

THE IMPLICATIONS OF INSURANCE STATUS ON ACCESS TO ORTHOPEDIC HEALTHCARE

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Outline

- Objectives
- Why
- Background
- Methods
- Findings
- Discussion
- Limitations
- Applications to Practice
- Areas of Future Research
- Conclusions
- Acknowledgements

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Objectives

- Distinguish the difference in access between private and public insurance
- Explain the consequences for inequitable access as it pertains to orthopedic healthcare
- Develop an understanding for how insurance status impacts the profession of athletic training

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Objective

- To investigate the impact insurance has on accessing orthopedic treatment for pediatric patients, as well as post-treatment outcomes.

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My Why

1. My community
2. My students/patients
3. Equity and access!



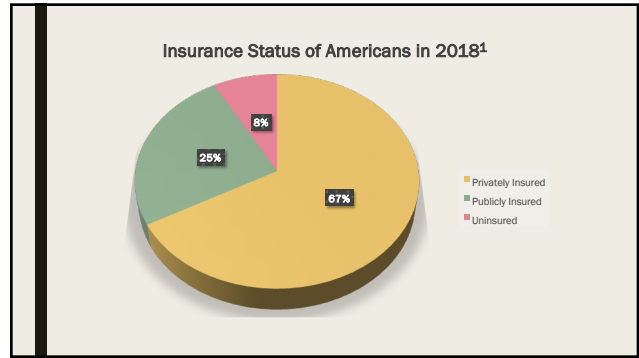
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Background

Private Insurance¹	Public Insurance
■ Employer-based	■ Medicare ²
■ Direct purchase	■ Medicaid ³
	■ Children's Health Insurance Plan (CHIP) ⁴

Arizona Medicaid: Arizona HealthCare Cost Containment System (AHCCCS)
Arizona CHIP: KidsCare

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Background

- **Patient Protection and Affordable Care Act (PPACA) of 2010⁵**
 - Aimed to provide access to affordable healthcare for more Americans
 - Allowed between 16 and 20 million Americans to enroll in government-funded health plans over a 5-year period due to expanded Medicaid eligibility requirements

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Background

- There is still significant disparity in access across multiple specialties, potentially due to difference in insurance status⁶
- Other healthcare providers may suffer due to disparate access for their patients
 - Athletic trainers????



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Methods

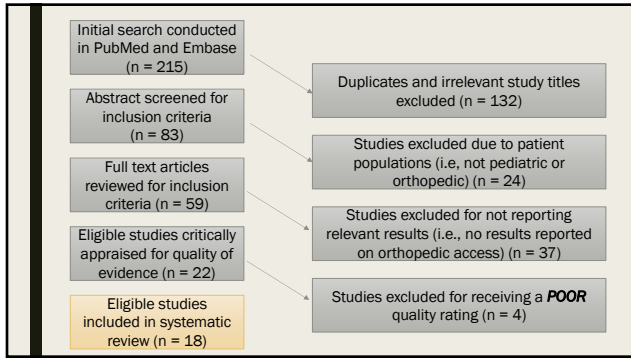
- Systematic search completed using PubMed and Embase
- Search terms used
 - (insurance OR public insurance OR Medicaid) AND
 - (pediatric OR adolescent OR youth) AND
 - (orthopedic OR orthopaedic OR orthopedics OR orthopaedics)

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Methods

<ul style="list-style-type: none"> • <u>Inclusion criteria</u> <ul style="list-style-type: none"> ◦ Peer-reviewed ◦ English language ◦ United States of America (U.S.) ◦ Comparison of Insurance status ◦ Pediatric population ◦ Orthopedics 	<ul style="list-style-type: none"> • <u>Exclusion criteria</u> <ul style="list-style-type: none"> ◦ Not peer-reviewed ◦ Language other than English ◦ Outside of U.S. ◦ Veteran Affairs or TRICARE ◦ Non-specific population or adults ◦ Specialty other than orthopedics
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Methods

- Two reviewers (A.B. and A.T.) independently assessed all possible studies and performed a critical appraisal of the included studies
- The National Institute of Health Quality Assessment Tool for Observational and Cross-Sectional Studies⁷
- Critical appraisal resulted in a **Good, Fair, or Poor** rating

