# 4 ASSESSMENT AND INVESTIGATION

**Initial assessment**

Just under half of the patients were first assessed by an emergency medicine specialist (307/679; 45.2%), with trauma and orthopaedics as the next most common (106/679; 15.6%), which would be expected for this group of patients (T4.1).

| 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 |
| **Subtotal** | **679** | |
| Unable to answer | 174 | |
| **Total** | **853** | |

*Reviewer assessment form data*

The grade of clinician responsible for undertaking the first assessment in the operating hospital did not appear to affect the overall quality of care, or whether there was any delay in treatment (F4.1 and T4.2). However, the reviewers considered that the initial assessment was not performed by the most appropriate grade of clinician for 229/853 (26.8%) patients.

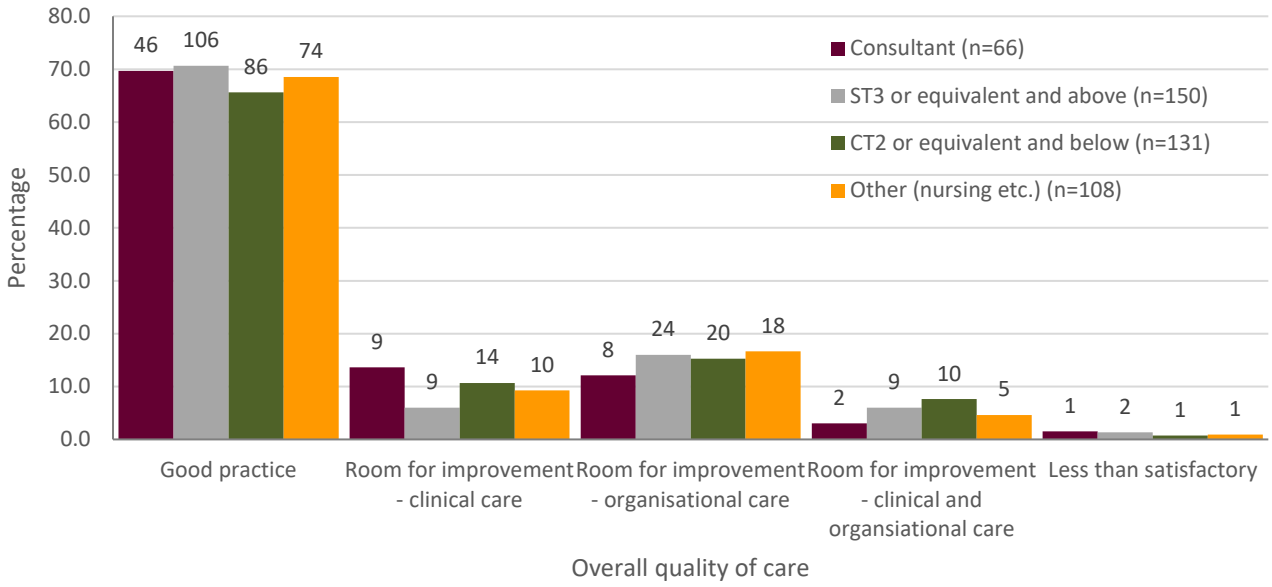


Figure 4.1 The grade of clinician who undertook the first assessment on arrival in the operating hospital by overall quality of care

*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 |
| **Subtotal** | **66** | | **151** | | **131** | | **108** | |
| Unable to answer | 3 | | 0 | | 1 | | 1 | |
| **Total** | **69** | | **151** | | **132** | | **109** | |

*Reviewer assessment form data*

The reviewers considered that there was a delay in assessment for 37/748 (4.9%) patients, and a delay in recognising the need for surgical intervention for 30/748 (4.0%) patients (unknown for 105), with delay in recognising the need for intervention impacting negatively on five patients.

Fracture and appendicitis were the most common diagnoses (T4.3) *(see Appendix 2 for the full list of diagnoses)*. The reviewers stated that an incorrect diagnosis contributed to delays for 33/776 (4.3%) patients (T4.4), and the most common missed diagnosis was appendicitis (12/33) (T4.5).

| 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 |
| **Total** | **853** | |

*Reviewer assessment form data*

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

*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 |
| **Total** | **33** |

*Reviewer assessment form data*

The reviewers identified a small group of patients who should have been seen by a consultant but weren't (12/156; 7.7%). Of these, 6/12 underwent an appendicectomy. A lack of consultant review did not appear to be associated with a delay in treatment. However, reviewers considered that a quarter of the patients with an incorrect diagnosis resulting in delay (3/11) would have benefited from an earlier consultant review.

From the case notes a total of 689/853 (80.8%) patients were admitted to a ward prior to surgery, and in the view of the reviewers 617/689 (89.6%) were admitted to the appropriate ward and 670/689 (97.2%) patients were admitted under the correct specialty.

