



PC⁴  PAC³

 Children's National.

*"Dear Cardiac Critical Care,
Maybe we should just be friends."*

Keynote Address
Annual PC⁴/PAC³ Meeting
April 16, 2025

Michael Gaies, MD MS MPH, Division Director, Cardiology
Executive Co-Director, Heart Institute, Cincinnati Children's Hospital



Disclosures

- No financial disclosures
- PC⁴ lens – generalizable ideas
- There will be vulnerability



Objectives

“Retrospective on developing a registry (network) and lessons learned...”

“...Future of registry data in congenital heart disease [research]...”

“...any interesting topics you would like to present.”

Why I'm excited to be here

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Why I'm excited to be here

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s National.

Why I'm excited to be here



Dear Cardiac Critical Care,

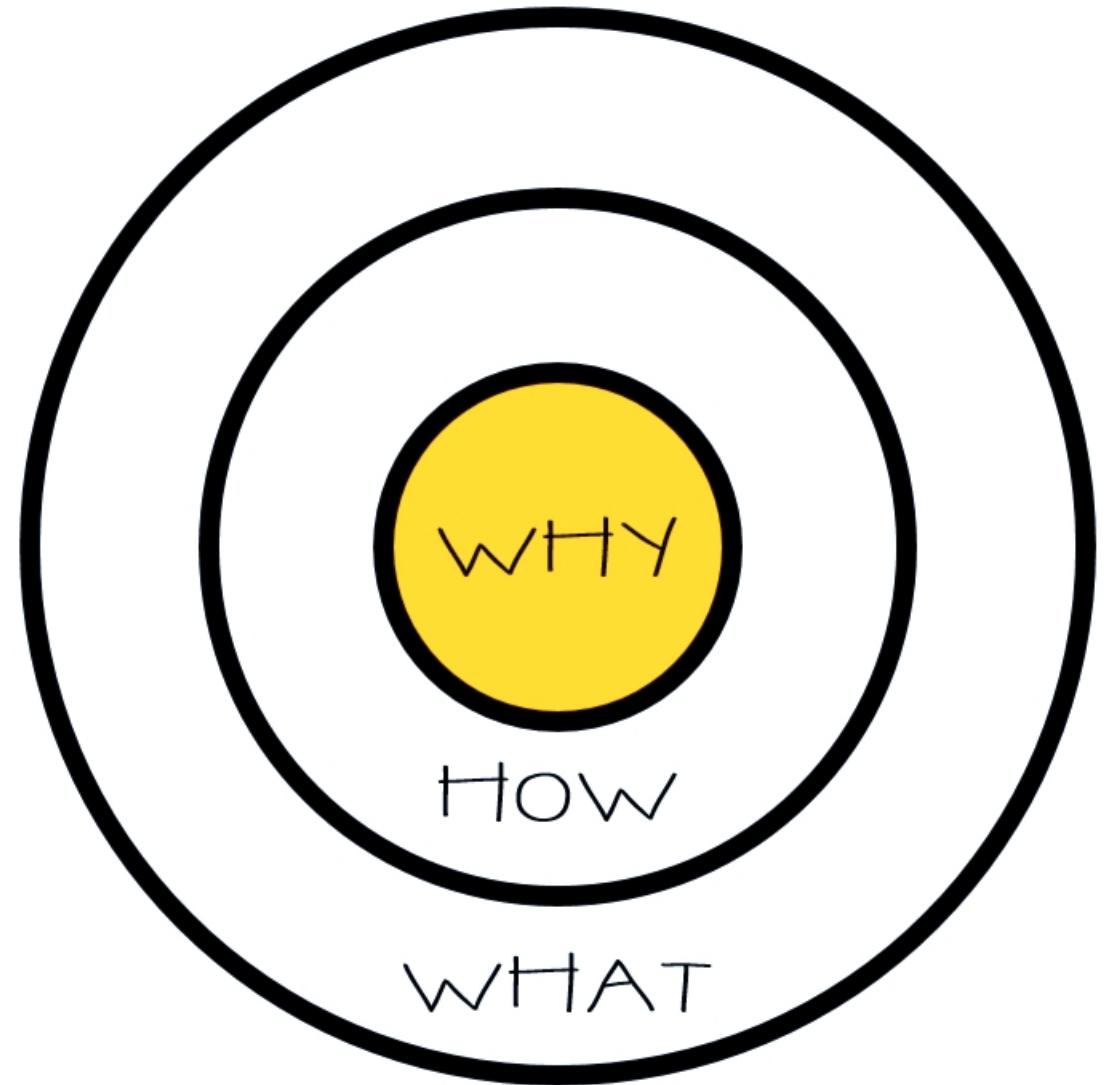
Maybe we should just be friends. We had an amazing run together. I remember the early days so vividly; I was completely enamored from the beginning, and wanted to spend all my time with you...

Retrospective: Lessons for success

How it started...



