

# Improvement Academy



Institute for Healthcare Quality,  
Safety and Efficiency

SCHOOL OF MEDICINE

UNIVERSITY OF COLORADO **ANSCHUTZ MEDICAL CAMPUS**

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# Agenda

- 1 Team Updates
- 2 Return to DMAIC
- 3 An Approach to Data in QI
- 4 Business Case for QI
- LUNCH —————
- 5 Change Management & SCARF Model
- 6 Creating a Great Presentation



# Team Updates - Key Realizations

What have you learned about  
your problem since the last  
session?



# Return to DMAIC



Define, Measure, Analyze, Improve, Control



Understand your  
problem



Fix it



Sustain



## Define

- Problem Statement
- Voice of Customer

## Measure

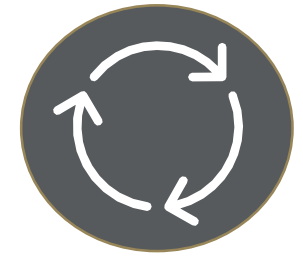
- Gemba
- Process Map
- Identify Process, Outcome, Balancing

## Analyze

- Affinity Diagram – ID Root Causes
- Pareto – Rank Root Causes



## *D, M, A - SMART AIM*



### Improve

- Identify Key Targets for Intervention from Pareto Chart
- Design Interventions using Positive Deviance, Pre-Mortem

### Control

- Sustainability Plan



Define, Measure, Analyze,

Understand your  
problem





# The Problem Statement

DO you have a problem?

What is your problem?

What is the scope?



# Problem Statement

Our patients wait too long in the Emergency Room before they see a provider (an average of 80 minutes), as evidenced by recent complaints on HCAPHS surveys, poor satisfaction scores, excessive wait times and long Door to Doctor times, ultimately resulting in patients leaving the ER without being evaluated.



# Define the problem



Please share your problem statement with the group; share your status in Measure / Analyze phase.



Define, Measure, Analyze, Improve, Control



Understand your  
problem



Fix it



Sustain



# An Approach to Data in QI





“In God we trust. All others must bring data.”

- W. Edwards Deming



“The goal is to turn data into information, and information into insight.”

- Carly Fiorina, former executive, president, and chair of Hewlett-Packard Co.



Matter to Patients  
(or stakeholders)

## OUTCOME

- Patient Satisfaction
- LOS
- Readmission Rate
- Adverse Events

Can act as proxy for  
outcomes

## PROCESS

- Use of checklists
- Lab orders

## STRUCTURE

- Order Sets
- Medications
- Hand sanitizer

I  
N  
T  
E  
R  
V  
E  
N  
T  
I  
O  
N  
S

BALANCE





Outcome Measure - “Set it...and forget it!”





Focus on the process, NOT the results. Take one step at a time. You don't climb a mountain by simply looking at the top.



How do you know your intervention is  
*happening?*  
*ie process measures*



# #squadgoals

- AIM: By 6/1/22, we aim to increase percentage of BMT chemotherapy admissions by 1200, from 4.2% to 60%.
- How: transform chemotherapy admission process
- Vision: Cancer sucks and chemo is scary. We owe it to our patients to try to make the process of receiving treatment as reliable, efficient, and pleasant as possible.



# Breakout:



What are your process or structural metrics?

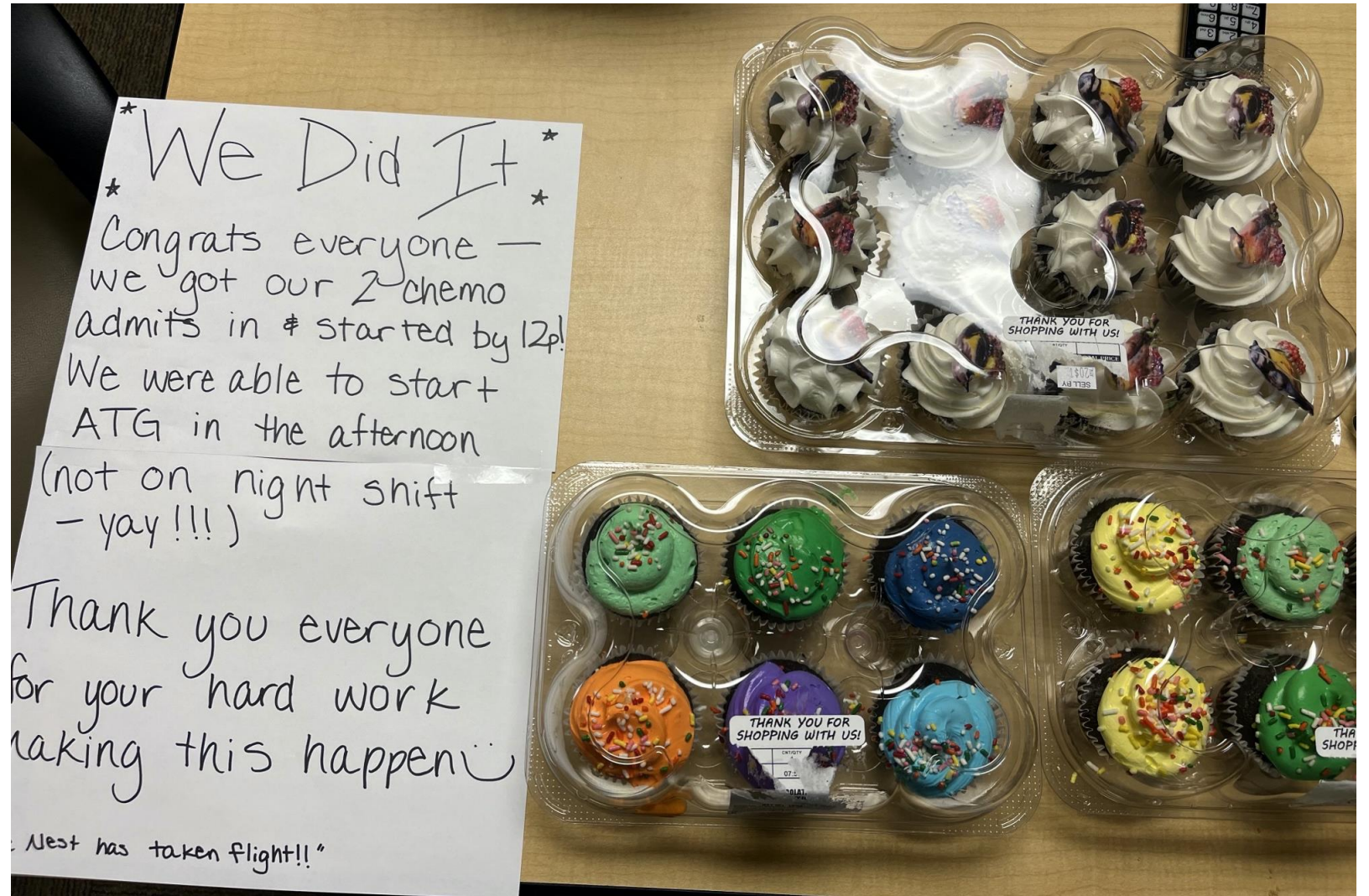
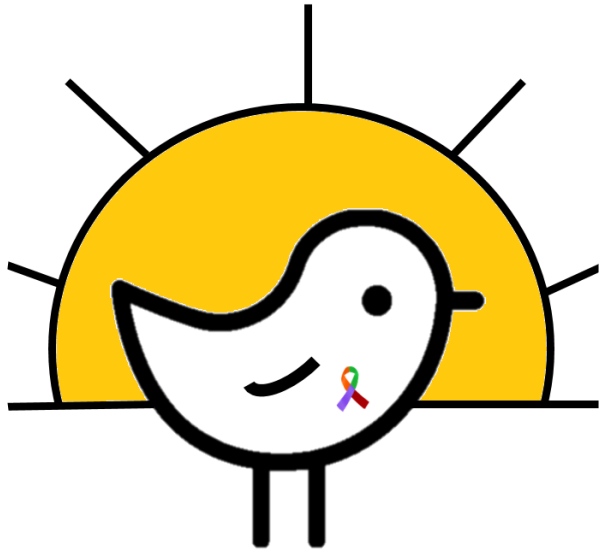
15 minutes



How do you know your intervention is  
working?  
*ie outcome measures*







# Breakout:

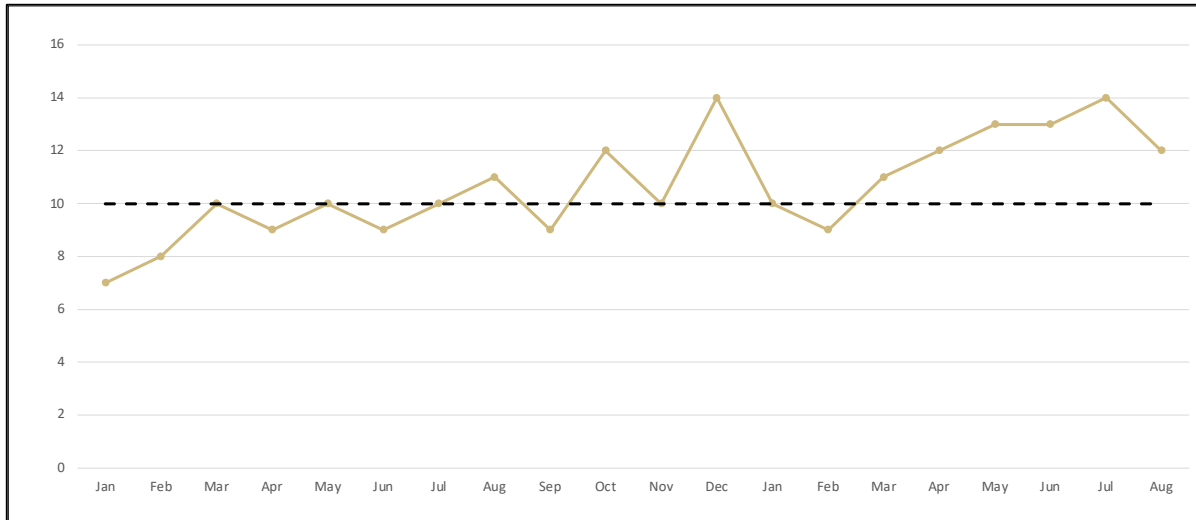


What are your outcome metrics?

