

University of CQI

Part One

Women and Children's Services

Providence Health

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Medical Director - Innovation Research Value

2021

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18% USA GDP - healthcare - \$3.8 trillion.

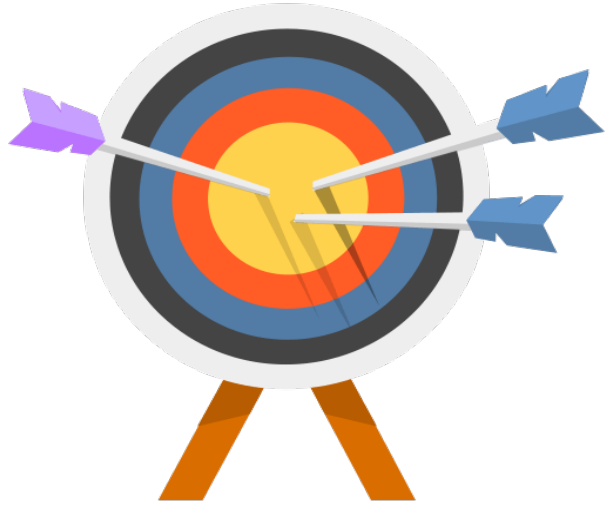
Administrative portion is \$750 billion

>> Dept of Defense >> Public Schools

\$1.3 trillion estimated “waste”.

Population health measures are not stellar.





The Quadruple Aim

Improve Population Health

**Improve Individual
Care Experience
STEEP**

**Improve Affordability
Reduce Cost**

Enhance Provider Satisfaction

Is this possible? Is this helpful?

By 2020 90% of clinical decisions will be supported by clinical practice guidelines which reflect the best available evidence.



**National Academy of Medicine
2011**

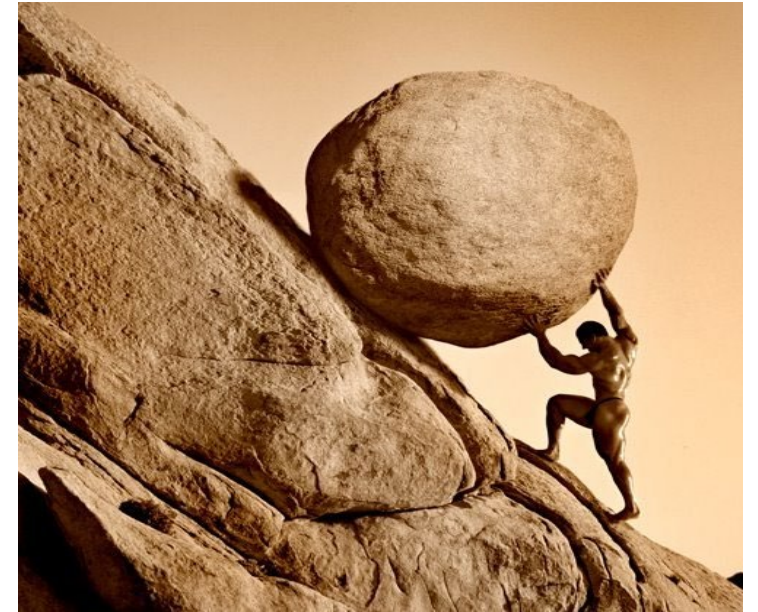
We have a challenge.

What can we know?

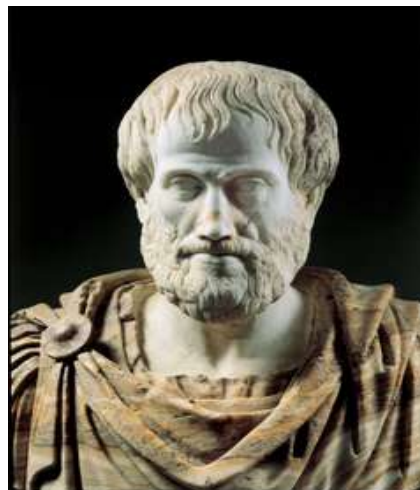
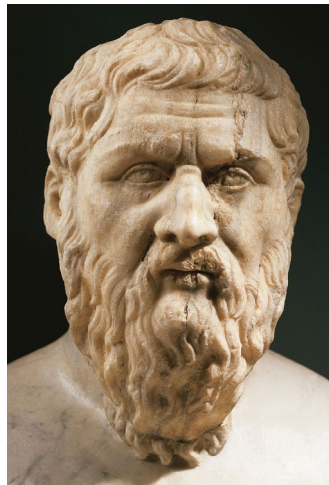
What is truth?

What is good?

How should we live?



The Myth of Sisyphus



Socrates Plato Aristotle

Paul Batalden Instructions from the Institute for Healthcare Improvement

1. Do your job.
2. Figure out how to do your job better

He forgot to add:

3. Oh BTW, do your job faster,
with less money, more safely,
and make sure families are
happier.



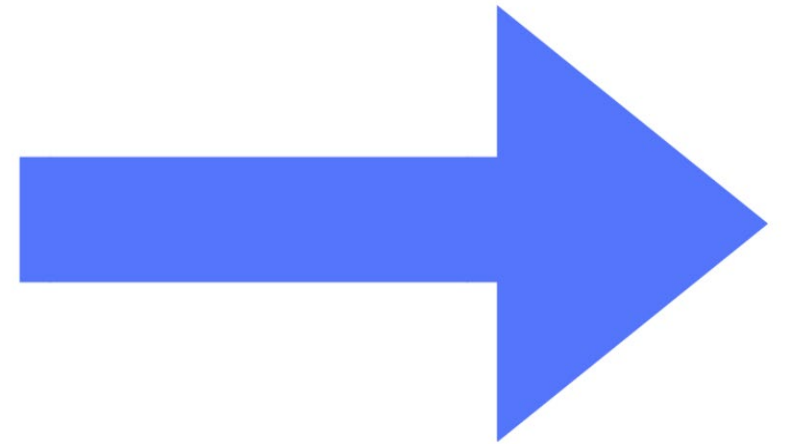
6 Take Home Messages

Concise without oversimplification.

Accuracy without denying flux.

**Meaningful without abandoning
impartiality.**

Clarity without sacrificing uncertainty.



*Your UNIT/CLINIC is perfectly
designed.....*

*to produce the outcomes you are
currently having.*

It is NOT random.

*Are you content with your
outcomes?*

**2/3 of diagnostics and therapeutics in
healthcare do NOT have a solid
evidence base.**

***“That’s just how we
do it here.”***

John Ioannidis – Stanford METRICS



“Why Most Published Research Findings are False”