The Golden Circle



Outline

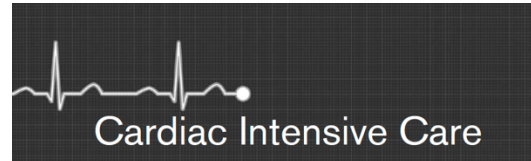
- Why
 - Vision
- How
 - Core principles of quality improvement collaboratives
- What
 - Focused, CICU-specific clinical registry
 - Dedicated research infrastructure
 - State-of-the-art informatics

Why does **PC⁴** exist?

Vision: to be an international leader in the effort to improve care to critically ill patients with pediatric and congenital heart disease

- Save lives
- Improve long-term health
- Responsible resource utilization

My personal “Why”



Measuring CICU Performance

“Are we a good CICU?”

A Novel Model Demonstrates Variation in Risk-Adjusted Mortality Across Pediatric Cardiac ICUs After Surgery*

Sarah Tabbutt, MD, PhD¹; Jennifer Schuette, MD, MS²; Wenyong Zhang, MS³; Jeffrey Alten, MD⁴; Janet Donohue, MPH⁵; J. William Gaynor, MD⁶; Nancy Ghanayem, MD⁷; Jeffrey Jacobs, MD⁸; Sara K. Pasquali, MD, MHS⁵; Ravi Thiagarajan, MD⁹; Justin B. Dimick, MD, MPH³; Mousumi Banerjee, PhD³; David Cooper, MD, MPH¹⁰; Michael Gaies, MD, MPH, MSc⁵

Variation in Adjusted Mortality for Medical Admissions to Pediatric Cardiac ICUs*

Michael Gaies, MD^{1,2}; Nancy S. Ghanayem, MD³; Jeffrey A. Alten, MD⁴; John M. Costello, MD⁵; Javier J. Lasa, MD³; Nikhil K. Chanani, MD⁶; Andrew Y. Shin, MD⁷; Lauren Retzlaff, MPH⁸; Wenyong Zhang, MS^{2,8}; Sara K. Pasquali, MD^{1,2}; Mousumi Banerjee, PhD^{2,9}; Sarah Tabbutt, MD, PhD¹⁰



Pillars of success

1. A strong “Why” (and an unwavering dedication to it)

Dear Cardiac Critical Care,

"... wanted to spend all my time with you. And spend time we did. It's incredible to think about the places we went and the people we met together."

The PC⁴ Road Show



The PC⁴ Road Show



New friends

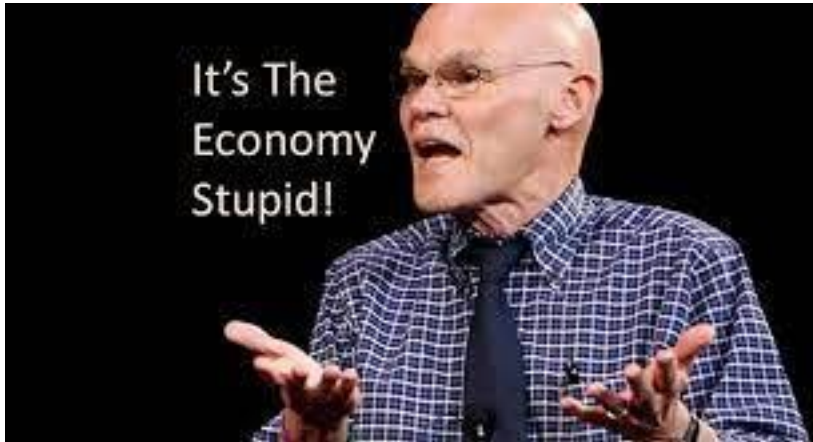




Pillars of success

1. A strong “Why” (and an unwavering dedication to it)
- 2. Strong community bonds. Like family.**

“It’s the Data, stupid”



Data integrity of the Pediatric Cardiac Critical Care Consortium (PC⁴) clinical registry

Published online by Cambridge University Press: 11 September 2015

Michael Gaies, Janet E. Donohue, Gina M. Willis, Andrea T. Kennedy, John Butcher, Mark A. Scheurer, Jeffrey A. Alten, J. William Gaynor, Jennifer J. Schuette, David S. Cooper, Jeffrey P. Jacobs, Sara K. Pasquali and Sarah Tabbutt



Assessing data accuracy in a large multi-institutional quality improvement registry: an update from the Pediatric Cardiac Critical Care Consortium (PC⁴)

Published online by Cambridge University Press: 28 December 2021

Jennifer Schuette , Hayden Zaccagni, Janet Donohue, Julie Bushnell, Kelly Venezia, Michael Gaies and Sarah Tabbutt



Pillars of success

1. A strong “Why” (and an unwavering dedication to it)
2. Strong community bonds. Like family.
3. **Be exceptional, and when you know what that is, double down.**

Dear Cardiac Critical Care,

"... the places we went and the people we met together.

It seemed like we could accomplish anything. We were achieving our goals, and all our dreams seemed to be coming true. It was hard to imagine anything disrupting our bliss."

