

# Gen rX—The Next Generation of Medicine

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NCCI





Delivery



Treatment

**Medical Transformations**

Payment  
Mechanisms



Medical  
Technology





Delivery

# Who Is Delivering Medical Services?



## Nonphysicians

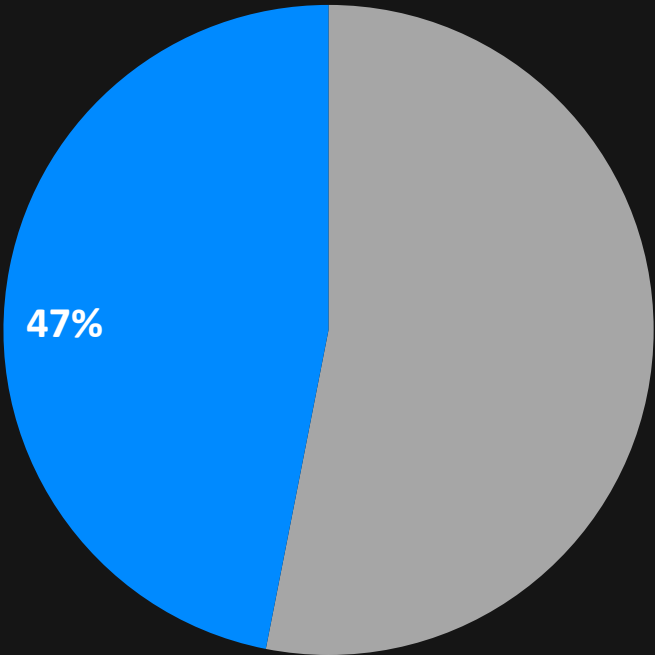
Physical Therapists

Physician Assistants

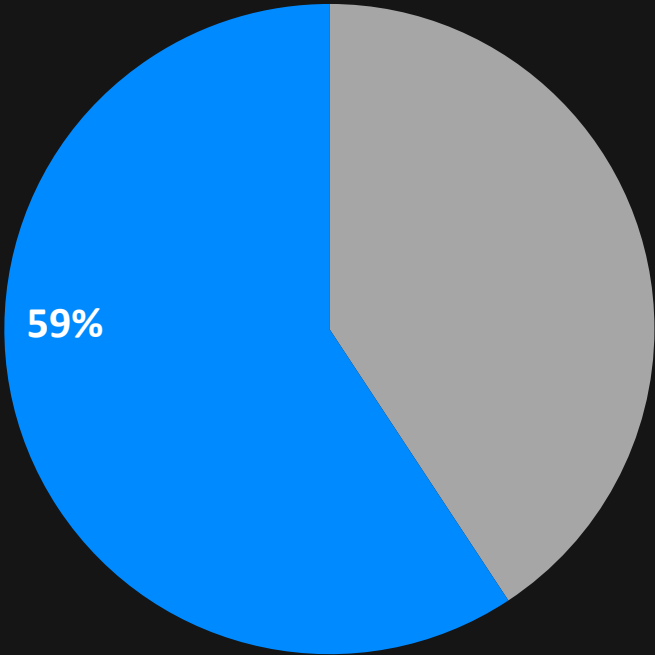
Nurse Anesthetists

# Nonphysician Share of All Professional Services

2012

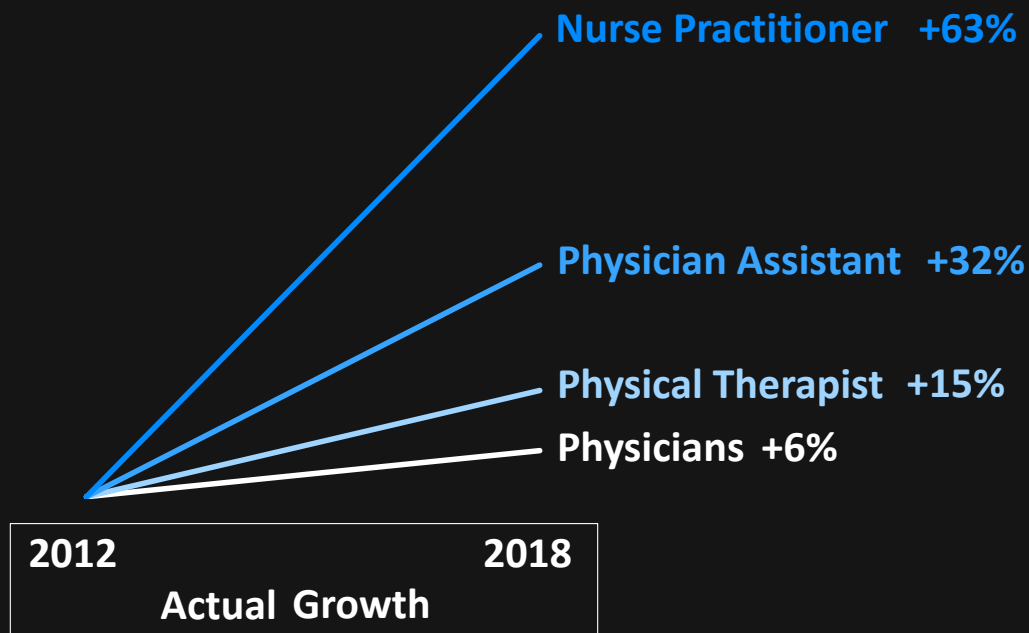


2018



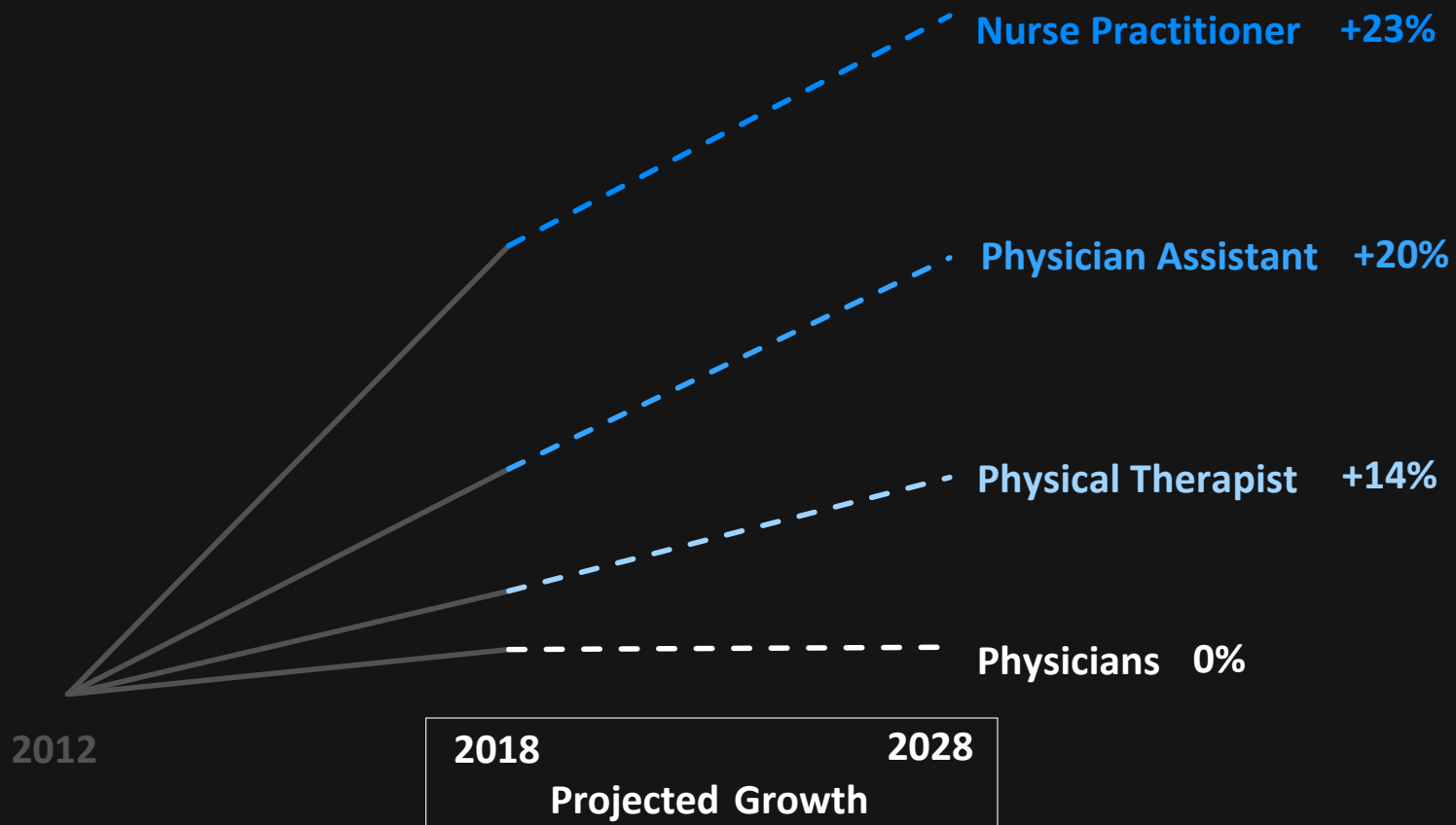
# Nonphysician Employment Is Growing Rapidly

