

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

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INTERNATIONAL FORUM ON QUALITY AND SAFETY IN HEALTHCARE  
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Jenn Myers MD (Associate Editor) and John Browne (Senior Editor) contributed to prior versions of this presentation

# Disclosures

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Eric Thomas

- Co-Editor in Chief, *BMJ Quality and Safety*

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- Senior Methods Editor, *BMJ Quality & Safety*

# Learning Objectives

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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

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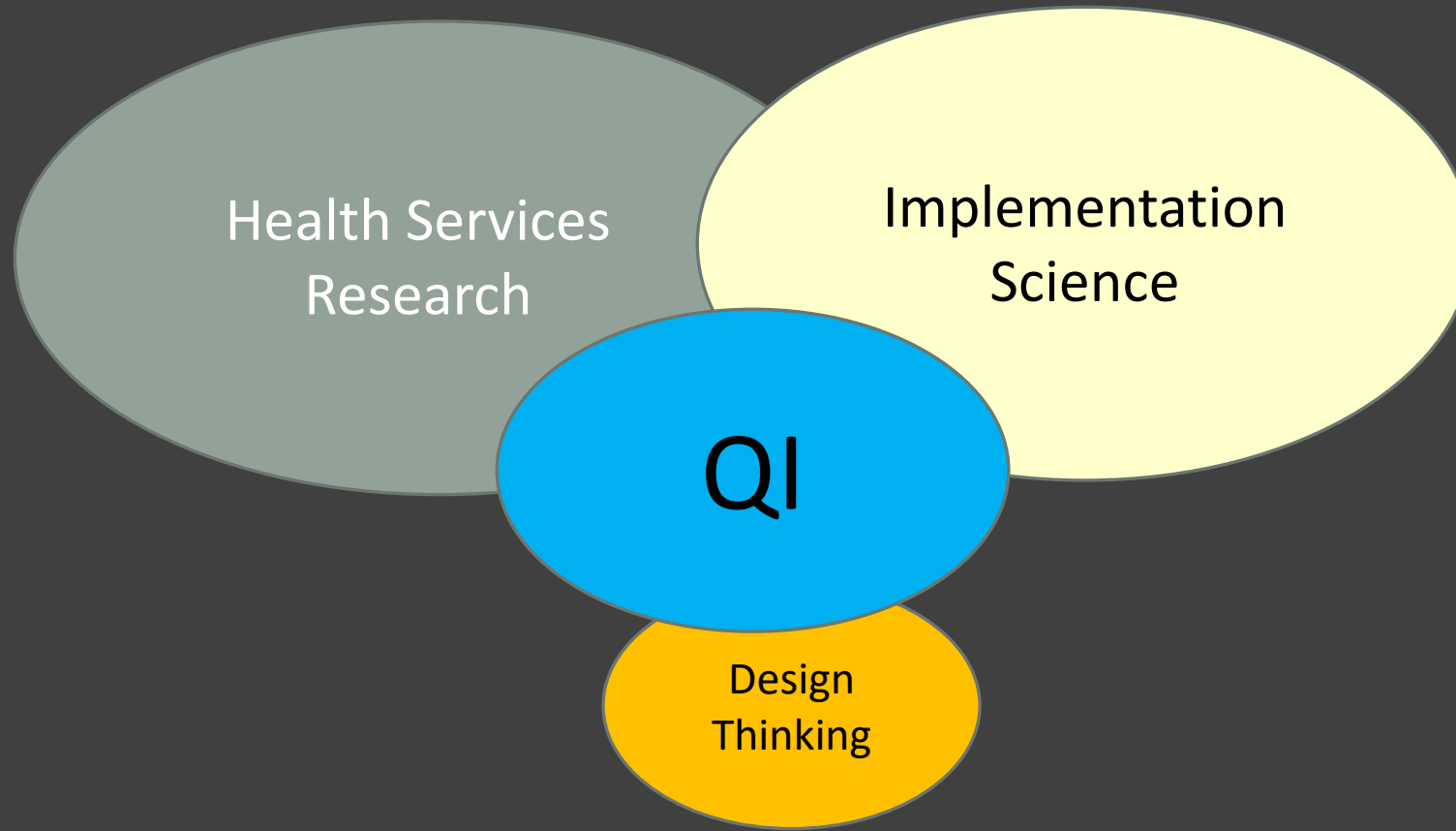


In thinking about the prospect of publishing your QI work...

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

# It Depends on Your Perspective

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# Why Publish?

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- 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?

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- Ask yourself ...
  - Who would be most interested in reading about this project?
  
