The Phoenix

Improving Patient Safety and Communication Through Revitalizing the SSC

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Ariadne Labs

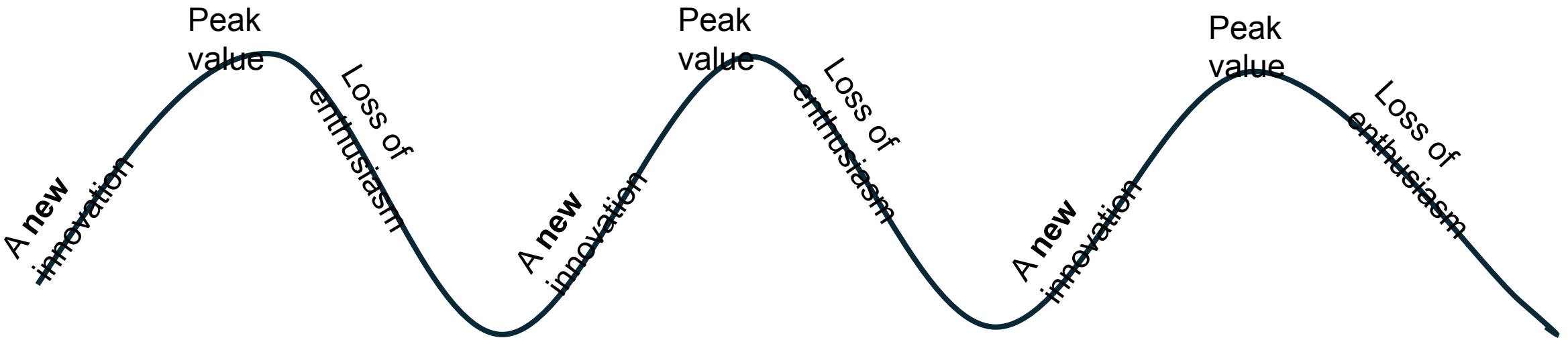
Disclosures

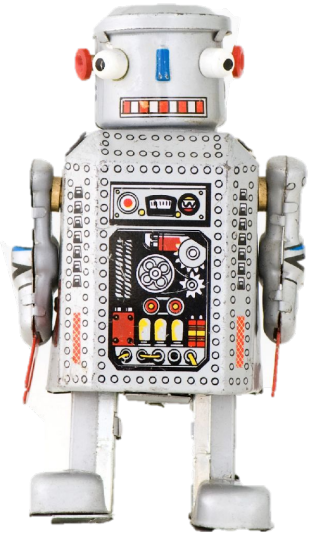
- Work presented includes research performed at Ariadne Labs, Harvard School of Public Health funded through a research grant from JNJ

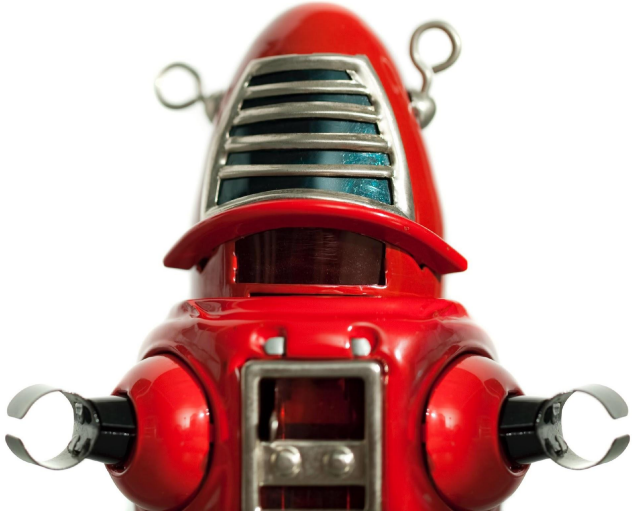
Objectives

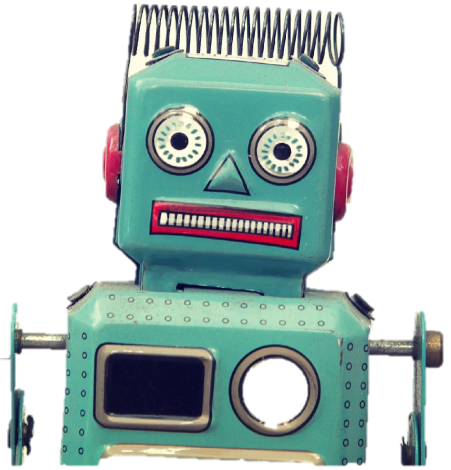
- Stop chasing shiny toys: Break the cycle of innovation and loss of interest
- Capitalize on the Surgical Safety Checklist as a powerful tool with a uniquely strong foundation
- Use the High-Performance Checklist as blueprint to improve surgical safety at your hospital
- Adopt Reimplementation as a transformative way of sustaining and increasing the value of quality improvement Initiatives at your hospital