U.S. Bureau of Labor Statistics Occupational Employment Statistics (per Capita)



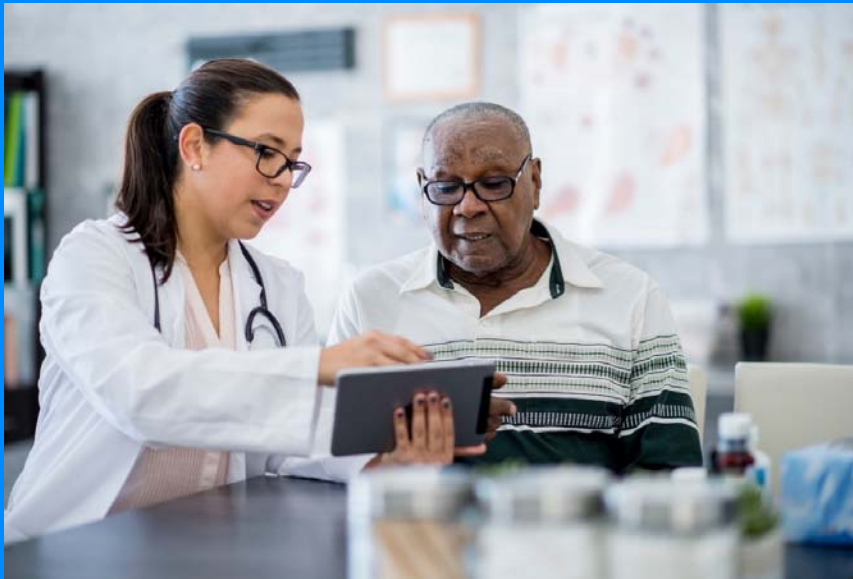
# Nonphysician Employment Is Growing Rapidly

U.S. Bureau of Labor Statistics Occupational Employment Statistics (per Capita)



# How Are Services Delivered?

## Office Setting



## Telemedicine and Remote Patient Monitoring





# Potential Cost Savings

## Telemedicine and Remote Patient Monitoring



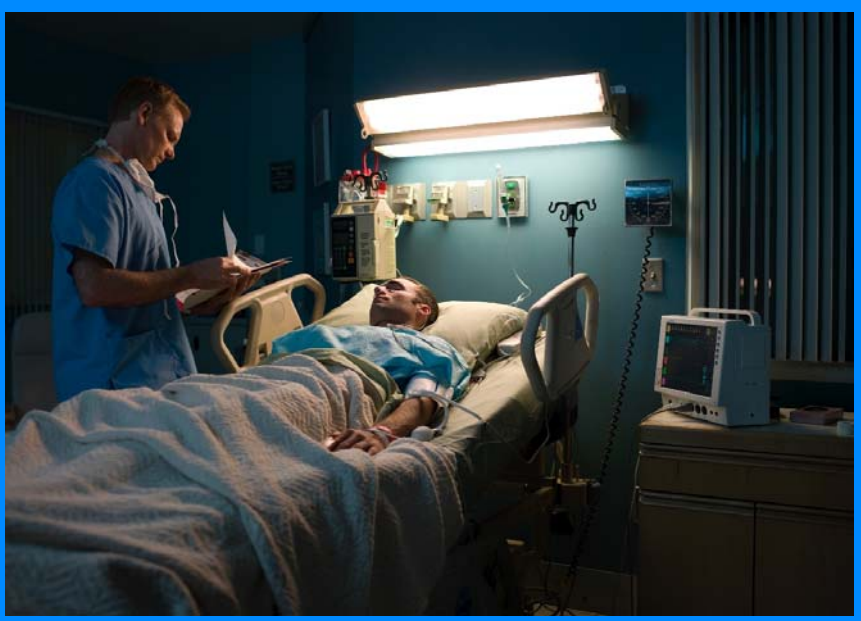
Potential **2%** to **6%** medical cost savings in WC resulting from:

Remotely triaging less serious injuries to **reduce ER visits**

Improved at-home monitoring resulting in **fewer hospital readmissions**

**Lower physical therapy costs** from sessions conducted in patients' homes

# Where Are Surgeries Performed?



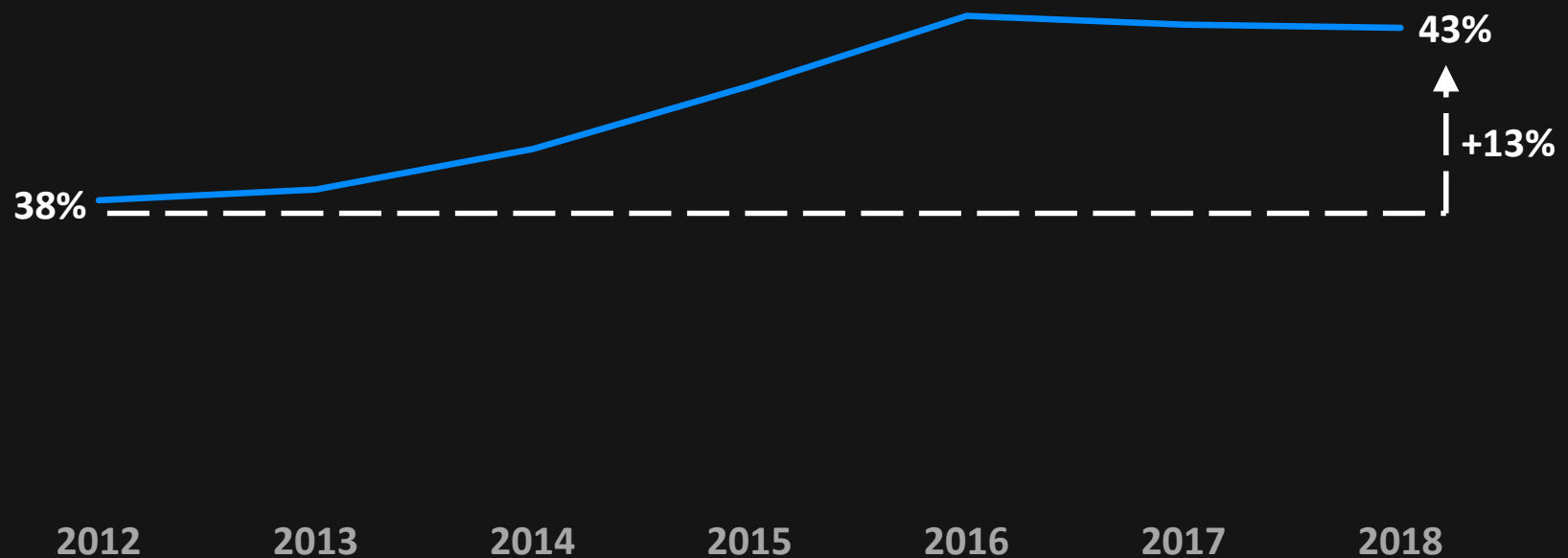
**Hospitals and Traditional  
Inpatient Facilities**



