

D3: How to get your
quality improvement work
published: insider advice
from editors



International Forum on
QUALITY & SAFETY
in **HEALTHCARE**
COPENHAGEN



Adapting to a changing world: equity, sustainability
and wellbeing for all



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 Institute for
Healthcare
Improvement

BMJ

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

INTERNATIONAL FORUM ON QUALITY AND SAFETY IN HEALTHCARE
| 17 MAY, 2023

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Disclosures

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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

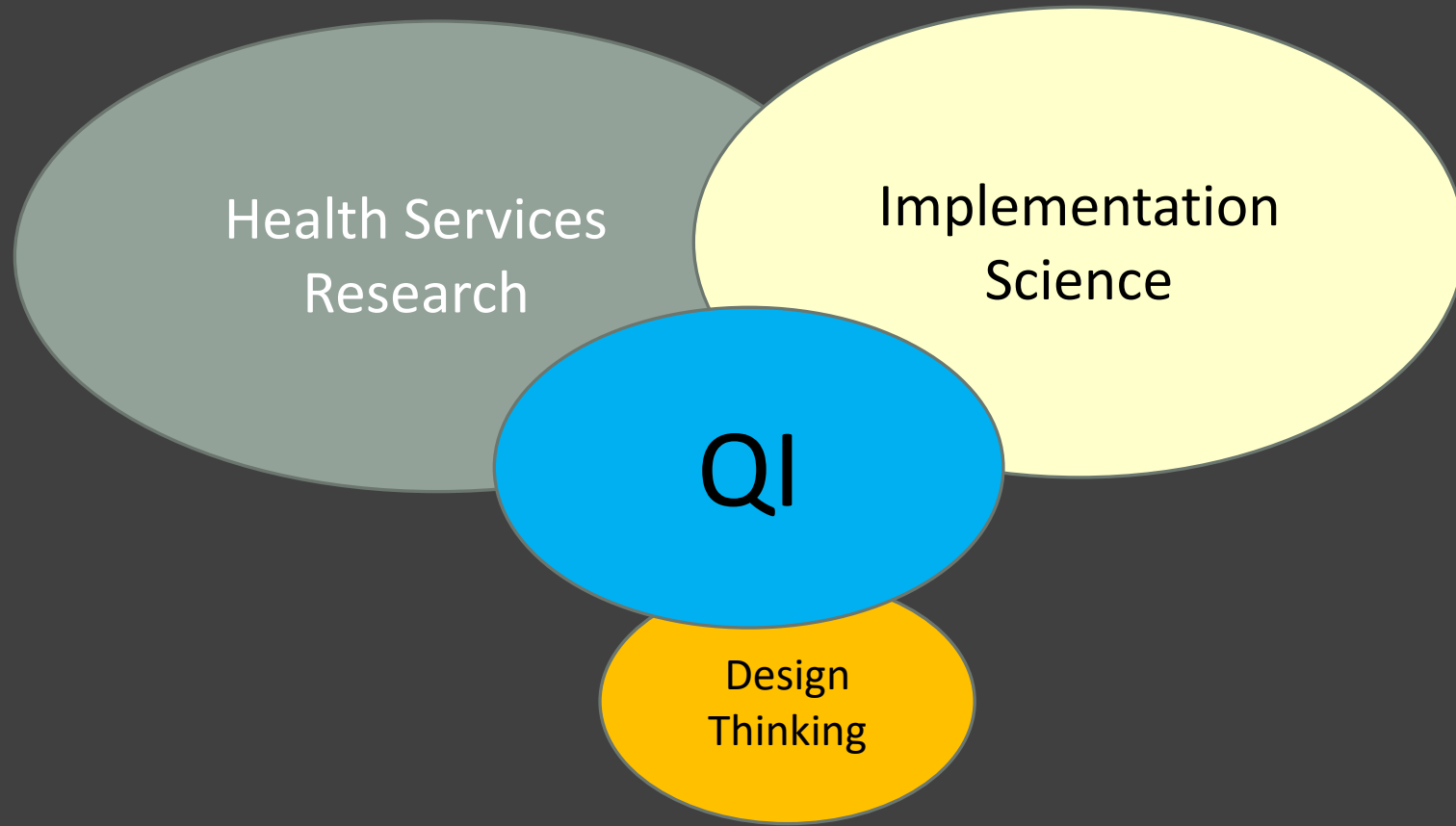
Ice Breaker



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

A Framework for Selecting QI Projects

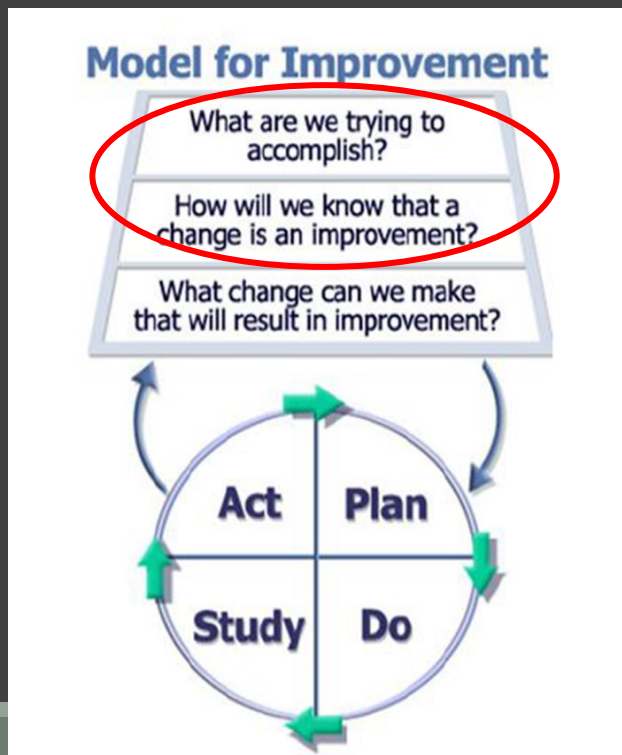
QI Project Considerations	Professional Development Considerations
Scope of the Problem	Novelty of the Topic or Intervention
Effectiveness of the Intervention	Likelihood of Publication
Implementation Issues	Skill Acquisition Opportunities
Institutional Alignment	Personal Alignment
Resources	Visibility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

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^{1*}, Mitesh S. Patel, MD, MBA, MS^{2,3,4,5}, Justin B. Ziemba, MD⁶, Dana Murray, MSN, CRNP⁷, Esther J. Kim, BS⁸, C. Jessica Dine, MD, MSHPR^{2,3,4}, Jennifer S. Myers, MD^{2,3}

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

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,^{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. Shea¹⁰



Interventions & Results

PRACTICE MANAGEMENT: THE ROAD AHEAD

Ziad F. Gellad, Section Editor

Reducing Hospital Admissions for Paracentesis: A Quality Improvement Intervention