- Consider...
  - Quality Journals
  - Specialty Journals
  - National or International Journals



# Quality & Safety Journals

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	Impact Factor*
• American Journal of Medical Quality	1.25
• BMJ Open Quality	1.4
• BMJ Quality & Safety	5.7
• International Journal for Quality in Healthcare	2.6
• Joint Commission Journal of Quality & Safety	2.3
• Journal of Patient Safety	2.2
• Journal of Patient Safety and Risk Management	1.5
• NEJM Catalyst Innovations in Care Delivery	N/A

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



# A Framework for Selecting QI Projects

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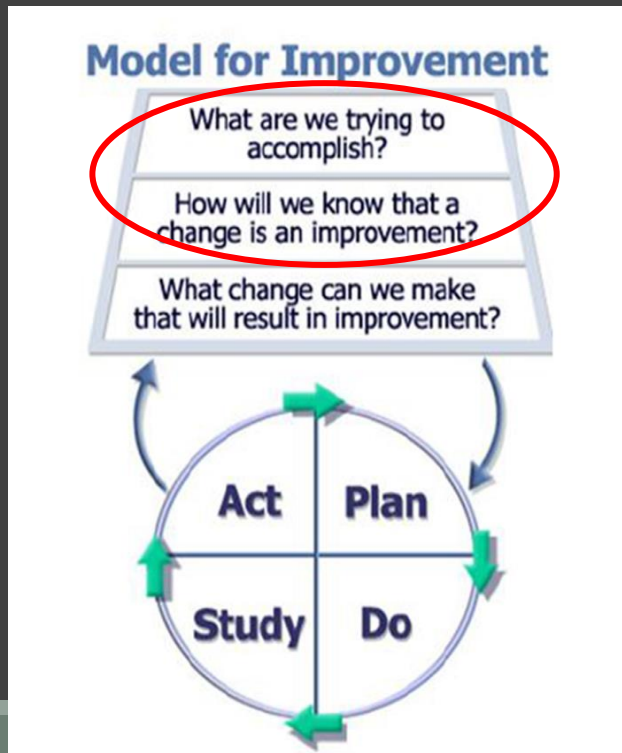
<b>QI Project Considerations</b>	<b>Professional Development Considerations</b>
Scope of the Problem	Novelty of the Topic or Intervention
Effectiveness of the Intervention	Likelihood of Publication
Implementation Issues	Skill Acquisition Opportunities
Institutional Alignment	Personal Alignment
Resources	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.

# What to Publish?

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



# 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<sup>1\*</sup>, Mitesh S. Patel, MD, MBA, MS<sup>2,3,4,5</sup>, Justin B. Ziemba, MD<sup>6</sup>, Dana Murray, MSN, CRNP<sup>7</sup>, Esther J. Kim, BS<sup>8</sup>, C. Jessica Dine, MD, MSHPR<sup>2,3,4</sup>, Jennifer S. Myers, MD<sup>2,3</sup>

<sup>1</sup>Department of Medical Oncology & Therapeutics Research, City of Hope, Duarte, California; <sup>2</sup>Department of Medicine, Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania; <sup>3</sup>Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania; <sup>4</sup>Leonard Davis Institute of Health Economics, University of Pennsylvania, Philadelphia, Pennsylvania; <sup>5</sup>Crescenzo VA Medical Center, Philadelphia, Pennsylvania; <sup>6</sup>Department of Urology, Johns Hopkins Hospital, Baltimore, Maryland; <sup>7</sup>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

## 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.<sup>1,2</sup> Improving the effectiveness of communication among caregivers is a standard of care promulgated by The Joint Commission.<sup>3,4</sup> 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.<sup>5-9</sup>

#### 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.

## 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; Norris 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. Talvorian, 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; Yevgeniy 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?

