



University of Iowa Health Care

Presentation to

The Board of Regents, State of Iowa

November 13-14, 2019

Agenda

Today's Presentation

Opening Remarks

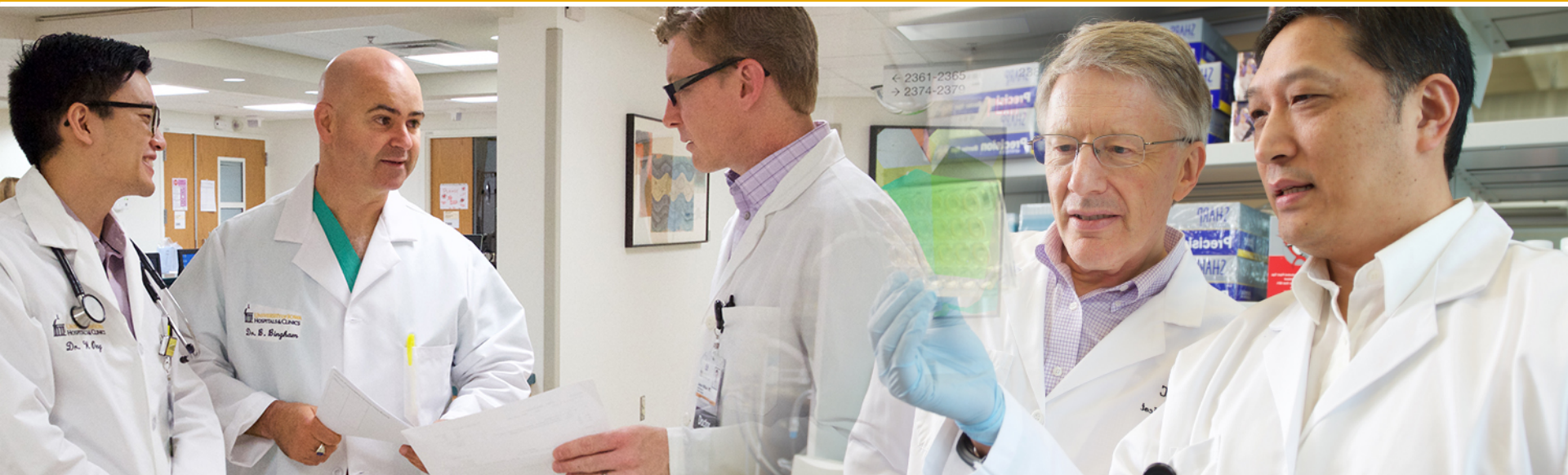
Operating and Financial Performance

Faculty Presentation: University of Iowa Osteoarthritis Research Program



Opening Remarks

Brooks Jackson, MD, MBA
Vice President for Medical Affairs
& Tyrone D. Artz Dean, Carver College of Medicine



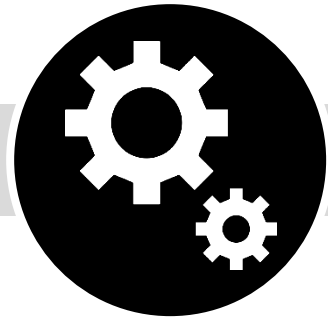
Operating and Financial Performance

Suresh Gunasekaran, MBA

Associate Vice President, UI Health Care and CEO, UI Hospitals & Clinics

Bradley Haws, MBA

Associate Vice President for Finance & Chief Financial Officer, UI Health Care

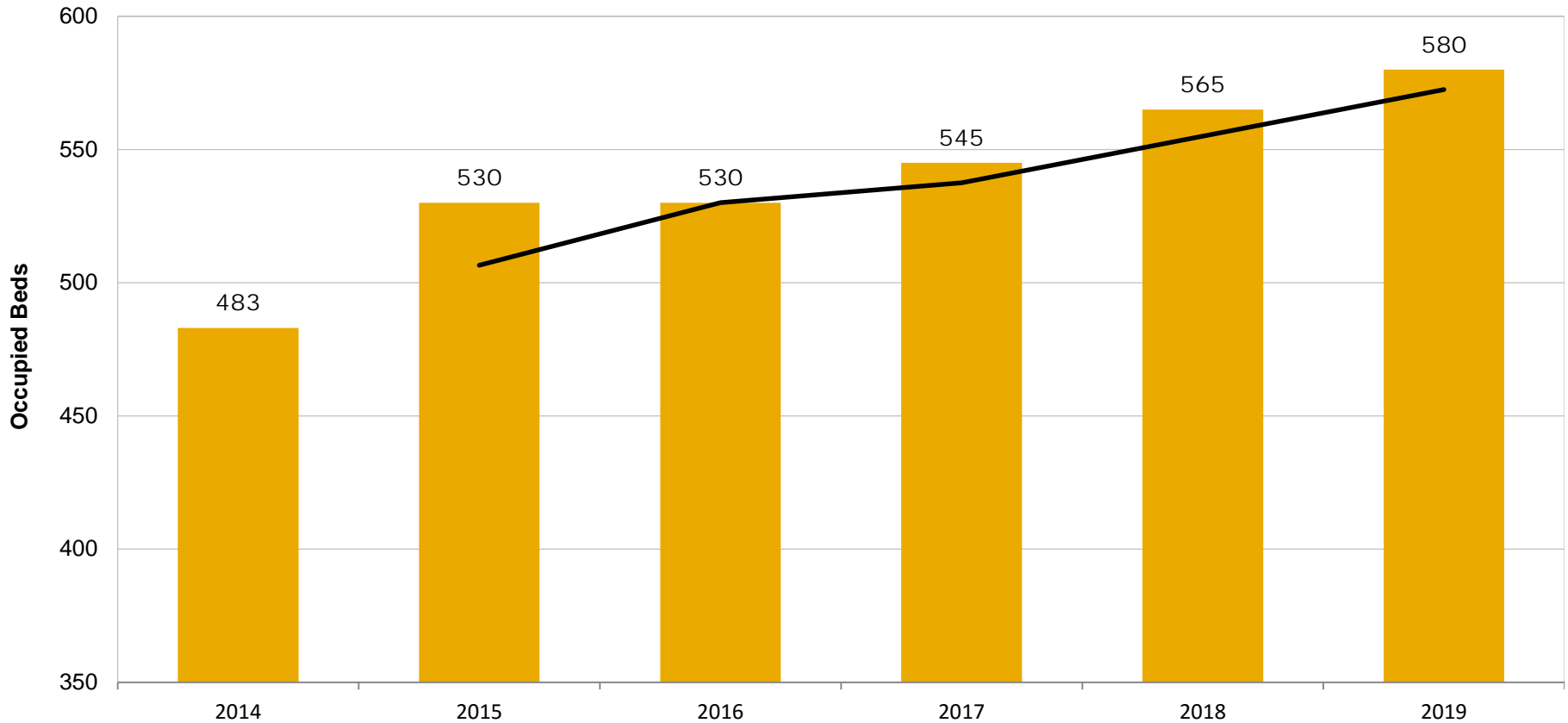


Commitment to Efficiency

Inpatient Growth

Operating and Financial Performance

Average Midnight Census, Adults 18+



We have seen a 20% growth in average midnight census from 2014-2019.

