

# Setting and Outcomes in Finger Replantation following Pediatric Traumatic Amputations: National Study of 3,090 Patients

Neill Y. Li MD; Justin E Kleiner, BS; Andrew P Harris, MD; Avi D Goodman, MD; Julia A Katarincic, MD | Brown University, Providence, RI

## Introduction

- Setting and outcomes of pediatric digit replantation following traumatic amputations have not been described through a national pediatric database
- Aim to determine hospital characteristics, length of stay, cost, and in-hospital complications associated with replantation and amputation procedures
- Aim to determine risk factors for subsequent replantation revision procedures

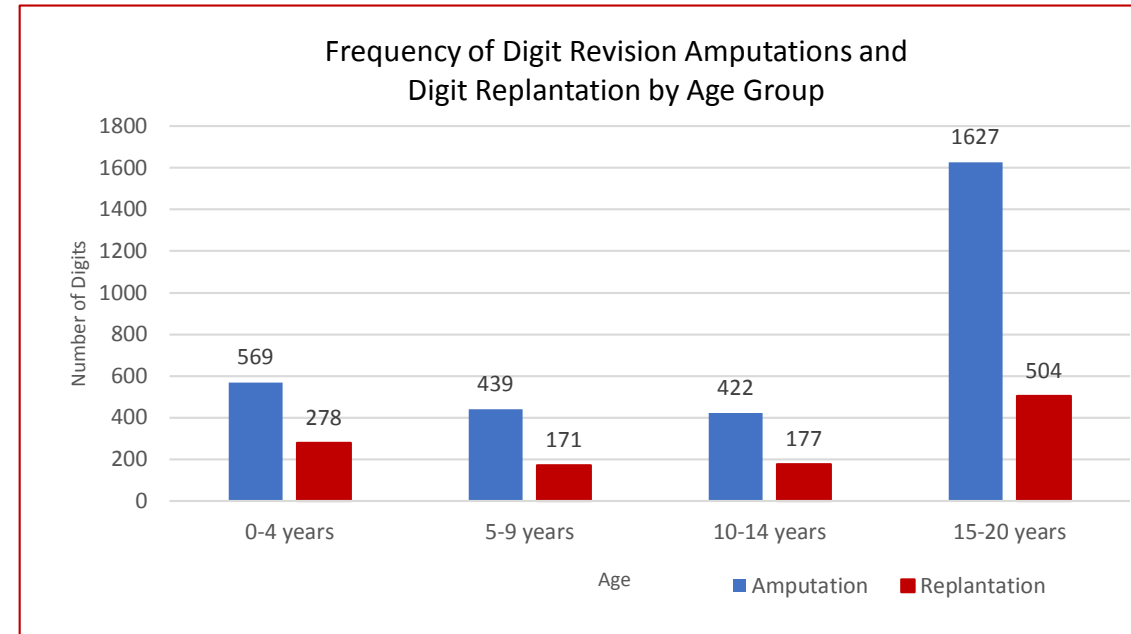
## Methods

- Kid's Inpatient Database (KID) from the Healthcare Cost and Utilization Project (HCUP) for 2000 to 2012 queried for traumatic amputations of the thumb or finger (ICD-9: 885.0, 886.0)
- Subjects separated into replantation (ICD-9-CM: 84.21, 84.22) and revision amputation (ICD-9-CM: 84.01, 84.02)
- Replantation population divided into revision amputation (ICD-CM: 84.01, 84.02) and/or microvascular revision (ICD-9-CM: 39.3, 39.4)
- Variables: Age, sex, digit(s), cost, length of stay, and hospital characteristics
- In-hospital complications (wound dehiscence, infection, thrombosis, cardiac, respiratory, urinary) were defined with ICD-9 codes
- Fisher's exact tests and multivariable regressions were used with p values < 0.05 determined to be significant a priori