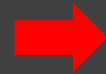
# Same project – 2 publications

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



## Interventions & Results

### PRACTICE MANAGEMENT: THE ROAD AHEAD

Ziad F. Gellad, Section Editor


### Reducing Hospital Admissions for Paracentesis: A Quality Improvement Intervention



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

# Promoting Authorship Inclusivity in QI Scholarship

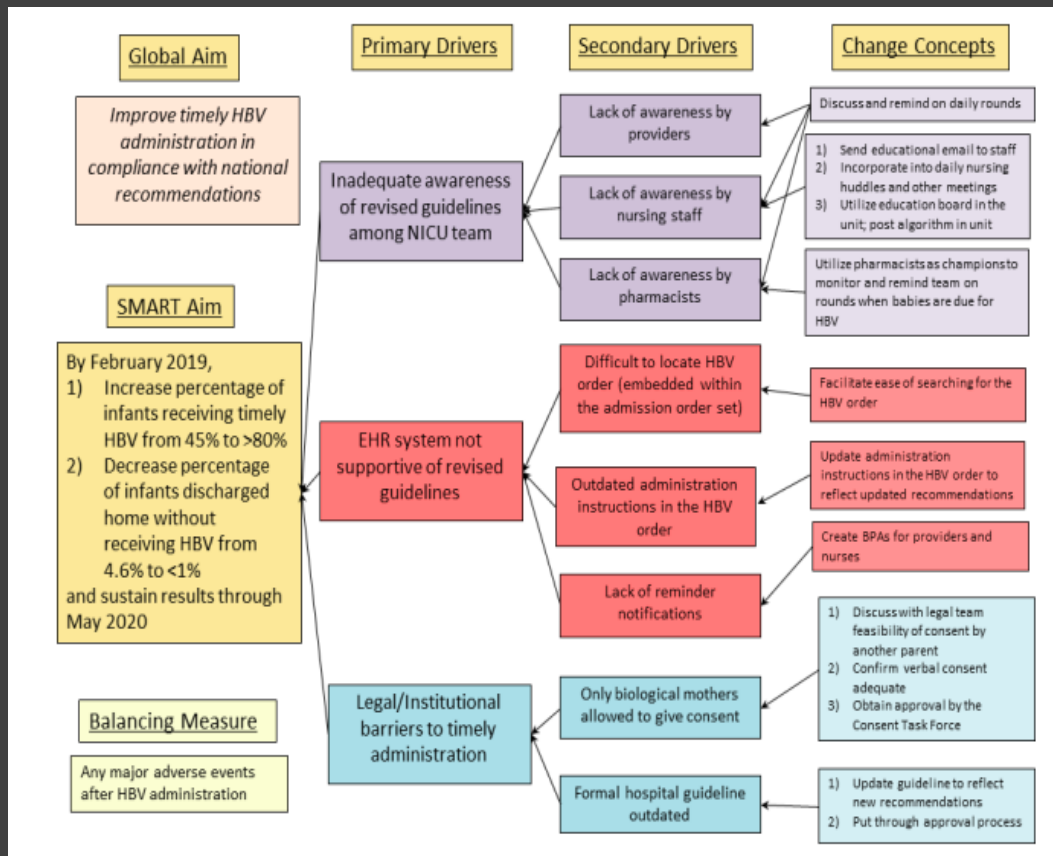
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**BE GENEROUS:  
DON'T ASK  
WHAT'S IN IT FOR YOU,  
ASK WHAT'S IN IT  
FOR THEM**

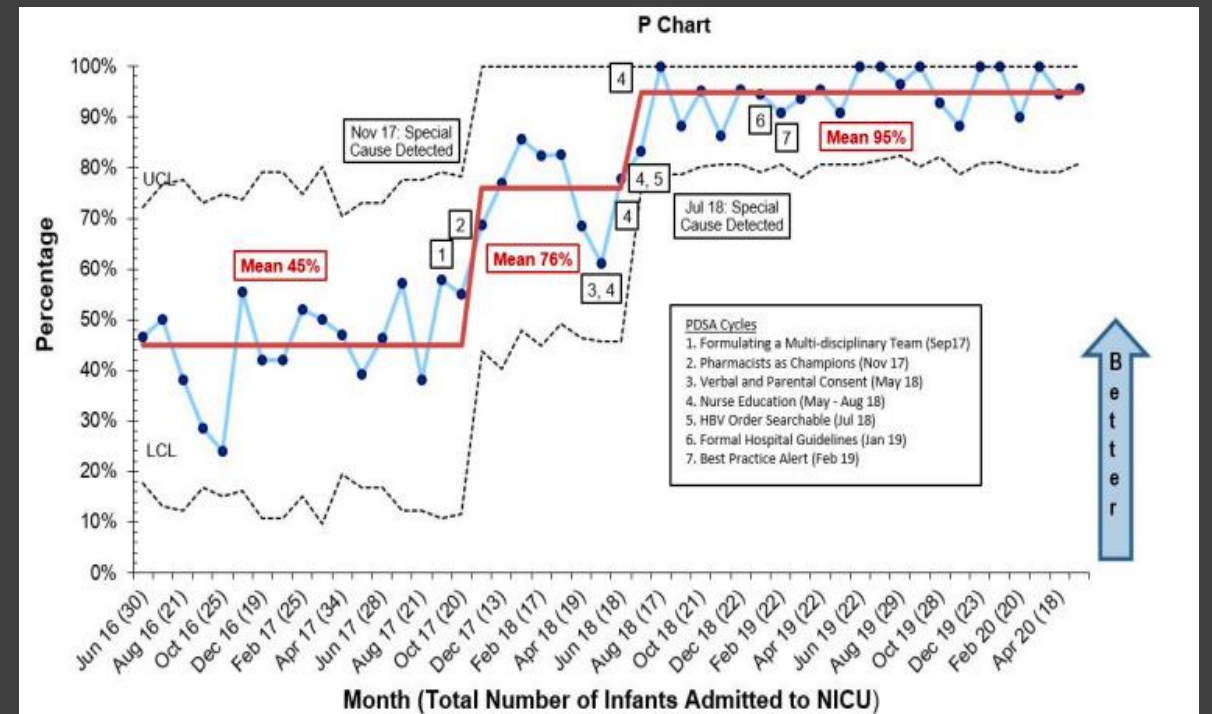
- Invite and encourage authorship
- Do not make assumptions
- Other ways to acknowledge contributions
  - Formal manuscript acknowledgement
  - Scientific meeting abstracts
  - Websites
  - Internal or external oral presentations
  - Internal document authorship (e.g. policies, guidelines, or newsletters)

