



Perioperative Medicine Summit

Evidence Based Perioperative Medical Care

All patients should train for surgery

Michael Englesbe MD
University of Michigan

ARS question #1

What peri-op domain has the biggest impact on surgical outcomes?

1. Surgical decision making and techniques
2. Patient functional status
3. Medical comorbidities
4. System of care delivery
5. Patient psychology or peri-op mindset

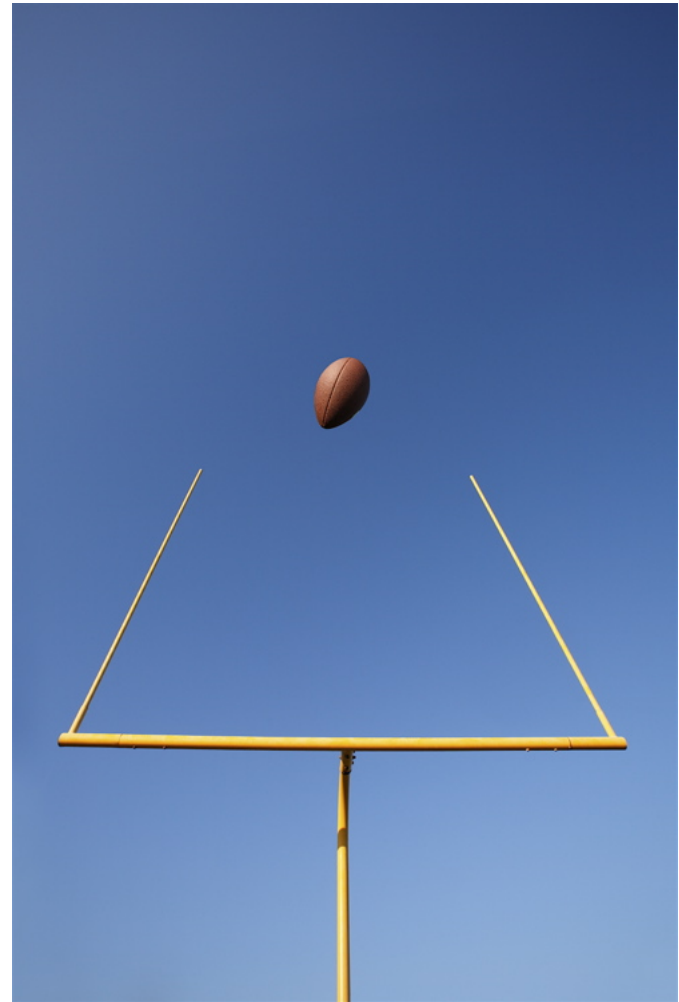


**Appropriateness, decision making,
communication, trust, patient centeredness**

Analytic Morphomics

Empiric data
to the bedside

Every patient
should train for
surgery (there is no good data for this)



Mike Englesbe - Disclosures

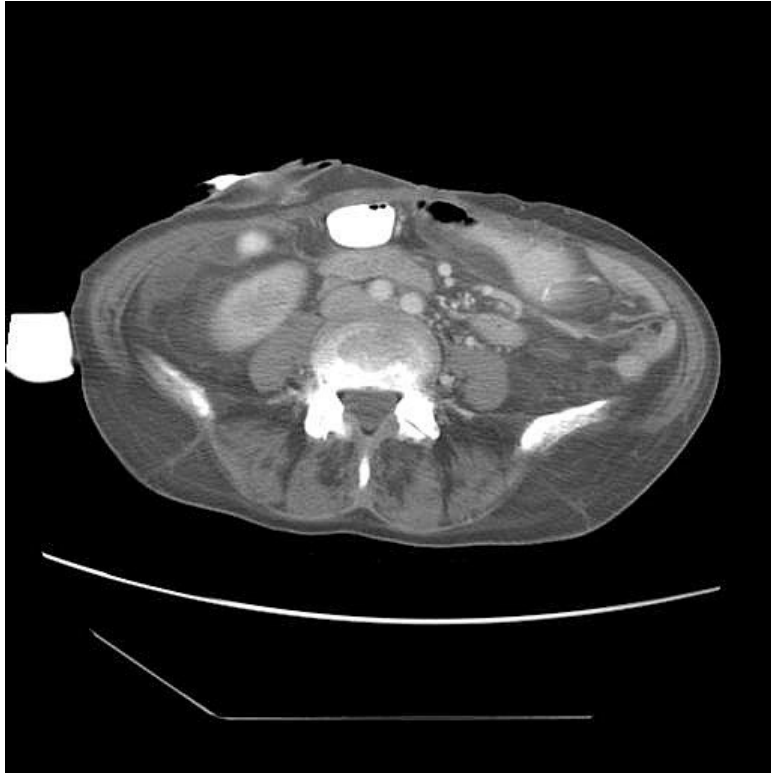
- Funding Sources:
 - CMS
 - NIH
 - BCBSM
 - HHS - Michigan
- Equity Partner-
 - Prenovo LLC.