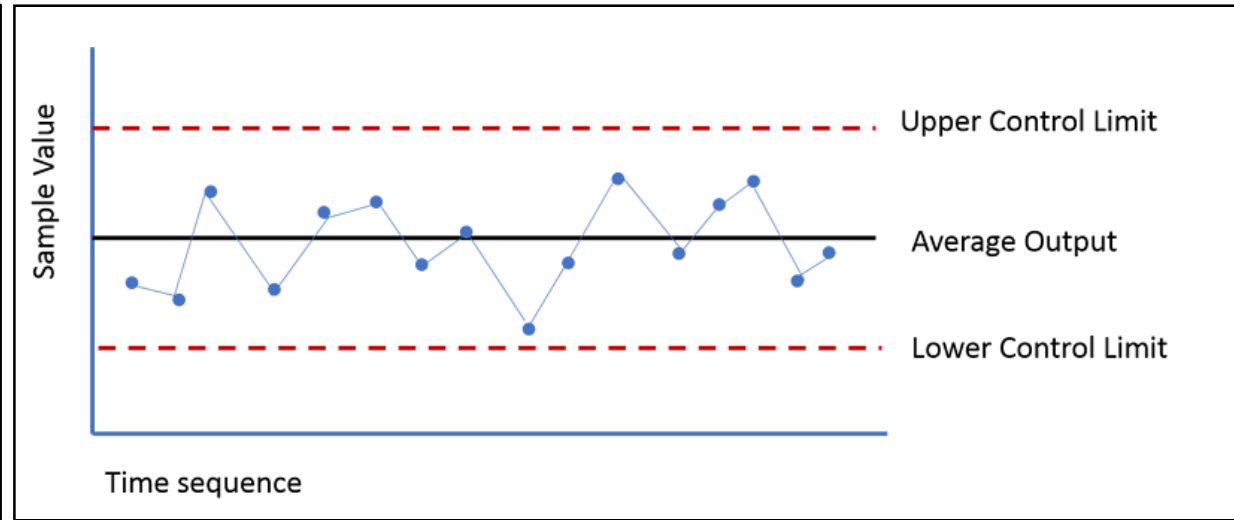
15 minutes



# Run Chart

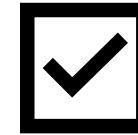
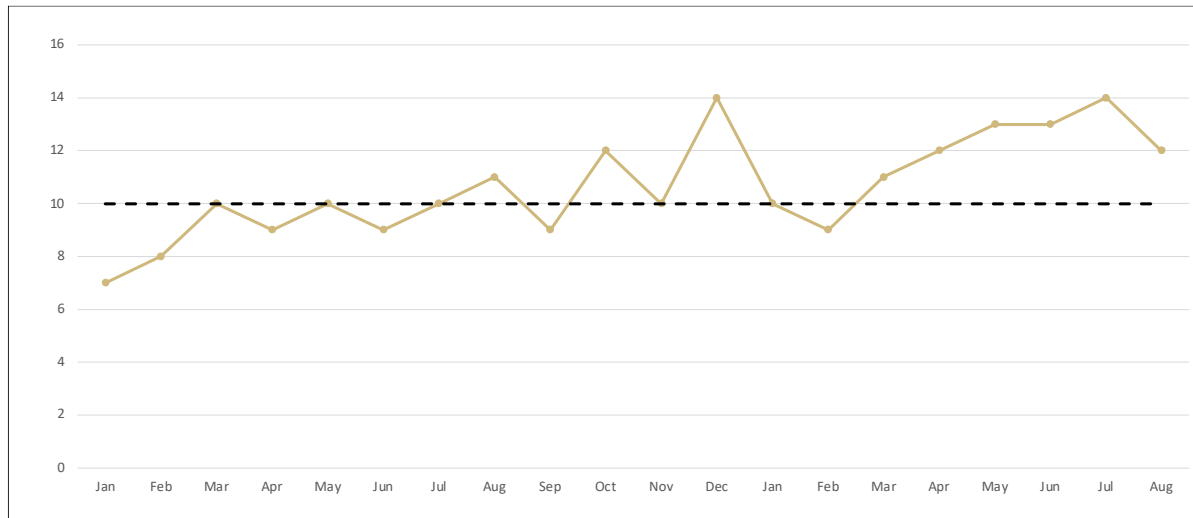


# SPC Chart

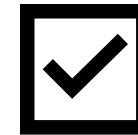




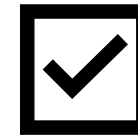
# Run Chart



Easy to construct



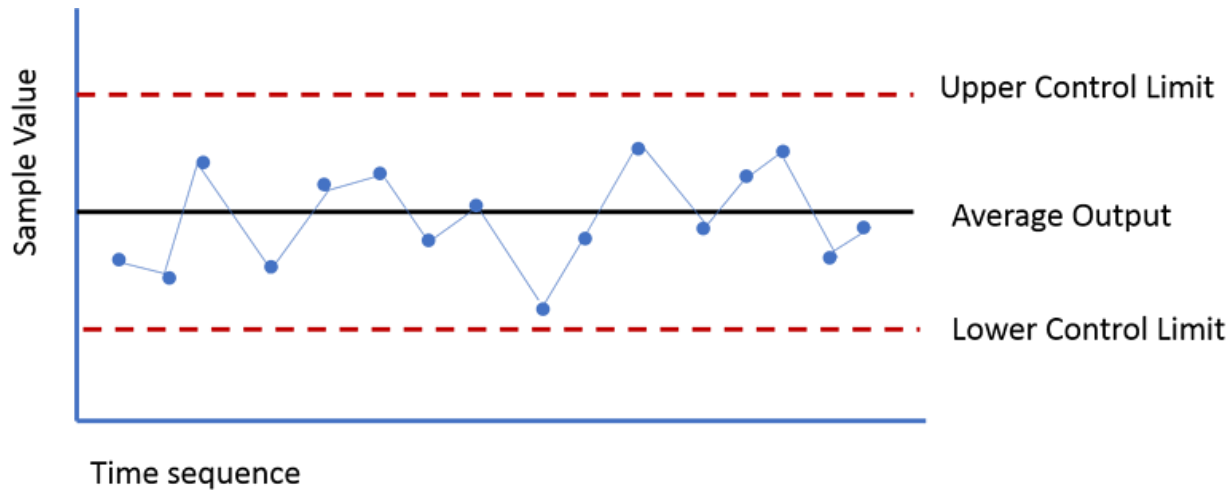
Easy to interpret  
(no advanced stats required)



Assess the impact of  
process changes  
(AKA something  
happened)



# Statistical Process Control (SPC) Chart



Make informed decisions about which processes to leave alone and which to subject to an improvement cycle.



Predict future performance if the system is stable and in control.