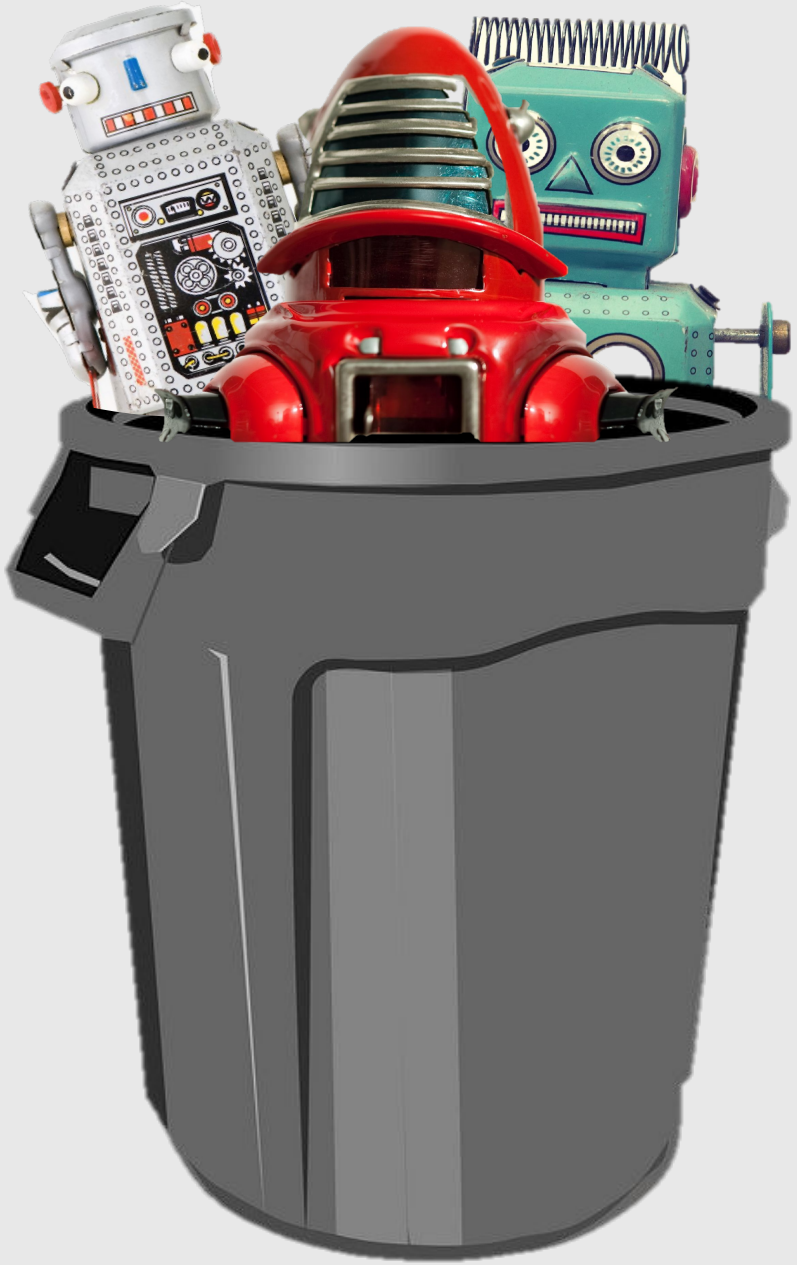
Cycle of innovation and disillusionment





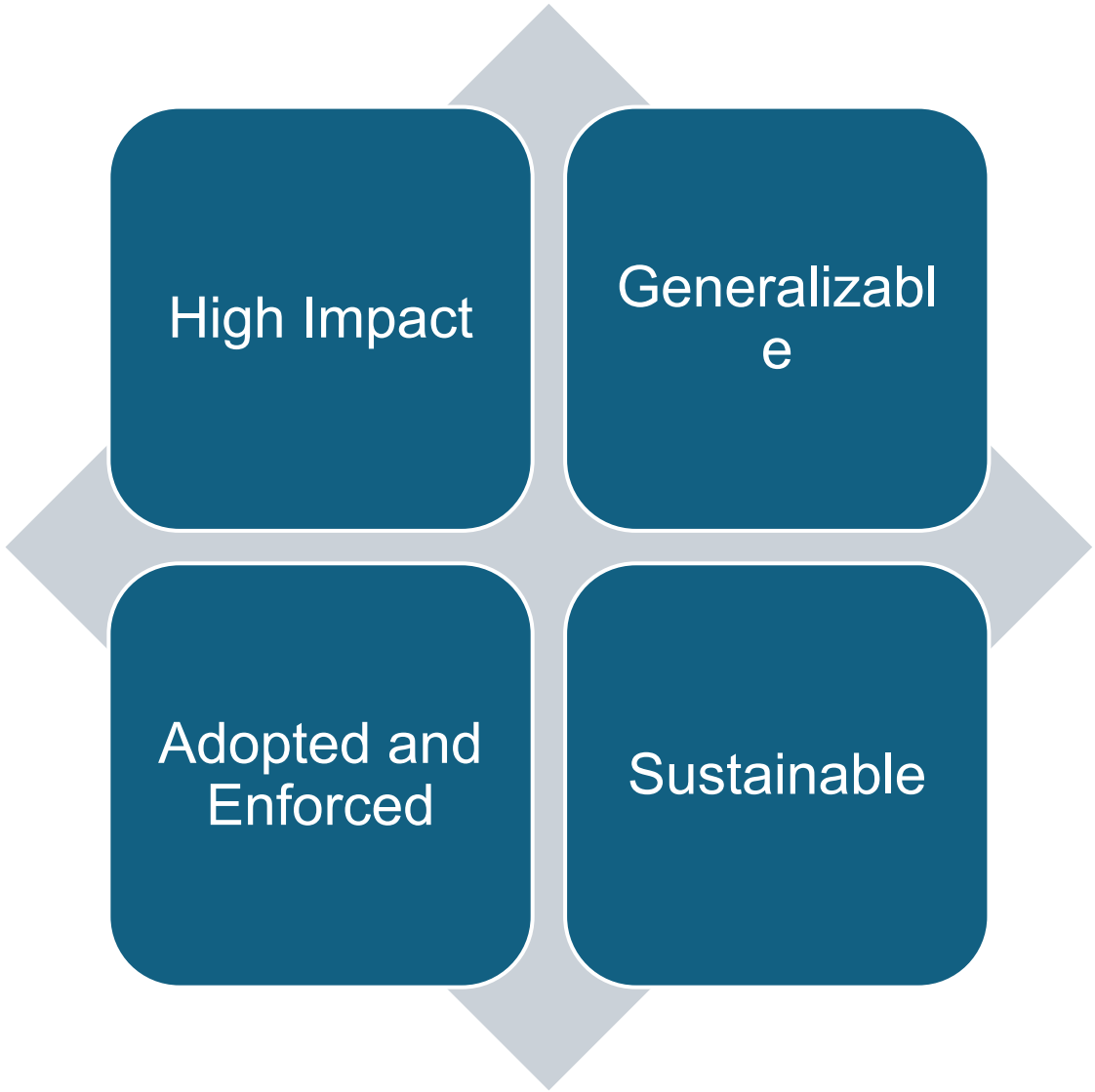






Innovation Fatigue

The Ideal Tool of Quality Improvement



The Surgical Safety Checklist (SSC)

“First Do No Harm”

World Health Organization

Surgical Safety Checklist

World Health Organization | Patient Safety
A World Alliance for Safer Health Care

Before induction of anaesthesia

(with at least nurse and anaesthetist)

Has the patient confirmed his/her identity, site, procedure, and consent?
- ☐ Yes

Is the site marked?
- ☐ Yes
- ☐ Not applicable

Is the anaesthesia machine and medication check complete?
- ☐ Yes

Is the pulse oximeter on the patient and functioning?
- ☐ Yes

Does the patient have a:

Known allergy?
- ☐ No
- ☐ Yes

Difficult airway or aspiration risk?
- ☐ No
- ☐ Yes, and equipment/assistance available

Risk of >500ml blood loss (7ml/kg in children)?
- ☐ No
- ☐ Yes, and two IVs/central access and fluids planned

Before skin incision

(with nurse, anaesthetist and surgeon)

- ☐ **Confirm all team members have introduced themselves by name and role.**
- ☐ **Confirm the patient's name, procedure, and where the incision will be made.**

Has antibiotic prophylaxis been given within the last 60 minutes?
- ☐ Yes
- ☐ Not applicable

Anticipated Critical Events

To Surgeon:
- ☐ What are the critical or non-routine steps?
- ☐ How long will the case take?
- ☐ What is the anticipated blood loss?

To Anaesthetist:
- ☐ Are there any patient-specific concerns?

To Nursing Team:
- ☐ Has sterility (including indicator results) been confirmed?
- ☐ Are there equipment issues or any concerns?

Is essential imaging displayed?
- ☐ Yes
- ☐ Not applicable

Before patient leaves operating room

(with nurse, anaesthetist and surgeon)

Nurse Verbally Confirms:
- ☐ The name of the procedure
- ☐ Completion of instrument, sponge and needle counts
- ☐ Specimen labelling (read specimen labels aloud, including patient name)
- ☐ Whether there are any equipment problems to be addressed

To Surgeon, Anaesthetist and Nurse:
- ☐ What are the key concerns for recovery and management of this patient?

This checklist is not intended to be comprehensive. Additions and modifications to fit local practice are encouraged.