Reaching the mountain top

JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY
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 PUBLISHED BY ELSEVIER

VOL. 74, NO. 22, 2019

Improvement in Pediatric Cardiac Surgical Outcomes Through Interhospital Collaboration



Michael Gaies, MD, MPH, MS,^a Sara K. Pasquali, MD, MHS,^a Mousumi Banerjee, PhD,^b Justin B. Dimick, MD, MPH,^c John D. Birkmeyer, MD,^d Wenying Zhang, MS,^e Jeffrey A. Alten, MD,^f Nikhil Chanani, MD,^g David S. Cooper, MD,^f John M. Costello, MD, MPH,^h J. William Gaynor, MD, PhD,ⁱ Nancy Ghanayem, MD,^j Jeffrey P. Jacobs, MD,^k John E. Mayer, MD,^l Richard G. Ohye, MD,^m Mark A. Scheurer, MD,^h Steven M. Schwartz, MD,ⁿ Sarah Tabbutt, MD, PhD,^o John R. Charpie, MD, PhD^a

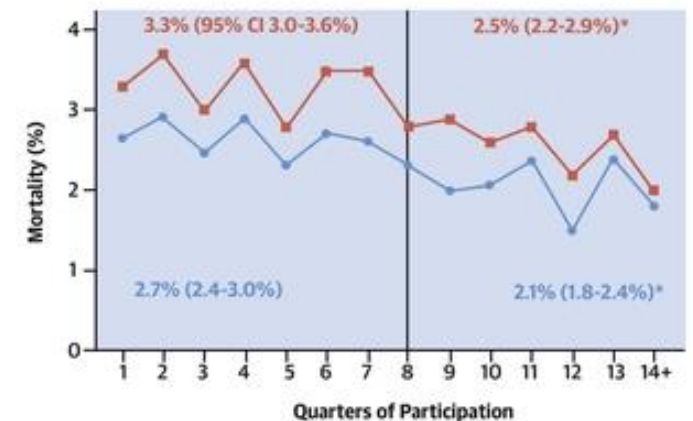


CENTRAL ILLUSTRATION: Improving Pediatric Cardiac Surgical Outcomes: Change in Post-Operative Mortality Over Time

A Improvement in Cardiac Surgical Outcomes at Pediatric Cardiac Critical Care Consortium Hospitals



B Case-Mix Adjusted Mortality by Quarter



Gaies, M. et al. J Am Coll Cardiol. 2019;74(22):2786-95.

Reaching the mountain top

JAMA Pediatrics | Original Investigation | CARING FOR THE CRITICALLY ILL PATIENT

Preventing Cardiac Arrest in the Pediatric Cardiac Intensive Care Unit Through Multicenter Collaboration

Jeffrey Alten, MD; David S. Cooper, MD, MPH; Darren Klugman, MD; Tia Tortoriello Raymond, MD; Sharyl Wooton, MS; Janie Garza, RN, MSN; Katherine Clarke-Myers, PhD; Jeffrey Anderson, MD; Sara K. Pasquali, MD, MHS; Mohammed Absi, MD; Jeremy T. Affolter, MD; David K. Bailly, DO; Rebecca A. Bertrandt, MD; Santiago Borasino, MD, MPH; Maya Dewan, MD, MPH; Yuliya Domnina, MD; John Lane, MD; Amy N. McCammond, MD; Dana M. Mueller, MD; Mary K. Olive, MD; Laura Ortmann, MD; Parthak Prodhan, MD, MBA; Jun Sasaki, MD; Carly Scahill, DO, MSCR; Luke W. Schroeder, MD; David K. Werho, MD; Hayden Zaccagni, MD; Wenying Zhang, MS; Mousumi Banerjee, PhD; Michael Gaies, MD, MPH, MS; for the PC4 CAP Collaborators

