Where Do We Go From Here: Solutions for Patient Safety

Presented by:

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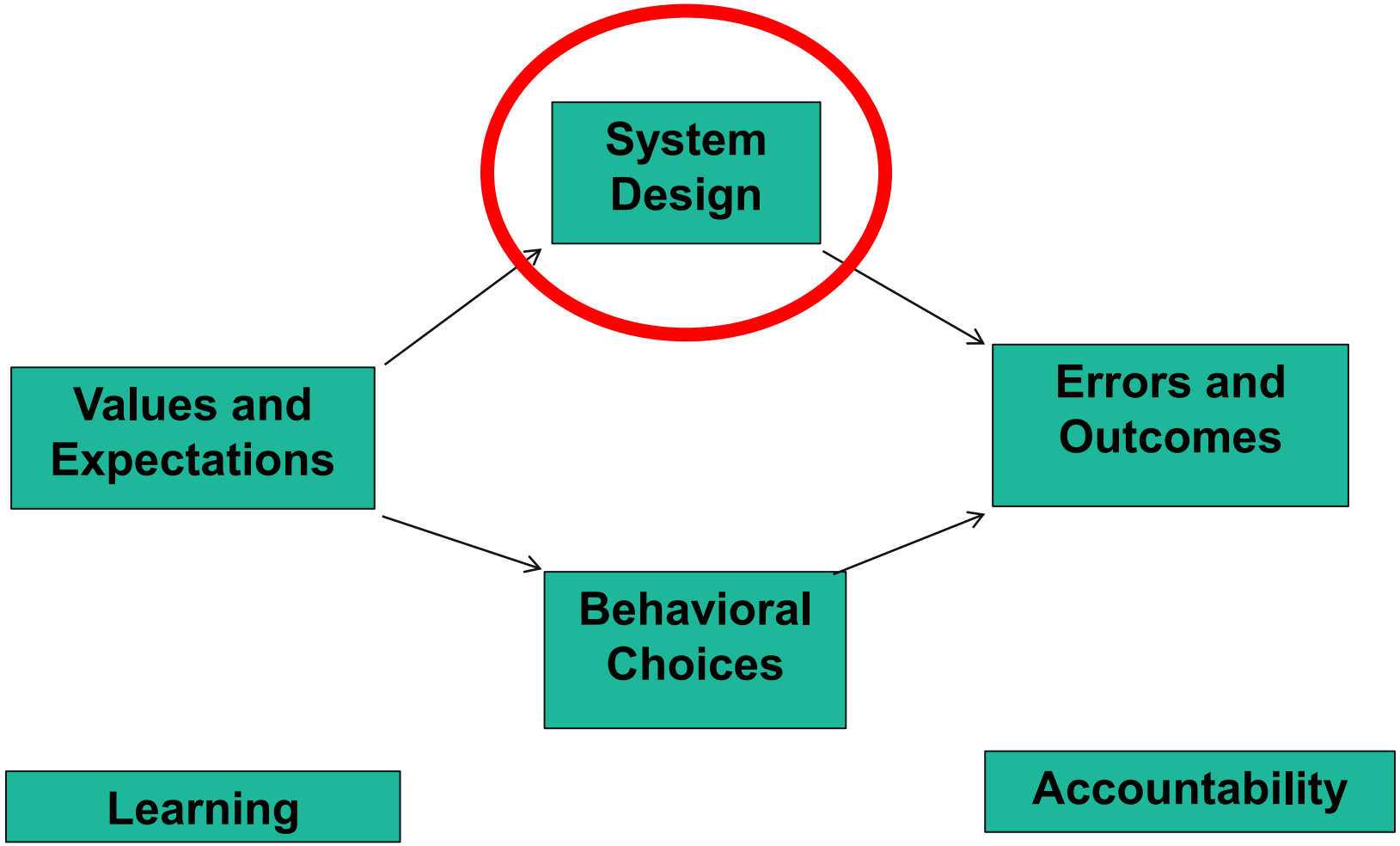
Objectives

- Identify how lessons learned from investigation can be used to improve system design.
- Summarize Human Factors strategies that can be used to improve processes in healthcare settings.
- Compare and contrast high and low leverage safety strategies in healthcare settings.

Socio-Technical System



Robust System Design

Ask TWO Questions:

1. Did we design a robust system knowing we will be comprised as fallible humans and sometimes faulty equipment?
2. Did we design the system to give employees the best chance of getting the job done right the first time?

Swiss Cheese Model

What is Human Factors?