**Ambulatory Surgical Centers (ASCs)  
and Outpatient Facilities**

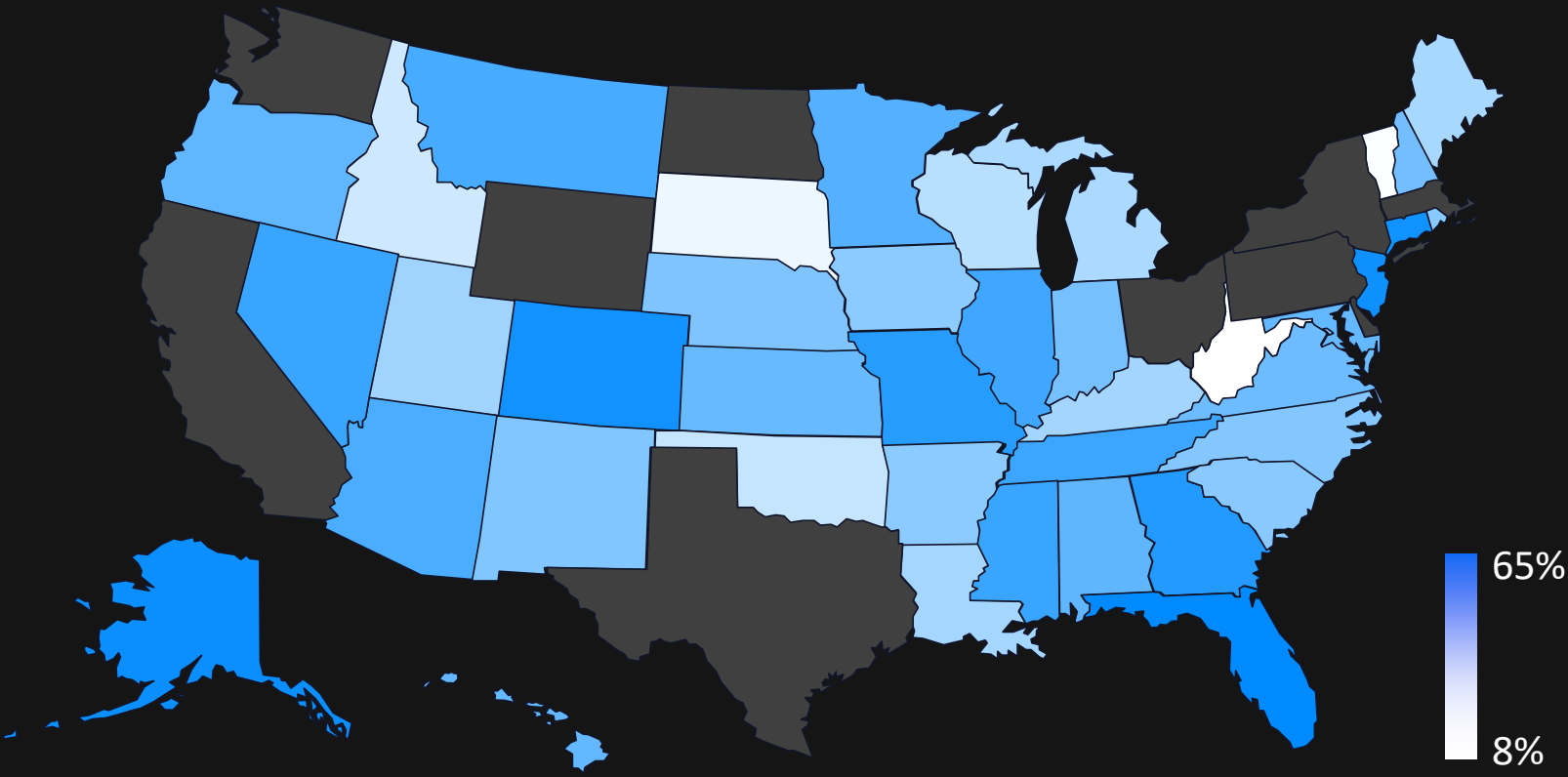
# Outpatient Surgeries Are Shifting From Hospitals to ASCs

Share of **Major Outpatient Surgeries** Performed at an ASC



# The Prevalence of ASCs Varies by State

Share of Major Outpatient Surgeries Performed at an ASC—2018

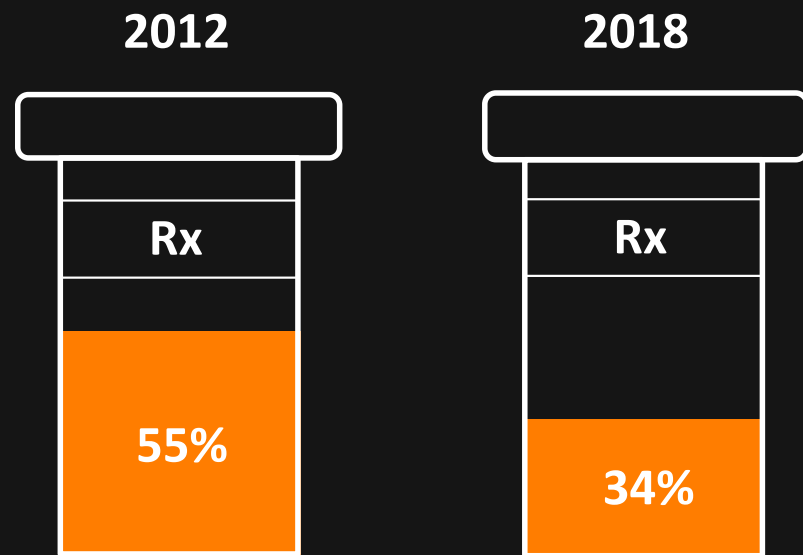




Treatment

# Overall Opioid Use Is on the Decline

Share of All Rx Claims Receiving Opioids



**38% decrease**

# Pain Lasting Longer Than Three Months Is **Chronic**

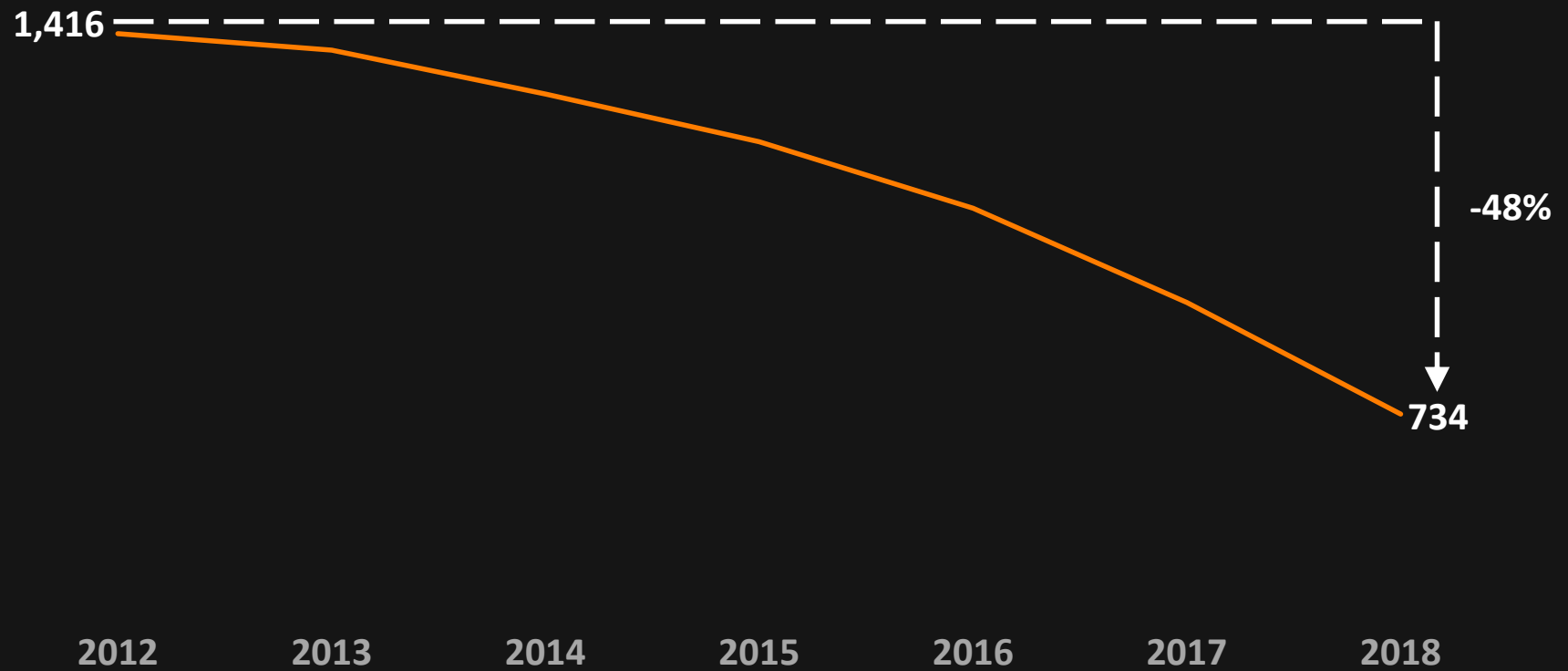
**60%** of all claims receiving medical services after 90 days are chronic pain claims

