

# Navigating Medical Severity and Claim Outcomes

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Actuarial Research  
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StarLook





**Name:** Charlie

**Age:** 23

**Occupation:** Bartender

**Injury:** Slip/fall

**Part of Body:** Low back pain

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**Name:** Rose

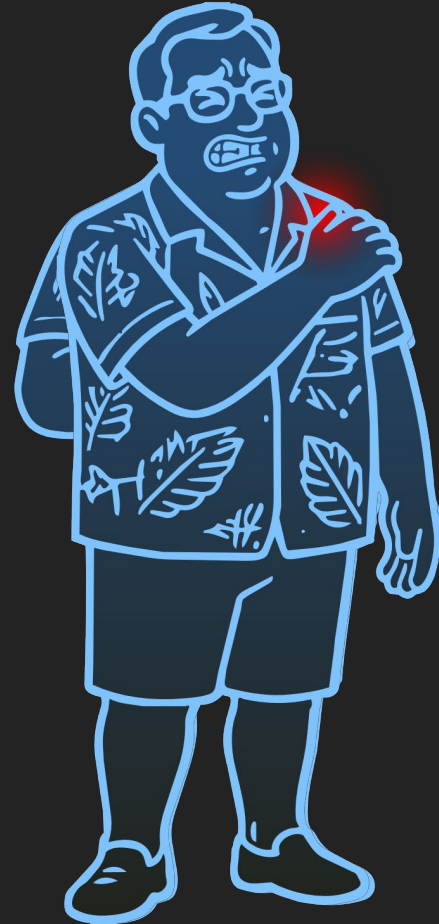
**Age:** 41

**Occupation:** Hospitality

**Injury:** Strain

**Part of Body :** Shoulder





**Name:** Papa Sam

**Age:** 67

**Occupation:** Hotel manager

**Injury:** Slip/fall

**Part of Body:** Shoulder

**Pre-Injury:** Shoulder Pain &  
High Blood Pressure

StarLook



# Medical Severity Is on the Rise

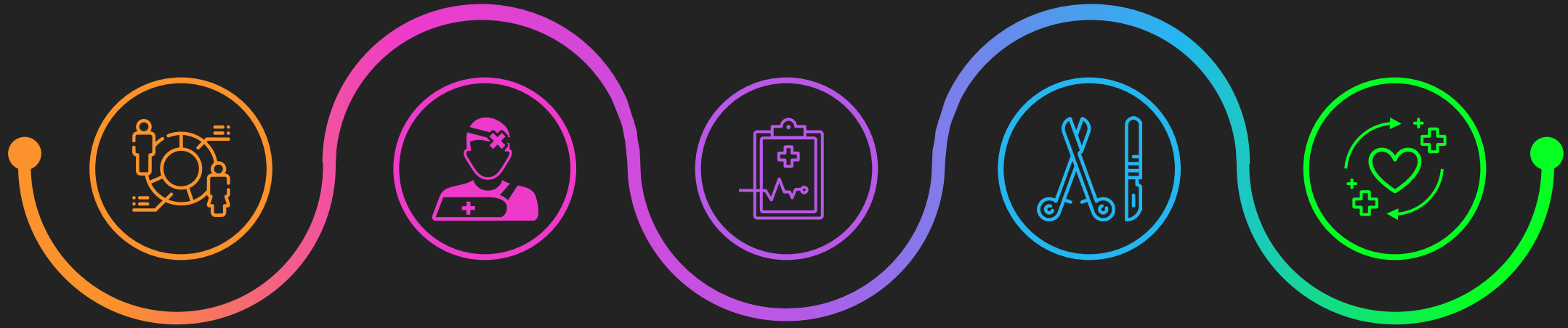
1 What **drives medical payments?**  
*Factors across the life of a claim*

2 How **fresh is the data?**  
*Considers sufficient claim development for dynamics to emerge*

3 Is there more to the story than **just prices?**  
*Utilization patterns and claim dynamics contribute to severity*



# The Life of a Claim



## DEMOGRAPHICS

*What is the state of claimant's health, including any preexisting conditions?*

## INJURY

*What type of injury occurred?*

## CONDITION

*What medical condition has developed as a result?*

## TREATMENT

*How soon and/or frequent have treatments occurred?*

## OUTCOME

*What is the result, such as treatment duration and time to close?*

# Principal Properties to Measure Medical Services

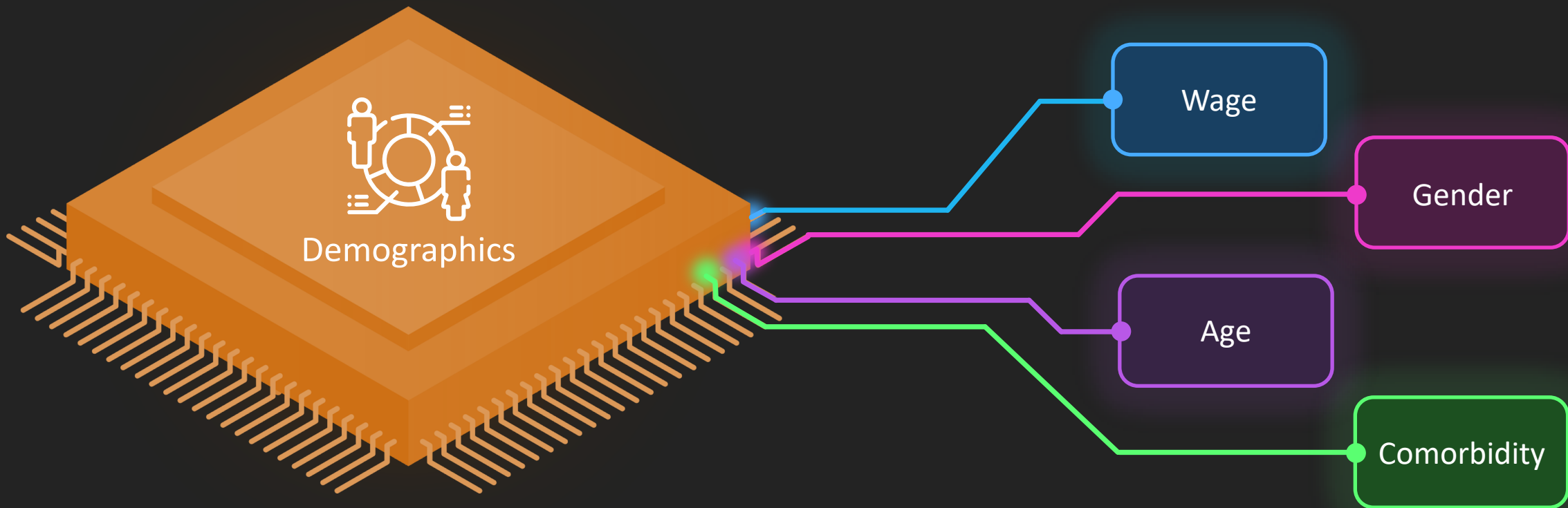
1 Does it span **across medical cost categories**?

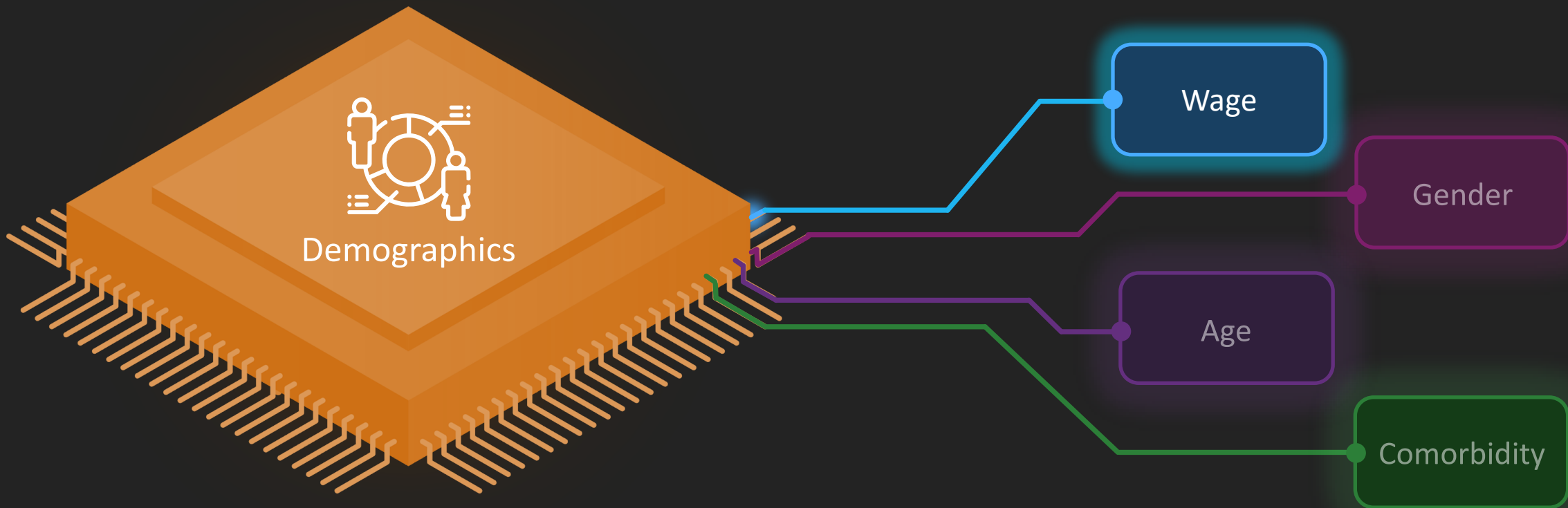
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2 Is it common **across jurisdictions**?

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3 Is it constant **over time**?





# Medical Utilization Increases With Wages

Wage Groups Defined Relative to the State Average Weekly Wage

Utilization

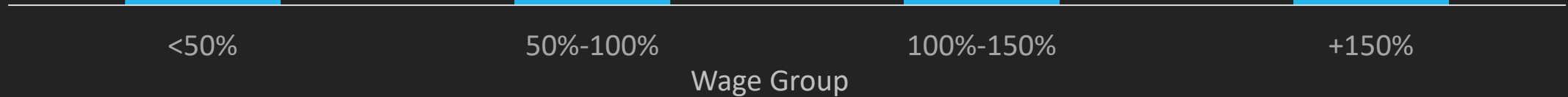
25K

20K

15K

10K

5K

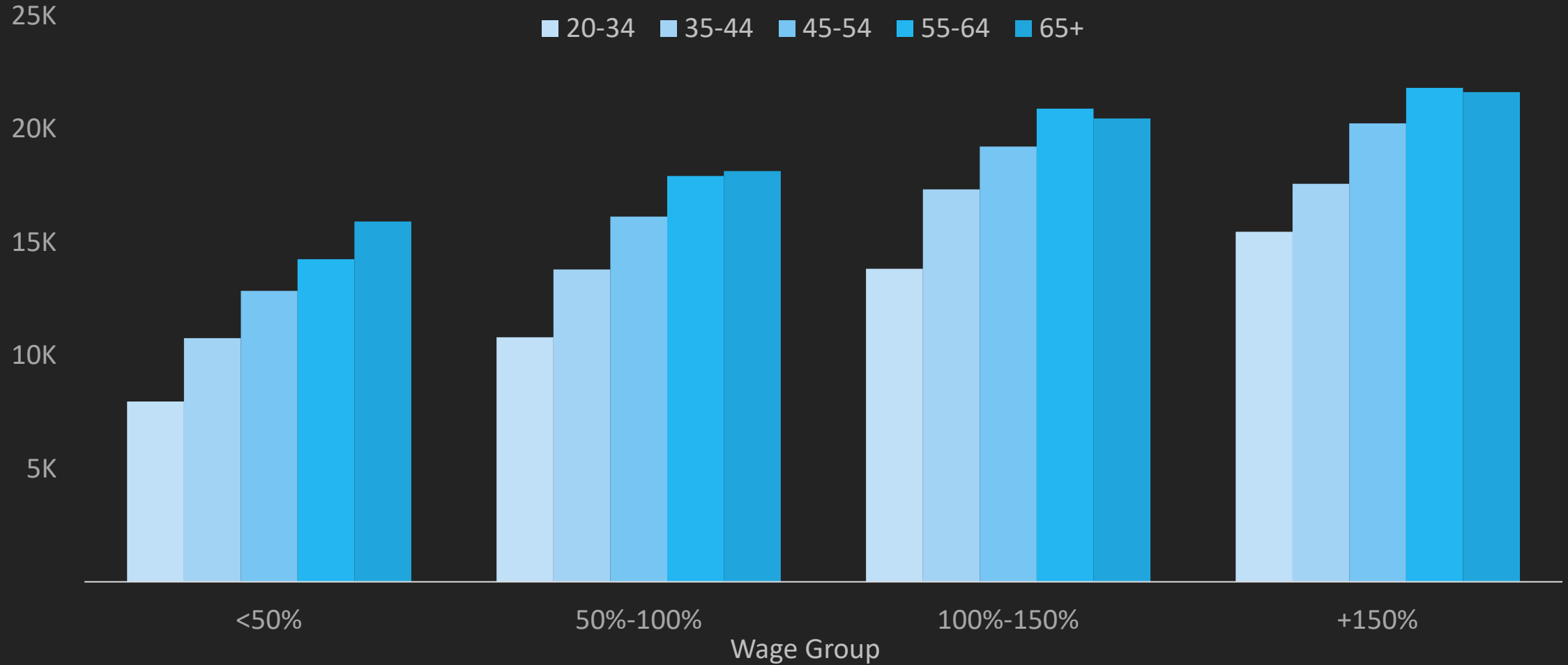


# The More an Injured Worker Earns, the Greater the Medical Cost

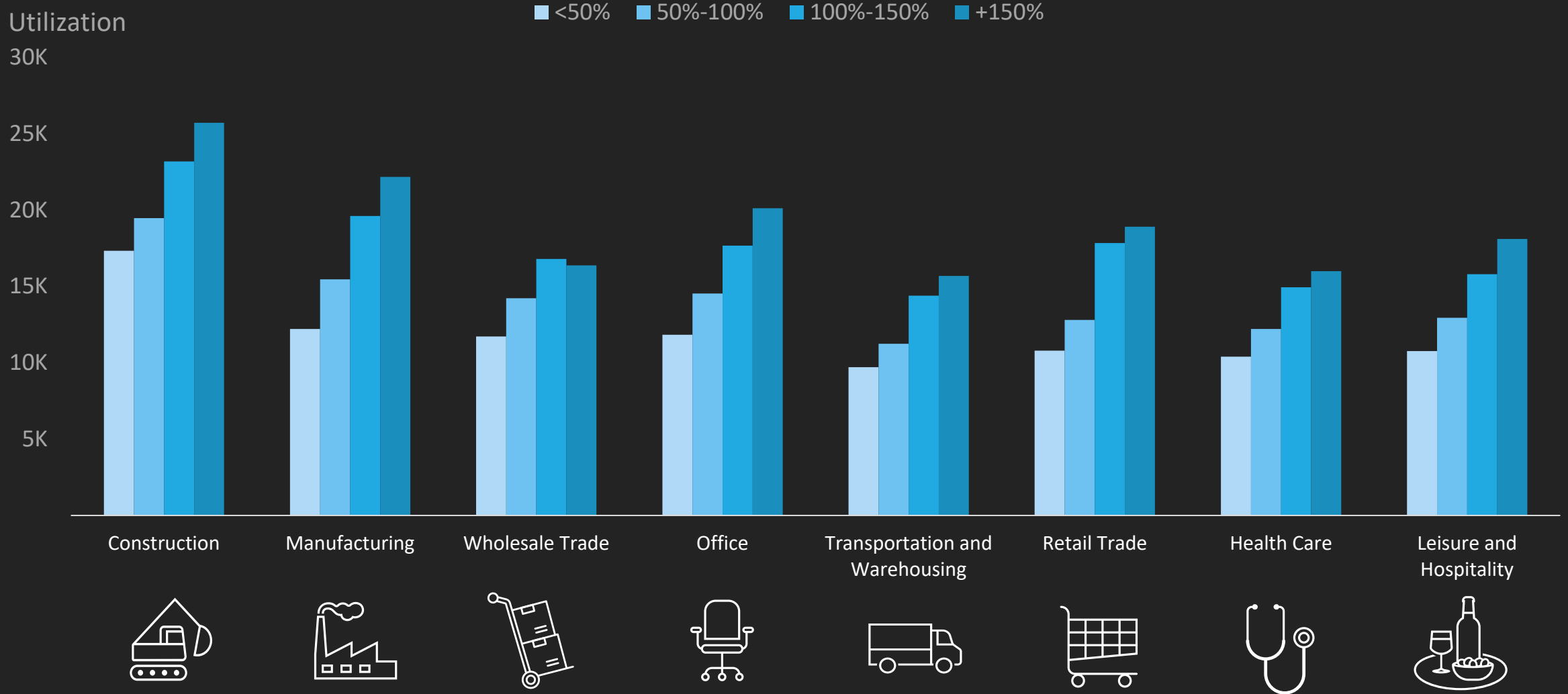
- 1 Frequency of **major surgery** increases by **wage group**
- 2 Physician payments exhibit the same **divergence**
- 3 Majority of **low wage** group incurs indemnity claims under \$5K

