

SIRI WIIG

Centre Director & Professor of Quality and Safety in Healthcare Systems, University of Stavanger, Norway
Adjunct Professor, Western Norway University of Applied Sciences, Norway
Honorary Professor, Australian Institute of Health Innovation, Macquarie University, Australia
Honorary Professor, University of Wollongong, Australia

Reflexive spaces in patient safety improvement

NSQH 2024, Oslo



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- PhD students, postdocs, collaborators, mentors, leaders, co-researchers, and colleagues
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- Safe-Lead project, colleagues, and partners
- Research Council of Norway

Background

- Patient **safety** as a **learning process**
- Learning from **successful outcomes** and processes to be repeated
- Learning from **unsuccessful outcomes** to avoid reoccurrence
- **Reflection** is key for learning individually and in organizations



From An organisation with a memory to Learning Health Systems?



An organisation with a memory

Report of an expert group on learning from adverse events in the NHS chaired by the Chief Medical Officer

Original research

BMJ Open Identifying requisite learning health system competencies: a scoping review

Paige L McDonald¹, Jessica Phillips,¹ Kenneth Harwood,² Joyce Maring,³ Philip J van der Wees^{1,4}

OBJECTIVE Learning health systems (LHS) integrate knowledge and practice through cycles of continuous quality improvement and learning to increase healthcare quality. LHS have been conceptualised through multiple frameworks and models. Our aim is to identify and describe the requisite individual competencies (knowledge, skills and attitudes) and system competencies (capabilities, characteristics and capabilities) described in existing literature in relation to operationalising LHS.

METHODS A scoping review was conducted with descriptive and thematic analysis to identify and map competencies of LHS for individuals/patients, health system workers and systems. Articles until April 2020 were included based on a systematic literature search and selection process. Themes were developed using a consensus process until agreement was reached among team members.

RESULTS Eighty-nine articles were included with most studies conducted in the USA (58 articles). The largest number of publications represented competencies at the system level, followed by health system worker competencies. Themes identified at the individual/patient level were knowledge and skills to understand and share information with an established system and the ability to interact with the technology used to collect data. Themes at the health system worker level were skills in evidence-based practice, leadership and teamwork skills, analytical and technological skills required to use a 'digital ecosystem', data-science knowledge and skill and self-reflective capacity. Researchers embedded within LHS require a specific set of competencies. Themes identified at the system level were data, infrastructure and standardisation; integration of data and workflow; and culture and climate supporting ongoing learning.

CONCLUSION The identified individual stakeholder competencies within LHS and the system capabilities of LHS provide a solid base for the further development and evaluation of LHS. International collaboration for stimulating LHS will assist in further establishing the knowledge base for LHS.

INTRODUCTION Since first proposed by Etienne Wenger in 1997, the concept of learning health systems (LHS) has spread globally, with publications focusing on process models, micro to meso to macro system levels of analysis, infrastructure requirements to achieve such systems, the values underlying the cultural shift required to achieve such systems and case studies exploring the application of the concept within healthcare.¹⁻³ However, there is a paucity of evidence indicating the effectiveness of LHS across levels of analysis. Moreover, there is a need for increased understanding of the requisite competencies and capabilities across levels of a system that promote learning and continuous quality improvement.

Conceptualisations of LHS have increased in their specificity over time. Initially, the Institute of Medicine envisioned LHS as 'systems where science, informatics, incentives, and culture are aligned for continuous improvement and innovation with best practices seamlessly embedded in the delivery process and new knowledge captured as an integral by-product of the delivery experience (pix).'⁴ Friedman and colleagues further specified the conceptualisation by defining each component word. 'Learning' refers to the search for and acquisition of new knowledge, which is in line with evidence-based guidelines (60%); one third of care is some form of waste (30%) and one tenth (10%) of it is associated with an adverse event.⁵ These numbers have persisted for decades despite substantial efforts and resources dedicated to improving the safety of care.

RESEARCH REPORT

Learning Health Systems: A review of key topic areas and bibliometric trends

Chiara Pomare¹, Zeyad Mahmood¹, Alex Vedovic^{1,2}, Louise A. Ellis^{1,2}, Gilbert Knaggs^{1,2}, Carolynn L. Smith^{1,2}, Yvonne Zurynski^{1,2}, Jeffrey Braithwaite^{1,2}

ABSTRACT Introduction: The emergent field of learning health systems (LHS) has been rapidly evolving as the concept continues to be embraced by researchers, managers, and clinicians. This paper reports on a scoping review and bibliometric analysis of the LHS literature to identify key topic areas and examine the influence and spread of recent research. Methods: We conducted a scoping review of LHS literature published between January 2016 and May 2020. The authors extracted publication data (eg, journal, country, authors, citation count, keywords) and reviewed full-texts to identify: type of study (empirical, non-empirical, or review), degree of focus (general or specific), and the reference used when defining LHSs. Results: A total of 272 publications were included in this review. Almost two thirds (65.1%) of the included articles were non-empirical and over two-thirds (68.4%) were from authors in the United States. More than half of the publications focused on specific areas, for example: oncology, cardiovascular care, and genomic medicine. Other key topic areas included: ethics, research, quality improvement, and electronic health records. We identified that definitions of the LHS concept are converging; however, many papers focused on data platforms and analytical processes rather than organisational and behavioural factors to support change and learning activities. Conclusions: The literature on LHSs remains largely theoretical with definitions of LHSs focusing on technical processes to reuse data collected during the clinical process and embedding analysed data back into the system. A shift in the literature to empirical LHS studies with consideration of organisational and human factors is warranted.