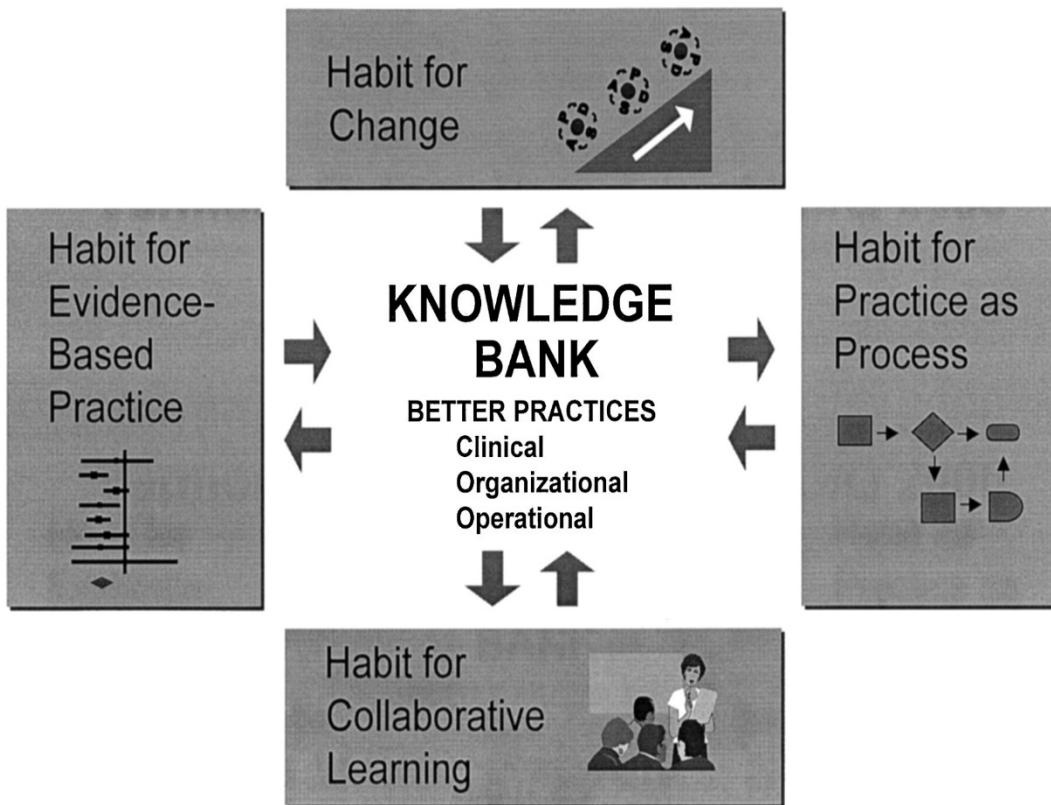
All quality improvement
begins with a look in the
mirror.

I can only control me.

Free Won't

4 Key Quality Improvement Habits

Vermont Oxford Network NIC/Q 2000



Culture of Change
Evidence Based Medicine
Collaboration
Systems Thinking and
Process Complexity

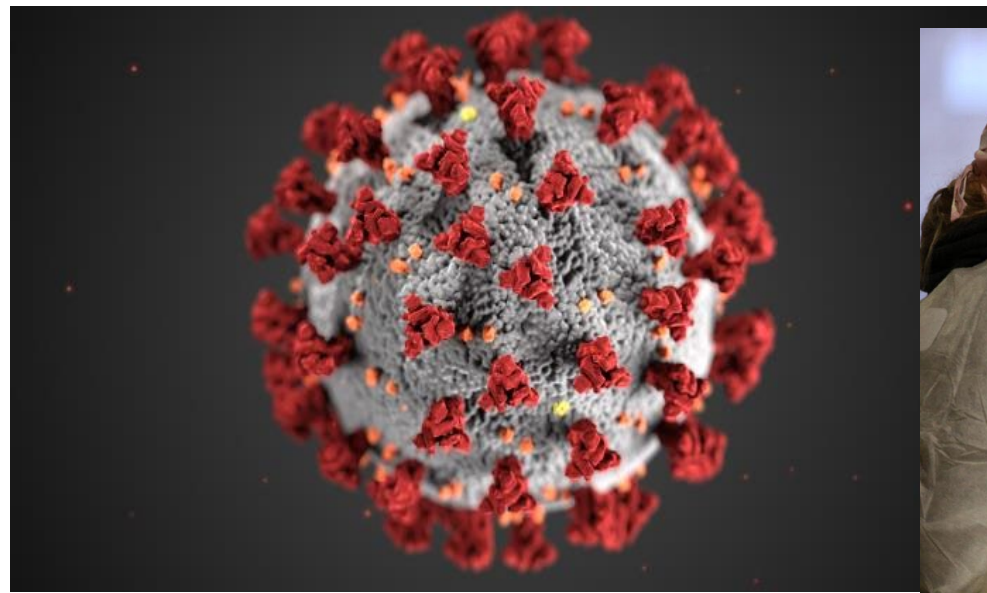
1990's slide
Still right on target

Effective change and value-culture killers

- **Top-down process without local context.**
- **Change not supported or initiated by the groups capable of resisting.**
- **Reliable QI structure and process not imbedded as normal activities.**
- **Standardization via clinical practice guidelines with measure-and-adjust tools is the exception not the rule.**
- **Attempts to improve deny VUCA, rather than embracing it.**

volatility, uncertainty, complexity, ambiguity.

No time for
evidence-
based quality
improvement?



Robust EBM and CQI

Waste Reduction

Safety

Value

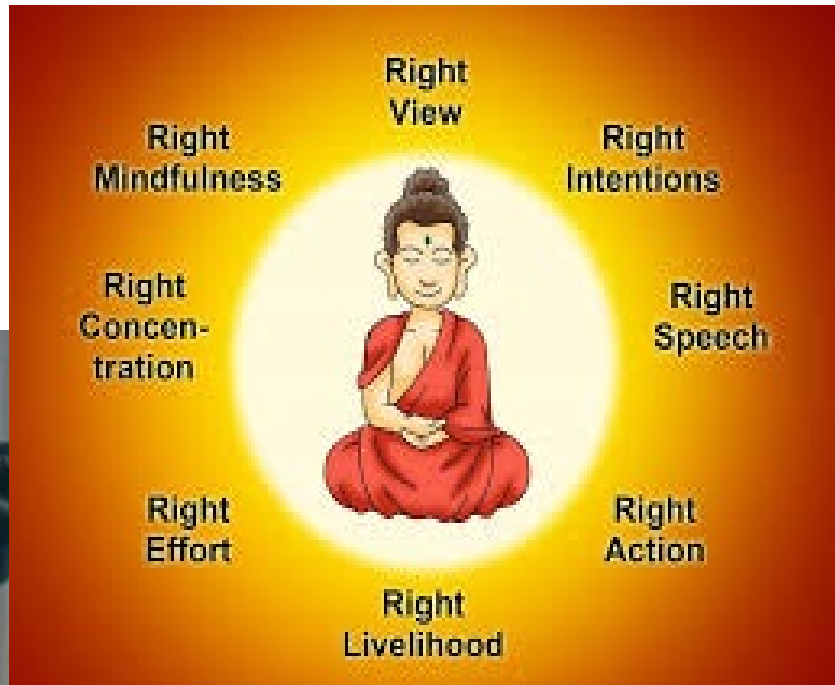
*Now more
than ever!*



If you enjoy sports, you might want to consider my CQI and EBM thoughts, if only because of ESPN.....



I would never ask you to do something I haven't done myself....



If a premature infant is discharged without any of the major morbidities to the brain, lung, GI tract, eye, and no infections.....

Chance of good long-term health and neurodevelopment?

~90%

Which NICUs do that best?

