

Success = Vision + Motivation

Lean is Part of the Change Management Equation

Elizabeth Alley MD, Shelly Randazzo DNP(c), RN

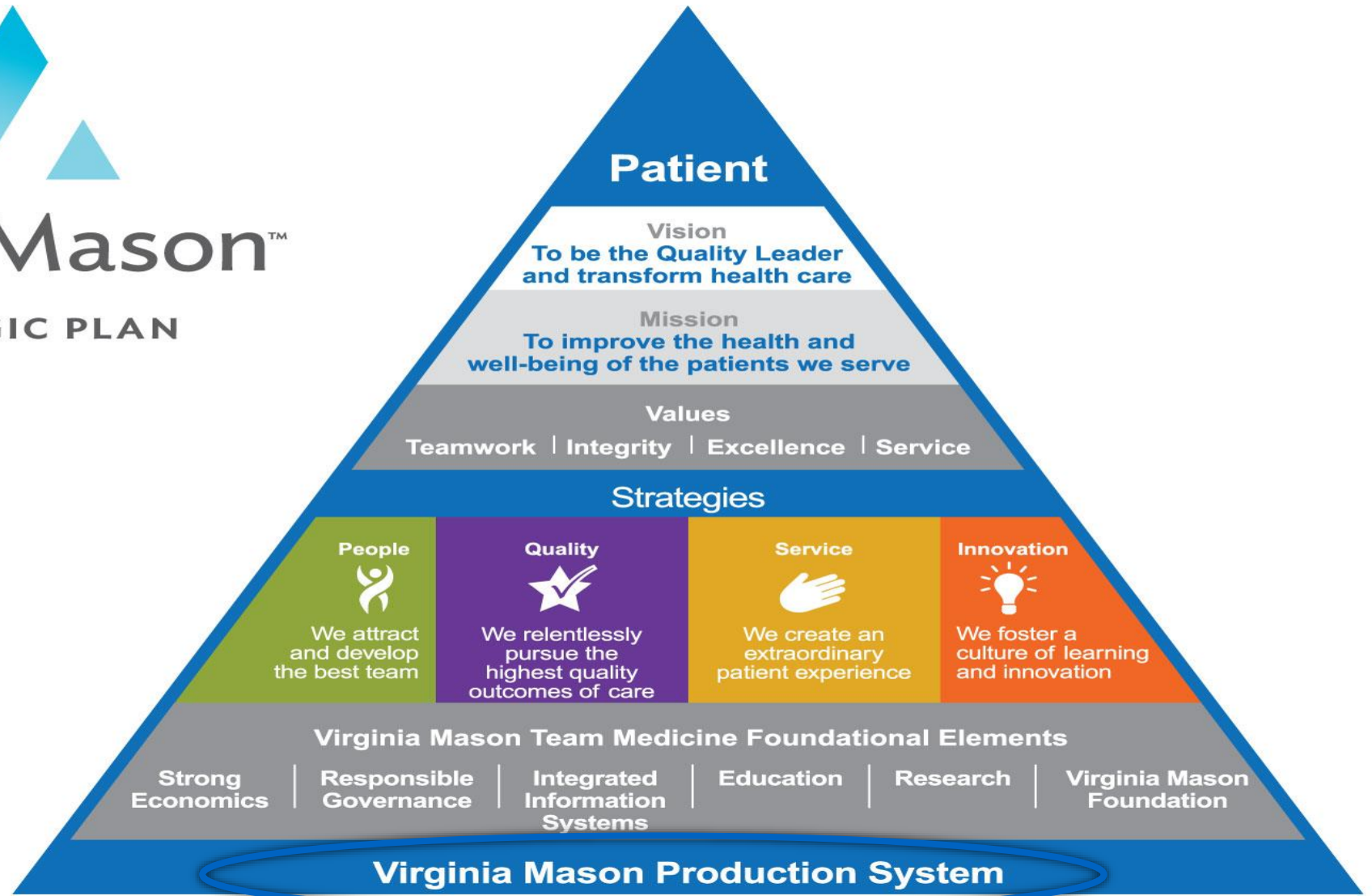
Washington State Government

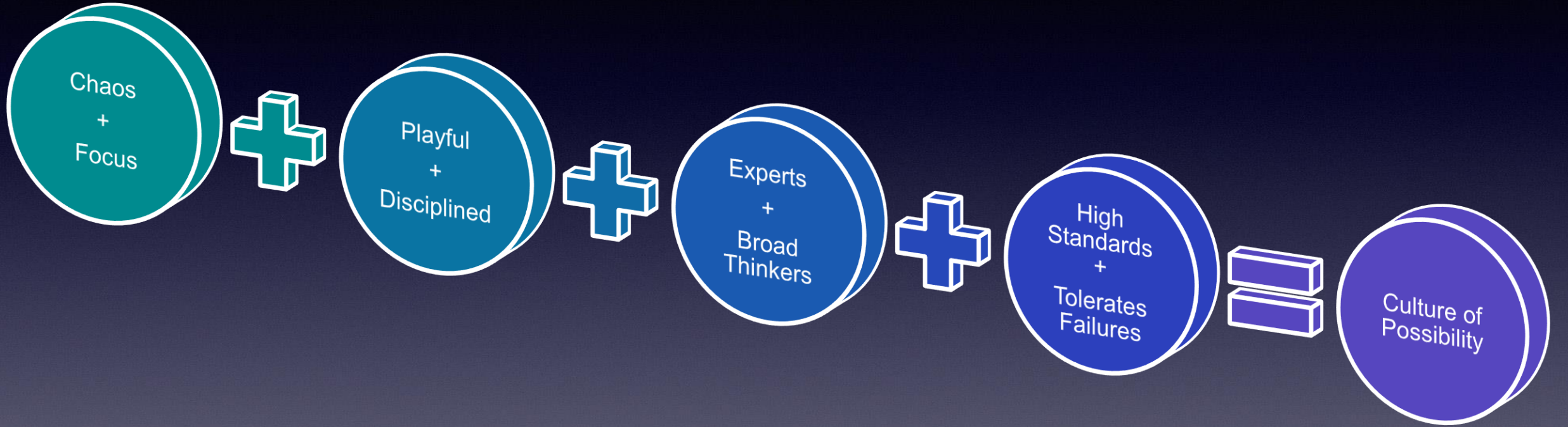
Lean Transformation Conference 2016



Virginia Mason™

OUR STRATEGIC PLAN





The History of TPS and VMPS

VMPS Basics
We heard, "Wait! People are not cars!"

Let's look at some commonalities...

Toyota or Virginia Mason?

high quality is absolutely essential

there are highly intricate processes

there are a wide variety of products/services

worker safety is critical

there are complex supplier relationships

variability/unpredictability in demand

there is a need to keep costs low

there is waste

VMPS House

Virginia Mason
Production System

To Make things in the Right Way

JUST IN TIME

Operate with the minimum resource required to consistently deliver

- Just what is needed.
- In just the required amount.
- Just where it is needed.
- Just when it is needed.

People

Standard Work

Takt Time Production

Materials

Standard Work in Process Kanban

One Piece Flow Production Supermarket System

Machines

Andon Operational Availability

Pull System Production

Jidoka

One-by-one confirmation to detect abnormalities.
Stop and respond to every abnormality.
Separate machine work from human work.
Enable machines to detect abnormalities and stop autonomously.

Leveled Production (Heijunka)

Cost Reduction Through The Elimination of Muda (Waste or Non-Value Added)