Easy to construct





Data Collection Tips

# Conceptual vs Operational definitions

- Conceptual is *what* you are going to measure
- Operational is *how*

**Daily order of CBCs and  
BMPs on inpatients  
ordered by residents**

**Number of CBCs**

**+**

**Number BMPs on inpatients  
ordered by day team  
residents between 1200am –  
1159pm**

---

**Total medicine team census  
per day**



Variable name label	Data type	Definition/ purpose	Possible values	Restrictions/ checks
Patient information				
Gender	Categorical	Male or female	M or F	Must be M or F
Age	Numerical	Age in years to nearest year	1–110 years	Must be a whole number
Height	Numerical	Height in centimetres	0–300cm	Measure to one decimal point
Weight	Numerical	Weight in kilograms	0–250kg	Measure to one decimal point
Operation				
Operation	Description	Name of operation	Text (refer checklist)	Must be from checklist
Surgeon	Description	Surname and first initial	Text (refer checklist)	Must be from checklist
Duration	Numerical	Duration of operation from full anaesthesia in hours and minutes	Hours	To one decimal point
Antibiotics administered				
Antibiotic	Description	Full generic name of antibiotic	Text (refer checklist)	Must be from checklist
Dose	Numerical	Dose of antibiotic in milligrams	Any	Must be a whole number
Number of doses	Numerical	Number of doses of antibiotic given	0–10	Must be a whole number
Frequency	Numerical	Number of doses ordered per 24-hour period	0–6	Must be a whole number
Qualitative data				
Barriers to change	Description	Barriers identified in interviews	Text	Up to 100 characters

## DATA DICTIONARY

- Repository of all your data points
- Provides a detailed description of each data point including:
  - Definition
  - Source
  - Other notes
- Built over-time as you get more data
- Especially helpful for EHR data





	A	B	C	D	E	F
1	Date	Item	Sales Rep	Quantity	Price	Commission
2	01-07-2018	Projector	Bob	13	150	11%
3	01-07-2018	White Board	Mark	8	40	9%
4	02-07-2018	White Board	Stacey	7	40	7%
5	03-07-2018	White Board	Mark	18	40	8%
6	05-07-2018	Office Chair	Stacey	19	230	6%
7	05-07-2018	Projector	John	4	150	10%
8	08-07-2018	Printer	Bob	9	80	6%
9	10-07-2018	Printer	Laura	16	80	2%
10	10-07-2018	Office Chair	Mark	15	230	9%
11	10-07-2018	Diary	Bob	15	16	1%
12	10-07-2018	Office Chair	John	7	230	2%
13	13-07-2018	Diary	Laura	23	16	11%
14	17-07-2018	White Board	Bob	20	40	5%
15	17-07-2018	Office Chair	Mark	9	230	3%
16	20-07-2018	White Board	Stacey	23	40	6%
17	20-07-2018	White Board	Stacey	4	40	5%

1. ORGANIZE by columns
2. DON'T use color coding
3. Set up BEFORE you start collecting data



“Those who are victorious plan effectively and change decisively. They are like a great river that maintains its course but adjusts its flow.”

Sun Tzu, The Art of War, 5th century BC





“Doveryai, no proveryai.” (Trust, but verify)

A Russian proverb

- Ronald Reagan, United States President 1981 – 1989
- Susan Massie, Russian Scholar







“A minimum put to good use is enough for anything.”

Jules Verne, *Around the World in Eighty Days*



# What is Data?

***Epic***



# Data Collection Plan (Miro template)

Key Question	Data Element Name	Operational Definition	Parameters	Source	Who	Frequency
What is the length of stay?	Length of stay (LOS)	LOS = Admit time to Discharge time	• Date range: 1/1/2020 - 12/31/2020 • One listed for every patient by CSN • Format: time in hours	EHR -- ADT	Which team member is in charge of collecting?	Monthly data pull, 1st of month



# Breakout: Create a Data Plan



Discuss your Data Collection Plan with your team.  
What information are you missing?  
Are data collection roles assigned?

15 minutes





A top-down photograph of two white ceramic coffee cups on a dark grey table. The cup on the left contains a latte with a thick layer of white foam. The cup on the right contains a dark espresso. A hand is visible on the left holding the handle of the latte cup, and another hand is on the right holding the handle of the espresso cup. A white rectangular box with the text 'BREAK-TIME' is centered over the two cups. A black and white checkered cloth is partially visible in the upper left corner.

**BREAK-TIME**



Business Case

How to Show Your Value  
(and get what you need)



# A Story

The oncology infusion center was struggling with poor patient experience scores related to the duration of their visits.

They wanted support in the form of a QI specialist to help address this problem.

How do they make the case for more support?



# The Business Case





# Why?



Gets you resources



Shows executives what you're going to do (in their language)



Triages *your* improvement work to the top of the list

# How?

$$\text{VALUE} = \frac{\text{Quality} + \text{Safety} + \text{Experience}}{\text{Cost}}$$

The equation illustrates the components of value. The numerator consists of three positive factors: Quality (represented by a thumbs-up icon), Safety (represented by an icon of two people), and Experience (represented by a smiling face icon). These are summed and then divided by Cost (represented by a tag icon with a dollar sign).

Step 1: What are you planning to do?

Step 2: What is the benefit?

Step 3: How do I show the benefit?

Step 4: What data do I need?



# A Story: Infusion Center

1

What are you trying to do? (process measure)

*Reduce time from check-in to completed drug infusion by 72 minutes*

2

What is the benefit? (outcome measure)

*Patient's happier*

*Staff happier - less down time*

*Timely Access - open more chair time for other patients*

*More patients for same amount of staff*



### 3 How will you convey benefit?

Number of patients per month: **107**

Current time needed per patient: **272** minutes

Goal time needed per patient: **200** minutes

Average Reimbursement for patient: **\$1585**

Baseline # of mins of patient care / month = **29,104 mins** (107 x 272 mins)



### 3 How will you convey benefit?

Goal # of mins of patient care / month = 21,400 minutes (107 x 200 mins)

Goal minutes saved / month = 7,704 minutes (29,104-21,400 mins)

Potential new encounters / month = 38 (7,704 mins saved/200 mins/pt)

Potential increase in reimbursement = \$60,230 (38 pts/mo x \$1585)

Potential increase in reimbursement per year = **\$722,760** (\$60,230/mo x 12)



## 4 What data points would you need?

- Baseline time from check in to completion
- Current time from check in to completion
- Goal time from check in to completion
- Baseline number of patients per month
- Contribution margin per case

Data  
Collection Plan



# Also, some QI work has inherent value without \$\$

Highlight child abuse project





# A Personal Story

I want to go on vacation...



Eleuthera, Bahamas



1. What am I trying to do? Vacation

2. What is the benefit? Happier, More Productive Emily

3. How will I convey benefit?

- due to relief of burnout – ability to work extra moonlighting shifts (1k per month)
- due to increased productivity – take kids to soccer practice
- allows husband to have more productive workdays (4 hours / week, \$100/hour)
- $1k + (16 \text{ hours} \times \$100 / \text{hour}) \times 6 \text{ months} = \text{\textcolor{red}{\$15,600}}$





Eleuthera < \$15,000

# Next Steps

Dear Executive Stakeholder,

I plan to save you \$700k next year.

To do this, I will need 20% of support from a QI specialist, roughly \$20K.

Your ROI will be \$680k.

Thanks!



# Breakout: Create a Business Case



Step 1: What are you trying to do?

Step 2: What is the benefit?

Step 3: How will you show this benefit?

15 minutes





A top-down photograph of two white ceramic coffee cups on saucers. The cup on the left is filled with a latte, topped with a thick layer of white foam. The cup on the right contains a dark espresso shot. A hand is visible on the left holding the handle of the latte cup, and another hand is on the right holding the handle of the espresso cup. A black and white checkered cloth is partially visible in the upper left corner. A semi-transparent white rectangular box is centered over the image, containing the text 'BREAK-TIME' in bold black uppercase letters and 'Lunch' in a black italicized font.

# **BREAK-TIME** *Lunch*



# Change Management

# How to Get People to Follow You





You've designed the PERFECT Intervention.

What next?





Make Others Jump.

# Change Lessons

1. People (generally) dislike change.
2. Change is hard.
3. “Good enough” is the enemy of great.



# Change Lesson 1

People (generally) dislike change.





Romania: June, 2008





# Re-electing a Dead Mayor

Why would someone vote for a dead person?

“I know he died, but . . . I didn't want a change.”



# Change Lesson 1

People (generally) dislike change.





# Change Lesson 2

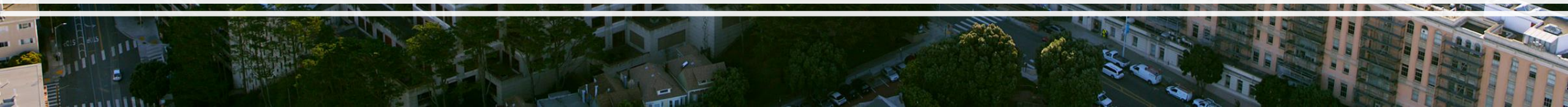
Change is hard.