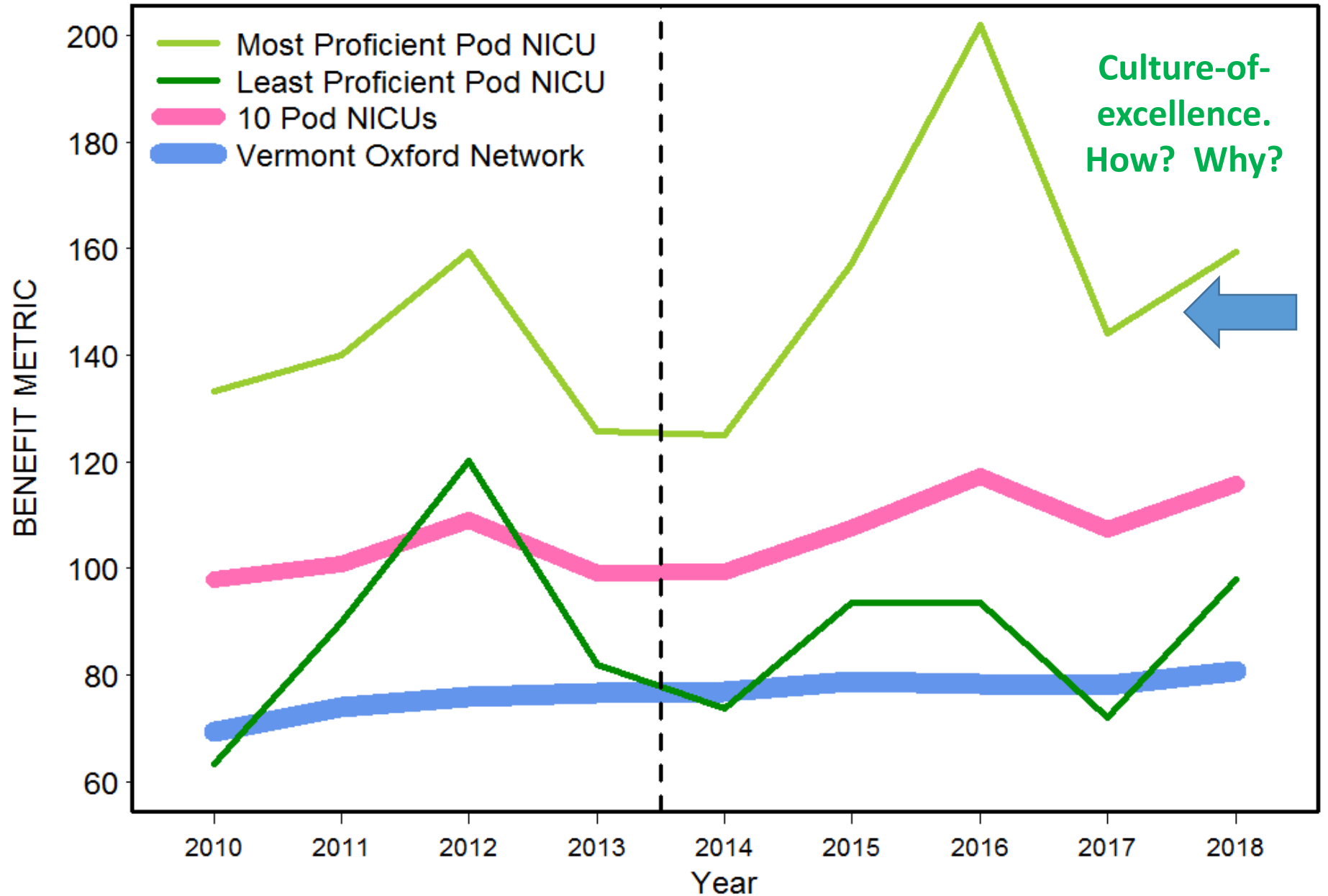


**10 NICU
collaboration**

**5,888 23-27
week infants**

**The best CQI
morbidity reduction
effort published,
thus increased
likelihood of long-
term health.**

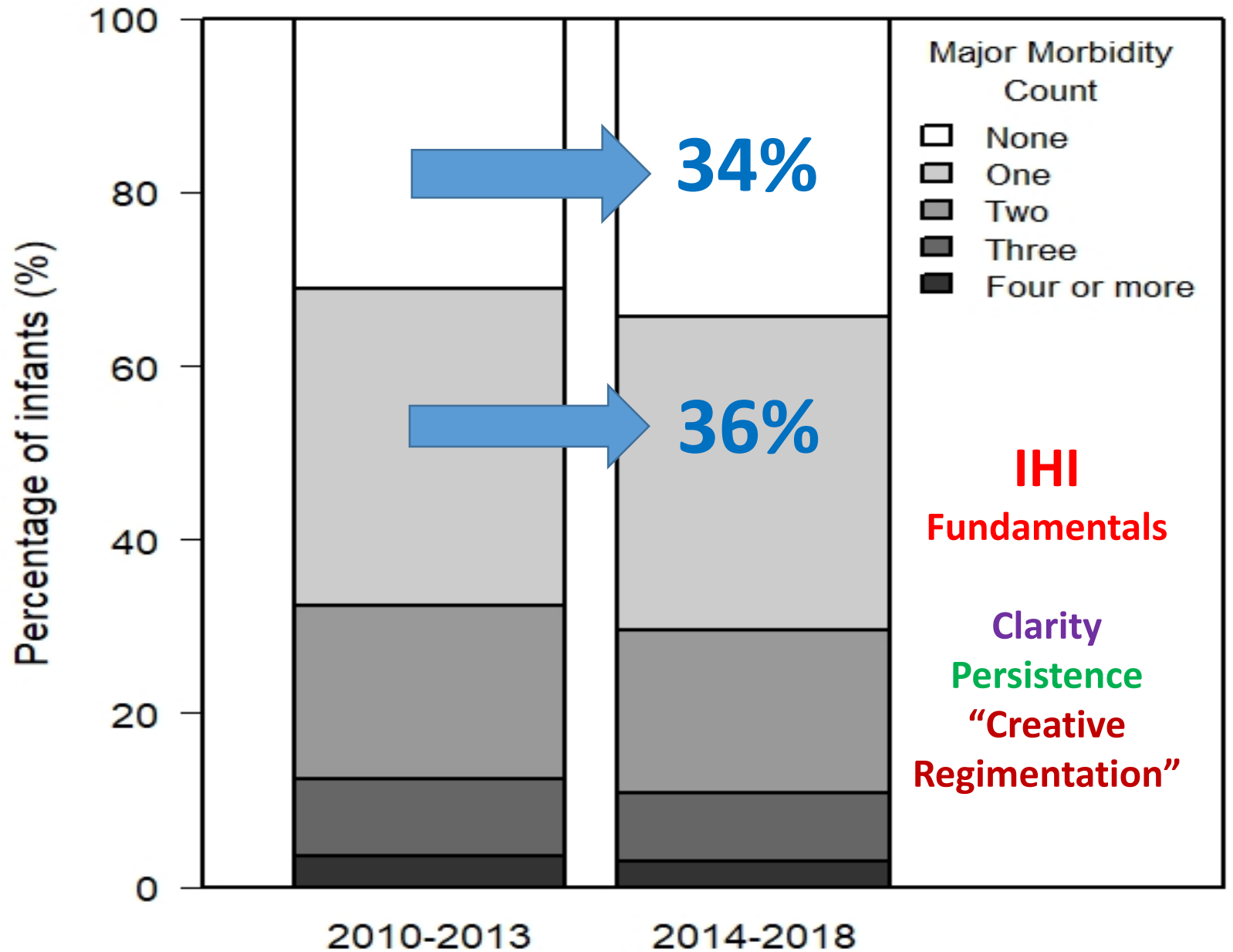
JAMA Pediatrics
Acta Paediatrica
Arch Dis Child FNN
Kaempf et al 2020



All major morbidities in premature infants were tracked

The best “no-or-just-one” morbidity rate reported for 23-27 week infants

Arch Dis Child FNN, 2020
Kaempf et al.



Change in healthcare is not about overcoming resistance – it's about *creating attraction*.



“*Resistance*” to CQI is actually “*attraction*” to existing factors in a system,.....so our job is *to design and sustain the attractors* that enhance quality and value.