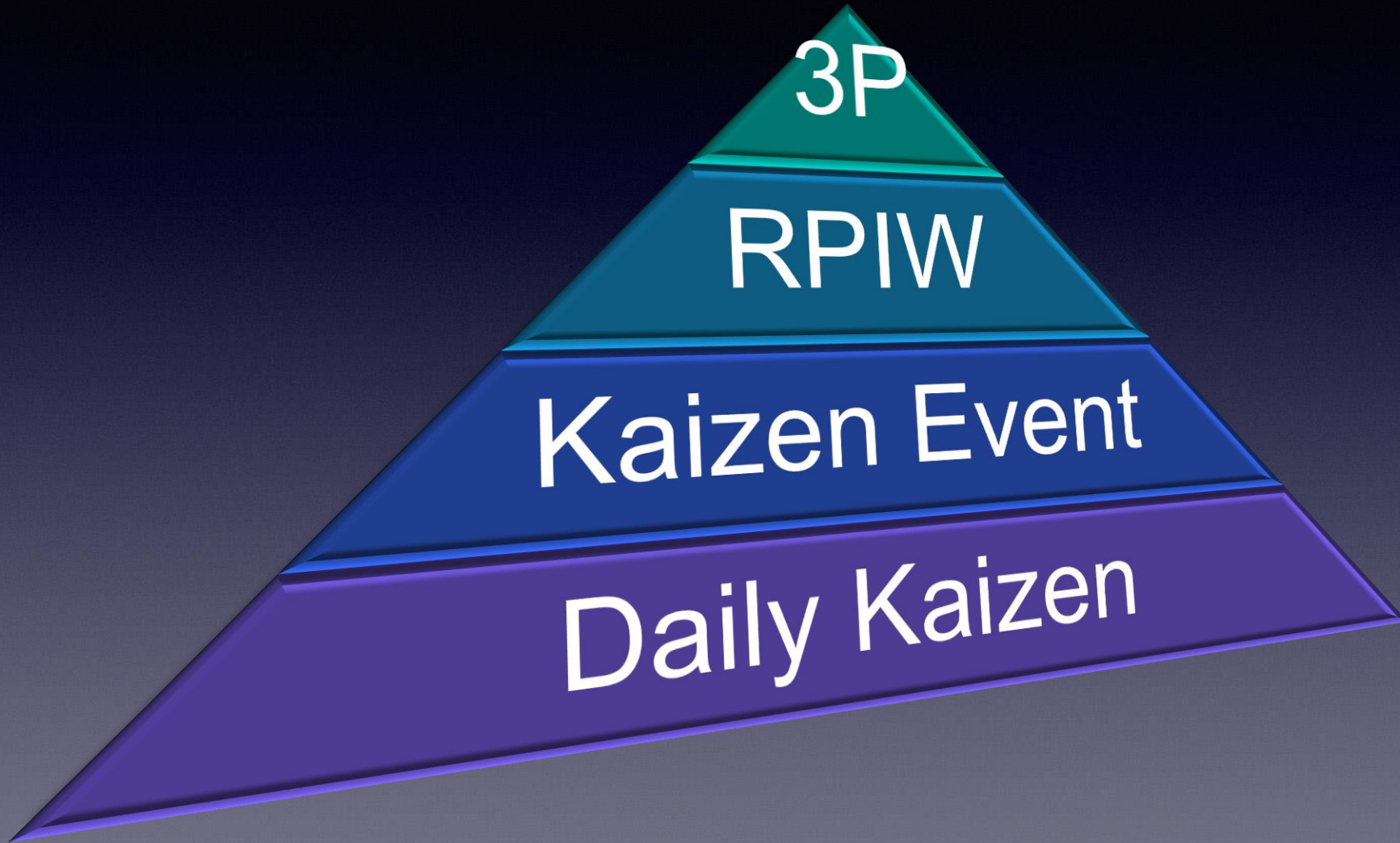
VMPS

3P

RPIW

Kaizen Event

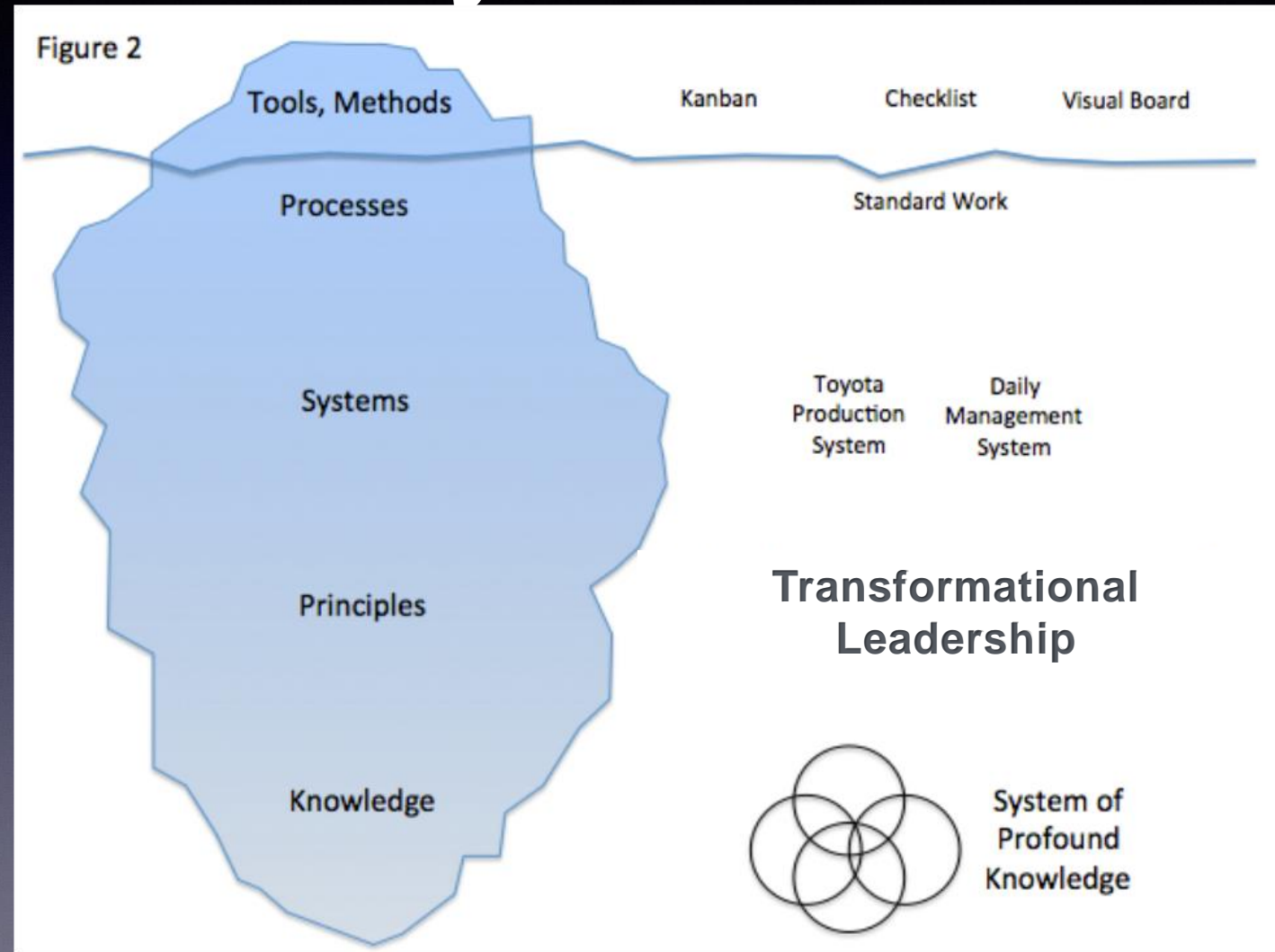
Daily Kaizen



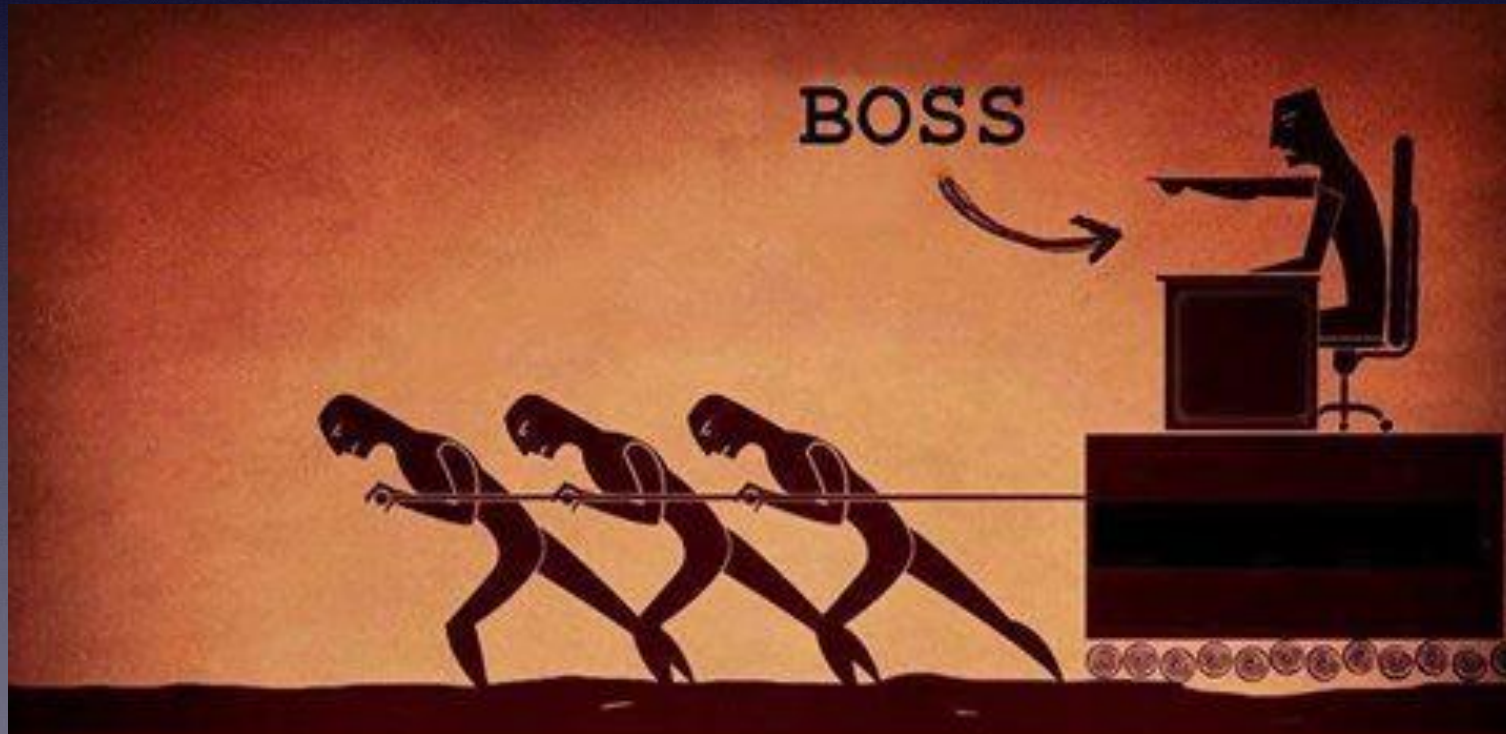
Federal Way Regional Medical Center Outpatient Surgery Center



Tools – only the surface



Traditional Management





Kaizen

Transformational
Leadership

Success

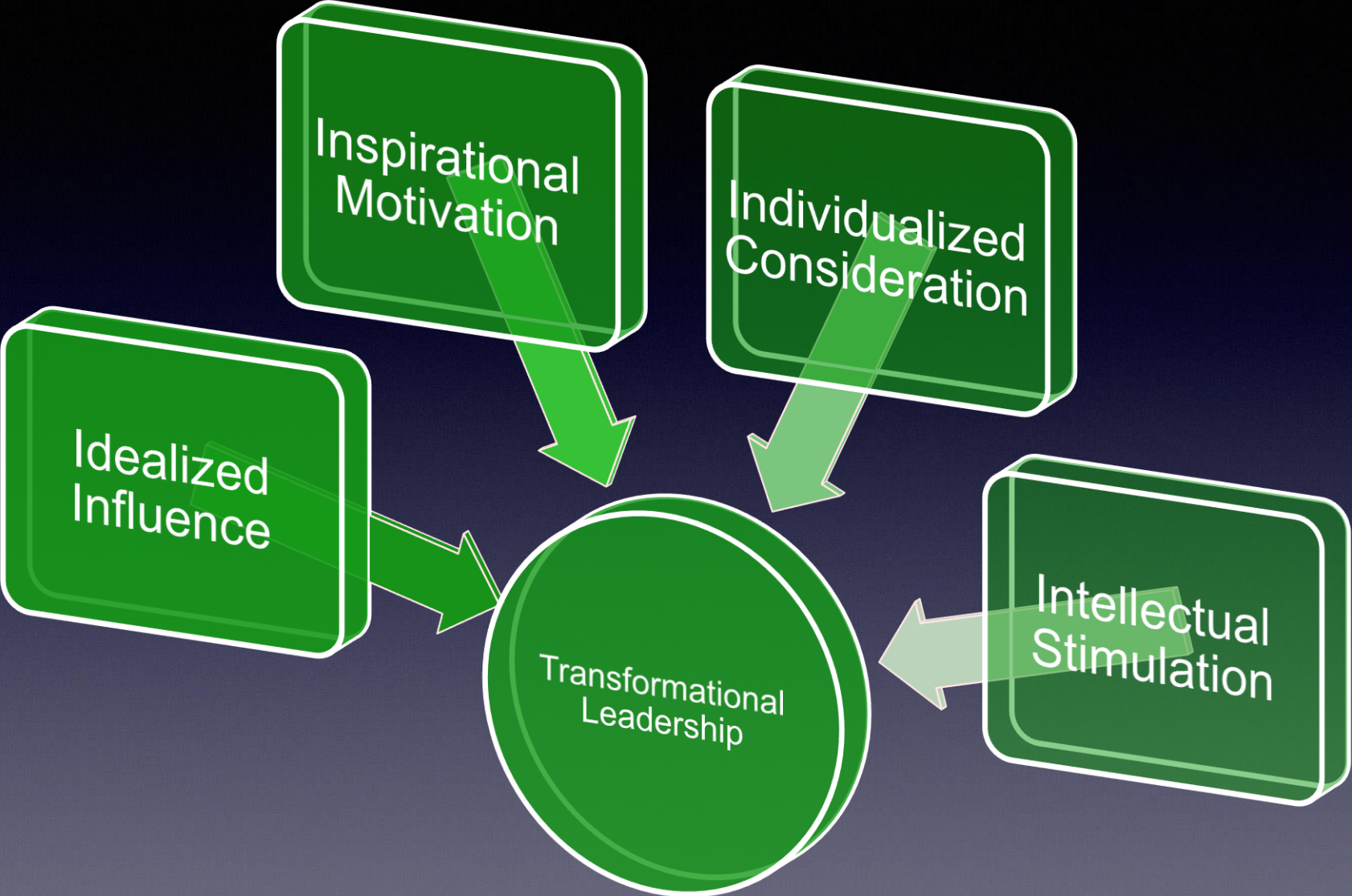
Managers – ask how and when
Focus: systems/control

Leaders – ask what and why
Focus: people/trust



Transactional Leadership – “transaction or exchange of actions by followers” – results in rewards or punishment

Transformational Leadership – “leader and followers engage with each other, raise each other, and inspire each other”



Culture of Innovation



Playful



Disciplined

Leadership



Leading with VMPS

Leader Standard Work

Behaviors	Purpose	Transformational Leadership skills
Transparency	Leaders sharing their work with the team	Inspiration and Vision
Sharing	Allows us to identify where standard work needs to be written for processes	Individual Consideration
Follow through	Allows tracking and trending of abnormalities, promotes follow up on issues	Intellectual Stimulation
Coaching/mentoring/ training	Allows for smooth leader transitions when the work is clearly defined	Idealized Influence
Respect for People behaviors	Infusing these core principles throughout all of our interactions	Idealized Influence
Quality Improvement	Intentional checks of key process for deviations from the identified Standard Work	Intellectual Stimulation

Transformational Leaders: instill the value of commitments to the team

Outpatient Surgery Center

Team Pledge

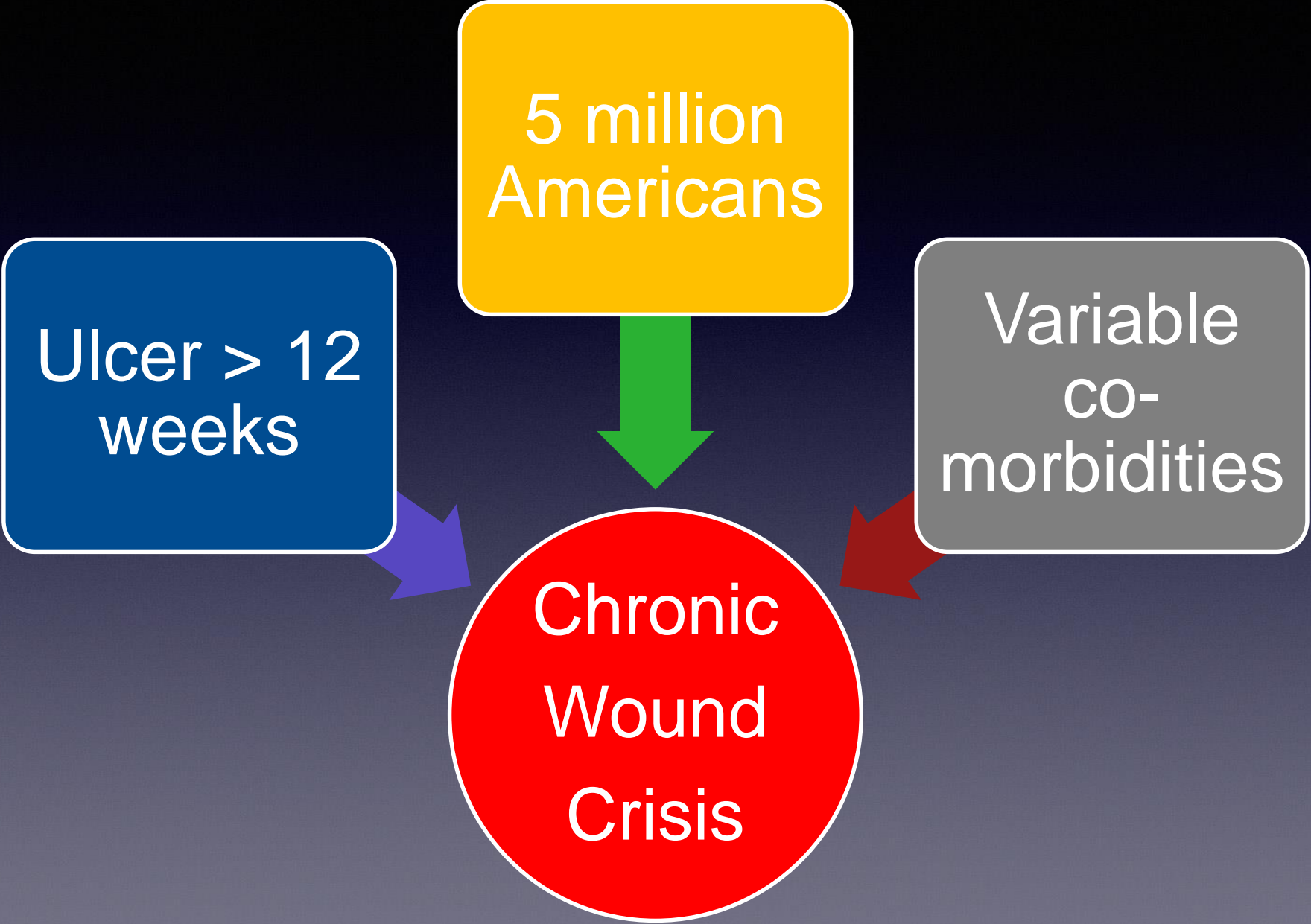
Communication: I will request feedback, positive or otherwise, on a regular basis. I will give straight feedback to my team members in a timely manner.	Teamwork: I will work as a member of the team, no matter where I physically work. I will offer help to my team members on an ongoing basis.
Respect: I will treat my team members as I would like to be treated. I will be dependable and take accountability for my behavior.	Attitude: I will be present in my work and maintain a positive attitude. I will focus on solving problems by coming up with solutions rather than defending myself when I encounter challenging situations.

Virginia Mason

Handwritten signatures and names around the pledge include: ANNE, Dawn, Erin, Mark, Kelly, Neoma, Sara, Jackie, Godie, Rehyt, Margaret, Jason, Allison, Tony, Procha, Kim, Susan, KRISTIE, Nancy, Val, Cheryl, Patty, Heather, Jenny, Josh, Kelly, Natasha, Cheryl, Barbara.