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^{*}

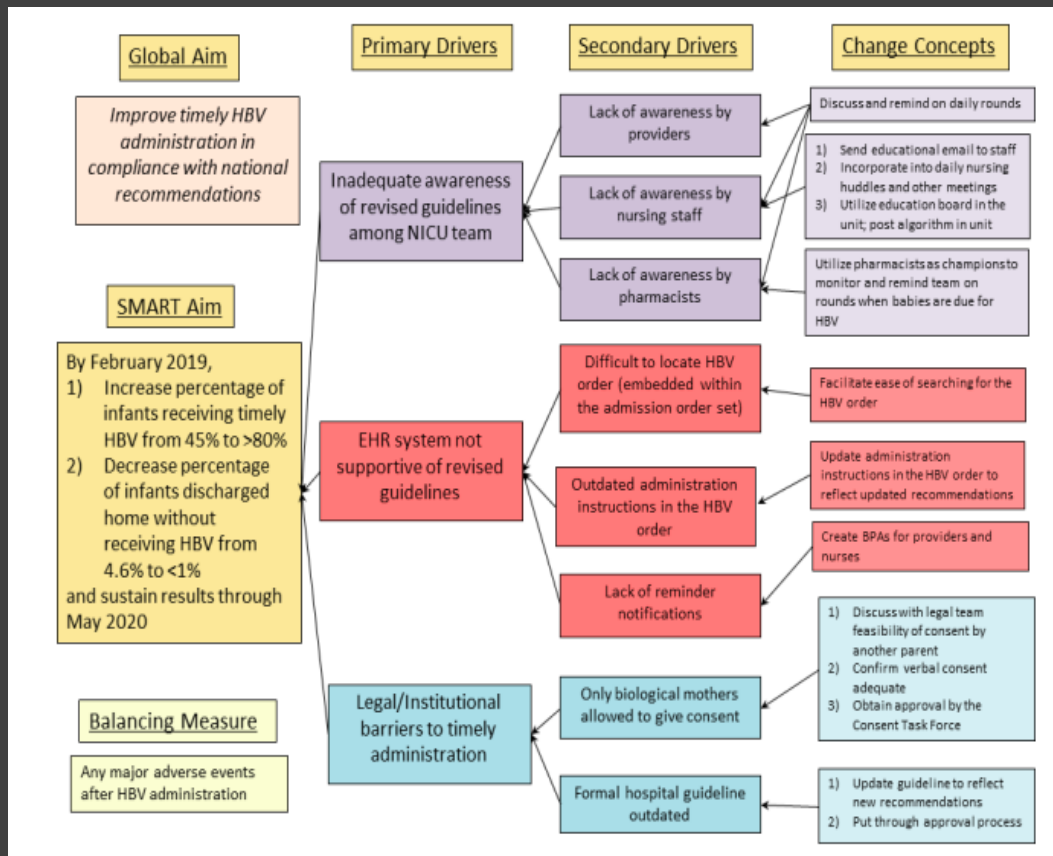
Promoting Authorship Inclusivity in QI Scholarship



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

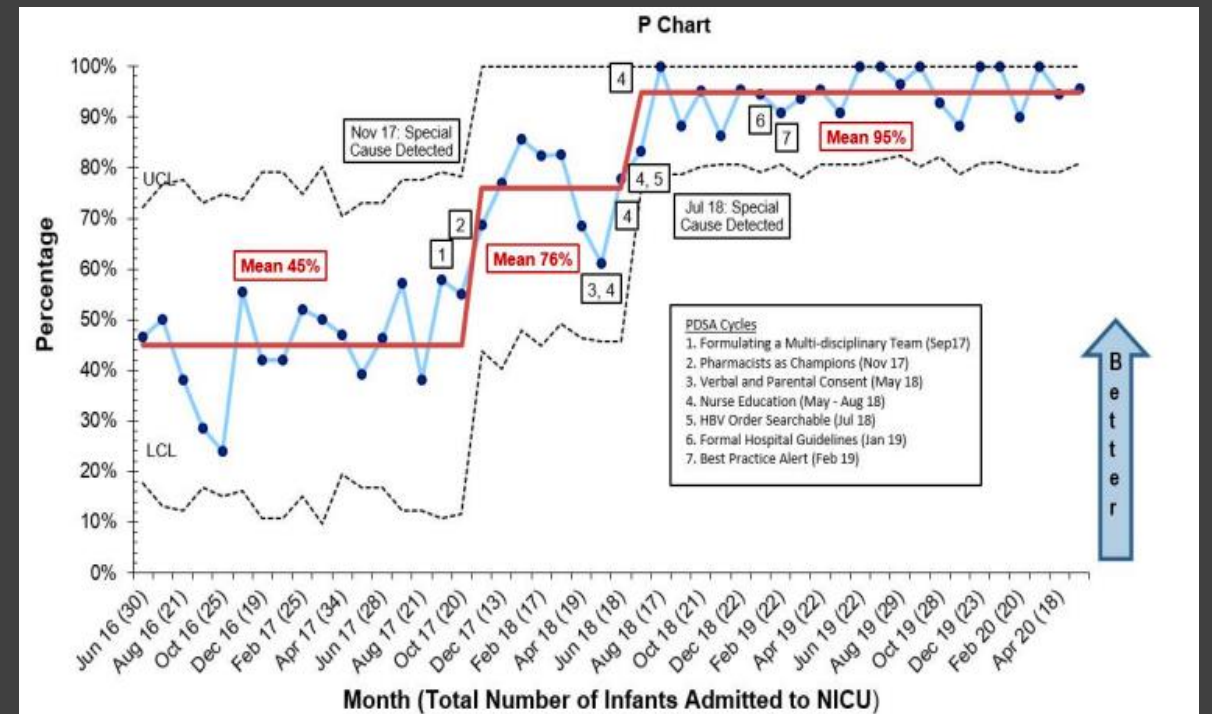
- Invite and encourage authorship
- Do not make assumptions
- Other ways to acknowledge contributions
 - Formal manuscript acknowledgement
 - Scientific meeting abstracts
 - Websites
 - Internal or external oral presentations
 - Internal document authorship (e.g. policies, guidelines, or newsletters)