Inpatient Growth

Operating and Financial Performance

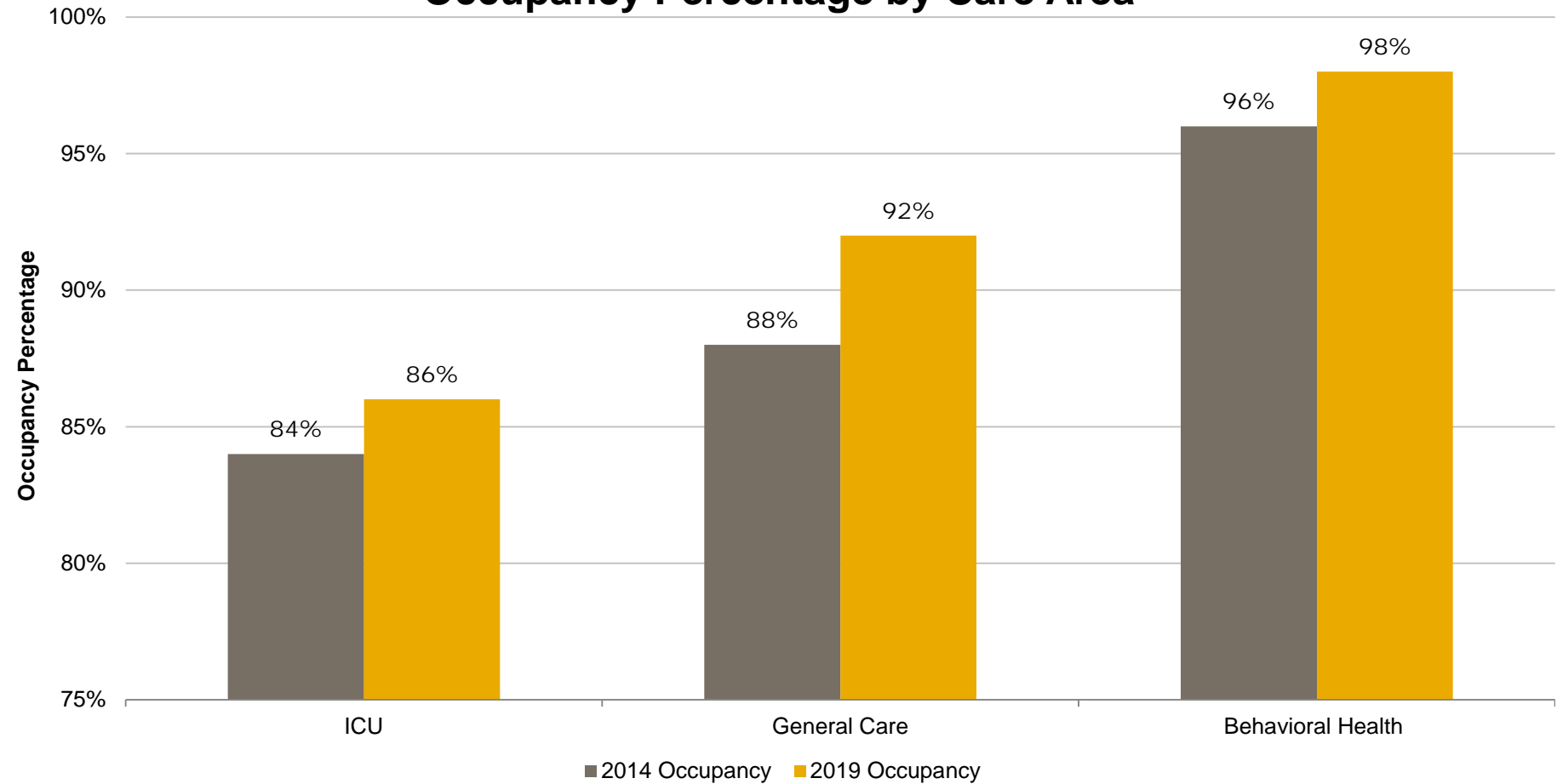
Care Area	2014 Average Census	2019 Average Census	Growth
General Care	313	392	25.2%
ICU	79	88	11.4%
Behavioral Health	70	71	1.4%
ED	21	29	38.1%

Behavioral Health inpatient growth has been curbed by the introduction of the Crisis Stabilization Unit.

Inpatient Growth

Operating and Financial Performance

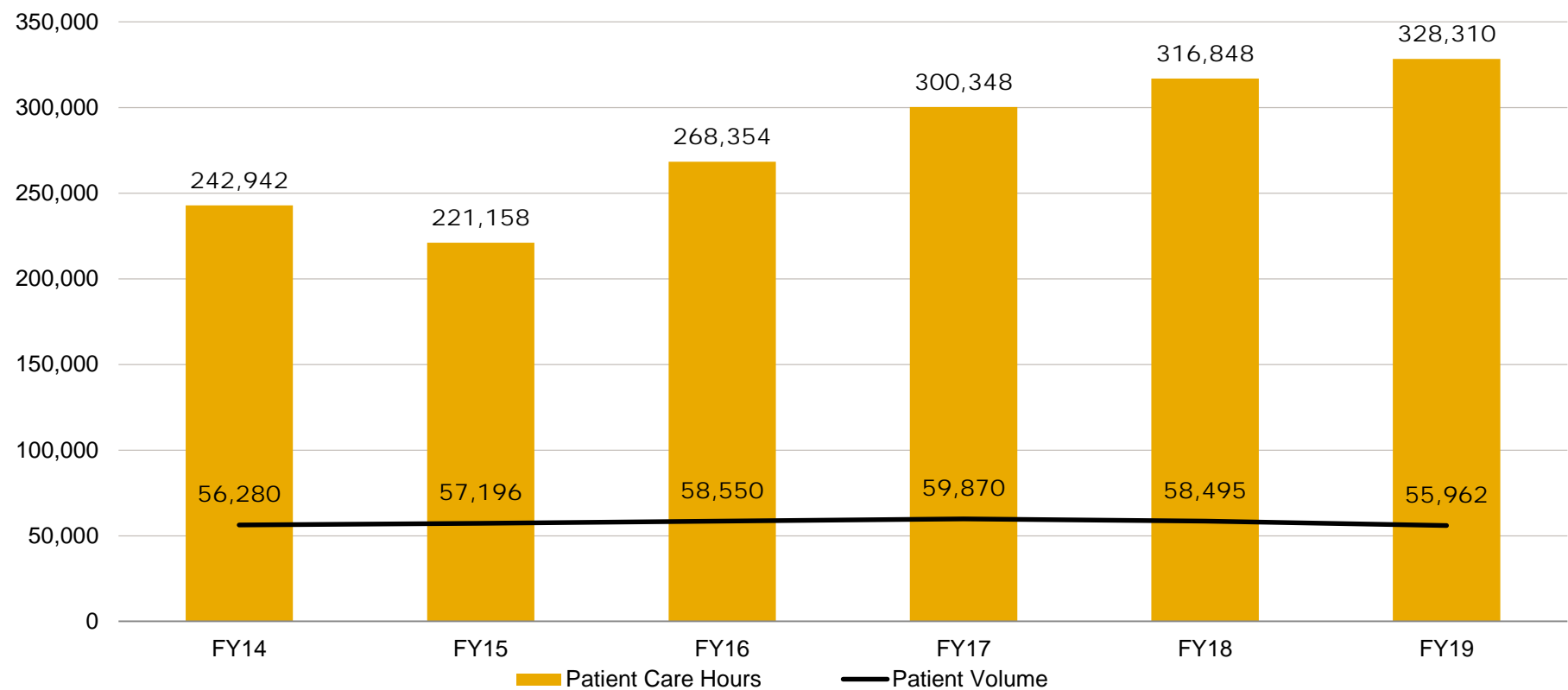
Occupancy Percentage by Care Area



Total ED Patient Care Hours and ED Volume

Operating and Financial Performance

Total Emergency Department Patient Care Hours and Emergency Department Volume by Fiscal Year