Lean & Leadership in Practice

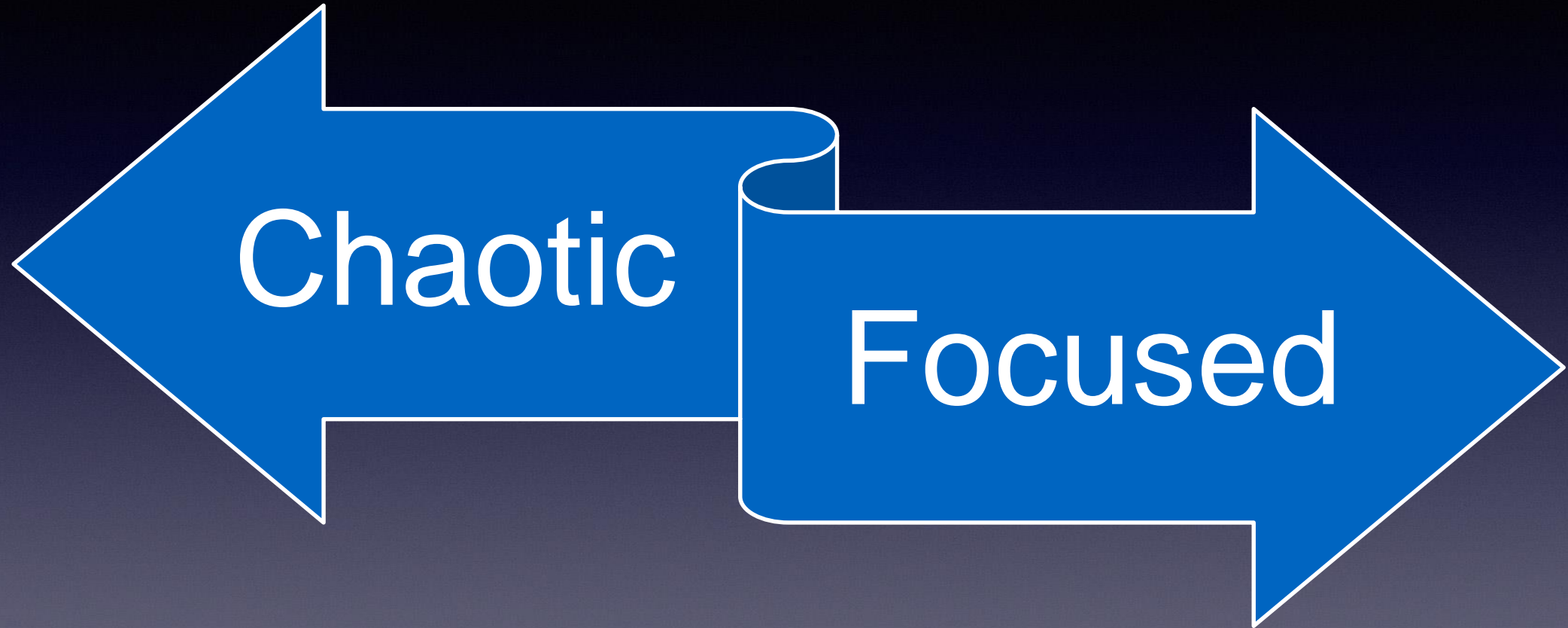
The Development of a Wound Care Practice
at VMHC



Virginia Mason Wound Care Center



Culture of Innovation



Leadership Style

Authoritarian Leadership	Transformational Leadership
Frenzied Urgency	Measured urgency
Dictate policy and procedures	Team performing the work is improving the work
Dominating interaction	Team leads daily improvement
Rare opportunity for feedback	Coaching/mentoring/ training
Individually directed tasks	Daily Kaizen allowed team to respond to patient care needs
Necessity for silos in work to compensate for lack of resources	Data Driven, benchmarking and trending, cross training

Lessons Learned:

- Dedicated time for Lean Process
- Buy-in from Stakeholders
- Reflection
- Process Improvement

2014

FWRMC
3 RN's 3 MA's
4 Bays
2 providers

2015

FWRMC
3 RN's 3 MA's
4 Bays
3 providers

2016

FWRMC/DT
6 RN's 5 MA's
6 providers

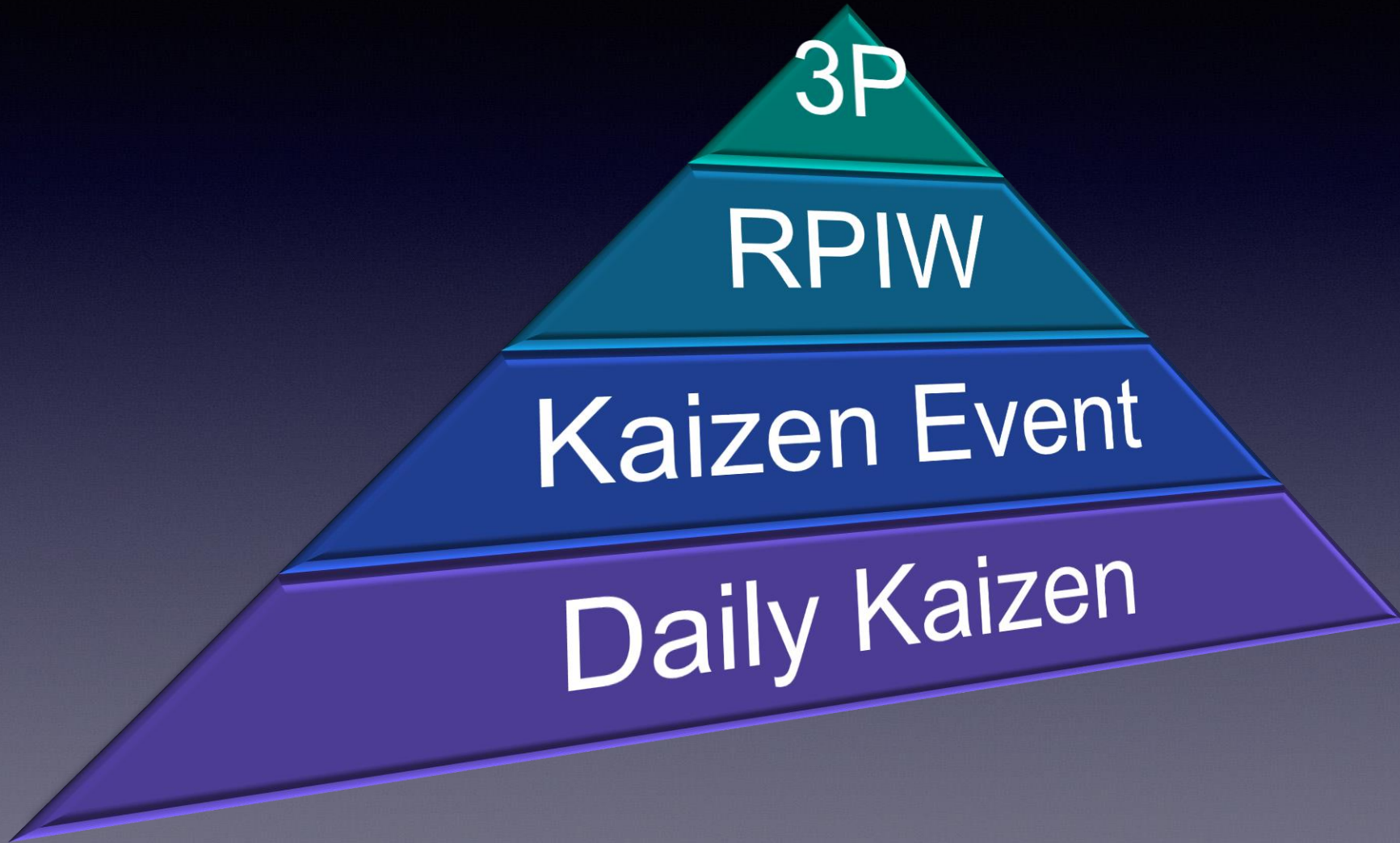
VMPS

3P

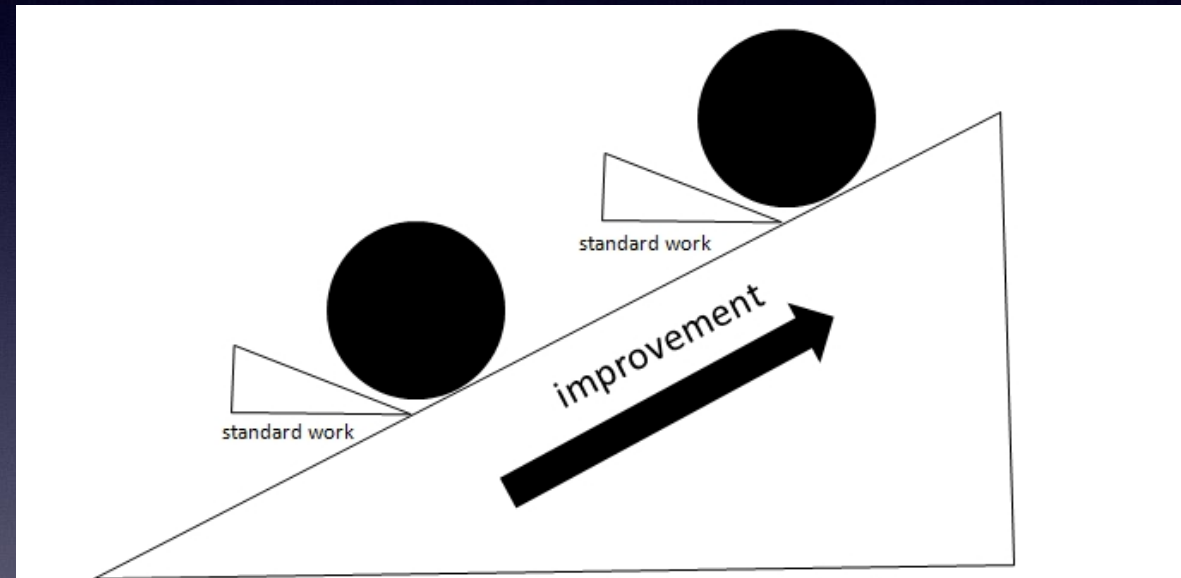
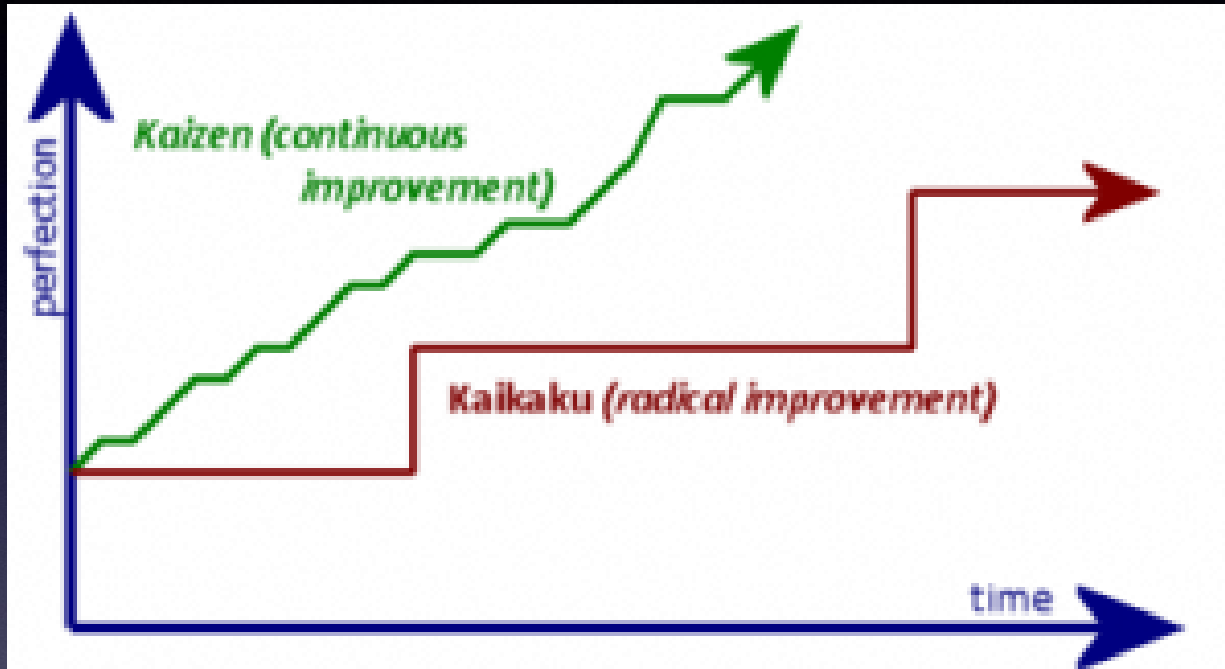
RPIW

Kaizen Event

Daily Kaizen



Kaizen is continuous



Without a standard, there can be no Kaizen (improvement):

1. Standards are the basis for comparison (before/after)
2. With no standard, can't objectively tell what has changed or what has improved

Daily Kaizen

- Production Boards
- Daily Huddles
- “Dry Run”/simulation
- Flow Mapping Sessions



OCT 23

20

TASK

WIP Complete

Web

Production Board

Admin. WP
marginal graphs
Staff mins
2014 OUTCOMES quality
Qrtly Provider mins.
Cerner

TODAY'S FORECAST

Tomorrow

CASES IN QUEUE

PHONE STATS

	9	Thurs
Surgery	9	
GI	9	
Wound	13	
Urology	0	
Pre-OP	5	
Pain	0	

	7	Friday
	7	
	9	
	11	
	0	
	1	
	0	

4

Actual	Calls Yesterday
34	91%
Previous week	
144	95%

Highlight performance gaps

Reduce variability

Actively employ

countermeasures

Promotes Teaming

Front Desk Vision Statement

From the moment of your arrival, we will

Production board

Production Board-Version 4

RN's: Jackie Kelly		CS: Cheryl C. Esthor Sara Cheryl M. Mark		Front Desk (# Pts: 37+) Jennifer	
Anesthesia: Betsy Alley, Lisa Grayson					
Targeted/mand	Today's Staffing Gauge	RN's	Techs/MA's	Un	
AM: ● PM: ●	Kim Dawn	Teresa- Help IV's		* Patty - OSE	
AM: ● PM: ●	Betsy Phoebe			ELI / Kai	
AM: ● PM: ●	Andrea Allison	Barb	Erin Tammy Josh	Happy	
AM: ● PM: ●	Kelly Cindy	Linda Patty Teresa- Caus & Help	Cyndie Sisk Robin	Marilyn	
AM: ● PM: ●	Jackie Jenny		Vae Laila		
AM: ● PM: ●	Susan				
Teresa: PM		Sick:		Vacation: Neoma	