The Story of Frailty

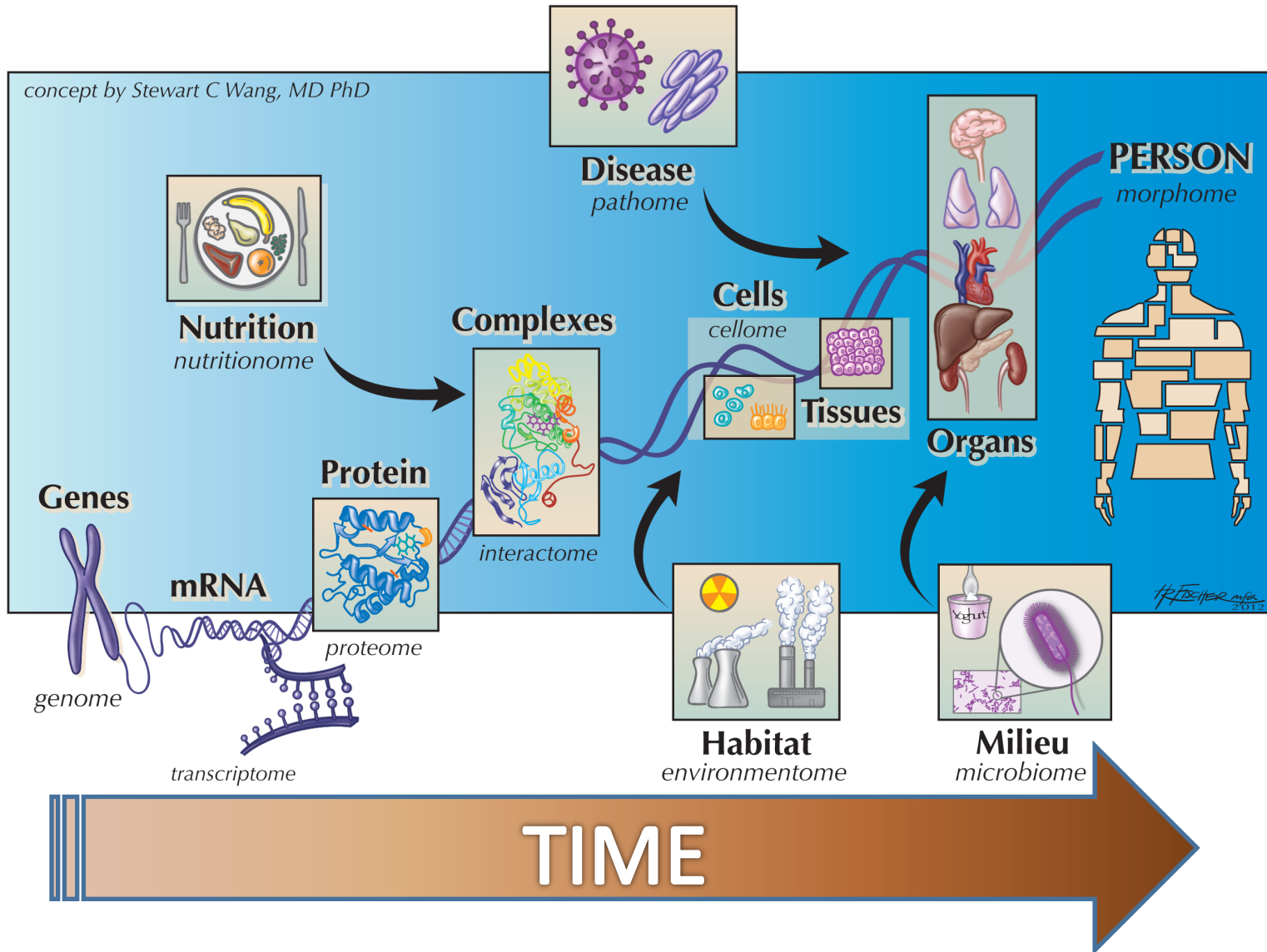


Which patient will do better?