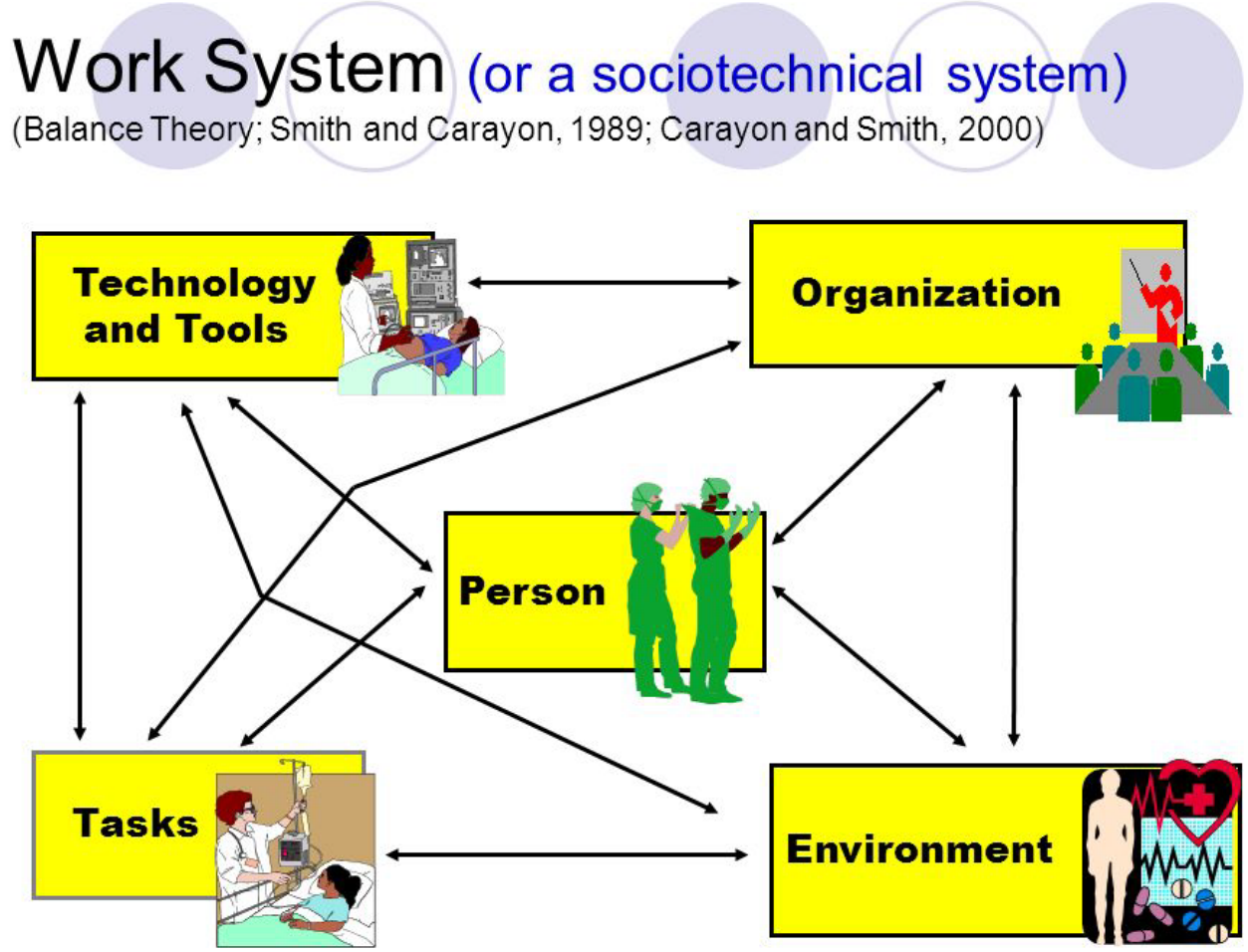
- Human Factors is the study of the psychological, social, physical, biological and safety characteristics of a user and the system the user is in.

- The science of “human factors” is the study of “the interrelationship between humans, the tools and equipment they use in the workplace, and the environment in which they work”
  - (WHO Patient Safety Curriculum Guide for Medical Schools. Geneva, Switzerland: World Health Organization; 2008:99.)

- Human factors enable us to understand why people make errors and how systems impact on safety

5 Work System Elements

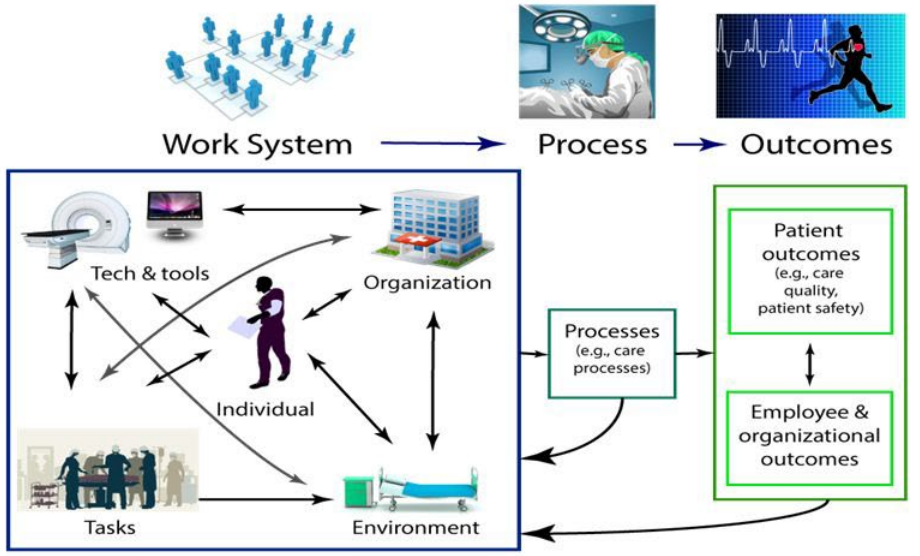
1. Individual
2. Tools/Technology
3. Organization
4. Environment
5. Tasks



Goal of Human Factors

- Design systems that make it easier to do things right and harder to things wrong

Systems Engineering Initiative for Patient Safety (SEIPS) Model



Carayon, P., Hundt, A.S., Karsh, B.-T., Gurses, A.P., Alvarado, C.J., Smith, M. and Brennan, P.F. "Work System Design for Patient Safety: The SEIPS Model", Quality & Safety in Health Care, 15 (Suppl. 1): i50-i58, 2006.