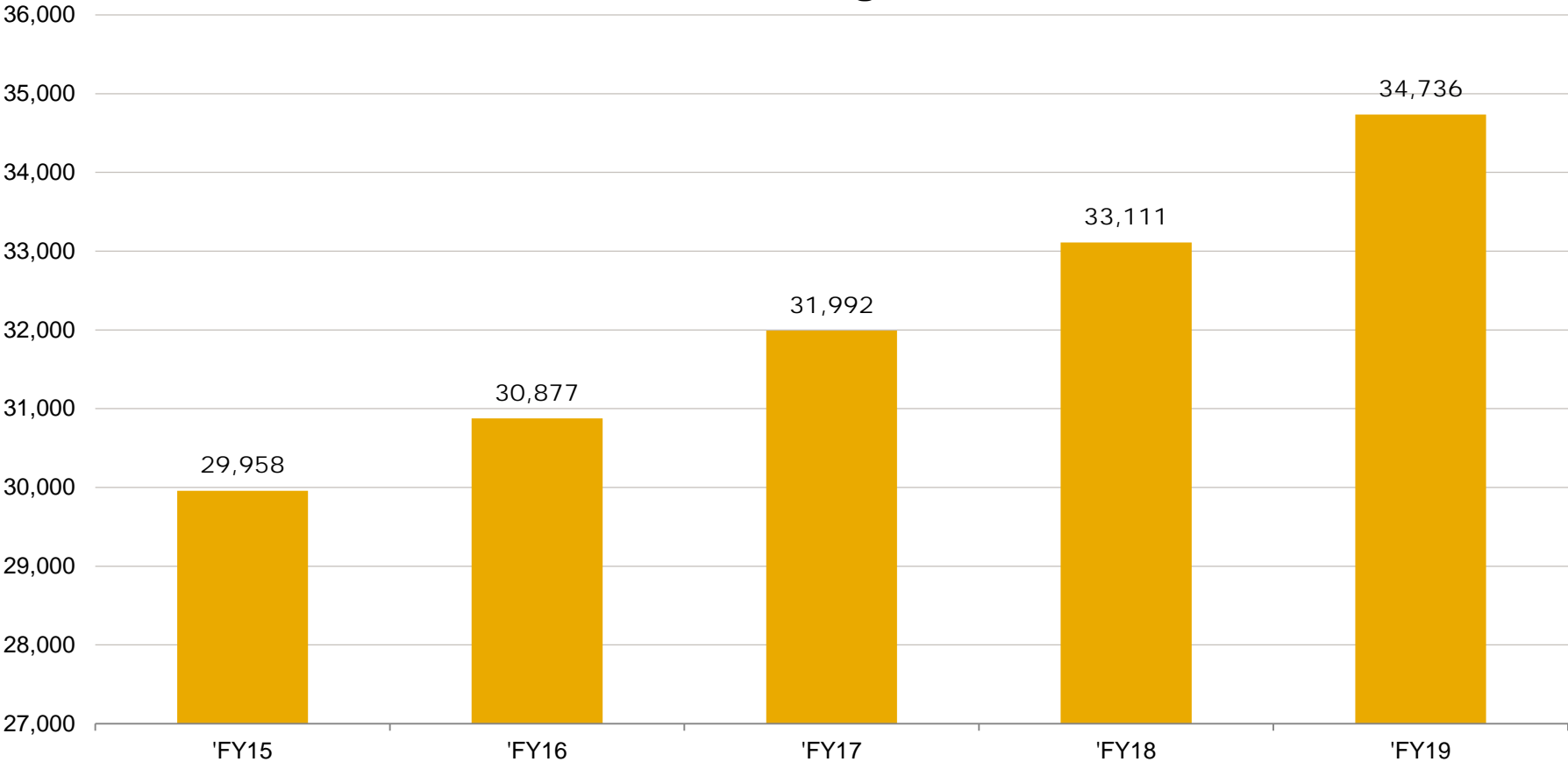


Total ED volume is relatively stable but patient care hours are up due to increased number of admitted patients and boarding.

Surgical Growth

Operating and Financial Performance

Total Number of Surgical Cases



We have seen significant growth in surgical volumes over the past 5 years

Surgical Growth

Operating and Financial Performance

Major Departments	FY15 Volume	FY19 Volume	FY15-19 Growth (Cases)	FY15-19 Growth (Percent)
Gynecology	1,612	2,267	655	41%
Neurosurgery	2,706	3,528	822	30%
Dentistry	875	1,058	183	21%
Orthopaedics	7,162	8,411	1,249	17%
Surgery	7,371	8,462	1,091	15%
Urology	2,958	3,334	376	13%
Otolaryngology	3,213	3,590	377	12%
Ophthalmology	3,793	3,946	153	4%

Surgical volume has increased 16% from FY15 to FY19, with the largest case volume increases in Neurosurgery, Orthopaedics, and Surgery.

Surgical Growth

Operating and Financial Performance

Surgical volumes continue to grow year-over-year

Volume up **6%** through Q1 FY20, driven by:

- Orthopedics **+15%**
- Urology **+10%**
- Ophthalmology **+10%**
- Gynecology **+8%**

Steps taken to increase capacity

Improved access to Operating Rooms for surgical departments by creating additional capacity

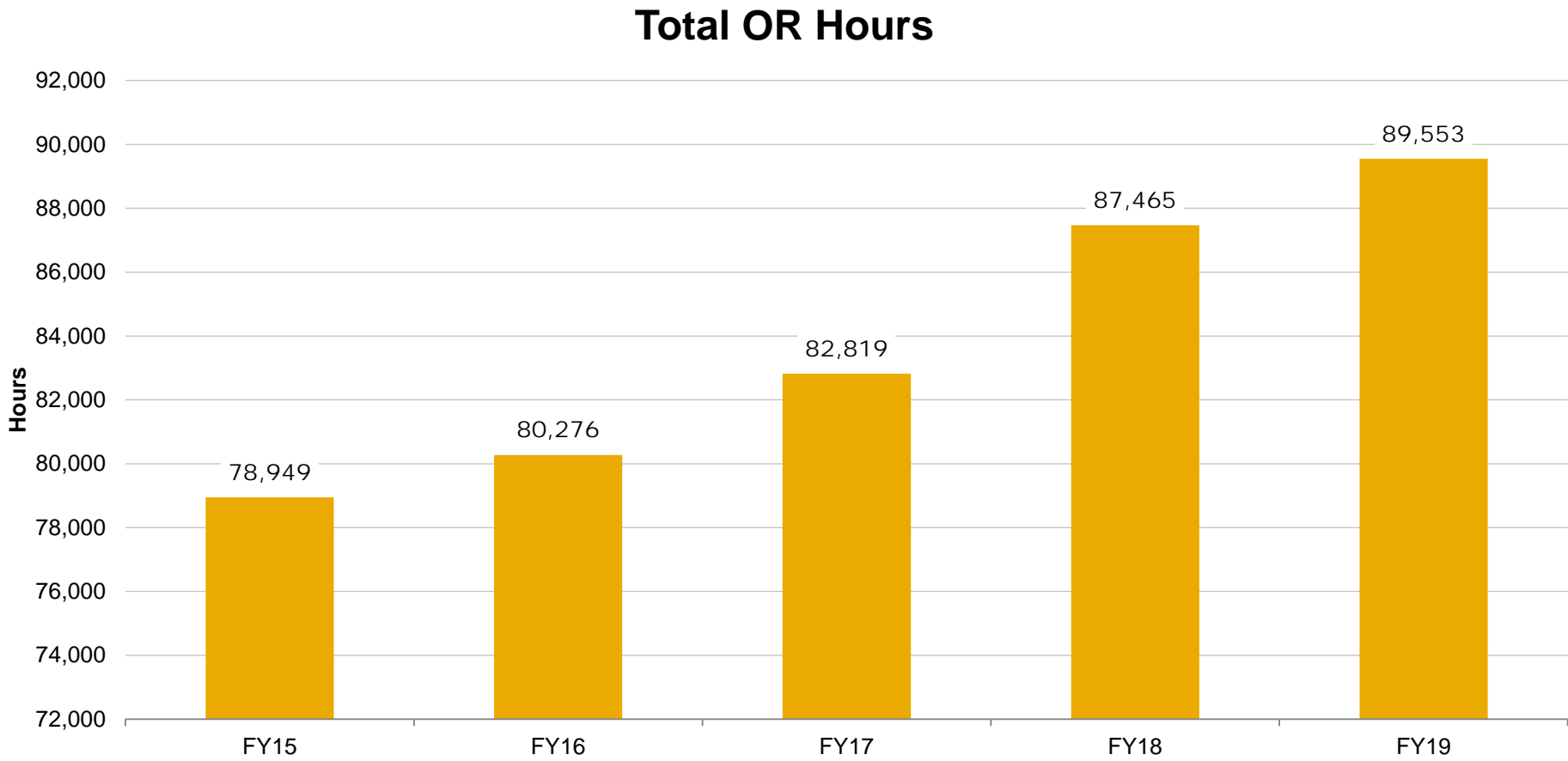
- Opened **2** additional ORs in the Ambulatory Surgery Center
- Extended OR hours in Main Operating Room and Ambulatory Surgery Center