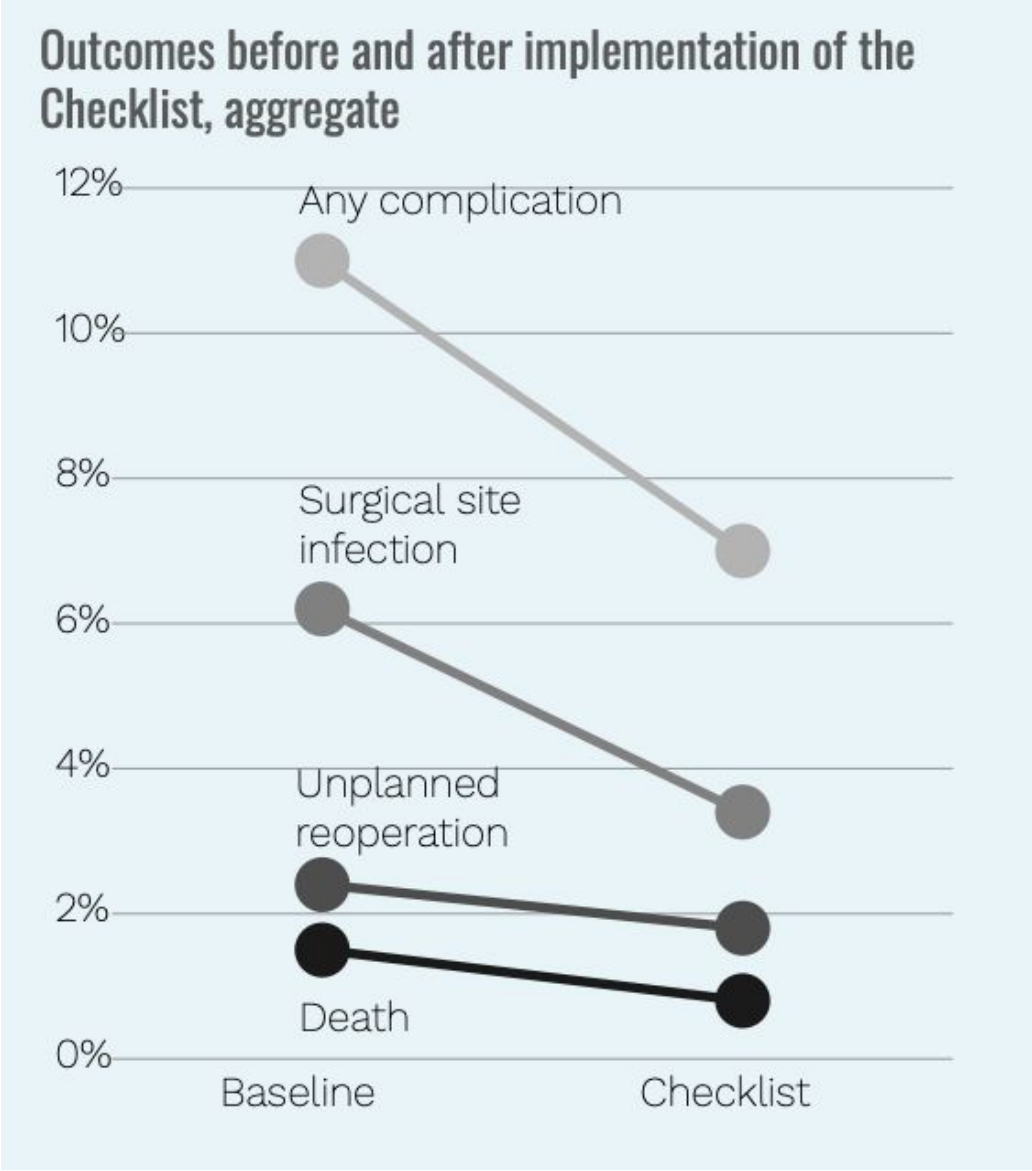
Revised 1 / 2009

The NEW ENGLAND JOURNAL of MEDICINE

A Surgical Safety Checklist to Reduce Morbidity and Mortality in a Global Population

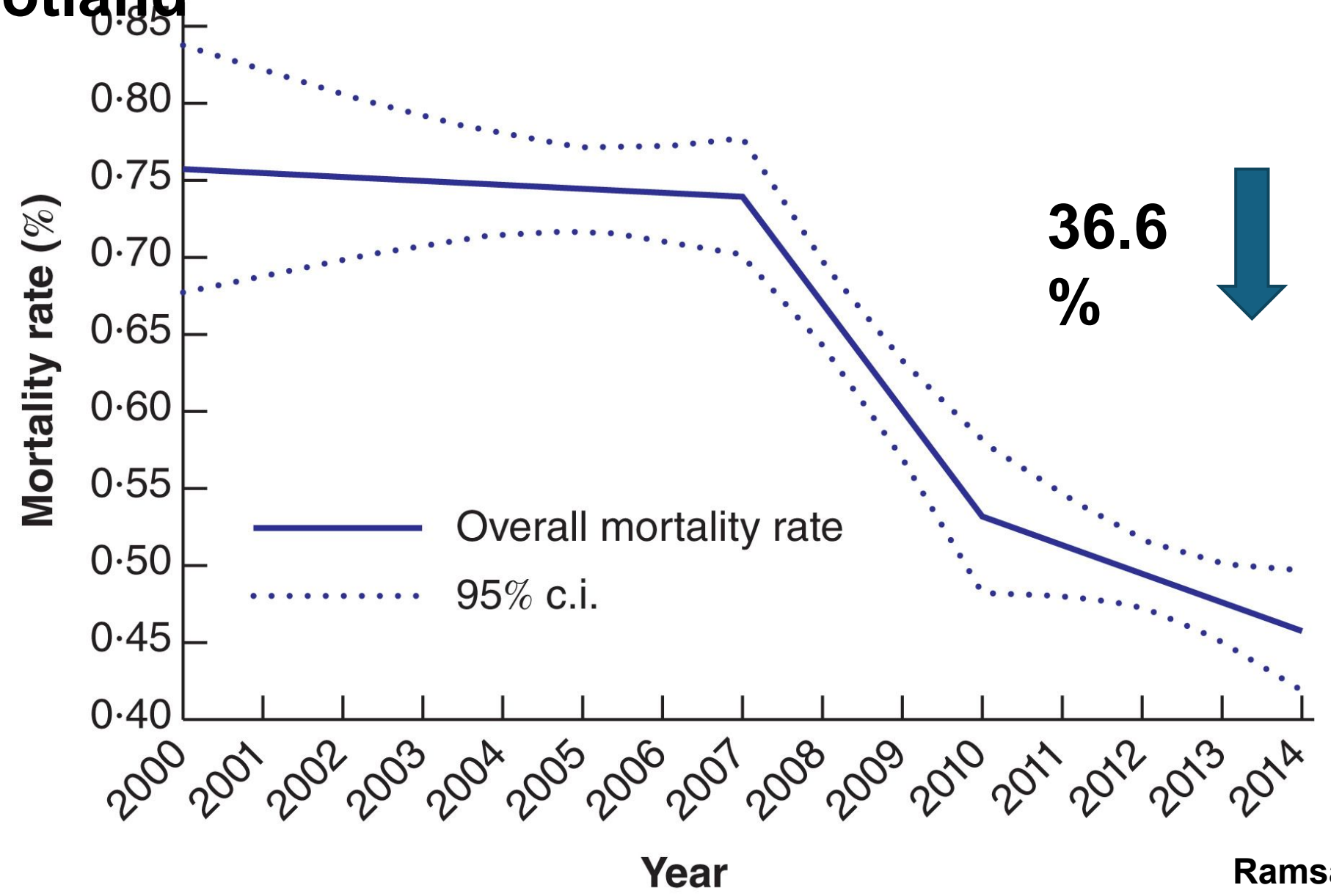
Alex B. Haynes, M.D., M.P.H., Thomas G. Weiser, M.D., M.P.H., William R. Berry, M.D., M.P.H., Stuart R. Lipsitz, Sc.D., Abdel-Hadi S. Breizat, M.D., Ph.D., E. Patchen Dellinger, M.D., Teodoro Herbosa, M.D., Sudhir Joseph, M.S., Pascience L. Kibatala, M.D., Marie Carmela M. Lapitan, M.D., Alan F. Merry, M.B., Ch.B., F.A.N.Z.C.A., F.R.C.A., Krishna Moorthy, M.D., F.R.C.S., Richard K. Reznick, M.D., M.Ed., Bryce Taylor, M.D., and Atul A. Gawande, M.D., M.P.H., for the Safe Surgery Saves Lives Study Group*

