Bowel surgery death rate warning

Bowel surgery patients dying because of failures in care

One in 10 patients die within 30 days of undergoing emergency bowel surgery, more than from any other type of high-risk planned surgery, health experts have warned.

Failure in care means bowel surgery patients are dying unnecessarily

An NHS-funded report has delivered a withering verdict on standards in hospitals before, during and after hugely risky surgical treatment.
Fourth Patient Report of the National Emergency Laparotomy Audit (NELA)

December 2016 to November 2017

Since 2013, national 30-day mortality rate has fallen from 11.8% to 9.5%

This means that
~700 fewer patients die each year after emergency laparotomy surgery.
Objective: To identify risk factors associated with readmission for children treated with appendicitis, and to characterize variation in risk-adjusted readmission rates between children's hospitals.

Background: Hospital readmission has been increasingly targeted as a marker of quality of care, yet little is known regarding risk factors associated with readmissions or the degree of performance variation that exists between hospitals for this cohort of patients.

Method: Retrospective cohort study of 47,666 patients treated at 58 children's hospitals (2006-2010). Multivariate regression was used to estimate and adjust for the influence of risk factors on 30-day readmission rates. Hospitals were considered high performers if their readmission rate and 95% confidence interval (CI) did not include the overall rate.

Results: Factors associated with readmission included older age (OR: 4.57, 95% CI: 3.72-5.68; moderate vs. low OR: 2.29, 95% CI: 1.04-5.00; and mutual status public vs. private OR: 1.14, 95% CI: 1.00-1.30). After adjustment for these factors, the relative decreased performance rankings changed for 17 (36%) of the 58 hospitals and on 48% (58-4) hospitals the outer state based on their standardized readmission rate. A 5-9% decline in standardized readmission rates was found across 38 hospitals after adjustment (overall rate 6.9%, range: 4.1%-15.6%, P=0.008), and 24 (43%) hospitals were identified as outliers (12 low performers and 12 high performers).

Conclusion: Significant variation in risk-adjusted readmission rates exist among children's hospitals after treatment of appendicitis, and readmission can be identified at both ends of the performance spectrum. These findings have important implications for the identification and dissemination of "best practice" from center heterogeneity.

Keywords: appendicitis, child, comparative analysis, quality improvement, readmission, risk adjustment

(Ann Surg 2015;267: 778-785)

A national healthcare spending continues to outpace economic relatively high readmission rate associated with advanced disease.4,8 Acute appendicitis is the most common abdominal surgical emergency in childhood, and readmission rates may be as high as 22% after treatment of perforated disease.1-4

The wide variability in readmission rates reported in the literature may suggest not only differences in populational among hospitals but also a lack of consensus regarding optimal management strategies for patients with advanced disease. In this cohort, differences in practices as they relate to the initial treatment and prevention of recurrent intra-abdominal infections are likely related to differences in readmission rates between hospitals. This is evidenced by the observation that readmission after treatment of perforated appendicitis is commonly due to complications of recurrent intra-abdominal infections.9,10 Efforts to reduce preventable readmissions are therefore likely to have the greatest impact within this cohort of patients, where care is more complex, variable among centers, and plagued related to readmission risk.5,11,12

Collaborative quality improvement through the sharing of "best practices" has been shown to be a powerful tool for driving quality improvement and could provide an effective strategy for reducing readmissions for this condition.13-15 To develop such a platform, it is essential to characterize the factors that are predictive of readmission so that a meaningful, level of comparison between institutions can be ascertained.16-18 Recent data have suggested that readmission risk in children treated for appendicitis may be related to severity of disease, with a nearly 5-fold difference in readmission rates between uncomplicated and complicated appendicitis.1,2 A meaningful comparative model should therefore examine the influence of disease severity in the context of demographic factors that have been associated with readmission for other pediatric conditions.19,20 Such a model could also have important implications for policy considerations as they relate to performance-based reporting and reimbursement reforms.

With these considerations, the aims of this study were threefold: (1) To examine the influence of disease severity and demographics on readmission risk among children's hospitals; (2) To determine the impact of hospital-level readmission rates on children's hospitals' performance on other patient-centered quality measures; and (3) To explore the potential for improving rates of readmission through collaborative quality improvement initiatives.
NCEPOD 2011- Are we there yet?

Transfers – delays and lack of guidance
Documentation of discussion of risk
Lack of clinical networks
Recognition of the sick child
Inadequate pain services
Fall DGH surgical volume and higher SPC referral rates
Aims

1. To describe the level of compliance with national and international recommendations for standards and processes relevant to the care of children undergoing emergency abdominal surgery in the U.K.?