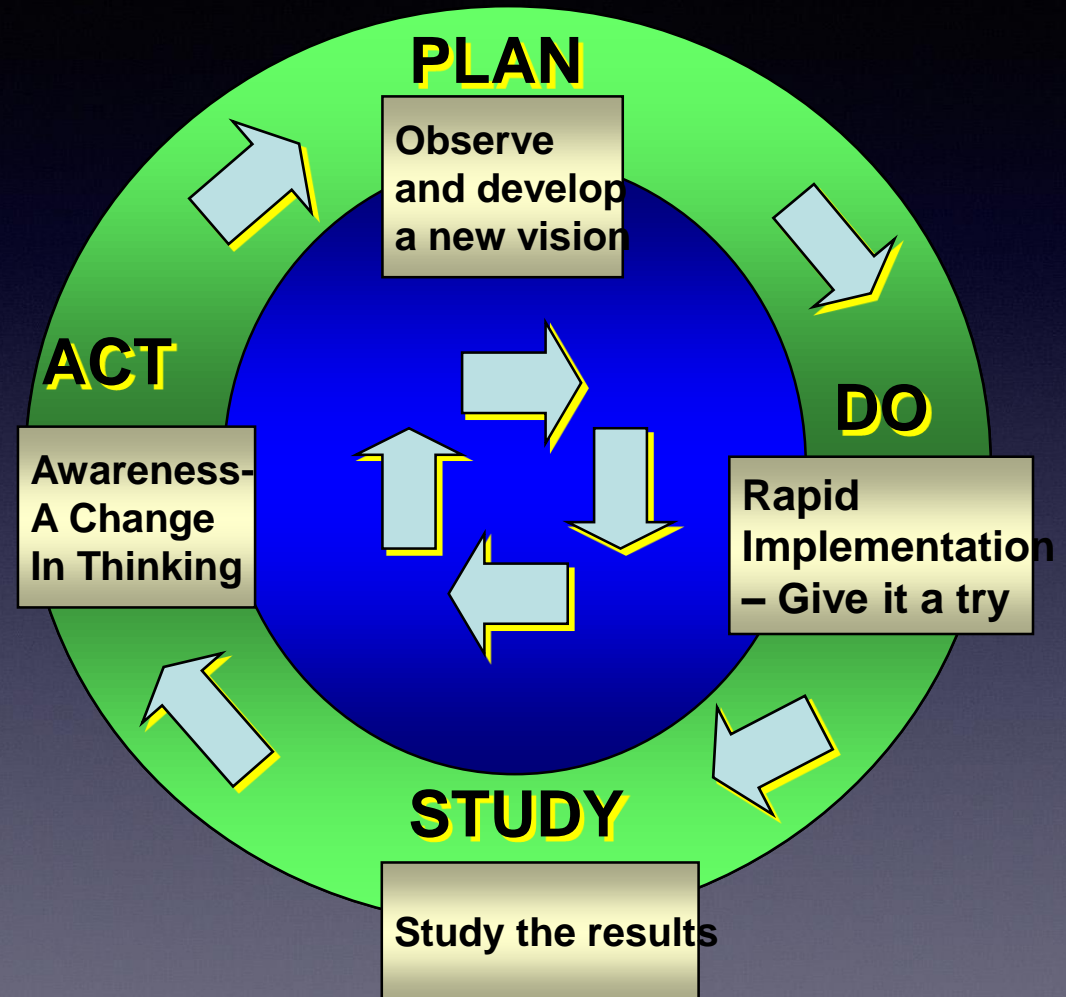
- Highlight performance gaps
- Reduce variability
- Actively employ countermeasures
- Promotes Teaming

VMPS Daily Kaizen

How do we do our work?

- Use the PDSA method
Plan-Do-Study-Act
- Continuously test/refine ideas
- Focus on results

Example:





Visual Controls


GRAFIX INVENTORY		
SIZE	PRIME	CORE
16MM DISC	14mm 0	0
1.5x2		4
2x3	1	
3x4	1	2
5x5	1	3
Dermapap	exp 10/1	2x2 16

Clinic Activity

Lifts - 2
 Grafix - 1
 New pts - 2
 Interpreter ϕ
 Bari - 3


 - Help Needed


 - Reheat Problems


 - No expected problems

DATE: 9-25-16

NEW: _____
 ESTABLISHED: 9
 NURSE: 2

STAFF AVAILABLE:
 DEPART/EMERGENT:
 CANCELLATION LIST:

STAFF IN TODAY	SEACY: Linda
PROBES: 1	JESSICA: Heather
IN: 3	FLOW: 14
MA: 3	
FLOAT: _____	

Wound Care Visual Control
 We are committed to providing innovative and quality care for our

Visual Controls

GRAFIX INVENTORY		
SIZE	PRIME	CORE
16MM DISC	14mm 0	0
1.5x2		4
2x3	1	
3x4	1	2
5x5	1	3
Dermapap	exp 10/1	2x2 16

Clinic Activity	
Lifts - 2	
grafix - 1	
New pts - 2	
Interpreter ♂	
Bari - 3	

■ - Help Needed
■ - Reheat Problems
■ - No expected problems

DATE: 9-25-16	
NEW:	
ESTABLISHED: 9	
NURSE: 2	
STAFF AVAILABLE:	
DEPART/EMERGENT:	
CANCELLATION LIST:	
STAFF IN TODAY	SEACY: Linda
PROBERS: 1	JESSICA: Heather
MA: 3	FLOW: Yael
FLOAT:	

■ - Help Needed
■ - Reheat Problems
■ - No expected problems

Wound Care Vision Statement
 We are committed to providing innovative and quality care for our

Transparency




Visual Controls

Quality Improvement

GRAFIX INVENTORY		
SIZE	PRIME	CORE
16MM DISC	14mm 0	0
1.5x2		4
2x3	1	
3x4	1	2
5x5	1	3
Dermapap	exp 10/1	2x2 16

Clinic Activity

Lifts - 2
 Grafix - 1
 New pts - 2
 Interpreter ϕ
 Bari - 3

 - Help Needed
 - Reheat Problems
 - No expected problems

DATE: 9-25-16

NEW: _____
 ESTABLISHED: 9
 NURSE: 2

STAFF AVAILABLE:
 DEWANT/EMERGENT:
 CANCELLATION LIST:

STAFF IN TODAY	SEACY: Linda
PROVIDERS:	JESSICA: Heather
PH: 3	FLOW: Yael
FLOOT:	

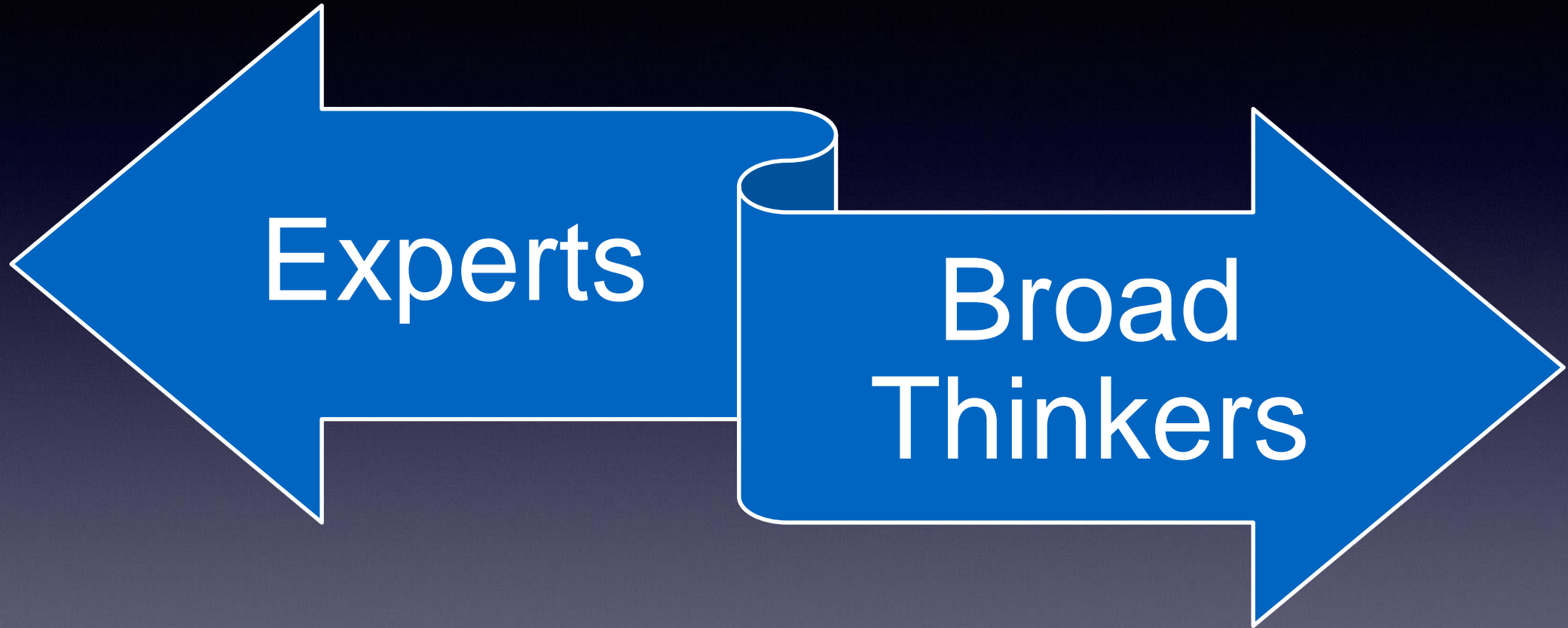
Wound Care Vision
 We are committed to providing innovative and quality care for our

Leading with VMPS

Visual Controls- Production Boards

Behaviors	Purpose	Leadership Skills
Presence	Leaders 'on the genba' where the work happens	Individualized Consideration
Responsiveness	Allows the leaders to recognize and respond to abnormalities in real time	Idealized Influence
Transparency	Sharing information with the entire care team that traditionally was known only by leadership	Inspiration and Vision
Quality Improvement	When information is visible, it allows the team to recognize issues easier, therefore responding sooner	Intellectual Stimulation
Respect for People behaviors	Infusing these core principles throughout all of our interactions	Individual Consideration

Culture of Innovation



AM Huddle

- MA Assignments
- Lift Patients
- Grafts
- Wound VACs
- Expected issues
- Staffing
- Open Appts.

What does this mean to the team:

AM Huddle

MA assignments- What MA is assigned to the providers and who is the flow coordinator

Lift Patients- these patients require extra staff

Grafts- applying special dressing requires a nurse to spend more time with this patient

Wound VACs- this complex dressing requires more staff time

Expected issues- making staff aware of times in the schedule that are expecting to be

busy, this may require the staff altering their lunches and breaks

Staffing- who is here today and what provider

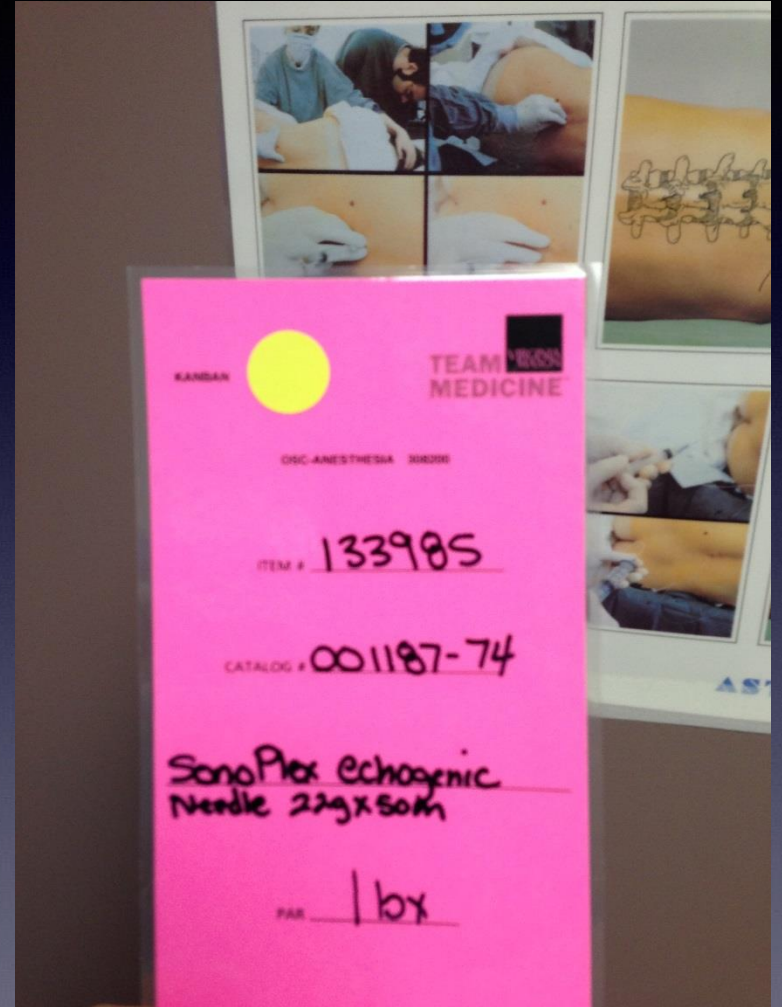
Open Appts- when can new patients and established patients get in next

