How to Get your Quality Improvement Work Published:
Insider Advice from Editors

INTERNATIONAL FORUM ON QUALITY AND SAFETY IN HEALTHCARE | 20 JUNE, 2022

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Jenn Myers MD, Associate Editor, contributed to Prior versions of this presentation

Disclosures

Eric Thomas

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- Senior Methods Editor, *BMJ Quality & Safety*

Learning Objectives

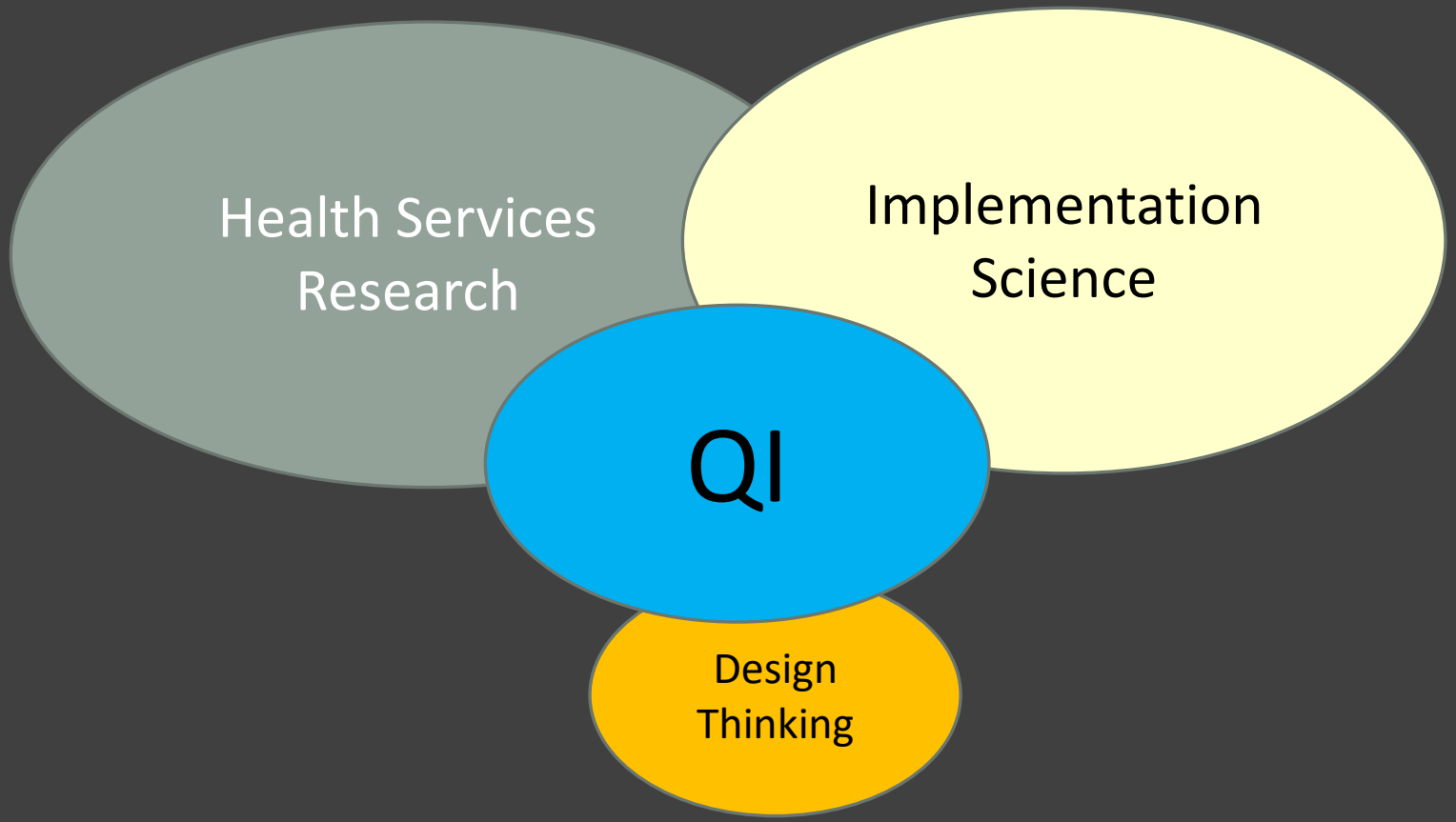
1. Appreciate the breadth of opportunities to disseminate QI work to generalize new approaches to improve patient care
2. Identify common pitfalls in QI project report submissions to peer-reviewed journals
3. Describe strategies that can be employed during the project stage and the writing stage to increase the chances of QI report publication

Ice Breaker

In thinking about the prospect of publishing your QI work…

- What concerns do you have?
- What challenges do you anticipate that you may encounter?

It Depends on Your Perspective



Why Publish?

- Returns something of value for time and effort put into the work – in addition to the actual patient care improvements

- Publishing your QI efforts:
  - Hastens spread of useful innovations
  - Helps you to develop a network of regional/national peers with similar interests
  - Helps you get promoted (for some)

Where to Publish?

- Ask yourself ...
  - Who would be most interested in reading about this project?

- Consider…
  - Quality Journals
  - Specialty Journals
  - National or International Journals

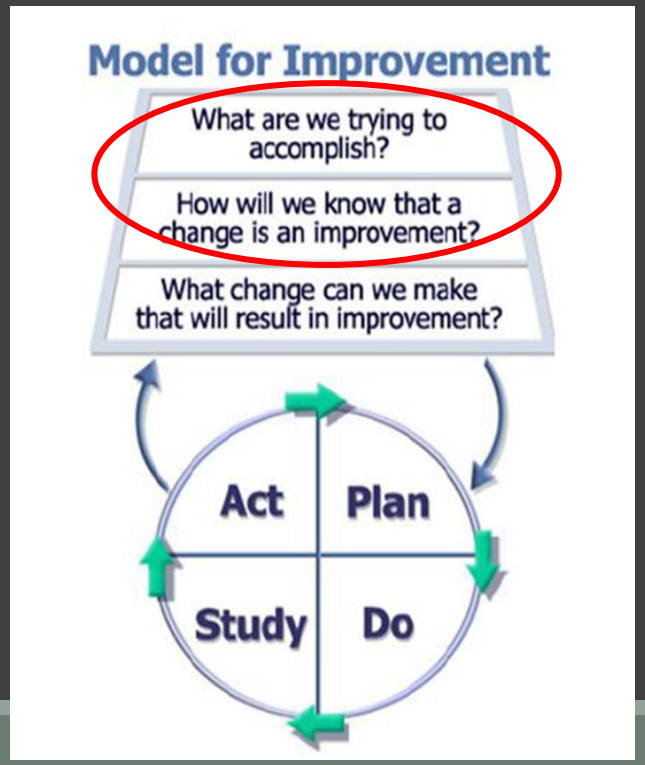
Quality & Safety Journals

	Impact Factor*
• American Journal of Medical Quality	1.25
• BMJ Quality & Safety	7.23
• International Journal for Quality in Healthcare	1.70
• BMJ Open Quality	1.13
• Joint Commission Journal of Quality & Safety	1.65
• Journal of Patient Safety	2.84
• Journal of Patient Safety and Risk Management	N/A
• NEJM Catalyst Innovations in Care Delivery	N/A

*approximate IF, will vary slightly based on year and source

What to Publish?