Paul Plsek, 1998

Good Health Instructions

Moderate exercise

Reasonable BMI

Mediterranean-type diet

Adequate sleep

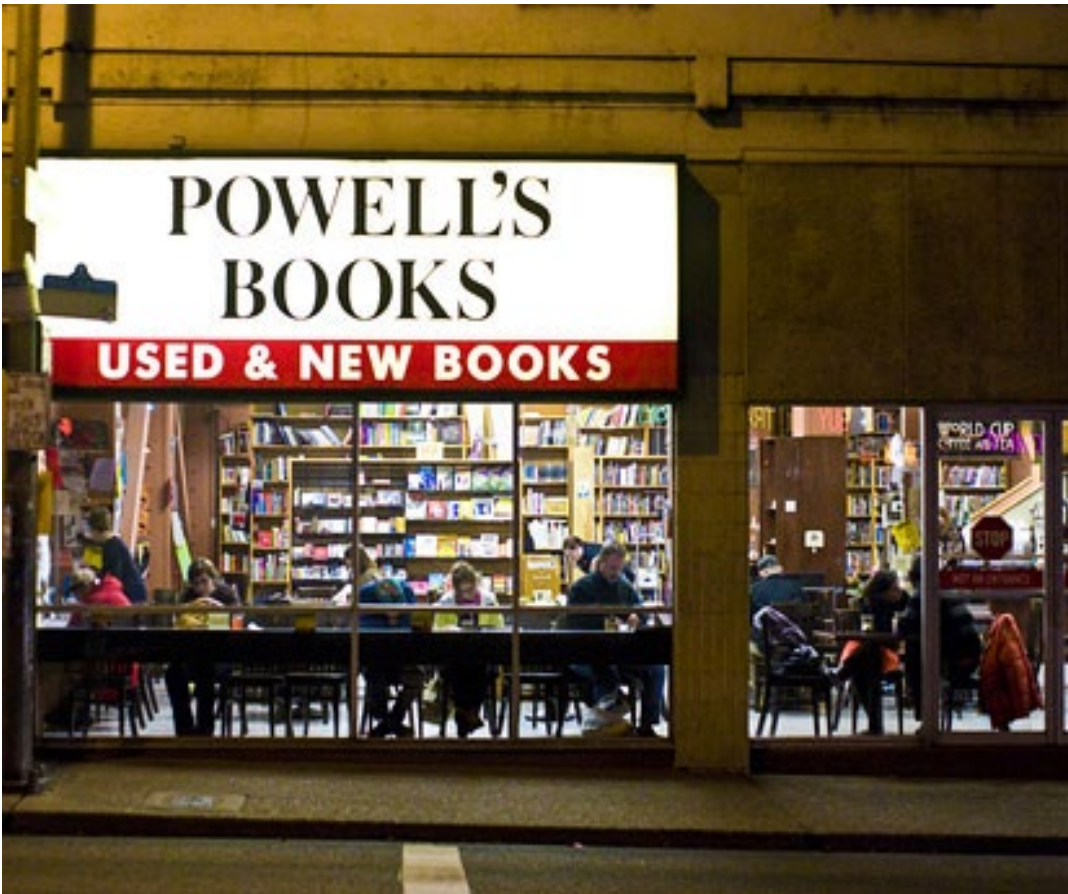
Avoid toxins like tobacco, drugs

Moderate ETOH

Intellectual activity

Social engagement

*CQI is similar,...modest number of proven fundamentals,...can't control everything,...
but we can improve.*





Identify a Problem-Opportunity

Form a team - concise, frequent meetings

Culture of belonging and sharing expertise

Evidence-based better practice search

Standardize potentially better practices

Measure - Audit - Debrief

Adopt or Adjust or Abandon

Start again at the top!





Taoists, Buddhists, ancient
Greeks, Western
philosophers, artists,
historians, quantum
physicists share insights.

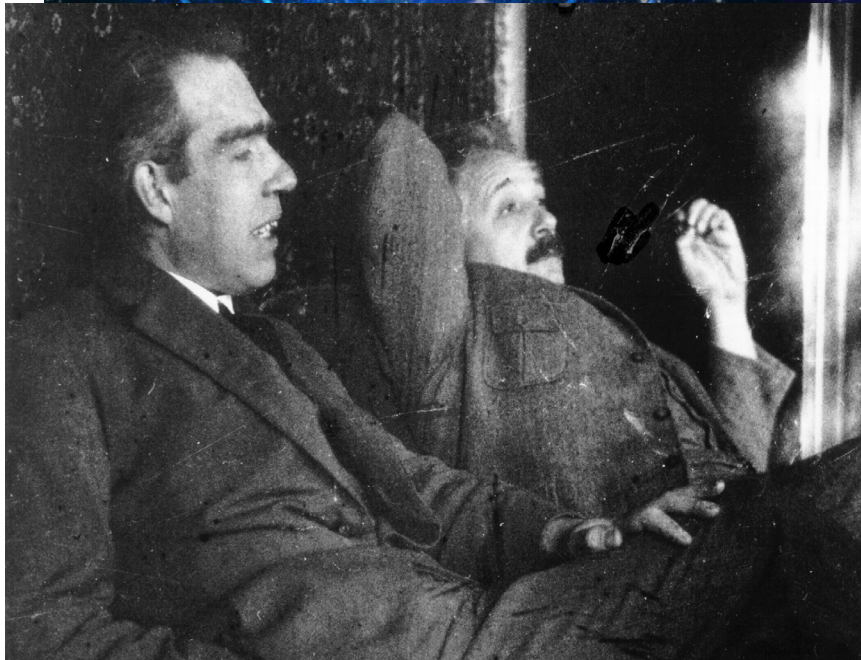
Matter is energy.

Gravity is space/time.

Time is heat exchange.

Discontinuity is true.

Wave-particle duality.



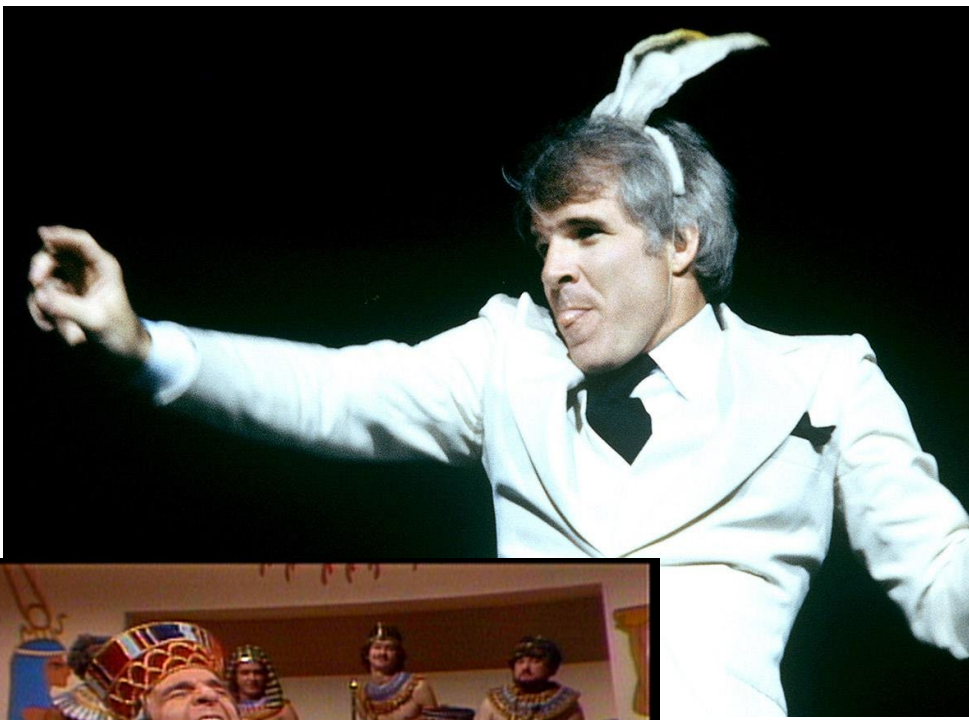
道

VUCA

How to be a Millionaire! by Steve Martin

1. First you make a million dollars.....

2. After April 15th you
tell the IRS:
“I forgot.”



Fishbone diagrams

Pareto charts

Process Mapping

Affinity diagrams

PICK graphs

Aim and Driver diagrams

Idea to Implementation

Checklists and Bundles

Balanced scorecards

LEAN/Six Sigma

A3 Roadmap

*Don't stress or be confused.
The fundamentals are similar,
and are effective.*

Avedis Donabedian

*Evaluating the Quality of Medical
Care, 1966*

Structure

Process

Balancing Measures

Outcomes



Without data, you're just another opinion.