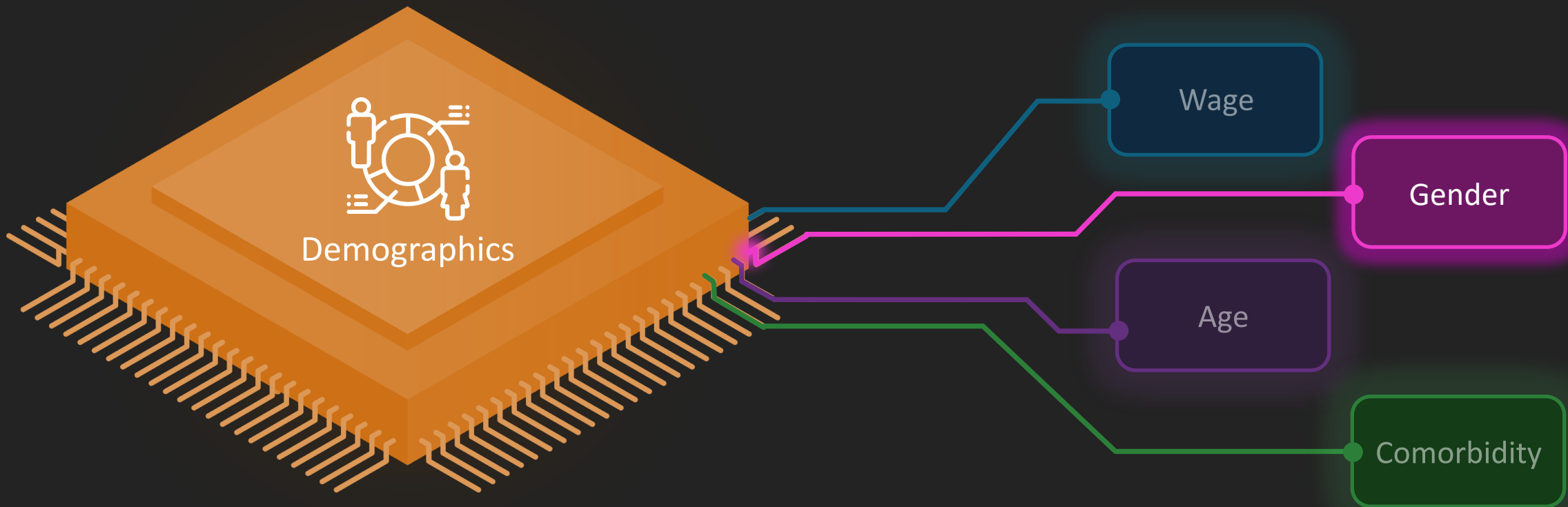
# Medical Utilization Grows by Wage Group and Age

Utilization



# Medical Utilization Pattern Persists by Wage Group and Sector





# Medical Utilization by Men and Women Across Sectors

Utilization

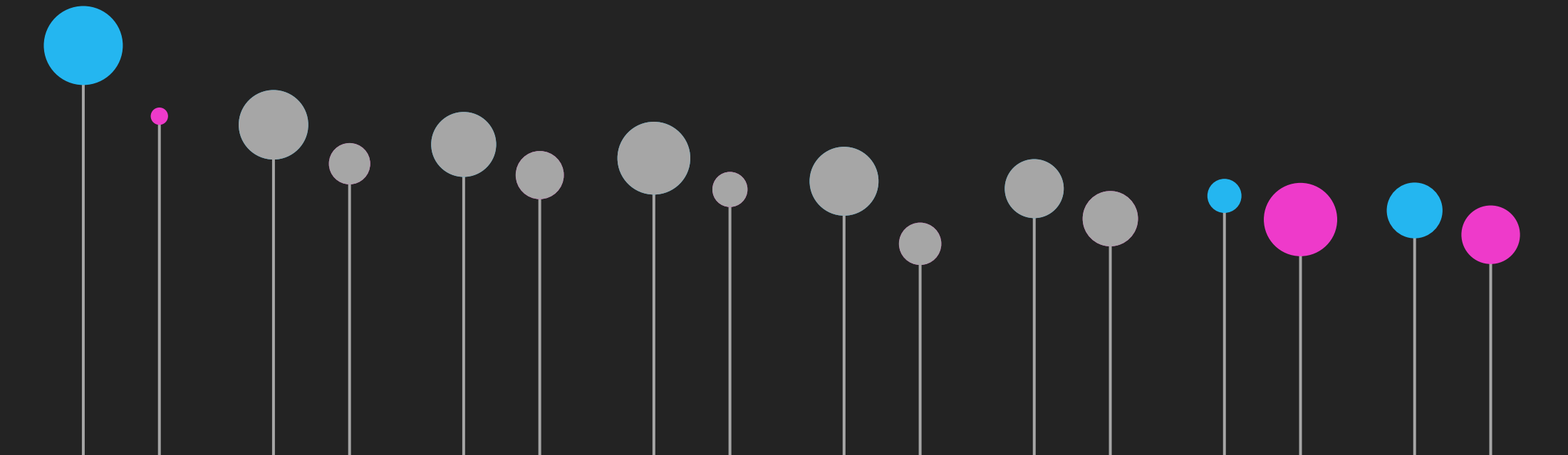
25K

20K

15K

10K

5K



Construction

Manufacturing

Office

Wholesale Trade

Transportation and Warehousing

Retail Trade

Health Care

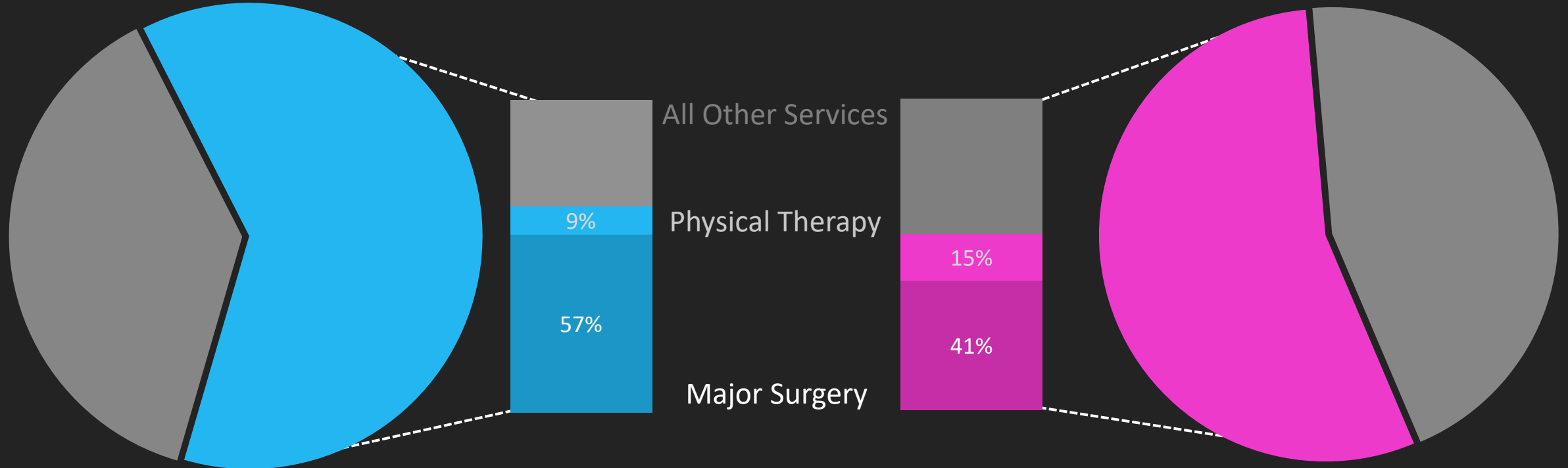
Leisure and Hospitality



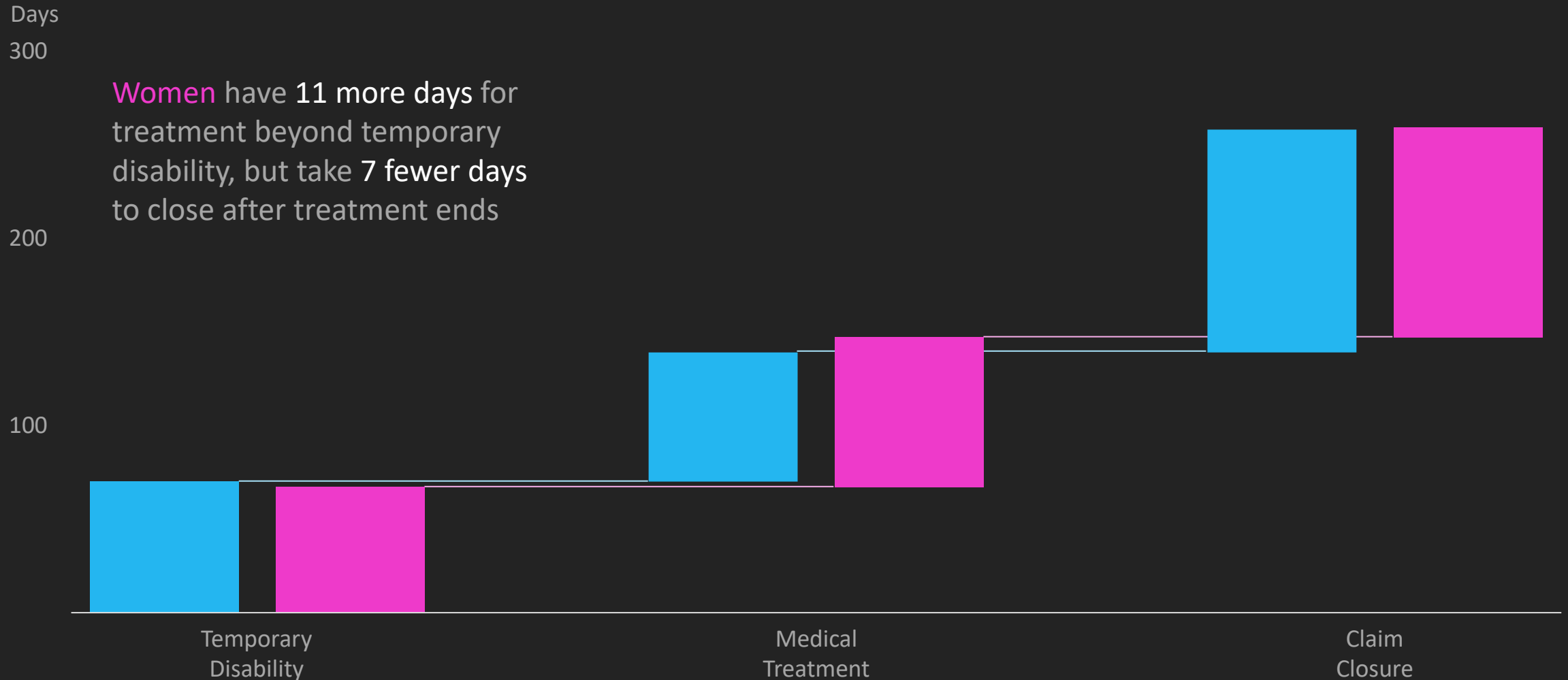
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# Early on, Men Have a Higher Share of Utilization Than Women

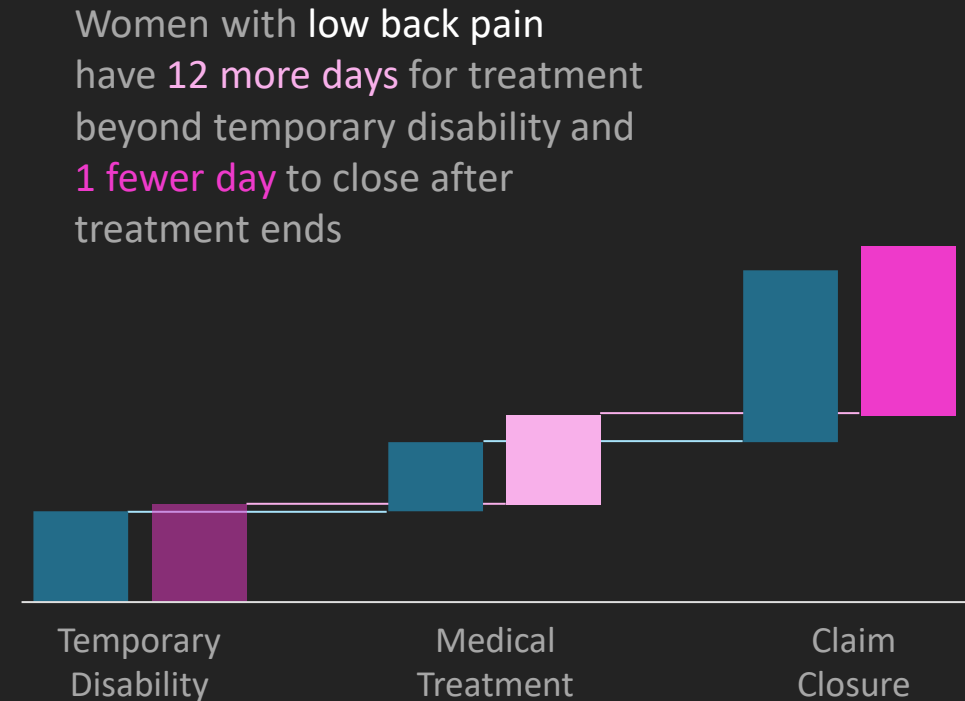
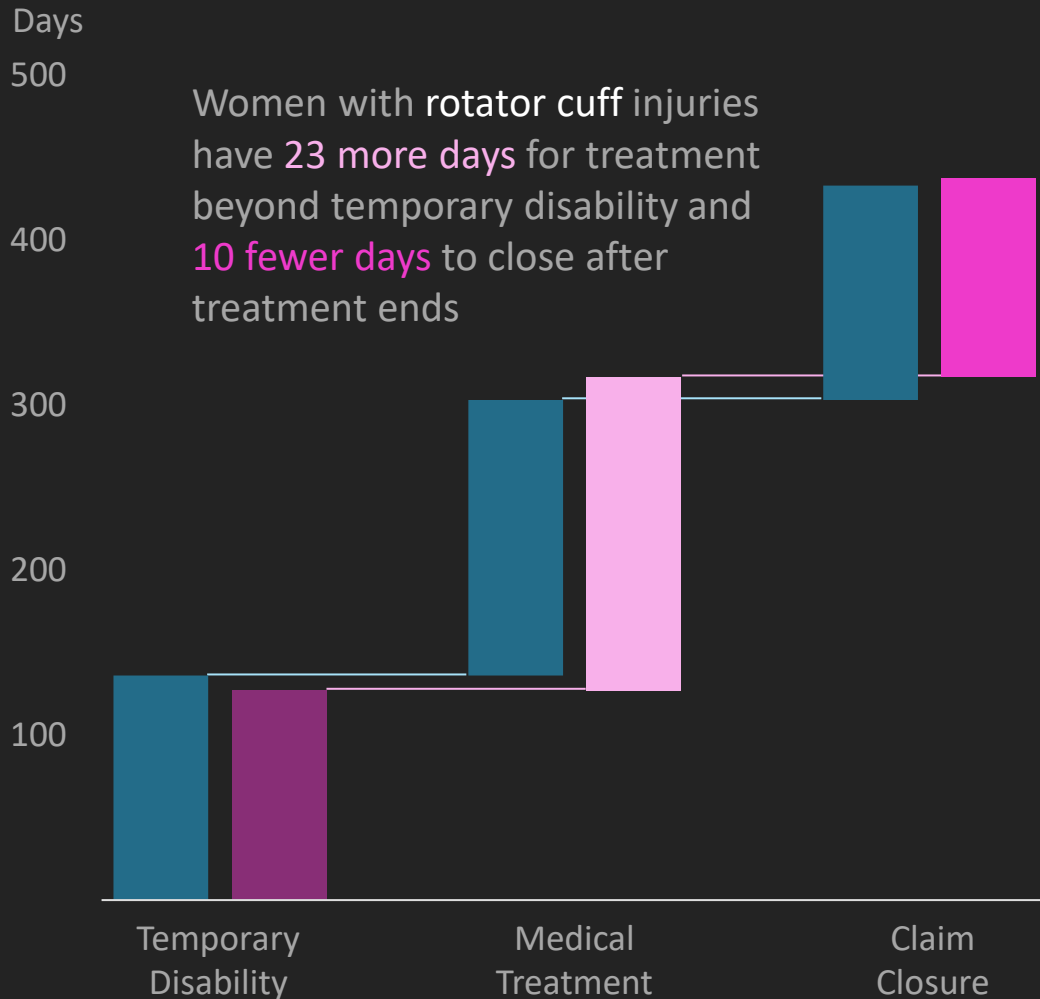
During Temporary Disability

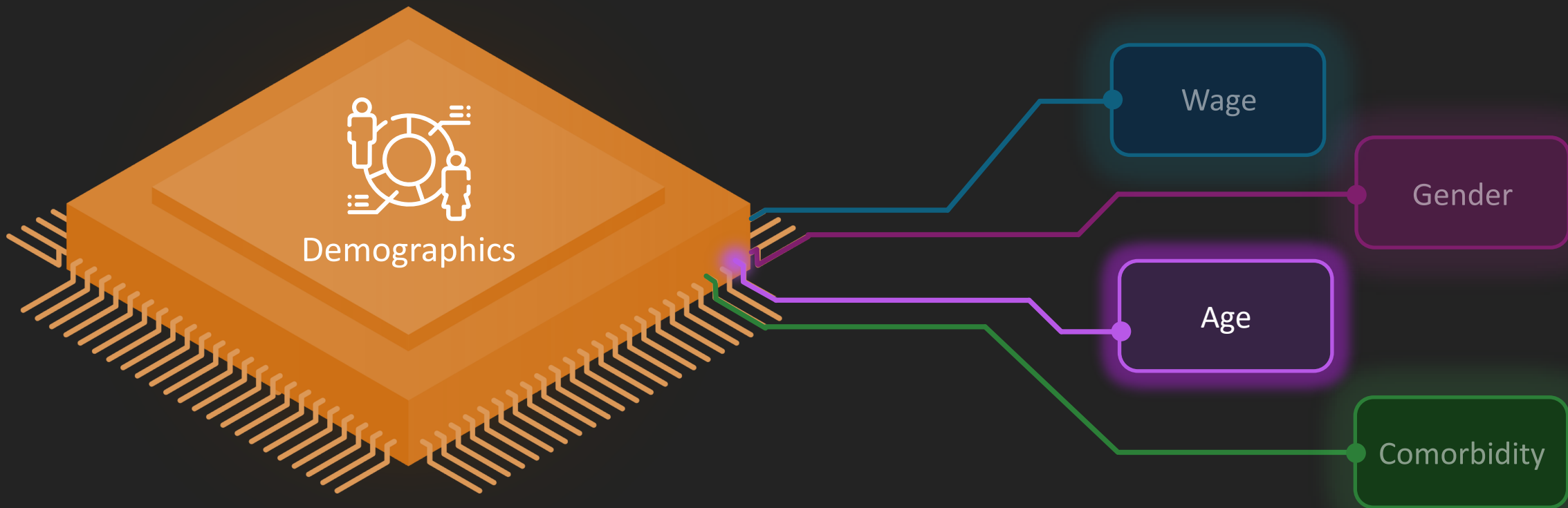


# Women Have Longer Treatment Than Men but Similar Time to Close



# Claim Milestones for Women and Men Vary by Type of Injury





# Medical Utilization Is Correlated With Age

Utilization

20K

Utilization for 65+ workers is almost double that of the youngest workers and ~36% greater than the 25-44 age group