Example: Traditional QI Report Publication



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

Madoka Hayashi ^{1,2,3}, Theresa R Grover, ^{2,3} Steve Small, ¹ Tessa Staples, ¹ Genie Roosevelt ^{4,5}



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



Understand the problem



Theory why the intervention will address the problem

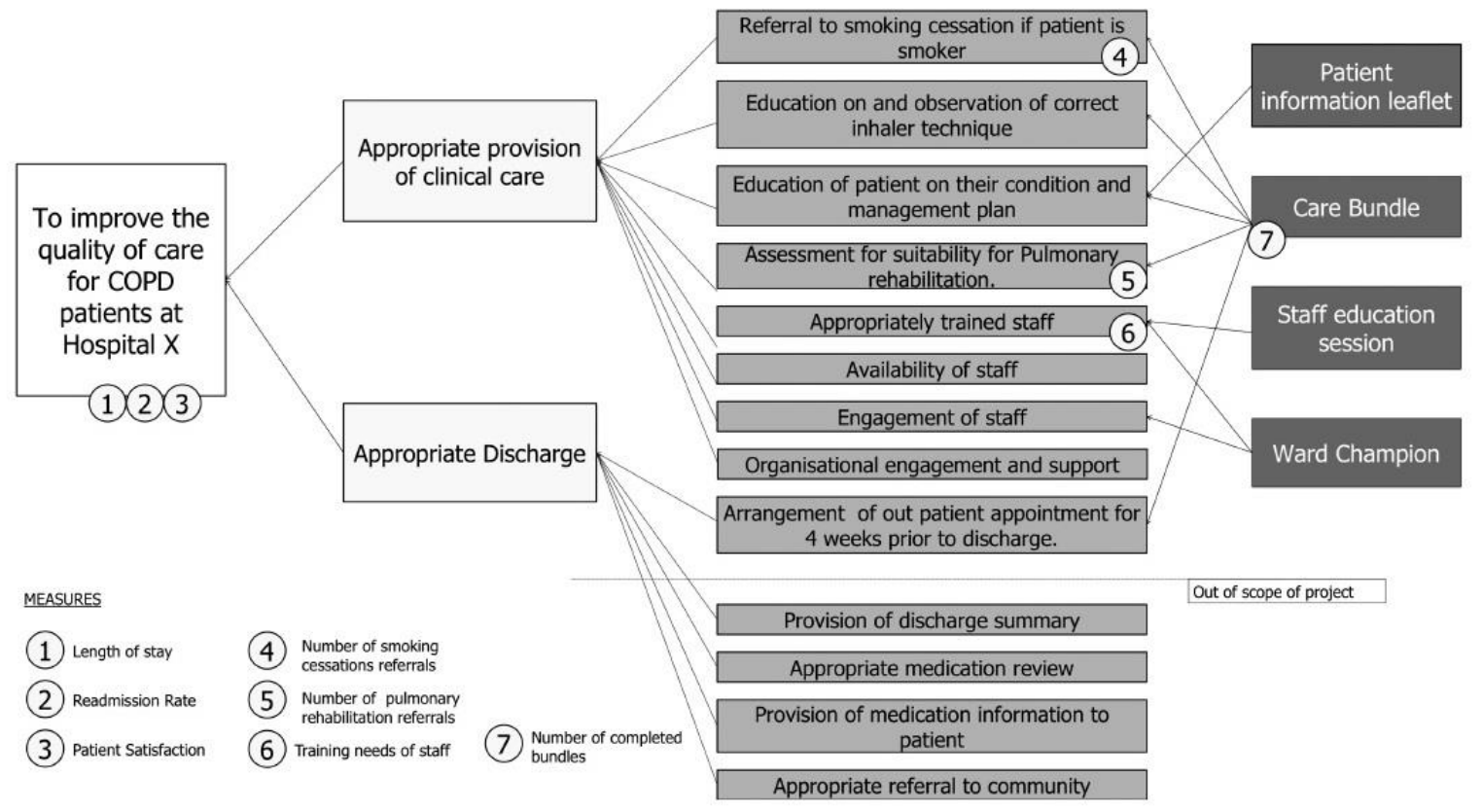


Replicable intervention – describe development and refinement of intervention