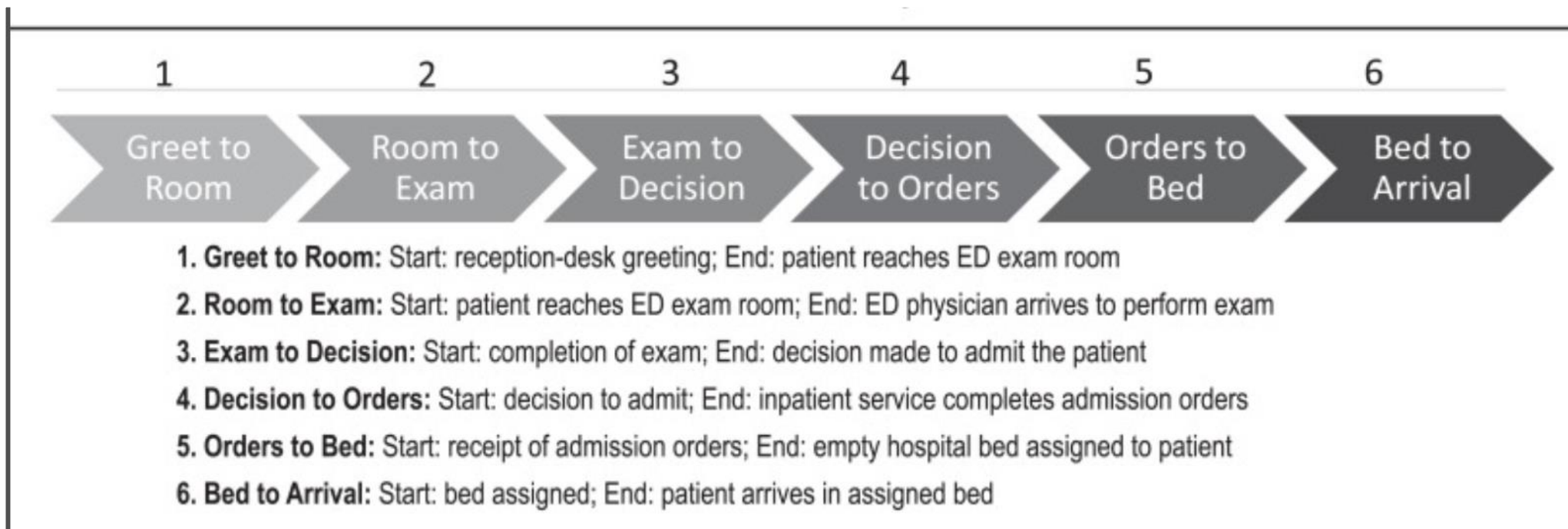
Door – 2 – Floor

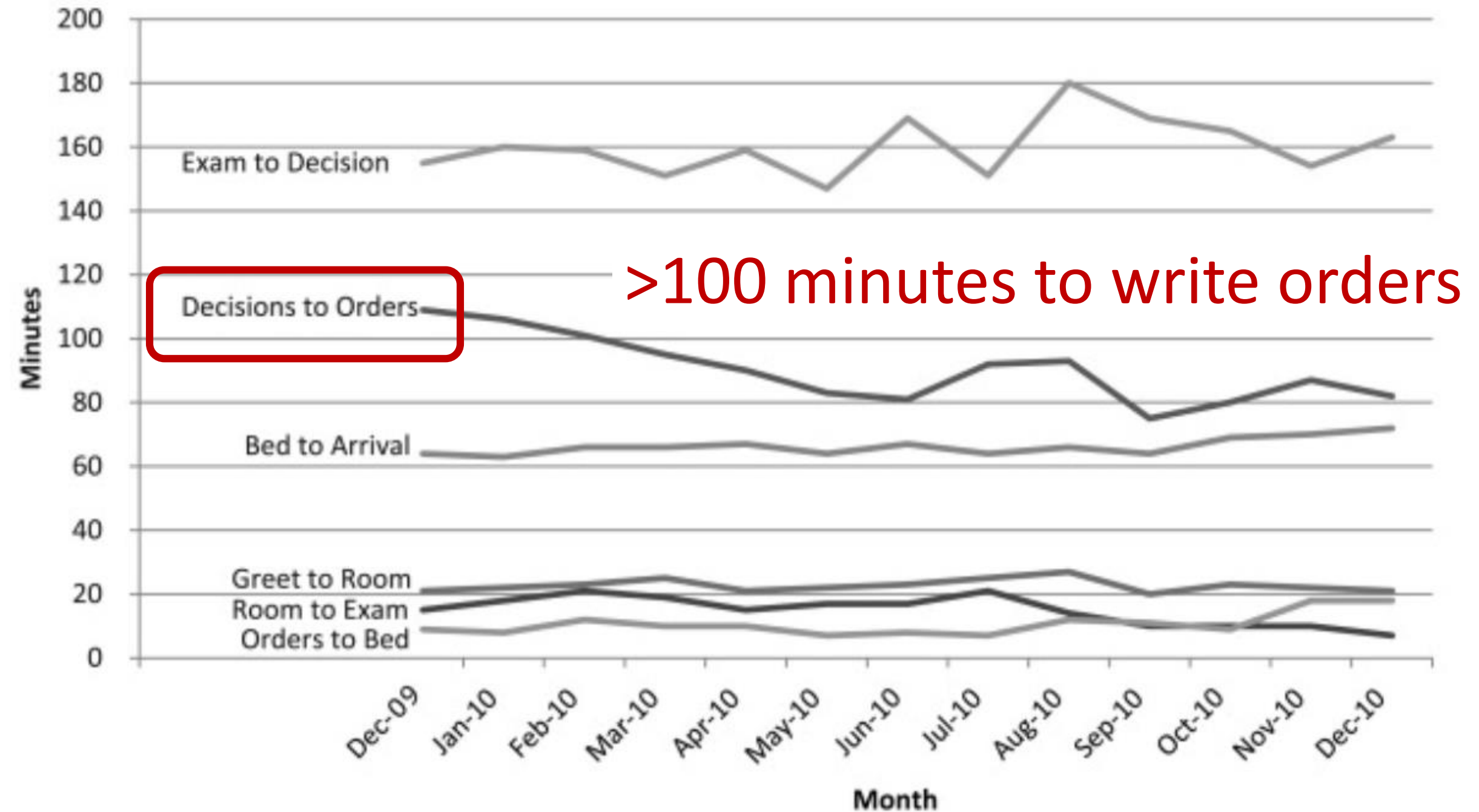




# Door – 2 – Floor

The Problem: **> 400 minutes** to get a hospital bed





# The Intervention

Dear Providers,

As you know, patients stay for a long time while they are waiting for a hospital bed per patient!

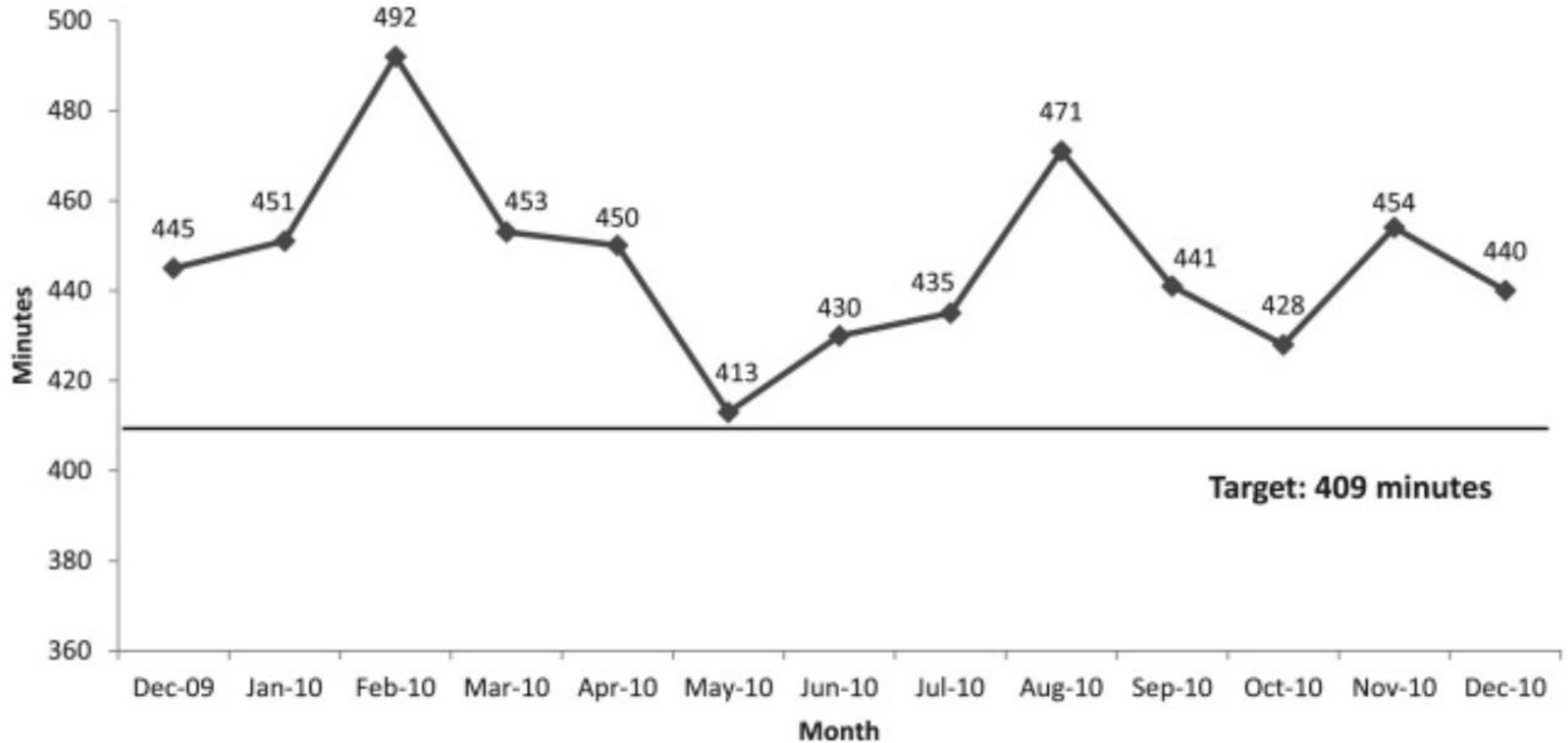
We know that most of the waitlist are orders. As a result, we are so sorry to address this! We appreciate your improvement project!