15K

10K

5K

16-24

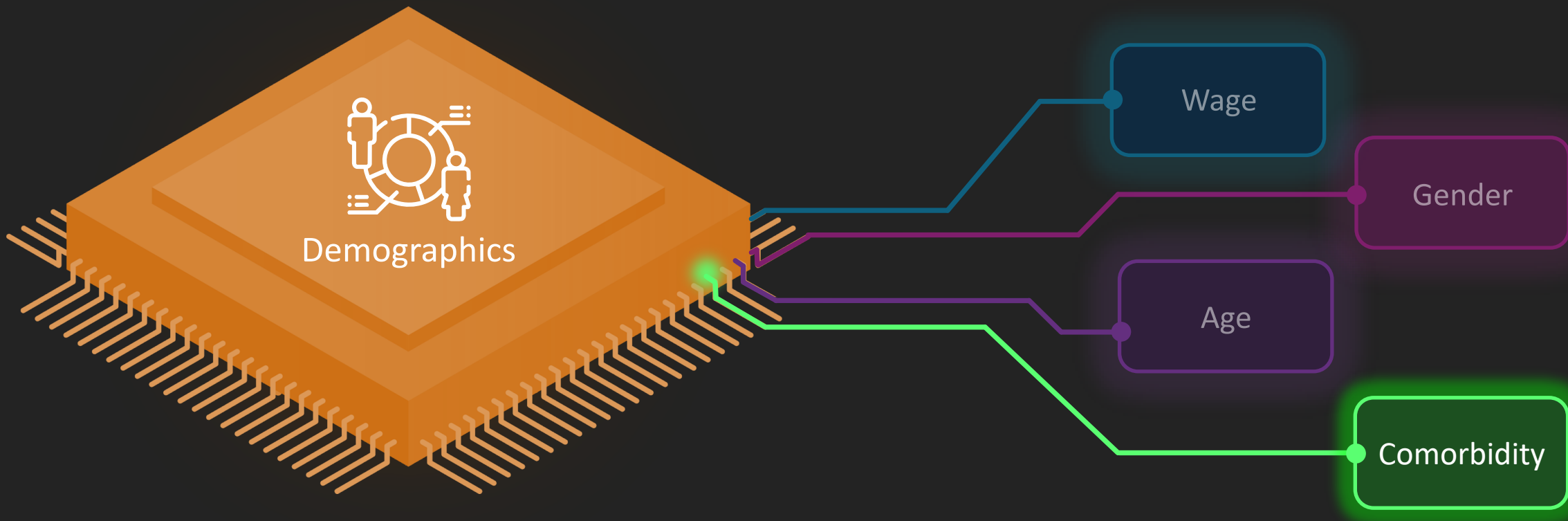
25-44

Age Group

45-64

65+

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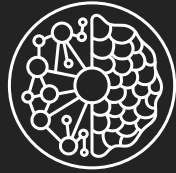


# Treated Comorbidities Increase Utilization

Blood  
Vessel



Cancer



COPD



Degenerative  
Conditions



Diabetes



Hemiplegia



Hypertension



Mental



Nonblood  
Vessel



Obesity



Pregnancy



Sleep Disorders



Substance  
Abuse



Other

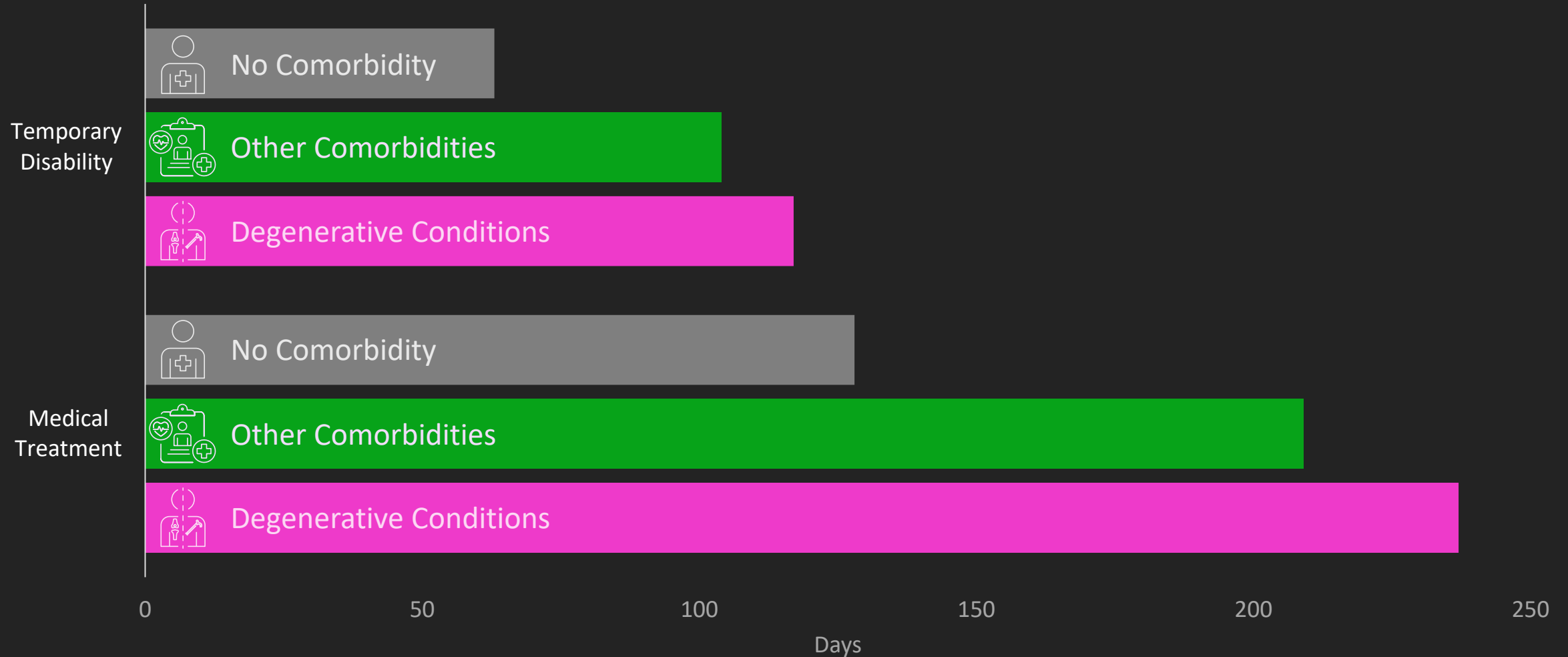


# Four Comorbidity Groups Are Particularly Influential

Relative Intensity of Medical Service Utilization



# Disability and Treatment Grow Longer With Comorbidities



# Claims With Comorbidities Are Substantially More Intense

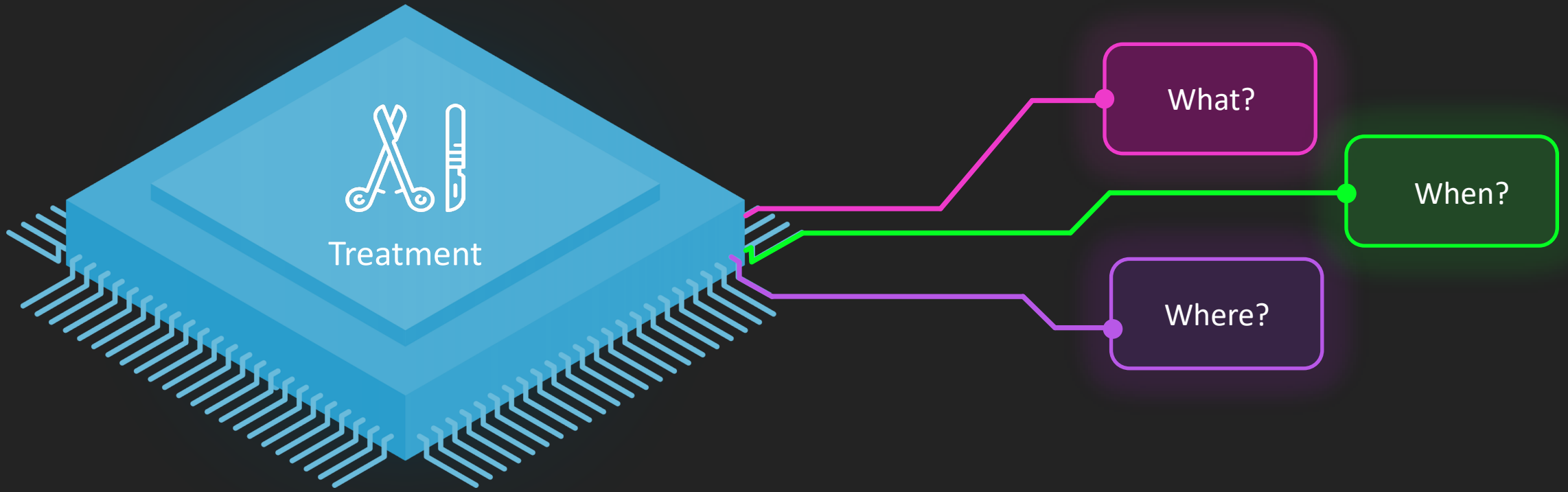
Utilization

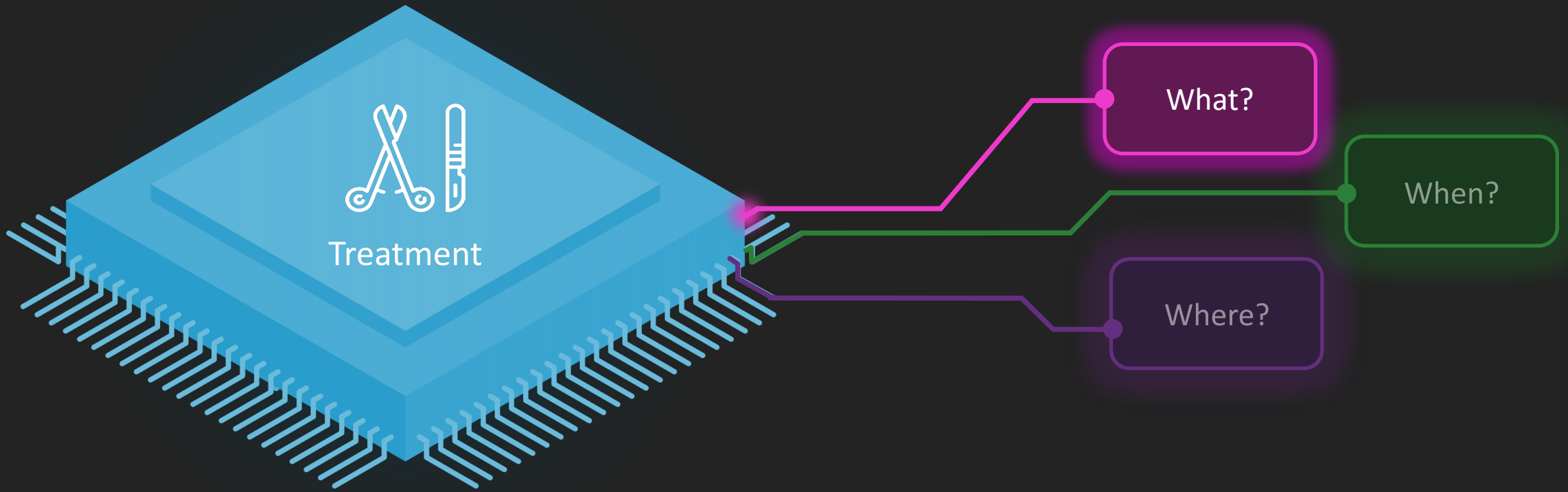
60K

40K

20K

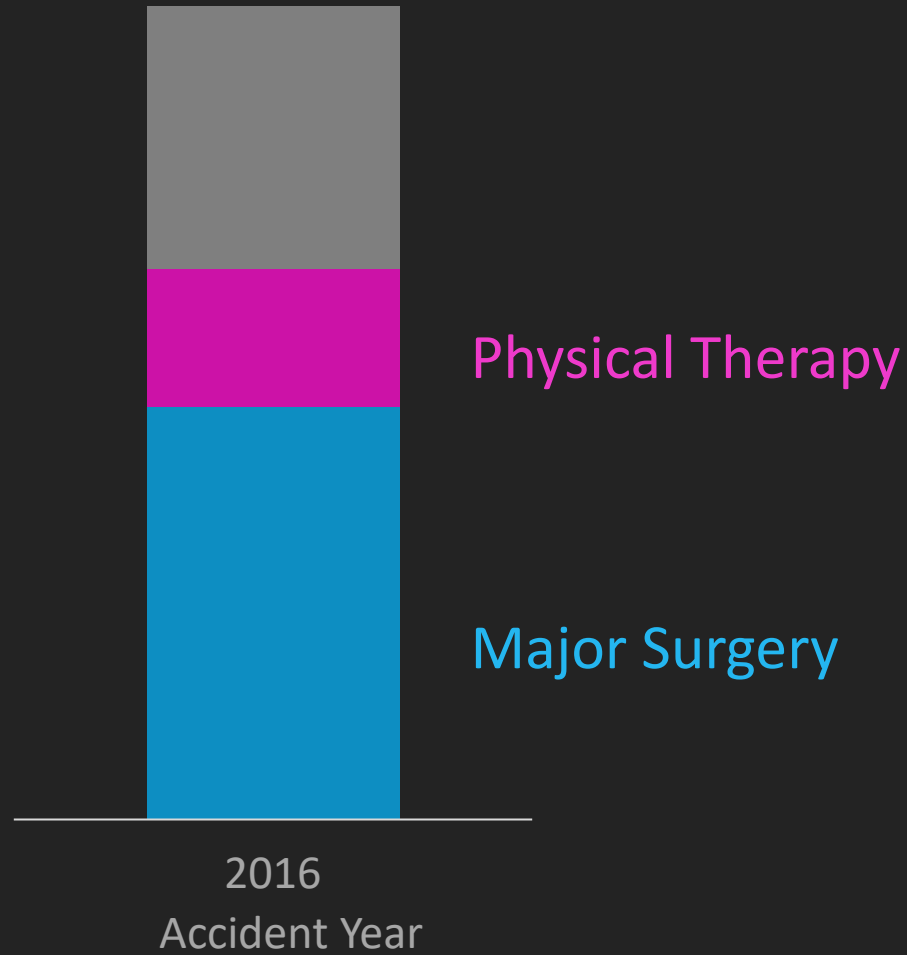






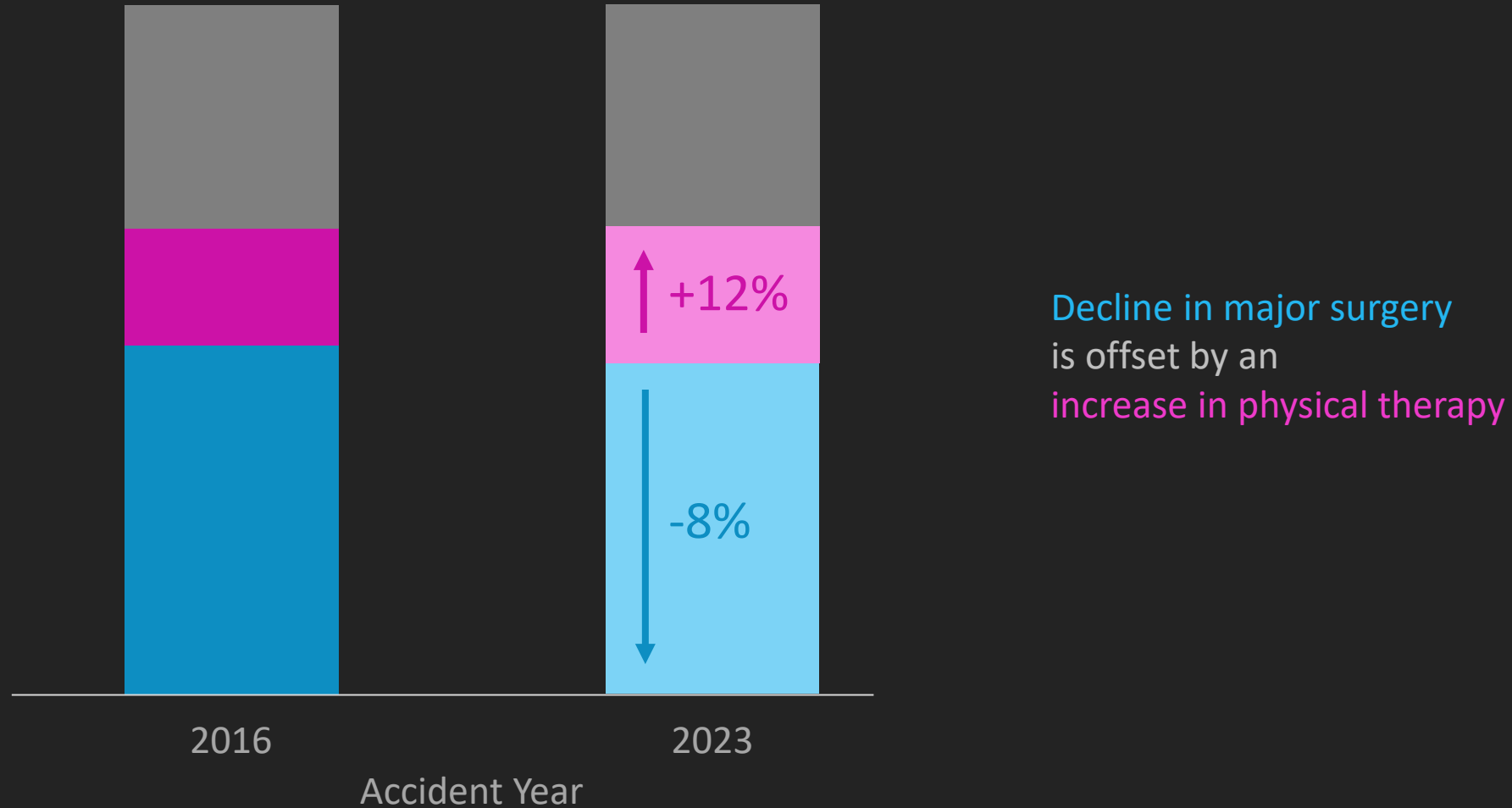
# What Is Impacting Medical Utilization?