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

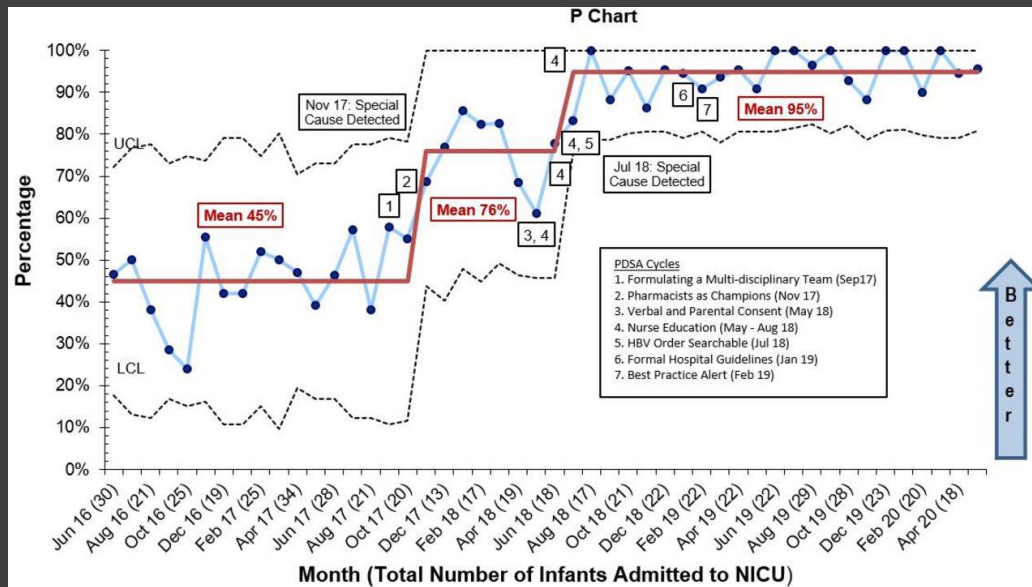
Box 1 Benefits from the authentic application of plan–do–study–act cycles

- ▶ 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'¹² (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 ≥ 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)

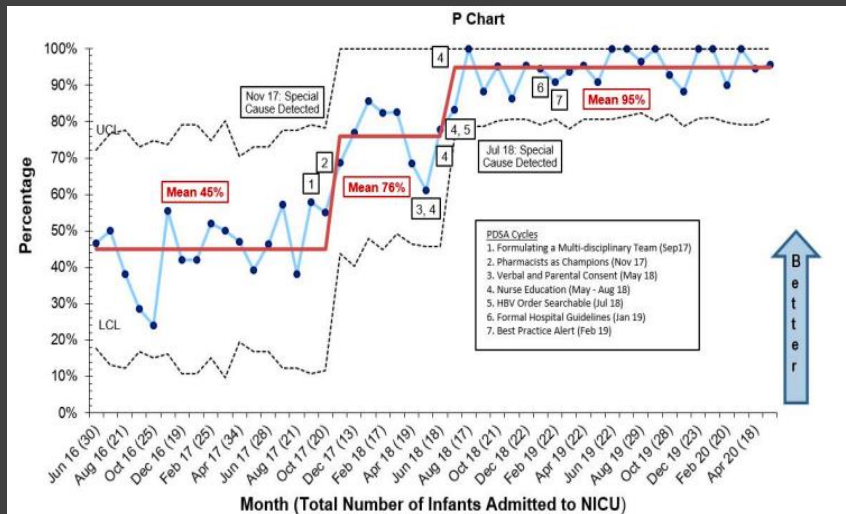
Authors include 2-3 sentences in manuscript describing each PDSA cycle