1. Interesting data produced during your current state assessment
2. QI interventions with results

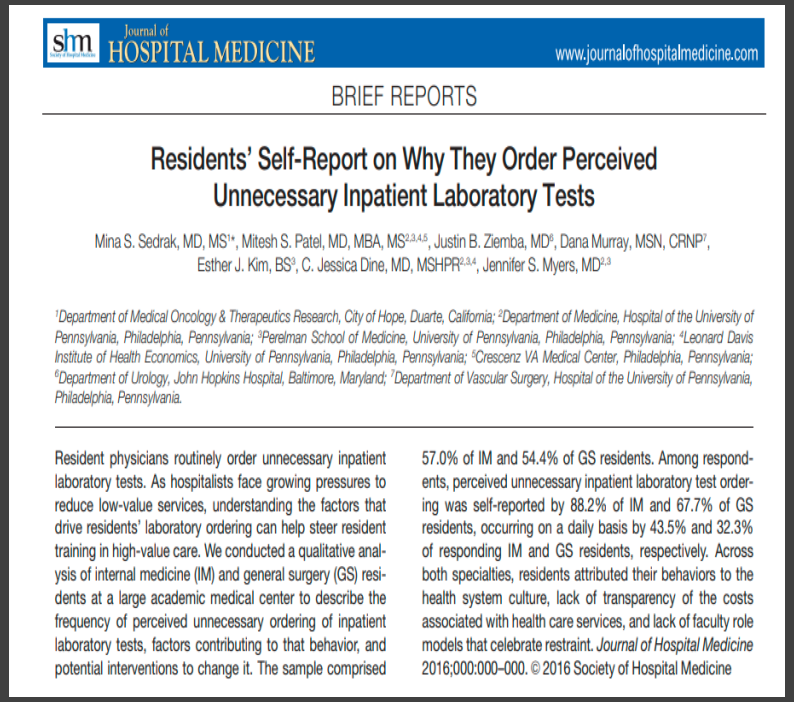


Slide from Jenn Myers MD, Associate Editor

Slide from Jenn Myers MD, Associate Editor

Examples of "Current State" (QI) Publications

Survey



Journal of HOSPITAL MEDICINE www.journalofhospitalmedicine.com

BRIEF REPORTS

Residents' Self-Report on Why They Order Perceived Unnecessary Inpatient Laboratory Tests

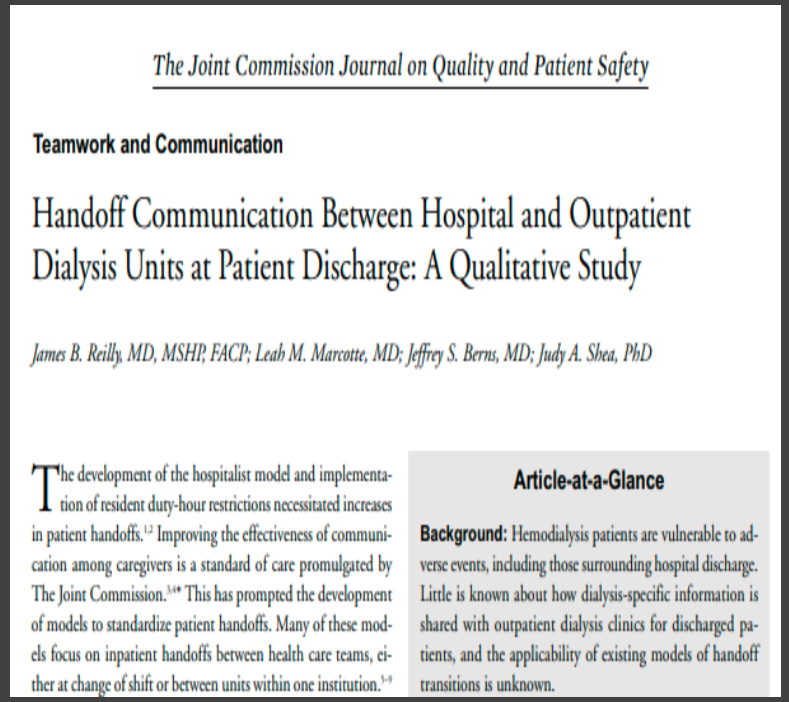
Mina S. Sedrak, MD, MS[1*], Mitesh S. Patel, MD, MBA, MS[2,3,4,5], Justin B. Ziemba, MD[6], Dana Murray, MSN, CRNP[7], Esther J. Kim, BS[3], C. Jessica Dine, MD, MSHPR[2,3,4], Jennifer S. Myers, MD[2,3]

[1]Department of Medical Oncology & Therapeutics Research, City of Hope, Duarte, California; [2]Department of Medicine, Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania; [3]Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania; [4]Leonard Davis Institute of Health Economics, University of Pennsylvania, Philadelphia, Pennsylvania; [5]Crescenz VA Medical Center, Philadelphia, Pennsylvania; [6]Department of Urology, John Hopkins Hospital, Baltimore, Maryland; [7]Department of Vascular Surgery, Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania.

Resident physicians routinely order unnecessary inpatient laboratory tests. As hospitalists face growing pressures to reduce low-value services, understanding the factors that drive residents' laboratory ordering can help steer resident training in high-value care. We conducted a qualitative analysis of internal medicine (IM) and general surgery (GS) residents at a large academic medical center to describe the frequency of perceived unnecessary ordering of inpatient laboratory tests, factors contributing to that behavior, and potential interventions to change it. The sample comprised 57.0% of IM and 54.4% of GS residents. Among respondents, perceived unnecessary inpatient laboratory test ordering was self-reported by 88.2% of IM and 67.7% of GS residents, occurring on a daily basis by 43.5% and 32.3% of responding IM and GS residents, respectively. Across both specialties, residents attributed their behaviors to the health system culture, lack of transparency of the costs associated with health care services, and lack of faculty role models that celebrate restraint. *Journal of Hospital Medicine* 2016;000:000–000. © 2016 Society of Hospital Medicine

Sedrak MS, et al J Hosp Med 2016.