Kanban

- Support Just-in-time system
- Improve/strengthen the system
- Purchase kanban

Original Kanban

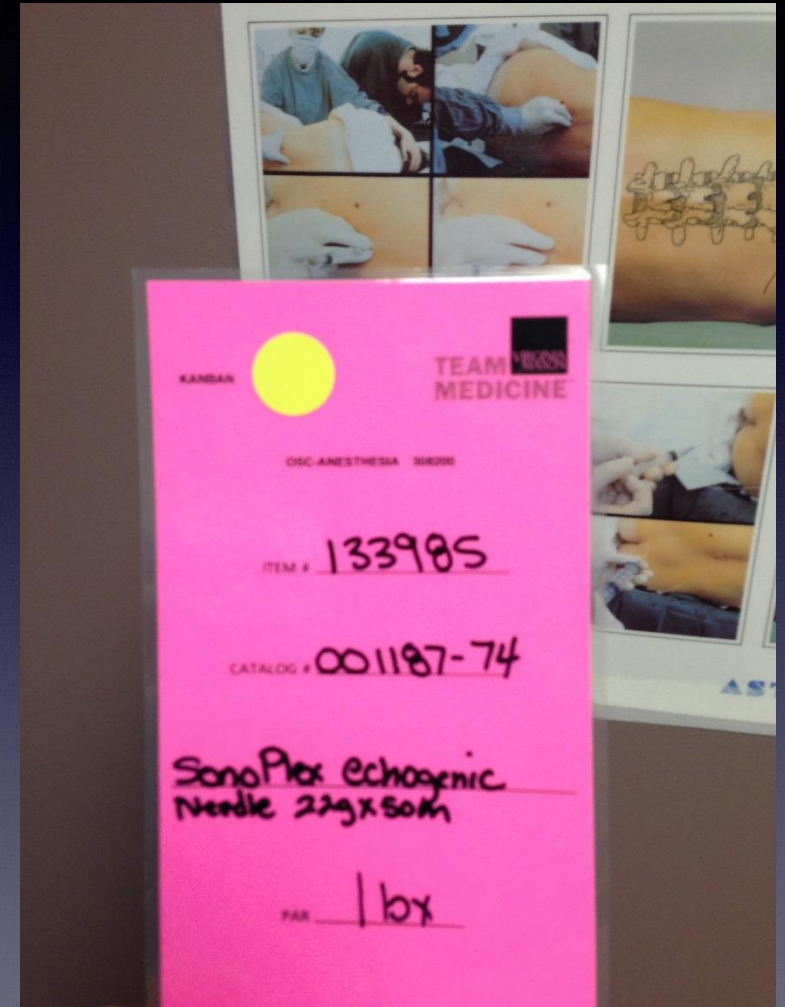
- Identify item
- Number needed
- When to reorder
- How to order



Original Kanban

Even routine operations don't hum along forever

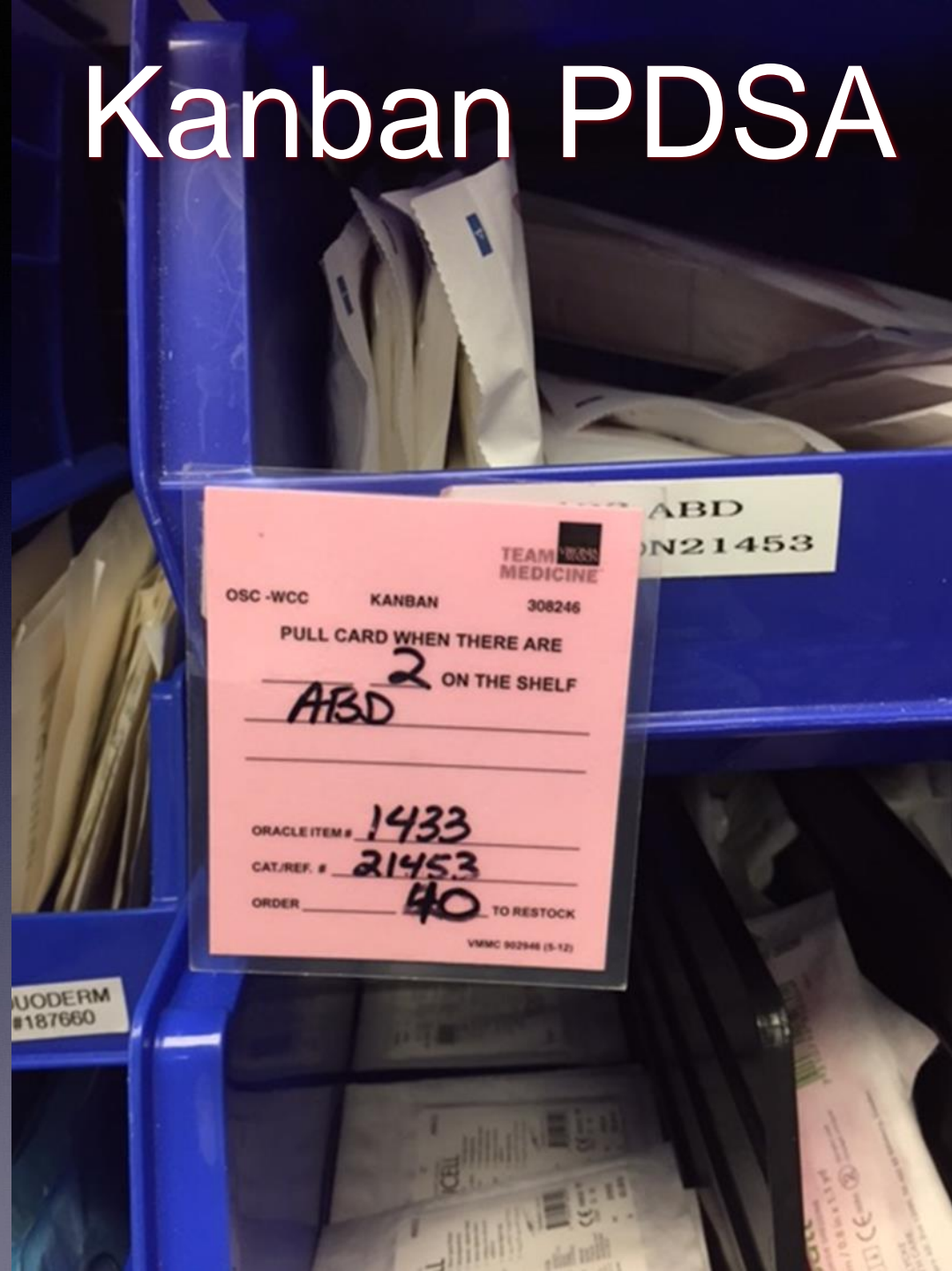
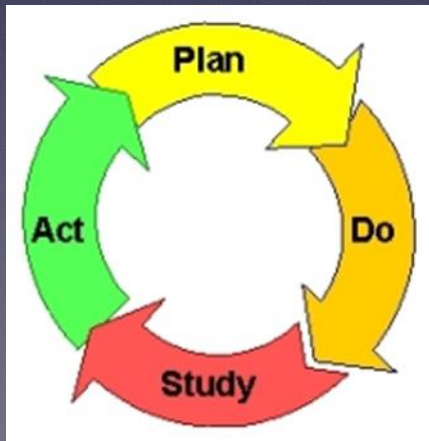
PDSA
Original Kanban "generic" to system
Kanban not pulled
Kanban lost
Unclear when order will be filled
No point person



PDSA	PDSA 2
Original Kanban "generic" to system	Add 2 nd part to Kanban to identify Kanban has been pulled
Kanbans not pulled	Identify what is on order
Kanban lost	Assure team Kanban is not lost
Unclear when order will be filled	Identify when order will be filled
No point person	Identify point person



Kanban PDSA

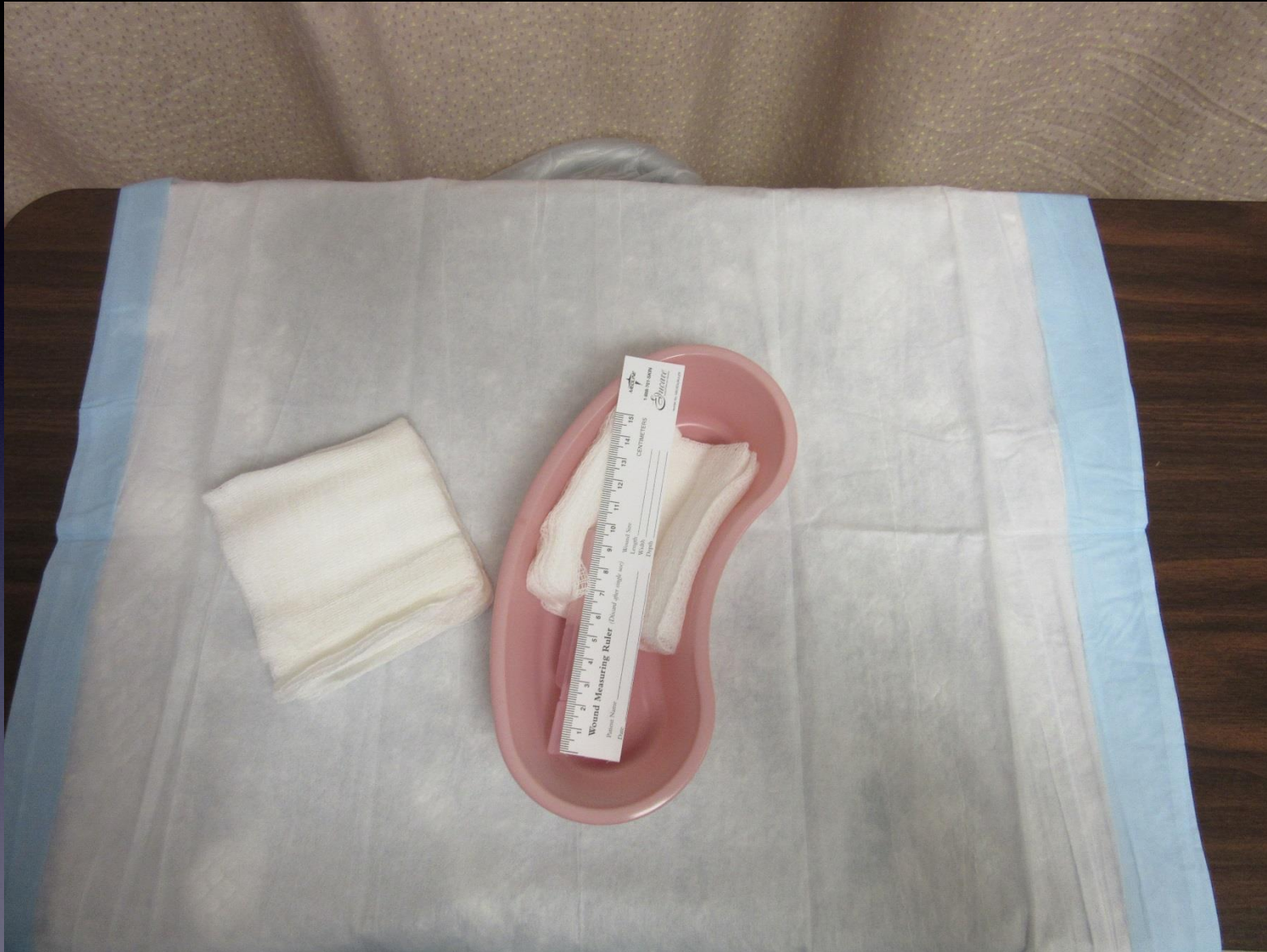


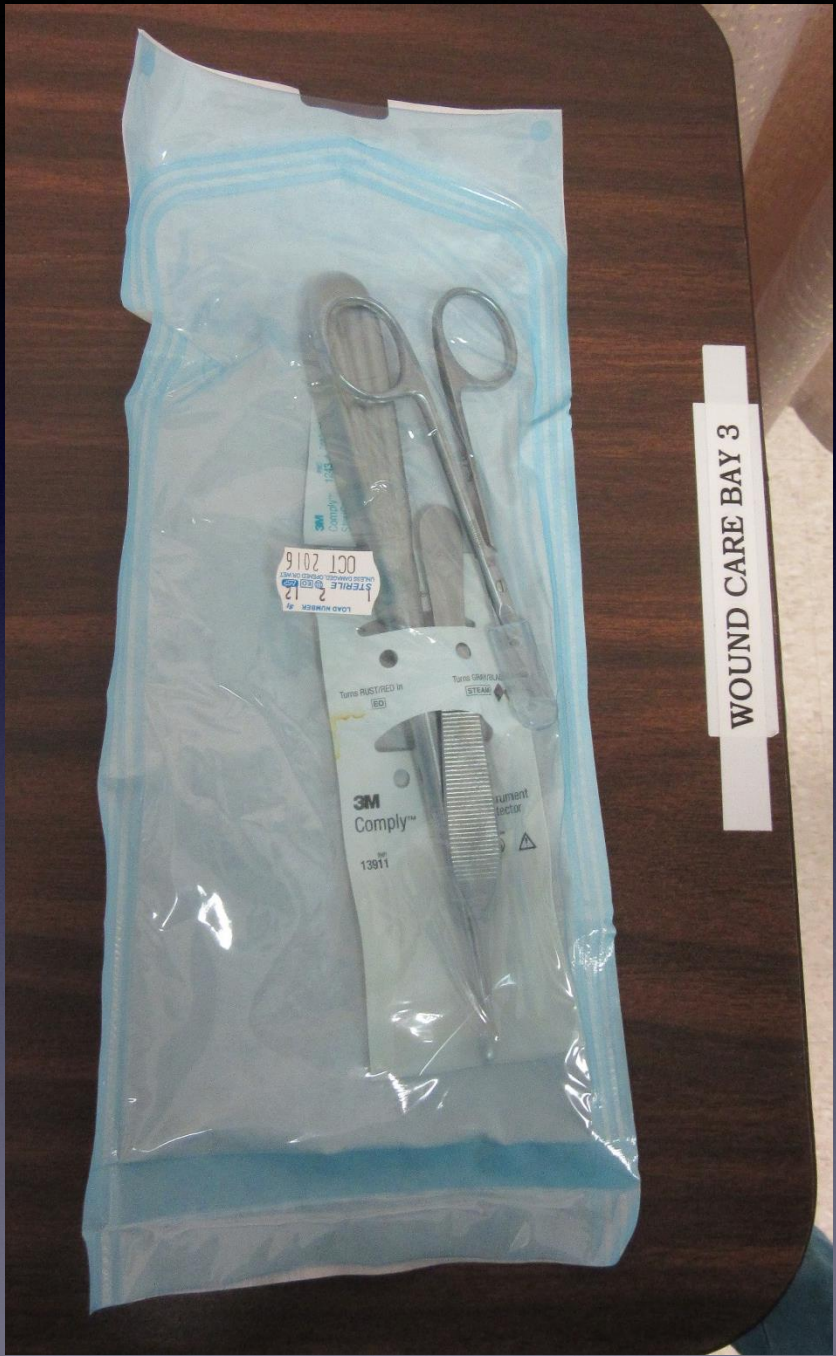
PDSA	PDSA 2	PDSA 3
Original Kanban "generic" to system	Add 2 nd part to Kanban to identify Kanban has been pulled	Identify "special order items"
Kanbans not pulled	Identify what is on order	Visual que on Kanban, how long
Kanban lost	Clarify Kanban location	Tracking sheet for special orders
Unclear when order will be filled	Identify when order will be filled	Communicate when order will be filled
No point person	Identify point person	Point person by area