W. Edwards

Deming

Learning is not compulsory, neither is survival.

1900-1993

If you can't describe what you're doing as a process, you don't know what you're doing.



July 1996

Post-season party at Coach Joe's house...

I am encouraging that youngster...

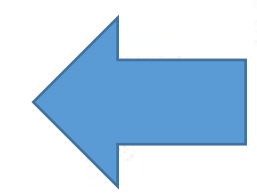
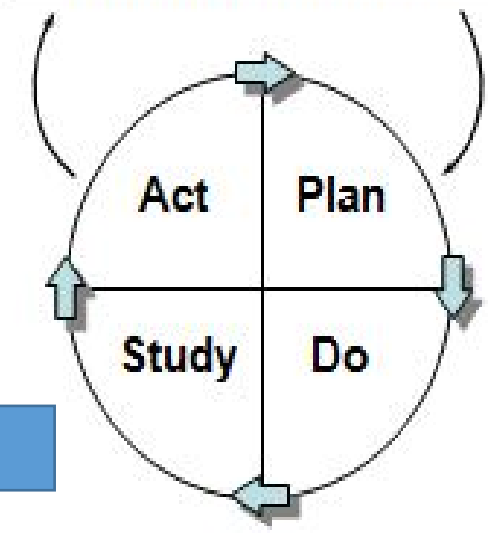
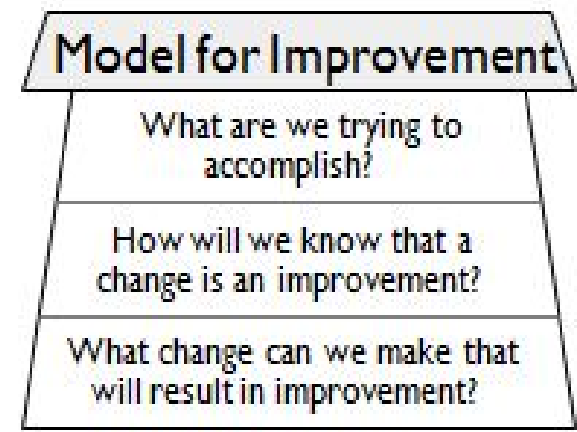
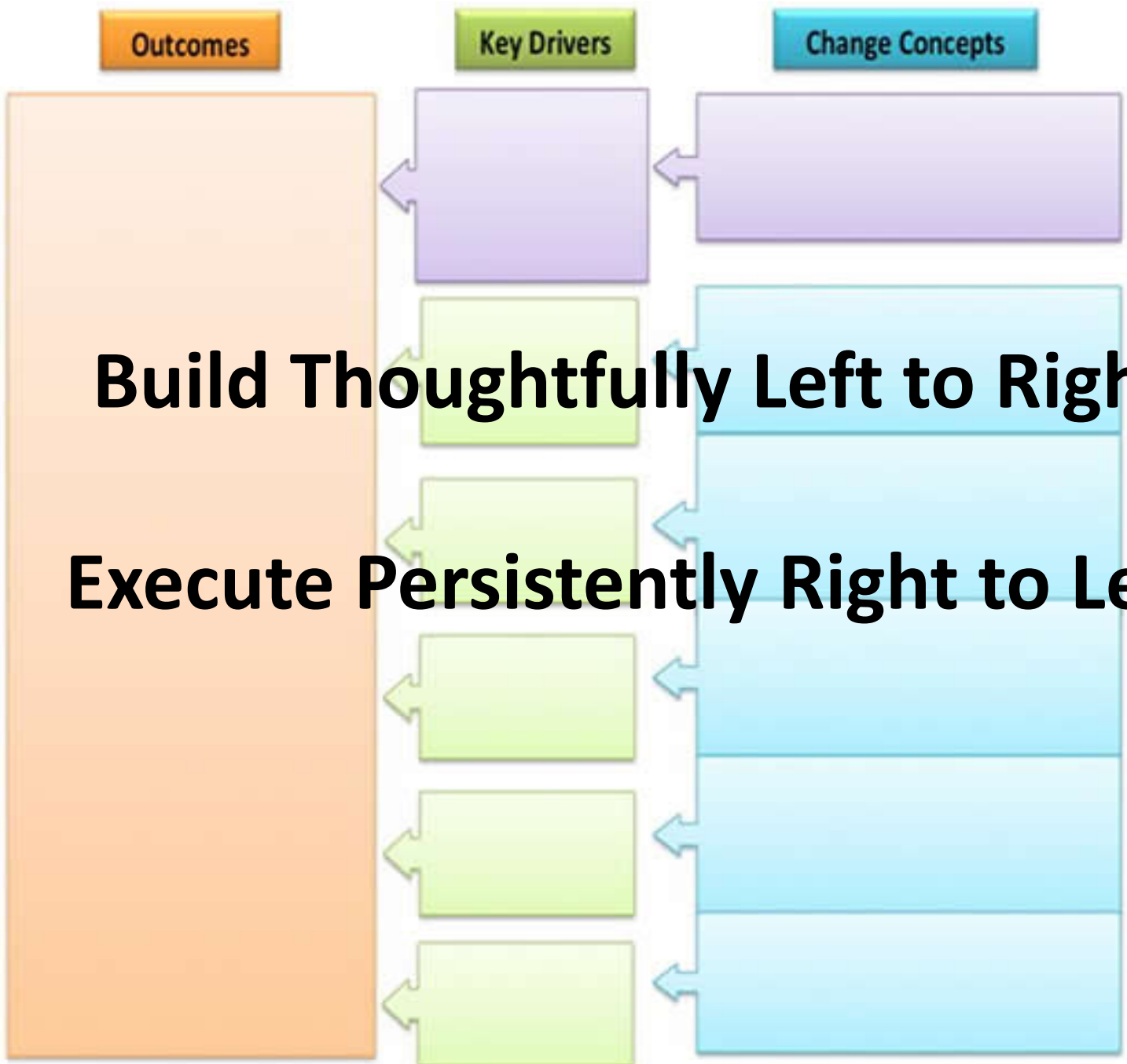
2012 Super Bowl MVP

"Who taught you such high performance habits?"

**Aaron's answer
"My coach Dr. Joe."**



2021 NFL MVP Aaron Rodgers,...laser focus, supreme confidence, all about TEAM.



Aim Statement – Driver Diagram

Primary Drivers

PDSA Cycles

Aim Statement

What are we trying
to accomplish?
From what present metric
to what desired metric?