Interviews



The Joint Commission Journal on Quality and Patient Safety

Teamwork and Communication

Handoff Communication Between Hospital and Outpatient Dialysis Units at Patient Discharge: A Qualitative Study

James B. Reilly, MD, MSHP, FACP; Leah M. Marcotte, MD; Jeffrey S. Berns, MD; Judy A. Shea, PhD

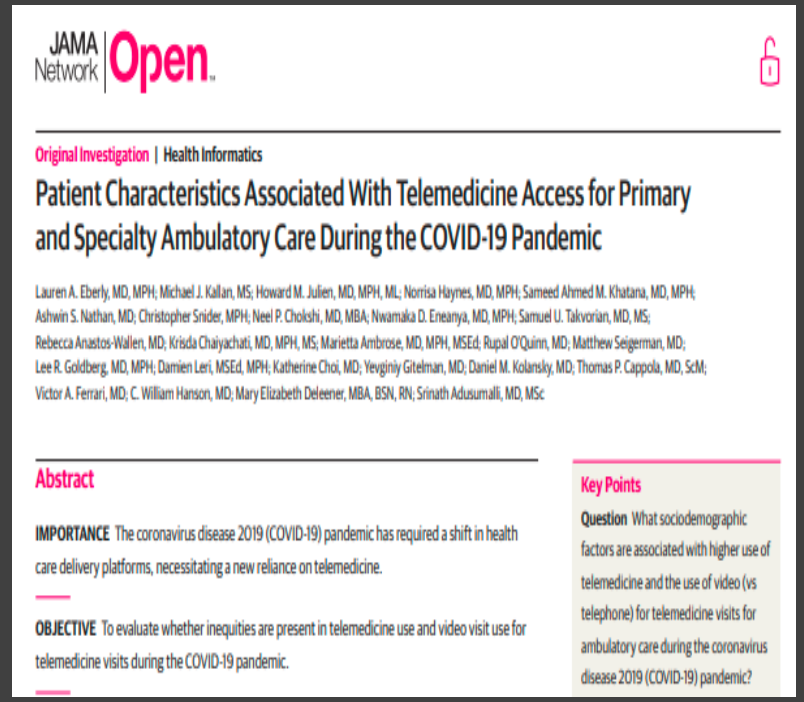
The development of the hospitalist model and implementation of resident duty-hour restrictions necessitated increases in patient handoffs.[1,2] Improving the effectiveness of communication among caregivers is a standard of care promulgated by The Joint Commission.[3,4*] This has prompted the development of models to standardize patient handoffs. Many of these models focus on inpatient handoffs between health care teams, either at change of shift or between units within one institution.[5–9]

Article-at-a-Glance

Background: Hemodialysis patients are vulnerable to adverse events, including those surrounding hospital discharge. Little is known about how dialysis-specific information is shared with outpatient dialysis clinics for discharged patients, and the applicability of existing models of handoff transitions is unknown.

Reilly JB, et al. Jt Comm J Qual Saf 2013.

Clinical EHR Data



JAMA Network Open

Original Investigation | Health Informatics

Patient Characteristics Associated With Telemedicine Access for Primary and Specialty Ambulatory Care During the COVID-19 Pandemic

Lauren A. Eberly, MD, MPH; Michael J. Kallan, MS; Howard M. Julien, MD, MPH, ML; Norrisa Haynes, MD, MPH; Sameed Ahmed M. Khatana, MD, MPH; Ashwin S. Nathan, MD; Christopher Snider, MPH; Neel P. Chokshi, MD, MBA; Nwamaka D. Eneanya, MD, MPH; Samuel U. Takvorian, MD, MS; Rebecca Anastos-Wallen, MD; Krisda Chaiyachati, MD, MPH, MS; Marietta Ambrose, MD, MPH, MSEd; Rupal O'Quinn, MD; Matthew Seigerman, MD; Lee R. Goldberg, MD, MPH; Damien Leri, MSEd, MPH; Katherine Choi, MD; Yevginiy Gitelman, MD; Daniel M. Kolansky, MD; Thomas P. Cappola, MD, ScM; Victor A. Ferrari, MD; C. William Hanson, MD; Mary Elizabeth Deleener, MBA, BSN, RN; Srinath Adusumalli, MD, MSc

Abstract

IMPORTANCE The coronavirus disease 2019 (COVID-19) pandemic has required a shift in health care delivery platforms, necessitating a new reliance on telemedicine.

OBJECTIVE To evaluate whether inequities are present in telemedicine use and video visit use for telemedicine visits during the COVID-19 pandemic.

Key Points

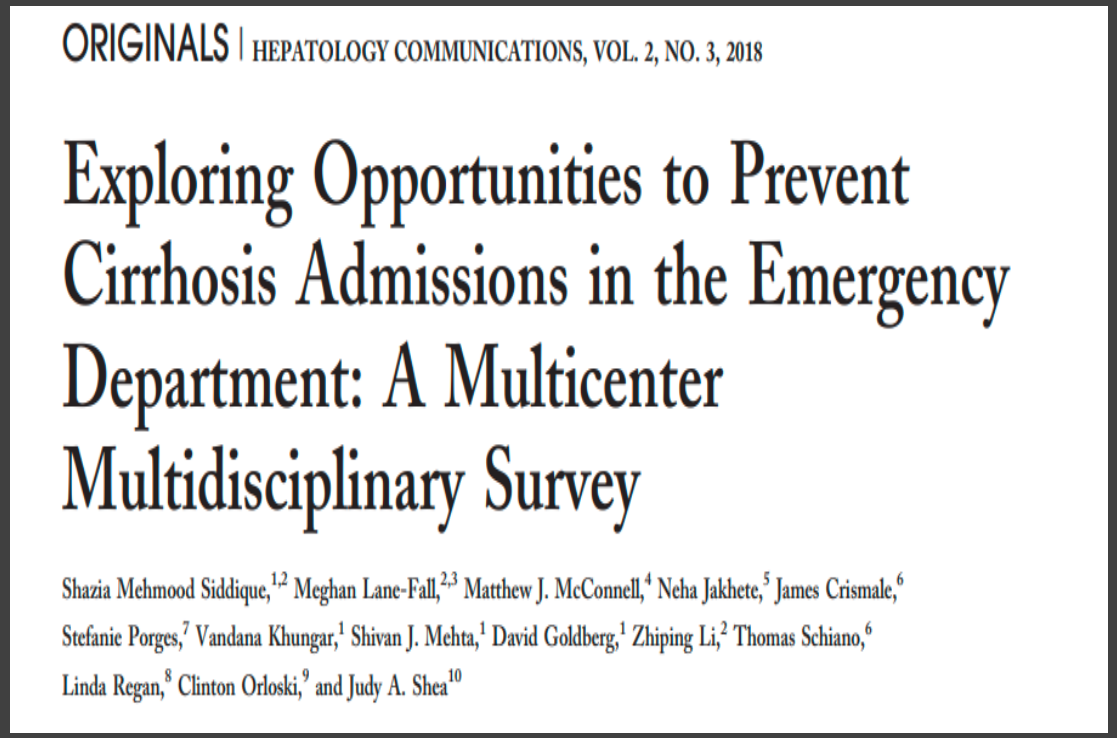
Question What sociodemographic factors are associated with higher use of telemedicine and the use of video (vs telephone) for telemedicine visits for ambulatory care during the coronavirus disease 2019 (COVID-19) pandemic?