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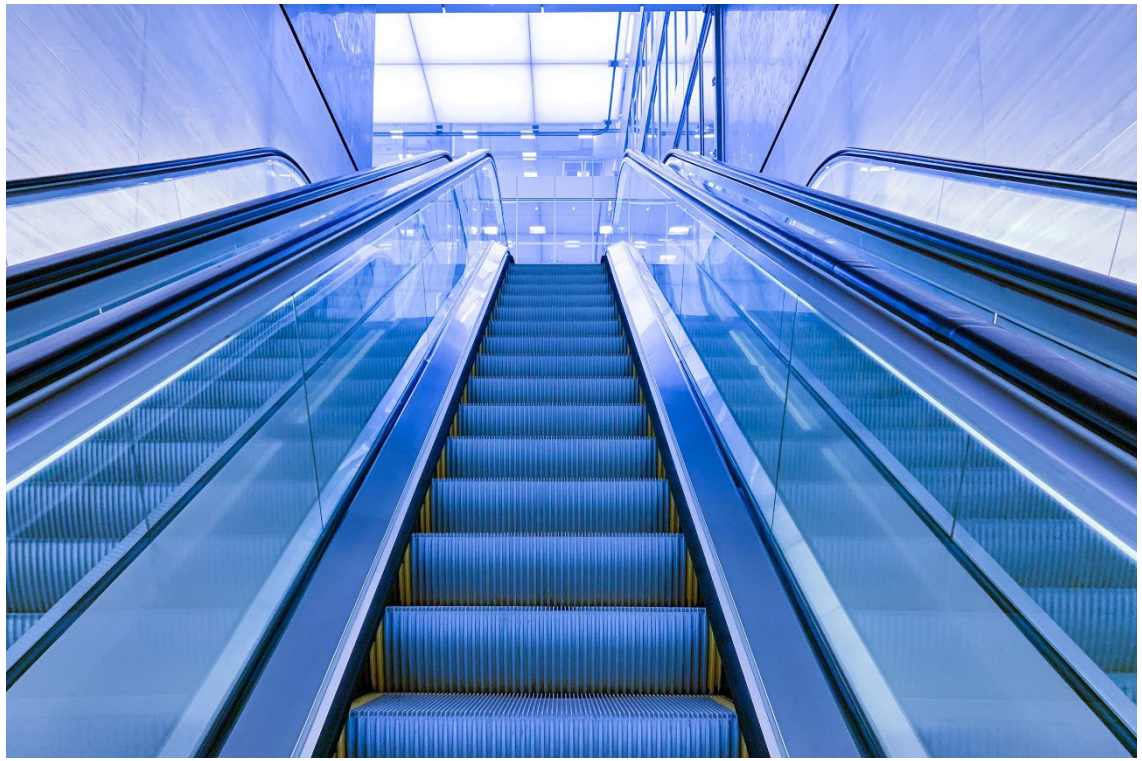
Drift

(Betsy Lehman Center for Patient Safety;
Amalberti, Vincent, Auroy, & de Saint Maurice)

Escalation of drift

- Once bending the rules has resulted in favorable outcome, more likely to be tempted to do so again
- If not challenged, becomes accepted practice
- May be adopted by others



Impact of drift

- Drift is widespread
  - More so in systems with narrow and strict safety rules
- Relatively few violations which lead to serious risk or harm
- Without control measures, drift will become more extreme

(Amalberti, Vincent, Auroy, & de Saint Maurice)

