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UCL

NIAA
National Institute of Academic Anaesthesia

HSRC
Health Services Research Centre

The Royal College of Anaesthetists

Association of Paediatric Anaesthetists of Great Britain and Ireland

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Health

Bowel surgery death rate warning

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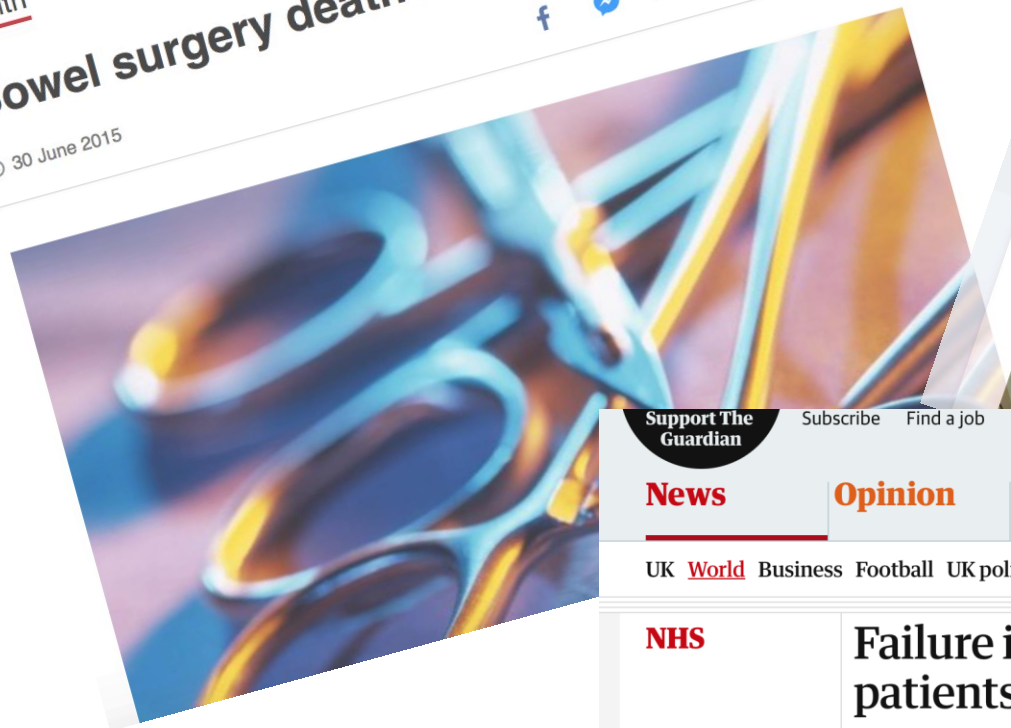
30 June 2015



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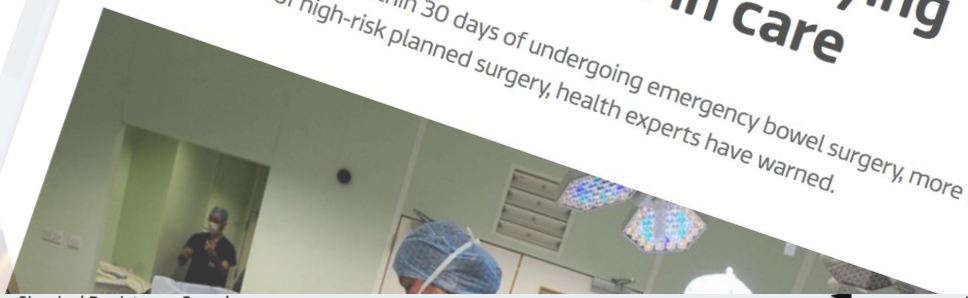
ITV REPORT 30 June 2015 at 4:24am

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.