Eberly LM. JAMA Network Open. 2020

Slide from Jenn Myers MD, Associate Editor

Same project – 2 publications

Current State



ORIGINALS | HEPATOLOGY COMMUNICATIONS, VOL. 2, NO. 3, 2018

Exploring Opportunities to Prevent Cirrhosis Admissions in the Emergency Department: A Multicenter Multidisciplinary Survey

Shazia Mehmood Siddique,[1,2] Meghan Lane-Fall,[2,3] Matthew J. McConnell,[4] Neha Jakhete,[5] James Crismale,[6] Stefanie Porges,[7] Vandana Khungar,[1] Shivan J. Mehta,[1] David Goldberg,[1] Zhiping Li,[2] Thomas Schiano,[6] Linda Regan,[8] Clinton Orloski,[9] and Judy A. Shea[10]

Interventions & Results

PRACTICE MANAGEMENT: THE ROAD AHEAD

Ziad F. Gellad, Section Editor

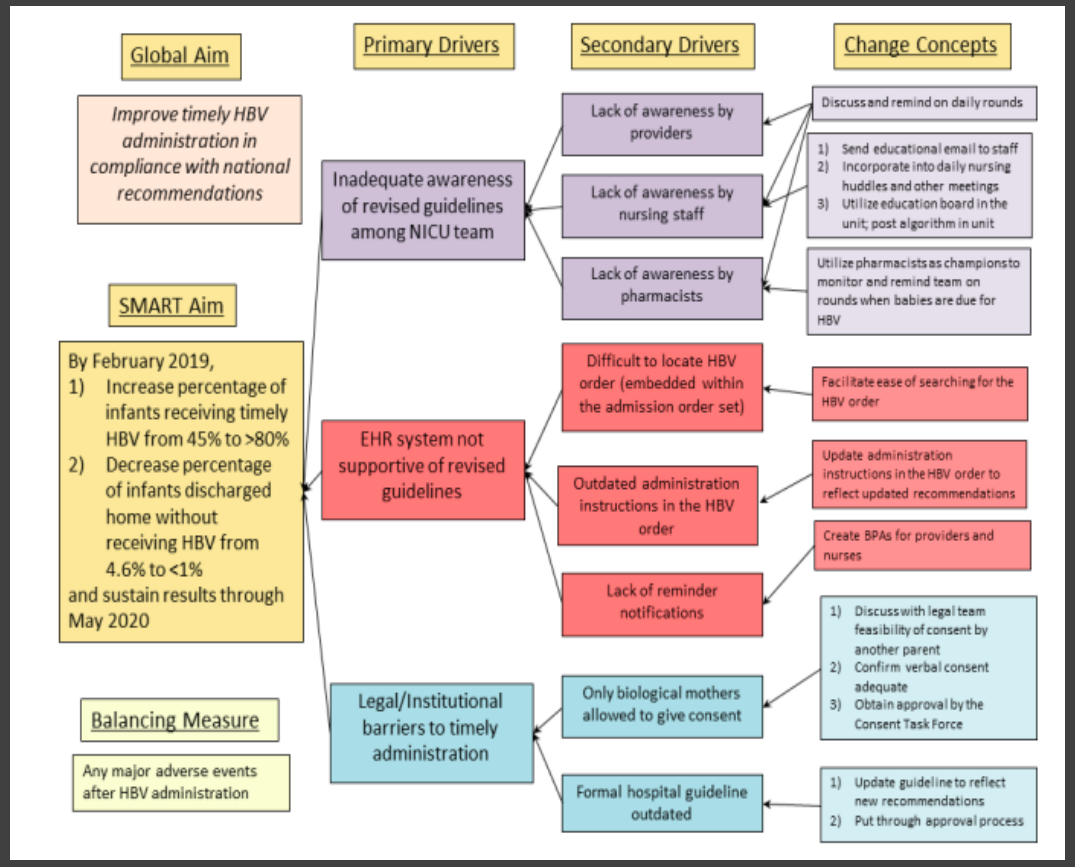
Reducing Hospital Admissions for Paracentesis: A Quality Improvement Intervention

Check for updates

Shazia Mehmood Siddique,[*,†,§] Stefanie Porges,[‖] Meghan Lane-Fall,[‡,§,¶] Shivan J. Mehta,[*,†,§] William Schweickert,[#] Joan Kinniry,[#] April Taylor,[§] James D. Lewis,[*] Shaz Iqbal,[**] David Goldberg,[*,‡] Judy A. Shea,[‡,‡‡] Robert Stetson,[§§] Mary Coniglio,[*] Maarouf Hoteit,[*] Neil Fishman,[‖‖] and Vandana Khungar[*]

Siddique SM, et al. Hepatol Commun. 2018 Jan 26;2(3):237-244
Siddique SM, et al. Clin Gastroenterol Hepatol. 2019 Dec;17(13):2630-2633

