

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

ScienceDirect

journal homepage: [www.JournalofSurgicalResearch.com](http://www.JournalofSurgicalResearch.com)

## Association for Academic Surgery

# Variability in same-day discharge for pediatric appendicitis



Tolulope A. Oyetunji, MD, MPH,<sup>a,\*</sup> Dani O. Gonzalez, MD,<sup>b</sup>  
Pablo Aguayo, MD,<sup>a</sup> and Benedict C. Nwomeh, MD, MPH<sup>c</sup>

<sup>a</sup>Department of Pediatric Surgery, Children's Mercy Hospitals and Clinics, Kansas City, Missouri

<sup>b</sup>Department of Surgery, Icahn School of Medicine at Mount Sinai, New York, New York

<sup>c</sup>Department of Surgery, Nationwide Children's Hospital, Columbus, Ohio

## ARTICLE INFO

## Article history:

Received 2 January 2015

Received in revised form

7 April 2015

Accepted 14 April 2015

Available online 18 April 2015

## Keywords:

Pediatric

Appendicitis

Same-day discharge

## ABSTRACT

**Background:** Recent single-institutional data point to the feasibility of same-day discharge (SDD) after appendectomy for nonperforated appendicitis and its potential as a quality-of-care indicator. Opportunities for SDD are greatest the sooner the appendectomy is performed after admission. We examine a national database to assess the pattern of SDD utilization among children who underwent appendectomy on the day of admission and potential limitations to SDD.

**Methods:** The 2009 Kids Inpatient Database (KID) was queried for children with a diagnosis of acute appendicitis who had appendectomy. Exclusion criteria included those children with perforated appendicitis or those in whom the procedure code was missing. Day from admission to procedure day and total length of stay (LOS) were then analyzed by demographics, type of procedure (laparoscopic versus open), children's hospital designation, and hospital region. After stratifying all patients undergoing appendectomy on day of admission into two groups by LOS ( $\leq 1$  d, SDD versus  $>1$  d, non-SDD), a multivariate analysis was then performed to determine the predictors of SDD.

**Results:** A total of 38,959 records, representing a weighted estimate of 56,077 patients with a diagnosis of nonperforated appendicitis, met the inclusion criteria. Median age was 14 y with interquartile range of 10–17 y. Median LOS was 1 d (interquartile range, 1–2 d), and the majority (71.8%) had laparoscopic appendectomy. On adjusted analysis, laparoscopic cases were 50% less likely to be non-SDD compared with their open counterparts (odds ratio [OR], 0.50; 95% confidence interval [CI], 0.47–0.53). Compared with Caucasians, significantly more Hispanics (OR, 1.44; 95% CI, 1.36–1.56) and African Americans (OR, 1.57; 95% CI, 1.42–1.73) were non-SDD. Hospitals in the midwest and south were more likely to be non-SDD.

**Conclusions:** SDD is increasingly used for children with nonperforated appendicitis, but there is significant variability in the utilization of SDD for different ethnicities and hospital regions. These variations need to be further investigated to better delineate its potential role as a quality-of-care indicator.

© 2015 Elsevier Inc. All rights reserved.

\* Corresponding author. Department of Pediatric Surgery, Children's Mercy Hospitals and Clinics, 2401 Gillham Road, Kansas City, MO 64108. Tel.: +1 816 983 6466; fax: +1 877 991 4713.

E-mail address: [taoyetunji@cmh.edu](mailto:taoyetunji@cmh.edu) (T.A. Oyetunji).  
0022-4804/\$ – see front matter © 2015 Elsevier Inc. All rights reserved.  
<http://dx.doi.org/10.1016/j.jss.2015.04.053>

## 1. Introduction

The cost of health care in the United States has been soaring over the last decade, reaching \$2.9 trillion in 2013 [1]. Annually, over 450,000 patients aged <18 y are admitted to the hospital for surgical conditions [2]. With advances in technology and care delivery, some surgical procedures that required inpatient admission have slowly transitioned to outpatient or same-day surgery. These procedures that were once followed by prolonged hospital courses are now routinely, and safely, performed as ambulatory cases. The most often cited example in adult surgery is laparoscopic cholecystectomy for symptomatic cholelithiasis. Inpatient admission after cholecystectomy has been replaced by same-day discharge (SDD) [3] in many hospitals. Minimizing unnecessary inpatient admissions in postoperative patients could benefit both patients and health care providers. For the patients and parents, the benefits include less time away from work and home, missed school days, and elimination of risks associated with inpatient admissions. Although these are somewhat elective procedures, the utility of SDD in urgent and/or emergent cases have also been investigated.