# Example: Traditional QI Report Publication



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

Madoka Hayashi <sup>1,2,3</sup>, Theresa R Grover, <sup>2,3</sup> Steve Small, <sup>1</sup> Tessa Staples, <sup>1</sup> Genie Roosevelt <sup>4,5</sup>



# 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?



# Key elements for QI projects

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Understand the problem



Theory why the intervention will address the problem

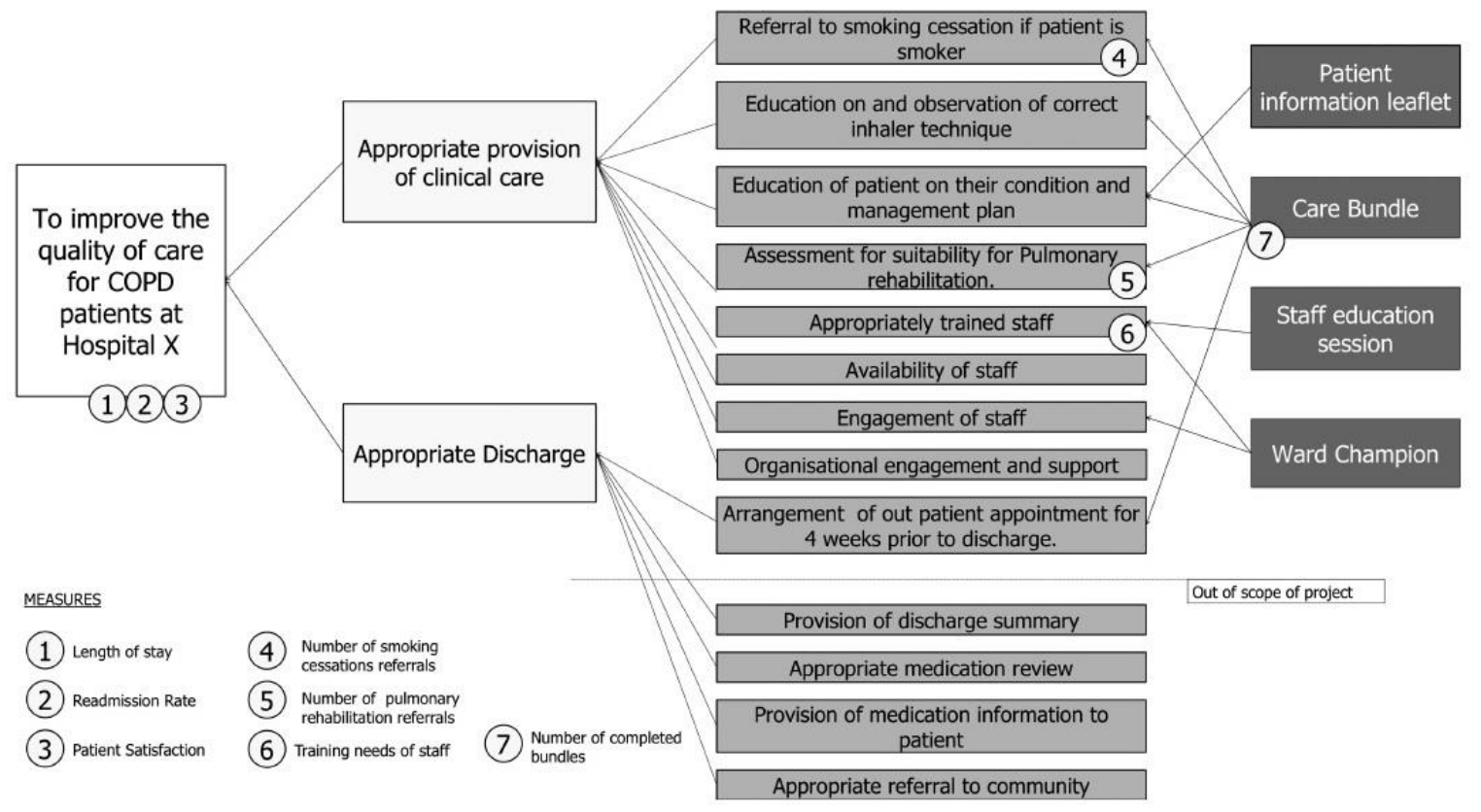


Replicable intervention – describe development and refinement of intervention



Measurements showing that intervention worked as intended

# Why can the intervention work – articulate the programme theory



- **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.