Kanban PDSA



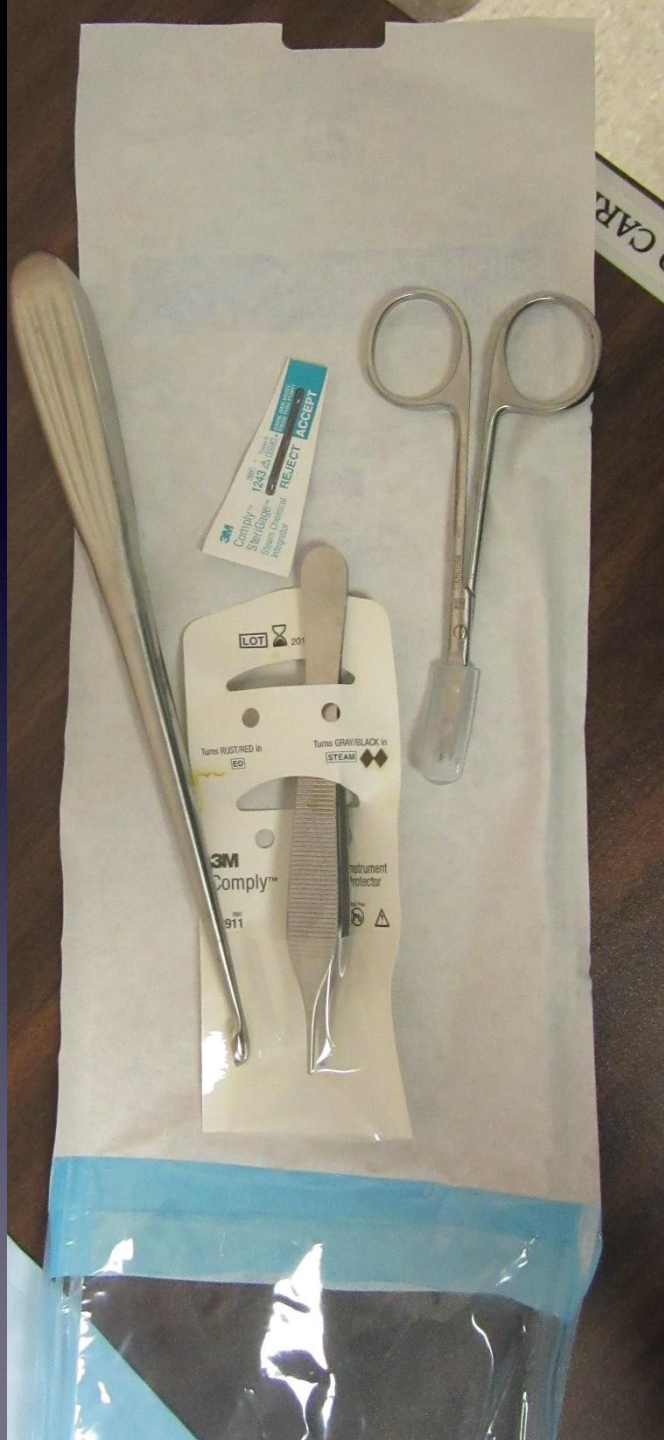
Standard process





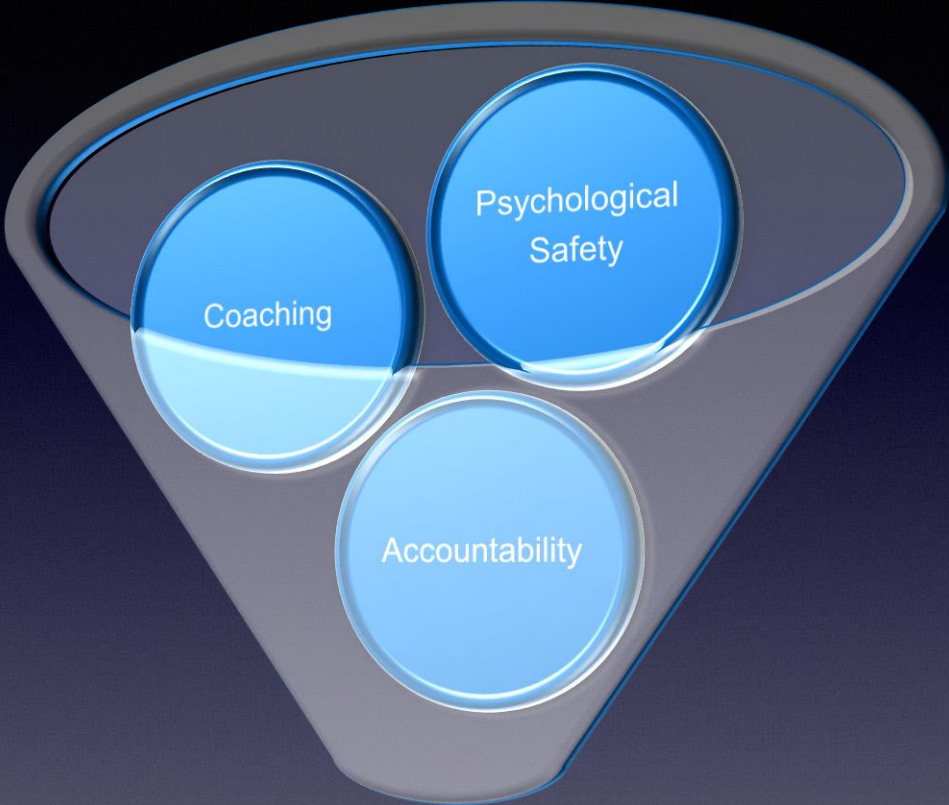
Standard process





Standard process





Team



Wound care 2012

One site
2 weeks
1 provider
Limitations
staff
supplies
space



Wound care 2016

TWO sites
6 months
6 providers
Limitations
EMR



Wound care Future

All RMC's
Integrated

- Outcomes
- Care plan
- Televideo

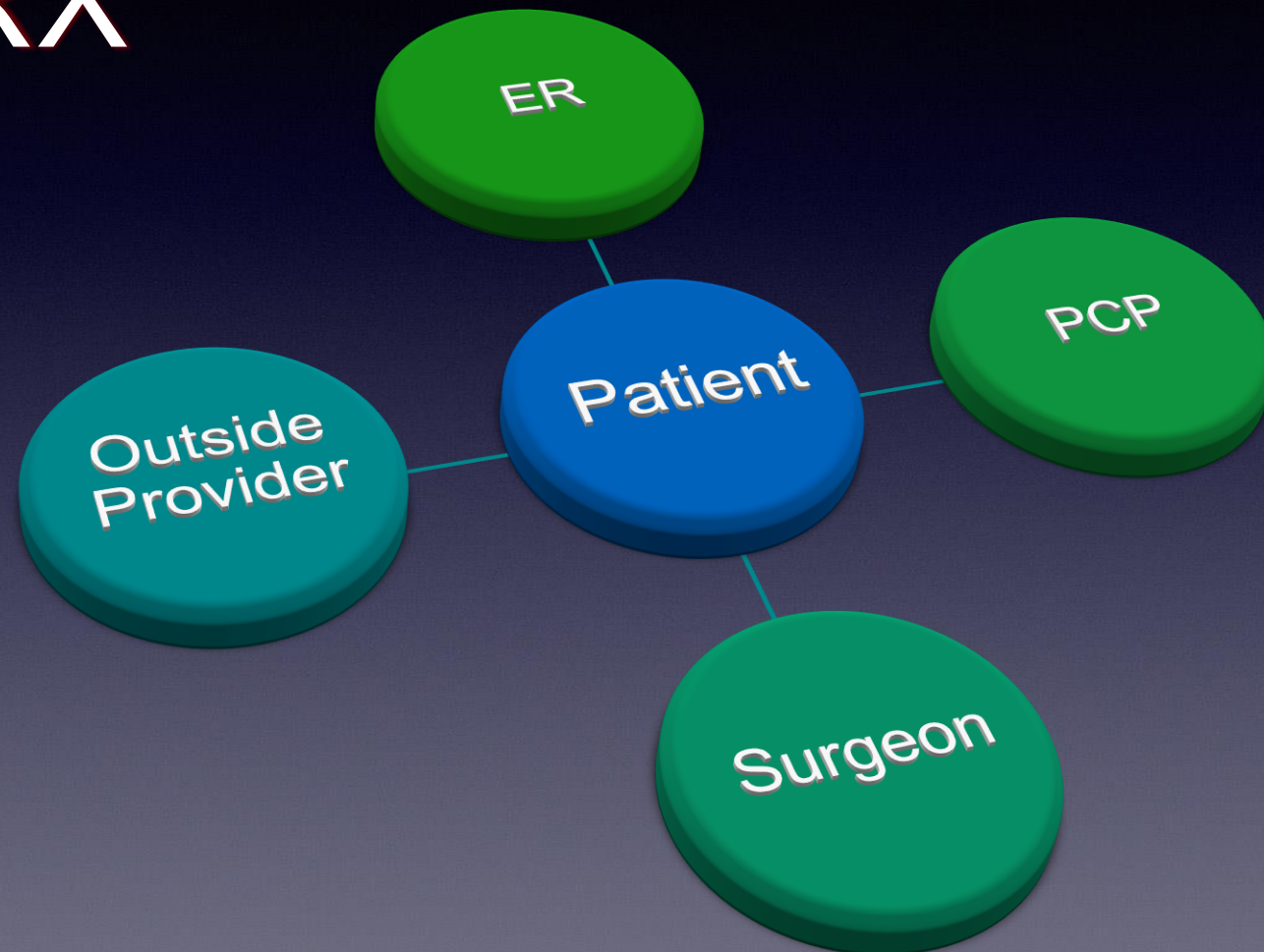
Culture of Innovation



High
Standards

Tolerates
Failure

Sources of opiate RX



Opioid Addiction

- Drug overdose is the leading cause of accidental death in us >47,000 in 2014
- 21.5 million Americans substance use disorder 2014
- FWOSC increased number of patients with chronic opiate therapy

PCP

Long term relationship
Chronic therapy
Long term relationship
National Guidelines
No standard communication with Surgeons

Surgeon

Short term relationship
Acute pain coverage
Unclear guidelines
Transition back to PCP ?

Day of Surgery

Acute care
Plan in place for backup ?