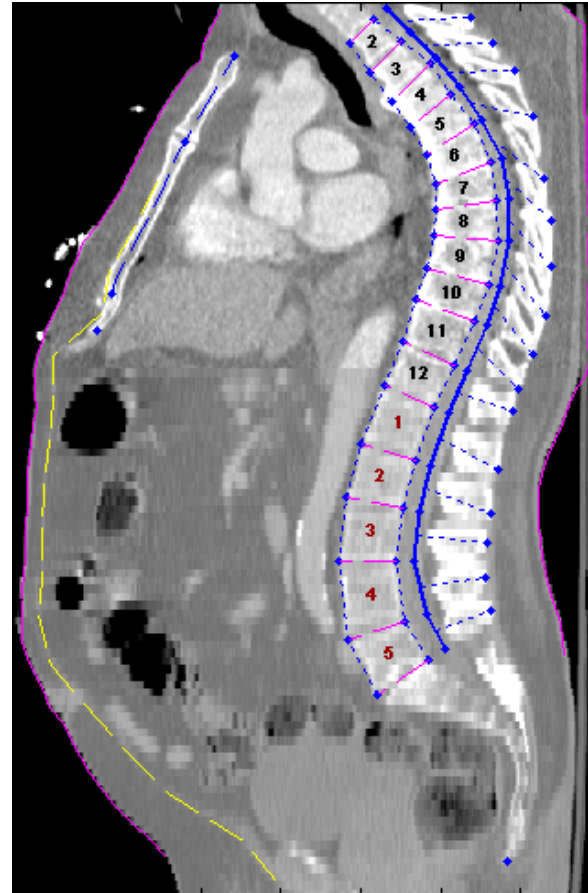
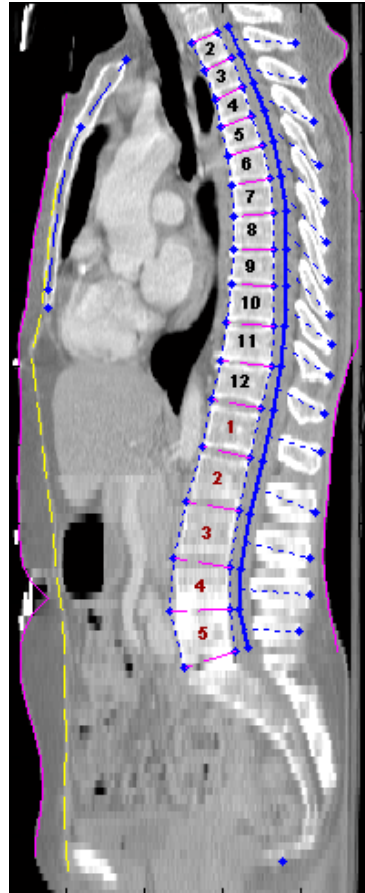
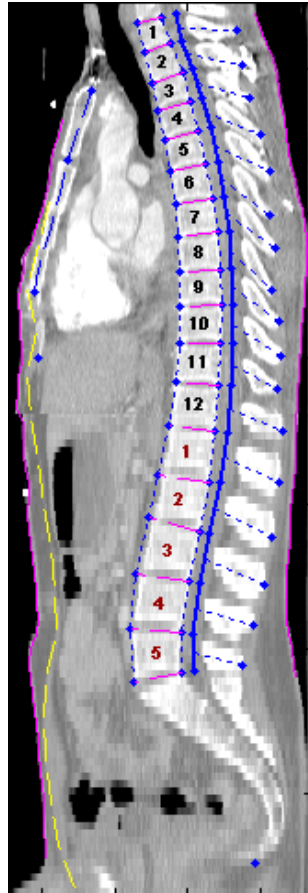
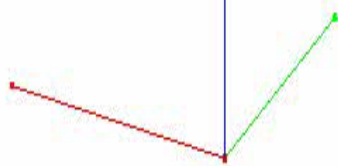
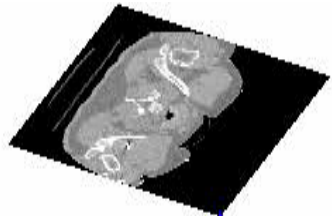
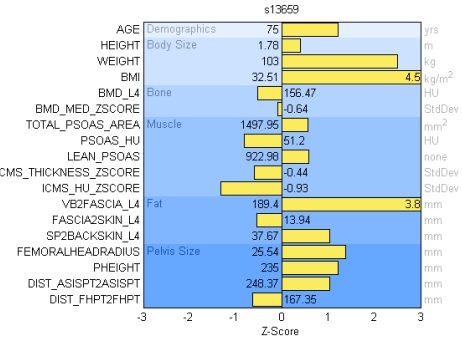
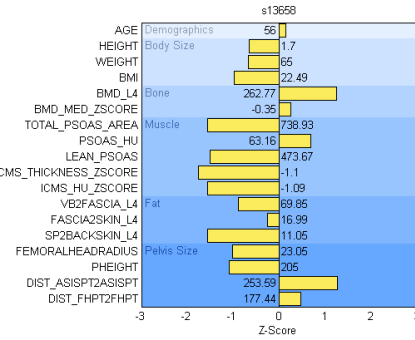
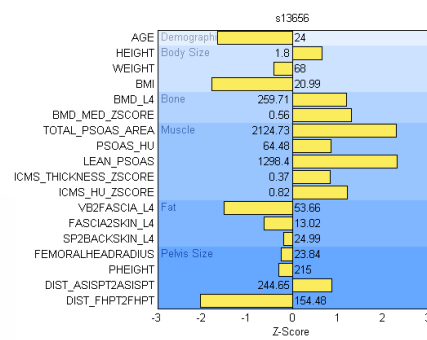


Why?