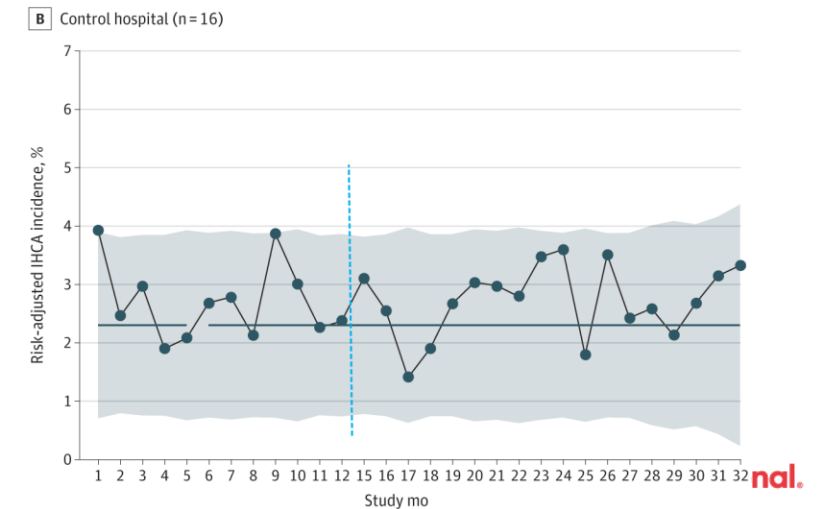
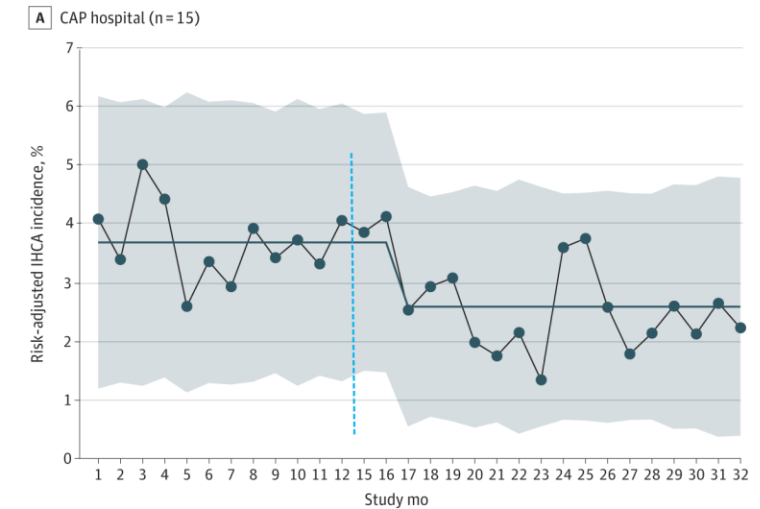
JAMA Network | **Open**



Original Investigation | Critical Care Medicine

Sustained Performance of Cardiac Arrest Prevention in Pediatric Cardiac Intensive Care Units

Dana Mueller, MD; David K. Bailly, DO; Mousumi Banerjee, PhD; R.A. Bertrandt, MD; Santiago Borasino, MD, MPH; Mario Briceno-Medina, MD; Titus Chan, MD; J. Wesley Diddle, MD; Yuliya Domnina, MD; Katherine Clarke-Myers, PhD; Chloe Connelly, MA; Amy Florez, DNP, APRN, CPNP-AC; Michael Gaies, MD, MPH, MS; Janie Garza, RN, MSN; Rod Ghassemzadeh, MD; John Lane, MD; Amy N. McCammond, MD; Mary K. Olive, MD; Laura Ortmann, MD; Parthak Prodhan, MD, MBA; Tia Tortoriello Raymond, MD, MBA; Jun Sasaki, MD; Carly Scahill, DO, MSCR; Luke W. Schroeder, MD; Kurt R. Schumacher, MD, MS; David K. Werho, MD; Wenying Zhang, MS; Jeffrey Alten, MD; for the PC4 CAP Collaborators





Pillars of success

1. A strong “Why” (and an unwavering dedication to it)
2. Strong community bonds. Like family.
3. Be exceptional, and when you know what that is, double down.
4. **Stick your neck out. Do what others will not. Do what others cannot.**

Dear Cardiac Critical Care,

"... It was hard to imagine anything disrupting our bliss.

And yet, I was starting to have my doubts. Could I stay in this relationship long-term? Fundamentally, the question I asked myself was: am I good enough for you?"

How it started, how it's going

2008

Are we a great
CICU?

2021

Am I a great
cardiac intensivist?

How do you know if you're great?