**70%** of chronic pain claims receive opioids



# Chronic Pain Claims Are Receiving Fewer Opioids

Average **Morphine Milligram Equivalents** for Claims Prescribed Opioids





# Recent Trends in Chronic Pain Treatment

## Massage



**1** out of every **105** chronic pain claims received massage services in 2018

**131% increase** since 2012

# Recent Trends in Chronic Pain Treatment

## Orthotics

**1** out of every **2** chronic pain claims received an orthotic in 2018

**26% increase** since 2012



# Recent Trends in Chronic Pain Treatment

## Physical Therapy



**23 visits** per chronic pain claim during the 1st year of injury in 2018

**15% increase** since 2012

# Recent Trends in Chronic Pain Treatment

## Mental Health

**1** out of every **42** chronic pain claims received mental health services in 2018

**20% increase** since 2012



# Recent Trends in Chronic Pain Treatment

## Platelet-Rich Plasma



**1** out of every **257** chronic pain claims received a platelet-rich plasma treatment in 2018

**518% increase** since 2012

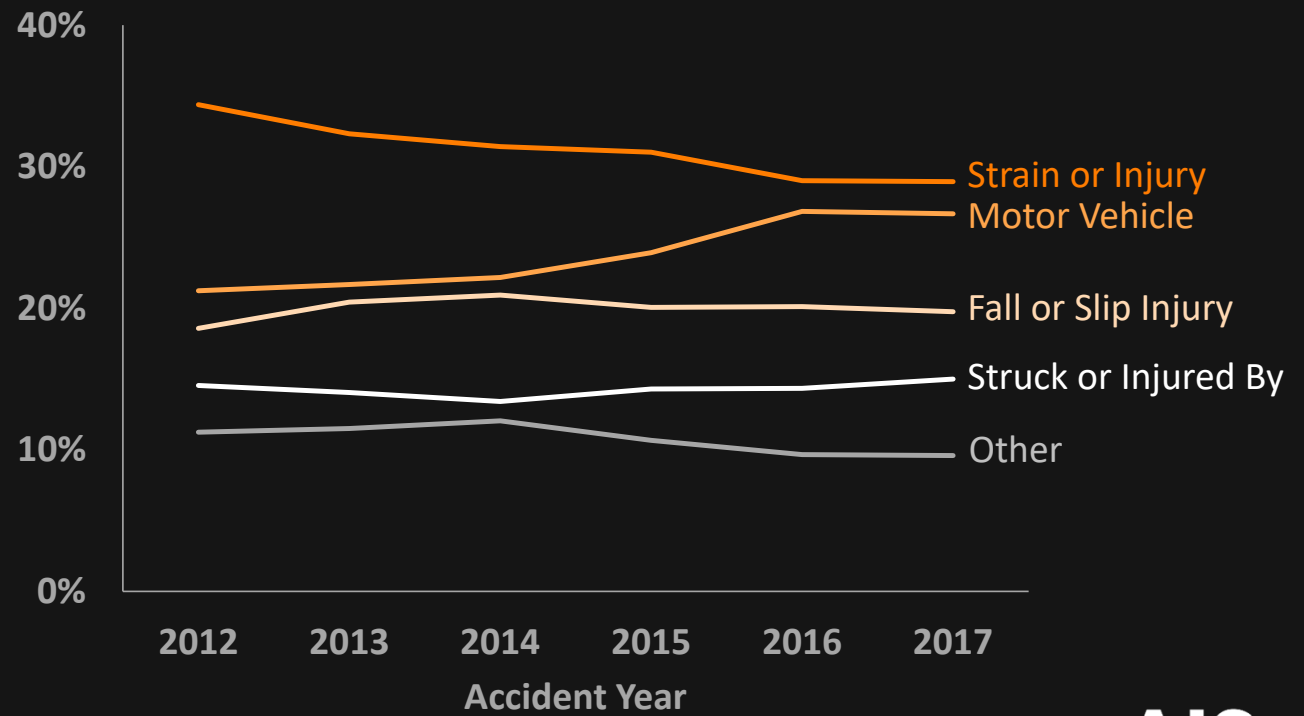
# Chronic Pain Management is Evolving



# Causes of Neck Injuries



## Share of Neck Injuries by Cause





# Neck Surgery by Medical Condition

## Neck Pain



Less than **1%** with major surgery

Cervical Disc Disorders

Cervical Spine Degeneration

Cervical Radiculopathy/Myelopathy



**24%** of active neck claims

**85%** of major neck surgeries



# Neck Surgical Alternatives

## Anterior Cervical Discectomy and **Fusion**



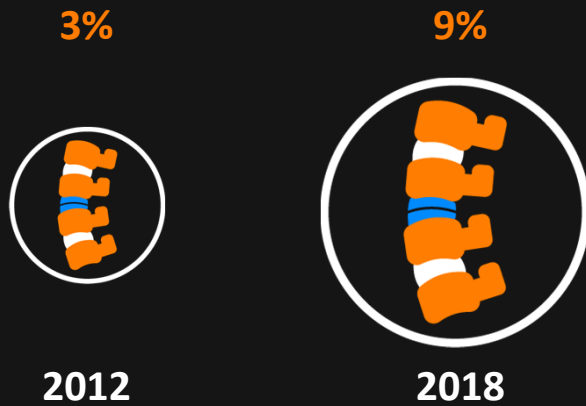
## Cervical Artificial Disc Replacement






# Disc Replacements Are Becoming More Common

Prevalence and Cost

## Share of Major Neck Surgeries



## Disc Replacement Compared to Fusion

-  **\$36K** average cost per surgical visit, **3% higher** than fusion
-  **9% lower** incurred medical
-  **19% lower** incurred indemnity

# A 2019 Health Quality Ontario Study Suggests



## Disc Replacement



**Quicker Recovery**

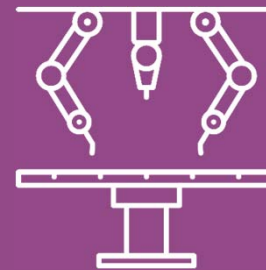


**Faster Return-to-Work**



**Lower Rate of Reoperation**

# Medical Technology



# Severe Spinal Cord Injuries Often Require Long-Term Care



Average incurred at 2nd report:

**\$3.2M Medical**  
**\$0.4M Indemnity**

→ **60% Unpaid**

**\$2M Unpaid Medical**

**Home Healthcare Services**



**\$0.8M of unpaid medical costs**

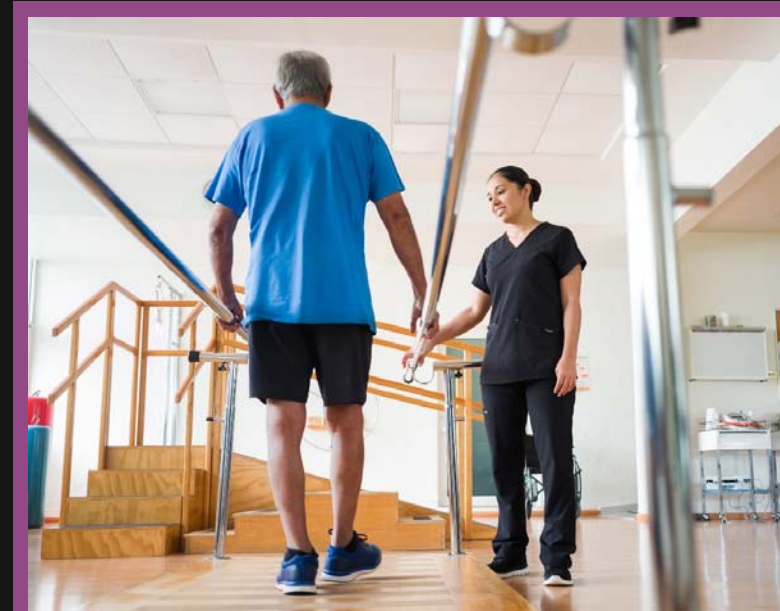
# Stem Cell Research on Spinal Cord Injuries

## Mayo Clinic Case Study

Stem cells were taken from the patient's body fat.

They were given time to multiply in a lab.

They were then injected into the patient's lumbar spine.



The patient regained his ability to walk.

# Cell Therapy in Knee Surgery

## Autologous Chondrocyte Implantation (ACI)



75% Caused by  
Strain or Slip & Fall

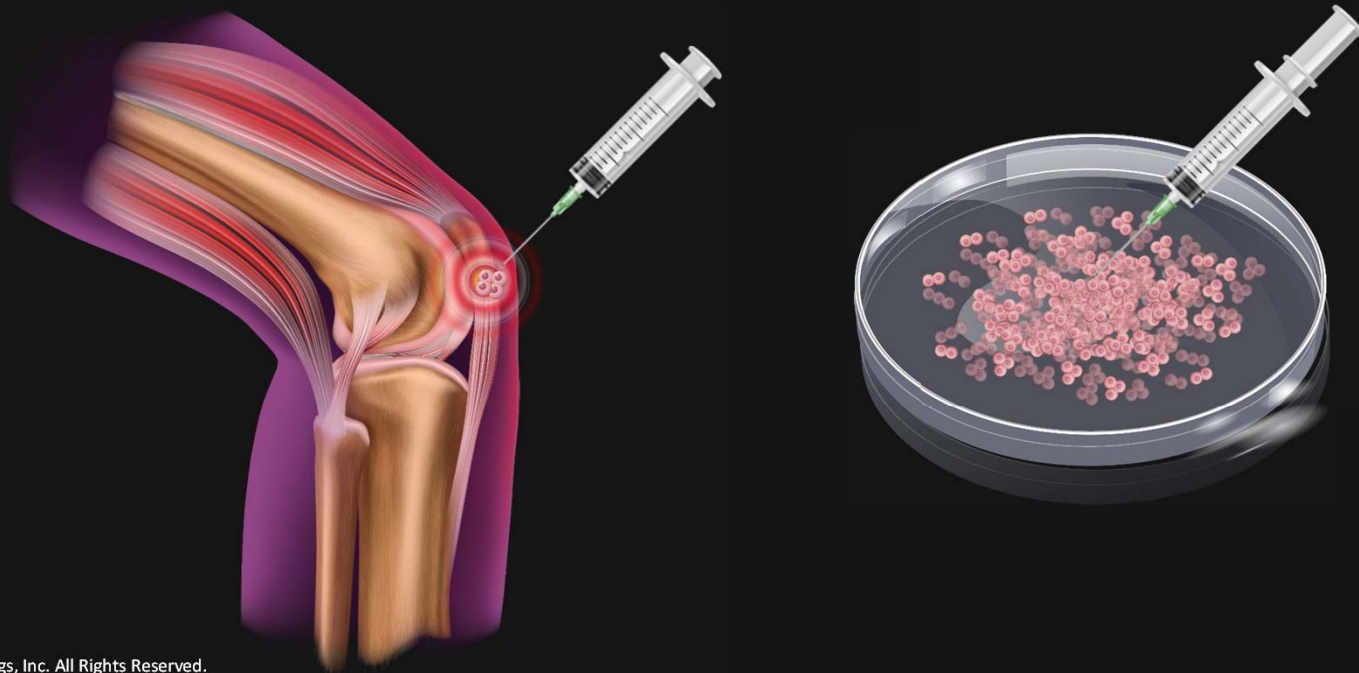
Repairs/Regrows  
Knee Cartilage



# Cell Therapy in Knee Surgery

## Autologous Chondrocyte Implantation (ACI)

Repairs/Regrows  
Knee Cartilage





## Changes in ACI Surgery

The Regenerative Medicine Advanced Therapy (RMAT) designation was created by the FDA in 2016.

### Matrix-Induced ACI (MACI<sup>®</sup>)



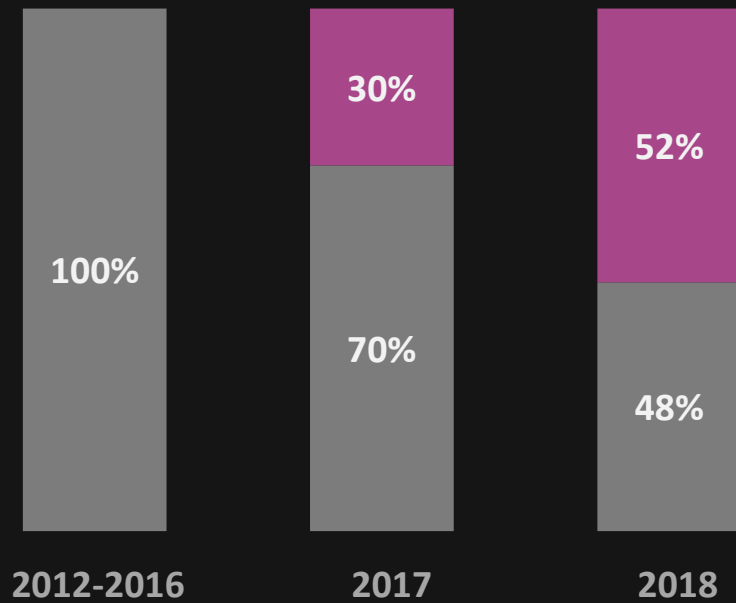
Cultured cells on a **collagen membrane**