Improved efficiency by enhancing patient throughput

- Added **7** additional Post Anesthesia Care Unit (PACU) in the Main Operating Room to reduce rate of in-OR recovery

Surgical Growth

Operating and Financial Performance



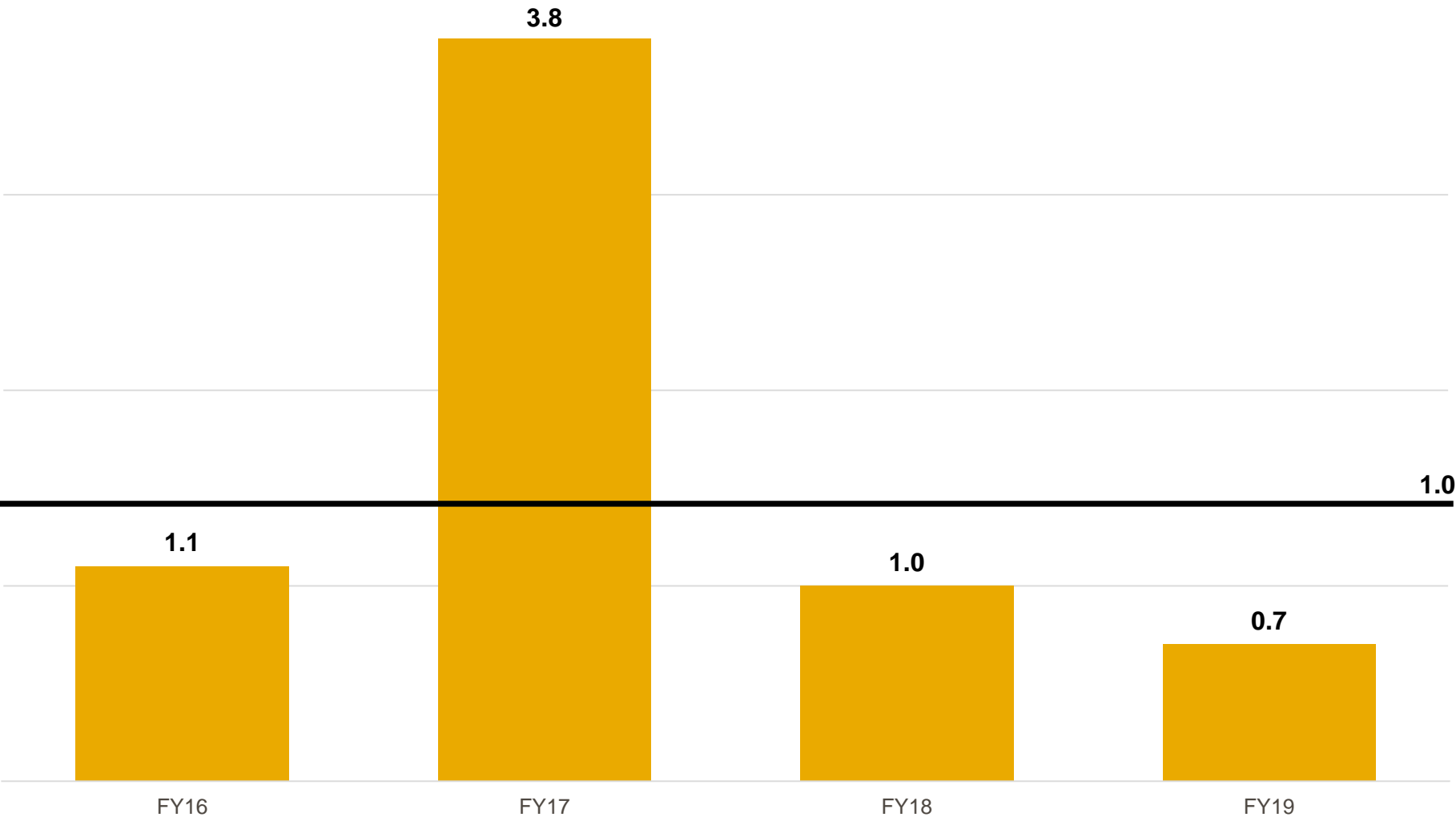
- Total OR hours have grown by nearly 11,000 (14%) since 2015.
- Block Utilization in FY19: ASC: **78%** Main OR: **88%** SFCH: **74%**

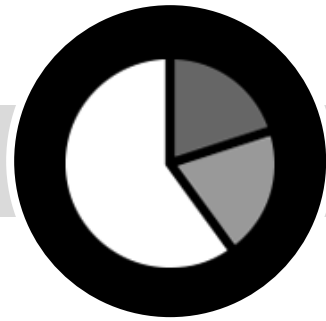


Commitment to Quality

Infections Following Abdominal Hysterectomy

Deep and organ space infections





Financial Performance

Volume and Financial Highlights – FY20

Through September 2019

Operating Margin

- Fiscal Year actual 7.0%, budget of 3.0%

Volume Change

- Year-over-year: Inpatient Discharges -3.7%, Acute Patient Days 0.7% Surgeries 5.3%, Clinic Visits 9.0%

Acuity

- September Case Mix Index continues to be high. 2.14 overall

Length of Stay Index

- Adult at .98
- Pediatrics at 1.06

Revenues

- 3.8% above budget year-to-date
 - Inpatient under budget 1.8%
 - Outpatient above budget 8.5%