47% drop in mortality



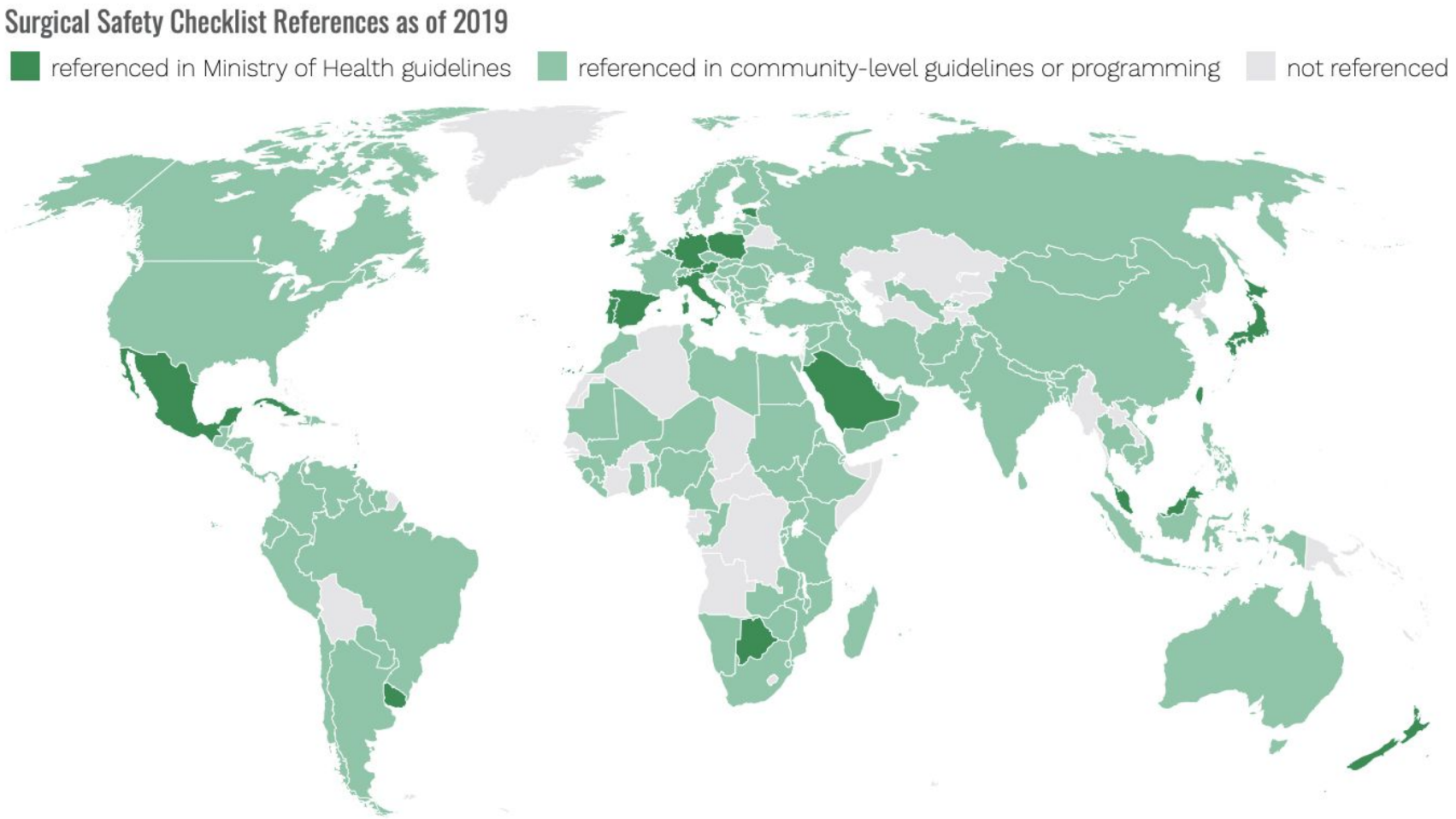
Haynes et al, NEJM, 2009

Checklist Reduced perioperative mortality in Scotland



Ramsay et al, BJS

Spread and Scale



Ref. Checking in on the Checklist, Lifebox,

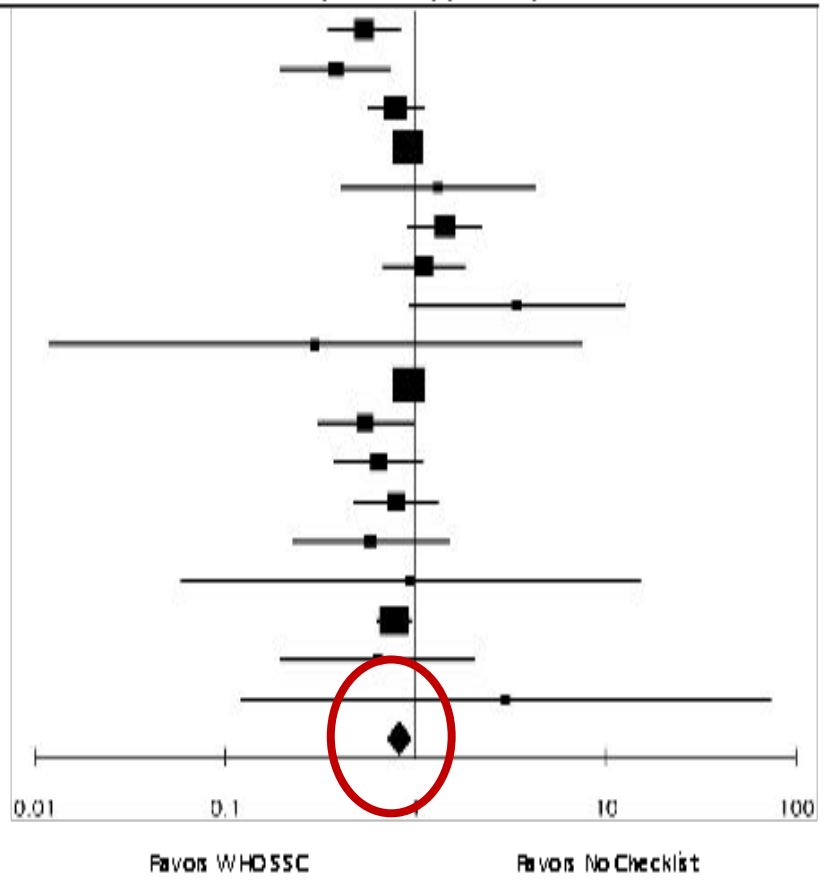
JACS Journal of the American College of Surgeons

