Accelerating & Scaling Learning Healthcare: HCA and Harvard Pilgrim Partnership

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Thank You & Congratulations!
A Remarkable Team of Collaborators

- Richard Platt, Professor and Chair of the Department of Population Medicine
- Sheila Fireman, Director of Institute Administration
- Dennis Ross-Degnan, Associate Professor and Director of Research
- Susan Huang, Professor, Infectious Disease, University of California, Irvine School of Medicine
- Grace Lee, Clinical Instructor, Pediatrics; Associate Chief Medical Office for Practice Innovation; Stanford University
- Clayton Huntley, Antibacterial Resistance Program Officer, Division of Microbiology and Infectious Diseases, NAID/NID/NIH
- John Jernigan, Director of the Office of HAIP Prevention Research and Evaluation, Division of Healthcare Quality Promotion (DHQP), CDC
- Taliser R. Avery, Ken Kleinman, Mary K. Hayden
  ...and numerous other faculty and staff at HPHCI, and collaborators at CDC; AHRQ; NIH; UCI; Rush; Stanford and beyond ...
Major Outcomes in High-Risk Hypertensive Patients Randomized to Angiotensin-Converting Enzyme Inhibitor or Calcium Channel Blocker vs Diuretic The Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (ALLHAT)

- **Size:** 33,000 Patients (vs. 75,000)
- **Efficiency:** ALLHAT $80M (vs. $3M, including supplies)
- **Length of Study:** 10 years (vs. 1½ years)

Context and Hypertension therapy is well established to reduce hypertension-related mortality and...
HCA & Harvard Pilgrim Partnership
Other Collaborations

Studies in total represent more than >23,000,000 patient encounters

Impact of Vent Sedation Regimens on Outcomes
Evaluating Hospital Variation in Sepsis Coding Using Objective Clinical Data
CMS Case Mix Adjustment for Colorectal Surgeries
Multicenter Evaluation & Comparison of Sepsis Definitions
Sepsis K08 Career Development Award PAICAP
Clusters Mediated By Universal Decolonization
Universal Decolonization on Clusters of HAIs

Mini Sentinel
Sentinel

Years

HCA: A Platform for Learning Healthcare

28 million patient episodes annually

Approximately 5% of major hospital services in U.S.:

- Admissions > 1.65 million
- Patient Days > 7.6 million
- Deliveries > 0.25 million
- Total Surgeries > 1.3 million
- ED Visits > 8.5 million

- 176 Hospitals, 120 Freestanding Surgery Centers, > 850 Physician Practices, >200 Urgent Care Centers in 23 states and London

- Hospitals range from complex tertiary referral and academic medical centers to urban and suburban community medical centers

- ~233,000 employees, including ~80,000 nurses and 30,000 allied health professionals

- >40,000 affiliated physicians, including >4,500 employed physicians and practitioners

- More than 43,000 licensed beds

- Largest provider of uncompensated care, Medicaid services to a population more diverse than U.S. pop.
### HCA: Scaling Learning, by Cluster Randomization

**Intervention:** 339,904 patients (+ ~327,000 baseline)

1,294,153 attributable patient days (intervention)

<table>
<thead>
<tr>
<th>As Randomized</th>
<th>Routine Care</th>
<th>Decolonization</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>26 Hospitals</strong></td>
<td>26 Hospitals (90 units)</td>
<td>27 Hospitals (104 units)</td>
</tr>
<tr>
<td><strong>N = 156,887</strong></td>
<td><strong>N = 183,017</strong></td>
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2 Hospitals (2 units) withdraw

3 Hospitals (6 units) withdraw

<table>
<thead>
<tr>
<th>As Treated</th>
<th>Routine Care</th>
<th>Decolonization</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>24 Hospitals</strong></td>
<td>24 Hospitals (88 units)</td>
<td>24 Hospitals (98 units)</td>
</tr>
<tr>
<td><strong>N = 152,596</strong></td>
<td><strong>N = 177,076</strong></td>
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Care Informs Care: A Learning Healthcare System

Care Changes Care: An Improving Healthcare System

HCA Clinical Informatics Framework

The Clinical Informatics (CI) framework supports the collection and analysis of data; leading to improved understanding of our patients’ conditions and to timely and precise interventions and treatments.
### Partnership Expansion Areas

<table>
<thead>
<tr>
<th>Area</th>
<th>Description</th>
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<tbody>
<tr>
<td>Behavioral Health</td>
<td>Behavioral Health Readmissions</td>
</tr>
<tr>
<td>Women's &amp; Children's</td>
<td>Optimizing Primary C-Section Rates</td>
</tr>
<tr>
<td>Patient Experience</td>
<td>Opioids and Patient Satisfaction</td>
</tr>
<tr>
<td>Endocrinology</td>
<td>Glycemic Optimization of Patients Using Endo Tool</td>
</tr>
<tr>
<td>Predictive Modeling</td>
<td>CMS Case Mix Adjustment for Colorectal Surgeries</td>
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</tbody>
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### First Principles, Lasting Wisdom...

- **Principles for Partnership Success:**
  - Operational Clarity
  - Will to change clinical practice
  - Elevate institutional reputation
  - Prevent problematic issues
  - Champion / Change Agent
  - Engage stakeholders / Resources
  - CSG due disproportionate influence
A Win for the Learning Health System

Richard Platt, MD, MS, Harvard Pilgrim Health Care Institute and Harvard Medical School; Susan G. Huang, MD, MPH, University of California, Irvine; and Jonathan B. Perlin, MD, PhD, Hospital Corporation of America, Inc.*

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A central tenet of the learning health system philosophy is that evidence development should be part of care delivery. Furthermore, it should be possible to address difficult problems in the learning health system; health care–associated infections are such problems. They are among the most serious complications of health care, and are increasingly demonstrated to be avoidable.

Preventing infections caused by a virulent, antimicrobial-resistant pathogen, methicillin-resistant Staphylococcus aureus

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74,000 patients provided strong evidence that decolonizing all patients prevented 44 percent of bloodstream infections.

The study design was straightforward—a pragmatic, cluster-randomized trial that

Above all else, we share commitment to the care and improvement of human life

. . . Thank you!