**Joint care with paediatricians and surgeons**

Despite national guidelines recommending that all patients undergoing surgery should have immediate access to a consultant paediatrician either in person or by telephone.[9] Only 190/512 (37.1%) patients were under the joint care of a paediatrician and surgeon (T4.6). This is particularly important in hospitals with no paediatric surgical specialists on site. The provision of joint care was unrelated to the operation performed and hospital type.

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

*Surgical questionnaire data 544/679 (80.1%) patients identified as admitted to a ward prior to surgery*

Five- to nine-year-olds were more likely to be under the joint care of a paediatrician and a surgeon, while this was less likely in the 15- to 17-year-old age group (F4.2).

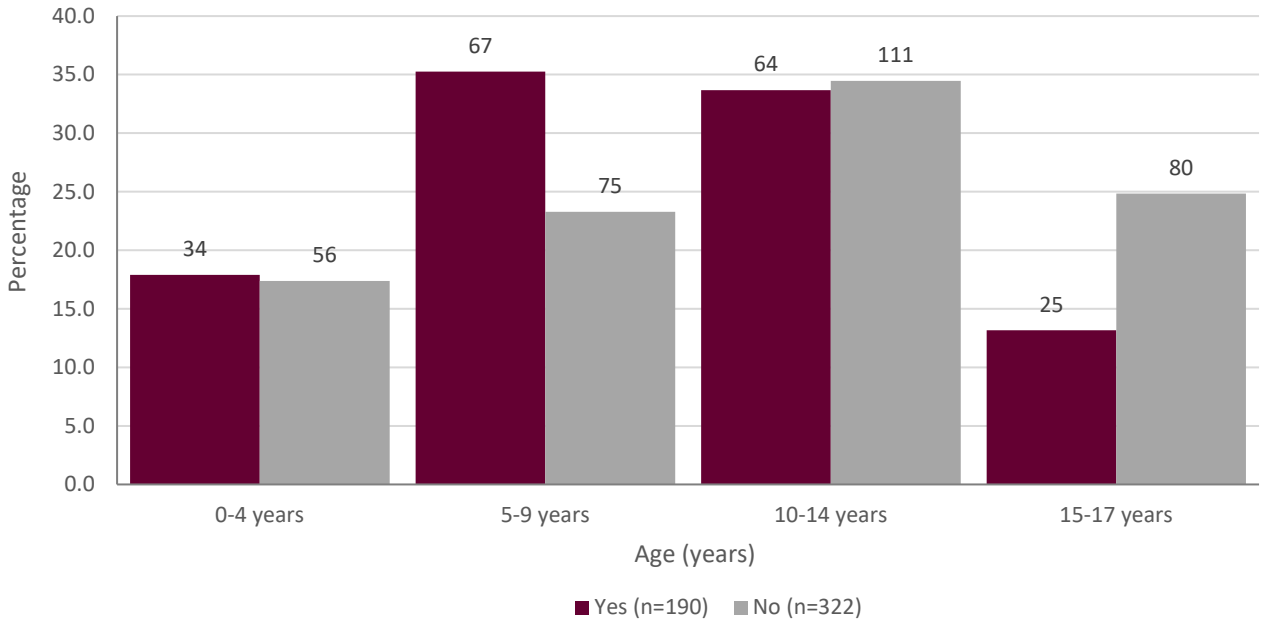


Figure 4.2 The patient was under the joint care of a paediatrician and a surgeon by age of the patient at the time of the procedure

*Surgical questionnaire data*

**Use of national paediatric early warning scores**

The National Paediatric Early Warning System (NPEWS) was not used pre-operatively for 129/532 (24.2%) patients in our study; it was unknown whether they were used for 228/760 (30.0%) patients (F4.3). NPEWS provides a standardised approach for identifying clinical deterioration in children, however, it has not yet been adopted by all hospitals. If deterioration is assessed in different ways this may present challenges when patients are moved between hospital sites.[11]

Anaesthetists considered 52/760 (6.8%) patients to be high-risk, and surgeons considered 69/679 (10.2%) patients to be high-risk. The surgeons reported all relevant investigations were performed for 652/679 (96.0%) patients. However, in the view of the case reviewers there were delays in performing investigations in 35/853 (4.1%) patients, both factors that might contribute to the deterioration of a patient admitted as an emergency.

Assessment of the use of NPEWS in different operation groups (F4.3) and for different urgencies of procedures (T4.7) showed usage was higher where the patient was under the joint care of a paediatrician and a surgeon (T4.8).