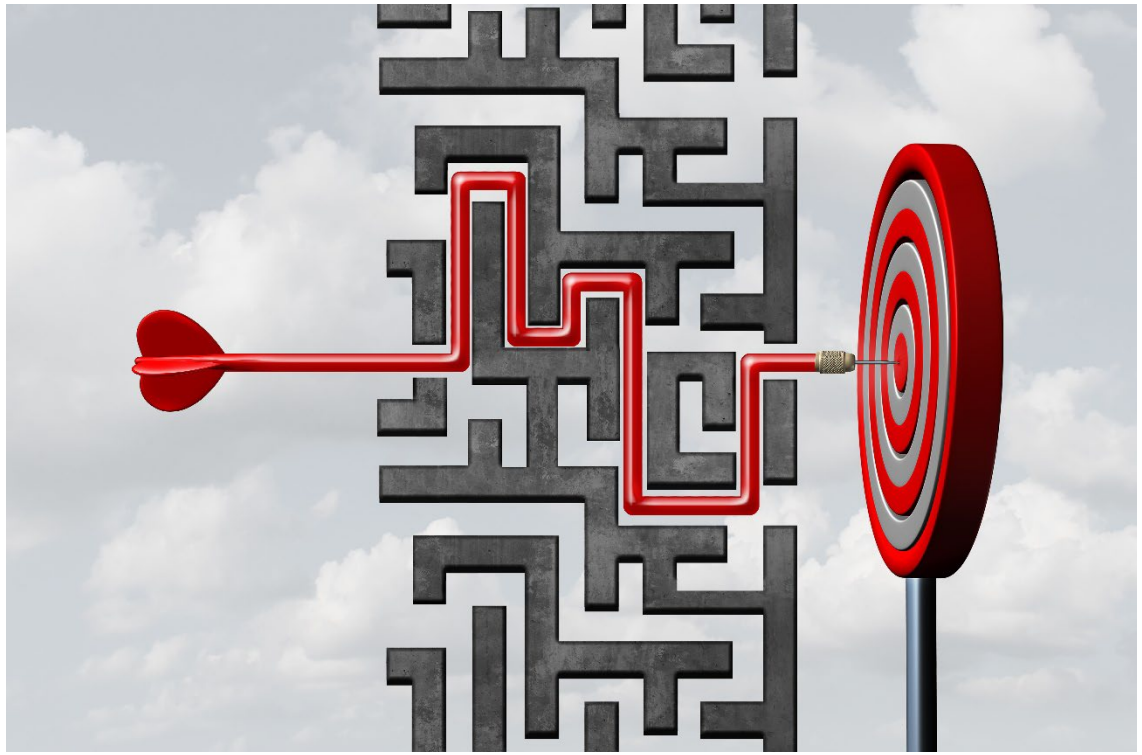
Addressing drift

- Can drift be fully eliminated?
  - Should it?
- The inclination to drift is natural
- Some beneficial effects
- Rely less on asking workers to increase their adherence to procedures
- More focus on changing the design of workflow to tolerate greater flexibility of practice

(Betsy Lehman Center for Patient Safety)

Addressing drift

- Workarounds
  - Emphasize positive aspects
    - Resiliency
    - Creativity
  - Avoid relying on ad-hoc solutions



Workarounds

- Red flags that a system is not functioning in the manner it should
- Intention is to achieve a goal more efficiently
- Healthcare culture fosters workarounds

Workarounds

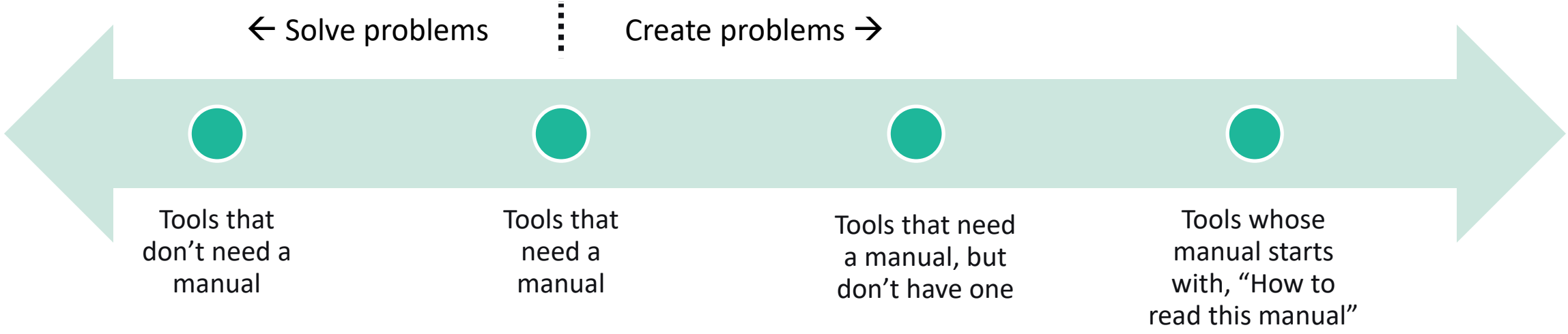
- Human factors engineering (HFE) concepts can be used to analyze the established system and the workaround.
- The goal is to ensure that a system is designed to fulfill the intended purpose and operates as intended. Analyzing workarounds using HFE concepts may help to identify safer and more user-friendly system changes.

Gosbee J. Human factors engineering and patient safety. *Qual Saf Health Care* 2002;11:352-4.

Workarounds

- Can create hazards and risky situations
  - Short-term
  - Long-term
- Can become embedded in normal patient care
- Can help identify flaws in system and promote frontline staff involvement in solutions

Good vs. poor design



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We must compensate for

- Drift/Work Arounds
- Fatigue/Boredom
- Stress
- Distractions
- Multi-tasking
- Anthropometrics
  - Height, Color blindness, Handedness

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Fatigue

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Boredom

Stress

How does overtime affect job performance?