Please see the attached version of the order set, which you can print out and use for all future admissions.

☆	➤	Google Calendar	Reminder: Email d2f @ Mon Apr 28, 2014 3pm - 4pm
☆	➤	Google Calendar	Reminder: Email d2f @ Mon Apr 21, 2014 3pm - 4pm
☆	➤	Google Calendar	Reminder: Email d2f @ Mon Apr 14, 2014 3pm - 4pm
☆	➤	Google Calendar	Reminder: Email d2f @ Mon Mar 31, 2014 3pm - 4pm
☆	➤	Google Calendar	Reminder: Email d2f @ Mon Mar 24, 2014 3pm - 4pm
☆	➤	Google Calendar	Reminder: Email d2f @ Mon Feb 17, 2014 3pm - 4pm
☆	➤	Google Calendar	Reminder: Email d2f @ Mon Feb 10, 2014 3pm - 4pm



# Result: NO CHANGE





Why didn't the providers change their behavior?

What was wrong with this approach to leading change?





# Why didn't providers change their behavior?

“Why should I do two order sets when I can do one?”

"It didn't make sense to go back to my email to print the order set each time."

"I thought it would be better for patients to stay in the ER until the treatments start to kick in so they were more stable when they hit the floor."



# Change Lesson 2

Change is hard.



# Change Lesson 3

“Good enough” is the enemy of great.





**SEARS**



# Apple Inc. Stock Price

+156.47 (223,521.43%) ↑ all time

Apr 27, 3:41 PM EDT • Disclaimer

1D | 5D | 1M | 6M | YTD | 1Y | 5Y



# Sears Holding Corp. Stock Price

-10.14 (-99.22%) ↓ past 5 years

Apr 27, 2:42 PM EDT • Disclaimer

1D | 5D | 1M | 6M | YTD | 1Y | 5Y





# Change Lesson 3

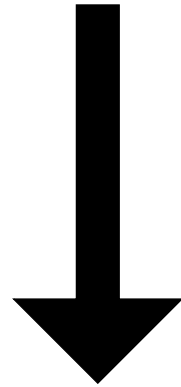
“Good enough” is the enemy of great.

Human preference for complacency over transformation



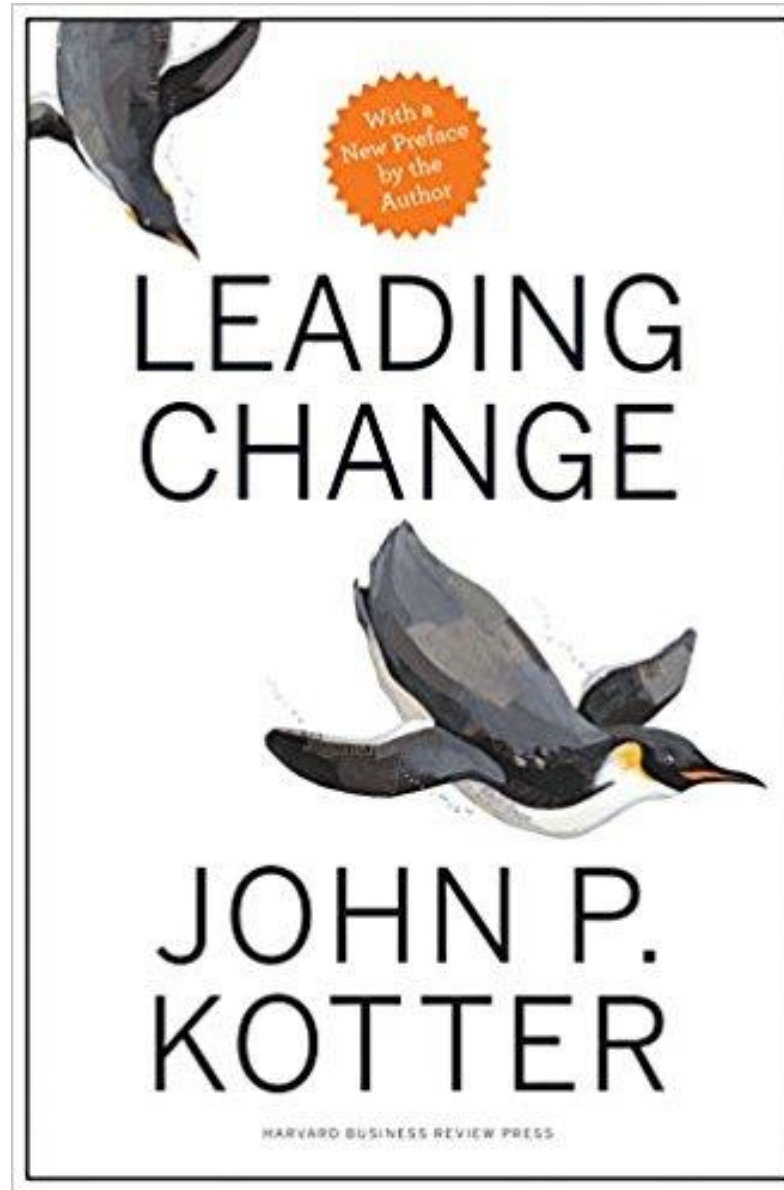


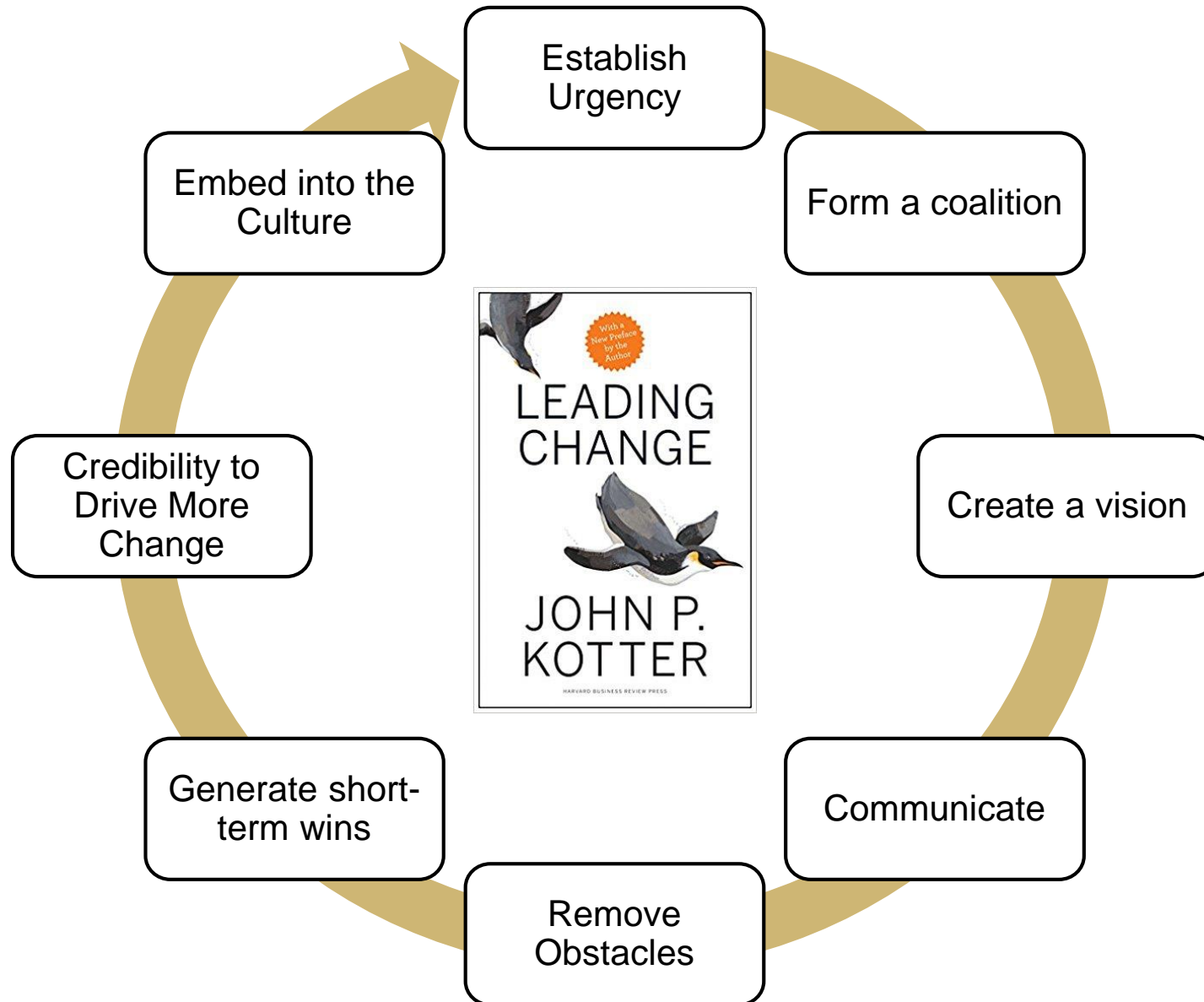
People dislike change.    +    Change is hard    +    Good Enough



NO  
CHANGE







# Establish Urgency



Establish  
Urgency



# Establish Urgency



1.0 - Survival/Fear

2.0 - Extrinsic Motivation: reward, punishment

3.0 - Intrinsic Motivation: autonomy, mastery, purpose





NEW YORK TIMES BESTSELLER

"Provocative and fascinating." —MALCOLM GLADWELL

Daniel H. Pink

author of *A Whole New Mind*

DRIVE

The Surprising Truth  
About What Motivates Us

Establish  
Urgency

AUTONOMY

MASTERY

PURPOSE





# Breakout:



## What is your burning platform for project work?

10 minutes



# Form a Guiding Coalition





Footloose, 1984





## Who?

### **Anyone impacted by your work**

- Various levels of organization
- Interprofessional
- Patients

## Why?

### **Gathering crucial input**

- Gaining more resources
- Building Trust
- Planning ahead





# Breakout:



Who is your guiding coalition?