## Composition Effect



# What Is Impacting Medical Utilization?

## Composition Effect



# The Most Prevalent Physical Therapy Codes

## Lower Units per Session

### 97110—Therapeutic Exercise: 37 Units

*A rehabilitation procedure aimed at improving strength, endurance, range of motion, and flexibility*

### 97140—Manual Therapy: 35 Units

*Includes mobilization, manipulation, lymphatic drainage, or myofascial release*

## Higher Units per Session

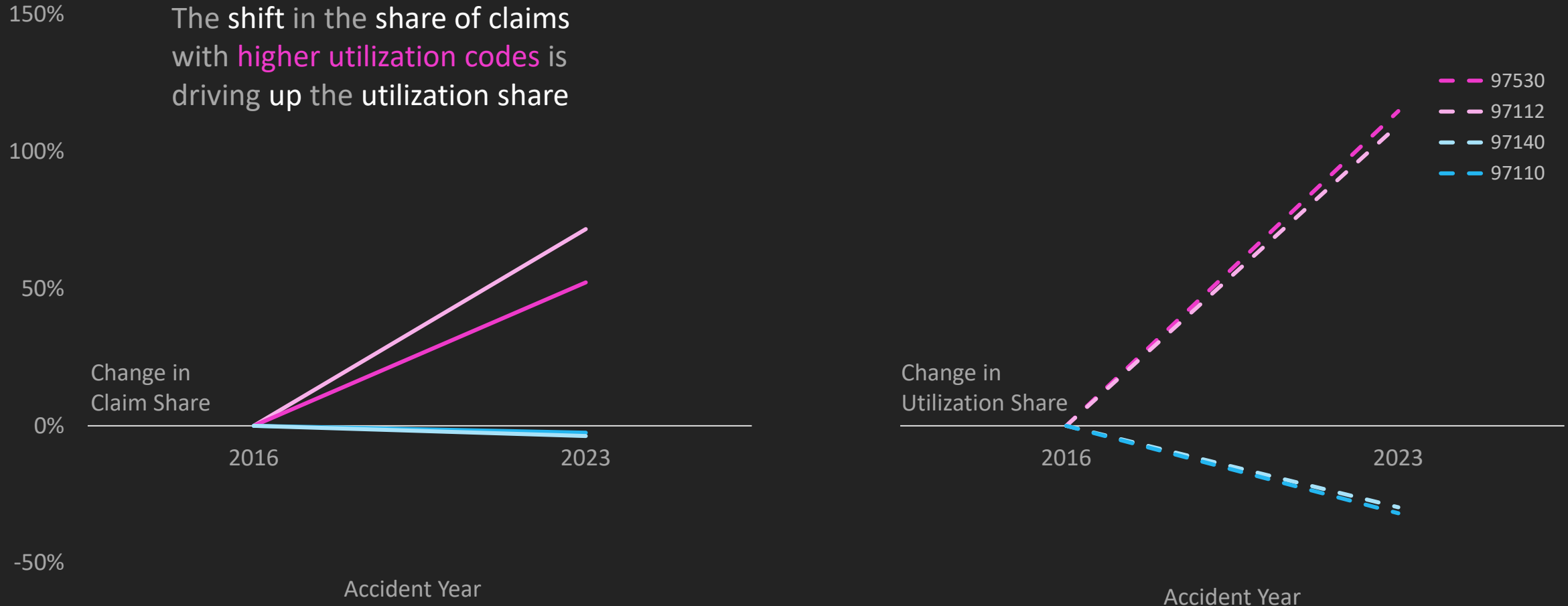
### 97530—Therapeutic Activities: 51 Units

*Requires one-on-one, direct patient contact by a provider, using dynamic activities to improve functional performance*

### 97112—Neuromuscular Reeducation: 46 Units

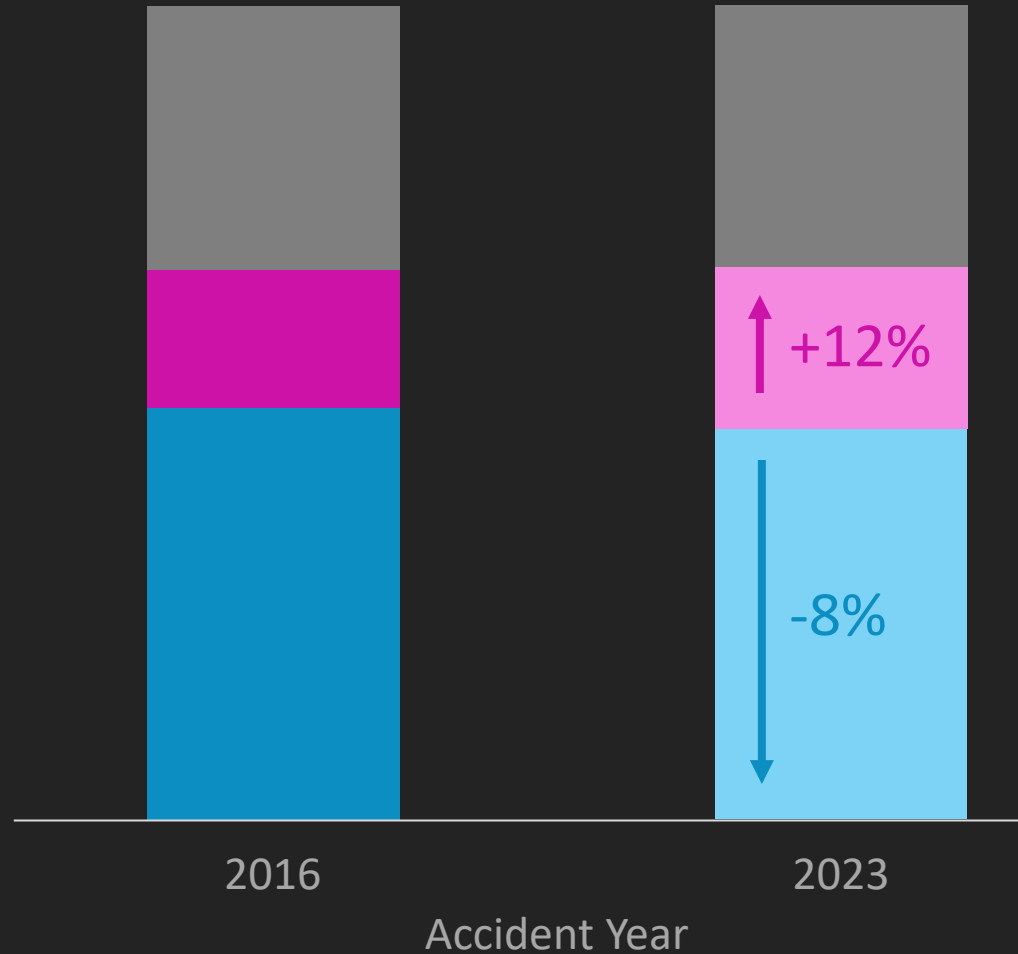
*Requires one-on-one, direct patient contact by a provider to improve balance, coordination, kinesthetic sense, posture, and/or proprioception*

# Higher Utilization Codes for Physical Therapy Continue to Grow



# What Is Impacting Medical Utilization?

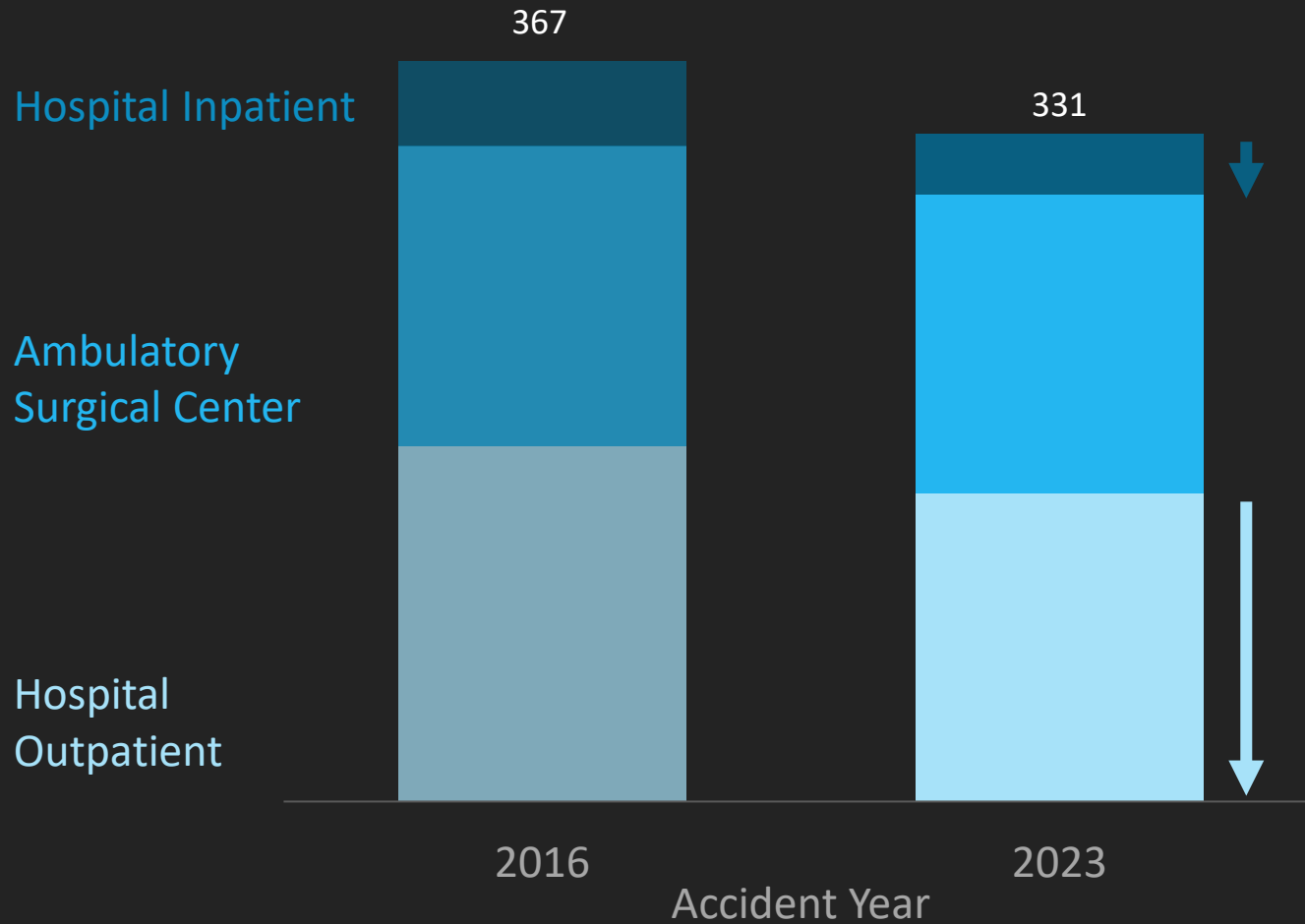
## Composition Effect



Decline in major surgery  
is offset by an  
increase in physical therapy

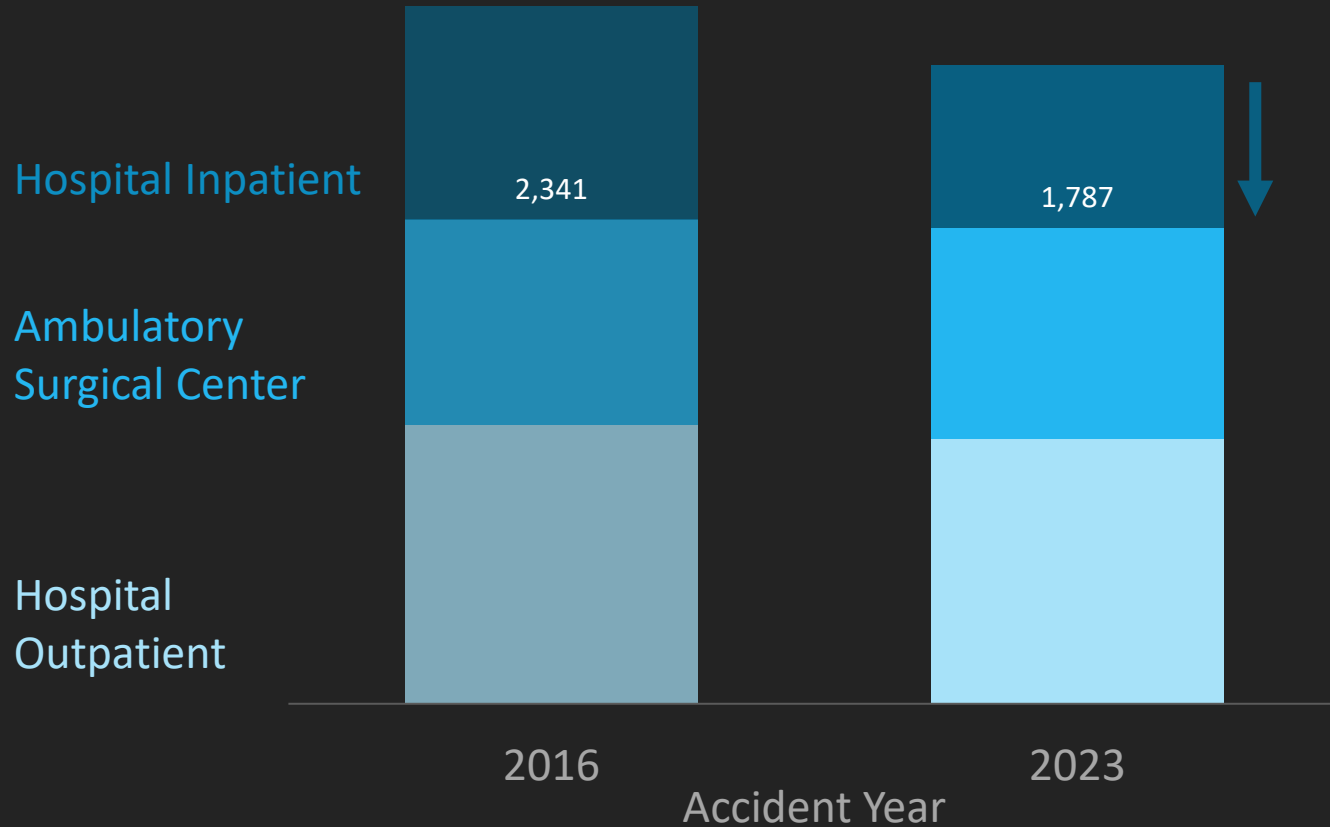
# Major Surgery Rate Is Declining

Frequency per 1,000 Claims



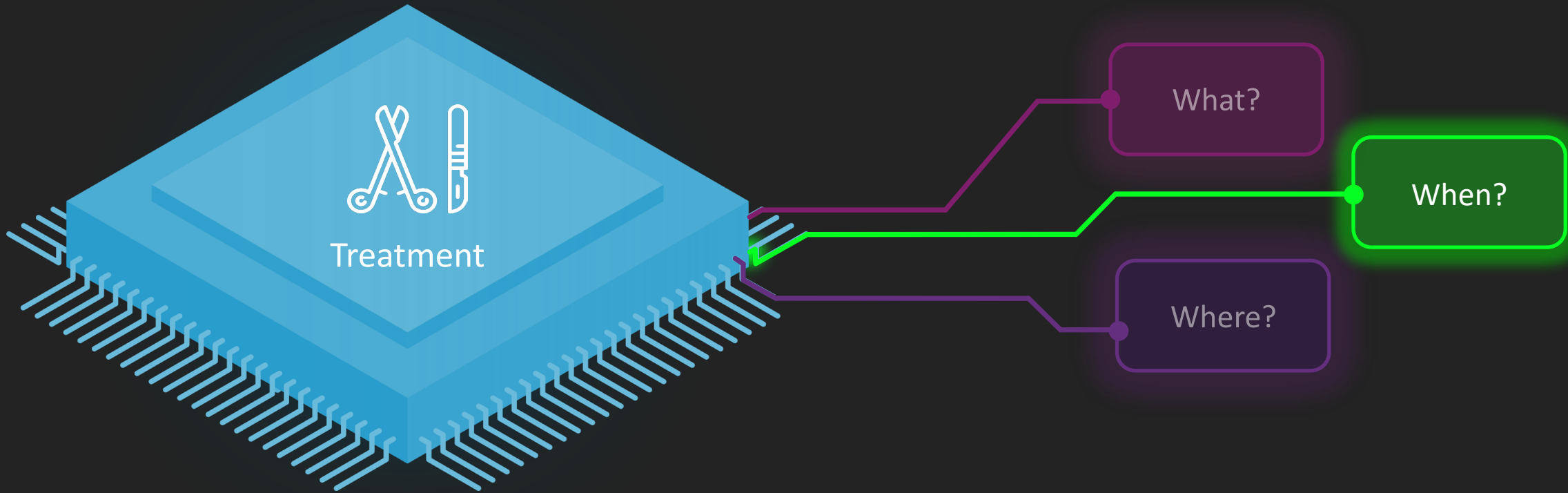
The decline in major surgery is driven by a decline in frequency for all facilities, mostly seen in hospital inpatient and hospital outpatient