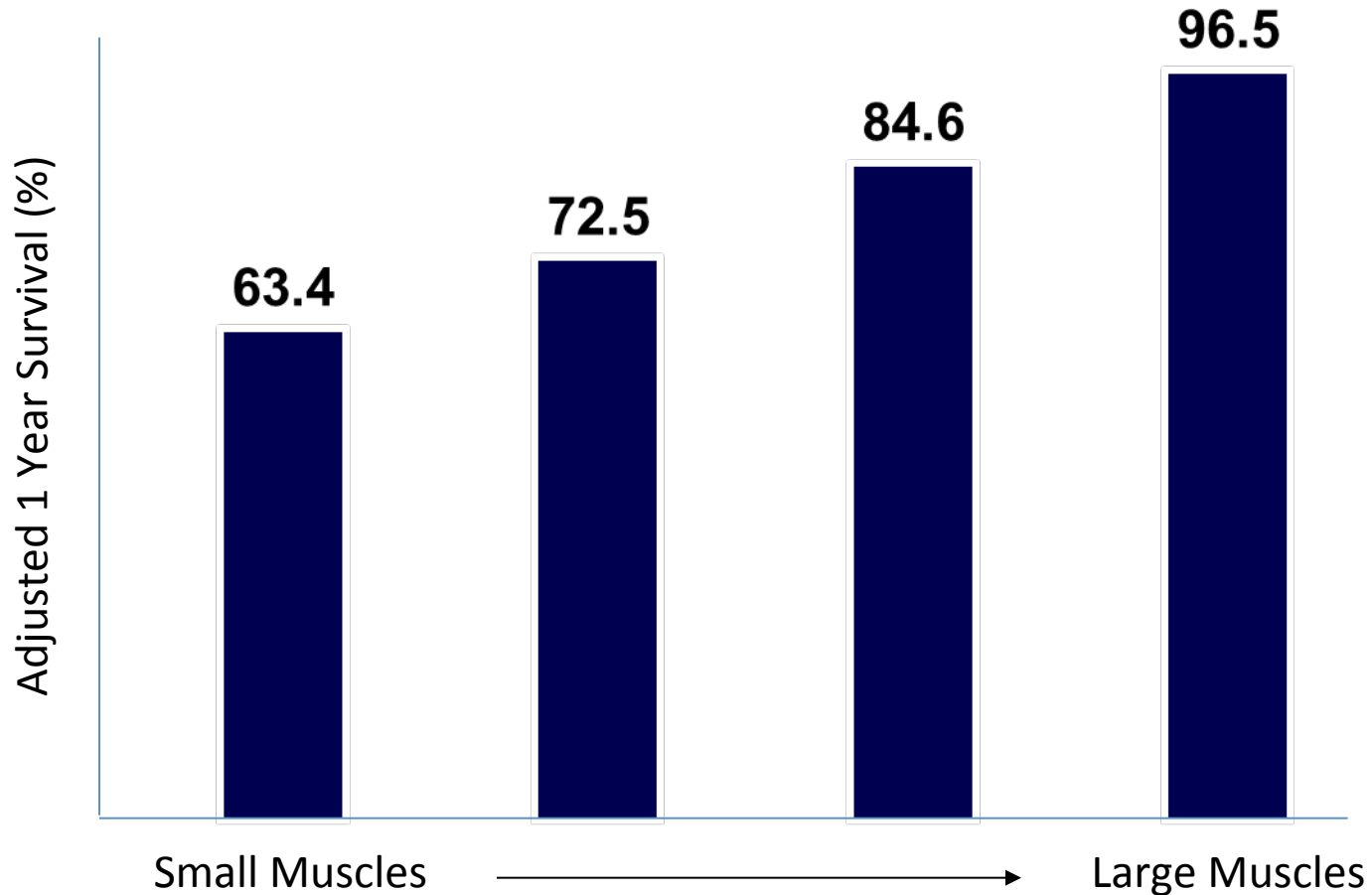
Morphomics – a More Proximate Omics



Customized Automated CT Processing

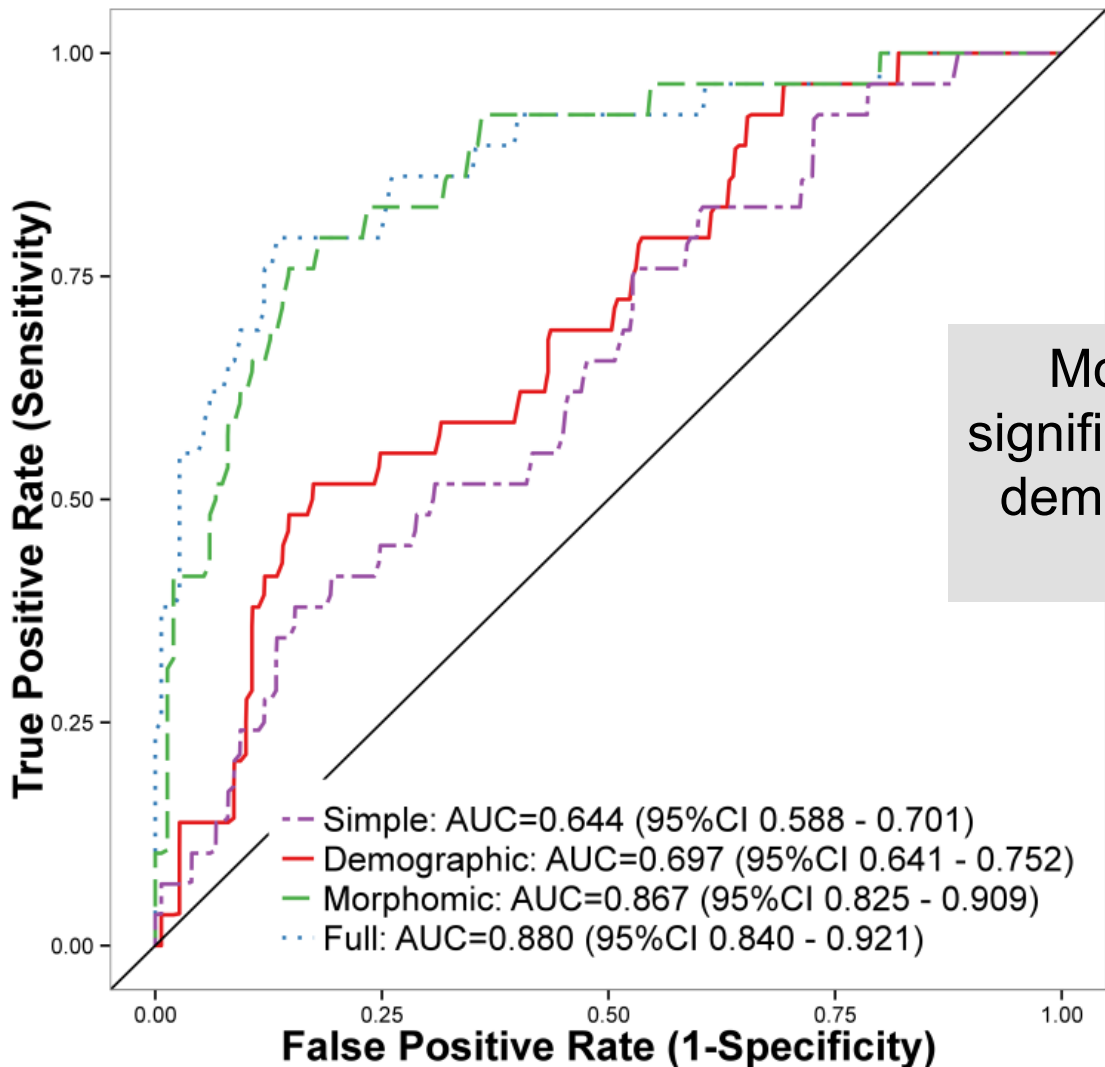


Muscle size and liver transplant survival



Central sarcopenia and post-liver transplant mortality. J Am Coll Sur 2010;211(2):271-278.

Morphomics Based Injury Risk Prediction



Morphomics data significantly outperforms demographic/medical data



High Muscle/Low Fat



Low Muscle/Low Fat

Obesity Paradox?