*Consider anyone impacted, all professions and levels of leadership*



# Create a Vision



Create a  
Vision



**Earth's most customer  
centric company.**



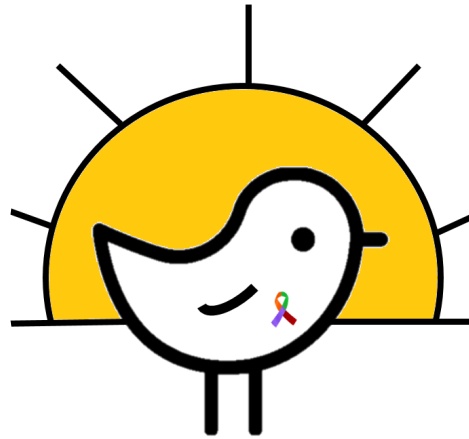
**A world without  
Alzheimer's disease.**



**Eliminate all  
preventable harm.**



Cancer sucks and chemo is scary. We owe it to our patients to try to make the process of receiving treatment as reliable, efficient, and pleasant as possible.



# Breakout:



What is your vision?

*What does the future look like if you achieve success?*



# Communicate





Communicate

CHANGE  
WE CAN BELIEVE IN



# How much?

# 7 x 7



# Remove Obstacles



Remove  
Obstacles



PT eval and treat

✓ Accept

✗ Cancel

Priority:

Routine

Routine

STAT

Frequency:

ONCE

Once

Starting:

3/31/2021

Today

Tomorrow

At:

1348

First Occurrence: **Today 1348**

⌵ Show Scheduled Times

AMPAC Basic Mobliity Score

24

Is Basic Mobility Score < 23 OR is the patient post-op?

Yes

No

To avoid unnecessary PT consults and ensure timely access to PT for skilled care - please discontinue this order if > 22 (consider nursing 'Ambulate' order). If PT is needed for a non-mobility evaluation please place indication in comments below

Reason for PT?

Comments:

+ Add Comments (F6)

ⓘ Next Required

Link Order

✓ Accept

✗ Cancel



# Generate Short-Term Wins





The image features four cupcakes in a row on a pink surface. Each cupcake has a light blue swirl of frosting and is topped with a ring of multi-colored sprinkles. The background is a solid light blue. A white rounded rectangle with a black border is positioned over the first cupcake, containing the text "Short Term Wins".

# Short Term Wins

Use Credibility to  
Drive More Change



# MEET THE TEAM



**EMILY GOTTENBORG, MD**

IHQSE Faculty  
University of Colorado,  
Division of Hospital Medicine

*The Joint Commission Journal on Quality and Patient Safety*

**Operations Management**

“Not So Fast!” The Complexity of Attempting to Decrease  
Door-to-Floor Time for Emergency Department Admissions



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University of Colorado **Anschutz Medical Campus**

**IHQSE**

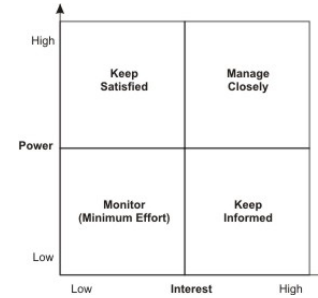
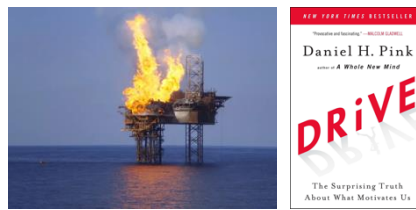
# Embed it in the Culture



# Culture Change







Establish Urgency

Form a coalition

Create a vision

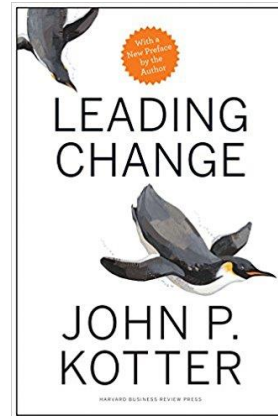
Communicate

Remove Obstacles

Generate short-term wins

Credibility to Drive More Change

Embed into the Culture



**MEET THE TEAM**



**EMILY GOTTENBORG, MD**  
IHQSE Faculty  
University of Colorado,  
Division of Hospital Medicine

 SCHOOL OF MEDICINE  
Institute for Healthcare Quality, Safety & Efficiency  
UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS





“Change is not mandatory. But neither is survival.”



W. Edwards Deming



A top-down photograph of two white ceramic coffee cups on a dark grey table. The cup on the left contains a latte with a thick layer of white foam. The cup on the right contains a dark espresso. A hand is visible on the left holding the handle of the latte cup, and another hand is on the right holding the handle of the espresso cup. A white rectangular box with the text 'BREAK-TIME' is centered over the two cups. A black and white checkered cloth is partially visible in the upper left corner.

**BREAK-TIME**



# Managing Resistance

## SCARF Model of Social Behavior



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# Resistance Reflection

Recall a time when you asked people to make a change and encountered resistance.

How did this manifest?

How did it feel?

What drove that resistance?





A woman with long, dark, straight hair is shown from the chest up. Her eyes are closed, and she has a serene or perhaps distressed expression. Her right hand is raised, palm facing forward, in a universal gesture for 'stop' or 'halt'. She is wearing a light-colored, possibly white, top. The background is a solid, muted green color. A white horizontal bar is positioned across the lower third of the image, containing the text 'Negative & Disruptive Behaviors' in a black, sans-serif font.