# Overall Major Surgery Utilization Has Also Declined



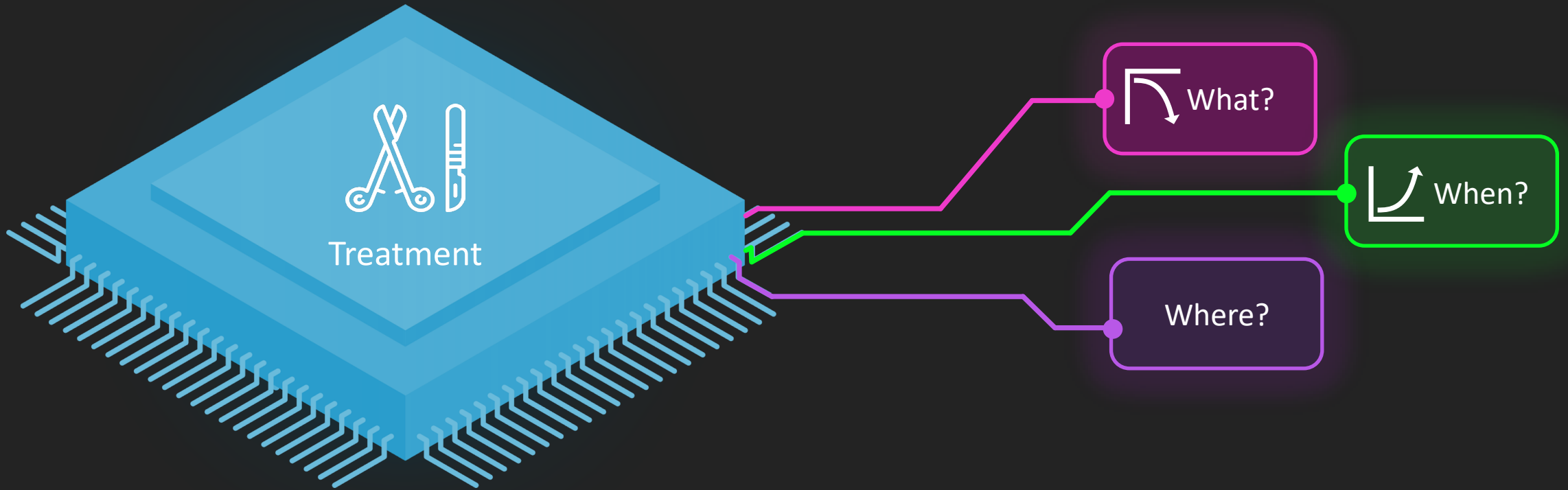
The decline in utilization for major surgery is driven by a

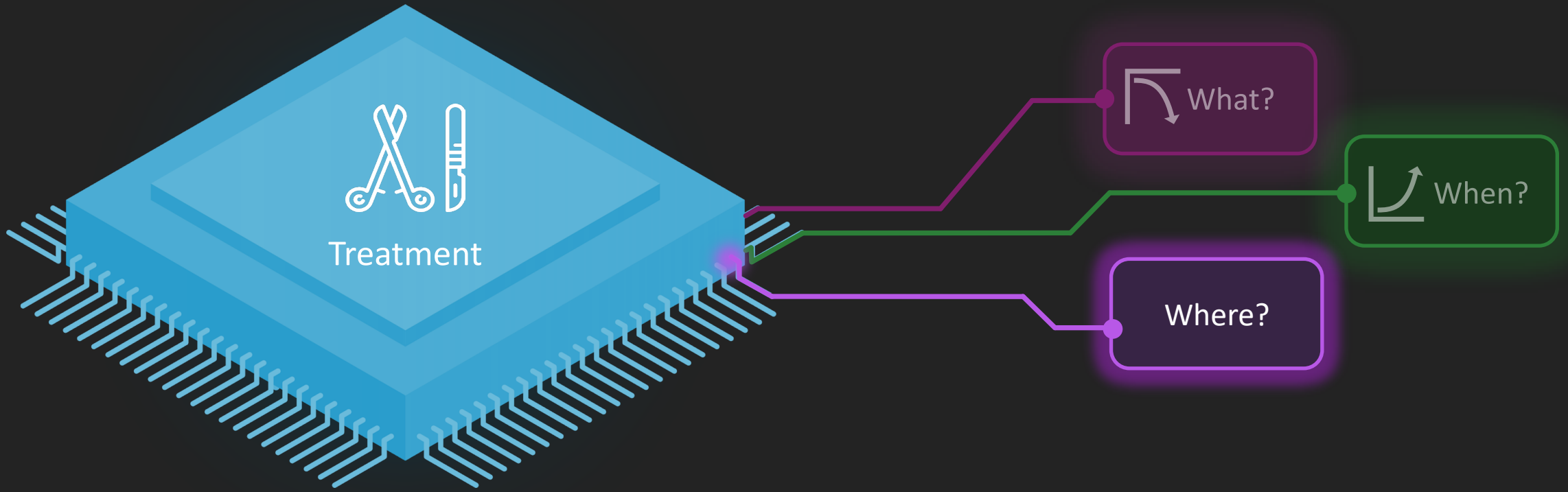
**24%** decline in hospital inpatient



# Times to First Medical Specialty Services Have Seen Delays





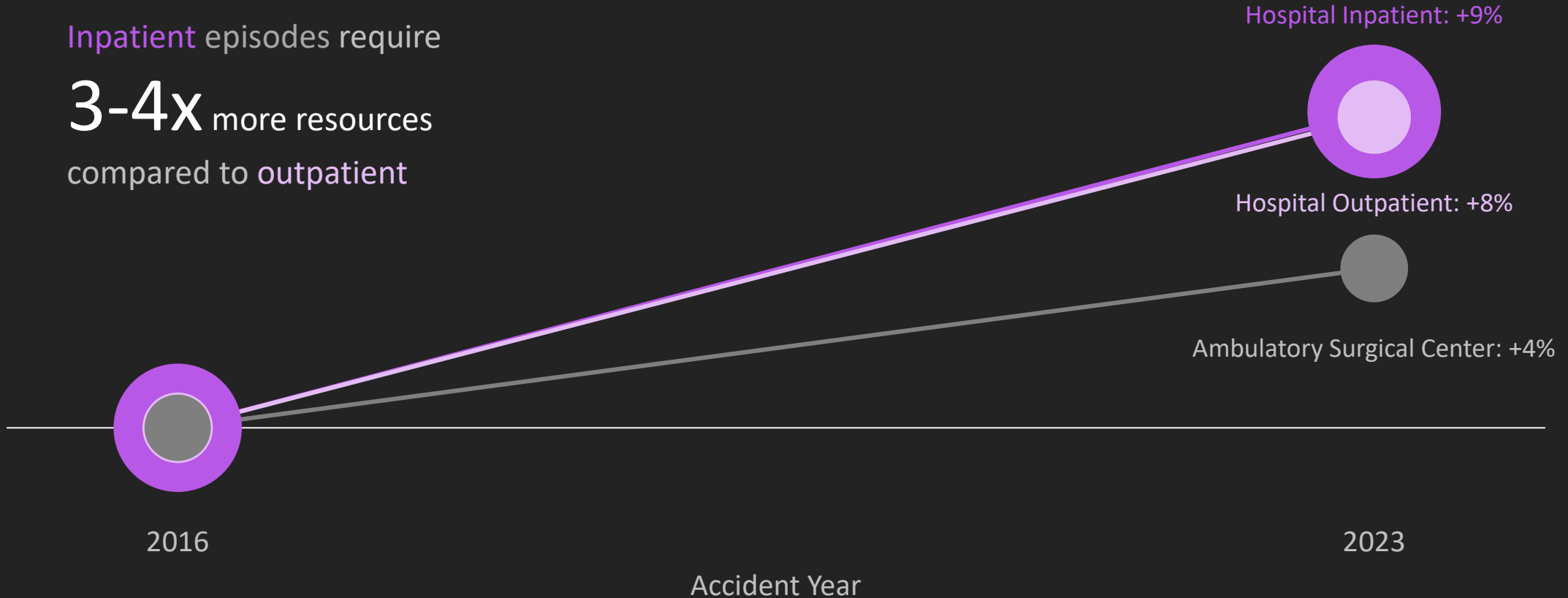


# Major Surgery Utilization per Episode Increased

By Facility Type

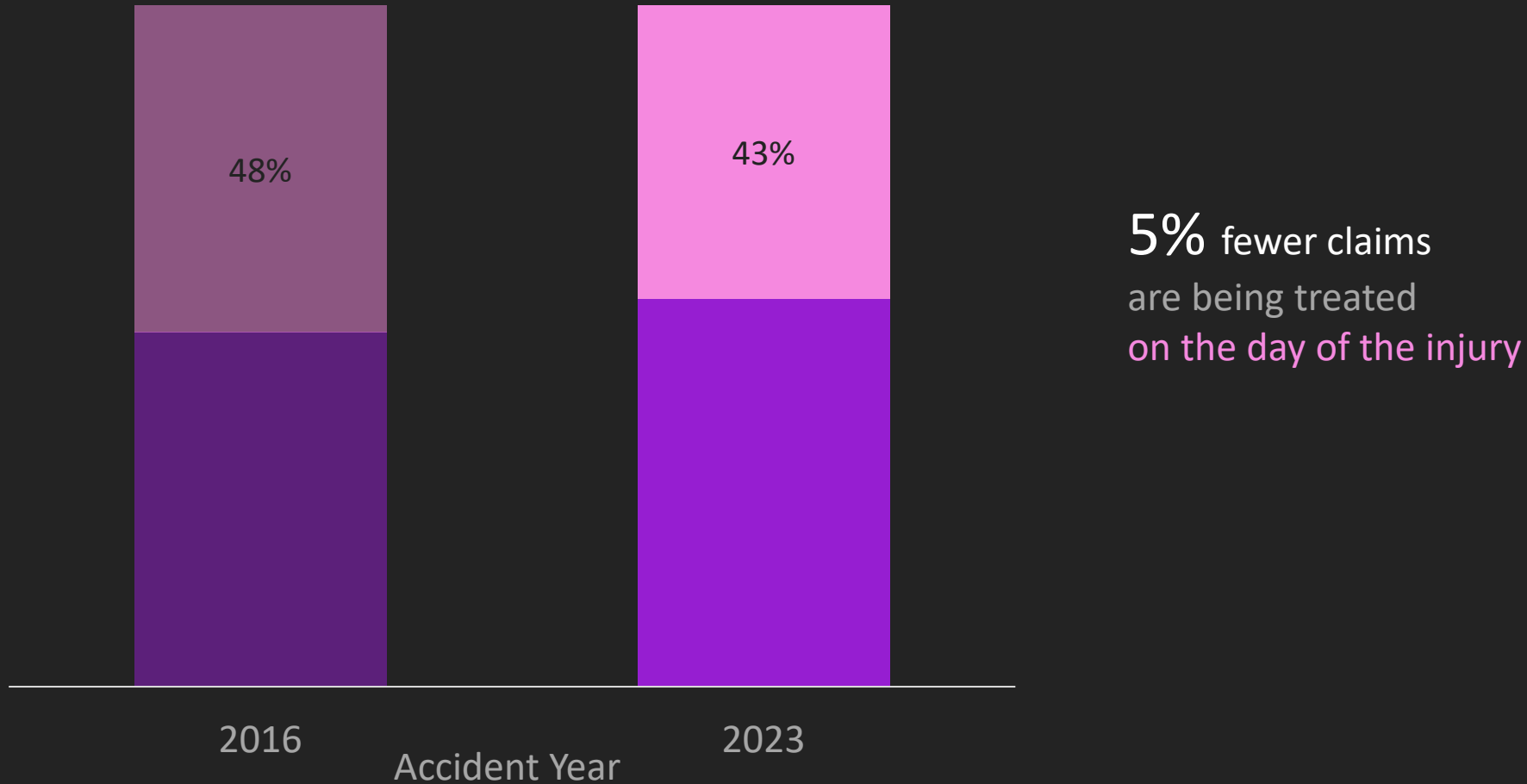
Inpatient episodes require

**3-4x** more resources  
compared to outpatient

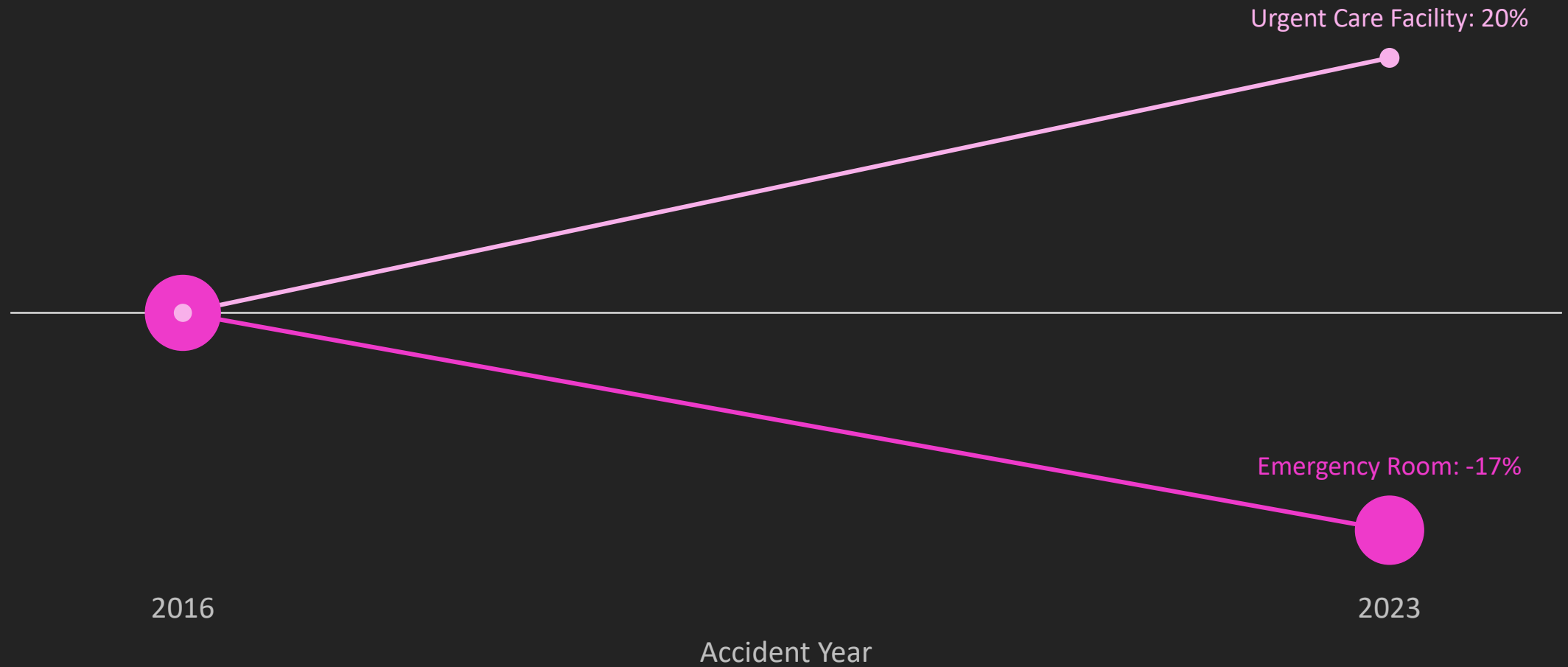


# The Timing of the Initial Treatment Has Shifted

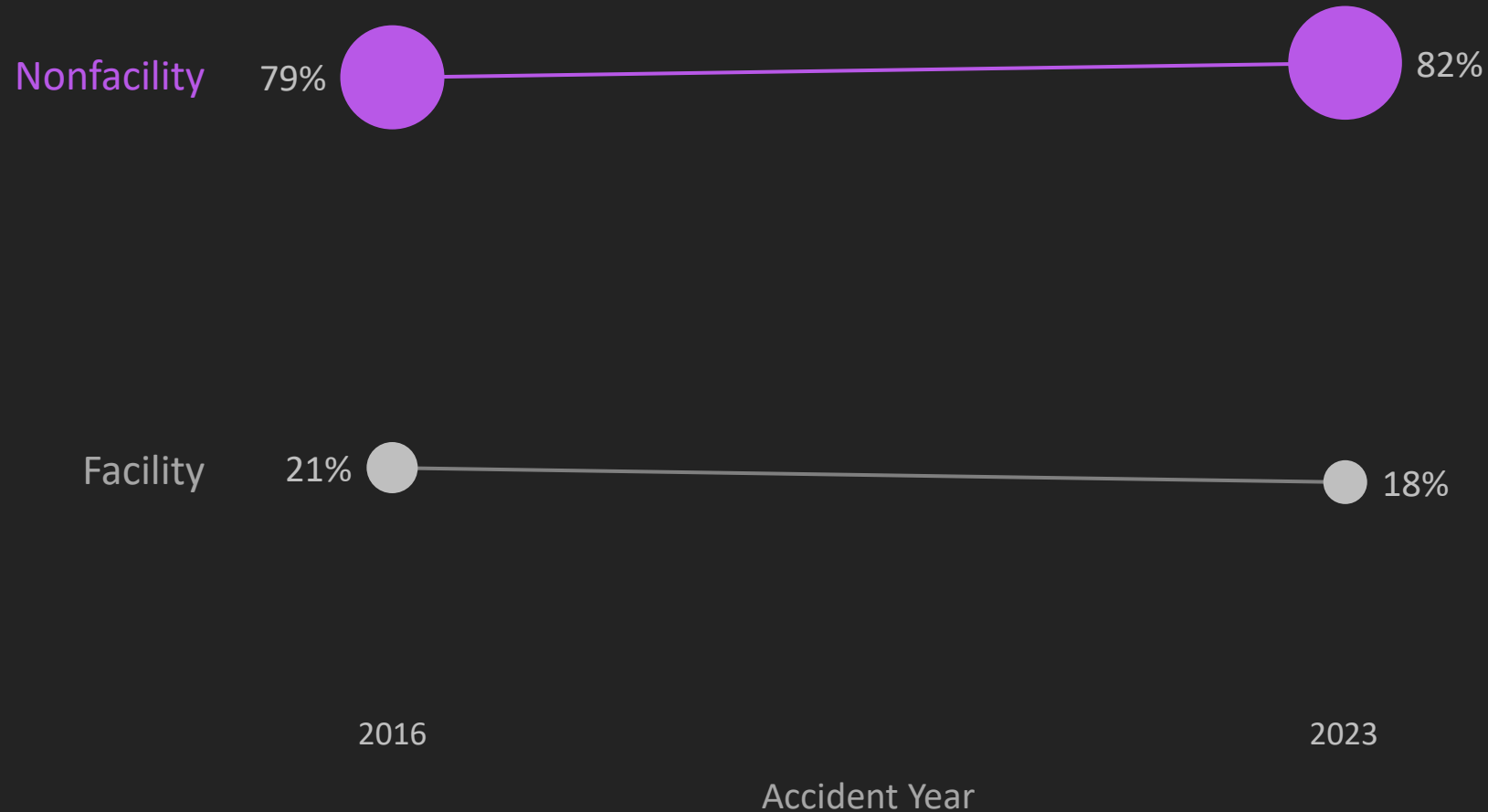
Share of Claims Treated *on the Day of the Injury* vs. *After the Injury*