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NHS

Failure in care means bowel surgery patients are dying unnecessarily

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An NHS-funded report has delivered a withering verdict on standards in hospitals before, during and after hugely risky surgical treatment

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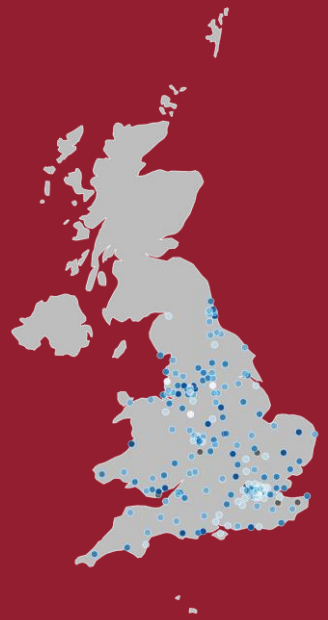
The Royal College of Anaesthetists · NIAA HSRC Health Services Research Centre · RCS Advancing Surgical Standards · HQIP Healthcare Quality Improvement Partnership

NELA National Emergency Laparotomy Audit

THE FIRST PATIENT REPORT OF THE NATIONAL EMERGENCY LAPAROTOMY AUDIT

2015



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

5 This means that **~700 fewer patients die each year** after emergency laparotomy surgery.

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Fourth Patient Report of the National Emergency Laparotomy Audit (NELA)

December 2016 to November 2017

RCoA Royal College of Anaesthetists · NIAA HSRC Health Services Research Centre · Royal College of Surgeons Advancing Surgical Care · HQIP Healthcare Quality Improvement Partnership

NELA National Emergency Laparotomy Audit

November 2018

Pediatric Emergency Appendectomy and 30-Day Postoperative Outcomes in District General Hospitals and Specialist Pediatric Surgical Centers in England, April 2001 to March 2012

Retrospective Cohort Study

Stefano Giuliani, MD, PhD, Elizabeth V. Cecil, PhD,† Nadja Apelt, MD,*‡ Michael Sharland, MD,§ and Sonia Saxena, MD†*

Objective: To compare trends in pediatric emergency appendectomy and adverse surgical outcomes between district general hospitals (DGHs) and specialist pediatric centers (SPCs).

Background: In the past decades in England, a significant reduction in the number of children operated by adult general surgeons has raised concerns about their surgical outcomes compared with specialist pediatric surgeons.

Methods: Using Hospital Episode Statistics, we analyzed patient-level data between April 2001 and March 2012. Main inclusion criteria were children younger than 16 years admitted to NHS-England hospitals for an emergency appendectomy. Main outcomes were annual age-sex adjusted appendectomy rates and postoperative risk of readmission, complication, and reintervention.

Results: A total of 83,679 emergency pediatric appendectomies were performed in 21 SPCs and 183 DGHs in England. SPCs performed only 18% of these operations (15,002). Annual age-sex standardized appendectomy rates fell from 87 to 68 per 100,000 population at an estimated 2% (rate ratio, 0.98) fall per annum. This was accompanied by a national annual increased risk of negative appendectomy, complication, reintervention, and readmission (adjusted odds ratio: 1.02, 1.03, 1.04, and 1.06, respectively). Children who had appendectomies in DGHs had 28% more negative appendectomies, 11% more complications, and 11% more readmissions than those in SPCs. Postoperative length of stay was double in SPCs compared with DGHs (median, 4 vs 2 days).

Conclusions: Major reductions in the number of pediatric emergency appendectomies in England over the past decade were associated with an overall increase in adverse surgical outcomes. Children operated in DGHs have more reinterventions, complications, and negative appendectomy rates than those operated in SPCs.

Keywords: children, emergency appendectomy, hospital volume, postoperative outcome, trends

(*Ann Surg* 2015;00:1–7)

Postoperative complications in children undergoing appendectomy are reportedly worse in district settings compared with specialist centers in many countries.[1–3]

Reducing numbers of emergency appendectomy procedures carried out in children have further raised concerns about the quality and safety of care in district general hospitals (DGHs) compared with specialist units in England.[4] Acute appendicitis is the most common surgical emergency in children, with a lifetime risk of 7% to 8% and an incidence of up to 20 to 30 cases per 10,000 children per year between 10 and 17 years of age.[5] Children with appendicitis need an acute admission to hospital and an emergency appendectomy performed by an expert surgeon with either an open or a laparoscopic technique. Clinical outcomes are dependent on many factors including timely diagnosis and severity of disease at presentation.[6,7] Later presentations with localized or diffuse peritonitis carry a higher risk of postoperative complications including wound infection, intra-abdominal abscess, and adhesional small bowel obstruction of around 15% to 25% and a need for hospital readmission of about 4% to 5%.[8,9] The skill of the operator in knowing when to intervene can influence the rate of negative appendectomy that exposes children to possible iatrogenic harms. These need to be weighed against the risks of perforation in case of delays. Diagnosis can be more difficult in younger children, impacting adversely on outcomes.[10]