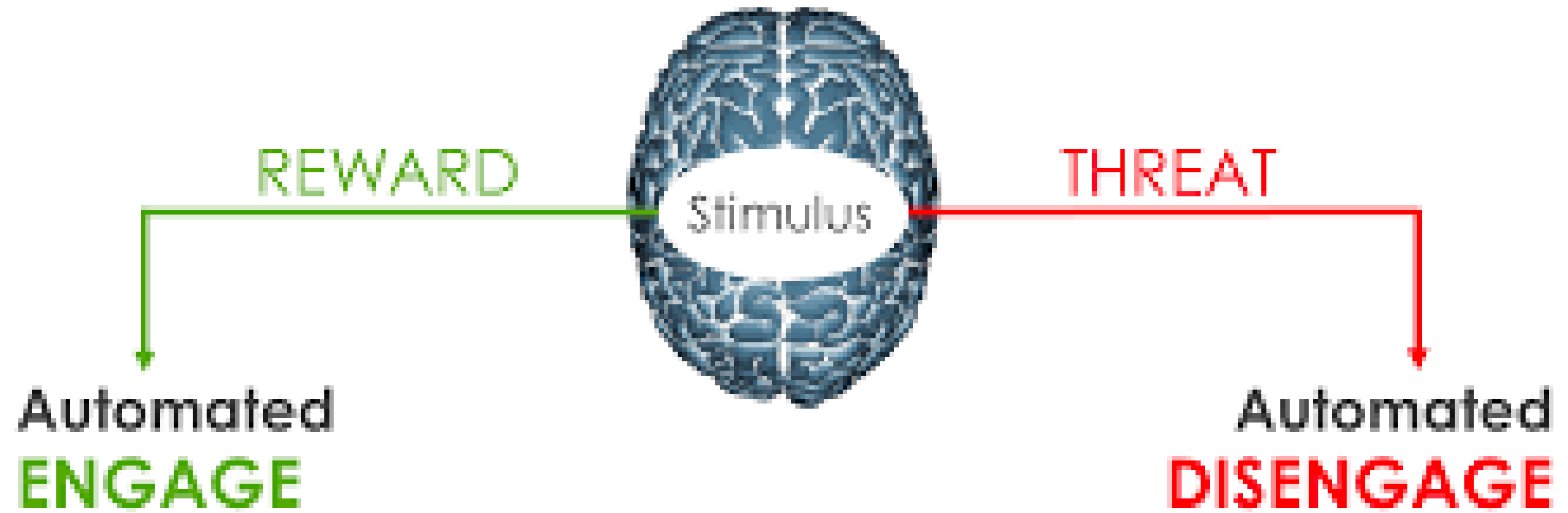
Negative & Disruptive Behaviors

# Working with Skeptics











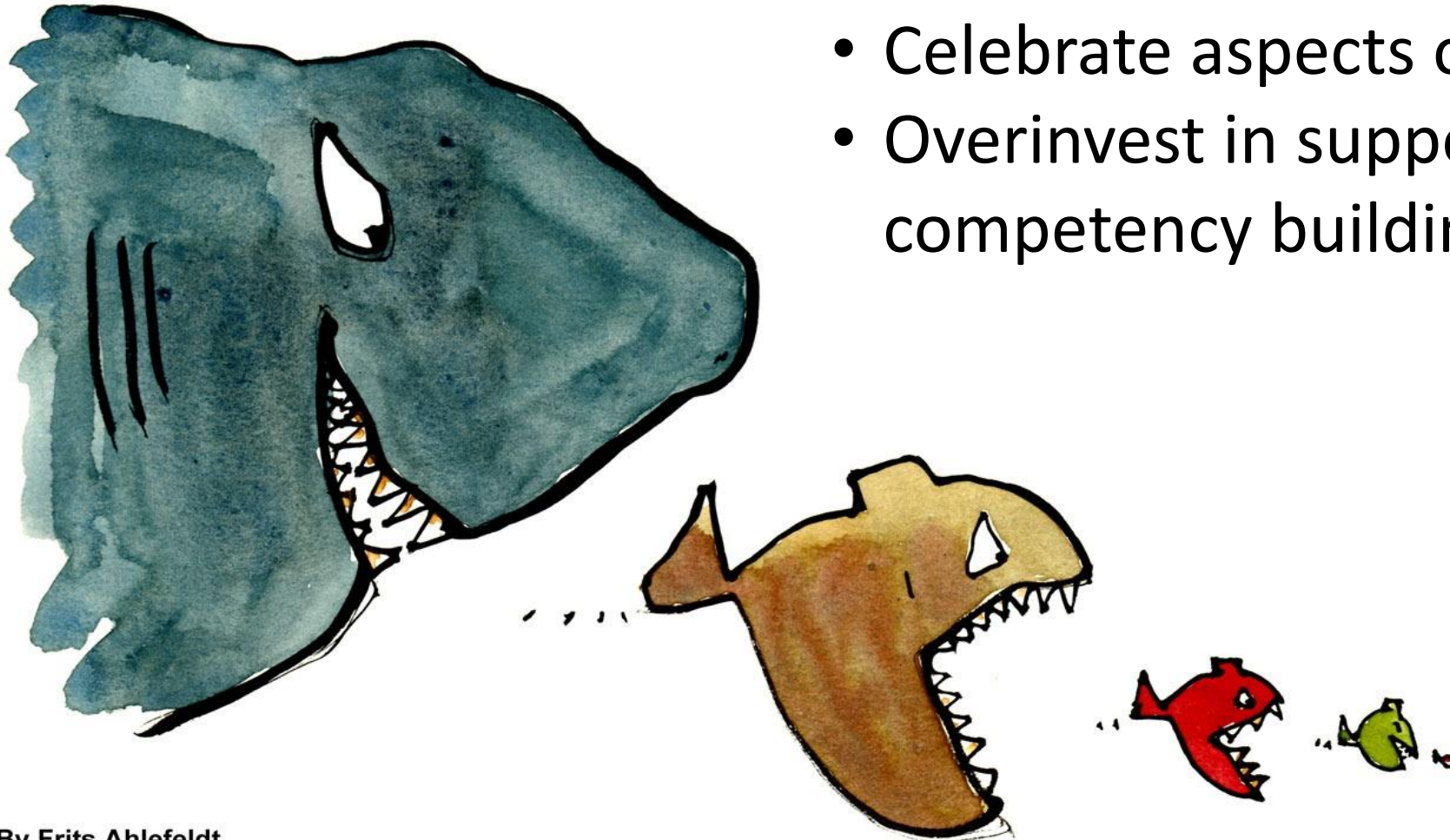
# SCARF Model: Reaction to rewards and threats

- **Status**
- **Certainty**
- **Autonomy**
- **Relatedness**
- **Fairness**



# Status

- Early stakeholder engagement
- Celebrate aspects of past
- Overinvest in support of competency building



By Frits Ahlefeldt



# Certainty

Smaller chunks: Steps, timetables

Consistent communication



# Autonomy

"I CAN DO WHATEVER I WANT TODAY."

Provide choice when possible

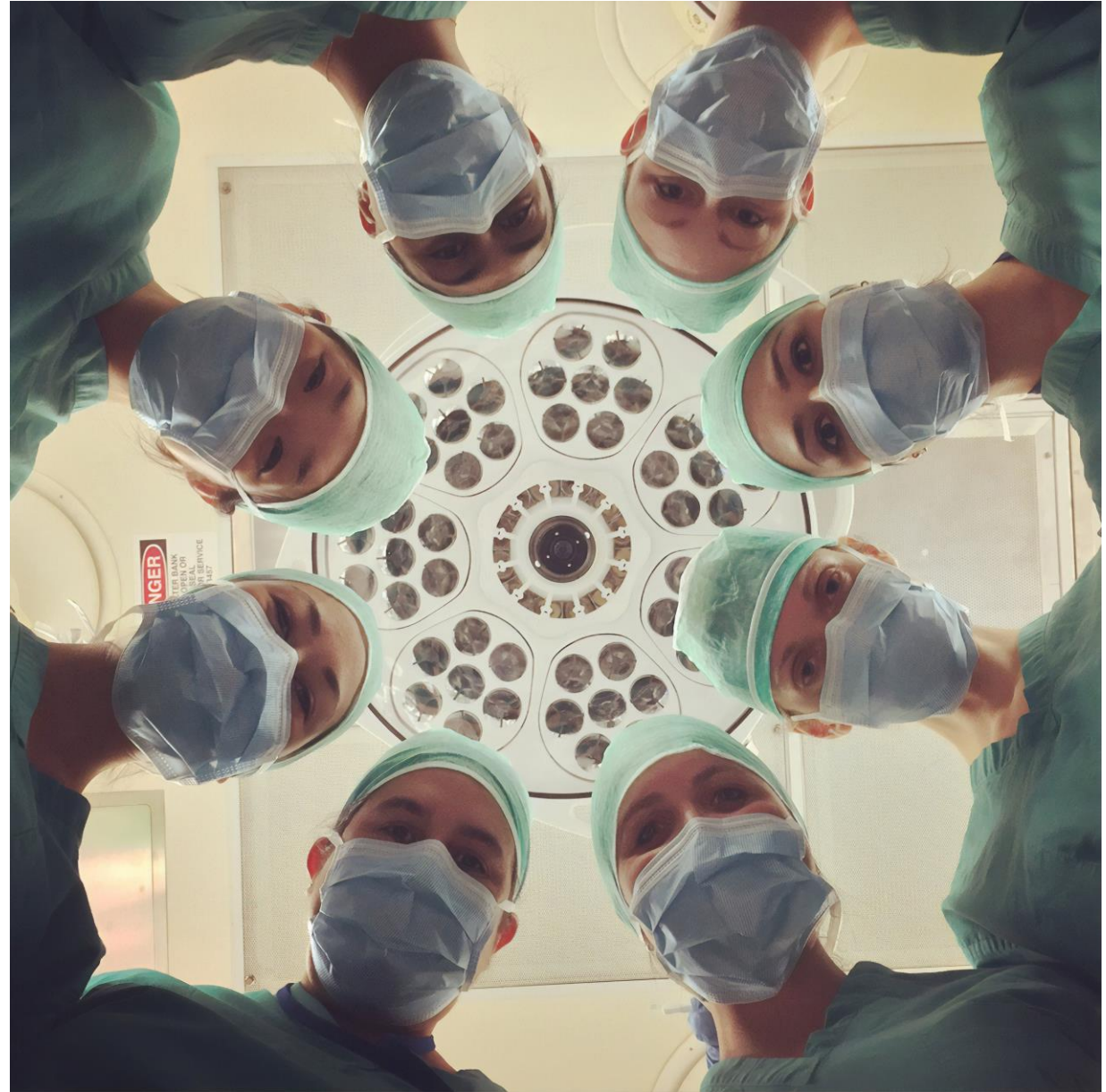




# Relatedness

Shared goal creation

Avoiding 'Us' versus  
'Them' mentality



# Fairness



Transparency



# The Power of SCARF

1. Recognize resistance is happening.
2. Name the source of resistance.
3. Address it.

*OR*

4. Pivot – address another source of resistance



# SCARF in Action

Colleague causing disruption with his anger about new admitting schedule.

“I hear that you’re worried your day will become less predictable (uncertainty).”

“Let’s make a plan to ensure you sign out to cross-cover at 4PM.”

Or.. “However, this will help build your visibility as a leader when you move into this new role.”

Resistance!

Uncertainty

Address Uncertainty

Pivot - Address Status





# Resistance Action Plan

What resistance (are you / will you) encounter in your project work?

Name it.

Address it.

Or, Pivot.