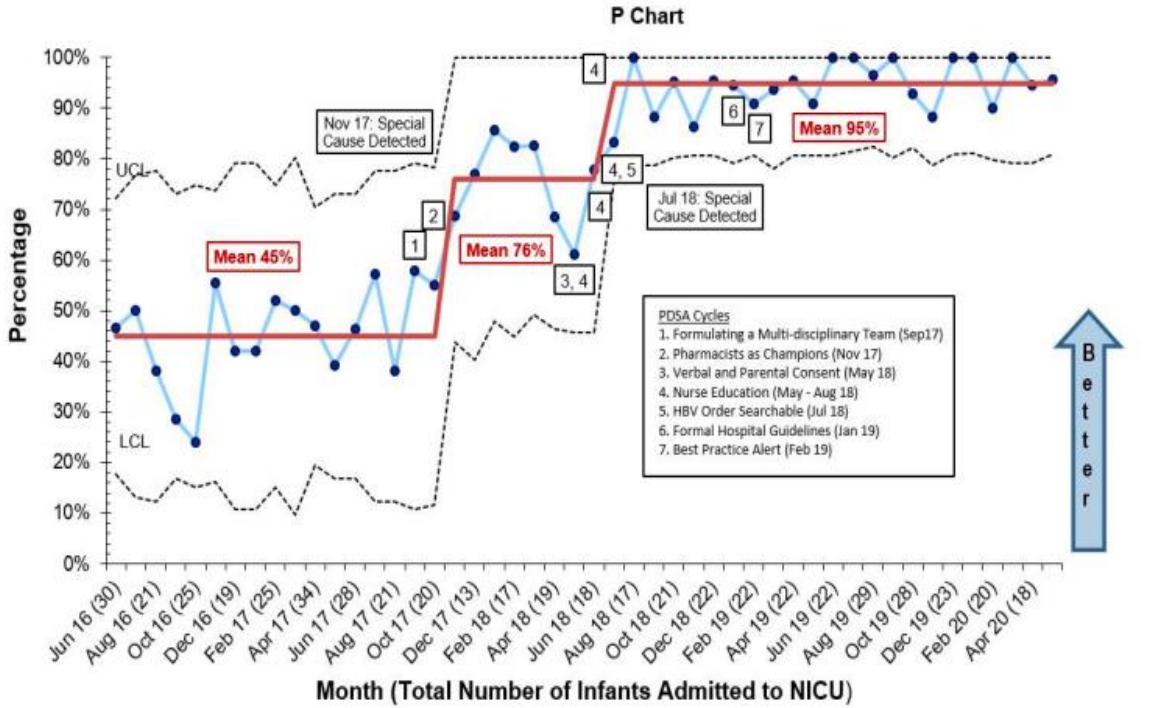
Example: Traditional QI Report Publication



QUALITY IMPROVEMENT REPORT

Improving timeliness of hepatitis B vaccine administration in an urban safety net level III NICU

Madoka Hayashi, [1,2,3] Theresa R Grover,[2,3] Steve Small,[1] Tessa Staples,[1] Genie Roosevelt[4,5]



Hayashi M, et al. BMJ Qual Saf 2021;30:911–919

Small Group Activity

1. Read the abstract silently
2. Jot down the positive and negative aspects of the abstract (ok to mark it up)
3. Discuss with others at your table

Large Group Discussion

- What did you like? Positive attributes?
- What could be improved upon?
- What advice would you give to the authors?

SQUIRE guidelines

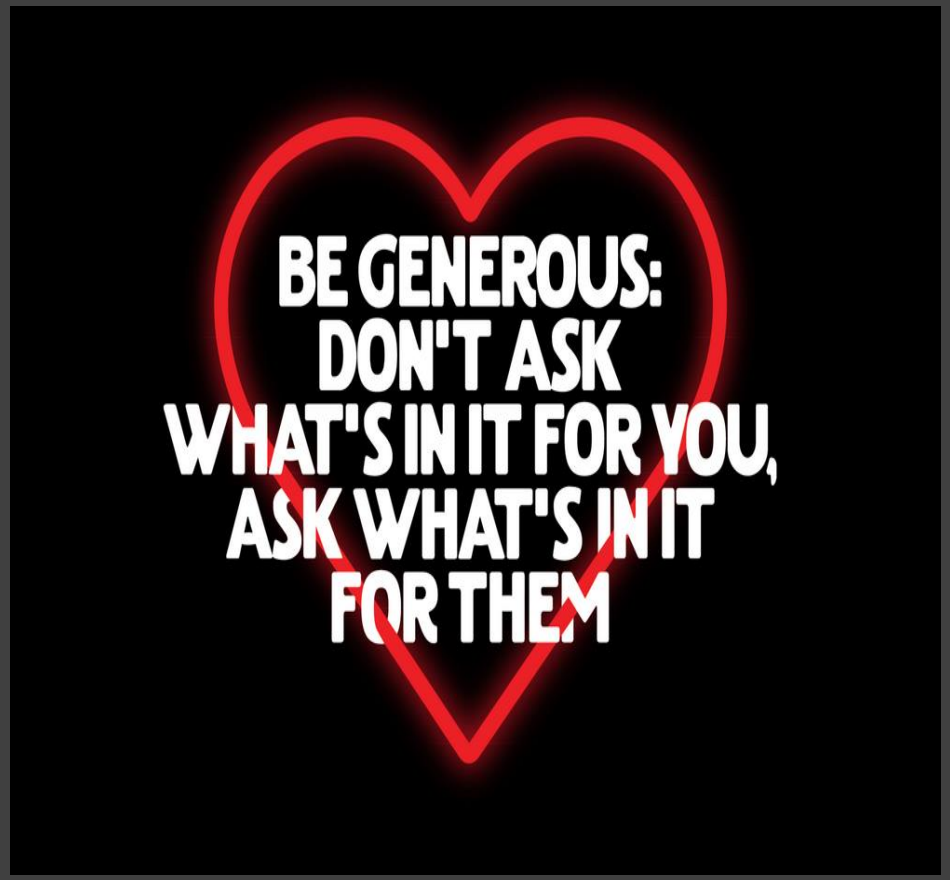
- *SQUIRE* stands for ***S**tandards for **QU**ality **I**mprovement **R**eporting **E**xcellence*
- Framework for reporting new knowledge about how to improve healthcare.
- Intended for reports that describe system level work to improve the quality, safety, and value of healthcare.