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Components	Responses
• Was the research question or objective in this paper clearly stated?	Yes / No / Cannot Determine/ Not Applicable/ Not Reported
• Was the study population clearly specific and defined?	Yes / No / Cannot Determine/ Not Applicable/ Not Reported
• Was the participation rate of eligible persons at least 50%?	Yes / No / Cannot Determine/ Not Applicable/ Not Reported
• Were all the subjects selected or recruited from the same or similar populations? Were inclusion and exclusion criteria for being in the study prespecified and applied uniformly to all participants?	Yes / No / Cannot Determine/ Not Applicable/ Not Reported
• Was a sample size justification, power description, or variance and effect estimates provided?	Yes / No / Cannot Determine/ Not Applicable/ Not Reported
• For the analyses in this paper, were the exposure(s) of interest measured prior to the outcome(s) being measured?	Yes / No / Cannot Determine/ Not Applicable/ Not Reported
• Was the timeframe sufficient so that one could reasonably expect to see an association between exposure and outcome if it existed?	Yes / No / Cannot Determine/ Not Applicable/ Not Reported
• For exposures that can vary in amount or level, did the study examine different levels of the exposure as related to the outcome (i.e., categories of exposure, or exposure measured as a continuous variable)?	Yes / No / Cannot Determine/ Not Applicable/ Not Reported
• Were the exposure measure(s) (independent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?	Yes / No / Cannot Determine/ Not Applicable/ Not Reported
• Was the exposure(s) measured more than once over time?	Yes / No / Cannot Determine/ Not Applicable/ Not Reported
• Were the outcome measure(s) (dependent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?	Yes / No / Cannot Determine/ Not Applicable/ Not Reported
• Were the outcome assessors blinded to the exposure status of participants?	Yes / No / Cannot Determine/ Not Applicable/ Not Reported
• Was loss to follow-up after baseline 20% or less?	Yes / No / Cannot Determine/ Not Applicable/ Not Reported
• Were key potential confounding variables measured and adjusted statistically for their impact on the relationship between exposure(s) and outcome(s)?	Yes / No / Cannot Determine/ Not Applicable/ Not Reported
QUALITY RATING	Good / Fair / Poor

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GOOD	Critical Appraisal of Articles Included in Systematic Review	FAIR
BECK ET AL., 2020		
BRAM ET AL., 2020		
HUNG ET AL., 2020		
JOHNSON ET AL., 2019		
KHANNA ET AL., 2019		AYOADE ET AL., 2020
KIRCHNER ET AL., 2019		NGUYEN ET AL., 2019
KITCHEN ET AL., 2020		POTAK ET AL., 2019
NEWMAN ET AL., 2015		SABATINI ET AL., 2012
OLSON ET AL., 2021		SKAGGS ET AL., 2006
PATEL ET AL., 2019		SMITH ET AL., 2021
SABHARWAL ET AL., 2007		WILLIAMS ET AL., 2017

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Access to Orthopedic Healthcare

- Six survey studies⁸⁻¹³
- Orthopedic clinics across America
 - 8 expanded: Ohio, West Virginia, Maryland, Pennsylvania, California, New York, Massachusetts
 - 4 non-expanded: Florida, Georgia, Texas, North Carolina

Public Insurance	Private Insurance
2% - 47% received appointments	49% - 100% received appointments

Expanded States	Non-Expanded States
2% - 30% received appointments	47% received appointments

- 18% of clinics across U.S. did not accept Medicaid at all
- 20% of clinics across the US only accepted a limited number of Medicaid patients

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Timeliness of Care – Initial Orthopedic Evaluation


- Six level III retrospective cohort studies¹⁴⁻¹⁹
- Five pathologies: shoulder dislocation, meniscus, fracture, ACL, non-specific trauma

Time Elapsed Between PCP Referral and Orthopedic Evaluation	
Private Insurance (0.83 days)	Public Insurance (9.11 days)

Time Elapsed Between Initial Injury and Orthopedic Evaluation	
Private Insurance (4.7d – 85.61d)	Public Insurance (9.2d – 402.38d)

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Timeliness of Care – Diagnostic Imaging



- Five level III retrospective cohort studies^{14,17,18,20,21}
- One level III cross-sectional study²²
- Four pathologies: non-specific knee pathology, shoulder dislocation, ACL, tibial spine fracture

Time Elapsed Between Initial Injury and MRI Completion		Time Elapsed Between Initial Orthopedic Evaluation and MRI Order	
Public (38d - 431.97d)	Private (19d - 99.11d)	Public (24.5d)	Private (0d)

Time Elapsed Between Initial Orthopedic Evaluation and MRI Completion		Time Elapsed Between MRI Order and MRI Completion	
Public (36d)	Private (3.9d)	Public (16.5d)	Private (9d)

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Timeliness of Care – Surgical Intervention

- Seven level III retrospective cohort studies^{14,15,17,18,21,23,24}
- Three pathologies: ACL, meniscus, shoulder dislocation