In recent years, DGHs have treated the majority of children presenting with acute appendicitis and specialist pediatric centers (SPCs) usually manage younger and more complex cases either primarily or by hospital transfer.[11,12] Falls in the number of children

Variation in Risk-Adjusted Hospital Readmission After Treatment of Appendicitis at 38 Children's Hospitals

An Opportunity for Collaborative Quality Improvement

Samuel Rice-Townsend, MD, Matthew Hall, PhD, Jeff N. Barnes, BS, Stuart Lipsitz, ScD, and Shawn J. Rangel, MD, MSCE

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

Methods: Retrospective cohort study of 47,866 patients treated at 38 children's hospitals (2006–2010). Multivariate regression was used to examine and adjust for the influence of risk factors on 30-day readmission rates. Hospitals were considered performance outliers if their readmission rate and 95% confidence interval (CI) did not include the overall rate.

Results: Factors associated with readmission included disease severity [high vs. low: odds ratio (OR) 4.57, 95% CI: 3.72–5.60; moderate vs. low: OR 2.29, 95% CI: 2.00–2.61] and insurance status (public vs. private: OR 1.14, 95% CI: 1.0–1.29). After adjustment for these factors, the relative decile-based performance rankings changed for 17 (45%) of the 38 hospitals and six (16%) hospitals changed the outlier status based on their standardized readmission rates. A 3.8-fold variation in standardized readmission rates was found across the 38 hospitals after adjustment (overall rate: 8.9%, range: 4.1%–15.4%, $P <$ 0.0001), and 24 (63%) hospitals were identified as outliers (12 low performers and 12 high performers).

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

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

(*Ann Surg* 2013;257: 758–765)

As national healthcare spendingcontinues to outpace economic

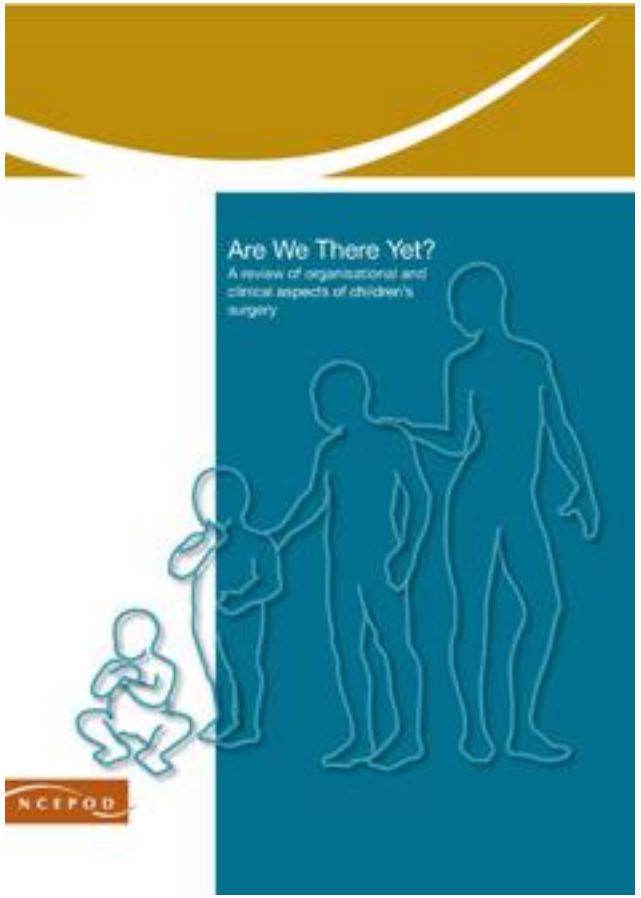
relatively high readmission rate associated with advanced disease.[7,8] Acute appendicitis is the most common abdominal surgical emergency in childhood, and readmission rates may be as high as 22% after treatment of perforated disease.[8–14]