Average price **\$42k**

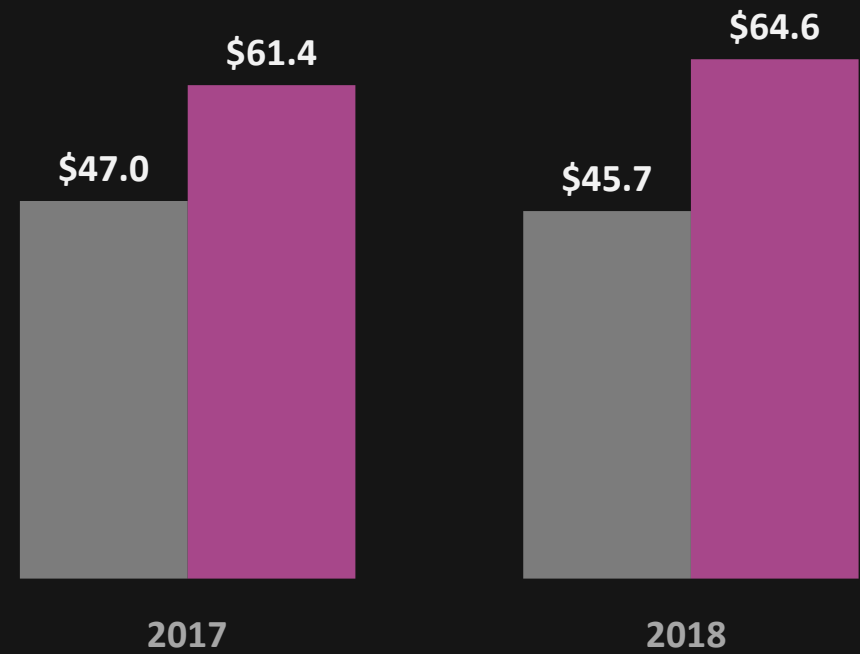
# ACI Visits

With MACI<sup>®</sup> vs. Without MACI<sup>®</sup>

## Distribution of Visits



## Paid per Visit (\$000s)



# Robotic Surgical Assistance



A type of **minimally invasive** surgery

Can use **multiple robotic “arms”** including a camera arm

**Minimizes size** of operating appendage at the surgery site

# Pros and Cons

## Pros



Greater Reach  
and Precision



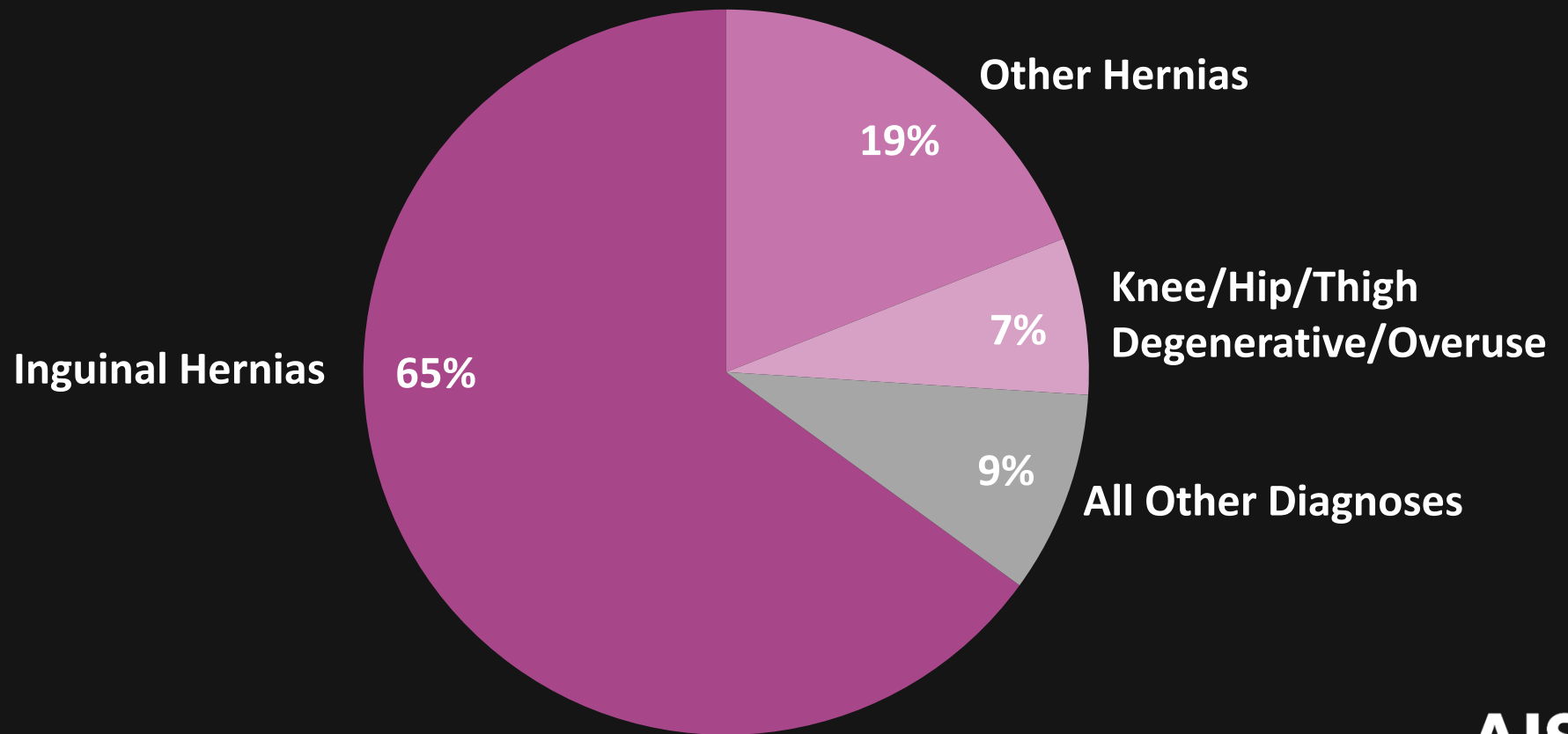
Reduces Surgeon  
Fatigue

## Cons



Expensive

# How Is Robotic Assistance Being Used in WC Surgeries?



# Inguinal Hernia Injuries Requiring Surgery



90% caused by strain



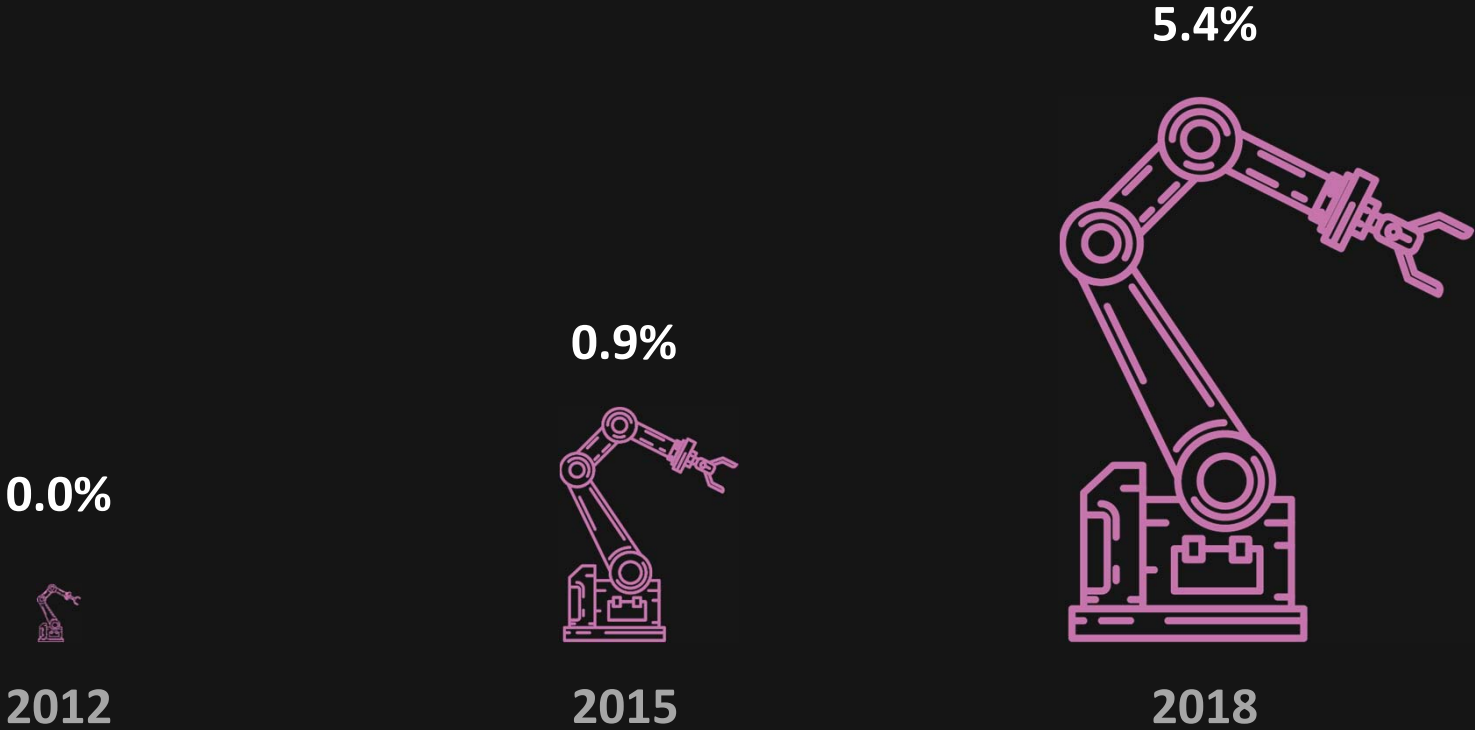
Outpatient Surgery Rankings:

4th Most Paid

13th Most Frequent

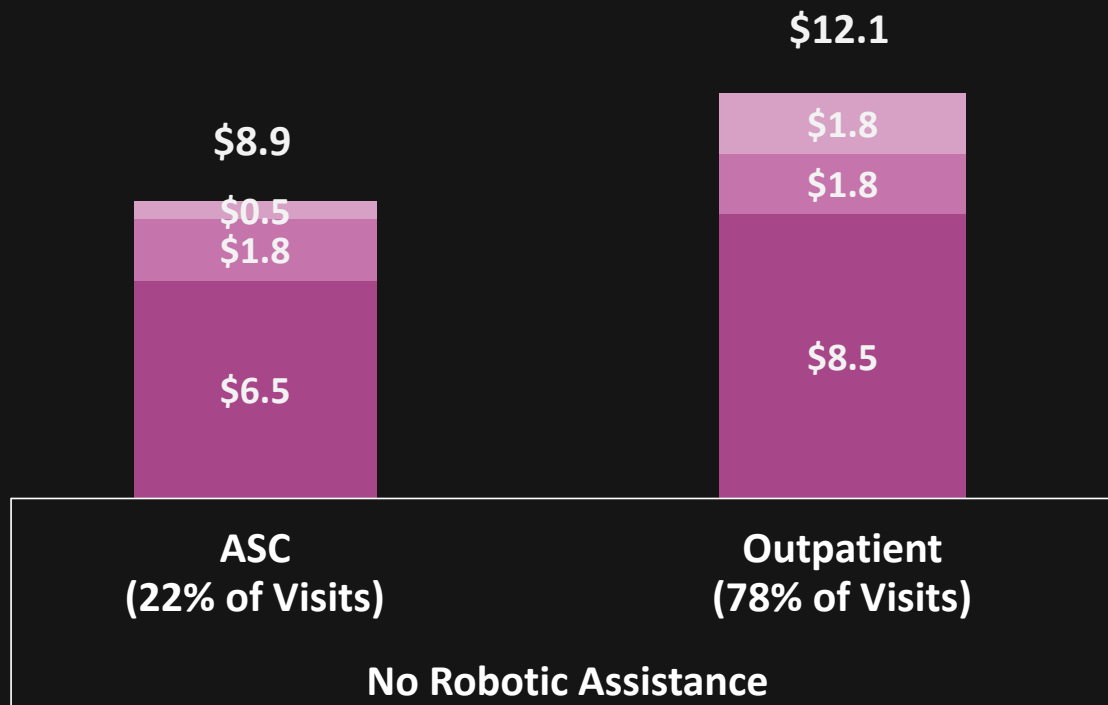
# Share of Inguinal Hernia Surgery Visits

Using **Robotic Assistance**



# Hernia Surgery Paid Per Visit (\$000)

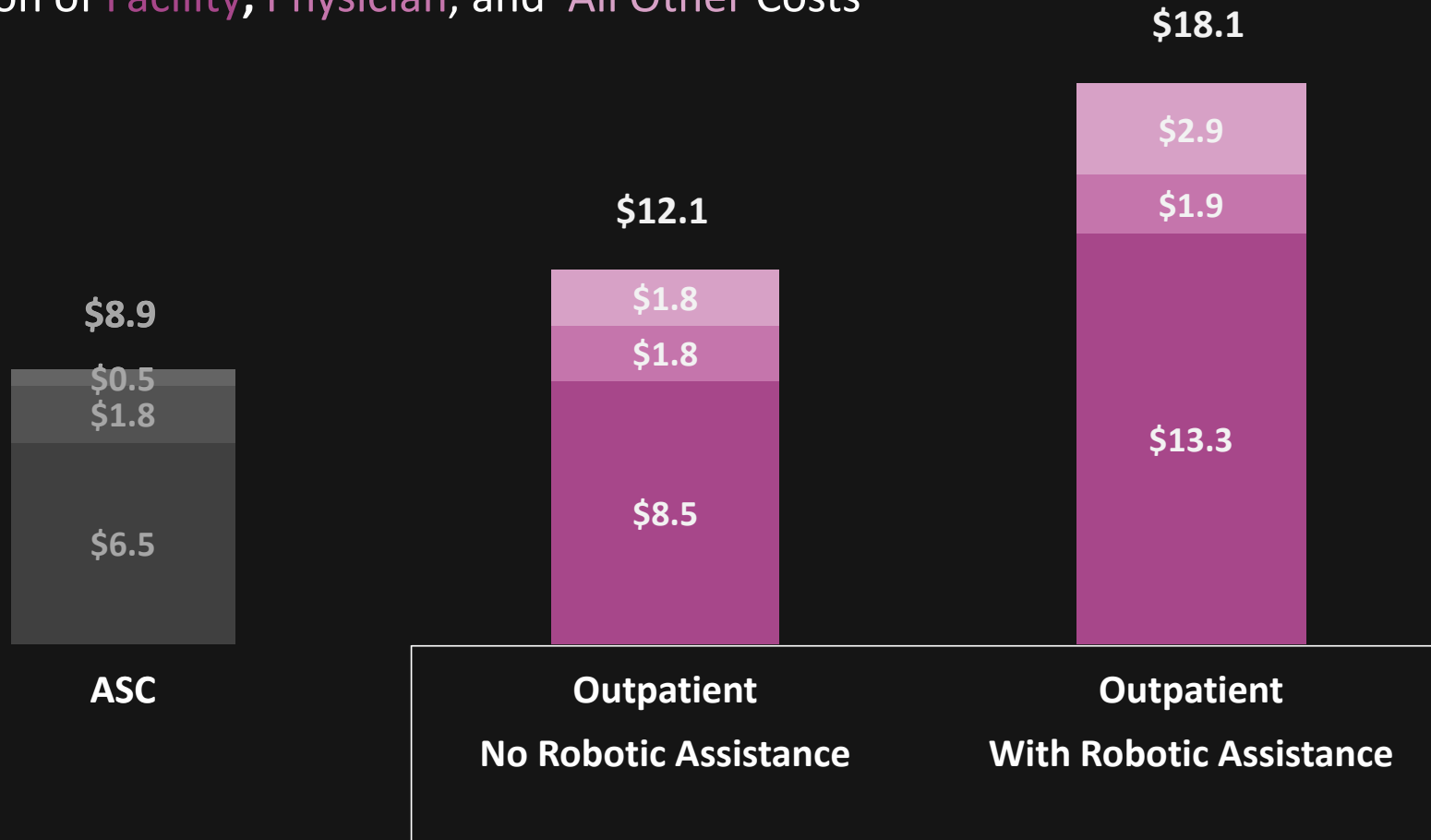
Comparison of Facility, Physician, and All Other Costs