Payer Mix

- Medicare Stable
- FY19: 37.7%, FY20: 37.2%

Accounts Receivable

- Days in Net AR – 49.9 days

Salary Expenses

- 3.5% below budget year-to-date

Non Salary Expenses

- 2.3% above budget year-to-date
- Supply and drug costs above budget

Comparative Financial Results

Fiscal Year to Date September 2019, Dollars in Thousands

NET REVENUES	Actual	Budget	Prior Year	Variance to Budget	% Variance to Budget	Variance to Prior Year	% Variance to Prior Year
Patient Revenue	\$476,928	\$459,610	\$416,342	\$17,318	3.8%	\$60,586	14.6%
Other Operating Revenue	13,159	12,714	13,189	445	3.5%	(30)	-0.2%
Total Revenue	\$490,087	\$472,324	\$429,531	\$17,763	3.8%	\$60,556	14.1%
EXPENSES							
Salaries and Wages	\$204,842	\$212,284	\$193,678	(\$7,442)	-3.5%	\$11,164	5.8%
General Expenses	225,197	220,087	193,834	5,110	2.3%	31,363	16.2%
Operating Expense before Capital	\$430,039	\$432,371	\$387,512	(\$2,332)	-0.5%	\$42,527	11.0%
Cash Flow Operating Margin	\$60,048	\$39,953	\$42,019	\$20,095	50.3%	\$18,029	42.9%
Capital- Depreciation and Amortization	25,597	25,869	25,571	(272)	-1.1%	26	0.1%
Total Operating Expense	\$455,636	\$458,240	\$413,083	(\$2,604)	-0.6%	\$42,553	10.3%
Operating Income	\$34,451	\$14,084	\$16,448	\$20,367	144.6%	\$18,003	109.5%
Operating Margin %	7.0%	3.0%	3.8%		4.0%		3.2%
Gain (Loss) on Investments	2,952	5,504	6,930	(2,552)	-46.4%	(3,978)	-57.4%
Other Non-Operating	(3,207)	(3,596)	(2,897)	389	10.8%	(310)	-10.7%
Net Income	\$34,196	\$15,992	\$20,481	\$18,204	113.8%	\$13,715	67.0%
Net Margin %	7.0%	3.4%	4.7%		3.6%		2.3%

* Gain/(Loss) on Investments based on information available at close. Final investment return for this period is reflected in Fiscal Year to Date returns in the subsequent reporting cycle.

Key Metrics

Financial Performance

	FY20 YTD Through September	Moody's Median
Financial Operations		
Operating Margin	7.0%	3.5%
Financial – Liquidity		
Days Cash on Hand	201	265
Financial – Leverage		
Debt to Capitalization	18.2%	26.0%



University of Iowa Osteoarthritis Research Program

J. L. Marsh, MD

Professor and Carroll B. Larson Chair

Department of Orthopedics and Rehabilitation

Osteoarthritis

University of Iowa Osteoarthritis Research Program

Osteoarthritis (OA) is joint pain and loss of function due to loss of joint cartilage.

Worldwide, osteoarthritis is the leading cause of:



Pain and loss of mobility
in senior adults



Permanent disability



Health care
expenditures

University of Iowa Health Care Department of Orthopedics Osteoarthritis Research Program

- 2002–2018: Three National Institutes of Health Program Grants
Total Funding: \$15M
- 2018–2022: Department of Defense Research Program Grant
Total Funding: \$10M

Post-traumatic Osteoarthritis (PTOA)

University of Iowa Osteoarthritis Research Program

Post-traumatic Osteoarthritis (PTOA) is a particular type of OA caused by fracture or other joint injury.

Ligament injury

- Up to 40% of injuries lead to OA
- 10 years or greater following ligament injury



Severe joint fractures

- Hip > 45% OA
 - Knee > 45% OA
 - Ankle > 70% OA
- } Often within 2 years after injury



**PTOA is
progressive
and irreversible**

Impact of PTOA

University of Iowa Osteoarthritis Research Program



Some Facts about PTOA

- More than 12% of all OA from joint injuries
- More than 6 million people – annual cost of \$15 billion
- Most frequent disabling condition leading to medical discharge in military personnel
- Impairment due to ankle PTOA equal to end-stage kidney disease and congestive heart failure
- Severe disease ten years earlier than patients with severe OA due to other causes

University of Iowa Publications on Impact

- PTOA – An Estimate of the Incidence, Prevalence & Burden of Disease. J Orthop Trauma, 2006.
- Impact of Co-morbidities on Measurement of Health in Patients with Ankle OA. JBJS, 2006.
- PTOA Caused by Battlefield Injuries is the Primary Source of Disability in Warriors. JAAOS, 2012.
- PTOA – Definition & Burden of Disease. Book Chapter in Post-Traumatic Arthritis. 2015
- Total Knee Arthroplasty for PTOA in Military Personnel Under Age 50. JOR, 2016.

Goal of Research Program

University of Iowa Osteoarthritis Research Program

Prevention of PTOA by identifying new interventions for early treatment of injured joints.

To accomplish this goal, we needed to answer three questions:

1



Who is at risk of PTOA?

2



What biological events cause PTOA?

3

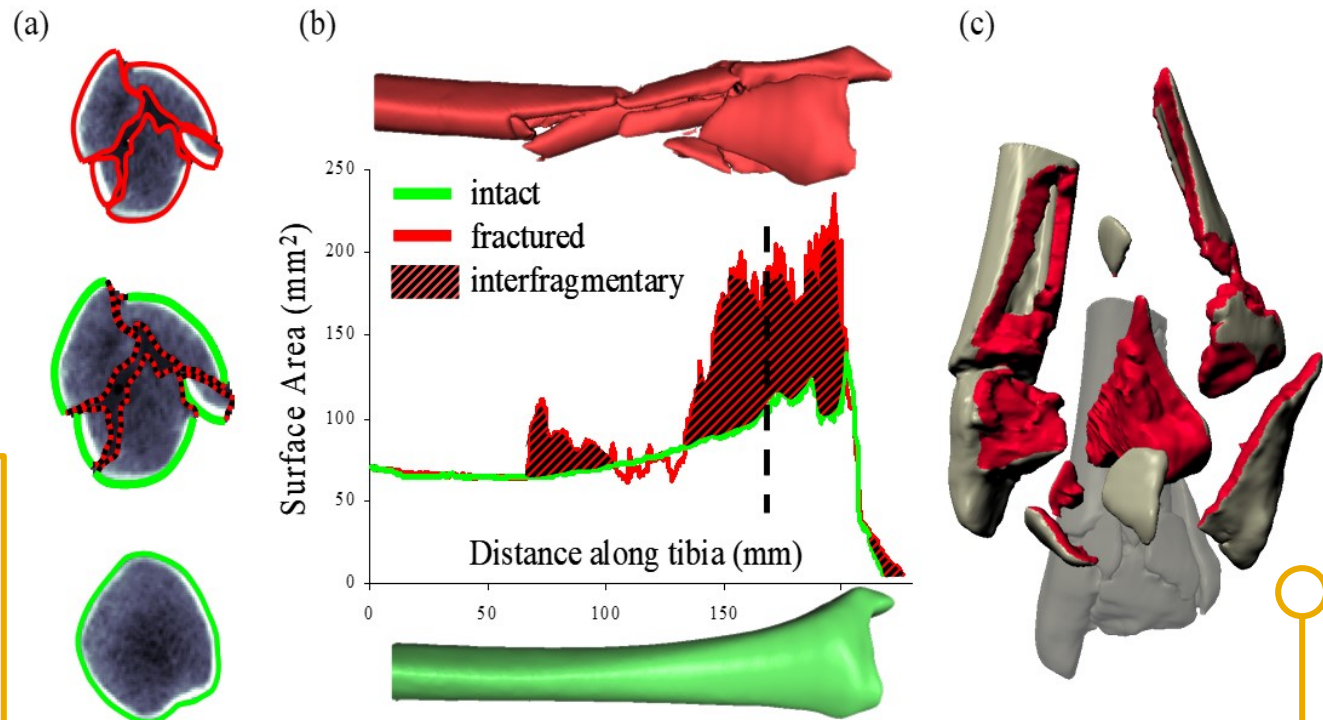
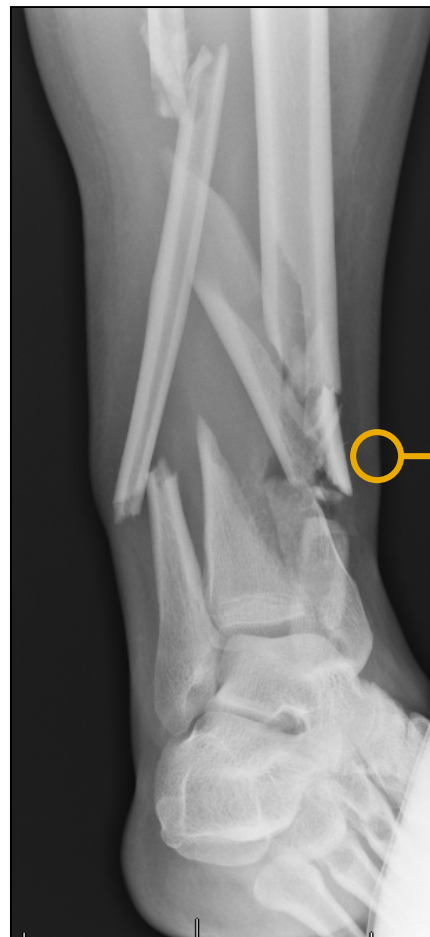