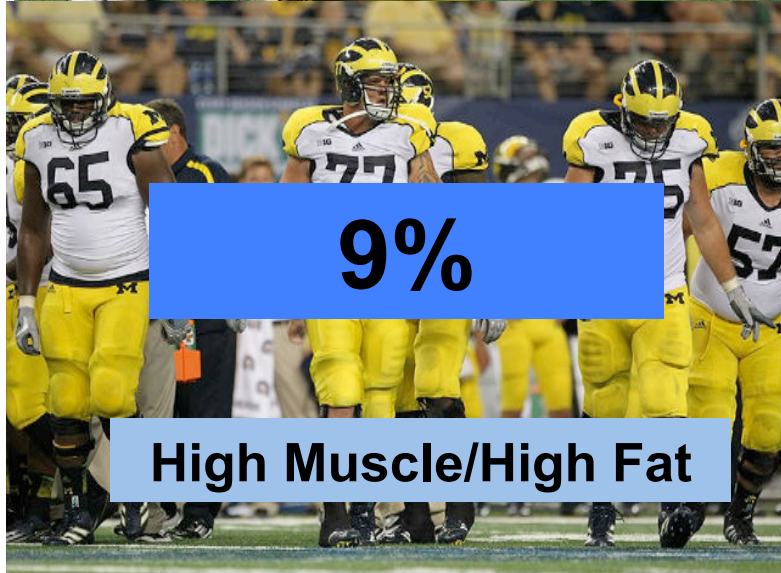
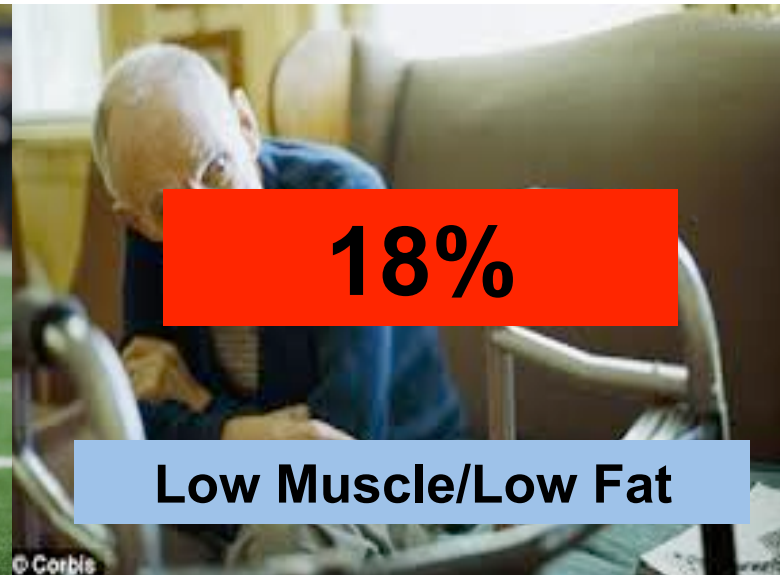
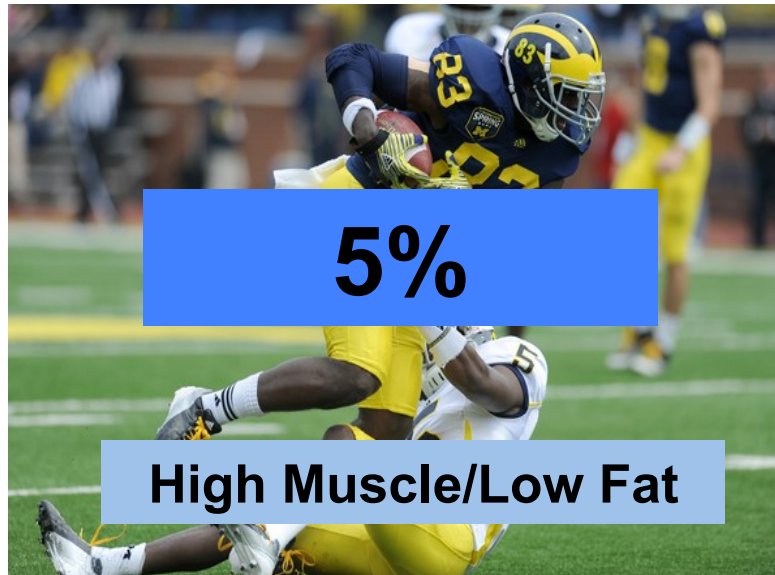


High Muscle/High Fat



Low Muscle/High Fat

1 year mortality

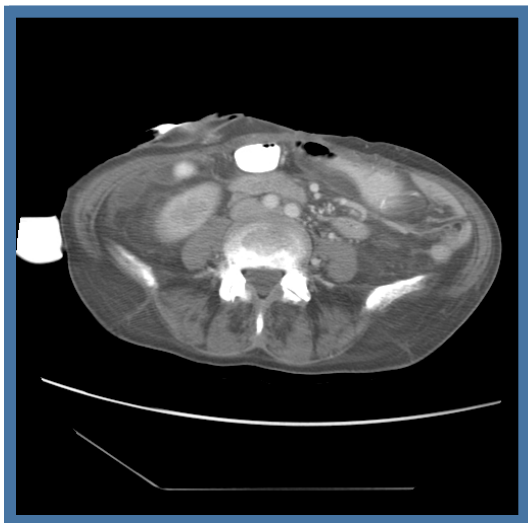


Morphometric Age

- Total Psoas Area
- Average Psoas Density
- Paraspinous Muscle Area
- Paraspinous Muscle Density
- Bone Mineral Density
- Abdominal Aortic Calcification
- Gender
- Height
- Weight