Patients – target group

Providers - staff, caregivers

Plan - standardization, education,
roll-out, protocol, metrics,
order set

Plant - equipment, supplies,
where, tools

Specific tests
of change
that are
measured
and fed back
for analysis
and
adjustment,
then repeat

Global Aim
Specific Aim

Global Aim
Simplify Life

Specific Aim
Clean House

Primary Drivers

Room Assignment

Family Members

Plan

Equipment/Supplies

PDSA Cycles

Kitchen, Bathroom...

Capacity/Availability

Mom, Dad, Sis/Bro

Partition the duties

Frequency, When

How, De-cluttering

Cleaners, vacuum

Mops, dusters, towels

Costs \$\$\$

AIM

Primary Drivers

PBPs to Implement and Measure

↑ Antenatal corticosteroids

↑ Feeding protocols

↓ Antibiotics and antacids

↓ NEC

↑ **Increase Breast Milk**

↑ Probiotics

Antenatal lactation consult

Skin-to-Skin after delivery

Breast Pump

Use all colostrum

Donor breast milk as supplement

RN/Lactation support in NICU

Human milk fortifier – no bovine products <33 wks

NEC rate was 5%,...now 2%

9 cases prevented at PSVMC every 3 years

3 fewer deaths

4 fewer neurologically impaired survivors

Hundreds of thousands of \$\$\$ saved

**It took teamwork – RNs, NNPs, dietitians,
lactation experts, MDs, pharmacists,
housekeepers.**

Before you start measuring

How do you know “X” is a PROBLEM?

What is your GOAL?

SHOULD measure vs. CAN measure?

Proxies and ‘sublime’ measurements?

Recruit natural QUANTs – front office staff,
pharmacists, dieticians, managers,
financial analysts,.....and volunteers.

Wisdom

Justice, compassion, prioritize, values, preferences

Understanding

Test over time – chance, bias, confounders

Knowledge

Catalogue and distribution

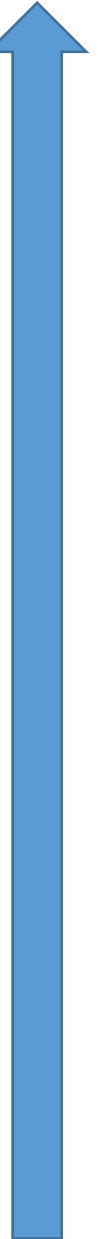
Information

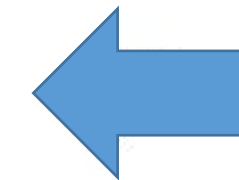
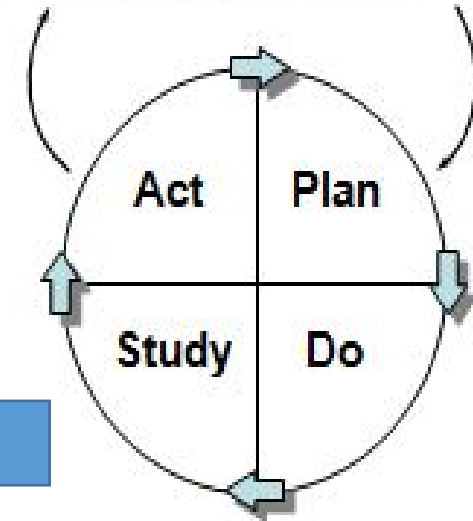
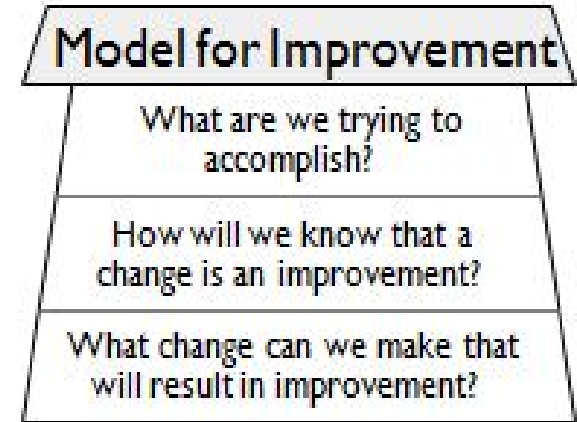
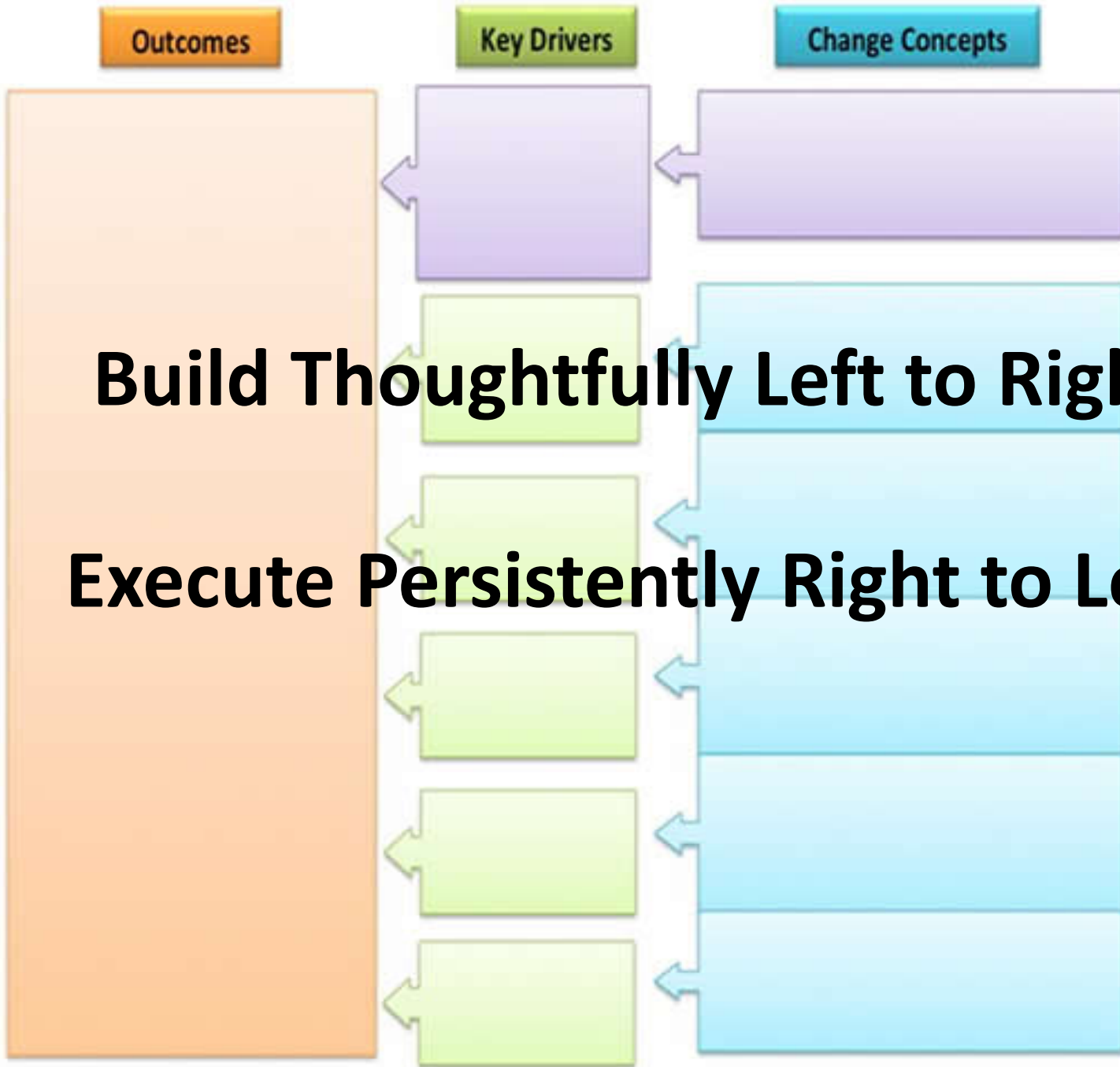
Identify all possible alternatives for “X”

Data

Measure some as “X” – doubling q 2 years

Zillions of Events





Aim Statement – Driver Diagram

Sublime measurements

A simple metric that correlates with a complex outcome.