Can we alter the biology to prevent these events?

1. Who is at risk of PTOA

University of Iowa Osteoarthritis Research Program

By calculating Fracture Surface Area (CT Scan) we determine Fracture Energy

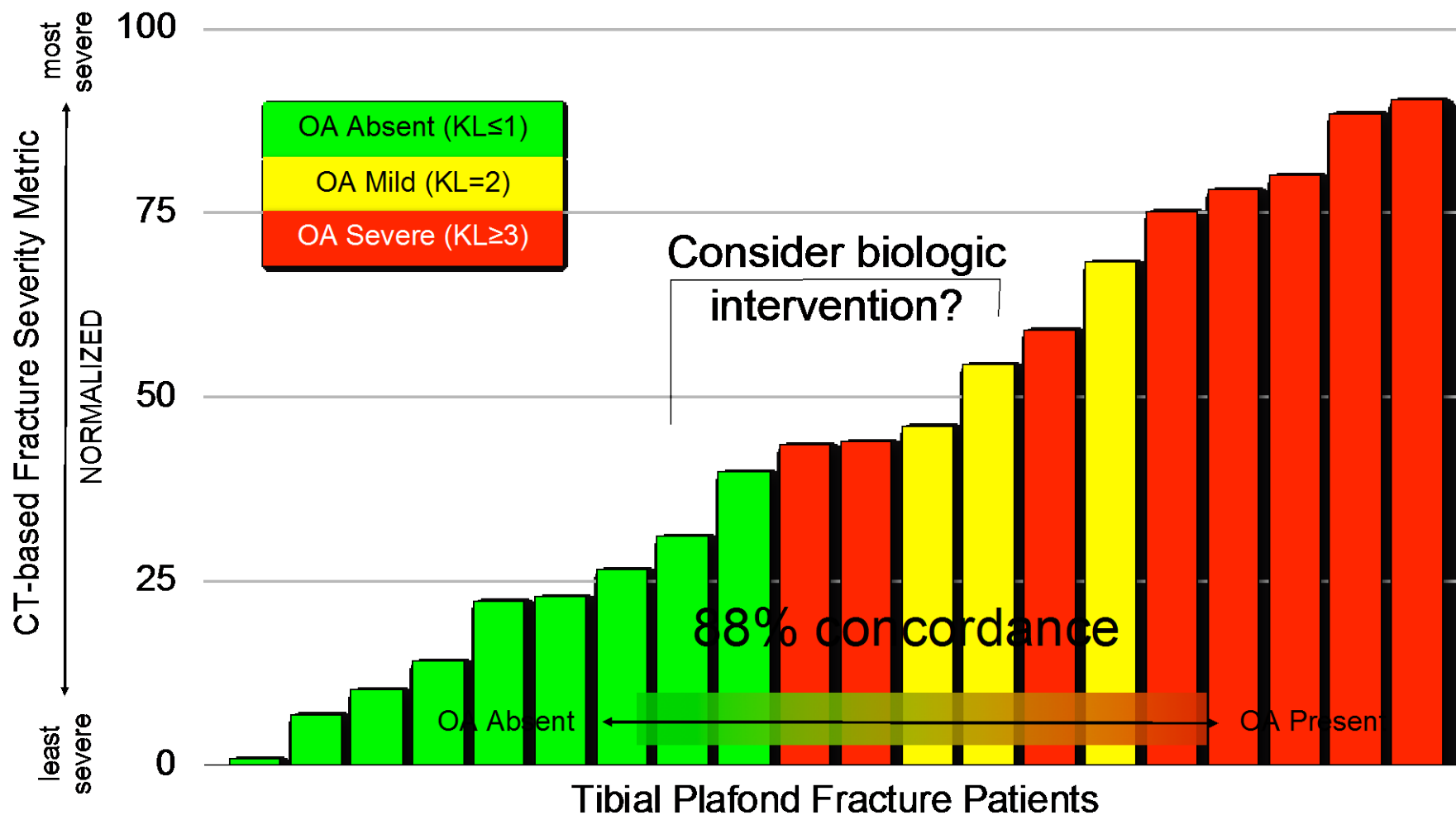


How badly is this broken?

The more pieces, the higher the energy.

Fracture Energy Predicts 2 year PTOA Risk

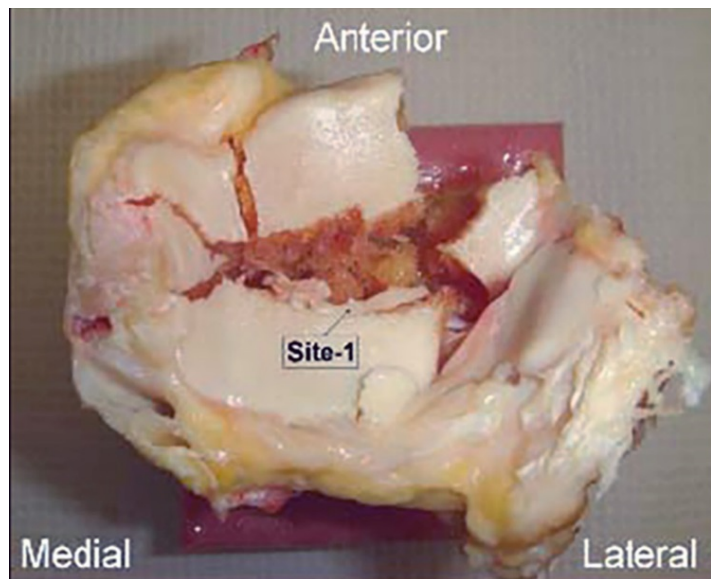
University of Iowa Osteoarthritis Research Program



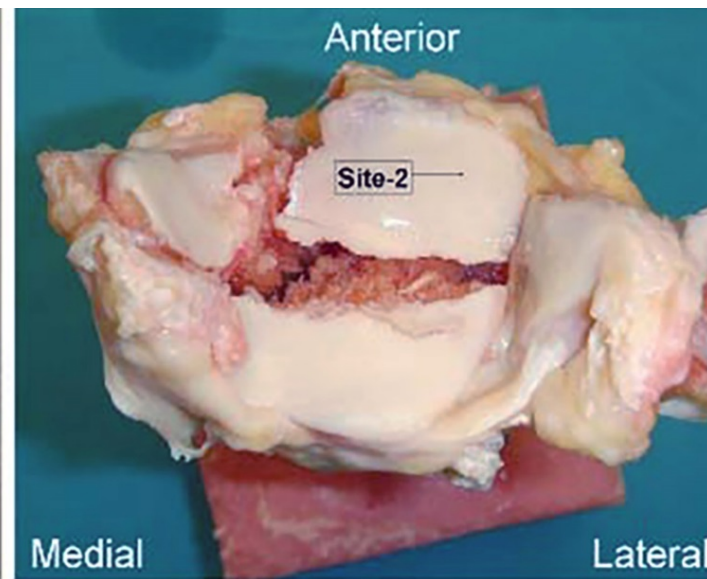
2. What biological events cause PTOA?