SQUIRE

Promoting Excellence in Healthcare Improvement Reporting

Ogrinc G, et al. BMJ Qual Saf. 2016 Dec;25(12):986-992

Promoting Authorship Inclusivity in QI Scholarship



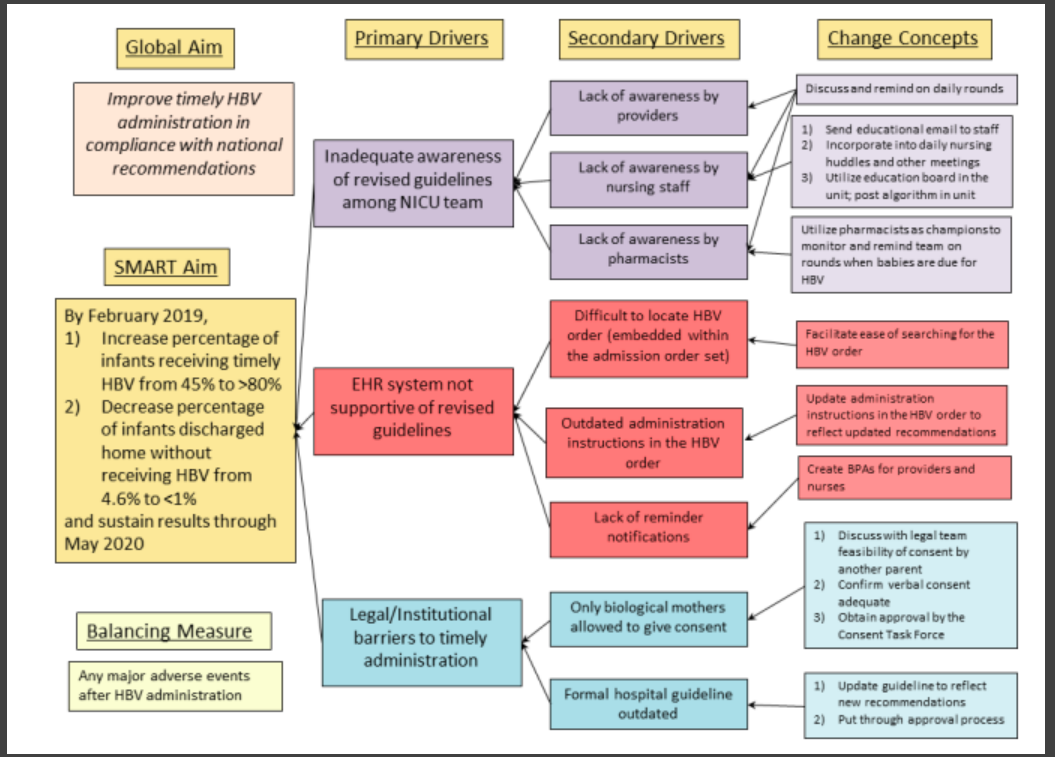
- Invite and encourage authorship
- Do not make assumptions
- Other ways to acknowledge contributions
  - Formal manuscript acknowledgement
  - Scientific meeting abstracts
  - Websites
  - Internal or external oral presentations
  - Internal document authorship (e.g. policies, guidelines, or newsletters)

Myers JS, Lane-Fall MB, Soong C. BMJ Qual Saf 2021; 30(10):779-781

Tips for Getting Your QI Work Published

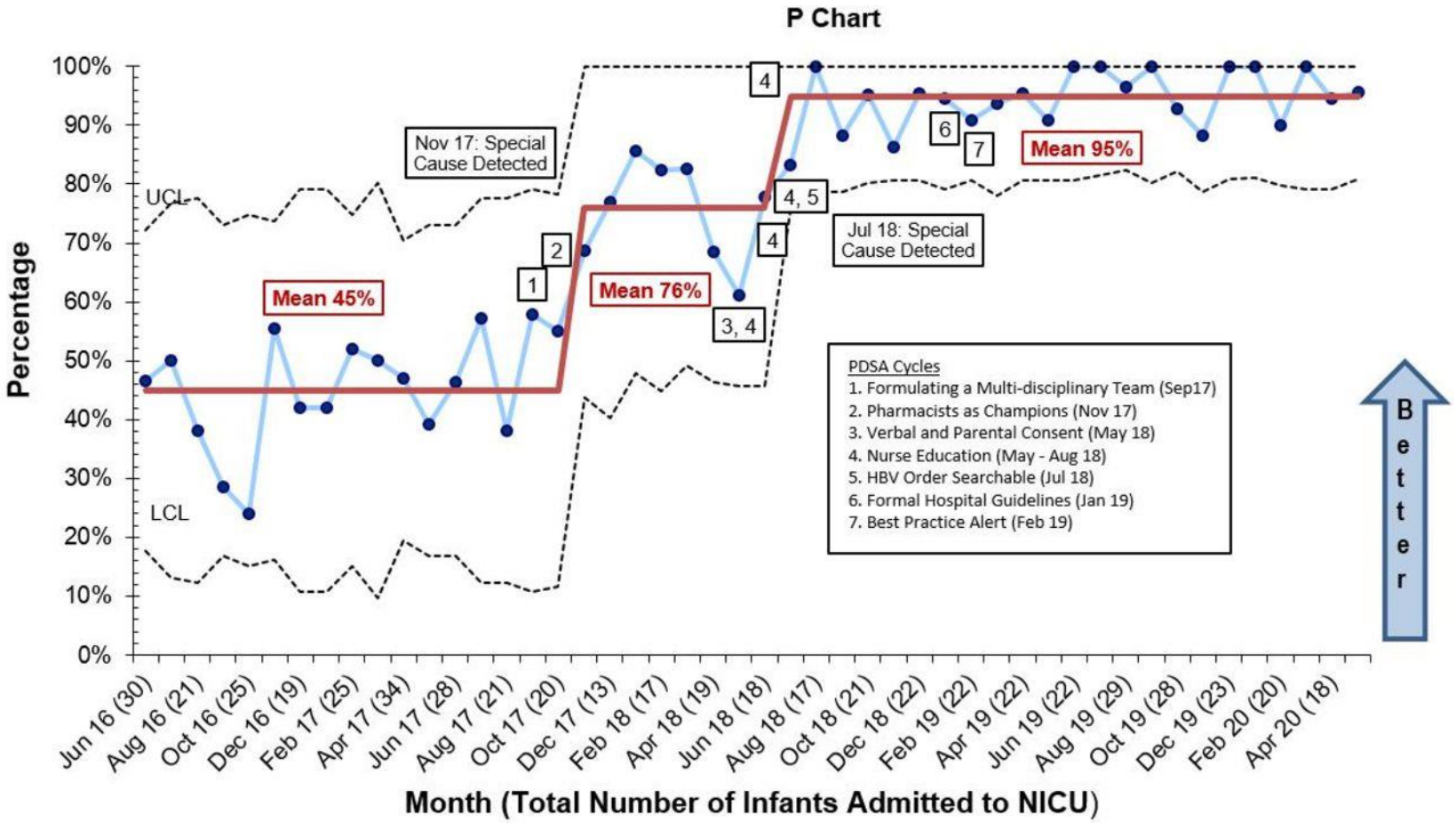
Why can the intervention work – logic model, theory or framework

- **If:**
  - **staff roles are redesigned to specify prevention responsibilities, and**
  - **community list of prevention resources is kept up to date**
- **Then:**
  - **time stress is alleviated, and**
  - **staff can better identify how to address ingrained habits and barriers, and**
  - **more patients get referrals to community prevention resources**
- **So that:**
  - **counseling becomes a process throughout the visit and beyond, and**
  - **more patients are motivated, and**
  - **more patients use community prevention resources**
- **So that:**
  - **more patients change health related behaviors, and**
  - **staff expectations for behavior changes rise, and the redesign is sustained.**



Davidoff F, et al. Demistifying theory and its use in improvement. BMJ Qual Saf 2015;24:228-38

Percentage of eligible newborns ≥2 kg receiving timely hepatitis B vaccine (HBV) prior to discharge from the neonatal intensive care unit (NICU) by month.