Time Elapsed Between Initial Injury and Surgery	
Public (67.97d - 561.4d)	Private (40.1d - 226.4d)



Time Elapsed Between MRI and Surgery	
Public (38d)	Private (19d)

Time Elapsed Between Orthopedic Evaluation and Surgery	
Public (78.1 - 136d)	Private (41.9 - 44d)

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Secondary Injury



- Three level III retrospective cohort studies^{14,18,21}
- Two level III cross-sectional studies^{24,25}
- Three pathologies: shoulder dislocation, ACL, Meniscus
 - Shoulder Dislocation¹⁴
 - Patients with public insurance had a higher incidence of multiple dislocations & were more likely to have secondary bony injury at time of surgery
 - Meniscus²⁵
 - Patients with public insurance and a meniscal tear were more likely to need a meniscal debridement

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Secondary Injury (cont.)


- Three level III retrospective cohort studies^{14,18,21}
- Two level III cross-sectional studies^{24,25}
- Three pathologies: shoulder dislocation, ACL, Meniscus
 - ACL^{18,21,24,25}
 - Patients with public insurance were more likely to require a lateral meniscus repair in conjunction with their ACL (30%)
 - 81% of patients with public insurance had a concomitant meniscus pathology compared to 65% of private insurance
 - Patients with public insurance had 1.7x higher odds of having multiple additional injuries noted at time of surgery compared to private
 - Patients with public insurance were more likely to have associated chondral injuries of at least a grade two

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Post-Operative Outcomes

- Three level III retrospective cohort studies^{14,18,23}
- One level III cross-sectional study²²
- Three pathologies: ACL, shoulder dislocation, tibial spine fracture
 - Shoulder Dislocation¹⁴
 - Patients with public insurance were more likely to re-dislocate post-operatively
 - ACL^{18,23}
 - Patients with private insurance had a 1.3x higher odds of having a post-operative graft failure
 - 22% of patients with public insurance had decreased knee ROM compared to only 9% of patients with private insurance, post-operatively
 - Tibial Spine Fracture²²
 - Patients with public insurance were 4x more likely to be casted post-operatively rather than be put in a brace



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Discussion

- First to systematically review published data exclusively regarding insurance type and its association with access and timeliness of orthopedic healthcare in this specific population
- Objective: Investigate the Impact Insurance status has on accessing orthopedic treatment for pediatric patients as well as how it affects post-treatment outcomes

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Discussion

- Pediatric patients with public health insurance were more likely to be denied appointments with orthopedic specialists than pediatric patients with private insurance – especially in states with expanded eligibility standards⁸⁻¹³
- Similar findings have been well documented in adult patients with:
 - ACL tears²⁶
 - Medial meniscus pathologies²⁶
 - Flexor tendon lacerations²⁷
 - Acute lumbar disc herniations²⁷
 - Acute rotator cuff tears²⁷

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Discussion

- Pediatric patients with public insurance experienced longer delays at every time point of care, regardless of orthopedic pathology^{14-21,23,24}
- Similar findings have been documented in adult patients with:
 - Meniscal tears²⁸
 - Recurrent Shoulder Instability²⁹

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Discussion

- Pediatric patients with public insurance were more likely to have a secondary injury at the time of surgery^{14,18,21,24,25}
- Pediatric patients with public insurance were more likely to experience negative postoperative outcomes^{14,18,22,23}
- Similar findings have been documented in adult patients with:
 - ACL tears³⁰
 - Recurrent Shoulder Instability²⁹

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Discussion

- Lack of access to timely care for patients with public health insurance plans continue to widen the gap of inequities within healthcare
- Pediatric patients with public insurance:
 - More likely to experience delays in surgical intervention^{14,15,17,18,21,23,24}
 - Less likely to follow up with physical therapy appointments³¹
 - Less likely to get an appointment at physical therapy clinics for their postoperative ACLR³²
 - More likely to wait longer for their first appointment, if they were able to schedule at all³²

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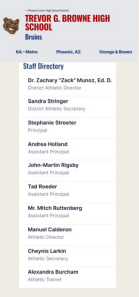
SO WHAT??