Fellows

Surgeons

NPs

Families

Nurses

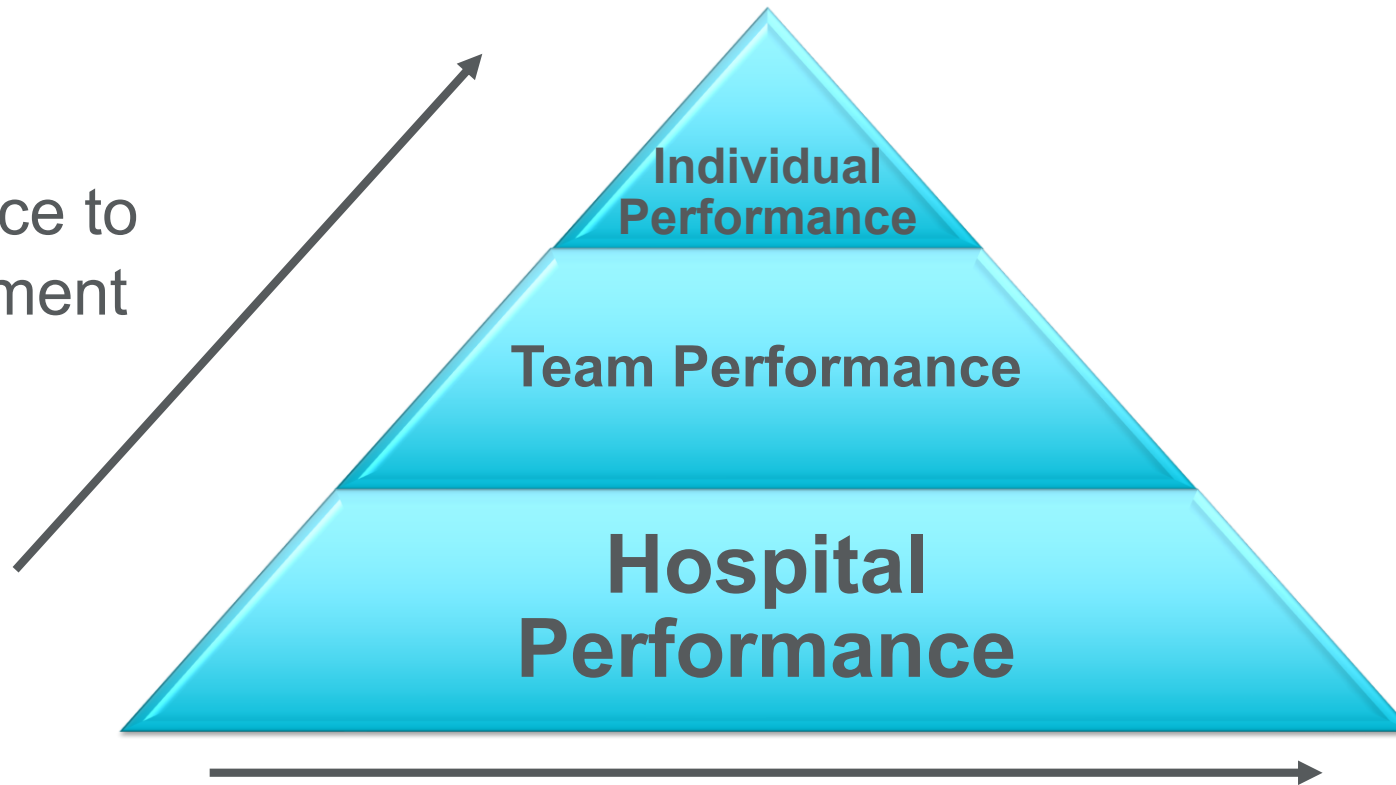
Faculty
colleagues





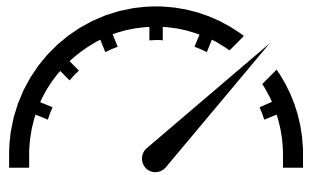
Improvement Pyramid

Importance to improvement

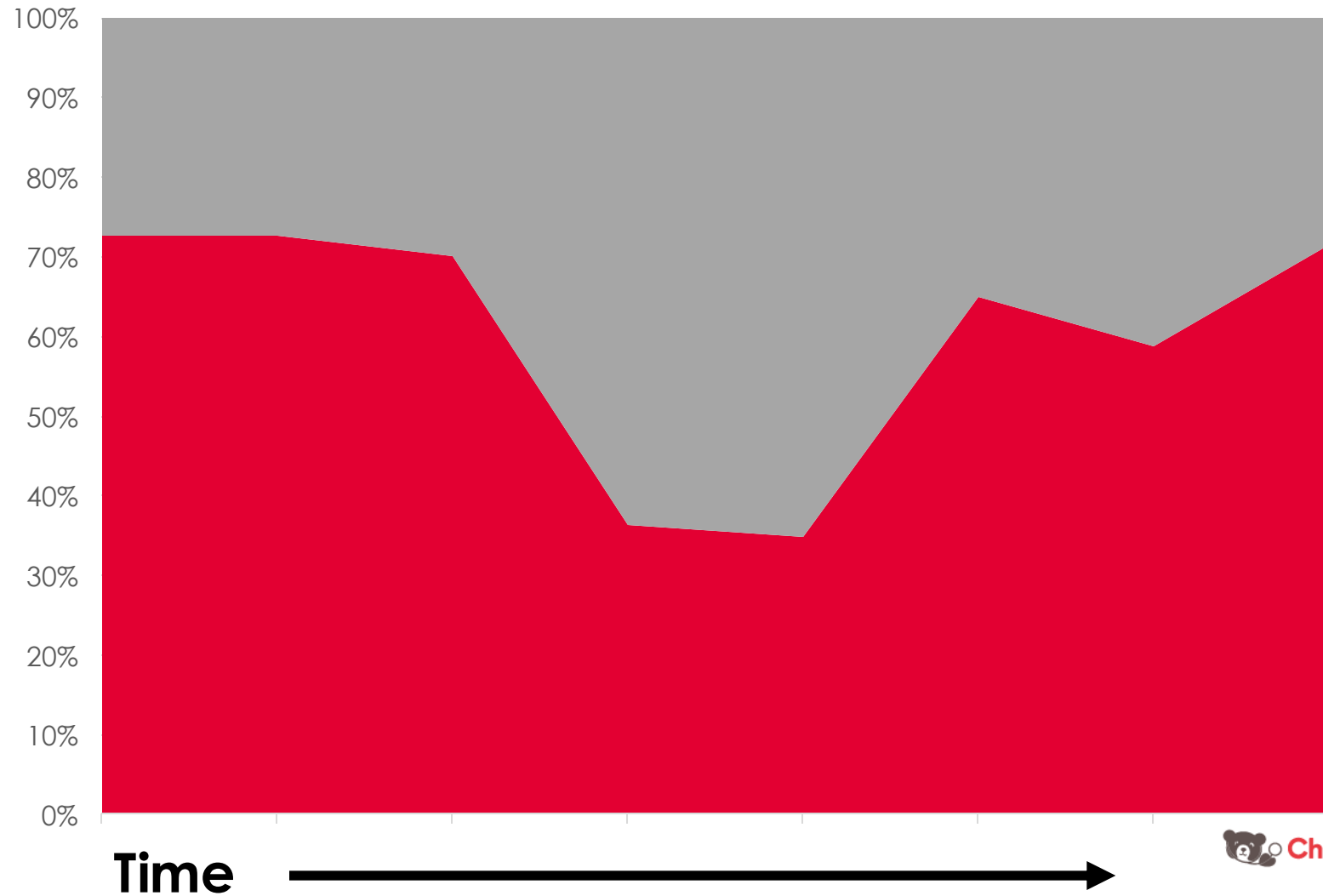