# Describe the intervention - PDSA

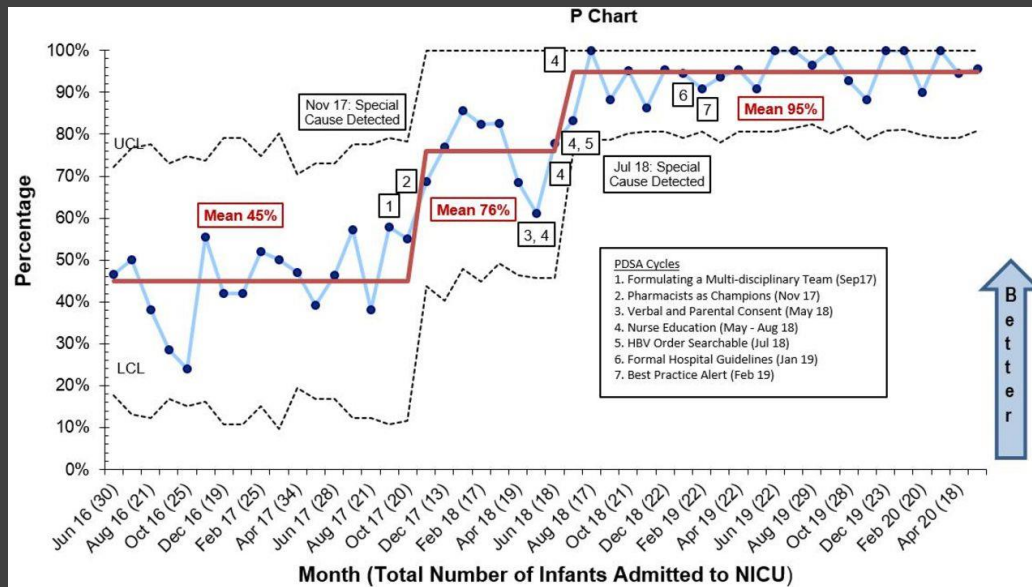
## Box 1 Benefits from the authentic application of plan–do–study–act cycles

- ▶ Efficient use of data—collecting just enough to inform the best action forward
- ▶ Refine measures and data collection method (to ensure that baseline and intervention data are collected in similar fashion)
- ▶ High 'return on failure ratio'<sup>12</sup> (valuable lessons learned with relatively little resources invested to learn)
- ▶ Recognise necessary refinements to the intervention
- ▶ Identify missing ingredients for the intervention
- ▶ Anticipate what might go wrong during implementation
- ▶ Increases confidence that the change under consideration will produce improvement
- ▶ Engages stakeholders in development of the intervention
- ▶ Minimises resistance when change is implemented

Each implementation phase has potential challenges:

- **Plan**
  - Failure to understand the problem fully
- **Do**
  - Failure to implement the intended intervention
  - Failure to collect the intended data
  - Failure to capture unanticipated learning
  - Failure to abandon the intervention despite negative results or side effects
- **Study**
  - Failure to appropriately analyze or interpret the data collected
  - Failure to communicate what has been learned with the team
- **Act**
  - Moving too quickly from small to large scale change

# EXAMPLE: Percentage of eligible newborns $\geq 2$ kg receiving timely hepatitis B vaccine (HBV) prior to discharge from the neonatal intensive care unit (NICU) by month



## 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)

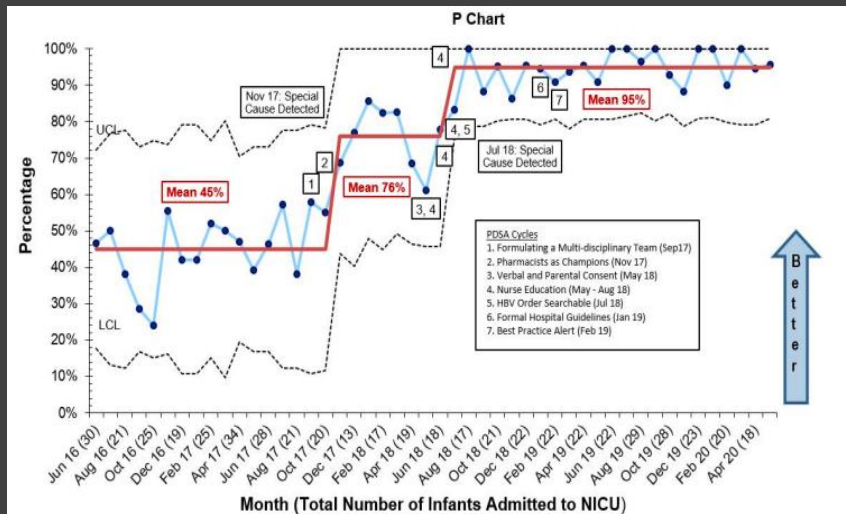
Authors include 2-3 sentences in manuscript describing each PDSA cycle

