“Thirty Years in the Making, Now Making History: Research in the New World of HCA GME”

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No financial or other conflict of interest to disclose
Topics for discussion

- 30 years in the making…
- Making History?
  - HCA
    - Potential power of working with HCA
  - HCA SATL GME
  - How can our history help you make history?
- Collaborative Possibilities
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My “Wrestling” Grant

- Grantsmanship
  - Flexibility
  - Collaboration
  - Persistence

Agency/Title of Grant: National Science Foundation

TECHFIT: Teaching engineering concepts harnesses future innovators and technologists.

Duration of Funding: 2013 - 2017

Amount: $1.19 million (subcontract to CofC)

PI: Bradley Harriger

Role: Co-PI

If Co-PI, total funding for which you were directly responsible: ~30%
Elevated inflammatory status and increased risk of chronic disease in chronological aging: **Inflamm-aging or inflamm-inactivity?**

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• Chasing an “aberrant” research finding?

• Inflammatory markers linked to osteoporosis

• Inflammatory markers in 69-89 year old women who underwent resistance training.
Anti-inflammatory action of exercise?

- Mechanism
  - LPS receptor down regulation
  - Monocyte activation
  - Body fat
  - Platelet-Monocyte complexes
Could changes in TLR4 help to explain the differences in monocyte responsiveness?


Inflammatory monocytes more likely to become lodged in vascular plaques.

Physically inactive

Inflammatory monocytes more likely to become lodged in vascular plaques.

Physically Active

May be precursors for adipose tissue macrophages.

Early clinical prediction of hypertension and IM wall thickening.

Anti-inflammatory effects of exercise/fat loss?

Platelet-monocyte complexes

- “Sticky-monocytes”

- High levels of physical activity or planned exercise training appear to exert an anti-inflammatory effect.

- These effects are exerted by:
  - Downregulation of toll-like receptor 4
    - Secondary to reduced monocyte responsiveness to mitogen.
  - Reduced circulating inflammatory monocytes
  - Platelet-monocyte complexes?
Several important links between these responses and chronic disease

- Type 2 diabetes
- CV disease
- Osteoporosis
- Hypertension

Inflamm-aging or Inflamm-inactivity?
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Collaborative Possibilities
Mission: Above all else, we are committed to the care and improvement of human life.

177 hospitals and 119 surgery centers located in 20 states and the United Kingdom
2017 HCA by the Numbers

177 hospitals and 119 surgery centers located in 20 states and the UK

Creating Healthy Communities

27+ Million

Patient encounters each year

8.4 Million Emergency room visits annually

Leading the Practice of Medicine

HCA named one of the

“World’s Most Ethical Companies”

for eight years in a row

Ranked 63rd in

Fortune 500

241,000

Employees

37,000

Active physicians

80,000

Nurses
LARGEST sponsor of GME in the USA

70+ Outpatient Clinic FTEs

46 Hospitals

3,159 Residents (7/1/17)

773 Graduates (6/30/17)

150k ED Coverage Hours

1.1M Night Coverage Hours

500k Surgical Training Hours

2017 GME by the Numbers

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Original Investigation

Association of a Bundled Intervention With Surgical Site Infections Among Patients Undergoing Cardiac, Hip, or Knee Surgery

Marin L. Schweizer, PhD; Hsiu-Yin Chiang, MS, PhD; Edward Septimus, MD; Julia Moody, MS; Barbara Braun, PhD; Joanne Hafner, RN, MS; Melissa A. Ward, MS; Jason Hickok, MBA, RN; Eli N. Perencevich, MD, MS; Daniel J. Diekema, MD; Cheryl L. Richards, MJ, LPN, LMT; Joseph E. Cavanaugh, PhD; Jonathan B. Perlin, MD, PhD; Loreen A. Herwaldt, MD

**IMPORTANCE** Previous studies suggested that a bundled intervention was associated with lower rates of *Staphylococcus aureus* surgical site infections (SSIs) among patients having cardiac or orthopedic operations.

