

## Decreasing Insurance Disparities in Pediatric ACL Injury Care 2015-2020

Lucas Y Kim<sup>1</sup>, Corinna Franklin<sup>2</sup>, Meera M Dhodapkar<sup>1</sup>, Jonathan N Grauer<sup>2</sup>

<sup>1</sup>Yale School of Medicine, New Haven, CT, <sup>2</sup>Department of Orthopaedics and Rehabilitation, Yale School of Medicine, New Haven, CT  
lucas.kim@yale.edu

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### INTRODUCTION:

Injuries to the anterior cruciate ligament (ACL) are common and increasing in pediatric populations. Compared to nonoperative treatment, ACL reconstruction (ACLR) has been shown to decrease the risk of further knee injury and increase ability to return to previous levels of athletics. In addition, physical therapy (PT) has been shown to be an important part of treatment to improve functional outcomes and decrease risk of longer-term issues.

Disparities across racial and insurance groups in ACL operative rates and PT utilization have been previously reported, but trends in these disparities have not been well-studied over time. The current study aimed to characterize trends in pediatric ACL operative rates and physical therapy utilization for those with Medicaid relative to commercial insurance.

### METHODS:

Pediatric patients (<18 years of age) diagnosed with an ACL injury from 2015-2020 were abstracted from the large, multi-insurance, administrative PearlDiver M157 database. Exclusion criteria included: age > 17 years, recent history of fracture/polytrauma, infection, or neoplasm, as well as not being active in the database for 90 days following their diagnosis/procedure. Factors abstracted included: year, insurance plan, ACLR or not, and PT utilization and number of visits.

For the Medicaid and commercially insured patients, the number of ACLR relative to injuries were tracked by year and compared with chi-square tests. Further, for ACLR and non-operative ACL injuries, the incidence and number of PT visits were tracked by year and compared by insurance group with chi-square and t-tests.

### RESULTS SECTION:

In total, 61,333 ACL injuries were identified, for which ACLR was performed for 21,083 (34.4%). For the Medicaid population, a total of 8,834 ACL injuries and 2,712 ACLR (30.7% reconstructions over injuries) were identified. For the commercial insurance population, a total of 52,499 ACL injuries and 18,371 ACLR (35.0%, higher than for the Medicaid population with  $p < 0.001$ ) were identified. Over the years of the study, the percent gap in ACLR relative to ACL injuries between the insurance types decreased from 7.7% in 2015 ( $p < 0.001$ ) to 0.7% in 2020 (not significantly different,  $p = 0.714$ ) (Figure).

For postoperative patients, those with Medicaid insurance received on average  $22.53 \pm 16.77$  sessions of PT, which was significantly less than that received by those with commercial insurance which was  $26.45 \pm 18.72$  sessions ( $p < 0.001$ ). When assessed by year, the gap in average number of physical therapy sessions following ACLR for the different insurance groups decreased from 6.48 sessions in 2015 ( $p < 0.001$ ) to 4.07 sessions in 2020 ( $p = 0.002$ ).

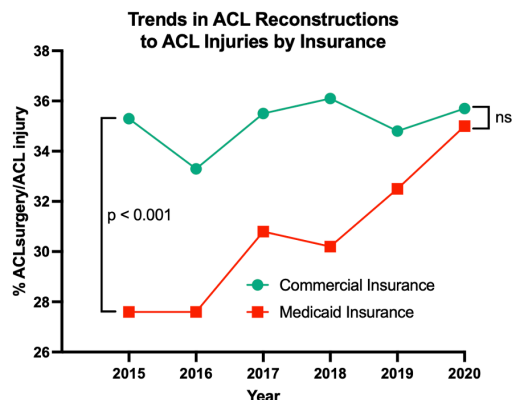
For nonoperative patients, those with commercial insurance were more likely to receive PT (43.3% versus 39.8%,  $p < 0.001$ ) and to receive more sessions ( $18.76 \pm 17.14$  versus  $14.35 \pm 14.50$ ,  $p < 0.001$ ). The gap in PT incidence decreased from 9.7% in 2015 ( $p < 0.001$ ) to 2.4% in 2020 ( $p = 0.200$ ).

### DISCUSSION:

Pediatric patients with ACL injuries with Medicaid insurance had been significantly less likely to undergo reconstruction than those with commercial insurance, but that difference disappeared over the years of the study. Further, those with Medicaid received less PT for ACL injuries/reconstructions, but that difference lessened over the years of the study. The present study has the limitations of a retrospective study and reliance on administrative coding. Outcome differences between those with or without ACLR, with or without PT, and with variable number of PT sessions could not be determined. Overall, the findings of the current study suggest a decrease in the insurance disparity in the management of pediatric ACL injuries over the years evaluated.

### SIGNIFICANCE/CLINICAL RELEVANCE:

The present study is the first to examine how the disparities in surgical reconstruction rate and physical therapy utilization for pediatric ACL injuries by insurance groups have decreased over time. Understanding disparities in these two aspects of care is relevant in improving equity for pediatric patients facing ACL injuries.



**Figure:** The number of ACL reconstructions divided by the number of ACL injuries diagnosed over time by insurance. The gap between Medicaid and commercial insurance steadily decreased and was no longer statistically significant by 2020.