# Measurements: 3 types of measures

**Primary outcome:**  
key quality / safety issue  
targeted

**Balancing measures:**  
possible unintended effects  
or harm

**Intervention fidelity:**  
intervention delivered as  
intended



Any major adverse events  
after HBV administration

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

Same data before and  
after intervention

Same data before and  
after intervention

Data collected during  
implementation



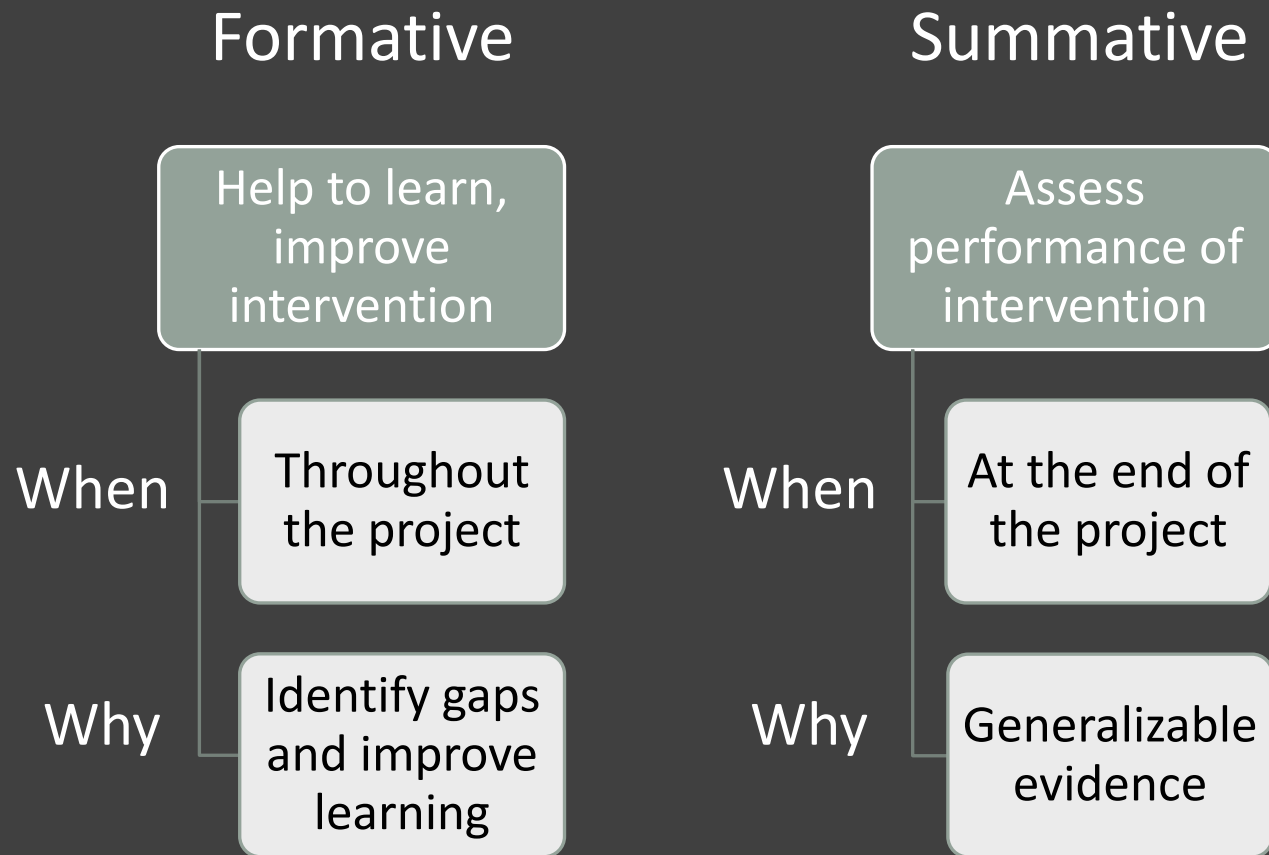
## Common pitfall: favour rapid implementation over measurement and analysis

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1. Know why the change might achieve desired results
2. Identify fidelity measures — what would be the first change if uptake is successful?
3. How are you measuring change?
4. Be mindful of lag time — how long would it take before the change improves outcomes?
5. Anticipate unintended consequences — what can go wrong?

# Evaluation in QI projects

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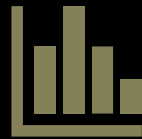
What is needed  
for  
generalizability?



Replication intervention



Appropriate study design





Adequate data analysis



# Control group to strengthen QI project

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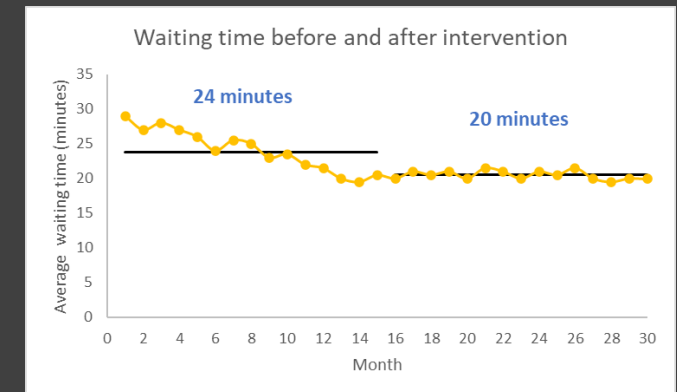
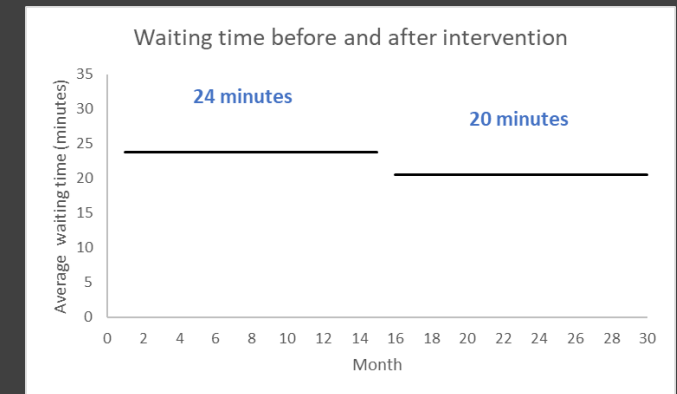
- Location-based control:  versus 
- Characteristics-based control: use patient group not targeted by intervention
- Outcome based control: use outcome not affected by intervention in same patient group