# Hernia Surgery Paid Per Visit (\$000)

Comparison of Facility, Physician, and All Other Costs



# Future of Robotic Surgery

More surgeons using robotic surgery



Telesurgery

# Payment Mechanisms



# Value-Based Programs



# Value-Based Payment Mechanisms

## Capitation

Amount paid is determined by the number of patients

## Bundled Payments

Single payment covers all the services included in a defined treatment of care

## Patient-Centered Medical Homes

Treatment coordinated through primary care physician

# Bundling in Workers Compensation

**HAS EXISTED**  
**Hospital Inpatient Stays**

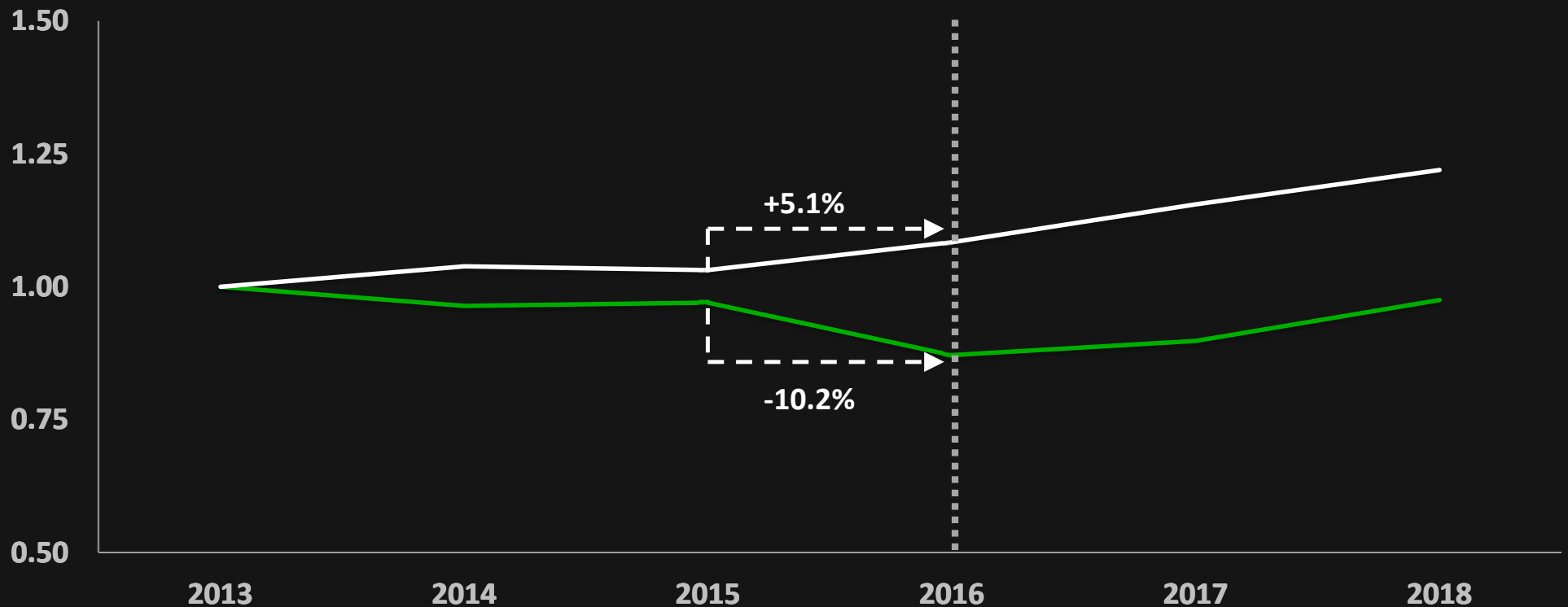


**RECENTLY ADOPTED**  
**Hospital Outpatient Surgeries**



# Arthroscopic Rotator Cuff Surgery Indexed Paid per Visit

States With Outpatient Packaging vs. All Other States



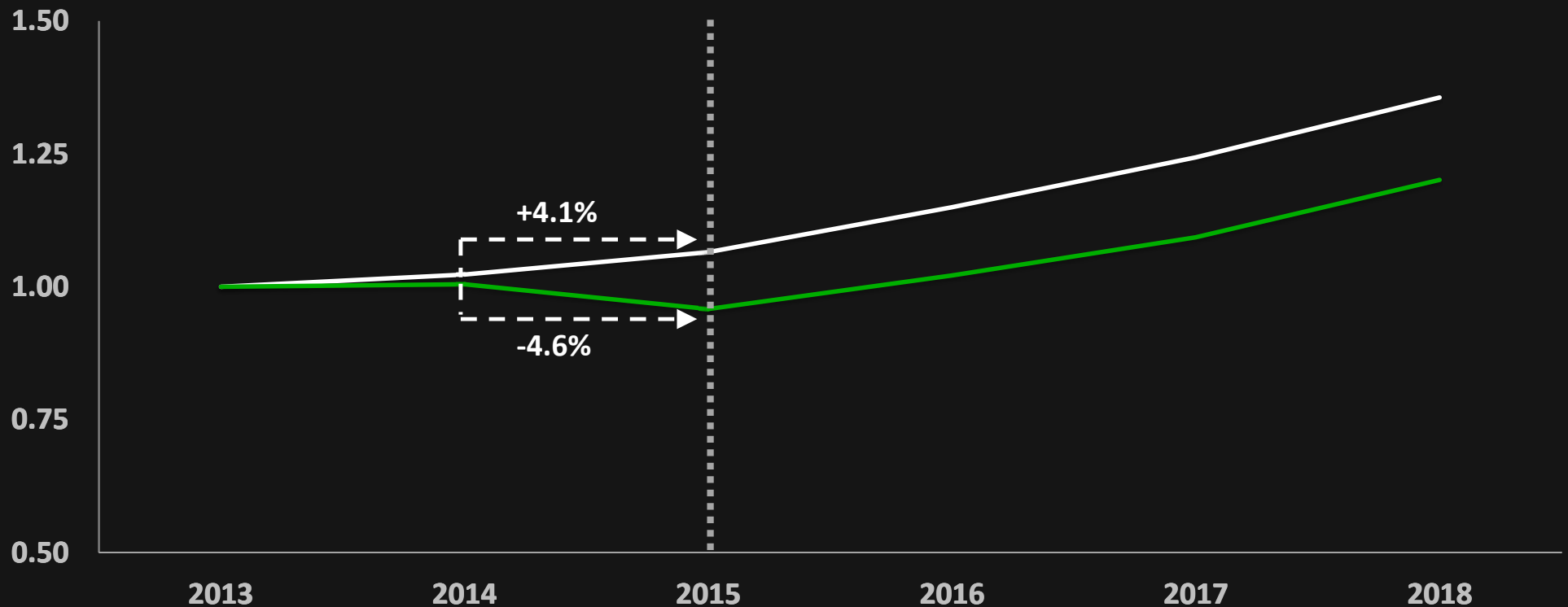
Packaging states include AK, CT, DC, GA, ID, IN, ME, MS, MT, NC, SC, and TN.  
Other States include AL, AR, AZ, CO, FL, HI, IA, IL, KS, KY, LA, MD, MI, MN, MO, NE, NH, NJ, NM, NV, OK, OR, RI, SD, UT, VA, VT, WI, and WV.

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# Lower Back Disc Surgery Indexed Paid per Visit

States With Outpatient Packaging vs. All Other States



Packaging states include AK, CT, DC, GA, ID, IN, ME, MS, MT, NC, SC, and TN.  
Other States include AL, AR, AZ, CO, FL, HI, IA, IL, KS, KY, LA, MD, MI, MN, MO, NE, NH, NJ, NM, NV, OK, OR, RI, SD, UT, VA, VT, WI, and WV.

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## Contributors



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# Data Sources

- NCCI's Medical Data Call
  - Jurisdictions included: AK, AL, AR, AZ, CO, CT, DC, FL, GA, HI, IA, ID, IL, IN, KS, KY, LA, MD, ME, MI, MN, MO, MS, MT, NC, NE, NH, NJ, NM, NV, OK, OR, RI, SC, SD, TN, UT, VA, VT, WI, and WV
  - Services provided between 1/1/2012 and 12/31/2018
- NCCI's Statistical Plan
  - Accident Years 2015 to 2017
  - Includes all states where NCCI provides ratemaking services
- Bureau of Labor Statistics, U.S. Department of Labor
  - Occupational Employment Statistics
  - Employment Projections
- U.S. Census Bureau, U.S. Department of Commerce—Population Estimates

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