The wide variability in readmission rates reported in the literature may suggest not only differences in populations among hospitals but also a lack of consensus regarding optimal management strategies for patients with advanced disease. In this cohort, differences in practice 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 pediatric appendicitis is commonly due to complications of recurrent intra-abdominal infections.[14,15] 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 plausibly related to readmission risk.[8,14]

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.[16–19] To develop such a platform, it is essential to characterize the factors that are predictive of readmission so that a meaningful, level field of comparison between institutions can be generated.[20–22] Recent data have suggested that readmission risk in children treated for appendicitis may be related to severity of disease, with a nearly 3-fold difference in readmission rates between uncomplicated and complicated appendicitis.[14] 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.[23,24] Such a model could also have important implications for policy considerations as they relate to performance-based reporting and reimbursement reform.

With these considerations, the aims of this study were three-fold: (1) To examine the influence of disease severity and demo

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

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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
- Consenting study
- NIHR portfolio study
- Feasibility Assessment

Eligibility Criteria – Hospital Level

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All NHS hospitals which provide care to children who may require emergency abdominal surgery will be eligible to take part

Patient Level - Inclusion Criteria

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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

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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

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Paper Case Record Form v.P.1.5

1.1 NHS Number (or CHI / H&C Number)	
1.2 Hospital Number	
1.3 Postcode	
1.4 Surname	
1.5 Forename	
1.6 Gender	O Male O Female O Other / Indeterminate
1.7 Date of Birth	___/___/_____
1.7.1 Date and time of arrival (present hospital) (24-hour clock)	___/___/_____ ___:___
1.7.2 Date of admission (present hospital)	___/___/_____
1.7.3 Date and time of emergency surgery (24-hour clock)	___/___/_____ ___:___
1.7.4 Date of discharge (present hospital)	___/___/_____ OR: ☐ Still inpatient at Day 30 post op
1.8 Study ID from REDCap web tool (e.g. RBX2754-52)	

The local Principal Investigator or delegated person should input the above data into the local Patient Identifiable Data spreadsheet

1.9 Age in years on date of surgery	
1.11 Weight in kg	
1.12 Height in cm	
1.13 Ethnicity	O White O Mixed / Multiple ethnic groups O Asian / Asian British O Black / African / Caribbean / Black British O Other ethnic group

2. Initial route of admission

2.1 Route of admission IF TRANSFERRED FROM ANOTHER HOSPITAL, ADDITIONALLY COMPLETE THE TRANSFER CASE RECORD FORM	O Self/parent/carer via Emergency Department O Via 999 call to Emergency Department O Sent by GP to Emergency Department O Transferred from another hospital O Direct admission to paediatric service by GP referral O Direct admission to paediatric service from outpatient clinic O Direct admission to surgical service by GP referral O Direct admission to surgical service from outpatient clinic O Inpatient referral (patient already in hospital)

Initial assessment at hospital where surgery taking place

2.30 Primary admitting specialty	O Paediatric surgery O General surgery O Paediatrics O Other If other, please state: _____
2.32 Destination on admission	O Adult ward or assessment unit O Paediatric mixed surgical/medical ward O Paediatric surgical ward O Paediatric medical ward O Other ward not routinely used for paediatric surgical admissions O Level 2 Paediatric Critical Care Unit O Level 3 Paediatric Critical Care Unit O Adult Critical Care Unit / High Dependency Unit
2.33 Pain assessment performed on initial assessment	O Yes O No

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]