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

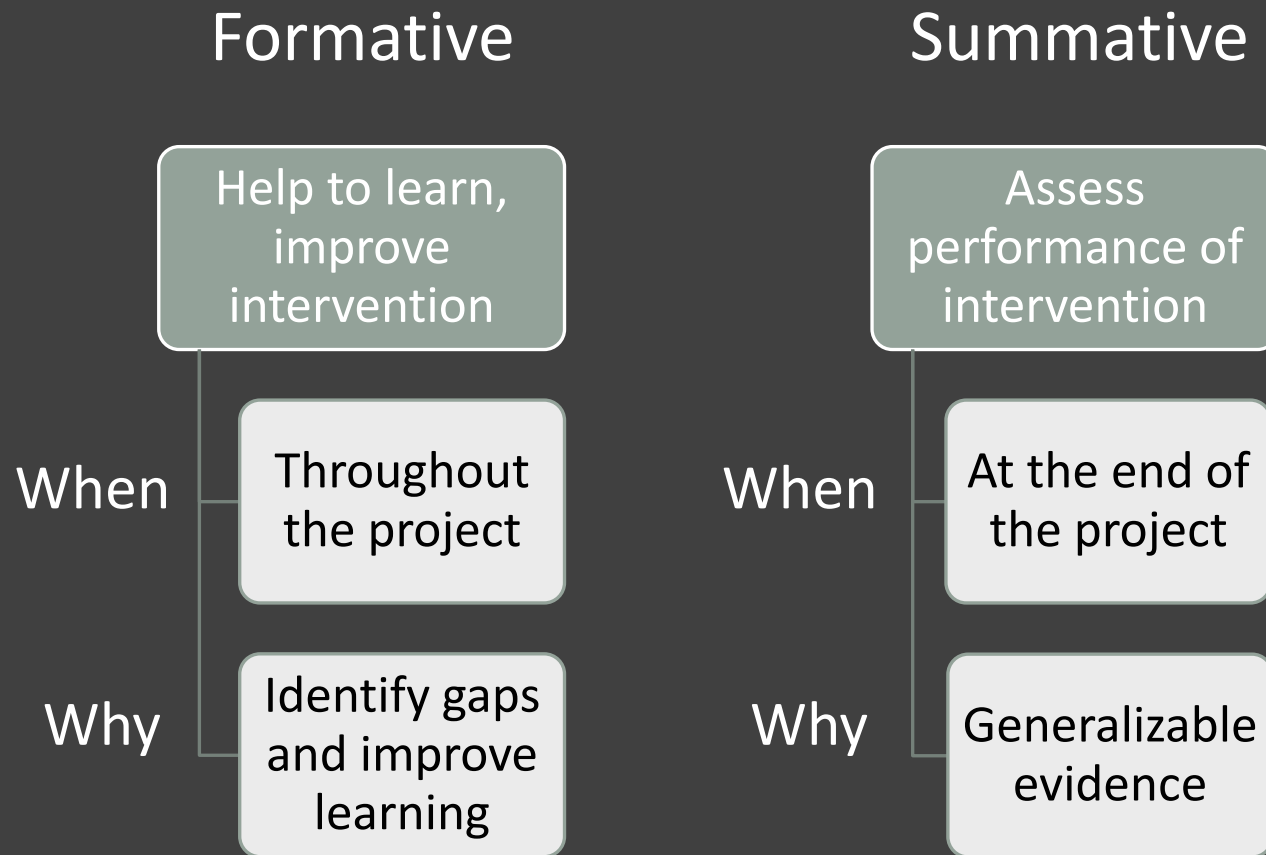
% infants with complete documentation
% nurses attending educational sessions
Median number of times alert fired

Same data before and
after intervention

Same data before and
after intervention

Data collected during
implementation

Evaluation in QI projects



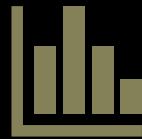
What is needed
for
generalizability?