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

**Grand rounds in methodology: four critical decision points in statistical process control evaluations of quality improvement initiatives**

# 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: ignores implementation period, need to meet underlying assumptions
- Stepped-wedge or RCT: optimize intervention first before evaluating effectiveness



# 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

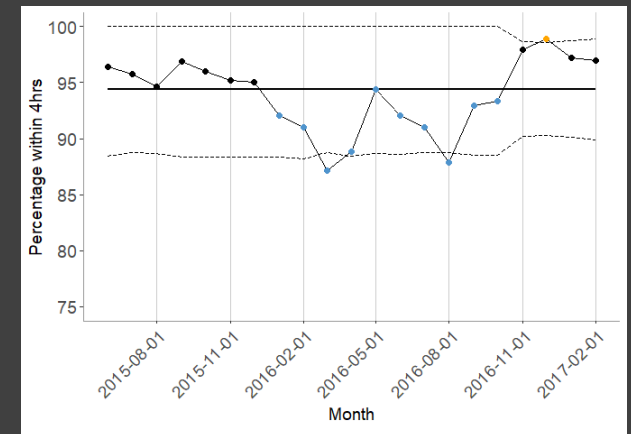
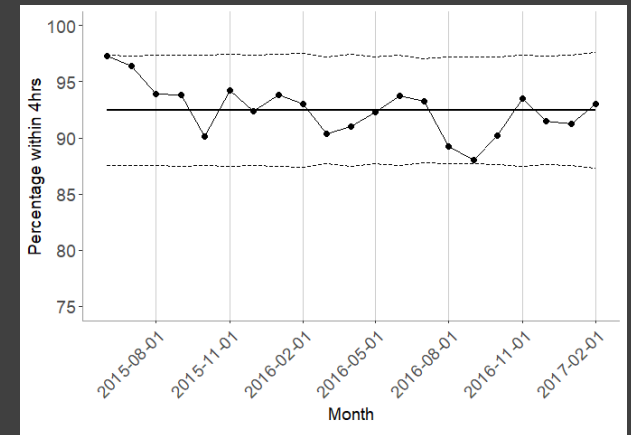
## Principles of SPC:

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

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

# Consider sustainability of change

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- What changes when a QI initiative ends?
- Planning for sustainment in practice
  - Understand the problem, do not jump to a quick-fix
  - Try isolate the 'active' ingredient during PDSA
- Modify interventions to enhance sustainability



Leverage role of  
family and caregivers



Make it easier to do  
the right thing

EDITORIAL

**Sustaining quality improvement  
efforts: emerging principles  
and practice**

Robert E Burke,<sup>1,2,3</sup> Perla J Marang-van de Mheen<sup>4</sup>

# Tips for Getting Your QI Work Published



# What makes a QI report more 'publishable'?

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Generalizability



## Box 1 Examples of factors that help make a research topic or question important

### The topic or question:

1. Is understudied:
  - Very few prior studies.
  - Few studies in high-volume clinical areas or common diseases.
  - Conflicting studies so more research needed.
  - Low-quality research.
  - Untested approach to measurement or improvement.
2. Has not been studied from different perspectives:
  - Patients, families and care partners.
  - Healthcare professionals.
  - Organisations.
  - Payers/government.
3. Has a large quantitative impact:
  - A relatively large number of patients.
  - A common disease (coronary artery disease, colon cancer, breast cancer).
  - A clinical location with high patient volumes (operating room, primary care).
  - A frequent process of care (medication administration, handovers).
  - A common type of error (medication errors, surgical errors, diagnostic errors).
4. Addresses a concept that has wide impact (ie, it may be relevant to the study of many diseases, error types or interventions):
  - Safety culture.
  - Teamwork.
  - Training and education.
5. Is a rigorous, generalisable evaluation of efforts to improve quality and safety that:
  - Explain why improvement efforts do or do not work.
  - Assesses context for quality improvement.
  - Could evaluate a wide variety of interventions (computerised decision support, team training, bundles, culture interventions, etc).
6. Introduces a new concept, methodology or new way of thinking that can lead to new ways to improve care:
  - This may be 'new' to a healthcare audience, but not new to other disciplines such as human factors engineering, systems engineering, psychology,

Franklin BD, Thomas EJ. Replicating and publishing research in different countries and different settings: advice for authors. *BMJ Quality & Safety* 2022;**31**:627-630.