Madoka Hayashi et al. BMJ Qual Saf 2021;30:911-919

BMJ Quality & Safety

Describe the intervention - PDSA


PDSA Cycles
1. Formulating a Multi-disciplinary Team (Sep17)
2. Pharmacists as Champions (Nov 17)
3. Verbal and Parental Consent (May 18)
4. Nurse Education (May - Aug 18)
5. HBV Order Searchable (Jul 18)
6. Formal Hospital Guidelines (Jan 19)
7. Best Practice Alert (Feb 19)

Authors include 2-3 sentences in manuscript describing each PDSA cycle.

Hayashi M, et al. BMJ Qual Saf 2021;30:911–919

What makes a QI report more ‘publishable’?

Generalizability

What makes a QI Report novel? What makes it important?

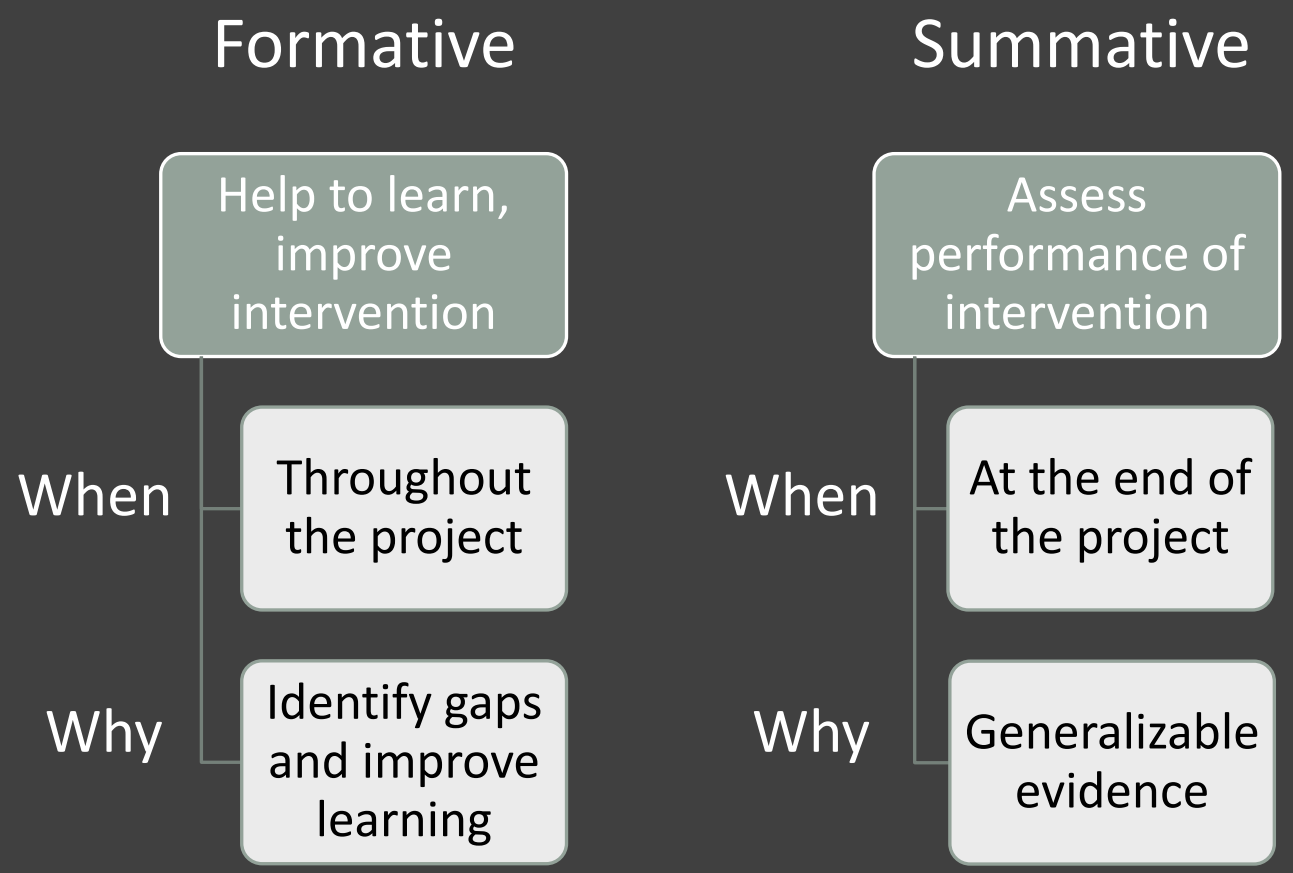
- Understudied (prior reports small, conflicting results, poor quality)
- Large quantitative impact, especially if related to a common and harmful problem
- Has not been studied from a particular perspective (e.g. patient/family, payer)
- New concept or methodology for a healthcare audience
- Timeliness of topic
- Explains why an intervention did or did not work
- Reports impact of contextual factors on the intervention

A Framework for Selecting QI Projects

QI Project Considerations	Professional Development Considerations
Scope of the Problem	Novelty of the Topic or Intervention
Effectiveness of the Intervention	Likelihood of Publication
Implementation Issues	Skill Acquisition Opportunities
Institutional Alignment	Personal Alignment
Resources	Visibility and Relationship Building

Adapted from Implementing patient safety interventions in your hospital: what to try and what to avoid.
Ranji SR, Shojania KG. Med Clin North Am. 2008 Mar;92(2):275-93.

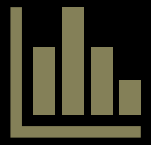
Evaluation in QI projects



What is needed for generalizability?

Replication intervention

Appropriate study design



Adequate data analysis

Control group to strengthen QI project

- Location-based control:  versus 
- Characteristics-based control: use patient group not targeted by intervention
- Outcome based control: use outcome not affected by intervention in same patient group