Ask your co-workers for suggestions.



What simple measurement correlates strongly with functional, happy families?



Reduce variation – W. Edwards Deming

1. A potentially better practice likely exists
2. Decrease errors and increase safety
3. Reduce confusion
4. Less is usually more
5. Reduce cost
6. Analysis and hypothesis testing are easier with fewer variables
7. **Without data you're just another opinion.....**



The patient should be the source of reasoned variation, not the provider!

SMART Aim and Driver Diagram

Specific

Measureable

Attainable (Actionable, Affordable)

Realistic

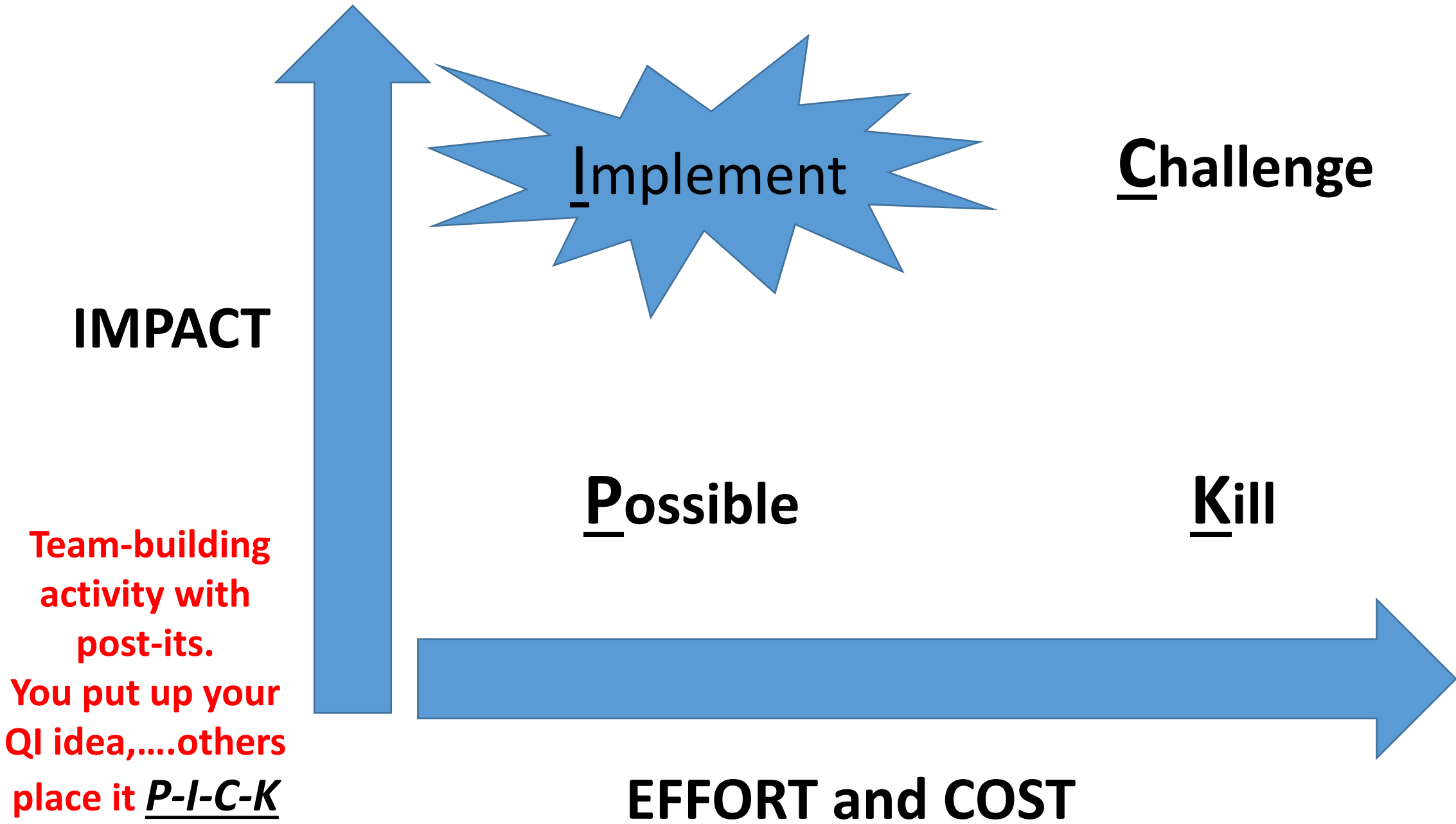
Time-limited

Evidence based

Statistics

Joe's addition

Teamwork



Population Health Crash Course

\$1,000,000,....take care of 100 people this year,....decide allocation,....
monitor outcomes,....you're not getting a dollar more.

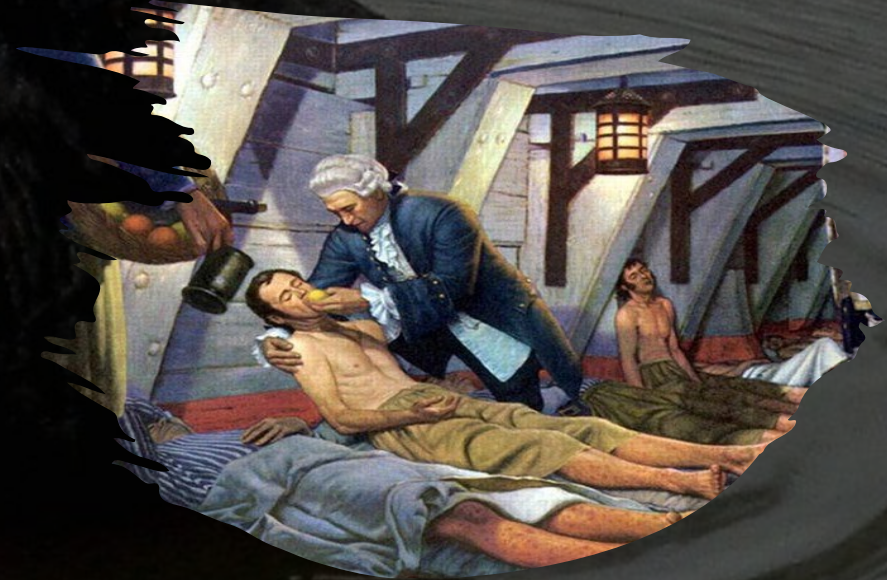
Waste: 1) failure to deliver evidence-based care, 2) **unproven diagnostics and therapeutics**, 3) poor care-coordination, 4) **high prices**, 5) fraud, 6) **administrative excess**.

Not being evidence-based, and not doing CQI is a failure strategy, an unhealthy ethos.

Doing CQI poorly is wasteful.