CASAP Data Flow Diagram

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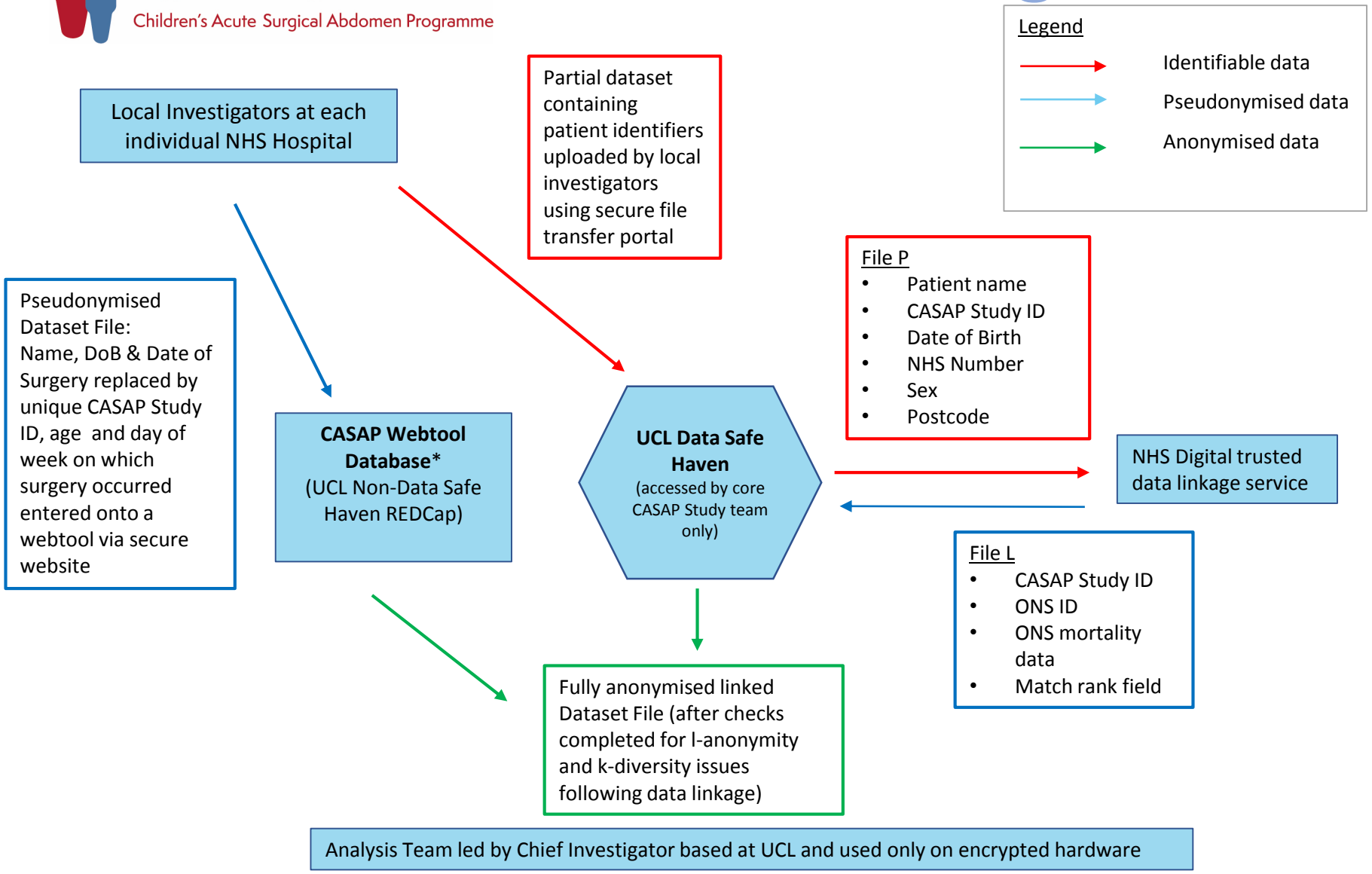

* Full access by core CASAP study team, entry/edit access for site specific data only by collaborating investigators

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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.

Grade	Definition
Grade I	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 antiemetics, antipyretics, analgetics, diuretics, electrolytes, and physiotherapy. This grade also includes wound infections opened at the bedside
Grade II	Requiring pharmacological treatment with drugs other than such allowed for grade I complications
	Blood transfusions and total parenteral nutrition are also included
Grade III	Requiring surgical, endoscopic or radiological intervention
Grade IIIa	Intervention not under general anesthesia
Grade IIIb	Intervention under general anesthesia
Grade IV	Life-threatening complication (including CNS complications)* requiring IC/ICU management
Grade IVa	Single organ dysfunction (including dialysis)
Grade IVb	Multiorgan dysfunction
Grade V	Death of a patient
Suffix "d"	If the patient suffers from a complication at the time of discharge (see examples in Table 2), the suffix "d" (for "disability") is added to the respective grade of complication. This label indicates the need for a follow-up to fully evaluate the complication.

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

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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