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Distractions

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Multi-tasking

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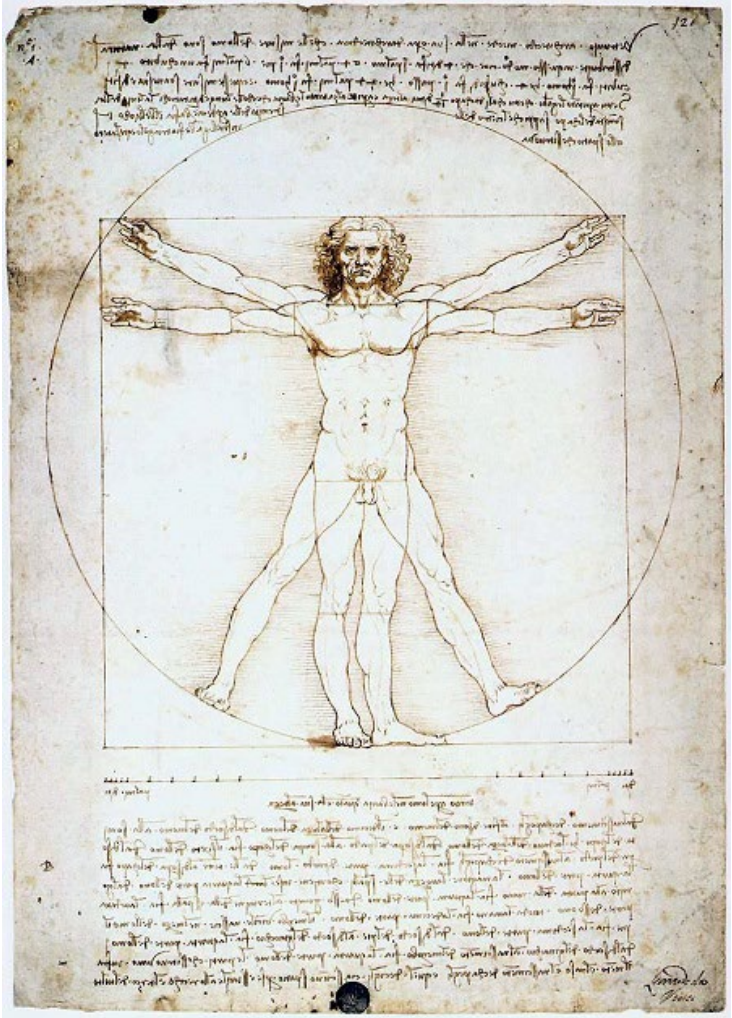
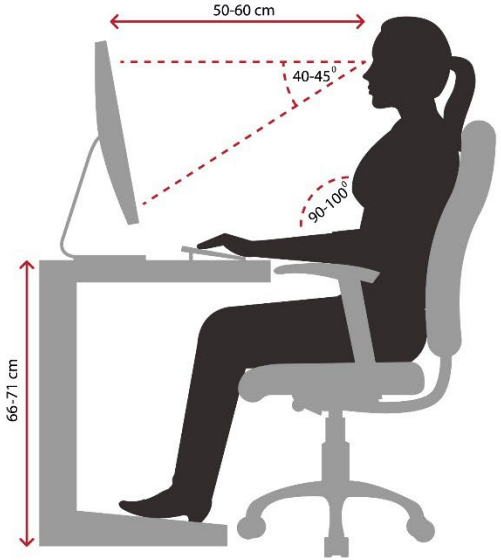
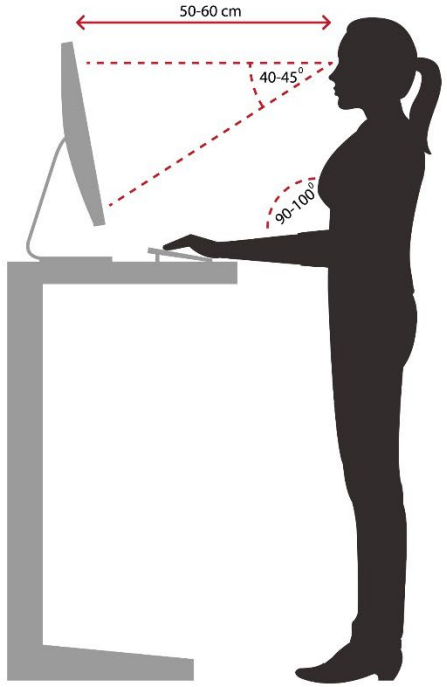
Anthropometrics







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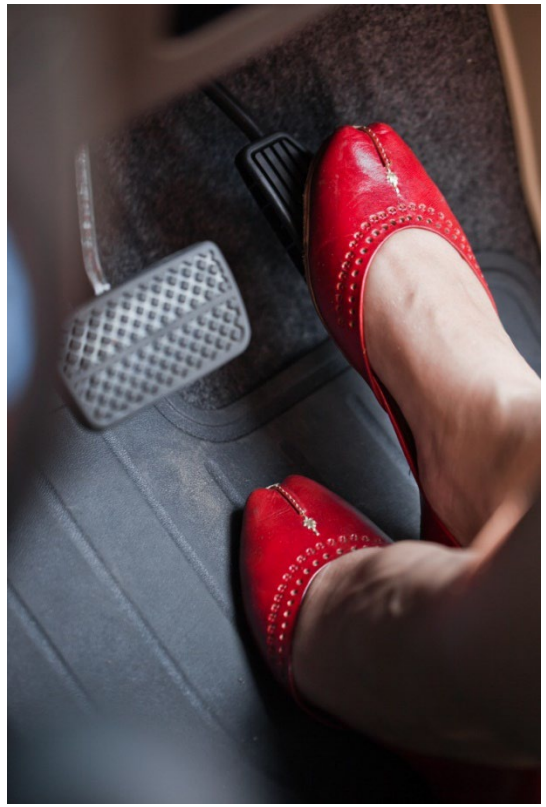
Standardization