Reduced Mortality

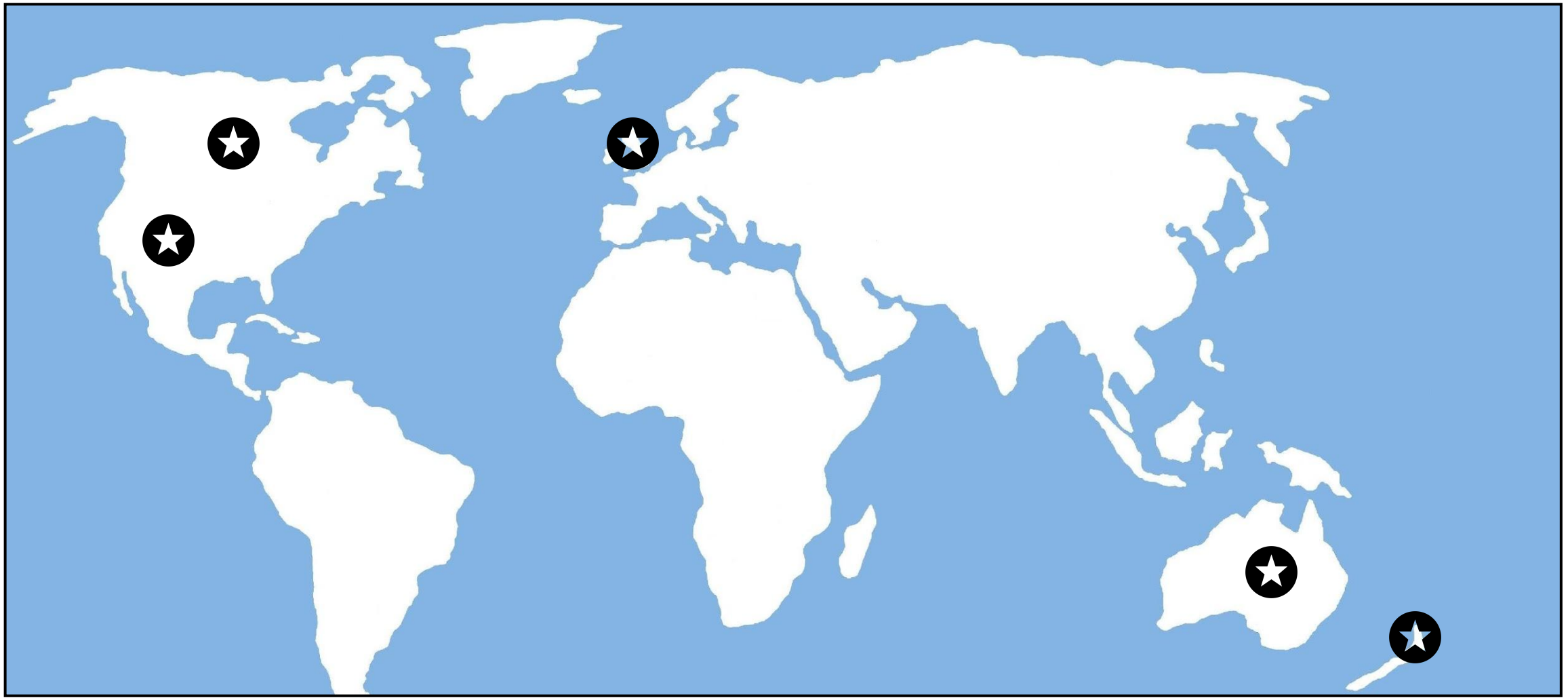
Study or Subgroup	WHO SSC Events	WHO SSC N	No Checklist Events	No Checklist N	Weight, %	OR, Random, (95% CI)
Haynes et al., 2009	32	3955	56	3733	6.45	0.54 (0.35 - 0.83)
Weiser et al., 2010	13	908	31	842	3.49	0.38 (0.20 - 0.73)
Kwok et al., 2012	66	2106	79	1993	9.03	0.78 (0.56 - 1.09)
van Klei et al., 2012	318	11151	450	14362	16.32	0.91 (0.78 - 1.05)
Yuan et al., 2012	7	249	5	232	1.26	1.31 (0.41 - 4.20)
Lubbeke et al., 2013	108	1818	26	609	6.42	1.42 (0.91 - 2.20)
Tillman et al., 2013	36	3616	30	3319	5.54	1.10 (0.68 - 1.79)
Boaz et al., 2014	10	380	3	380	1.02	3.40 (0.93 - 12.44)
Prakash et al., 2014	0	80	1	72	0.17	0.30 (0.01 - 7.38)
Urbach et al., 2014	691	106370	776	109341	18.06	0.91 (0.83 - 1.01)
Chaudhary et al., 2015	20	350	35	350	4.36	0.55 (0.31 - 0.97)
Haugen et al., 2015	23	2263	35	2212	4.89	0.64 (0.38 - 1.08)
Kim et al., 2015	20	637	79	1993	5.34	0.79 (0.48 - 1.29)
Rodrigo-Rincon et al., 2015	7	801	12	801	1.87	0.58 (0.23 - 1.48)
Biskup et al., 2016	1	2310	1	2166	0.23	0.94 (0.06 - 15.00)
Lacassie et al., 2016	178	29250	231	29250	14.12	0.77 (0.63 - 0.94)
Mayer et al., 2016	56	6494	3	220	1.24	0.63 (0.20 - 2.03)
O'Leary et al., 2016	1	14458	0	14314	0.18	2.97 (0.12 - 72.92)
Total	1587	187196	1853	186189	100.00	0.82 (0.72 - 0.94)

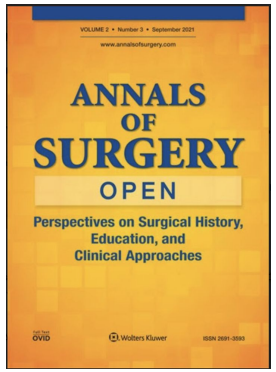
Heterogeneity: Tau^2=0.02; Q=30.43, df(Q) = 17 (p = 0.023); I^2=44%

Test for overall effect: Z = 2.90 (p=0.004)



Sotto, Burian, JACS,





2032 surgical team members surveyed
60 interviews

Urban et al. Annals of Surgery Open, 2021

85-95%

Believe checklist has a positive impact on safety, communication and teamwork

Would want the checklist used on themselves or family

But the Checklist Is not used to Its full potential

Enthusiasm is waning

Teamwork is lacking

Leadership is lacking

Training is minimal

Can the current checklist meet changing needs?