# Emergency Services Are Shifting Away From Emergency Room

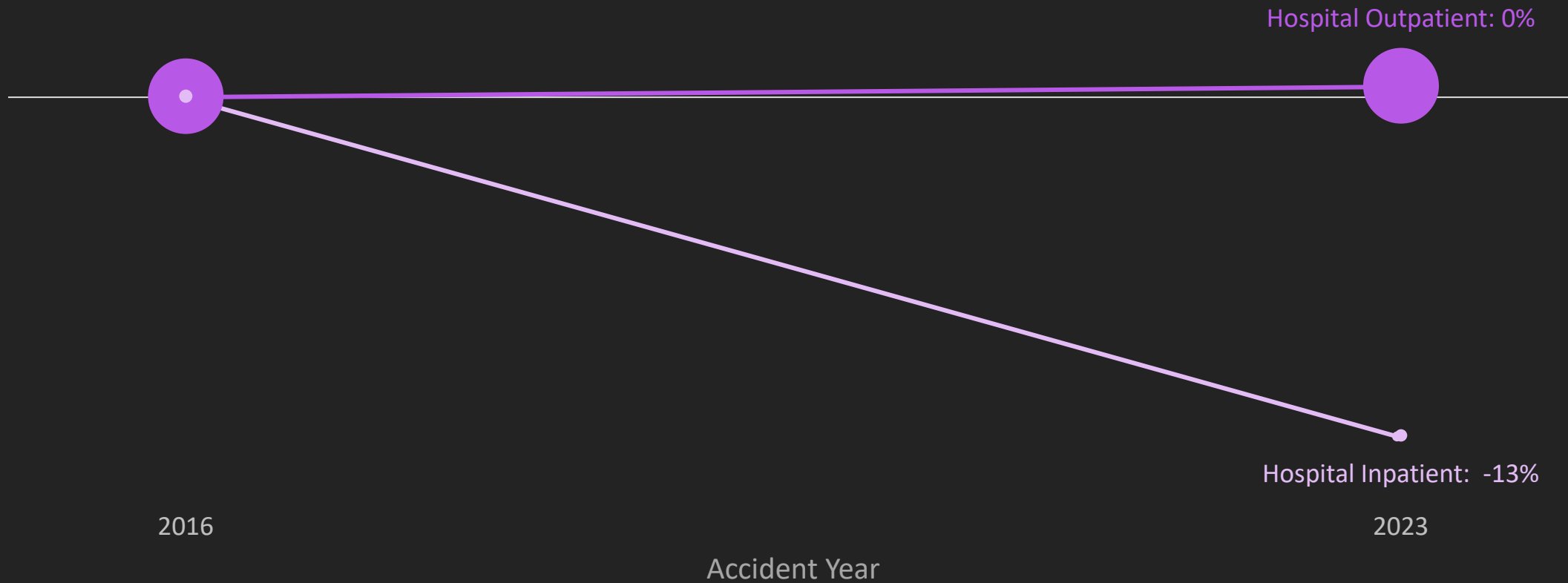


# Claims Treated After the Injury Date



Shift of **3%** in share of first being treated in a **nonfacility** setting

# The Decrease in Hospital Setting Is Greater for Inpatient



# First Visits at Nonfacility Have Lower Overall Utilization

Accident Year 2023

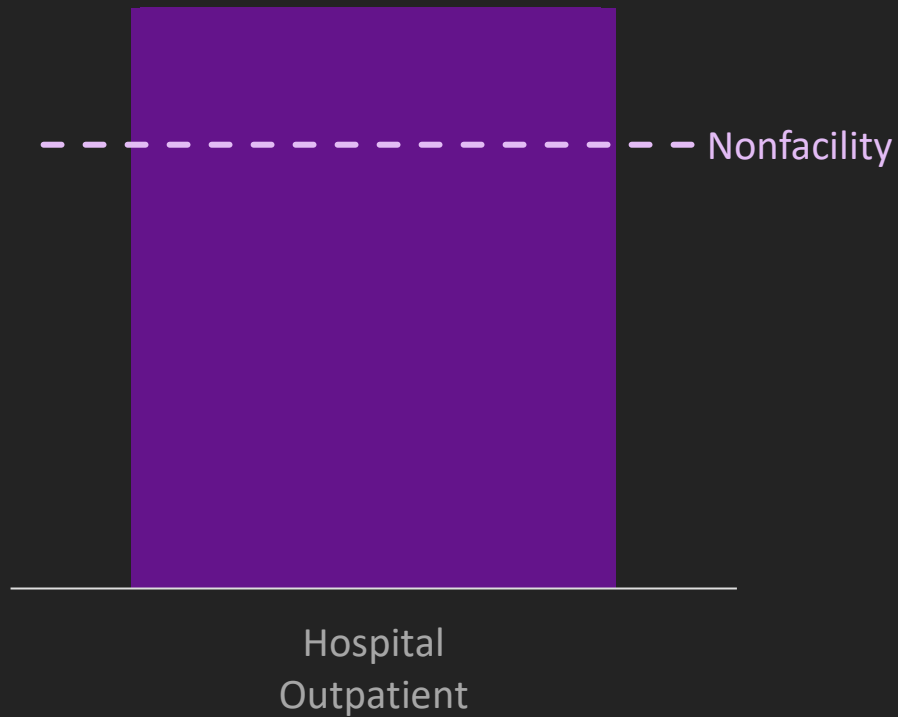
Utilization

20K

15K

10K

5K

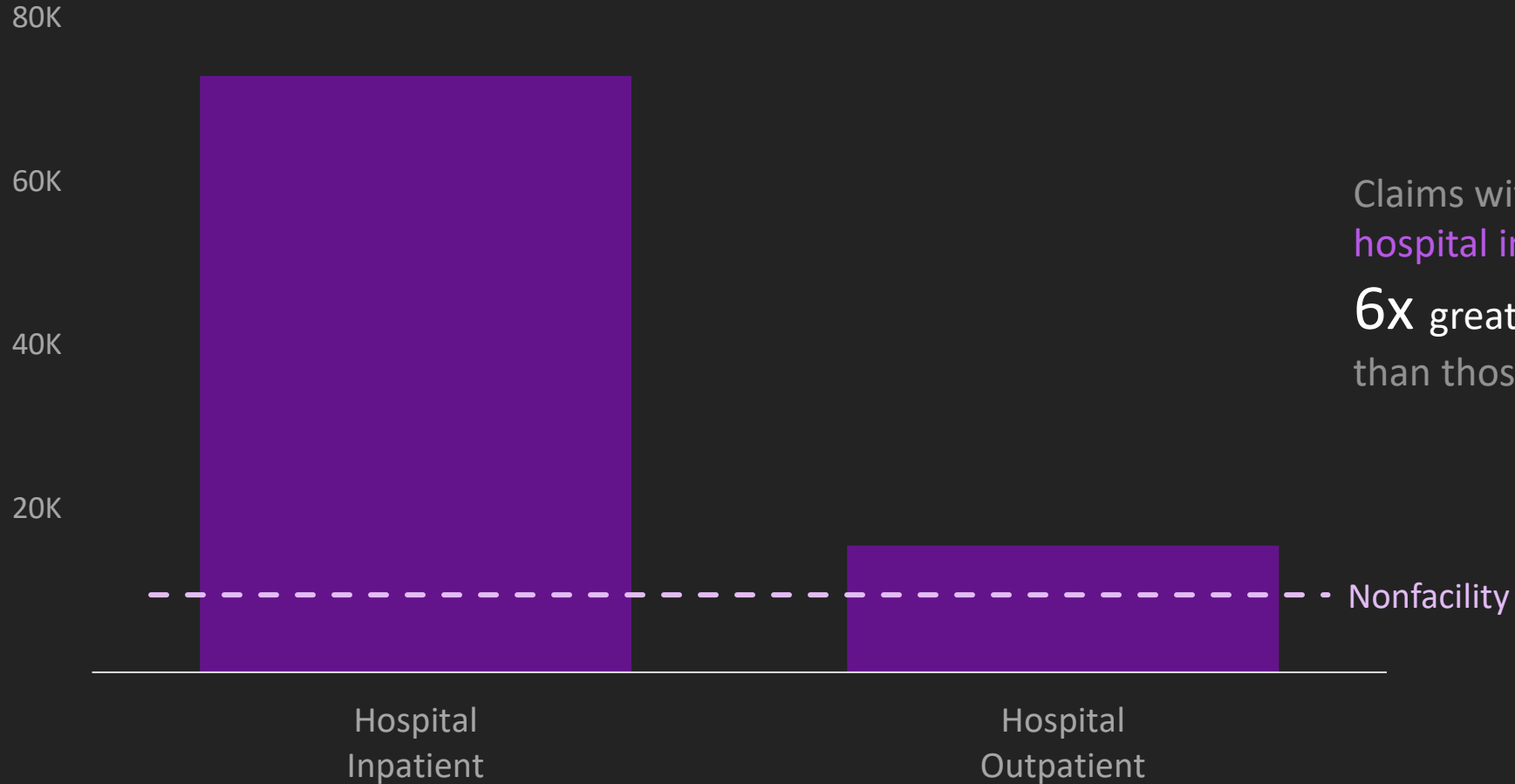


Claims with first visits at a hospital outpatient have **30%** greater utilization than those at a nonfacility

# First Visits at Nonfacility Have Lower Overall Utilization

Accident Year 2023

Utilization



Claims with first visits at a hospital inpatient have **6x** greater utilization than those at a nonfacility

# Utilization Takeaways

Where?

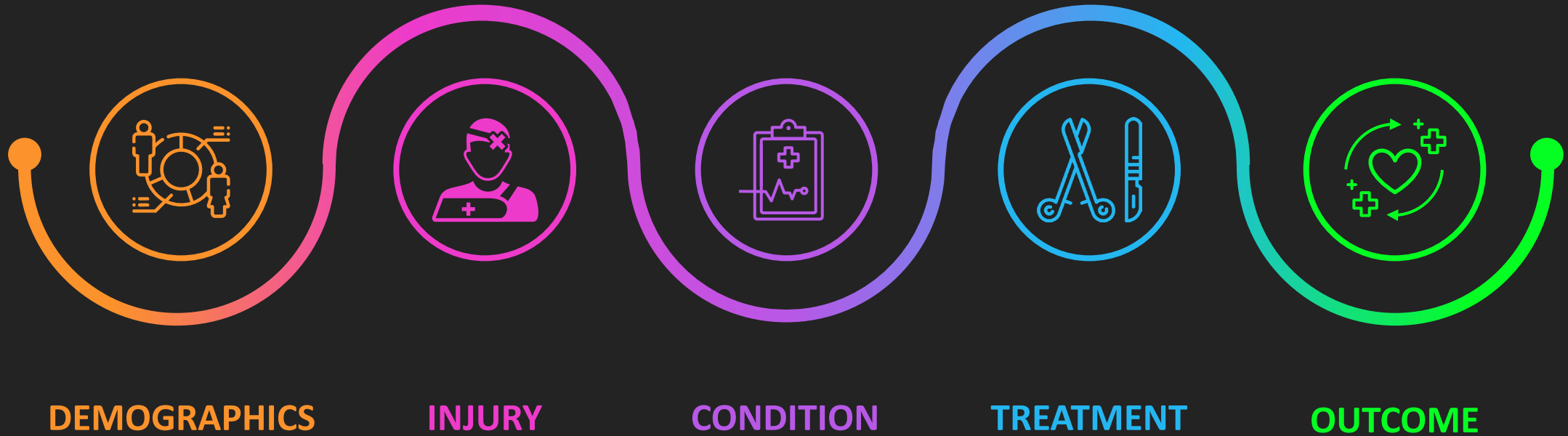
1 First treatments at **nonfacilities** correlate with lower utilization

2 **Inpatient** stays result in higher severity

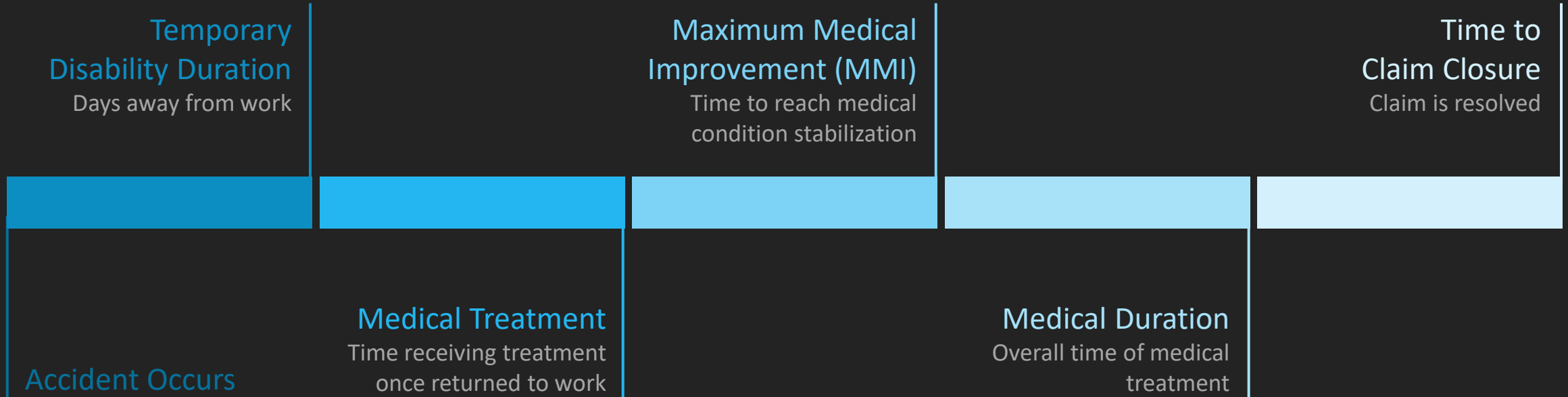
What? When? Where?

Overall **utilization** has declined due to demographic factors and treatment patterns

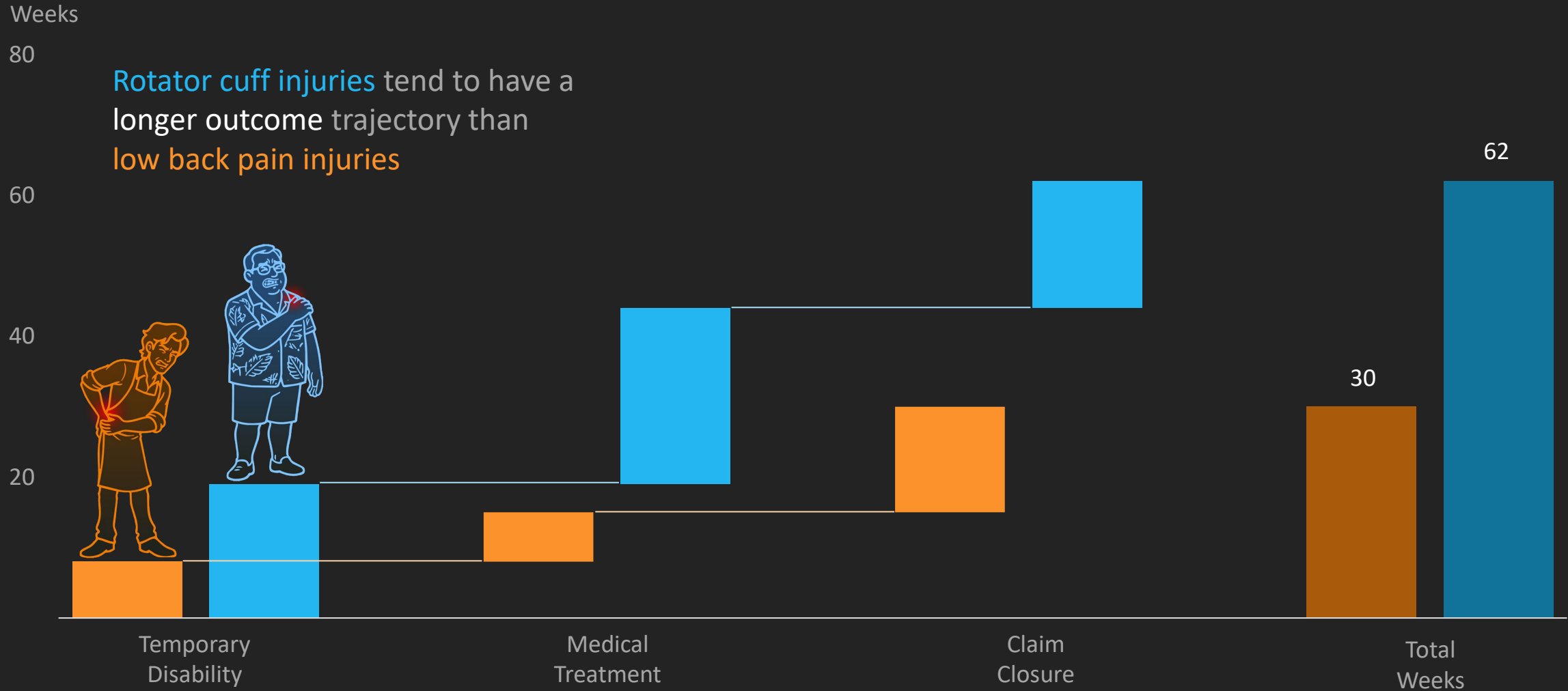
# The Life of a Claim



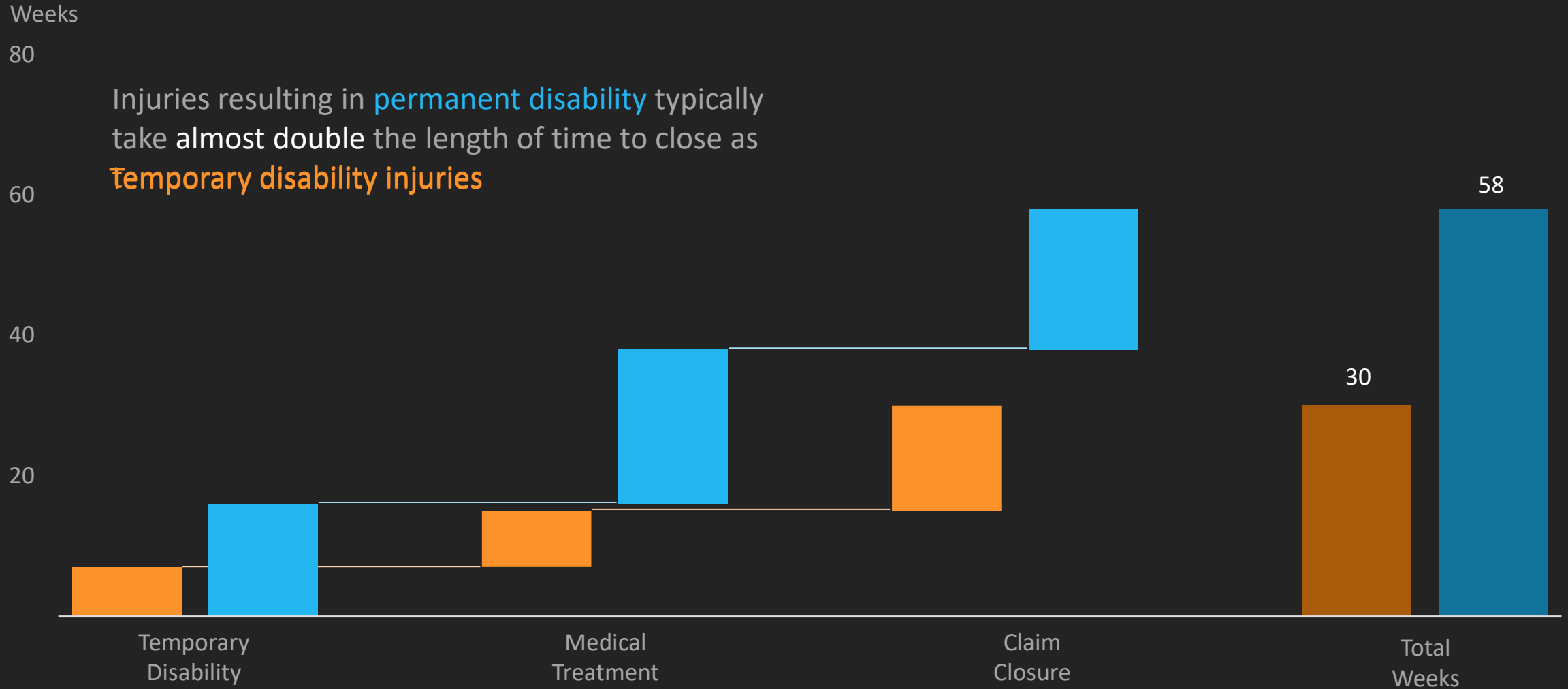
# Outcome Measures Track Claims Through Key Milestones