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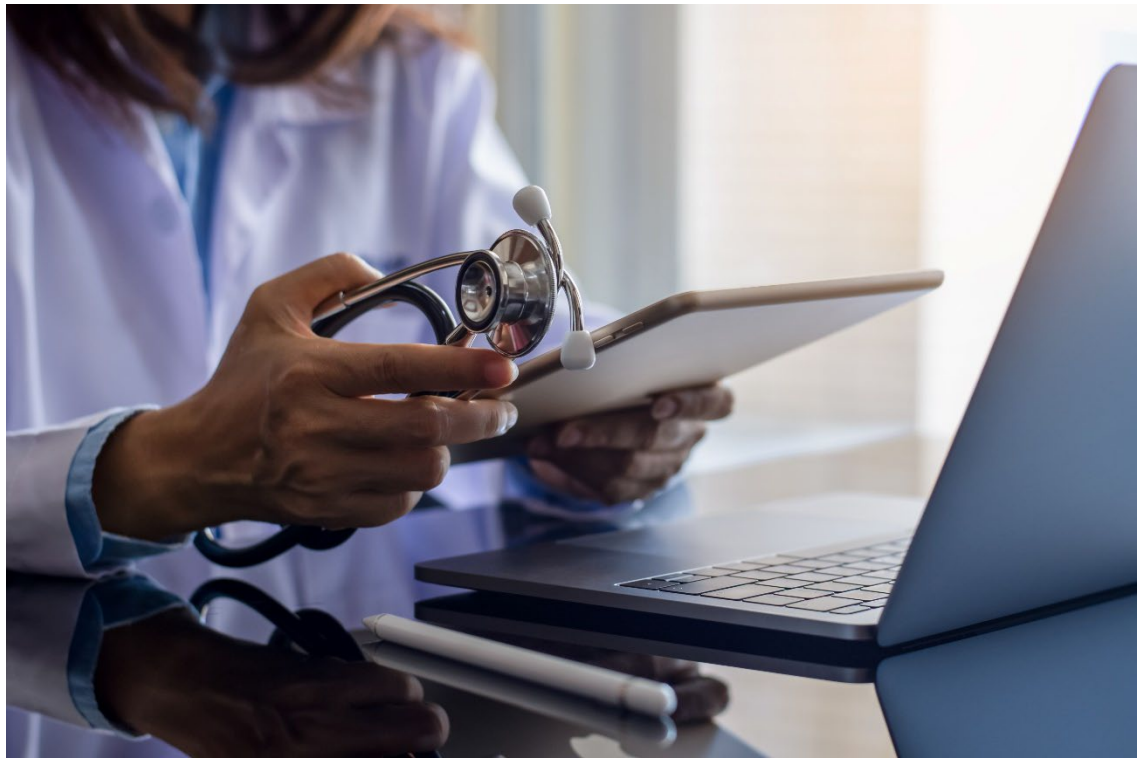
Do we standardize in healthcare?



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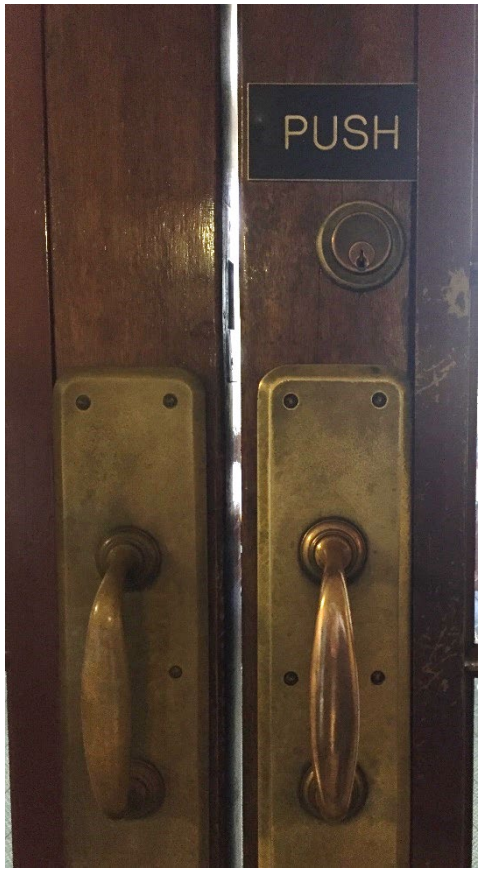
Bad Human Factor Design



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Design Strategies

Design Strategies

Lower to Higher

- Vigilance
- Education
- Rules/ Policies
- Briefing
- Reminders
- Checklists
- Protocols and Guidelines
- Simplification

Lower leverage strategies depend on individuals

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Design Strategies

Lower to Higher

- Differentiation
- Double Checks
- Standardization
- Sequencing
- Redundancy
- Centralization
- Automation
- Forcing Functions
- Constraints

Higher leverage strategies depend on systems

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Vigilance

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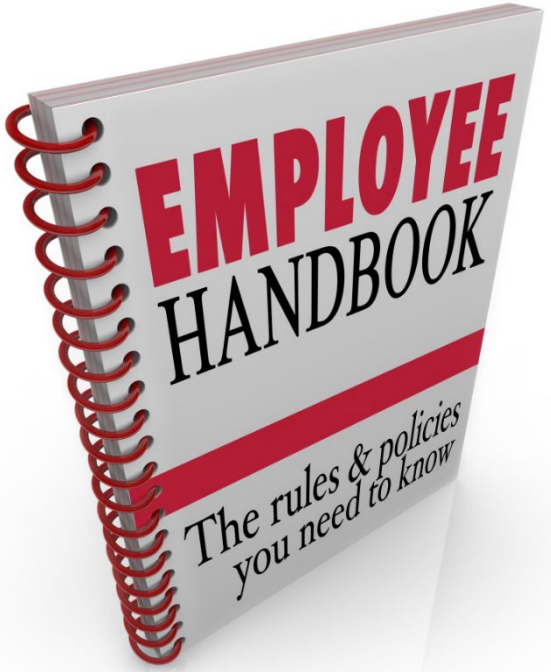
Education