**OBJECTIVE** To evaluate whether the implementation of an evidence-based bundle is associated with a lower risk of *S. aureus* SSIs in patients undergoing cardiac operations or hip or knee arthroplasties.

**DESIGN, SETTING, AND PARTICIPANTS** Twenty hospitals in 9 US states participated in this pragmatic study; rates of SSIs were collected for a median of 39 months (range, 39-43) during the preintervention period (March 1, 2009, to intervention) and a median of 21 months (range, 14-22) during the intervention period (from intervention start through March 31, 2014).
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Making History?

- First Division Director of Research at HCA SATL
  - Grand Strand Medical Center GME
  - Orange Park Medical Center GME
  - Coliseum Medical Center GME
  - Savannah Memorial University Hospital GME
  - Memorial Satilla Health
  - Trident/MUSC

- ~240 residents
HCA South Atlantic

- 14 hospitals
  - Six GME Sites
    - Grand Strand Medical Center, Myrtle Beach, SC
      - General Surgery, Internal Medicine, Family Medicine, Emergency Medicine, Transition Year
    - Orange Park Medical Center, Orange Park, FL
      - Emergency Medicine, Family Medicine, Internal Medicine, Transition Year
    - Coliseum Medical Center, Macon, GA
      - Psychiatry, Internal Medicine, Family Medicine, Ob/Gyn
o HCA South Atlantic GME sites (cont.)
  o Memorial University Hospital, Savannah, GA
    o Pediatrics, Diagnostic Radiology, Obstetrics and Gynecology, Internal Medicine, Family Medicine, Surgery
  o Trident Medical Center/MUSC, Charleston, SC
    o Family Medicine
  o Memorial Satilla Health, Waycross, GA
    o Family Medicine
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Helping you make history

- The Clinical Data Warehouse
  - Division-wide patient information
    - 14 hospitals
  - Enterprise-wide (with justification)
    - 177 hospitals
Clinical Data Warehouse (CDW)

Corporate Governance

Division Governance

Intake Form

Local Researchers & Physicians

Division Governance

Intake Form

Local Researchers & Physicians

Intake Form

Local Researchers & Physicians
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Collaborative Possibilities
Collaboration with South Atlantic GME

- Number of faculty...
Emergency Medicine
- Ultrasonography in emergency medicine
- Toxicology and Marine Envenomation – Jelly Fish, Sting Ray…, Snake and Shark Bites,
- Drownings, EMS, and Health Services
- Vehicle crash injury studies
- Understanding the impact of new ED programs
- Contrast-induced acute kidney injury in blunt force trauma patients

Internal Medicine
- Innovation in Graduate Medical Education
- Clinical Informatics
- Enhancing Resident Wellness
- Clinical Epidemiology of Tumor Markers
- Using R in Medical Education-Computational Skills
- Residents Curricular Map Analysis-Alignment with required ACGME and ABIM competencies
- Initiating a sleep protocol in an ICU setting to reduce sleep delirium.
- Psychiatry
  - Tele-medicine and geriatric care
  - Homelessness and quality of care indicators and delivery in inpatient psychiatry
  - Substance abuse prevention delivery and readmission rates
  - Nutritional status and cognitive screening at time of discharge
- Orthopedics
  - Orthopedic injuries resulting from golf cart and moped injuries
  - Vitamin D in athletes
  - Effect of MACRA on GME programs
  - Evaluating bone age on radiographs
o **Family Medicine**
  o Polypharmacy in Geriatric Care
  o Influenza Vaccine Delivery in FQHC
  o Probiotics in the treatment and management of C. Difficile
Purdue Collaborators
- Harm HogenEsch, Veterinary Pathobiology
- Wayne Campbell, Foods and Nutrition
- J. Paul Robinson, Basic Medical Sciences
- Bruce Craig, Statistics

Former Doctoral Students
- Melody D. Phillips, TCU
- Brian K. McFarlin, University of North Texas
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- Andres Carrillo, Chatham University

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- Jen Felker

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Thank you!