# The Path to Claim Resolution Varies Widely

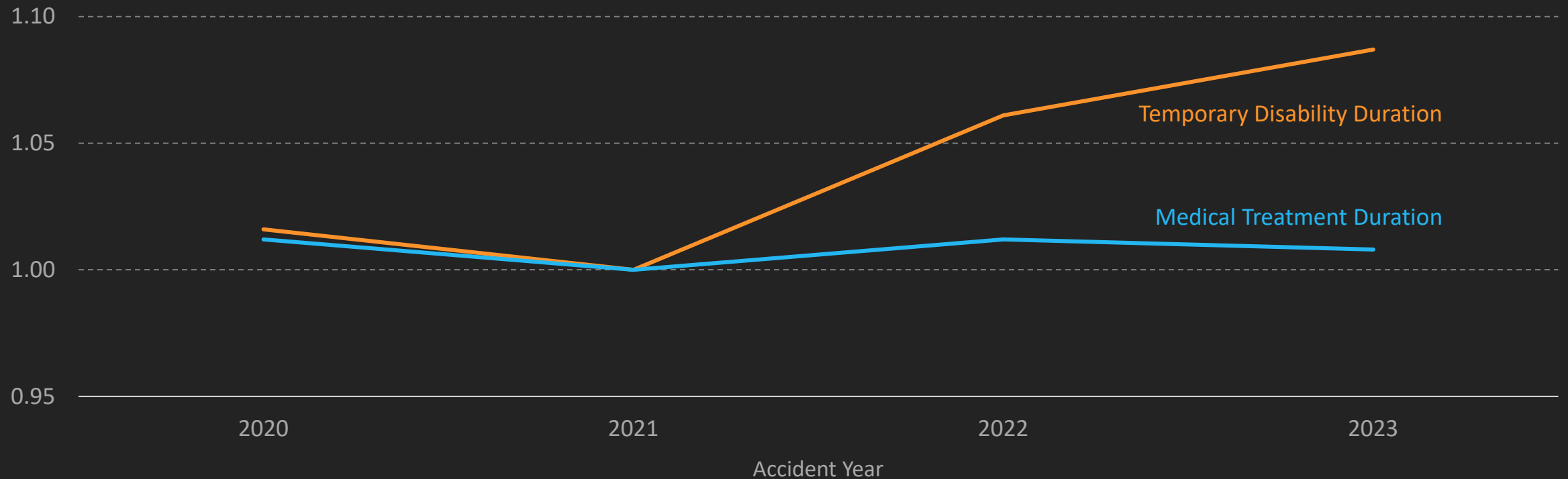


# Outcomes Vary by Type of Injury



# All-State Trends in Outcome Measures

Indexed to AY 2021—Valued as of Quarter 8



# Outcomes Vary by State

Weeks

50

40

30

20

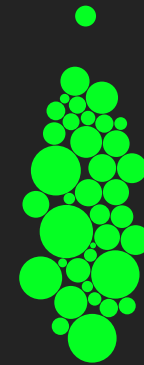
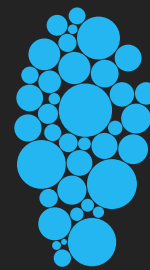
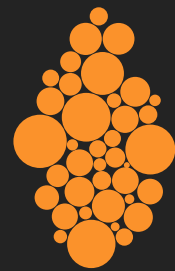
10

0

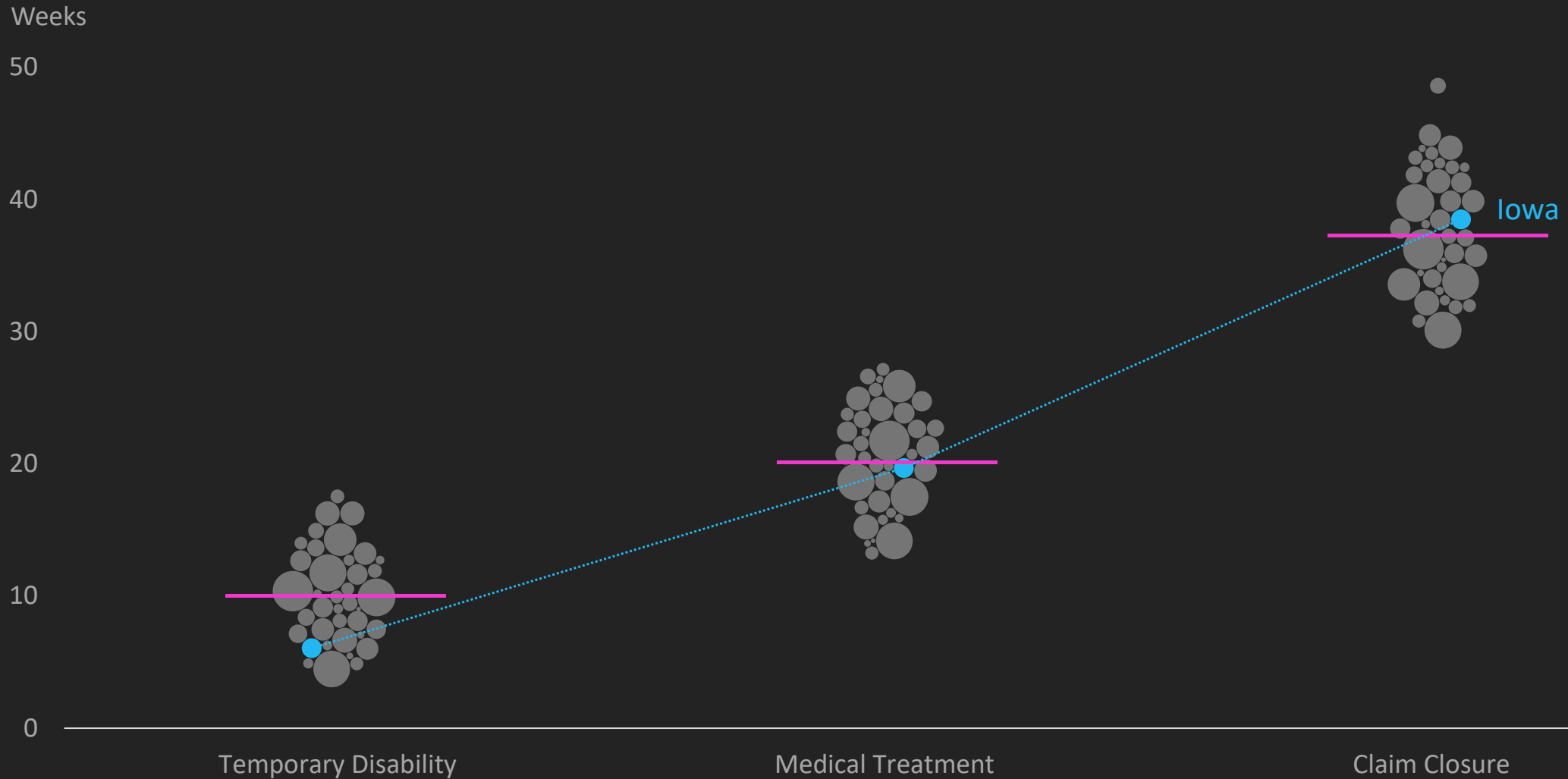
Temporary Disability

Medical Treatment

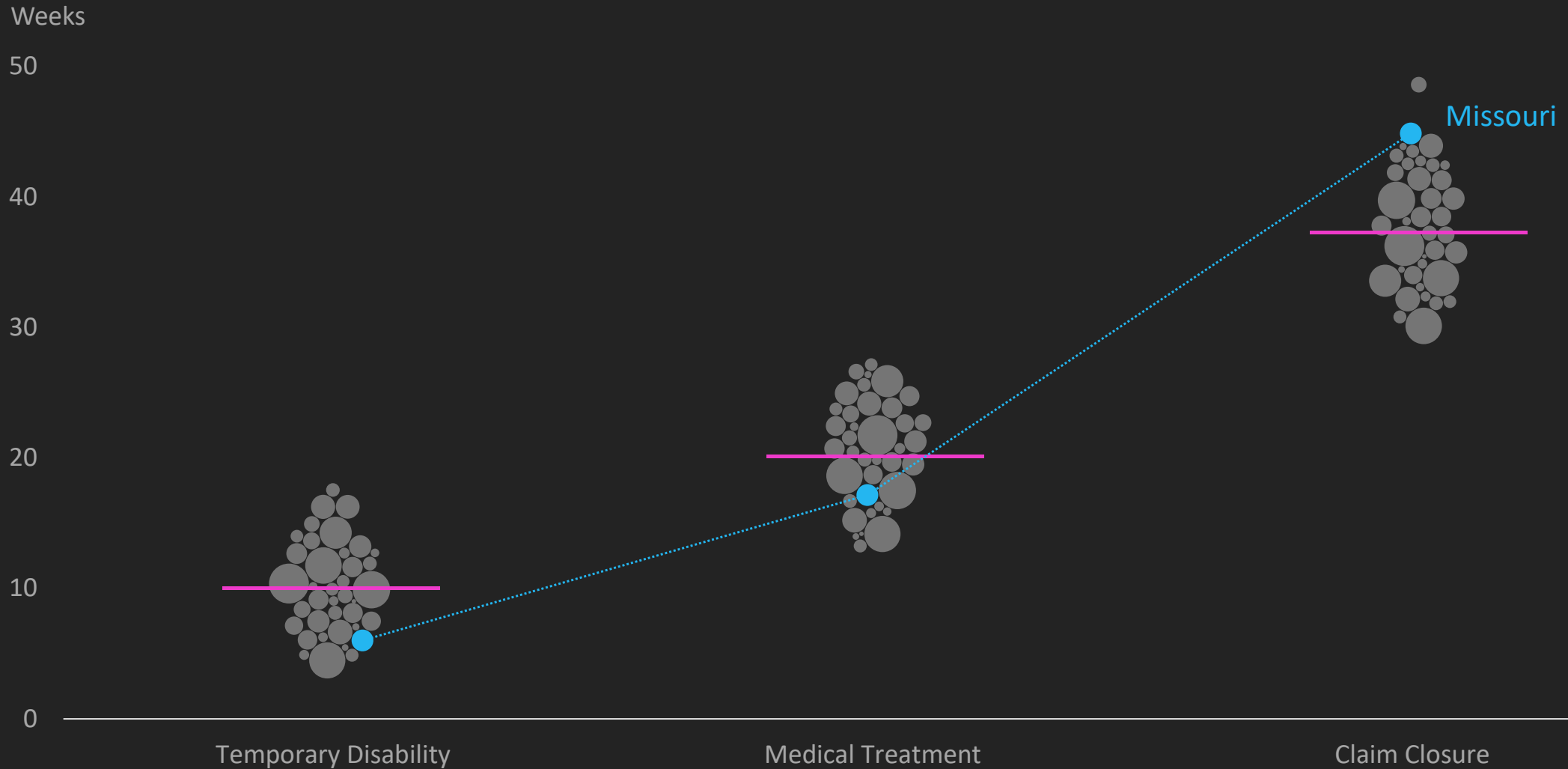
Claim Closure



# Outcomes Vary by State



# Outcomes Vary by State



# Time to Closure Varies Due to a Variety of Factors



Carrier practices

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Administrative system

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Attorney involvement

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Comorbidities

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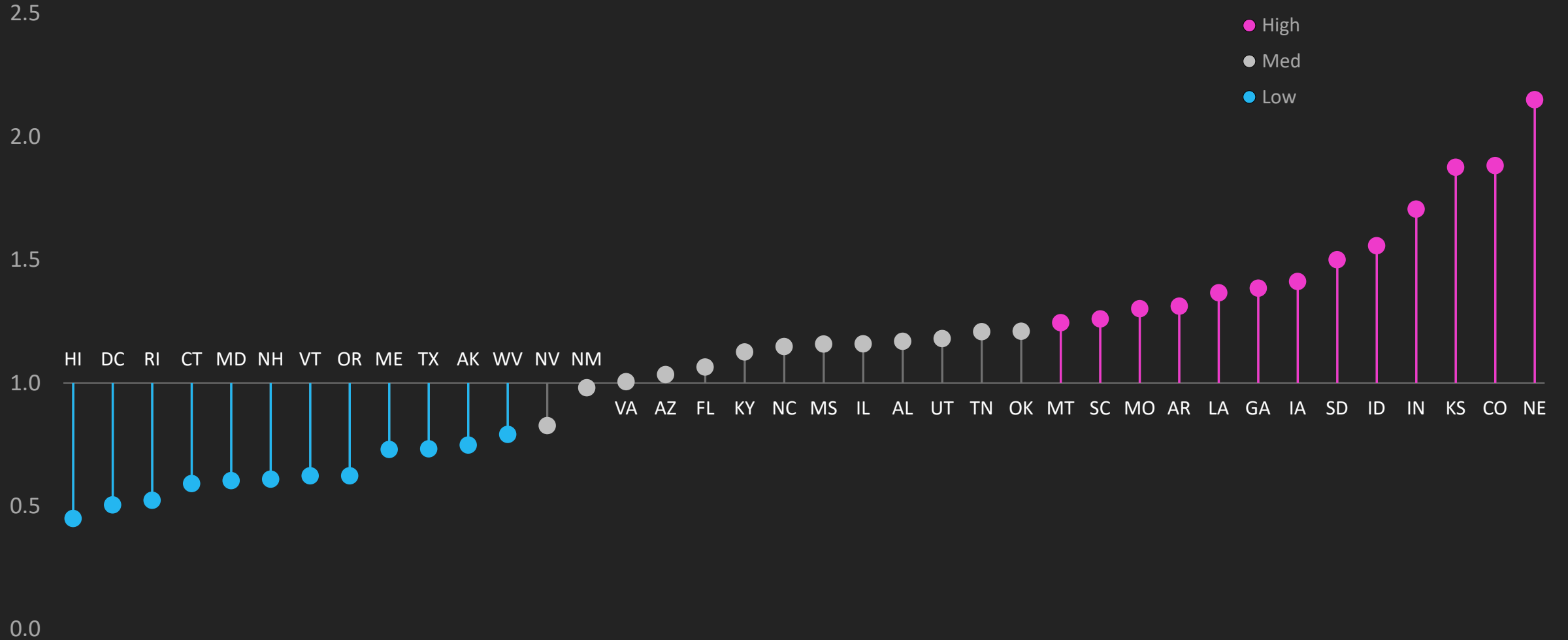