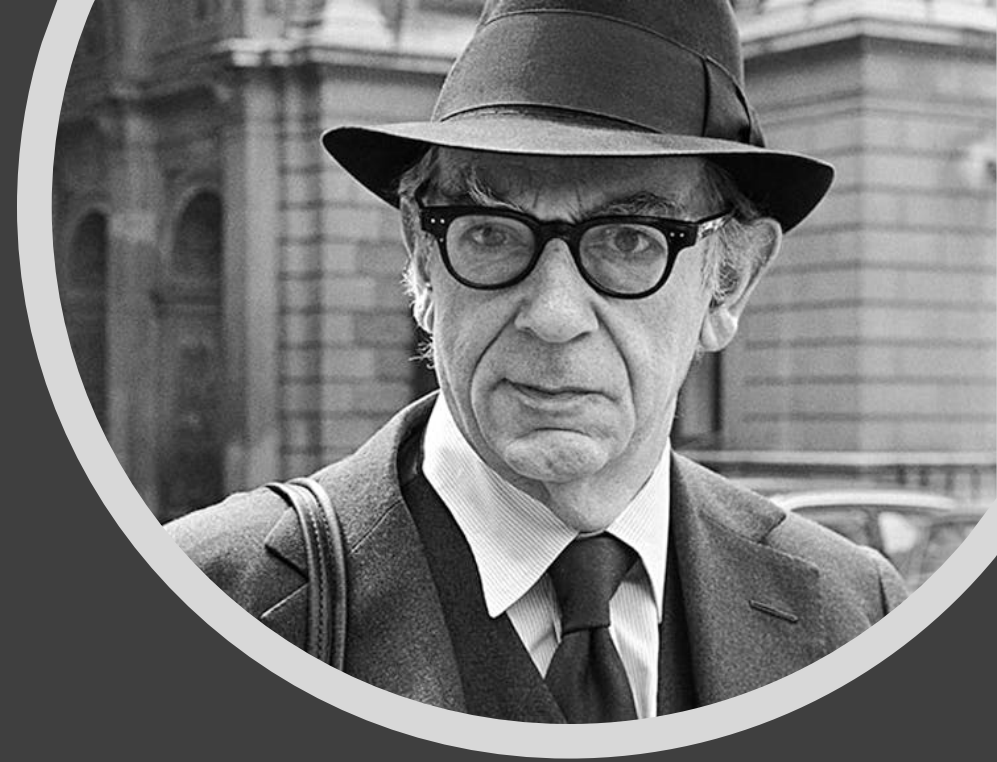
Foundations of Evidence Based Medicine

- If uncertain regarding the effectiveness of two or more therapies, choose the least invasive, the least noxious intervention, wait for more definitive evidence.
- Therapies presented with poor evidence can be rejected with no evidence. RCTs are an essential foundation of rational healthcare.
- Science and healthcare reasoning are inductive, prone to bias, and conclusions based upon multiple observations can be nullified with a single observation.



Foundations of Evidence Based Medicine

- Careful measurement of processes and outcomes is the currency of knowledge exchange.
- Understanding the hierarchy of evidence classification - Quality and Strength - is critical to good judgment.
- Value and preference judgments of the patient and family should be implicit in every decision.



Probability skills are not intuitive.

Smart people are *uber*-skillful at defending false reasoning.



Beware of Eminence Based Medicine.

Beware of Prominence Based Medicine

Linda is 31 years old, single, outspoken, and very bright. She majored in philosophy. As a student was deeply concerned with social justice, and participated in anti-nuclear power demonstrations.

Which is more likely?

Linda is a bank teller.

Linda is a bank teller and is active in the feminist movement.

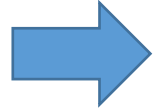


Kahneman and Tversky, 1982

80% error rate



Reality



Our Mind



Our Life



We can garnish reality all we wish....

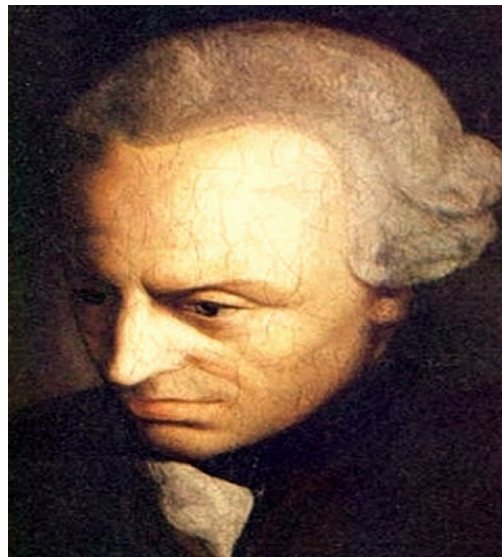


It's still batter.

Immanuel Kant's
singular contribution.

Our minds reformat
reality.

It's inescapable.
Be vigilant of this.



QI Measurement Warnings

CHANCE – natural variability, random errors due to a small sample size, noise vs. signal

BIAS – unrepresentative sample, emphasis of one chosen outcome over others, systematic design and measurement errors

CONFOUNDERS – measuring a factor associated with both the intervention and the outcome despite that the factor is not in the causal pathway

CQI Practical Tips

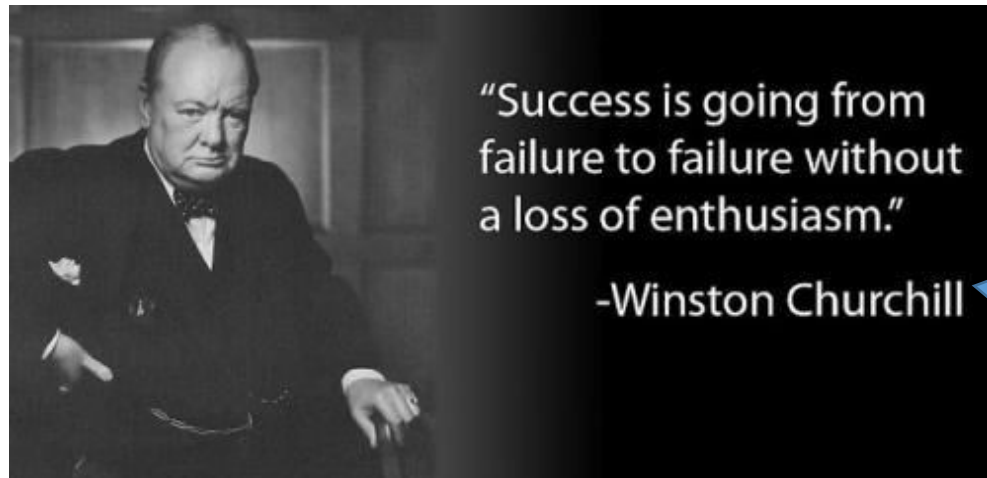
- Pick one 3-6 month project – low-hanging fruit
- Pick one higher impact 12-18 month project
– aligned with larger “strategic goals”
- Input from everyone – all disciplines
- Meet regularly – 20-30 minutes every week – concise, clear tasks
- Accountability?,.....Who belongs?

CQI Practical Tips

- Visibility – Aim/Driver Diagram posters that are color-coded,....bulletin boards,....email summaries,....minutes of meetings,....huddles and debriefings,.....
- Recruit measurers to report at weekly concise meetings – the catalytic enzyme
- Evidence based guidelines to test what works,....promoting safety, value, satisfaction via reason, compassion, and standardization.

CQI Projects Will Fail Without:

1. Money, time, and institutional support
2. Inclusiveness and camaraderie
3. EBM and CQI fundamentals imbedded as culture
4. Deep reading, knowledge of history
5. Clear, defined, realistic goals
6. Consistent, accurate measurement
7. Broad discussion and feedback
8. Persistence, passion, grit



"Success is going from failure to failure without a loss of enthusiasm."

-Winston Churchill





Ideas matter.

Truth matters more.

Ideas are not equivalent to Truth.

Standardize and test ideas!

Beware of the seductions of

cause-and-effect.

David Hume 1711-1776

**Distinguish constant connection from
causation - that's why less is often more!**