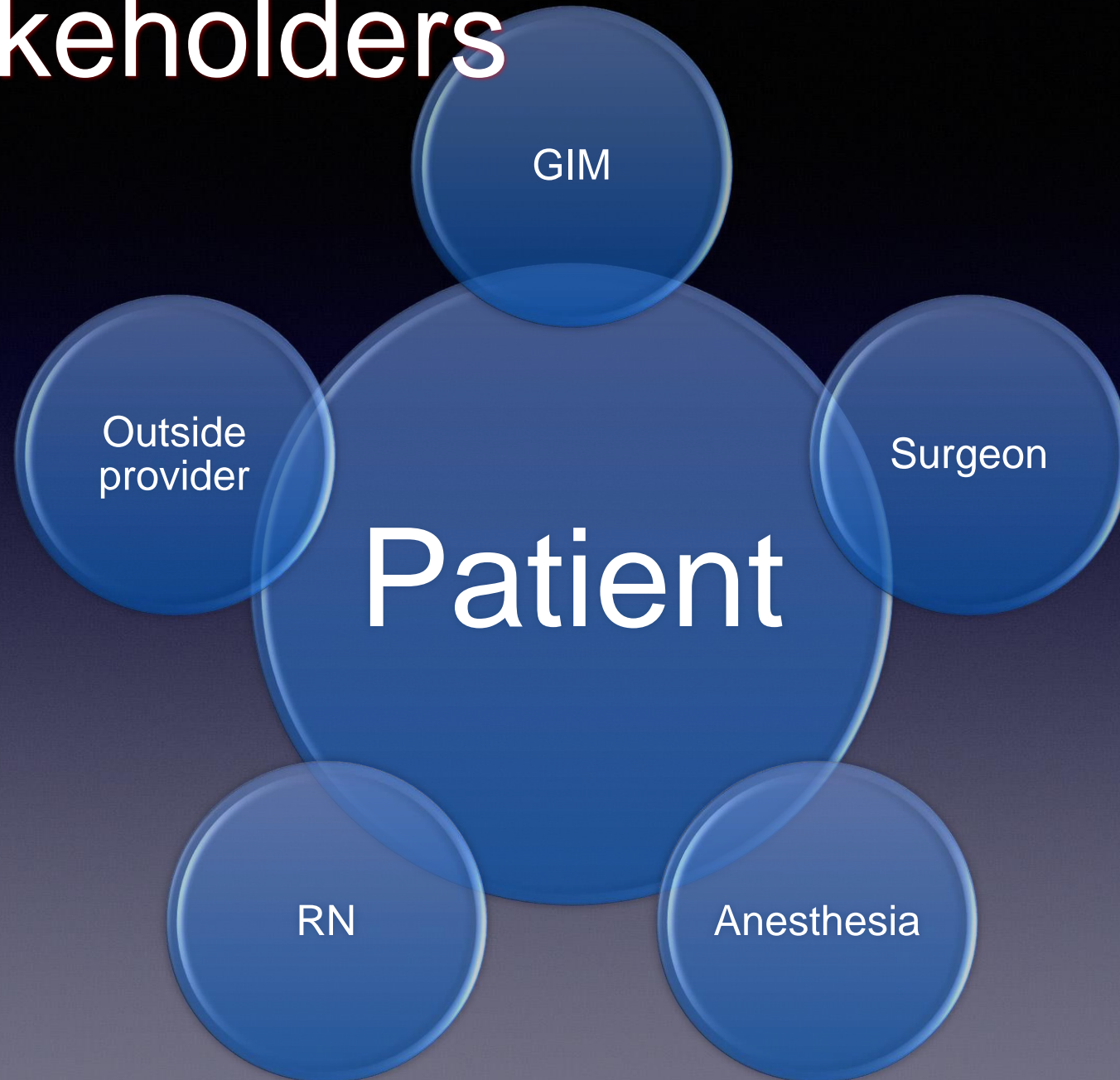
Safe

Pain control
○ Adequate medication

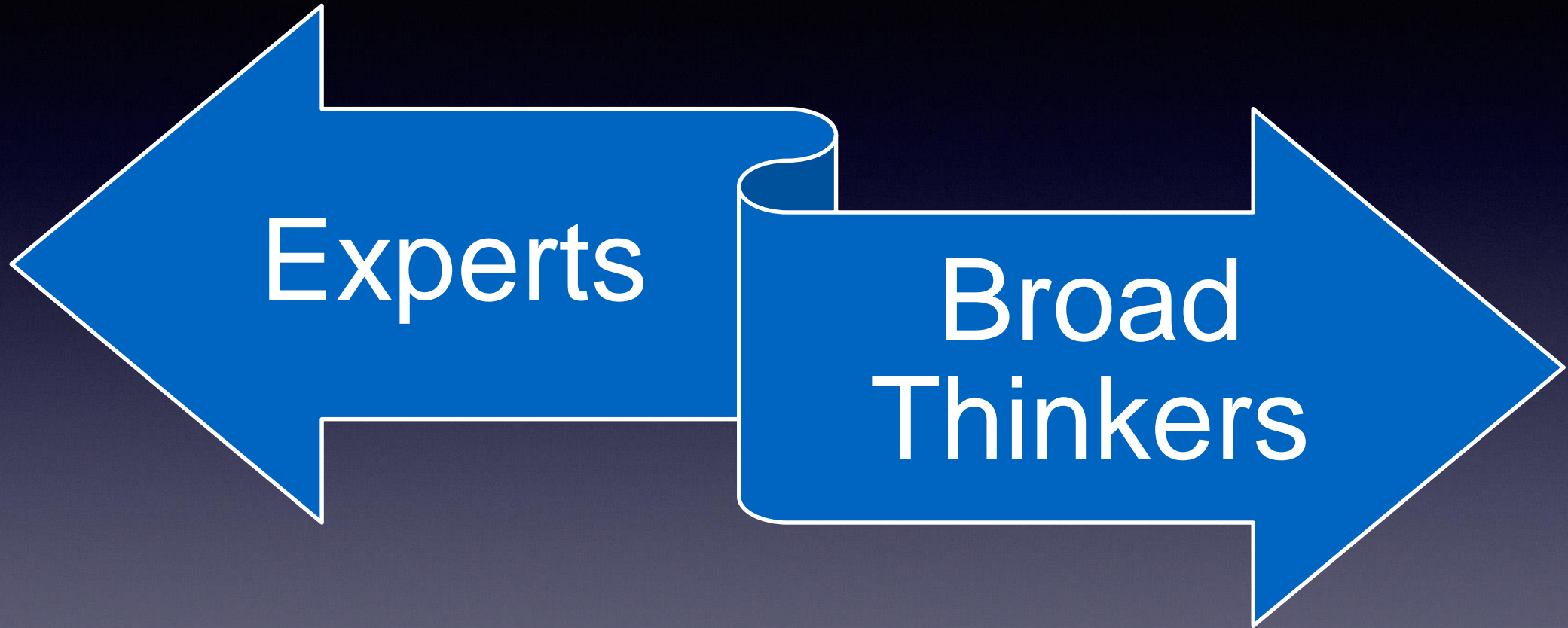
Quality

Plan of care
○ Handoff to PCP

Key Stakeholders



Culture of Innovation



Experience Based Design



Thank you for TRANSFORMING HEALTHCARE with us. By completing this questionnaire-- YOU are helping us improve everyone's experience at Virginia Mason.

<p>How do you feel about the information you received about pain management for your surgery?</p>		<p>Circle the BEST word that describes your feeling</p>	<p>Afraid</p>	<p>Safe</p>	<p>Okay</p>	<p>Depressed</p>	<p>Satisfied</p>	<p>Insecure</p>	<p>Confident</p>	<p><u>Comments:</u></p>
<p>How do you feel about your care team's understanding of your pain management plan?</p>		<p>Circle the BEST word that describes your feeling</p>	<p>Okay</p>	<p>Hopeless</p>	<p>Depressed</p>	<p>Hopeful</p>	<p>Resentful</p>	<p>Safe</p>	<p>Confident</p>	<p><u>Comments:</u></p>

Electronic visual control

Anesthesia DT View Anesthesia LY View Anesthesia Review LY **Anesthesia Review FW OR** Anesthesia FW OR View

All patients Scheduled for today and for next 28 Days (103/87)

Patient Name:

DOS	Time	Name	Sched Comment	Rev Date	Icon	Review Event	Comment	Icon	Preop Call Event	Phone Call Date/Tim	Birth Date	MRN	Sex	Procedures	Primary Surgeon
12/04/2014															
Today	08:18		Recurrent left inguinal hernia repair with mesh	11/19/20	☺	Anesthesia Review OK	fism 11-19 ph paac/hl pt states hallucinations and swearing upon emergence/late 1960's	📞	Call Completed	11/19/2014 15:20	01/15/1950	1	Male	Recurrent left inguinal hernia repair with mesh	Stepan MD, Amy L
Today	10:30		Re-excision of left partial mastectomy anterior, posterior, medial and inferior margins and sentinel	11/20/20	☺	Anesthesia Review OK	fism 10-29 ph paac done for 11-7-14 FW surg./hl	📞			08/19/1961	6	Female	Re-excision of left partial mastectomy anterior, posterior, medial and inferior margins and sentinel	Stepan MD, Amy L
Today	12:05		Left inguinal hernia repair with mesh. 10:00 check in.	12/03/20	☺	Anesthesia Review OK	fism 12-3 ph paac	📞	Call Completed	12/03/2014 14:31	12/08/1948	1	Male	Left inguinal hernia repair with mesh	Stepan MD, Amy L
Today	14:00		Left wire localized partial mastectomy. *Mammo loc @ 9:45* *NO SLN*	11/20/20	☺	Anesthesia Review OK	fism 11-26 ph paac/hl	📞	Call Completed	11/26/2014 09:16	07/16/1955	9	Female	Left wire localized partial mastectomy	Stepan MD, Amy L
Today	15:35		umbilical hernia repair lkely with mesh Req bariatric bed	10/15/20	☺	Anesthesia Review OK	fism 10-15 ph paac 317# bmi 40 barbed/hl	📞	Call Completed	10/15/2014 14:35	05/12/1959	6	Male	umbilical hernia repair lkely with mesh	Stepan MD, Amy L
Today	17:15		Excision of subcutaneous mass posterior neck *LOCAL*	11/14/20	🚫	No Review Necessary	kt	📞	Call Completed	11/26/2014 15:02	03/06/1953	2	Female	Excision of subcutaneous mass posterior neck	Stepan MD, Amy L
12/05/2014															
+1 Days	08:00		laparoscopic cholecystectomy with intra operative cholangiograms and liver biopsy. C-Arm - 574.20*	11/26/20	☺	Anesthesia Review OK	fism 11-26 ph paac 11-17 K+3.2	📞	Call Completed	11/26/2014 09:45	10/29/1954	1	Female	laparoscopic cholecystectomy with intra operative cholangiograms and liver biopsy	Stepan MD, Amy L
+1 Days	08:00		KA right knee arthroscopic lysis of adhesions 1hr per anesthesia. KEEP FIRST	11/17/20	☺	Anesthesia Review OK	fism 11-17 PAAC consult addm. center msg. to ortho re: DOS & postop home support system./g	📞	Call Completed	11/17/2014 11:55	01/19/1958	6	Female	right knee arthroscopic lysis of adhesions	Deysine MD, Gaston R



Pain Management FAQ:
What You Need to Know Before and After Surgery

What level of pain should I expect for my surgery?

Your pain level depends on the type of procedure, and how your body responds to pain medication. Most patients with major surgeries should be able to be tapered to baseline or preoperative doses (or lower) within 6 weeks.

Who will take care of my pain medications after my surgery?

Your surgery team will manage all your pain medications during your hospital stay and up to 6 weeks after your procedure, after which your pain management will be transitioned back to your primary care provider. If you are taking chronic pain medication, your baseline pain medication should be refilled by your primary care provider. Prior to your procedure, your surgery team will conduct a thorough preoperative evaluation and review with you your individualized care plan, including a timeline for tapering perioperative opioids.

What do I do when I need more pain medication after my surgery?

If you experience more pain than expected, you must contact your surgery team immediately. Do NOT change your doses without consulting with your care team. Your team may include a consultation to a pain specialist or a clinical pharmacist to further assist optimizing your pain management. Please follow up after your surgery as scheduled to avoid delays in getting your refill prescriptions.

What else can I use for pain other than opioids?

Other non-opioid medications such as acetaminophen, NSAIDs, gabapentin and local/topical pain control can provide additional pain relief when used in conjunction with your prescribed opioids. Please discuss with your care team about the benefits of these medications.

What to do with my extra/left-over pain medications after my surgery?

It is important to safeguard your medications. Do not share your prescription opioids with others, as it is illegal. If you need to dispose of any left-over pain medications, please check with your care team or pharmacy for information about an approved take-back program/facility near you.

What can I do to minimize potential side effects?

It is important that you take your medications as prescribed and adhere to the established care plan. The increased doses of your pain medication during the perioperative period can contribute to opioid-induced bowel dysfunction (constipation). Don't forget to talk with your care team about starting a bowel regimen as soon as possible, after your procedure.

If You Are Currently Taking Chronic Pain Medication:

What do I do if I already have a chronic pain agreement with another provider?

You should review your current chronic pain care plan and inform the prescribing provider of your anticipated procedure, especially if you will be receiving postoperative pain medication from a different provider. It is important for your care team to have information about your current pain regimen and how it is being managed. This helps your team to assess for your needs and facilitate the appropriate transition of care. If you are taking chronic pain medication, your baseline pain medication should be refilled by your primary care prescriber, unless instructed otherwise.

What do I do with my usual pain medication on the day of surgery?

Please take your usual dose of chronic pain medication as prescribed on the day of your surgery. Your chronic opioids are resumed and expected to continue postoperatively. At the time of your hospital discharge, your surgery team will provide the additional pain medication as established in your care plan.

How much of a dose change should I expect after surgery?

The total dose and adjustments of your medications vary based on your medical history and baseline dose of your chronic opioids. For most procedures, we expect to increase to your total dose between 10-20% in the 2-week postoperative period.

How long before I am able to get back to my baseline pain medication?

For most procedures, we expect your pain to improve after 2 weeks. Your surgery team will follow up with you after your procedure to ensure appropriate recovery and provide instructions on how to begin the tapering process. Most patients are expected to taper to preoperative doses within 6 weeks.

Care-Plan Overview:

PCP: _____ Surgeon: _____

Procedure: _____ Scheduled on: _____

Your care team: _____

Post-op follow up & contact: _____

Current chronic medication for pain (if any, medication/dose):

Post-op pain medication (include any expected dose change):

Pain medication taper & recovery timeline: _____

Pain Management FAQ:
What You Need to Know Before and After Surgery

What level of pain should I expect for my surgery?

Your pain level depends on the type of procedure, and how your body responds to pain medication. Most patients with major surgeries should be able to be tapered to baseline or preoperative doses (or lower) within 6 weeks.

Who will take care of my pain medications after my surgery?

Your surgery team will manage all your pain medications during your hospital stay and up to 6 weeks after your procedure, after which your pain management will be transitioned back to your primary care provider. If you are taking chronic pain medication, your baseline pain medication should be refilled by your primary care provider. Prior to your procedure, your surgery team will conduct a thorough preoperative evaluation and tapering perioperative opioids.

What do I do when I need more pain medication?

If you experience more pain than expected, you should call your surgeon or primary care provider to change your doses without coming to the hospital. You may also contact your pain specialist or a clinical pharmacist after your surgery as scheduled.

What else can I use for pain other than opioids?

Other non-opioid medications such as acetaminophen, NSAIDs, gabapentin and local/topical pain control can provide additional pain relief when used in conjunction with your prescribed opioids. Please discuss with your care team about the benefits of these medications.

What to do with my extra/left-over pain medications after my surgery?

It is important to safeguard your medications. Do not share your prescription opioids with others, as it is illegal. If you need to dispose of any left-over pain medications, please check with your care team or pharmacy for information about an approved take-back program/facility near you.

What can I do to minimize potential side effects?

It is important that you take your medications as prescribed and adhere to the established care plan. The increased doses of your pain medication during the perioperative period can contribute to opioid-induced bowel dysfunction (constipation). Don't forget to talk with your care team about starting a bowel regimen as soon as possible, after your procedure.

If You Are Currently Taking Chronic Pain Medication:

What do I do if I already have a chronic pain agreement with another provider?

You should review your current chronic pain care plan and inform the prescribing provider of your anticipated procedure, especially if you will be receiving postoperative pain medication from a different provider. It is important for your care team to have information about your current pain regimen and how it is being managed. This helps your team to assess for your needs and facilitate the appropriate transition of care. If you are taking chronic pain medication, your baseline pain medication should be refilled by your primary care prescriber, unless instructed otherwise.

What do I do with my usual pain medication on the day of surgery?

Please take your usual dose of chronic pain medication as prescribed on the day of your surgery. Your chronic opioids are resumed and expected to continue postoperatively. At the time of your hospital discharge, your surgery team will provide the additional pain medication as established in your care plan.

How much of a dose change should I expect after surgery?

The total dose and adjustments of your medications vary based on your medical history and baseline dose of your chronic opioids. For most procedures, we expect to increase to your total dose between 10-20% in the 2-week postoperative period.

Standard Work

Your surgery team will follow up with instructions on how to begin your pain management within 6 weeks.