Morphomic
Age



Older than Chronologic Age



Younger than Chronologic Age



70 Year-Old Male

The clinical implications of morphometric age adjustment

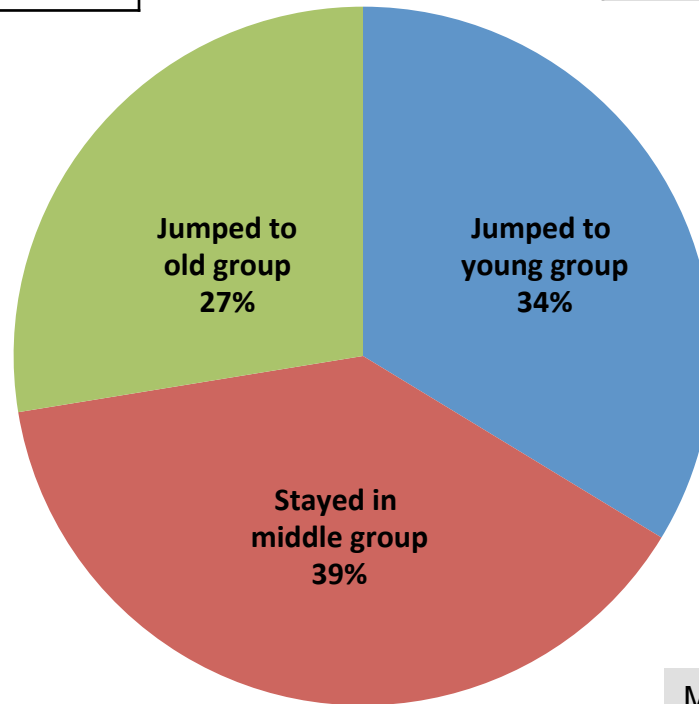
Age jumpers within the chronologic age middle tertile

Morphometric Old

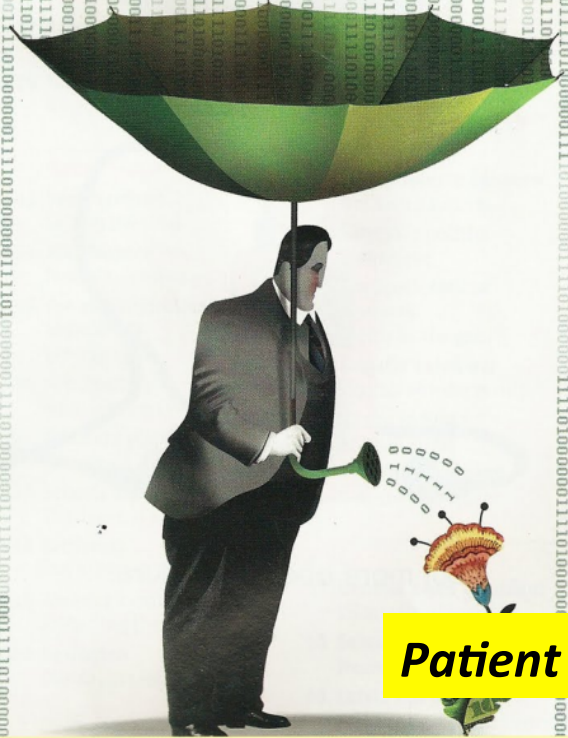
Age	ALOS	Mortality	Case Complexity
56.5	13.8	21.4%	23.5

Morphometric Young

Age	ALOS	Mortality	Case Complexity
55.1	6.3	4.5%	23.8



The data deluge



Patient

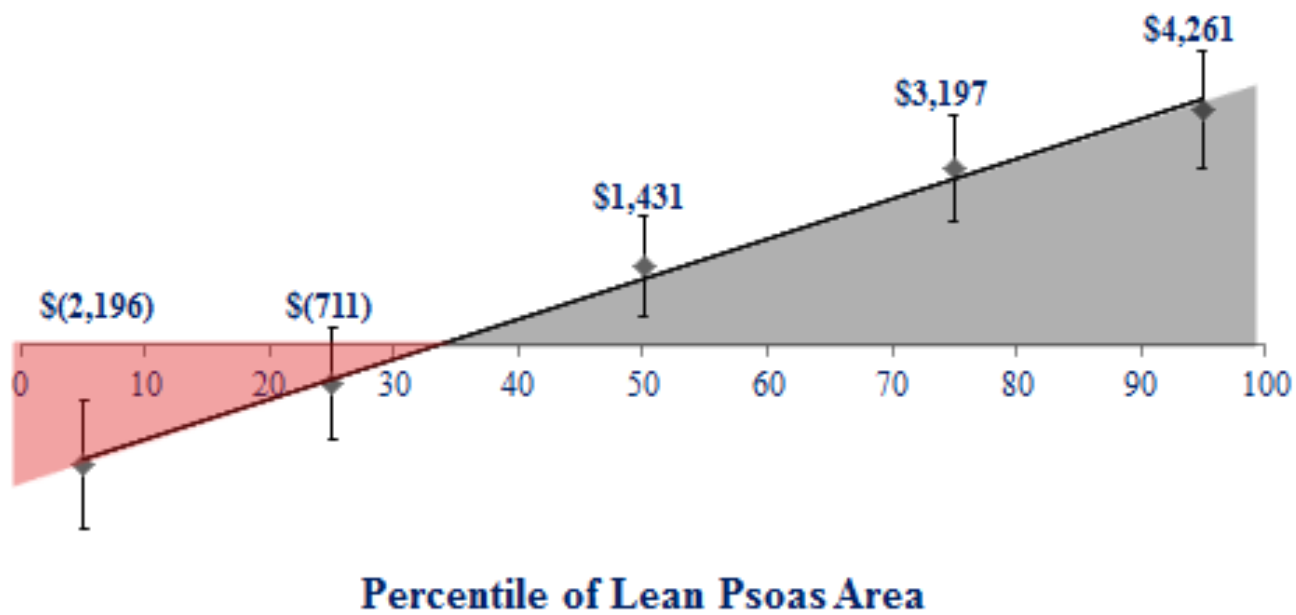


Making us innovate



“Hey Mike... nice talk. Thanks for telling me sick patients are sick. **What are you going to do about it?**”

Adjusted Hospital Margin



Shared Decision Making

Risk assessment and patient empowerment



Risk Score **76**
Of 100

Patient Training

Move



- Goal to increase **walking** distance each day
- Patients given a pedometer to track **progress**

Breathe



- Incentive **spirometer** given to patients with training goals
- **Smoking cessation** resources/classes offered

Eat



- Resources for **improving nutrition** given to patient
- Healthy **weight loss** goals

Relax



- Relaxation techniques and **sleep training**
- Resources for alternative **relaxation** classes

Patient Reported Outcomes

Collect patient-specific recovery data



Sitting in a 3.8-metre sea
kayak and watching
a four-metre great
white approach you is
a fairly tense experience

MOTIVATION

If there is a better reason to paddle, I don't know what it is.