A top-down photograph of two white ceramic coffee cups on a dark grey table. The cup on the left contains a latte with a thick layer of white foam. The cup on the right contains a dark espresso. A hand is visible on the left holding the handle of the latte cup, and another hand is on the right holding the handle of the espresso cup. A white rectangular box with the text 'BREAK-TIME' is centered over the two cups. A black and white checkered cloth is partially visible in the upper left corner.

**BREAK-TIME**





# How to Create a Great Presentation







Clear message



Strong Start



Visuals support  
message



Strong closing





Clear message



Strong Start

Click to add text



Visuals support  
message



Strong closing

**WHAT IS YOUR "ASK"?**



# START

HOW GREAT LEADERS INSPIRE  
EVERYONE TO TAKE ACTION

# WITH

SIMON SINEK

*New York Times* bestselling author of *Leaders Eat Last* and *Together Is Better*

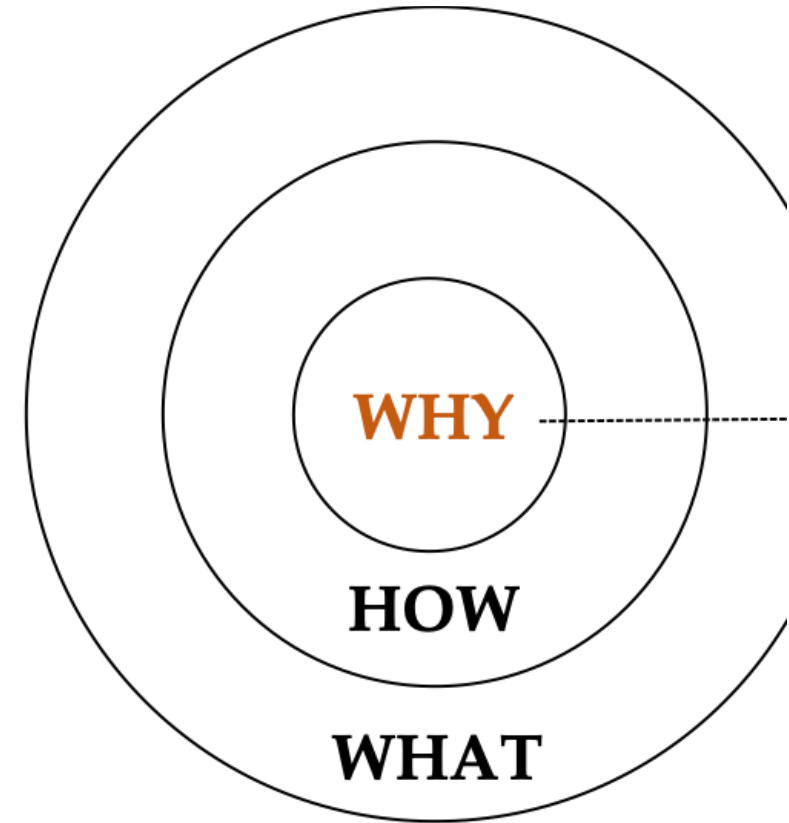
# WHY

MORE THAN  
ONE MILLION  
COPIES SOLD

**WHY:** The purpose,  
cause or belief behind  
what you are doing.

**HOW:** The actions taken  
to realize the WHY

**WHAT:** The product,  
service or job function.  
Provides tangible proof  
of your purpose.











Clear message



Strong Start



Visuals support  
message



Strong closing

**TELL A STORY!**





- Engages the listener.
- Actively puts them in a position to be empathetic.
- Improves retention.



# Why We Need More Nurses

- The Case of Mr. Smith
- 80 year old caucasian male with COVID
- History
- One day was not doing so well clinically and was recognized by a nurse
- Survived to leave the hospital after >200 days









A background image showing a person's arm and hand, possibly a healthcare worker, in a clinical setting. The image is slightly blurred and serves as a backdrop for the text.

# 72%

Of patients **didn't know** they were being discharged that day.

## “The Slap”

- Statistics
- Humor/sarcasm.
- NOTE: be authentic

## FORBES: CONSUMER TECH: 2016

Most Of Your Facebook Friends Are Not Your Real Friends, Says Study  
[Amit Chowdhry](#)







Clear message



Strong Start

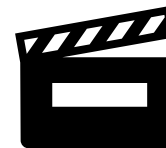


Visuals support  
message



Strong closing

Follow multi-media design principles



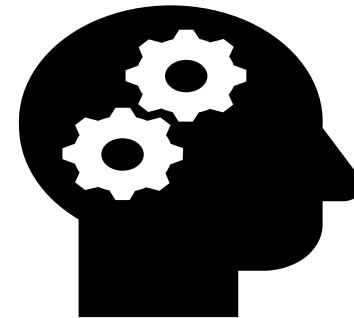


**Avoid Brain  
Burnup**



# Avoid Brain Burnup

- Keep it simple
- Use a photo
- What words could you replace?



# Bullet Points

1-7-7



# In 2009, the AME started with

## People



1 **Leader**

19 **Members**

## Programs



Faculty Development Sessions



# In 2014, the AME has

55  
members



*across*

22  
departments



1

Director of AME

5

Program Directors or  
Assistant Directors

2

Administrative  
Assistants

1

Research Assistant









**Mortality  
rate soars  
in town of  
Bayton!**





Clear message



Strong Start



Visuals support  
message



Strong closing

**Synthesize and....  
Make your ask again**







# IN SUMMARY



Clear message



Strong Start



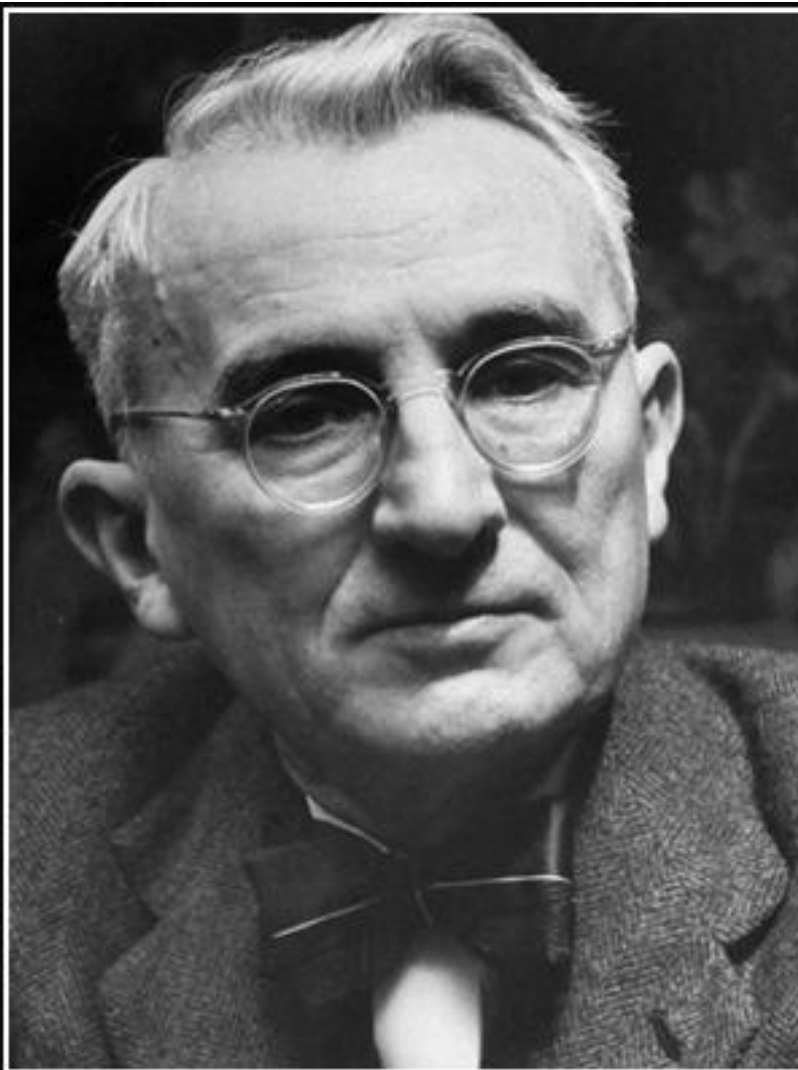
Visuals support  
message



Strong closing







Tell the audience what you're going  
to say, say it; then tell them what  
you've said.

— Dale Carnegie —

AZ QUOTES



<https://beautiful.ai/> Nice for ideas for slide designs, a little clunky for actually making slides

<https://venngage.com> Great for infographics

<https://unsplash.com/> Free photos that you do not need permission to use

<https://thenounproject.com/> Decent place for finding icons. Free downloads are typically black only, but this can be modified in

PowerPoint



University of Colorado Anschutz Medical Campus

IHQSE

# Example of short, brief effective presentation



# Action Plan

1. Biweekly Meetings
2. Building your team (who else needs to be engaged)
3. Where are you in DMAIC?
  - Ensure Problem Statement, Sense of Urgency
4. Timeline for Success



# Session Evaluation







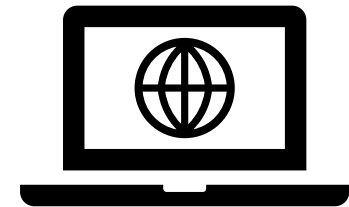
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Efficiency



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