Procedure: _____ Scheduled on: _____

Your care team: _____

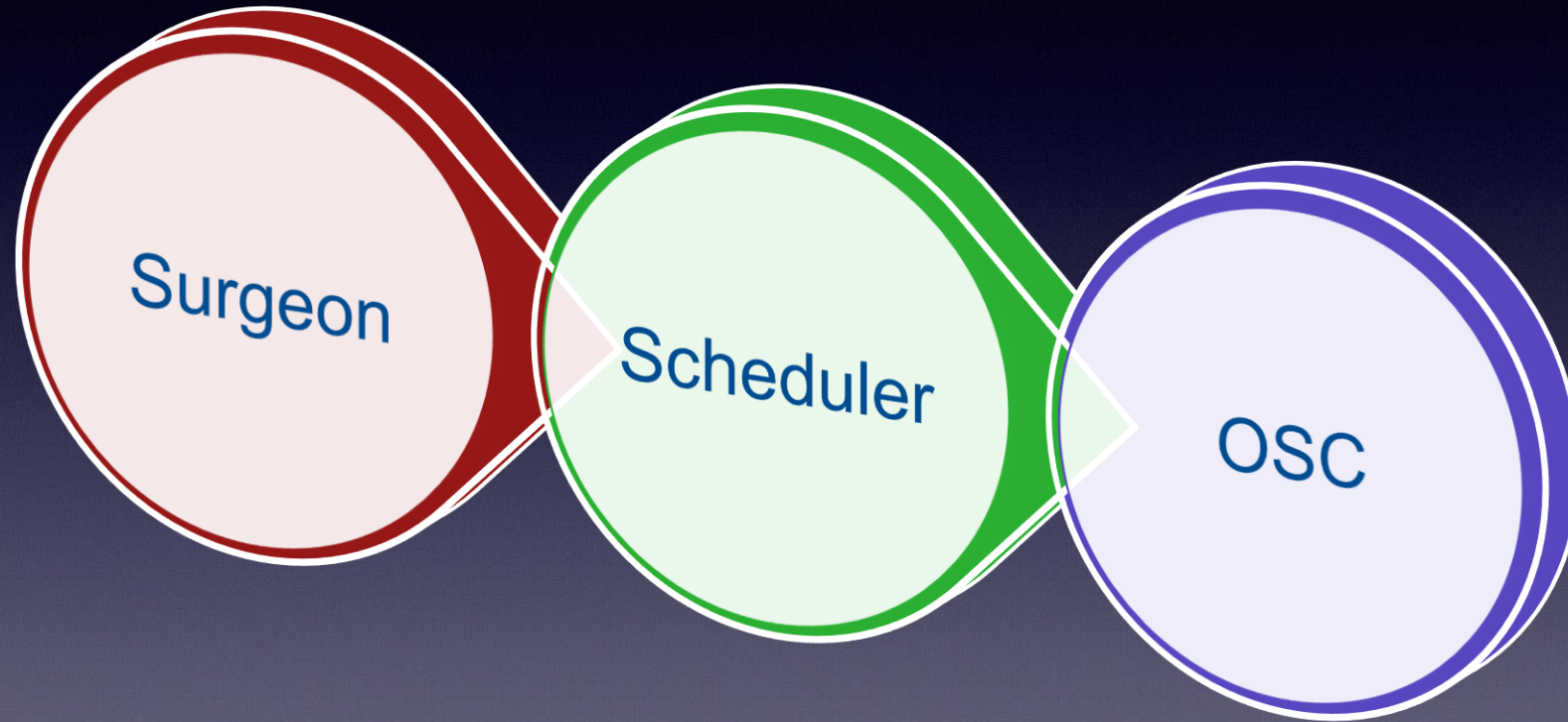
Post-op follow up & contact: _____

Current chronic medication for pain (if any, medication/dose):

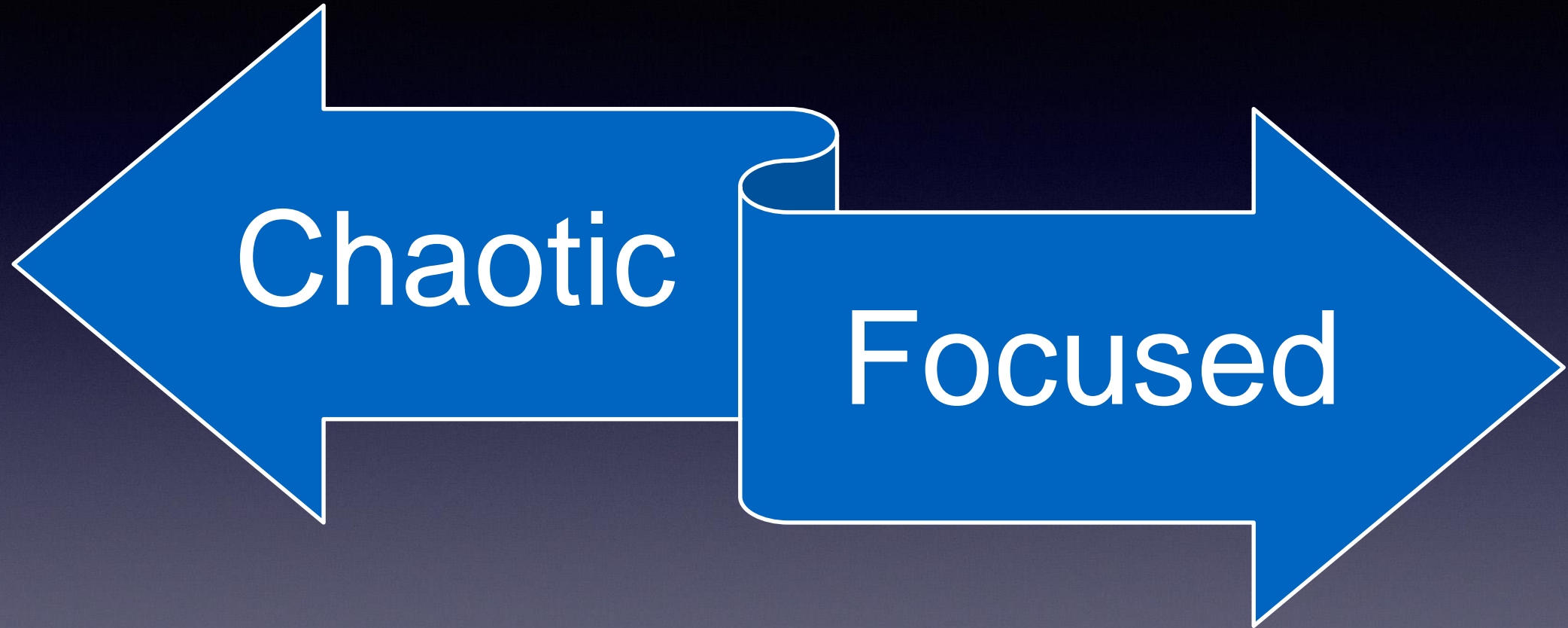
Post-op pain medication (include any expected dose change):

Pain medication taper & recovery timeline: _____

FWOSC Surgery Scheduling



Culture of Innovation



Flow Mapping



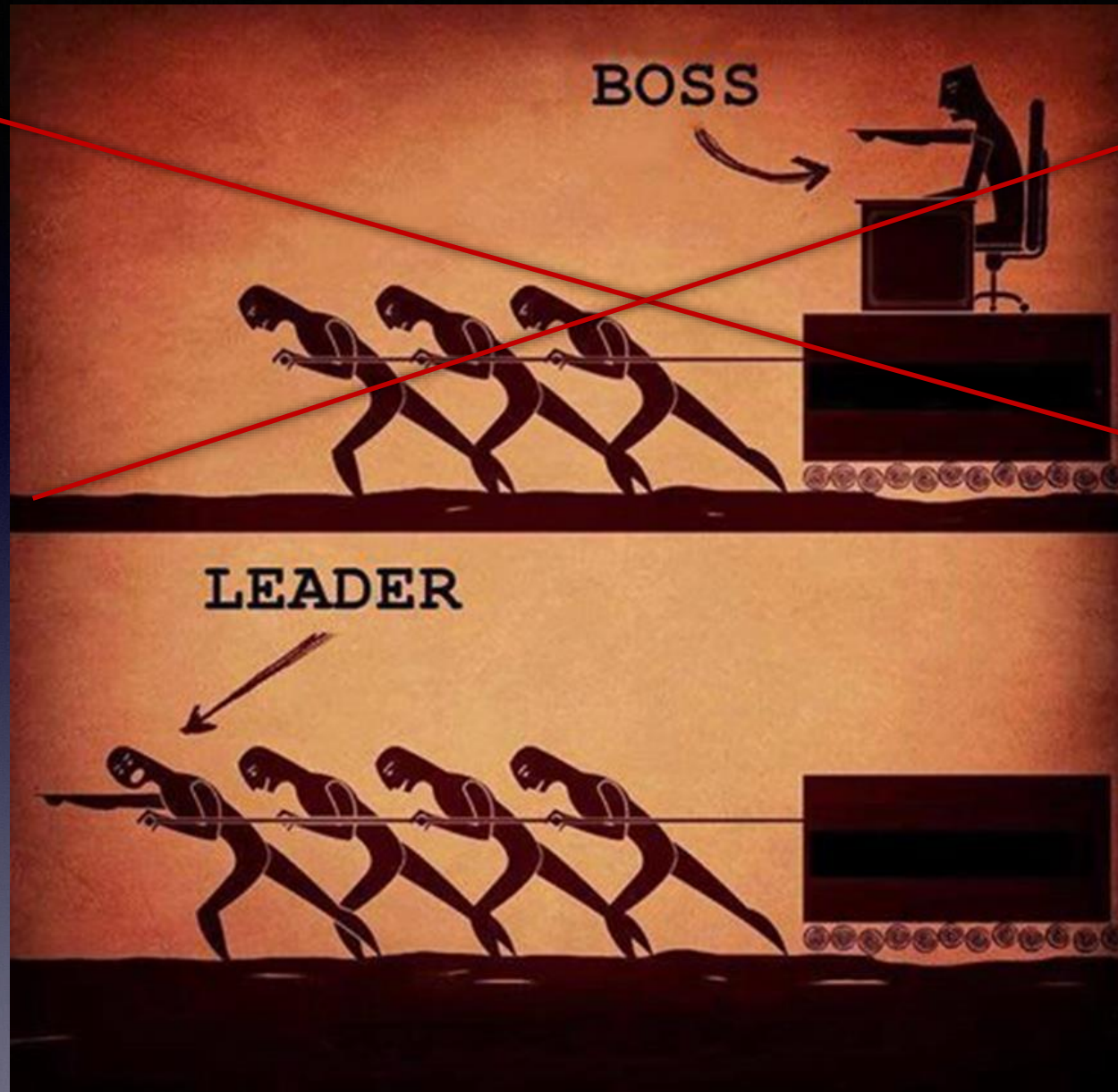
Flow Mapping

Behaviors	Purpose	Leadership skills
Transparency	Move from working in silos to collaboration	Inspiration and Vision
Sharing	Transition from narrow focus to system-focus	Inspiration and Vision
Listening to understand	Assumption busting and increased knowledge for the team	Intellectual Stimulation
Coaching/mentoring/ training	Allows for all team members to share stories	Individualized Consideration
Respect for People behaviors	Infusing these core principles throughout all of our interactions	Idealized Influence
Quality Improvement	Intentional checks of key process for deviations from the identified Standard Work	Individualized Consideration



High
Standards

Tolerates
Failure



Key Learnings

Quality is systematic

Empowered staff will drive daily Kaizen

Workers need to improve their work

It starts with the vision –
Explaining the why is essential

Data Driven changes

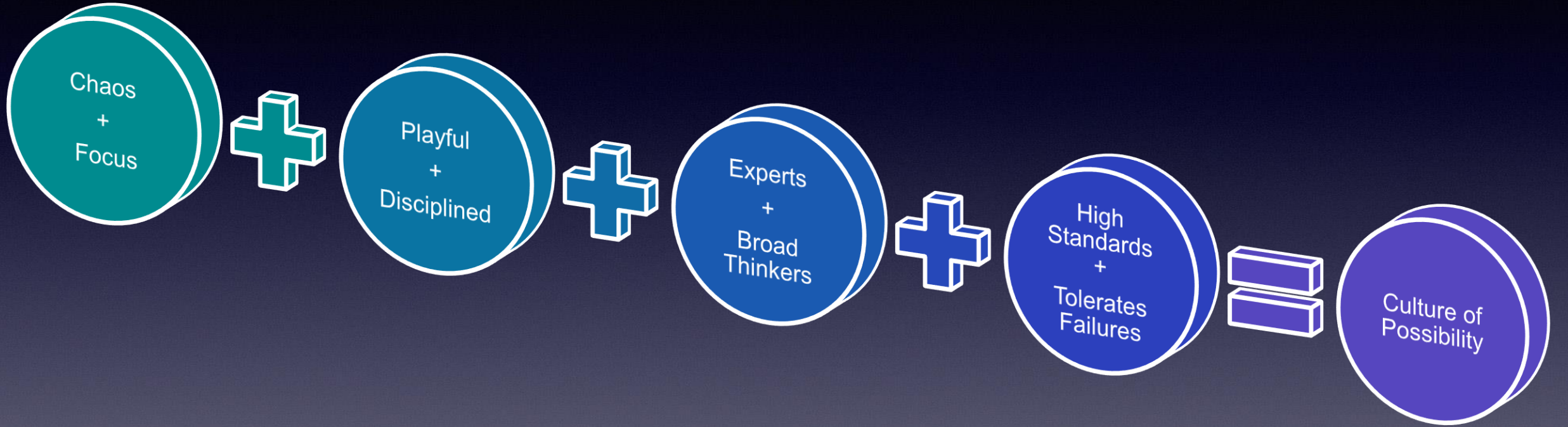
Trust is key to successful change

Reduce variation

Innovation requires commitment

Failure can be a success story

Listen before you act





Great Barrier Reef



Continuous Daily Improvements

Recommended Reading

- <http://www.healthcatalyst.com/5-Deming-Principles-For-Healthcare-Process-Improvement>
- <http://www.leanblog.org/2014/07/report-to-president-obama-endorses-lean-systems-engineering-in-healthcare/>
- Senge, P. *The Fifth Discipline The Art and Practice of the Learning Organization*. Doubleday 2006.
- Scholtes, P. *The Leaders Handbook*. McGraw-Hill 1998.
- Nemeth, C PhD. Et al Minding the Gaps: Creating Resilience in Health Care. http://www.ahrq.gov/sites/default/files/wysiwyg/professionals/quality-patient-safety/patient-safety-resources/resources/advances-in-patient-safety-2/vol3/Advances-Nemeth_116.pdf
- Edmonson, Amy. *Teaming, How organizations learn*. Wiley, John & Sons, Incorporated 2012
- Hu, Q et al. The connection between organizational learning and lean production. POLS 23rd Annual conference. Paper No. 025-0234
- <http://www2.warwick.ac.uk/fac/soc/economics/staff/eprto/workingpapers/happinessproductivity.p>