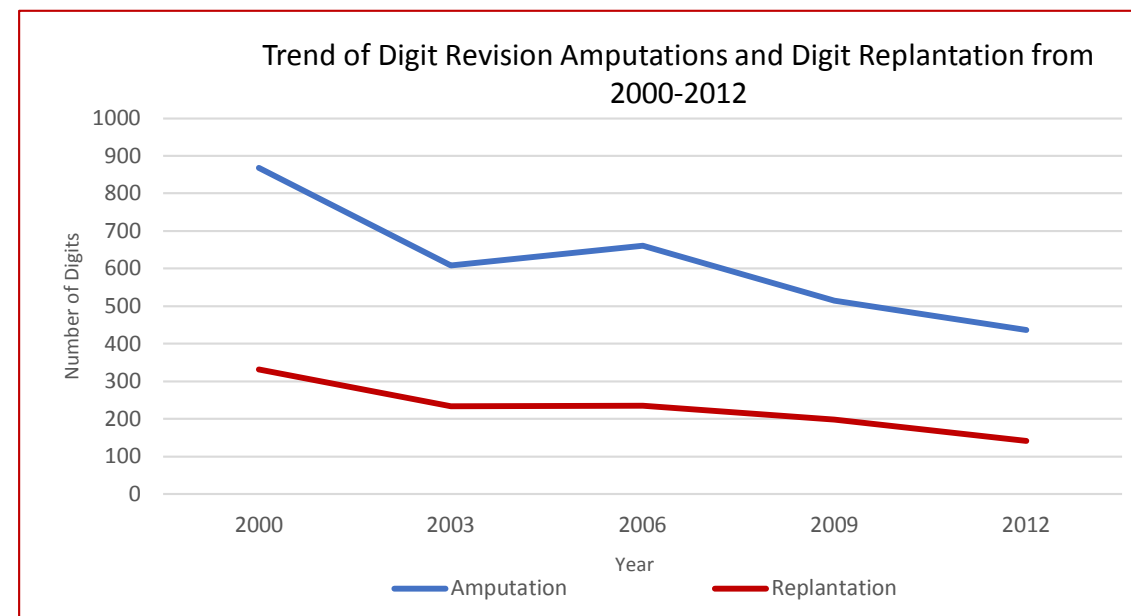
## Results

- 2000 to 2012: traumatic digit amputations occurred in 3,090 pediatric patients (Fig.1)
- 1,950 (63.1%) revision amputation
- 1,140 (36.9%) undergoing replantation
- No variation in replantation rates by year (p = 0.17) (Fig.2)
- Public hospitals less likely to perform replantation than private hospitals (OR = 0.556, 95% CI: 0.327-0.945, p<0.05)
- No difference between urban teaching and urban non-teaching hospitals performing replantation
- Rural hospitals performed a lower rate of replantation than urban hospitals (OR=0.436, 95% CI: 0.268-0.71, p<0.01)
- Mean replantation charges (\$40,468, 95%CI: \$36,096.18-\$44,839.82), length of stay (4.81 days, 95%CI: 4.44-5.18), and in-hospital complication rates (13.26%, 95%CI: 10.79% - 15.7%) were significantly greater than amputation (\$25,185, 95%CI: \$22,793.64 - \$27,576.36; 2.76 days 95% CI: 2.51 - 3.01; 3.22%, 95% CI: 2.04 - 4.40) (p < 0.001)
- Replantation Complication: 237 (20.8%) underwent revision amputation, 209 (18.3%) with vascular revision, and 388 (34%) required vascular revision and/or amputation
- Multivariable regression demonstrated that older patients, males, and recent treatments were significantly associated with increased rate of revision following replantation (p < 0.05)

### Figure 1



### Figure 2



## Conclusions

- Older patients, males, and recent treatment were at greater risk for revision procedures without significant influence from hospital setting
- Total charges, length of stay, and complication rates were significantly greater with replantation than with revision amputation
- Appropriate patient selection, resources, and experience to pursue such procedures must be taken into account to provide optimum outcomes for pediatric replantation