Consider: risk of contamination + what confounding (not) controlled

Choice of outcome measures

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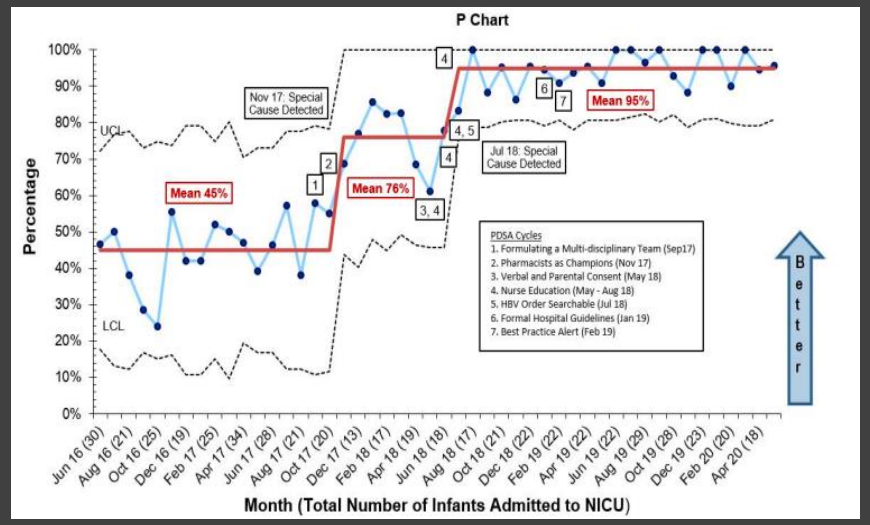
Primary outcome:
key quality / safety issue targeted



Same data before and after intervention

Balancing measures:
possible unintended effects or harm

Any major adverse events after HBV administration

Same data before and after intervention

Intervention fidelity:
intervention delivered as intended

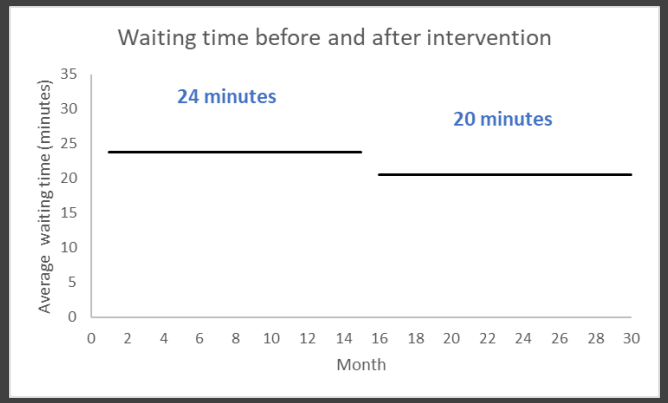
% infants with complete documentation
% nurses attending educational sessions
Median number of times alert fired

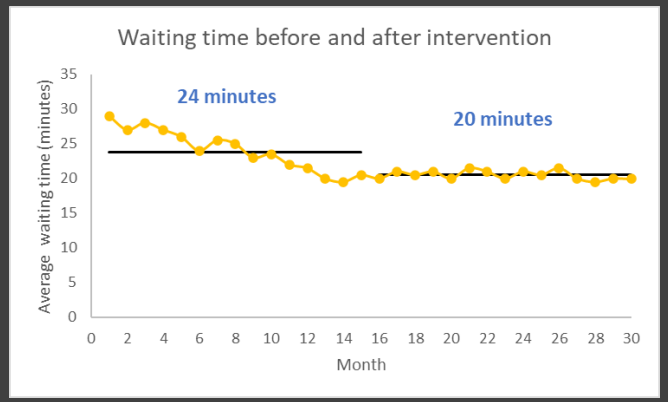
Data collected during implementation

Hayashi M, et al. BMJ Qual Saf 2021;30:911–919

Analyzing data in QI projects

- Comparing averages pre- and post-intervention hide secular trends
- Run charts: can identify upward/downward trends, not whether stable process
- Statistical Process Control (SPC) charts: mostly used, control limits allow to assess stable process
- Interrupted time series: need to meet underlying assumptions





Which chart type?

Type of data	Type of chart	Example
Continuous	Combination X-bar S-chart	X-bar investigates if intervention improved the mean length-of-stay, S-chart the SD
Proportion	P-chart	% of patients prescribed a new sedative
Rate	U-chart	Central line infections per 1000 days in-situ
Counts	C-chart	Number of falls per week in a ward (provided stable “area of opportunity”)
Rare events, skewed distribution	G-chart	Number of newborns with Apgar score < 7 after 5 minutes

Need for a stable baseline

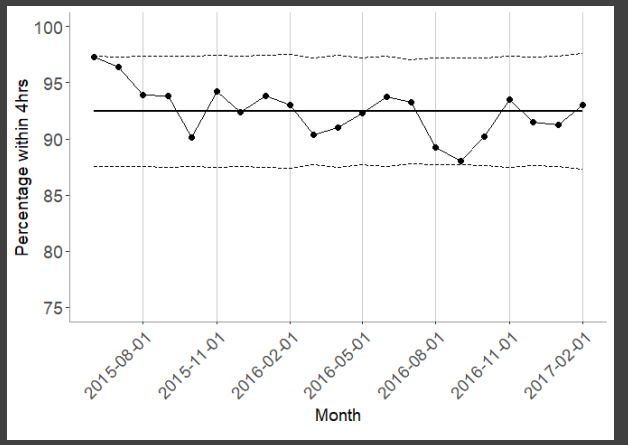
Principles of SPC:

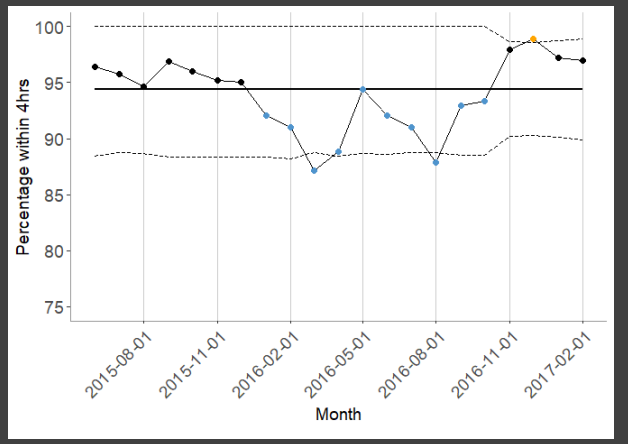
Variation in any process, but predictable if process is stable – common cause variation

Compute range of values where this variation occurs, when process is in-control – control limits

Intervention disturbs expected pattern – special cause variation

➡ First establish stable process to ensure any changes are due to intervention





Number of data points and sample size

- Establishing a stable baseline mostly requires 20-25 data points; run charts about 10-15 data points
- Sample size for each data point determines width of control limit – Rule of thumb for P-chart:

$$np \geq 5 \quad \text{and} \quad n(1\text{-}p) \geq 5$$

For instance, surgical infection rate = 9% -> at least n= 5 / 0,09 = 56 patients

- Related: choice of time unit e.g. monthly or weekly averages

Further reading:
Benneyan JC. Design, use, and performance of statistical control charts for clinical process Improvement. Boston, September 16, 2001

What to do if baseline is NOT stable?

Look for causes of the variation – removing a subgroup of patients from the analysis may result in stable process

Delay introduction of intervention – iteratively until stable baseline

Questions & Discussion