Replication intervention





Appropriate study design



Adequate data analysis

Control group to strengthen QI project

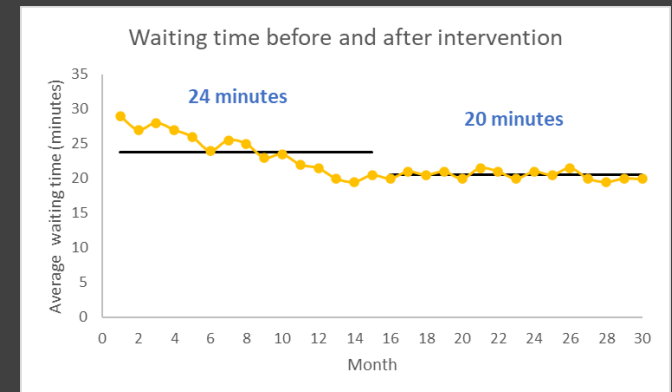
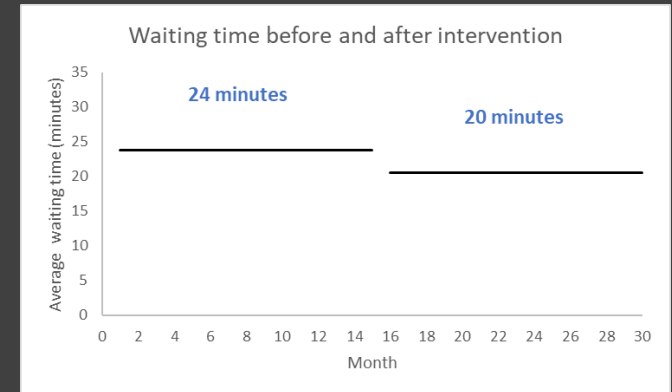
- Location-based control:  versus 
- Characteristics-based control: use patient group not targeted by intervention
- Outcome based control: use outcome not affected by intervention in same patient group

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

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

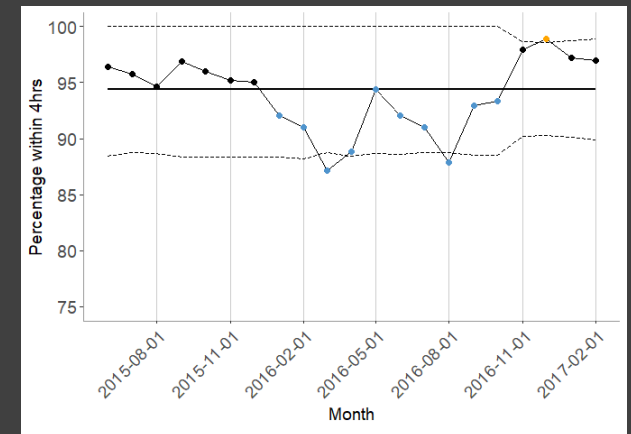
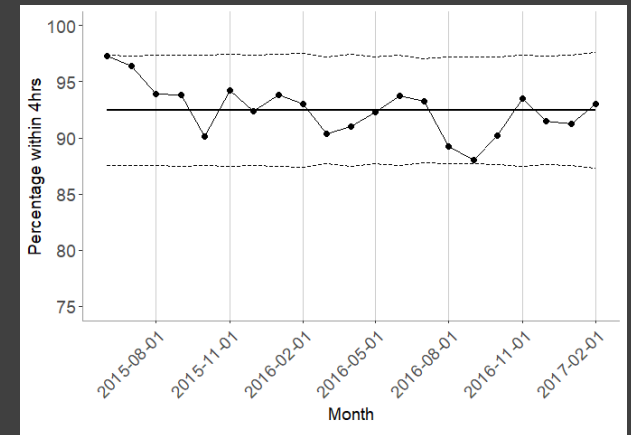
Principles of SPC:

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

- 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

- 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,^{1,2,3} Perla J Marang-van de Mheen⁴

Tips for Getting Your QI Work Published



What makes a QI report more 'publishable'?



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





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

► 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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Received 14 March 2020
Revised 6 October 2020
Accepted 11 October 2020



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To cite: Bion J, Aldridge C, Girling AJ, et al. *BMJ Qual Saf* Epub ahead of print: [please include Day Month Year]. doi:10.1136/bmjqs-2020-011165

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’.² 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.^{3–4} This theory was first proposed by Bell and Redelmeier⁵ in 2001, but the accompanying editorial,⁶ Halm and Chassin⁶ 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

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