Injured worker's state of mind

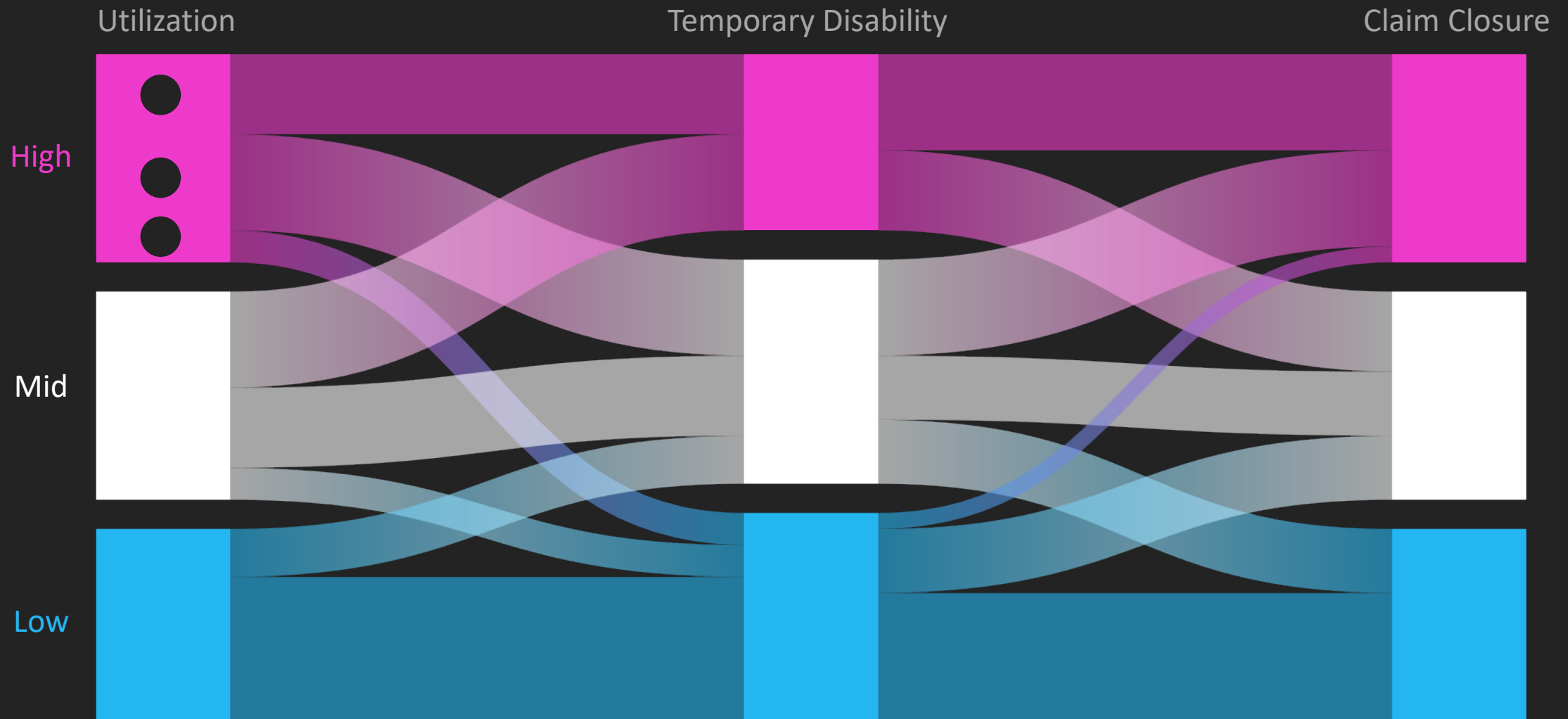
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# States Grouped by Medical Utilization per Lost-Time Claim

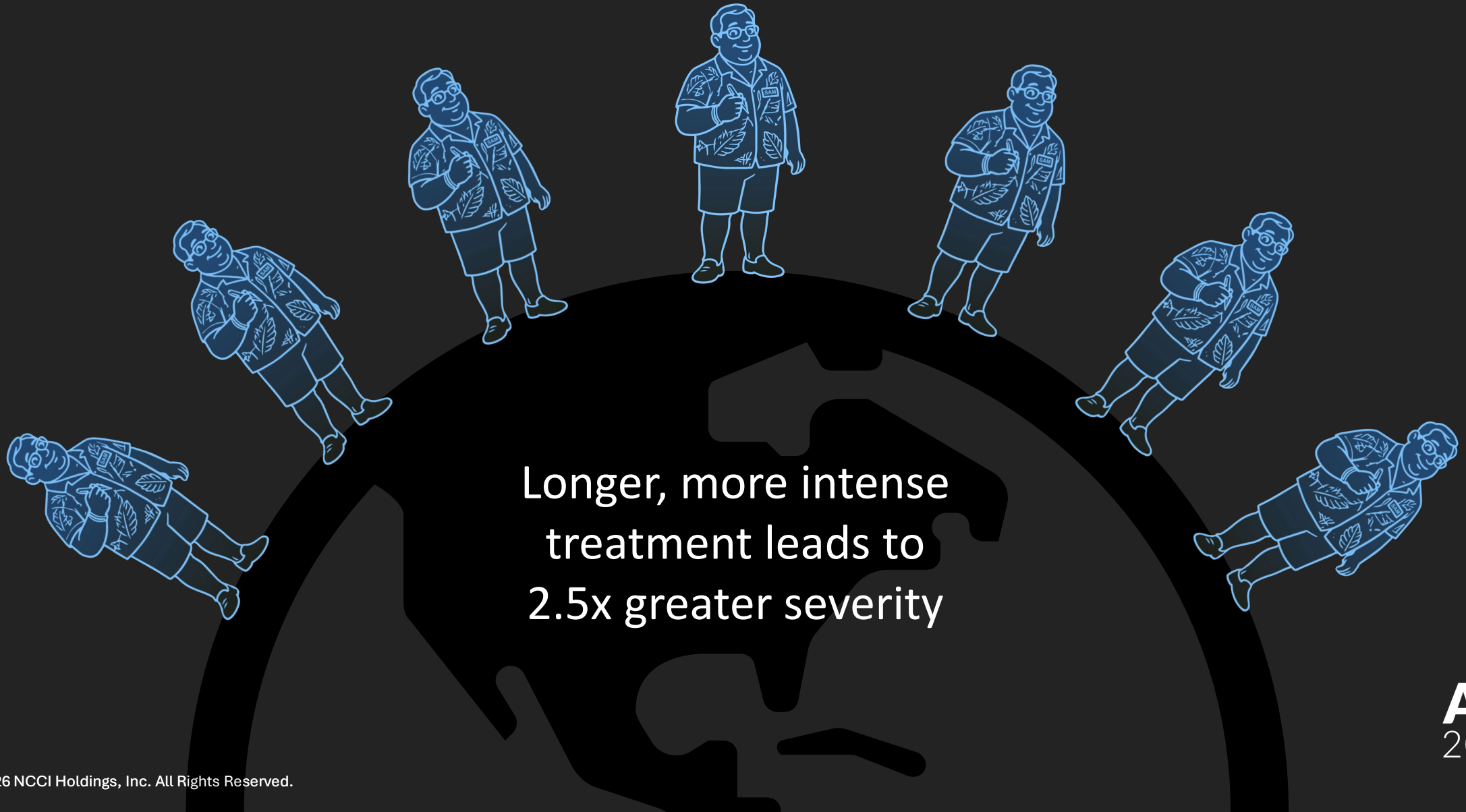
Relative Difference Between the State and All-State Median



# State Utilization Groups Are Not Maintained Across Milestones

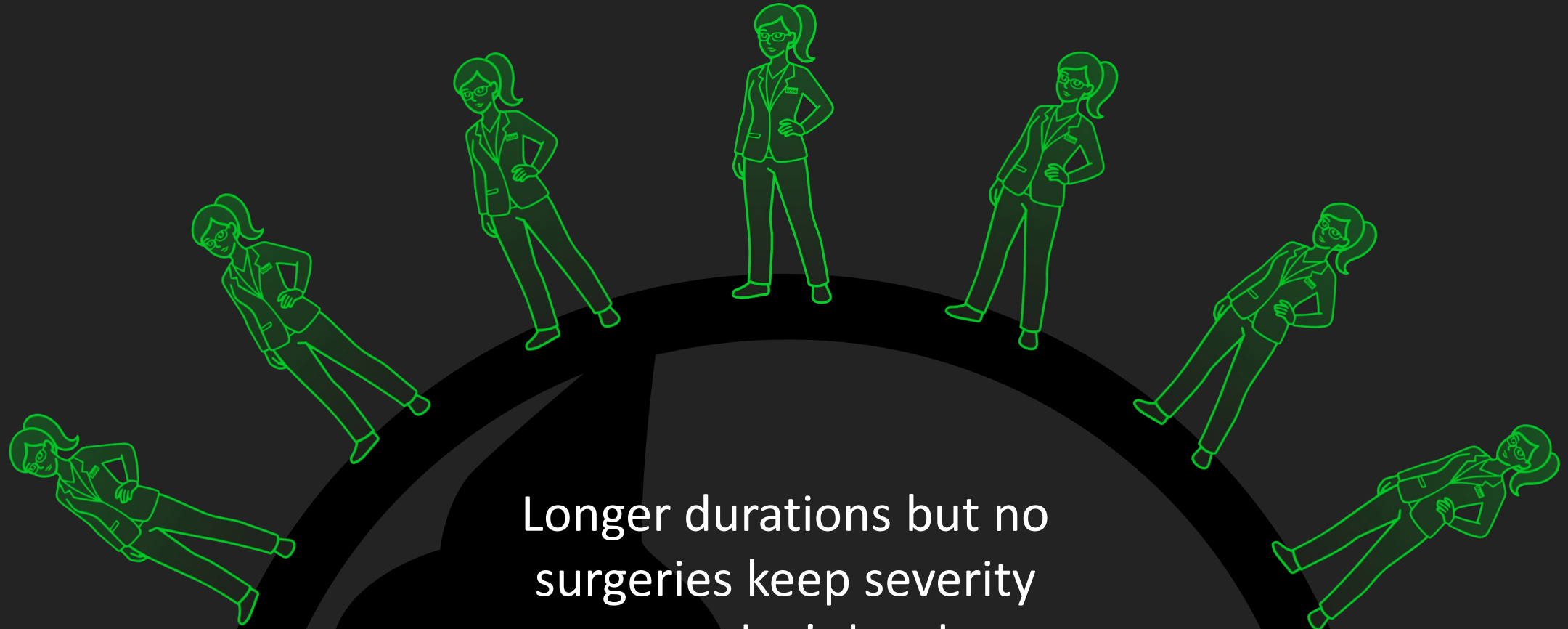


# If All Injured Workers Were ...



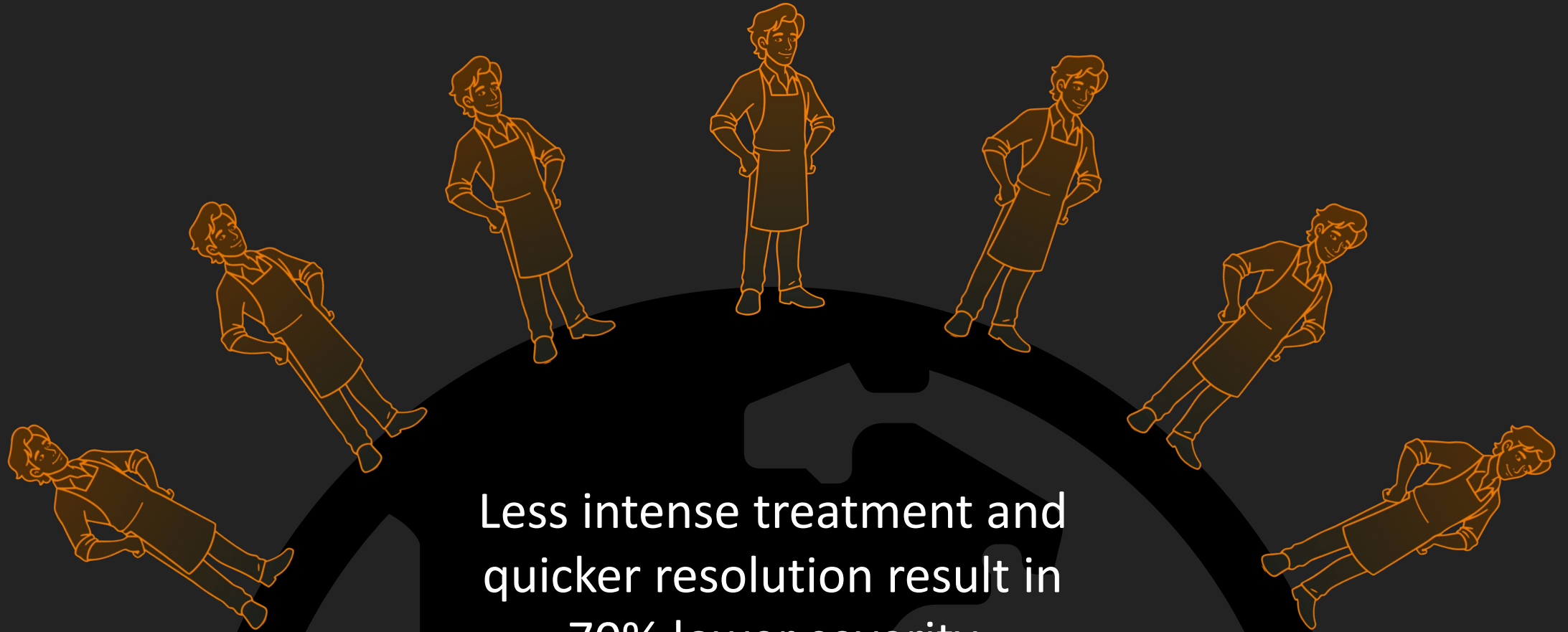
Longer, more intense  
treatment leads to  
2.5x greater severity

# If All Injured Workers Were ...

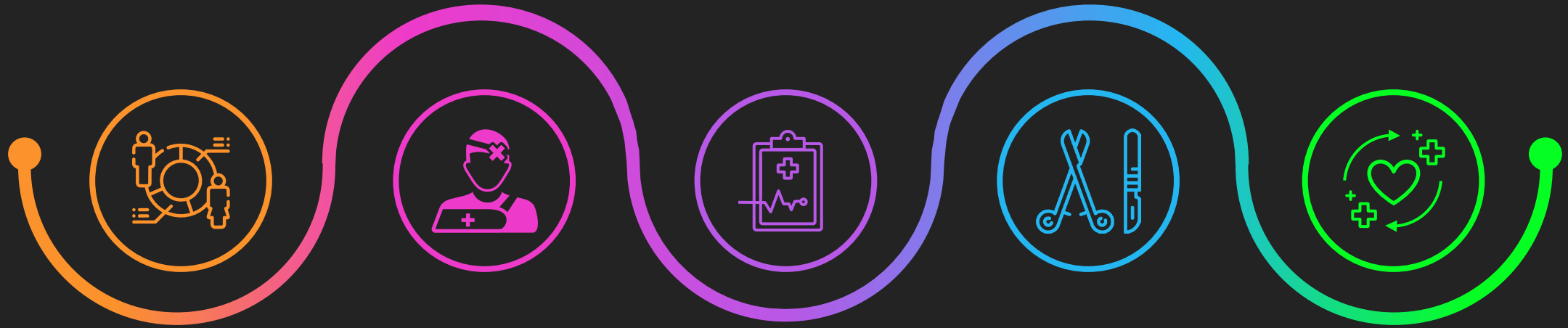


Longer durations but no surgeries keep severity at today's level

# If All Injured Workers Were ...



Less intense treatment and  
quicker resolution result in  
70% lower severity



**DEMOGRAPHICS**

**INJURY**

**CONDITION**

**TREATMENT**

**OUTCOME**

*Wage*

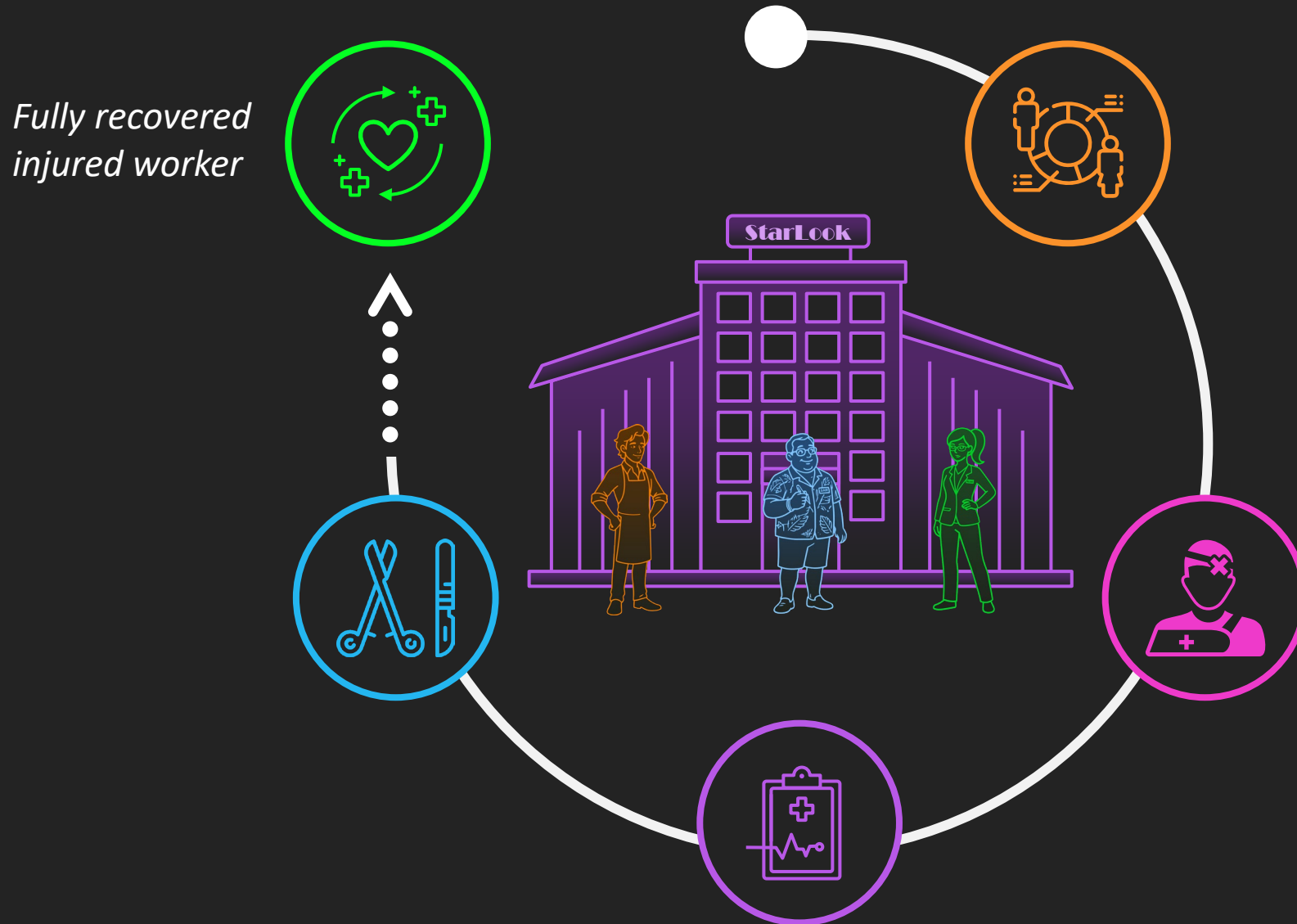
*Age*

*Comorbidities*

*Rotator Cuff*  
*Low Back Pain*

*State Systems*  
*Carrier Practices*  
*Medical Protocols*

# The Interconnected Nature of Claim Progression and Outcomes





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