How much we know, how much we measure

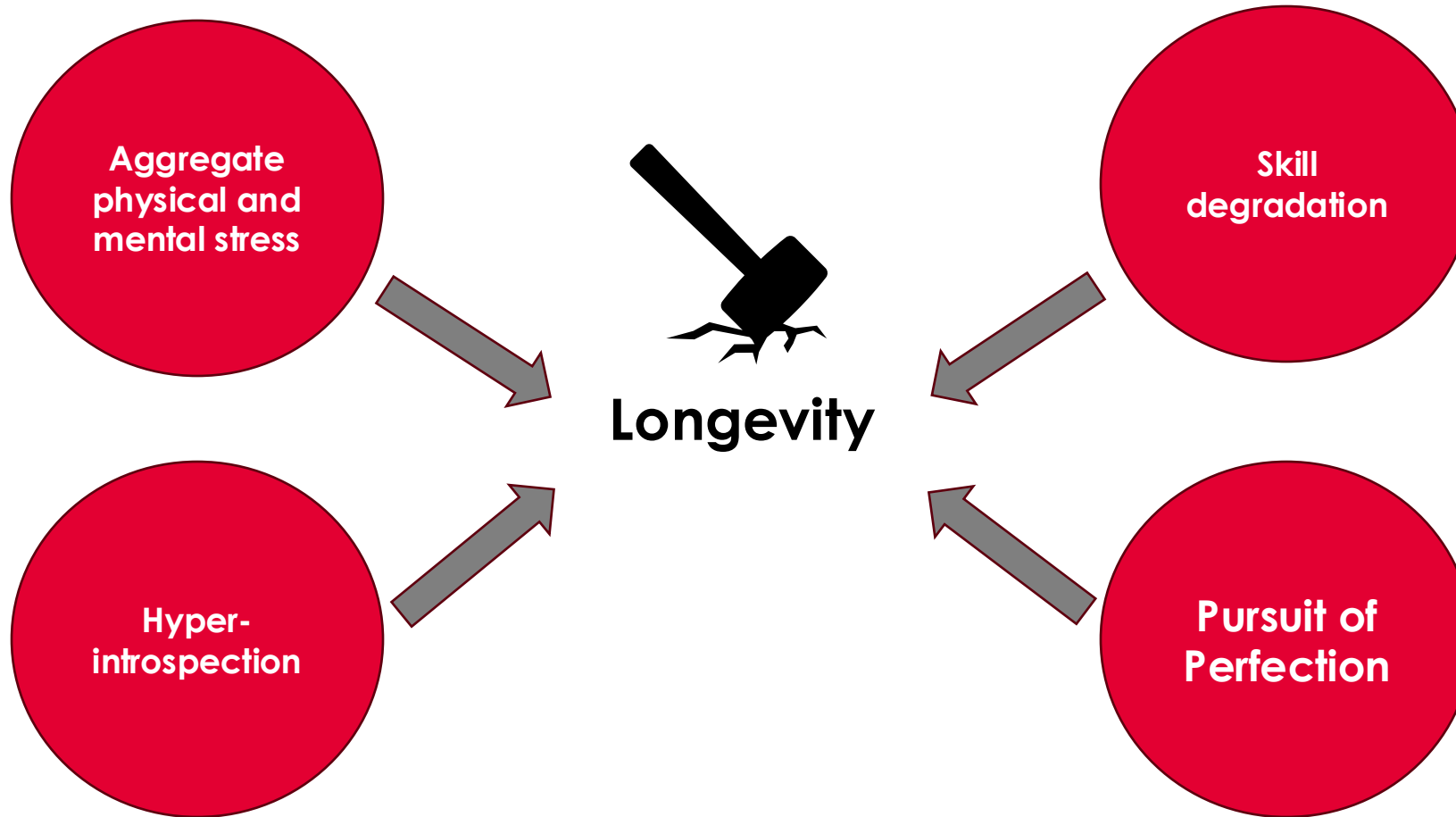
Longevity



PC⁴ PAC³

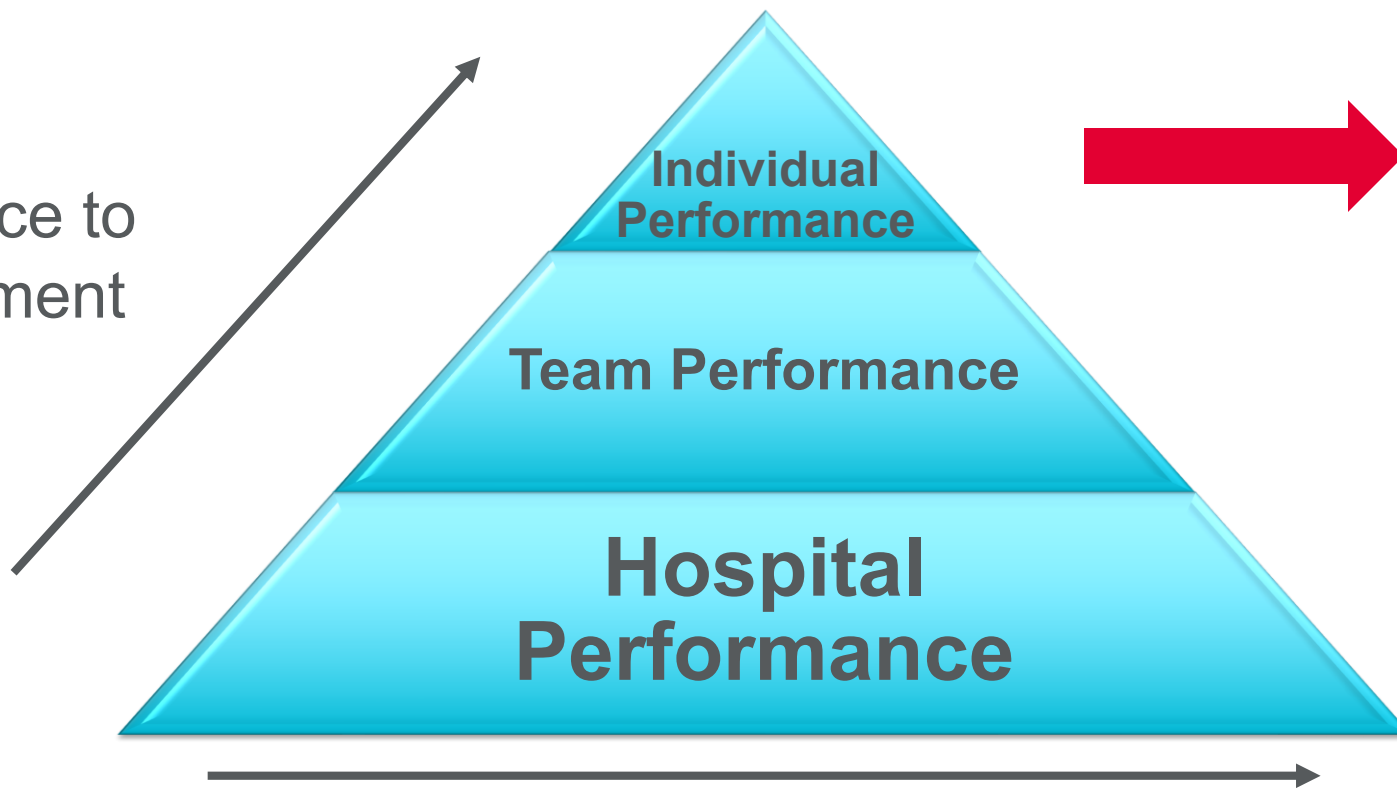


Stressors on cardiac intensivists



Improvement Pyramid

Importance to improvement



How much we know, how much we measure

Well-being

Job satisfaction

Longevity



Why does **PC⁴** exist?

Vision: to be an international leader in the effort to improve care to critically ill patients with pediatric and congenital heart disease