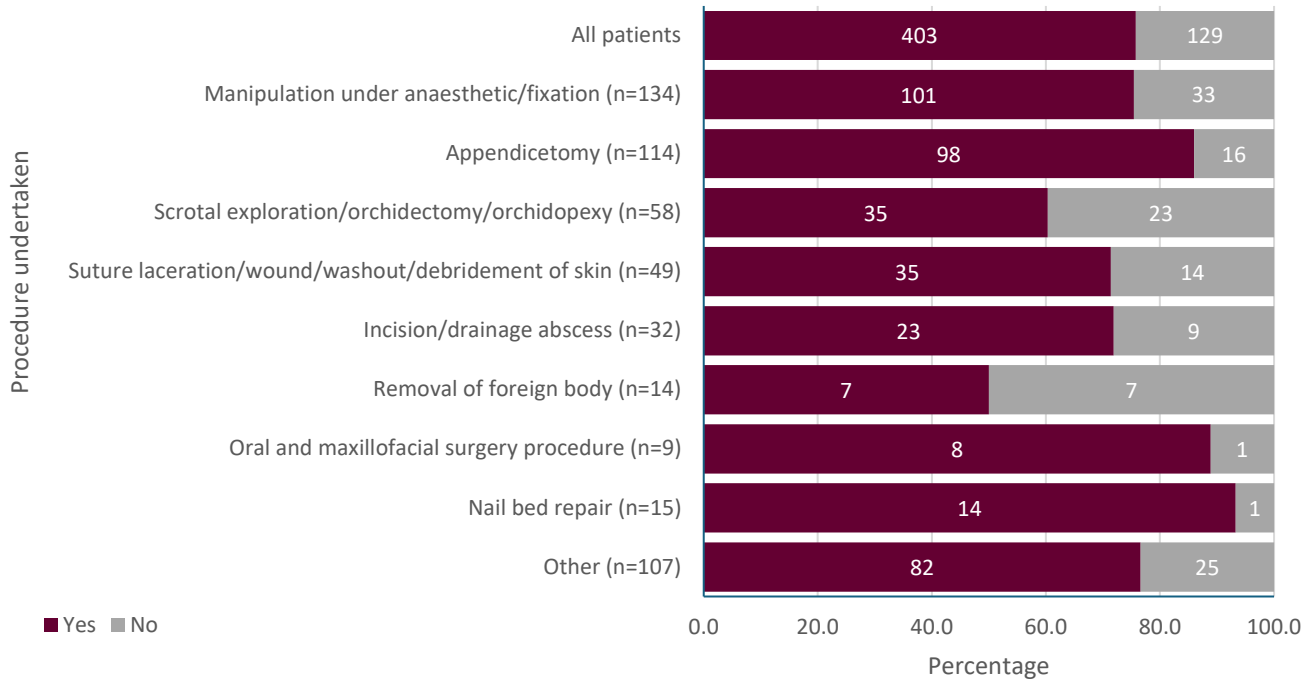


Figure 4.3 Formal paediatric early warning scores used were used by operation undertaken
*Anaesthetic questionnaire data*

| 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 |
| **Subtotal** | **45** | | **216** | | **246** | |
| Unknown | 12 | | 93 | | 110 | |
| **Total** | **57** | | **309** | | **356** | |

*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 |
| **Subtotal** | **108** | | **192** | |
| Unknown | 50 | | 67 | |
| **Total** | **158** | | **259** | |

*Surgical and anaesthetic questionnaire data*

### Management plans

The majority of patients had a management plan written following their initial assessment (624/760; 82.1%) and while it was noted that fasting was commonly recorded, it was not part of the plan for 174/599 (29.0%) patients (T4.9). Aspects of the care marked as 'other' included details of medications (35/133), investigations (34/133), and treatment plans (32/133).

| 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 |
| **Subtotal** | **599** | |
| Unknown | 25 | |
| **Total** | **624** | |

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

In the opinion of the reviewers, 125/718 (17.4%) patients were fasted for too long, with those who underwent an expedited procedure most likely to be in this category (T4.10).

| 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 |
| **Subtotal** | **48** | | **275** | | **307** | |
| Unable to answer | 5 | | 23 | | 49 | |
| Not applicable - not fasted | 16 | | 11 | | 3 | |
| **Total** | **69** | | **309** | | **359** | |

*Reviewer assessment form data*

Stabilisation is of paramount importance before undertaking surgery. The reviewers reported that 54/836 (6.5%) patients needed optimisation pre-operatively due to abnormal physiology. Among these, 9/54 patients had appendicitis, making it twice as common as any other condition. Appendicitis is a serious medical condition that should not be underestimated. Prompt diagnosis and treatment are essential to avoid potentially severe complications. The anaesthetists reported 23/760 (3.0%) patients required respiratory support prior to surgery.