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Rules/ Policies

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Briefing

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Reminders

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Checklists

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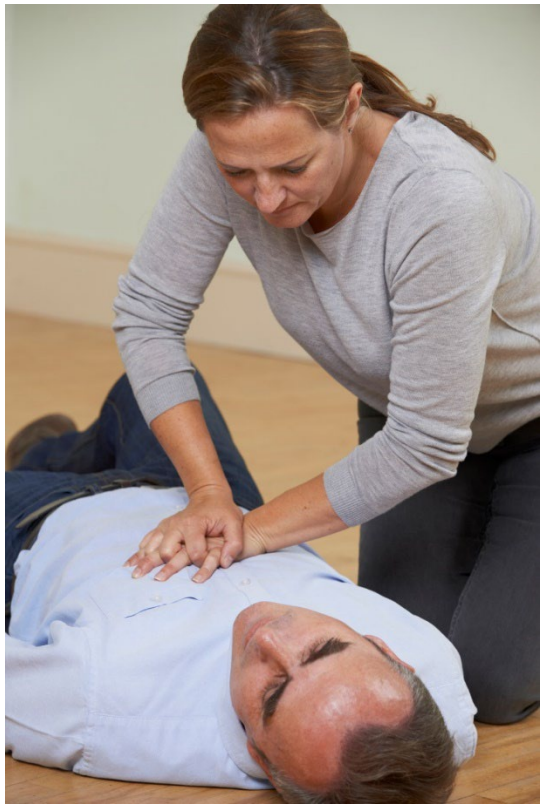
Protocols and Guidelines



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Simplification

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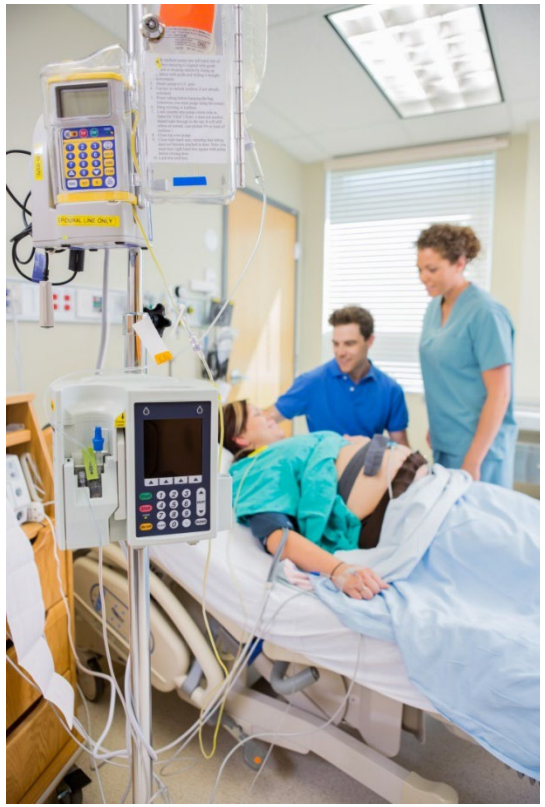
Differentiation



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Double Checks

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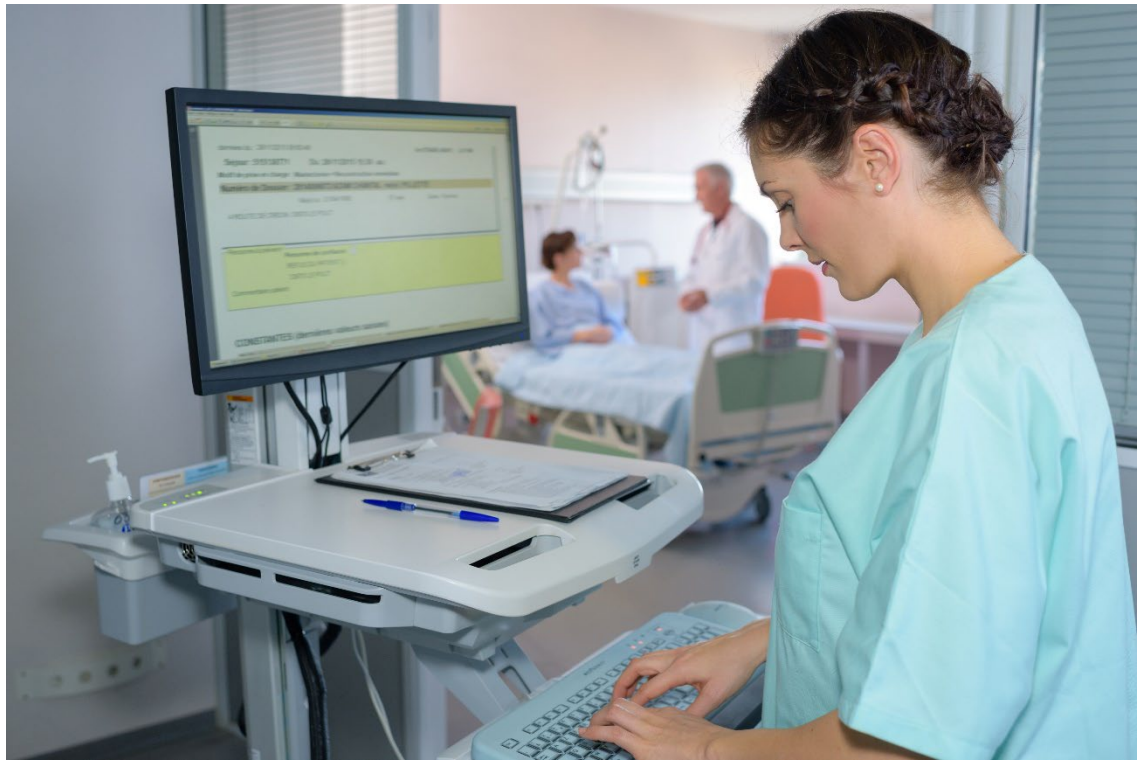
Standardization