University of Iowa Osteoarthritis Research Program

Replicate severe ankle fracture in human ankles from below knee amputations



Specimen #1

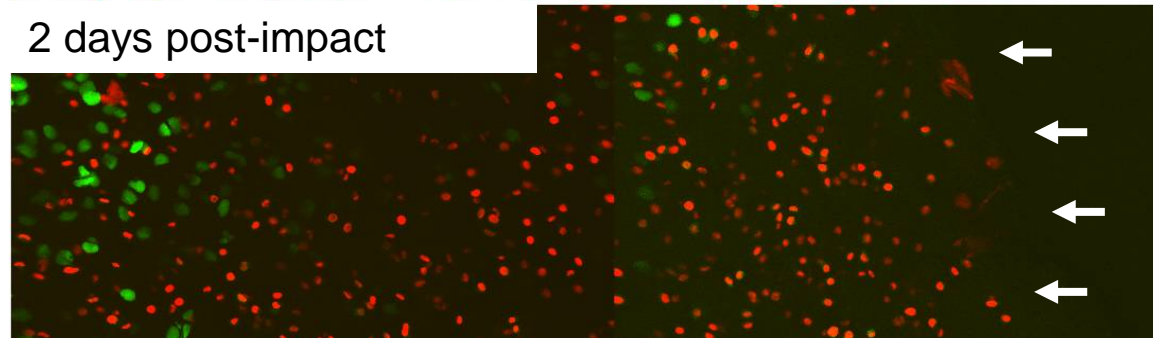
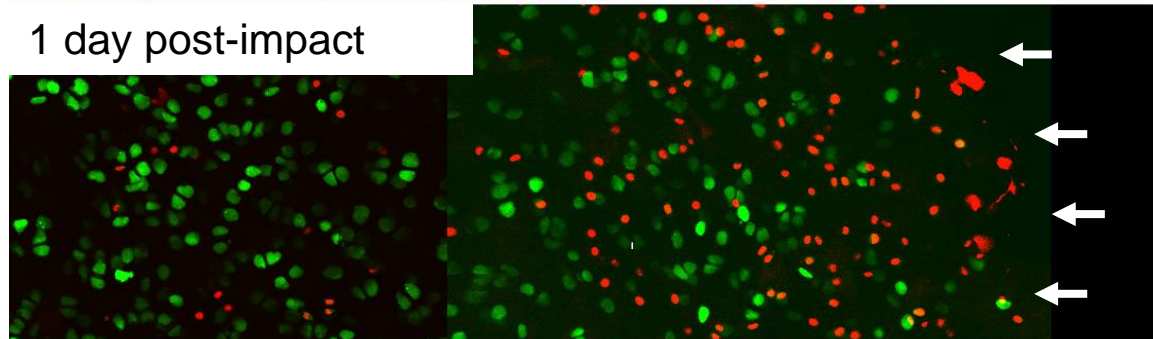
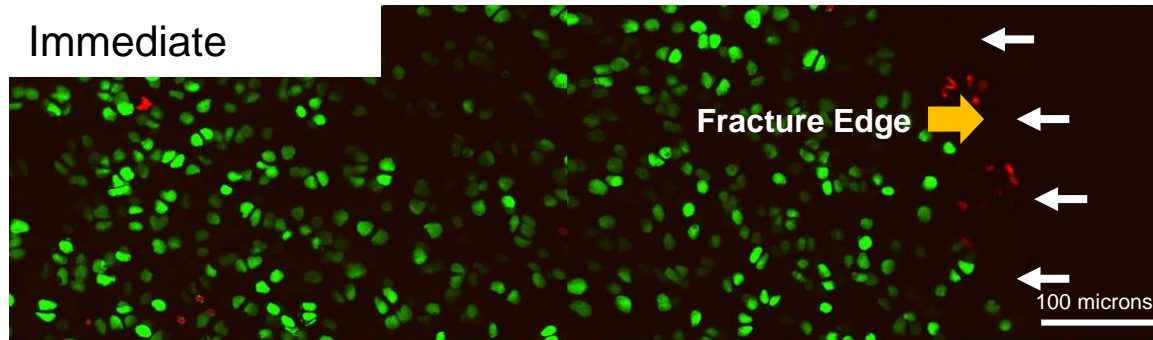


Specimen #2

Measure whether cartilage cells survive or die after this impact.