# SQUIRE guidelines

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- *SQUIRE* stands for *Standards for QUality Improvement Reporting Excellence*
- 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.



# The abstract

One of the most important parts of the paper – the ABSTRACT.

- The first (and sometime only!) part of a paper that a reader will read
- Often used by editors and reviewers to form an initial impression of a paper
- Needs to make sense and “stand alone”
- Structured
- Must include actual data

Julian Bion <sup>1</sup>, Cassie Aldridge,<sup>2</sup> Alan J Girling,<sup>2</sup> Gavin Rudge,<sup>2</sup> Jianxia Sun,<sup>3</sup> Carolyn Tarrant,<sup>4</sup> Elizabeth Sutton,<sup>4</sup> Janet Willars,<sup>4</sup> Chris Beet,<sup>5</sup> Amunpreet Boyal,<sup>6</sup> Peter Rees,<sup>7</sup> Chris Roseveare,<sup>8</sup> Mark Temple,<sup>9</sup> Samuel Ian Watson,<sup>10</sup> Yen-Fu Chen <sup>10</sup>, Mike Clancy,<sup>11</sup> Louise Rowan,<sup>2</sup> Joanne Lord,<sup>12</sup> Russell Mannion,<sup>13</sup> Timothy Hofer <sup>14</sup>, Richard Lilford <sup>15</sup>

► Additional material is published online only. To view please visit the journal online (<http://dx.doi.org/10.1136/bmjqs-2020-011165>).

For numbered affiliations see end of article.

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## ABSTRACT

**Background** In 2013, the English National Health Service launched the policy of 7-day services to improve care quality and outcomes for weekend emergency admissions.

**Aims** To determine whether the quality of care of emergency medical admissions is worse at weekends, and whether this has changed during implementation of 7-day services.

**Methods** Using data from 20 acute hospital Trusts in England, we performed randomly selected structured case record reviews of patients admitted to hospital as emergencies at weekends and on weekdays between financial years 2012–2013 and 2016–2017. Senior doctor (‘specialist’) involvement was determined from annual point prevalence surveys. The primary outcome was the rate of clinical errors. Secondary outcomes included error-related adverse event rates, global quality of care and four indicators of good practice.

**Results** Seventy-nine clinical reviewers reviewed 4000 admissions, 800 in duplicate. Errors, adverse events and care quality were not significantly different between weekend and weekday admissions, but all improved significantly between epochs, particularly errors most likely influenced by doctors (clinical assessment, diagnosis, treatment, prescribing and communication): error rate OR 0.78; 95% CI 0.70 to 0.87; adverse event OR 0.48, 95% CI 0.33 to 0.69; care quality OR 0.78, 95% CI 0.70 to 0.87; all adjusted for age, sex and ethnicity. Postadmission in-hospital care processes improved between epochs and were better for weekend admissions (vital signs with National Early Warning Score and timely specialist review). Preadmission processes in the community were suboptimal at weekends and deteriorated between epochs (fewer family doctor referrals, more patients with chronic disease or palliative care designation).

**Conclusions and implications** Hospital care quality of emergency medical admissions is not worse at weekends and has improved during implementation of the 7-day services policy. Causal pathways for the weekend effect may extend into the prehospital setting.

## INTRODUCTION

In 2013, National Health Service England launched the 7-day services programme ‘designed to ensure patients that a admitted as an emergency, receive high quality consistent care, whatever day they enter hospital’.<sup>1</sup> The programme consisted of 10 service delivery standards of which six involved increasing consultant involvement in frontline care. The stimulus for this policy derived part from the perception that the high mortality associated with weekend admission to hospital was attributable to the absence of senior medical staff at weekends.<sup>3–4</sup> This theory was first proposed by Bell and Redelmeier<sup>5</sup> in 2001, but the accompanying editorial,<sup>6</sup> Halm and Chassin<sup>6</sup> observed that ‘Disentangling the potential causal pathways would require painstaking detective work’. Since the more than 600 studies of the weekend effect have been published; our group has recently undertaken a meta-analysis of 68 studies involving 640 million general unselected emergency and elective

# The discussion: a suggested structure

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Statement of principal findings

Interpretation of the findings

Comparison with previous literature

Strengths and weaknesses of the study

Potential implications for clinicians / policymakers

Unanswered questions and implications for future research

Conclusion



# Questions & Discussion



**Helen Crisp**

Editor-in-Chief, BMJ Open Quality

Topics: quality improvement, policy, BMJOQ submissions



**Eric Thomas**

Co-Editor-in-Chief, BMJ Quality and Safety

Topics: diagnostic safety, teamwork, culture, BMJQS submissions



**Perla Marang-van de Mheen**

Senior Methods Editor, BMJ Quality and Safety

Topics: methods, implementation science