Does it work?

Warning this is not good science

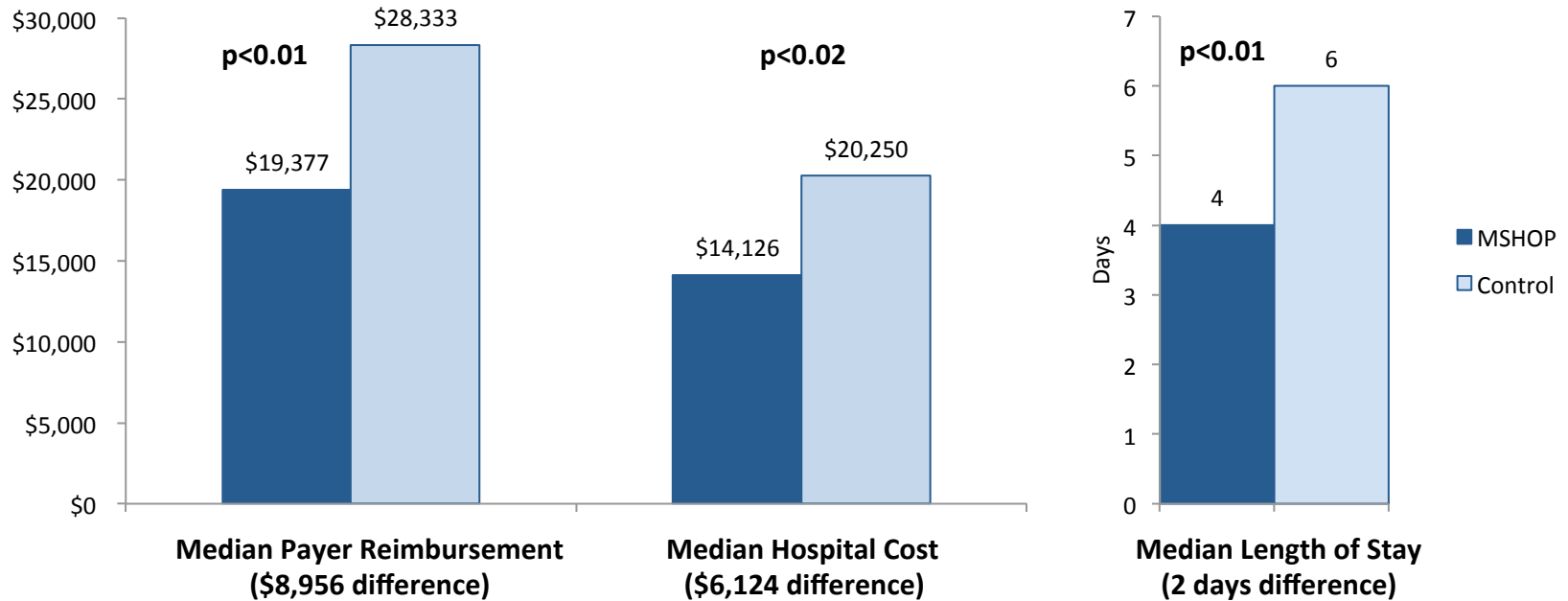
1100 patients

85% agree

91% compliant

\$8,900

Phase 3 Data - MSHOP



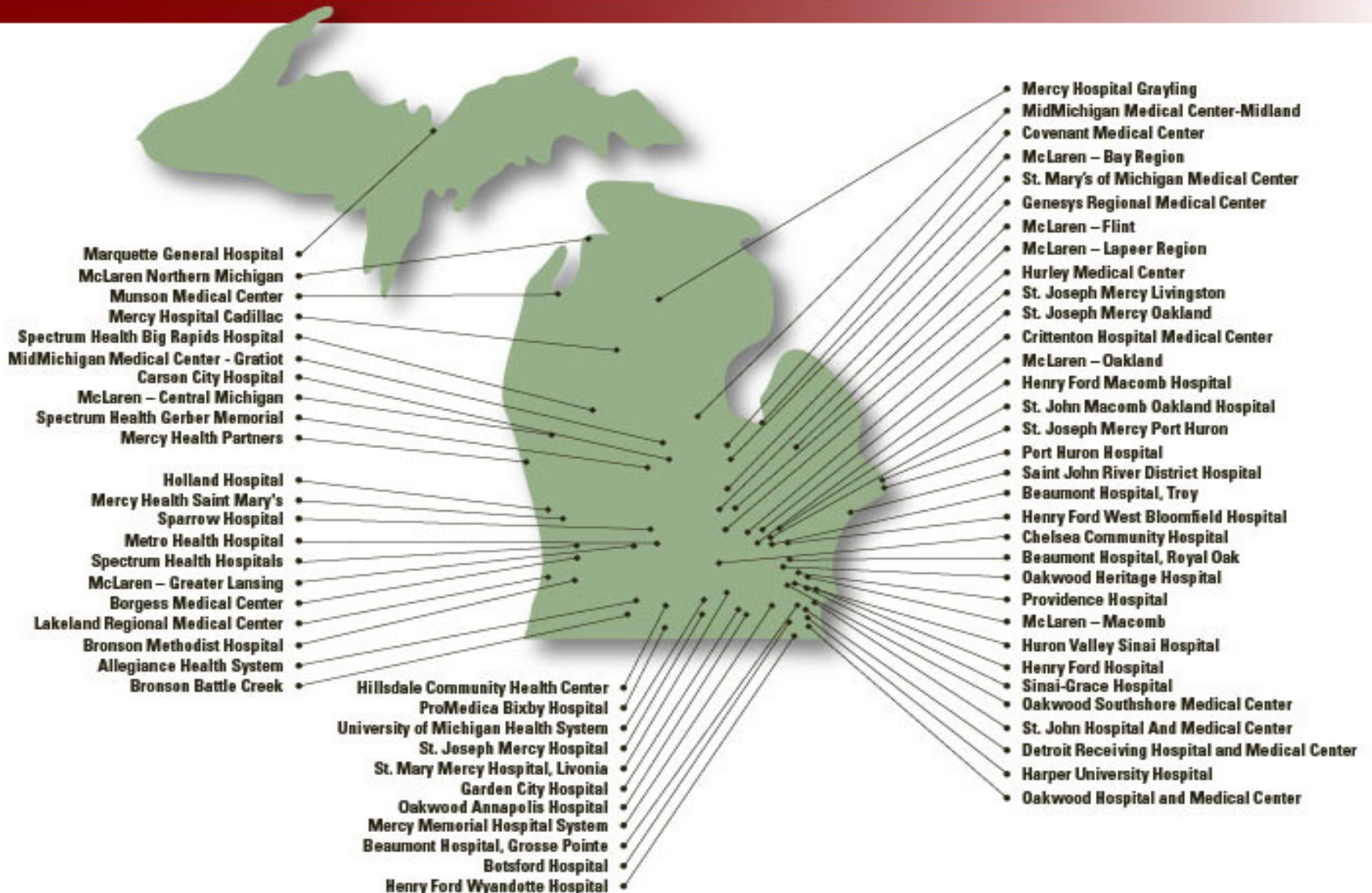
A Patient's Perspective



“I wish this program had been available when I was initially diagnosed. It would have made my first surgery so much easier and empowered me to take control of my outcomes earlier.”

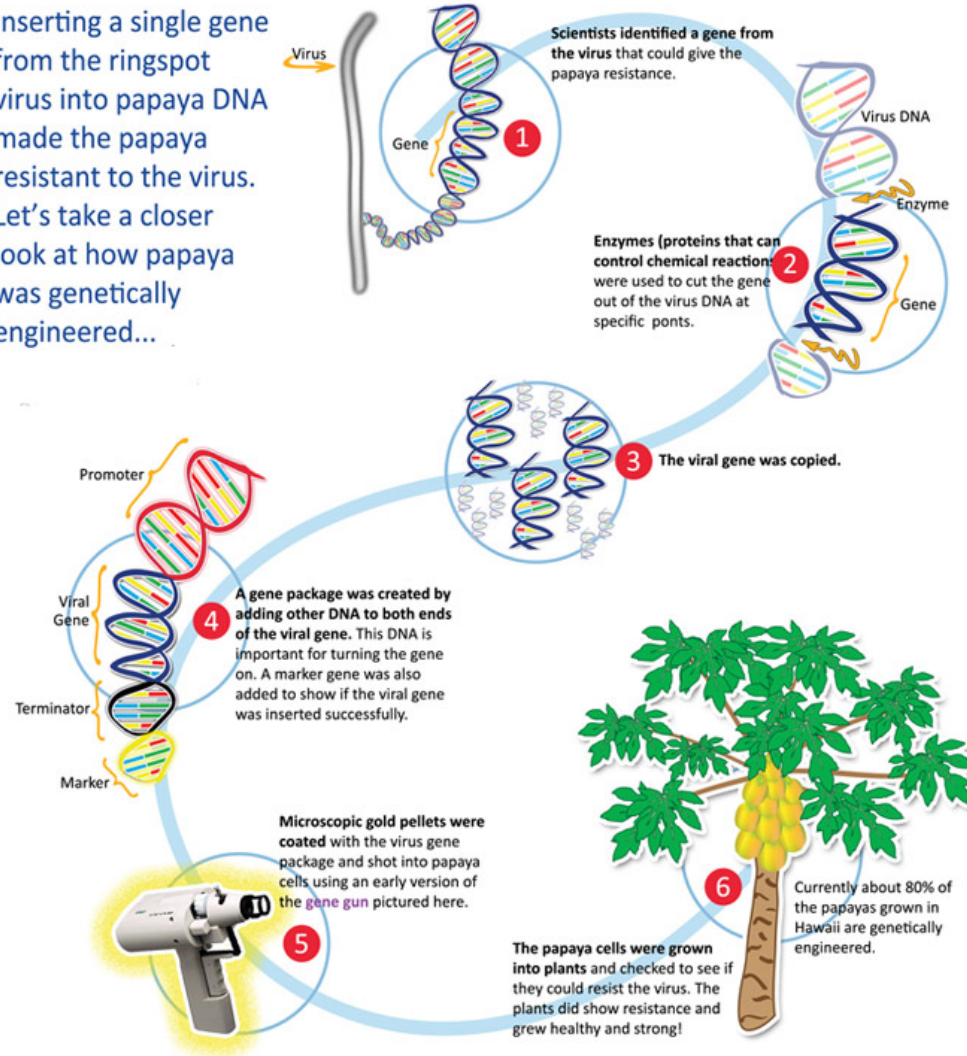
MSQC

Michigan Surgical Quality
Collaborative



HOW does it WORK?

Inserting a single gene from the ringspot virus into papaya DNA made the papaya resistant to the virus. Let's take a closer look at how papaya was genetically engineered...



Where is the data??



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Why every patient should train for surgery

Patient empowerment



I am getting appropriate care
I trust them
I made a good decision
I did everything I could to optimize my outcomes

ARS question #2

What peri-op domain has the biggest impact on surgical outcomes?

1. Surgical decision making and techniques
2. Patient functional status
3. Medical comorbidities
4. System of care delivery
5. Patient psychology or peri-op mindset