The High-Performance Checklist Convening at Ariadne Labs

High Performance Checklist

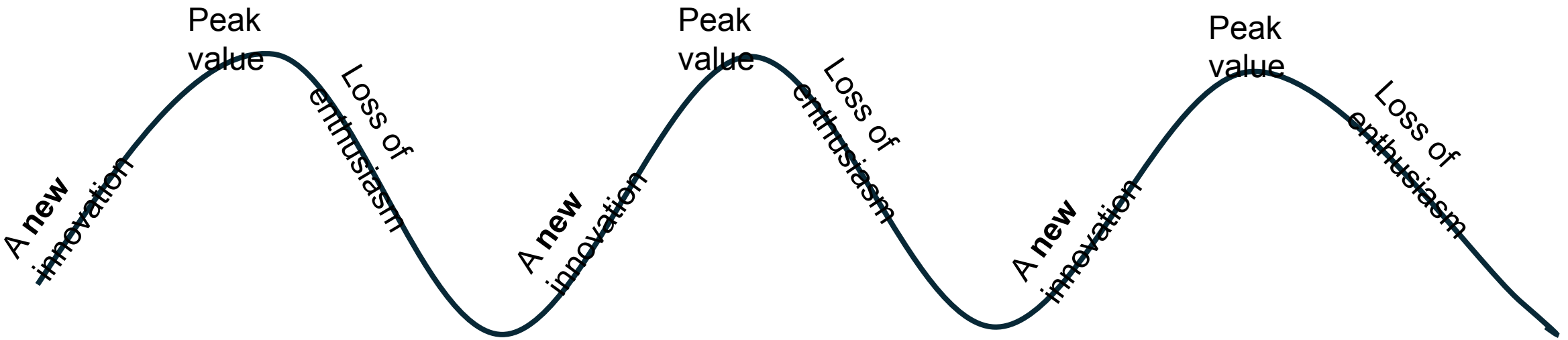
EXPLORE		PREPARE		IMPLEMENT		SUSTAIN	
1	Form A Team	6	Modify Your Checklist	9	Conduct & Evaluate Training	12	Conduct Evaluations
2	Understand the Work	7	Test & Refine Your Checklist	10	Launch Your Checklist	13	Continue Improvement Cycles
3	Evaluate Current State	8	Plan Your Launch	11	Conduct Ongoing Coaching		
4	Set Goals & Develop Measurement Plan						
5	Communicate Project						

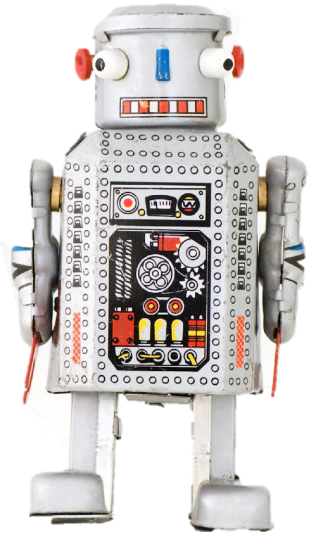
CIHR IRSC

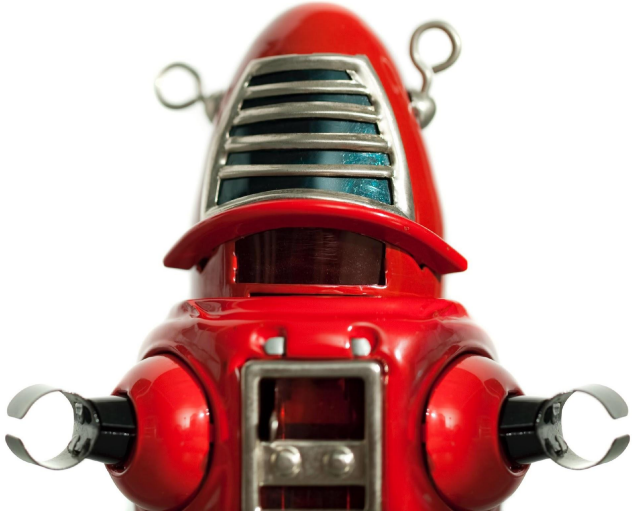
Reimplementation

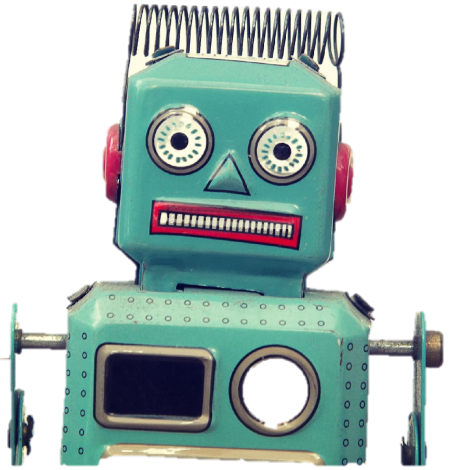
- Reintroducing a process into the same environment with modifications
- The magnitude of change is transformational

Cycle of innovation and disillusionment









New strategy for the Rebirth of a Powerful Tool

A ***new*** *innovation*

Loss of enthusiasm

Reimplementation

Sustainment/ future reimplementation

Checklist
Re-Implementation

Singapore
General Hospital

SingHealth

Human Centered Design using EPIS

Effectiveness-Implementation Hybrid Measures

Effectiveness

- Team performance (NOTECHS)
- Device related interruptions
- Culture of Safety (HSOPS)
- Patient safety events
- Near misses

Implementation

- Feasibility
- Penetration
- Fidelity

Improved Safety Culture and Fewer Adverse Events

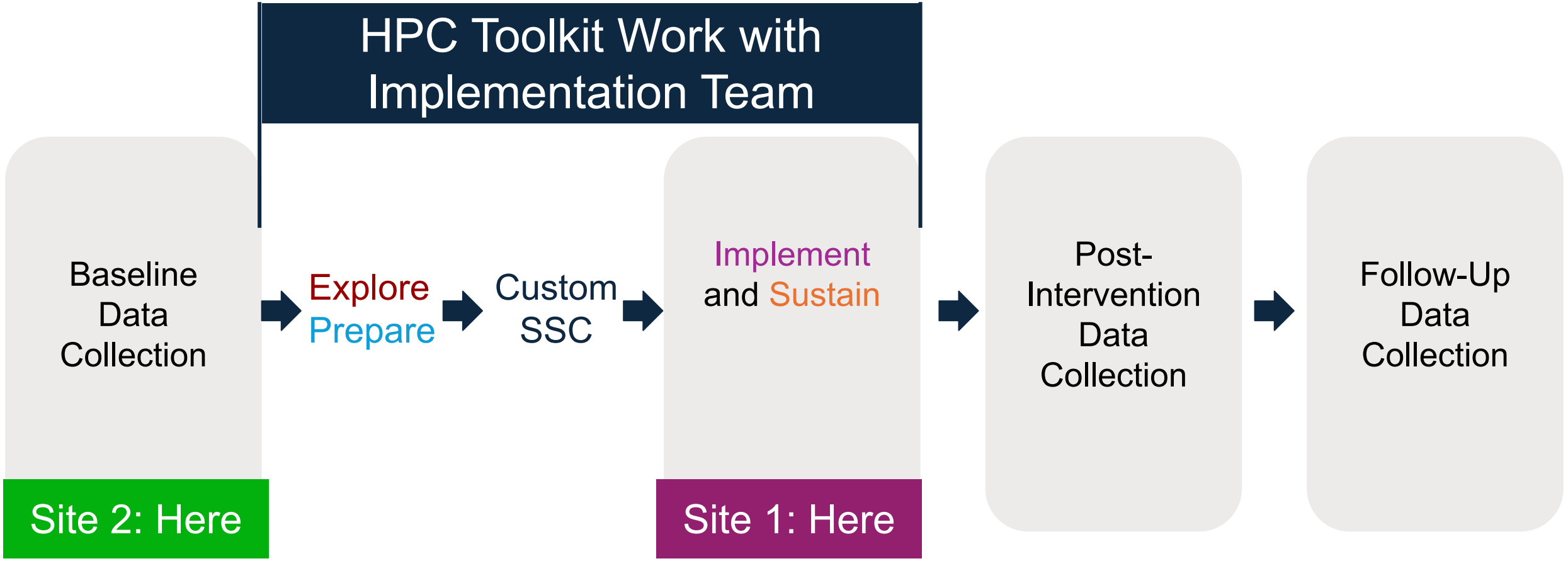
- **Improved** Perceptions of **Patient Safety**
- **Improved Hand-Offs**
- **Improved Teamwork** Across Professions
- **Improved Communication** Openness