2. What are the independent risk factors for adverse postoperative outcomes in paediatric patients undergoing emergency abdominal surgery?
• National prospective observational cohort study
• Preceded by an organizational survey reviewing structures
• Aim to recruit 5000 children undergoing emergency abdominal surgery
• Consent study
• NIHR portfolio study
• Feasibility Assessment
Eligibility Criteria – Hospital Level

All NHS hospitals which provide care to children who may require emergency abdominal surgery will be eligible to take part.
Patient Level - Inclusion Criteria

Children between 12 months and 16 years of age undergoing unplanned abdominal surgery, where the preoperative diagnosis was considered to be related to a non-traumatic bowel (including appendix), hepatobiliary, and/or splenic pathology. Unplanned is defined as non-elective (i.e. the patient presented requiring emergency or urgent intervention, either as a primary presentation or as a complication of previous surgery). Surgery is defined as a procedure undertaken by a surgeon in an operating theatre requiring the support of an anaesthetist. Any surgical approach (e.g. open, laparoscopic, robotic assisted etc) is acceptable.
Patient Level – Exclusion Criteria

Those who do not consent. Those < 12 months on the day of surgery, elective procedures, organ transplants, insertions/removal of dialysis catheters, surgery relating to trauma, interventional radiology procedures and caesarian sections.
1. **Patient Demographics**

2. **Initial route of admission**

3. **Decision for Theatre**

4. **Operating Theatre**

5. **Immediate postoperative period**

6. **Review on discharge from hospital or Day 30 post-op**

Click here to view the **CASAP CRF**
Partial dataset containing patient identifiers uploaded by local investigators using secure file transfer portal

CASAP Webtool Database* (UCL Non-Data Safe Haven REDCap)

Pseudonymised Dataset File: Name, DoB & Date of Surgery replaced by unique CASAP Study ID, age and day of week on which surgery occurred entered onto a webtool via secure website

UCL Data Safe Haven (accessed by core CASAP Study team only)

Fully anonymised linked Dataset File (after checks completed for I-anonymity and k-diversity issues following data linkage)

Analysis Team led by Chief Investigator based at UCL and used only on encrypted hardware

File P
- Patient name
- CASAP Study ID
- Date of Birth
- NHS Number
- Sex
- Postcode

File L
- CASAP Study ID
- ONS ID
- ONS mortality data
- Match rank field

NHS Digital trusted data linkage service

Legend
- Identifiable data
- Pseudonymised data
- Anonymised data

* Full access by core CASAP study team, entry/edit access for site specific data only by collaborating investigators
Outcome measures

Primary: Morbidity (Classified using Clavien-Dindo)
Secondary: Length of Stay
Negative Appendicectomy Rates / 30 day readmission
Mortality at 30 days, 90 days and 1 year.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade I</td>
<td>Any deviation from the normal postoperative course without the need for pharmacological treatment or surgical, endoscopic, and radiological interventions. Allowed therapeutic regimens are: drugs as antiinfective, antipyretics, analgesics, diuretics, electrolytes, and physiotherapy. This grade also includes wound infections opened at the bedside.</td>
</tr>
<tr>
<td>Grade II</td>
<td>Requiring pharmacological treatment with drugs other than those allowed for grade I complications. Blood transfusions and total parenteral nutrition are also included.</td>
</tr>
<tr>
<td>Grade III</td>
<td>Requiring surgical, endoscopic or radiological intervention.</td>
</tr>
<tr>
<td>Grade IVa</td>
<td>Intervention not under general anesthesia.</td>
</tr>
<tr>
<td>Grade IVb</td>
<td>Intervention under general anesthesia.</td>
</tr>
<tr>
<td>Grade IVc</td>
<td>Life-threatening complication (including CNS complications) requiring ICU/ICU management.</td>
</tr>
<tr>
<td>Grade IVd</td>
<td>Single organ dysfunction (including dialysis)</td>
</tr>
<tr>
<td>Grade IVe</td>
<td>Multiorgan dysfunction</td>
</tr>
<tr>
<td>Grade V</td>
<td>Death of a patient.</td>
</tr>
<tr>
<td>Suffix “A”</td>
<td>If the patient suffers from a complication at the time of discharge (see examples in Table 2), the suffix “A” (for “disability”) is added to the respective grade of complication. This label indicates the need for a follow-up to fully evaluate the complication.</td>
</tr>
</tbody>
</table>

*Brain hemorrhage, ischemic stroke, subarachnoidal bleeding, but excluding transient ischemic attacks. CNS, central nervous system; ICU, intermediate care; ICU, intensive care unit.
Analysis Plan

• Descriptive Statistics

Primary and Secondary Outcomes

• Inferential Statistics

Identification of patient-level risk factors – multivariable logistic regression

Validation of risk prediction model – multivariable logistic regression model will be developed using a stepwise backward elimination process

• Feasibility Assessment – Screening Log