- Save lives
- Improve long-term health
- Responsible resource utilization

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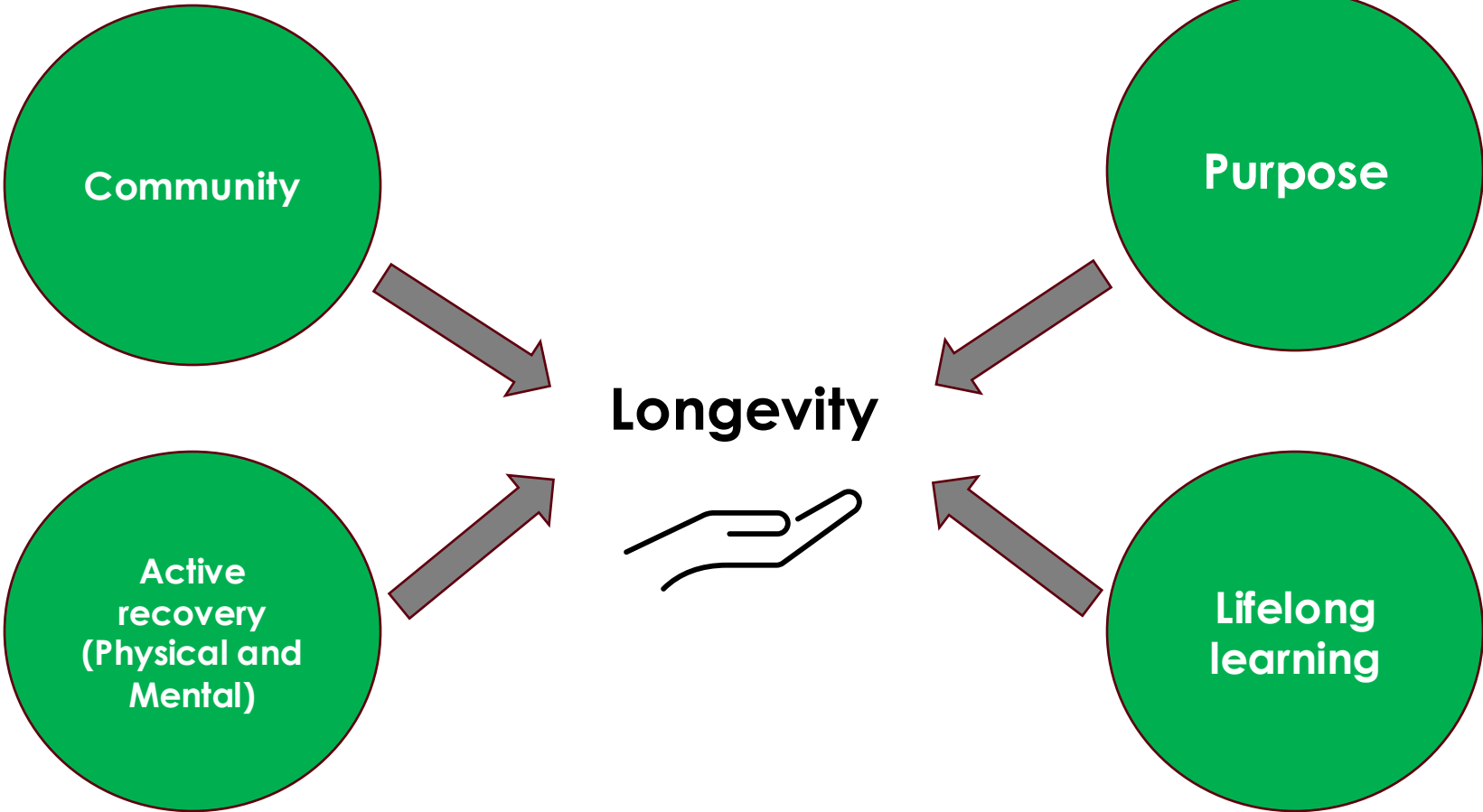
- Save lives
- Improve long-term health
- **Responsible resource utilization**

Why does **PC⁴** exist?

Vision: to be an international leader in the effort to improve care to critically ill patients with pediatric and congenital heart disease

- Save lives
- Improve long-term health
- **Cultivating our greatest resource – our workforce**

Antidotes

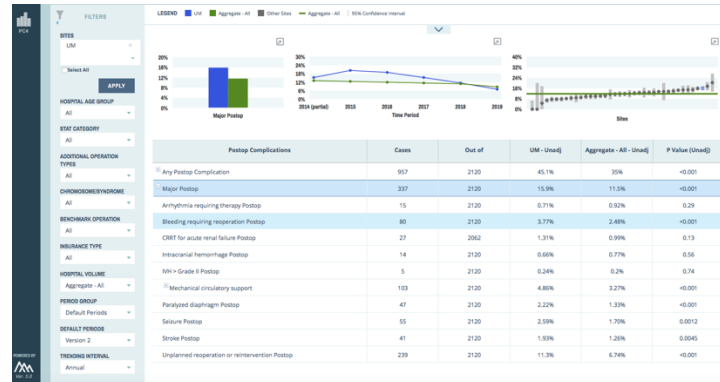


How might we?

- Measure



- Performance feedback



- Improve

ANNALS OF MEDICINE

PERSONAL BEST



By Atul Gawande

September 26, 2011



Dear Cardiac Critical Care,

“So here we are. We’ve gone our separate ways. You are in good hands and I’m excited to see what comes next for you. I’ll always miss our time together, and I will do whatever I can to help now and forever. Be well.”

MG

Thank You!
PC⁴ ♥ PAC³
 **Children's National.**