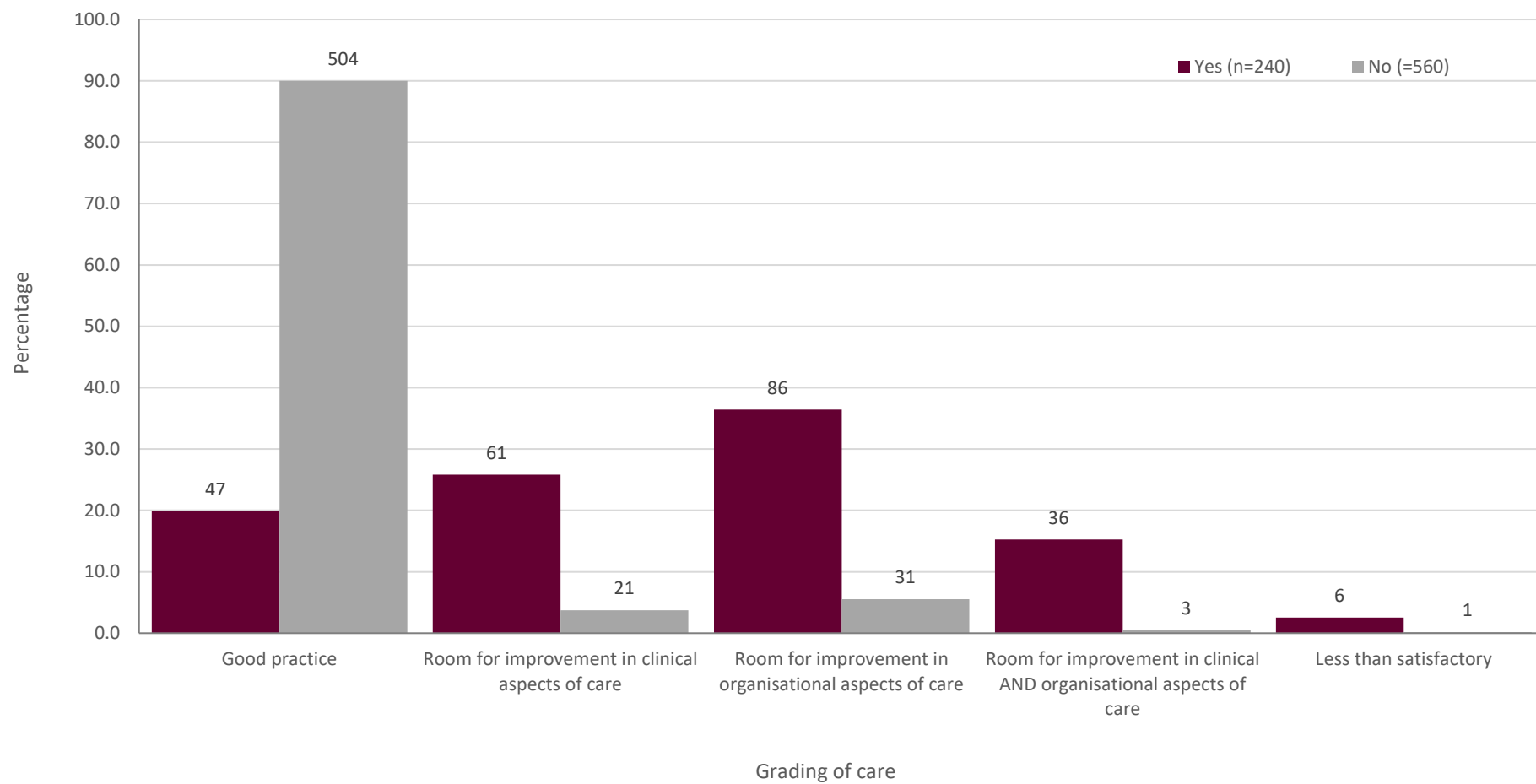


Figure 6.14 Reviewers' opinion on whether care could have been improved  
 Reviewer assessment form data