2. What biologic events cause PTOA?

University of Iowa Osteoarthritis Research Program



Red = Dead Cell
Green = Viable Cell

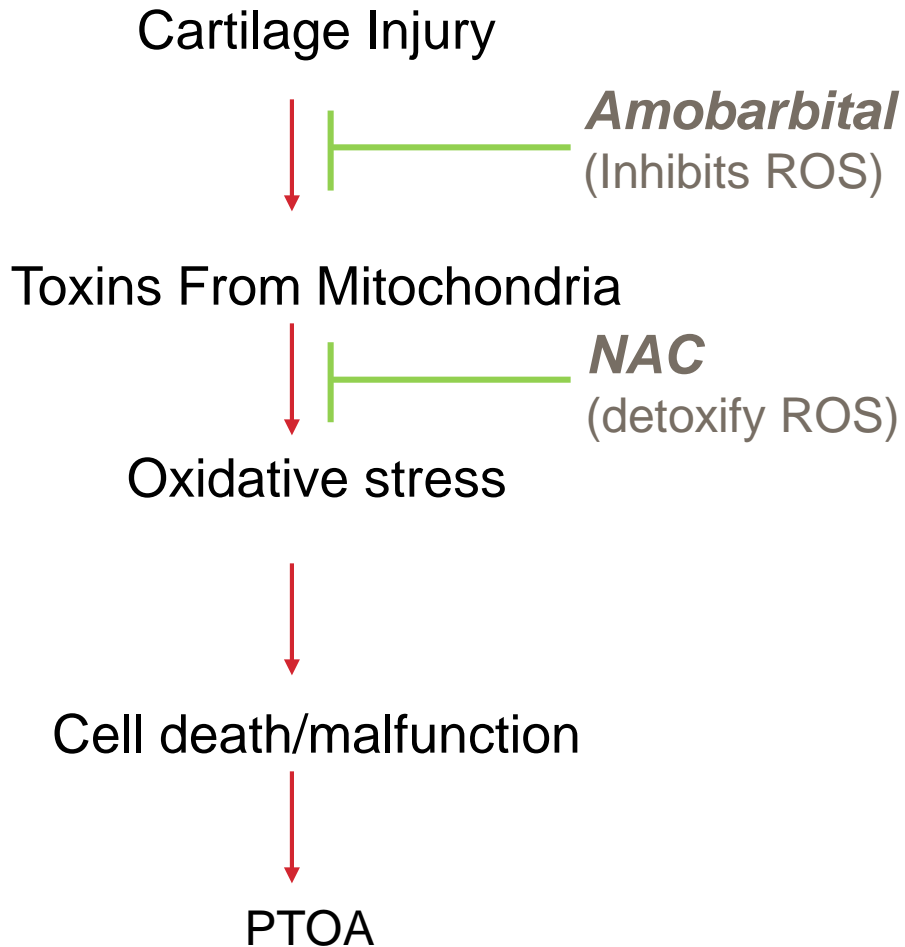
Minimal initial cell death

Progression over 48 hours

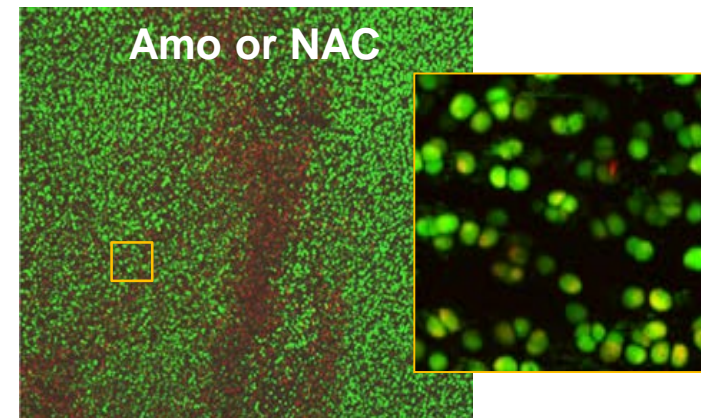
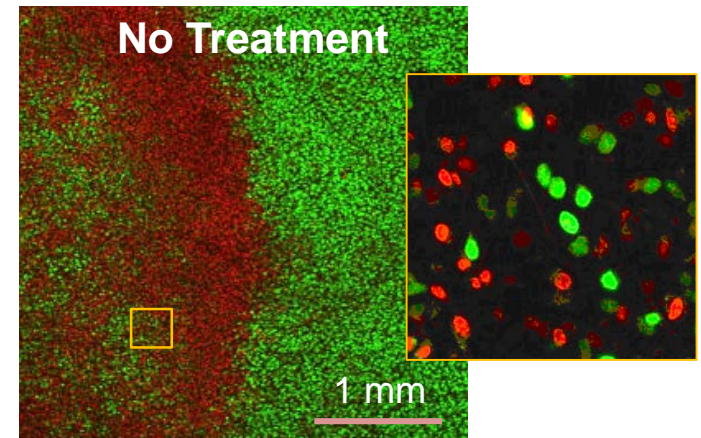


Amobarbital NAC Counteract Injury Effects

University of Iowa Osteoarthritis Research Program



Focal Injury to Cartilage Surface



Red = ROS/dead

Green = live

3. Can we alter the biology to prevent these events?

University of Iowa Osteoarthritis Research Program

Animal Model that Closely Simulates Human Closed IAF

(Joint Size, Articular Cartilage Thickness, Loading, Allow Treatments used in Patients)

Hock Joint Similar to Human Ankle Joint

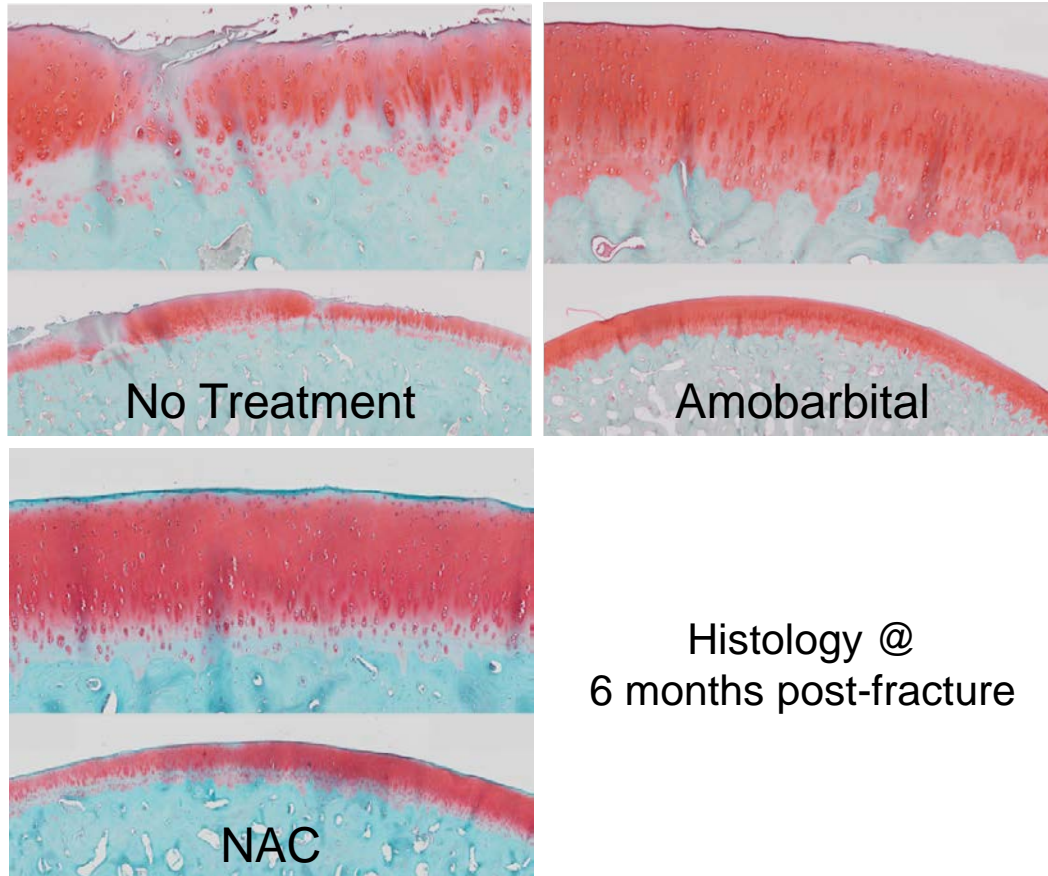
Yucatan Mini-Pig 70 Kg –

Both **NAC and Amobarbital** injected into injured joints prevented or minimized PTOA at 6 months after fracture.

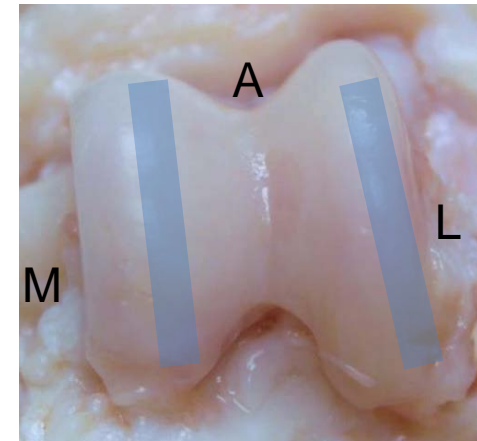
Delaying the Onset of PTOA

University of Iowa Osteoarthritis Research Program

Immediate Treatment of Joints with Amobarbital or n-acetylcysteine (NAC) Delays the onset of PTOA



Histology @
6 months post-fracture



Talus

Next Steps

University of Iowa Osteoarthritis Research Program

DOD Focused Program Award: Translating Metabolic Responses to Mechanical Insult into Early Interventions to Prevent PTOA.

PROJECT 1

Two center phase
I/II **clinical trial** of
amobarbital in
patients with IAF

PROJECT 2

**Assessing PTOA
risk and methods
to promote healing
and remodeling** in
joints with high risk
of PTOA.

PROJECT 3

Combining
amobarbital with
long-term gene
therapy to
**supplement joint
lubrication**

PROJECT 4

**Advance basic
understanding** of
Mitochondrial-ROS-
PTOA Pathway to
develop treatments
for spectrum of
joint injuries

GOAL:

By the end of this study, we will have an injectable biologic that will help prevent PTOA in a wide range of injured joints.

Thank You