Among children, acute appendicitis is one of the most common urgent and/or emergent surgical indications. Over 76,000 children undergo inpatient appendectomies annually [4]. The benefit of SDD to parents and the children and the potential for cost savings are substantial if one considers less time away from work, less school hours missed, and more savings to the health care system. The possibility of SDD in uncomplicated appendicitis was first reported in 1995 [5]. Recent data from other single-institution studies have validated the safety of SDD after appendectomy for uncomplicated appendicitis [6–13]. In addition to safety, one study found that most parents of these patients are satisfied with an earlier discharge home [10]. Some of the literature even indicates that there is potential for cost savings with SDD [7,9]. Pathways for the standardization of the care of patients with uncomplicated appendicitis that include SDD have been implemented in some institutions and have met with success [9,11,14].

Despite these findings, acceptance of SDD in the pediatric population has not fully gained traction. With most of these studies validating SDD after appendectomies coming from freestanding children's hospitals, the challenges faced by other hospitals in attempting to implement these pathways remain unknown. Using a large national pediatric inpatient database, we set out to assess the independent predictors of utilization of SDD among children undergoing both open and laparoscopic appendectomy for uncomplicated appendicitis by hospital or region. We also attempt to delineate potential barriers to SDD.

## 2. Methods

### 2.1. Data set

Data were obtained from a retrospective analysis of the 2009 Kids Inpatient Database (KID), which includes data from 4121

hospitals in 44 states. The KID is the largest collection of multiyear, all-payer, inpatient pediatric health care data available in the United States that was developed as a part of the Healthcare Cost and Utilization Project with funding from the Agency for Healthcare Research and Quality (AHRQ). KID is made available every 3 y with each edition expanding on the previous in terms of number of participating states and hospitals. Inclusion criteria include all children aged  $\leq 20$  y at the time of admission who survive to hospital discharge. The data are then weighted based on hospital-specific factors (location, funding, urban versus rural, teaching versus nonteaching, bed size, and hospital type) to make national estimates of each diagnosis. The 2009 KID contains approximately 3 million entries, which approximately doubles when weighted national estimates are included. More detailed explanation regarding the KID can be found elsewhere for the interested reader [15].

### 2.2. Inclusion criteria

Patients with International Classification of Diseases, Ninth Revision, Clinical Modification codes for appendicitis without any mention of obstruction or gangrene were considered in the analysis. Those with no code for open or laparoscopic appendectomy were excluded. All patients who did not undergo appendectomy (whether laparoscopic or open) on the day of admission were excluded from the analysis.

### 2.3. Analysis

The study population was dichotomized into two groups by length of stay (LOS;  $\leq 1$  d, referred to as the SDD group versus  $> 1$  d, the non-SDD group). Bivariate analysis was performed comparing demographic and hospital-level characteristics between the SDD group and the non-SDD group. Demographic variables analyzed included sex, age, insurance status, and median household income by zip code quartiles. Hospital-level variables included hospital designation (Non-Children's General Hospitals, Children's General Hospitals [CGH], and Children's Units in General Hospitals [CUGH]), teaching versus nonteaching hospitals, urban versus rural location, and hospital region based on state location (categorized as northeast, midwest, south, and west). Further analysis by type of procedure (laparoscopic versus open), children's hospital designation, and hospital region were also completed. Finally, a multivariate logistic regression analysis was performed to determine the predictors of non-SDD. This model included demographic and hospital-level factors as mentioned previously, type of procedures, children's hospital designation, and hospital region. All statistical analyses were performed using Stata version MP version 13 (STATA Corp, College Station, TX).

## 3. Results

A total of 38,959 records, representing a weighted estimate of 56,077 patients with a diagnosis of nonperforated appendicitis, met the inclusion criteria of admission day appendectomy. Median age was 14 y, with interquartile range of

Download English Version:

<https://daneshyari.com/en/article/4299609>

Download Persian Version:

<https://daneshyari.com/article/4299609>

[Daneshyari.com](https://daneshyari.com)