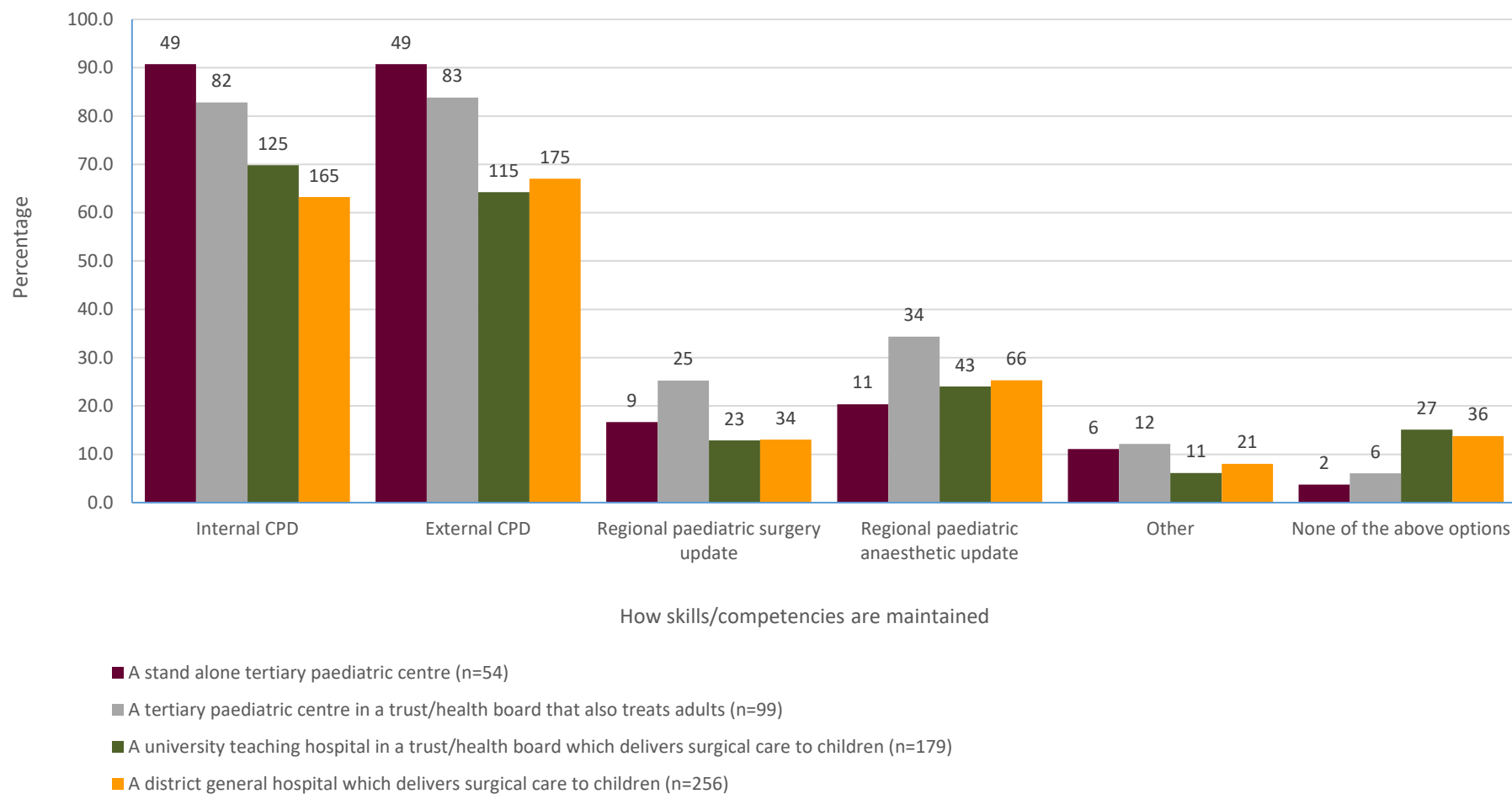


Figure 7.1 How clinicians maintained their skills/competencies in providing care to children and young people undergoing emergency procedures by hospital type  
 Clinician survey data. Answers may be multiple



Table 7.1 Enough surgery undertaken to maintain skill/competency	A standalone tertiary paediatric centre		A tertiary paediatric centre in a trust/health board that also treats adults		A university teaching hospital in a trust/health board that delivers surgical care to children		A district general hospital that delivers surgical care to children	
	n	%	n	%	n	%	n	%
Yes	50	94.3	98	99.0	135	81.3	177	75.6
No	3	5.7	1	1.0	31	18.7	57	24.4
<b>Subtotal</b>	<b>53</b>		<b>99</b>		<b>166</b>		<b>234</b>	
Unknown	1		3		17		27	
<b>Total</b>	<b>54</b>		<b>102</b>		<b>183</b>		<b>261</b>	

*Clinician survey data; n=number of responses. Answers may be multiple (hospital type)*