From Adequate to Excellent

The High-Performance Checklist in Alberta, Canada

Pilot in excellent surgical team looking to be even better

Expanding within the hospital and to multiple other hospitals in the province


HPC Toolkit Work with Implementation Team
Baseline Data Collection
Explore
Prepare
Custom SSC
Implement and Sustain
Post-Intervention Data Collection
Follow-Up Data Collection
Site 2: Here
Site 1: Here

Barriers, Facilitators and Modification to Achieve High Performance

Barriers	Facilitators	Modifications
Leadership	Engaged Team Members	Vascular Specific Items
Resistance	Cultural Expectation	Focus on Behaviour Change
Consistency		

Customized Vascular Surgery SSC

University of Calgary Vascular Safe Surgery Checklist

Sign In

Patient/family & OR team confirm:
- ❑ Patient ID
- ❑ Site/side/level and procedure
- ❑ Allergies
- ❑ NPO status

- ❑ **Weight?**

- ❑ **Special Precautions?**

Latex, isolation, malignant hyperthermia, others?

- ❑ **Positioning/table**

- ❑ **Grafts/prostheses/equipment**

- ❑ **Bloodwork/crossmatch**

Anesthesia
- ❑ Equipment needs?
- ❑ Airway concerns?

Patient/Family
- ❑ Who should we contact? Telephone number?
- ❑ **Anything else we should know or discuss before surgery?**

Time Out

- ❑ **Team introductions**

OR team confirms:
- ❑ Patient ID
- ❑ Site/side/level and procedure

Nursing
- ❑ Equipment concerns?

- ❑ **Antibiotics required?**
- ❑ **VTE prophylaxis requirements**

Vascular Team Discussion
- ❑ Critical moments anticipated for surgery, anesthesia, nursing
  - ❑ Clamping, blood loss
  - ❑ Other
- ❑ Heparin, ACT plans
- ❑ Potential transfusion needs
- ❑ blood availability
- ❑ IV access
- ❑ Other concerns?

Everyone in the room : speak up if you have concerns at any time

Sign Out

OR team confirms:
- ❑ Case performed
- ❑ Sponge and instrument count
- ❑ Specimens labeled

- ❑ **Pain control plan?**

- ❑ **Disposition?**

- ❑ **Concerns for recovery?**

We Asked the Experts: The WHO Surgical Safety Checklist and the COVID-19 Pandemic: Recommendations for Content and Implementation Adaptations

Nikhil Panda, James C. Etheridge, Takshveer Singh, Yves Sonnay, George Molina, Barbara K. Burian, Nina Capo-Chichi, Christy E. Cauley, David A. H. de Beer, Miliard Derbew, Roger D. Dias, Mary C. Fearon, Mekdes Daba Feyssa, Kathryn Hagen, Manoj Kumar, Tihitena Negussie Mammo, Edward R. Mariano, Alan Merry, Barbara Mushayandebvu, Mary T. Nabukenya, Milind Shah, Lisa Spruce, Thomas G. Weiser & Mary E. Brindle

World Journal of Surgery **45**, 1293–1296(2021) | Cite this article

Surgical safety checklists are powerful patient safety tools that improve the performance of surgical teams in health systems across the globe. The COVID-19 pandemic has challenged many aspects of the way these teams function to deliver high quality patient care.

To understand how the WHO Surgical Safety Checklist might be adapted to support teams involved in the surgical care of patients amidst the COVID-19 pandemic, recommendations for adaptations or modifications to the WHO Surgical Safety Checklist were solicited from global leaders in checklist design, implementation, surgical quality improvement, and patient safety. This group of 18 leaders included representation from 5 continents, multiple clinical specialties (e.g., surgery, anesthesiology, nursing, obstetrics, and emergency medicine), and a variety of practice environments. Using a modified Delphi process, the following content and implementation adaptations achieved consensus.

MODIFICATION RECOMMENDATIONS

- ☐ Review the patient's COVID-19 testing results, symptoms, and/or risk factors.
- ☐ Review the plan for intubation.
- ☐ Review the aerosolization risks of the procedure.
- ☐ Confirm that all members of the operating room are wearing appropriate PPE.
- ☐ Ensure in-room availability of all necessary equipment to minimize the number of times individuals enter or leave the operating room.
- ☐ Discuss handling, packaging, and transport of laboratory or pathologic specimens.
- ☐ Confirm appropriate postoperative bed availability.
- ☐ Sign out prior to extubation.
- ☐ Hospitals and public health systems will establish routine surveillance of surgical capacity, volume and results.

IMPLEMENTATION RECOMMENDATIONS

- ☐ Implementation should be done as soon as possible.
- ☐ Leadership (institutional and national) should encourage implementation of checklist adaptations.
- ☐ Local leaders from surgery, anesthesiology, and nursing should be identified for implementation.
- ☐ Local implementation teams should guide site-specific content changes and implementation efforts.
- ☐ More formal and frequent teamwork and communication training with COVID-19-specific simulation should be required.
- ☐ The checklist should be revised periodically as the pandemic progresses.
- ☐ A process for de-implementation should be developed for when the adapted checklist is no longer necessary.

These consensus recommendations for surgical teams address critical considerations for how local versions of the WHO Surgical Safety Checklist may be adapted both in terms of content and implementation amidst the ongoing challenges of the COVID-19 pandemic.

ARIADNE LABS lifebox

Consensus Statement | Surgery

February 8, 2023

Development of an Enhanced Recovery After Surgery Surgical Safety Checklist Through a Modified Delphi Process

ERAS Surgical Safety Checklist

Before induction of anaesthesia

Has the patient confirmed his/her identity, site, procedure, and consent?
- ☐ Yes

Is the site marked?
- ☐ Yes
- ☐ Not applicable

Is anesthesia machine and medication check complete?
- ☐ Yes

What is the patient's NPO status?

Does the patient have a:

Known allergy?
- ☐ No
- ☐ Yes

Difficult airway or aspiration risk?
- ☐ No
- ☐ Yes, and equipment/assistance available

Risk of >500mL blood loss?
- ☐ No
- ☐ Yes, two IVs/central access and fluids planned?

What is the opioid-sparing analgesia plan?

What is the warming and temperature monitoring plan?

What DVT prophylaxis is planned or in place?

What antibiotics and skin prep have been requested?

Is the appropriate surgical equipment available?
- ☐ Yes

Does the patient need to void or foley required?

Before skin incision

- ☐ **Confirm all team members have introduced themselves by name and role**
- ☐ **Confirm the patient's name, procedure, and where the incision will be made**

Has appropriate antibiotic prophylaxis been given within the last 60 minutes?
- ☐ Yes
- ☐ Not applicable

Anticipated Critical Events

To surgeon:
- ☐ What are the critical or non-routine steps?
- ☐ How long will the case take?
- ☐ What is the anticipated blood loss?

To anesthetist:
- ☐ Are there any patient-specific concerns?
- ☐ What is the plan for intraoperative fluid management?

To nursing team:
- ☐ Are there equipment issues or any concerns?