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Sequencing

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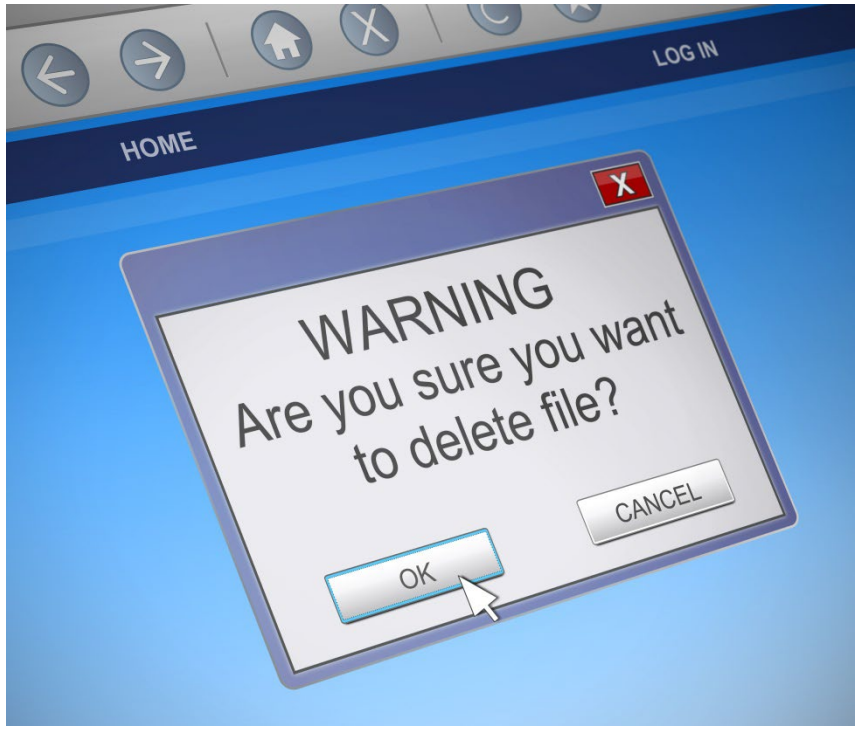
Redundancy



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Centralization

Automation

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Forcing Functions

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Constraints

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Take Home Points

- Learn from error
- Focus on system improvements (high leverage strategies) over individual intervention (low leverage strategies)
- Consider testing/implementing at least one learning strategies reviewed today when reviewing events (i.e. near miss, serious)
- Must consider all 5 works system elements, and how they interact
- A “balance” needs to be obtained between all of these factors in order to optimize human performance and increase system performance

What questions do you have?

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References

- Altman, K.W. (2018). Avoiding the pitfalls of “Mission drift” in modern healthcare. *Becker’s Hospital Review*. Becker’s Healthcare
- Amalberti, R., Vincent, C., Auroy, Y., & de Saint Maurice, G. (2006). Violations and migrations in health care: a framework for understanding and management. *Quality & safety in health care, 15 Suppl 1*(Suppl 1), i66–i71. DOI:10.1136/qshc.2005.015982
- Collins, S.E. (2003, July). Legally speaking: The problem with breaking the rules. *RN Magazine*.
- Debono, D.S., et al. (2013). Nurses’ workarounds in acute healthcare settings: A scoping review. BMC Heath Services Research; BioMed Central Ltd.
- Deutsch, E.S. (2017). Workarounds: Trash or treasure? *PA PSRS Patient Saf Advis* Sep;14(3).
- Holden, R. J., Carayon, P., Gurses, A. P., Hoonakker, P., Hundt, A. S., Ozok, A. A., & Rivera-Rodriguez, A. J. (2013). SEIPS 2.0: a human factors framework for studying and improving the work of healthcare professionals and patients. *Ergonomics*, 56(11), 1669–1686. https://doi.org/10.1080/00140139.2013.838643
- Morath, J., (September 30, 2011) "Nurses Create a Culture of Patient Safety: It Takes More Than Projects" OJIN: *The Online Journal of Issues in Nursing* Vol. 16, No. 3, Manuscript 2. DOI: 10.3912/OJIN.Vol16No03Man02
- Van Sell, S. (2012, Dec 8). What are the implications of breaking a nursing law? Texas Woman’s University. Available at: www.researchgate.net/post/ What_are_the_implications

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References

- Johns Hopkins Medicine Armstrong Institute for Patient Safety and Quality, The Johns Hopkins University, The Johns Hopkins Hospital and Johns Hopkins Health System
- World Health Organization: http://www.who.int/patientsafety/en/
  - WHO Patient Safety Curriculum Guide for Medical Schools. Geneva, Switzerland: World Health Organization; 2008:99.
- IHI School: http://www.ihi.org/education/IHIOpenSchool/resources/Pages/Activities/ExerciseHumanFactors.aspx

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Thank You!

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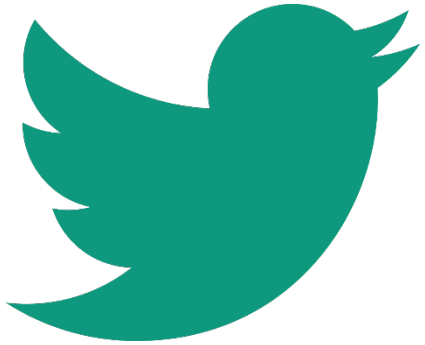

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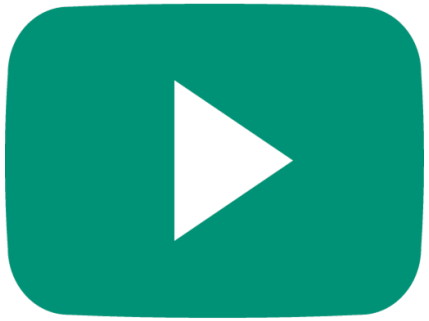

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