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CARDINALS DIRECTORY

ATHLETIC TRAINING/MEDICAL		Sports Medicine Staff	
Tom Reed	Head Athletic Trainer	Kevin McElroy	Head Athletic Trainer
Jeff Herndon	Assistant Athletic Trainer	Kevin O'Connell	Assistant Athletic Trainer (Orthopedic/Rehabilitative/Injury Staff)
Chad Cook	Assistant Athletic Trainer	Kevin O'Connell	Director of Football Athlete Training
Derek Harris	Director of Rehabilitation/Physical Therapist	Kevin O'Connell	Head Coach/Head Football Coach
Dano Norciede	Assistant Athletic Trainer/Physical Therapist	John Adams	Assistant Athletic Trainer (Athletic Development)
Brett Focher	Physical Therapist/Consultant	John Adams	Head Athletic Trainer (Injury Prevention/Team)
Wayne Kuhl	Internal Medicine Physician	John Adams	Assistant Athletic Trainer (Strength)
Gary Waslewski	Head Team Physician	John Adams	Assistant Athletic Trainer (Lacrosse)
Jeff Nebelsieck	Team Physician (Internist)	John Adams	Assistant Athletic Trainer (Football/Injury Prevention)
Cory Buschman	Team Physician (Internist)	John Adams	Assistant Athletic Trainer (Football/Injury Prevention)
Doug Freedburg	Team Physician (Orthopedist)	John Adams	Assistant Athletic Trainer (Football/Injury Prevention)
Sheldon Martin	Team Physician (Orthopedist)	John Adams	Assistant Athletic Trainer (Football/Injury Prevention)
Charles Peterson	Sports Medicine	John Adams	Assistant Athletic Trainer (Football/Injury Prevention)
Marc Strickland	Sports Psychologist/Team Clinician	John Adams	Assistant Athletic Trainer (Football/Injury Prevention)
Sophia Murphy	Mental Health Clinician	John Adams	Assistant Athletic Trainer (Football/Injury Prevention)
Randall Porter	Team Neurosurgeon	John Adams	Assistant Athletic Trainer (Football/Injury Prevention)
William Shultz	Neuro-Psychologist	John Adams	Assistant Athletic Trainer (Football/Injury Prevention)
Curio Maynard	Team Chiropractor	John Adams	Assistant Athletic Trainer (Football/Injury Prevention)
Andrew Chavkin	Chiropractor/Active Release	John Adams	Assistant Athletic Trainer (Football/Injury Prevention)
Jeffrey Drobot	Naturopathic Physician	John Adams	Assistant Athletic Trainer (Football/Injury Prevention)
Paul Piretti, Jr.	Team Ophthalmologist	John Adams	Assistant Athletic Trainer (Football/Injury Prevention)
Michael Zache	Team Dentist	John Adams	Assistant Athletic Trainer (Football/Injury Prevention)
Christopher Yeung	Orthopedic Spine Specialist	John Adams	Assistant Athletic Trainer (Football/Injury Prevention)
Gopi Cherkur	Team Cardiologist	John Adams	Assistant Athletic Trainer (Football/Injury Prevention)

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TREVOR R. BROWNE HIGH SCHOOL
Brakes

644 - Shores Phoenix, AZ Orange & Brown

Staff Directory

- Dr. Zachary "Zack" Munoz, Ed. D.
Principal
- Sandra Stricker
Assistant Principal
- Stephanie Stricker
Principal
- Andrew Holland
Assistant Principal
- John Martin Rigby
Assistant Principal
- Ted Reeder
Assistant Principal
- Ms. Melissa Rothermelberg
Assistant Principal
- Manuel Castanon
Assistant Director
- Cheyenne Larkin
Athletic Secretary
- Alexandra Burcham
Athletic Trainer

Collaborative Effort?

- Healthcare is meant to be collaborative
 - May be harder to achieve at middle school or secondary school
- The healthcare teams in these settings are relatively small but the workload is high!
- How does this affect the standard of care?
- How does this affect burnout in athletic training?

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Areas of Future Research

- Implications of public health insurance on long-term outcomes for pediatric populations
- The athletic trainer's perceived knowledge of insurance types
- The athletic trainer's perceived comfort level in referring patients with public health insurance
- Number of pediatric patients with public health insurance that utilize their secondary school athletic trainer as their main avenue of orthopedic treatment and rehabilitation

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Limitations

- Majority of studies only examined one point in care timelines
- Only one study compared access in the pre- and post-PPACA era

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Conclusion




Pediatric patients with public health insurance experience greater difficulty in obtaining appointments with outpatient orthopedic offices.
 Without timely access to services, patients with public health insurance are more likely to experience secondary injury and negative post-operative complications.
 These disparities affect all healthcare providers involved in the patient's care plan.
 Disparate access leaves little options for referral to or support from other healthcare providers.
 This may lead to an increase to an already high workload and levels of perceived stress for the healthcare provider.

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Thank you!

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