Is essential imaging displayed?
- ☐ Yes
- ☐ Not applicable

Before patient leaves operating room

Nurse verbally confirms:
- ☐ The name of the procedure
- ☐ Completion of instrument, sponge and needle counts
- ☐ Specimen labeling (read specimen labels aloud, including patient name)
- ☐ Whether there are any equipment problems to be addressed

To Surgeon, Anesthetist, and Nurse:

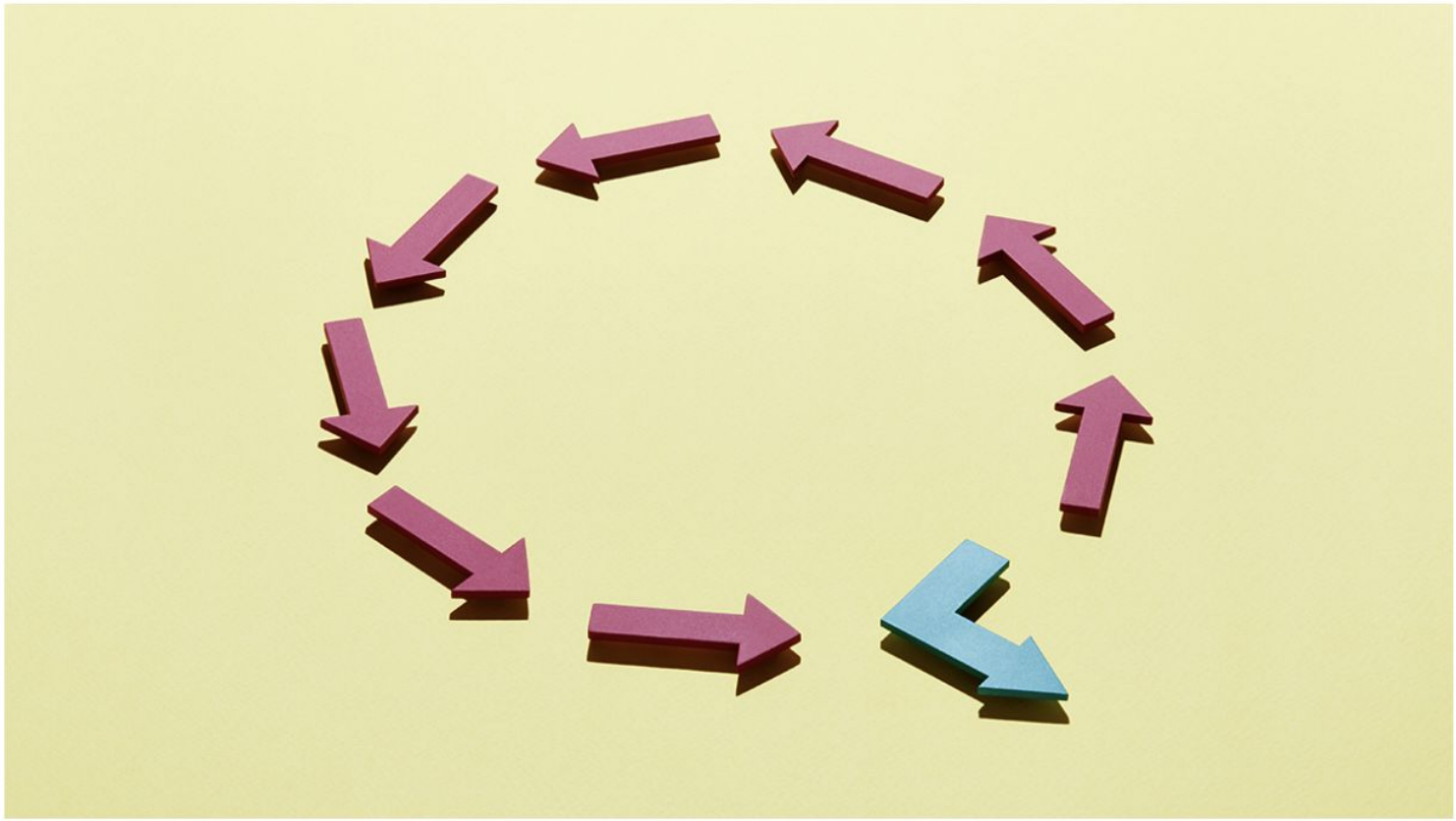
What are the key concerns for recovery and management of this patient?
- ☐ What is the postoperative analgesia plan? Any contraindications to NSAIDs?
- ☐ What is the postoperative nausea prevention plan? Any contraindications to early feeds?
- ☐ What is the postoperative DVT prophylaxis plan?
- ☐ What are expected ongoing maintenance fluid requirements?
- ☐ Have all unnecessary drains, NGs, foleys been removed?

Harvard Business Review

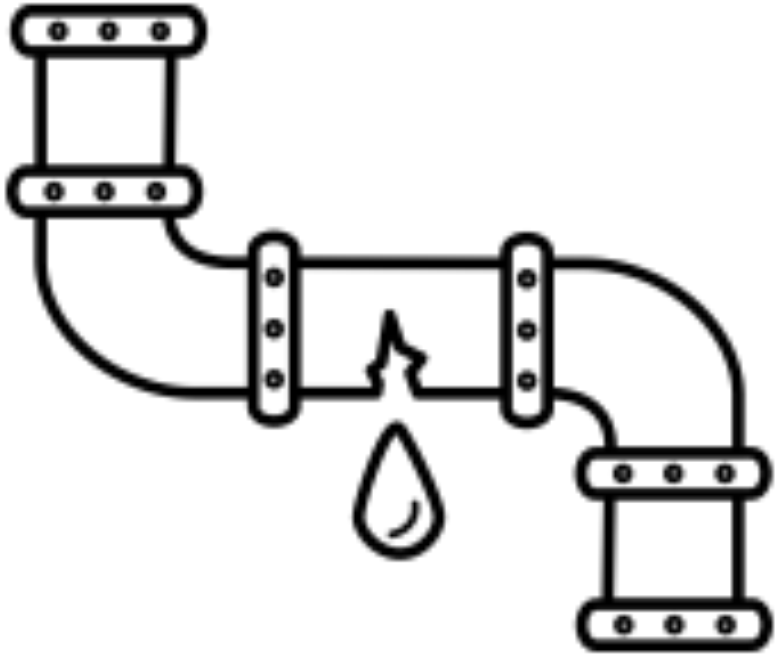
How to Salvage a Useful Process That Isn't Working Anymore

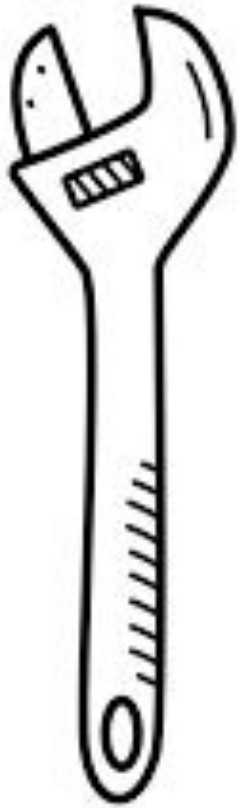
by Rachel Moyal-Smith, Kaisin Yee, and Mary Brindle

July 05, 2024



Match Challenges with Existing Innovations





Reimagine What is Possible

Build Momentum to Overcome Routine Habits

Embrace Vulnerability

Thank you

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