KEYWORDS bibliometrics, healthcare, learning health systems, learning healthcare systems

1 | INTRODUCTION

Contemporary health systems are not fit for purpose. Even in the most developed countries less than two-thirds of healthcare delivered is in line with evidence-based guidelines (60%); one third of care is some form of waste (30%) and one tenth (10%) of it is associated with an adverse event.¹ These numbers have persisted for decades despite substantial efforts and resources dedicated to improving the safety of care.

SPECIAL ARTICLE

The Safety of Inpatient Health Care

David W. Bates, M.D., David M. Levine, M.D., M.P.H., Hojjat Salmasian, M.D., Ph.D., M.P.H., Ania Szyrowatka, Ph.D., David M. Shahian, M.D., Stuart Lipsitz, Sc.D., Jonathan P. Zebrowski, M.D., M.H.Q.S., Laura C. Myers, M.D., M.P.H., Merranda S. Logan, M.D., M.P.H., Christopher G. Roy, M.D., M.P.H., Christine Iannaccone, M.P.H., Michelle L. Frits, B.S., Lynn A. Volk, M.H.S., Sevan Dulgarian, B.S., B.A., Mary G. Amato, Pharm.D., M.P., Heba H. Edrees, Pharm.D., Luke Sato, M.D., Patricia Folcarelli, Ph.D., R.N., Jonathan S. Einbinder, M.D., M.P.H., Mark E. Reynolds, B.A., and Elizabeth Mort, M.D., M.P.H.

BACKGROUND Adverse events during hospitalization are a major cause of patient harm, as documented in the 1991 Harvard Medical Practice Study. Patient safety has changed substantially in the decades since that study was conducted, and a more current assessment of harm during hospitalization is warranted.

METHODS We conducted a retrospective cohort study to assess the frequency, preventability, severity of patient harm in a random sample of admissions from 11 Massachusetts hospitals during the 2018 calendar year. The occurrence of adverse events was assessed with the use of a trigger method (identification of information in a medical record that was previously shown to be associated with adverse events) and review of medical records. Trained nurses reviewed records and identified admissions with possible adverse events that were then adjudicated by physicians, who confirmed the presence and characteristics of the adverse events.

RESULTS In a random sample of 2809 admissions, we identified at least one adverse event in 23.6%. Among 978 adverse events, 222 (22.7%) were judged to be preventable. 316 (32.3%) had a severity level of serious (i.e., caused harm that resulted in substantial intervention or prolonged recovery) or higher. A preventable adverse event occurred in 191 (6.8%) of all admissions, and a preventable adverse event with a severity level of serious or higher occurred in 29 (1.0%). There were seven deaths, of which was deemed to be preventable. Adverse drug events were the most common adverse events (accounting for 39.0% of all events), followed by surgical or orthopedic events (30.4%), patient-care events (which were defined as events associated with nursing care, including falls and pressure ulcers) (15.0%), and health care-associated infections (11.9%).

CONCLUSIONS Adverse events were identified in nearly one in four admissions, and approximately one fourth of the events were preventable. These findings underscore the importance of continued efforts to improve patient safety.

Advancement in the field?

without destroying them.

Communities of Practice: The Organizational Frontier

by Etienne C. Wenger and William M. Snyder

TODAY'S ECONOMY RUNS ON KNOWLEDGE, and most companies work assiduously to capitalize on that fact. They use cross-functional teams, customer- or product-focused business units, and work groups—to name just a few organizational forms—to capture and spread ideas and know-how. In many cases, these ways of organizing are very effective, and no one would argue for their demise. But a new organizational form is emerging that promises to complement existing structures and radically galvanize knowledge sharing, learning,



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introduction

Practice-based Theorizing on Learning and Knowing in Organizations

Silvia Gherardi
Trento University

SAFETY SCIENCE M o n i t o r

Issue 3 2007

Article 6

VOL 11

FALLIBLE HUMANS IN INFALLIBLE SYSTEMS? LEARNING FROM ERRORS IN HEALTH CARE

WIIG, S. AND AASE, K.

University of Stavanger, Faculty of Social Sciences, N-4036 Stavanger, Norway.
Phone: +47-51831513/ 51831534, Fax: +47-51831550, Email: siri.wiig@uis.no, karina.aase@uis.no

♦ ♦ ♦
EUROPEAN SECTION

The Organizational Learning of Safety in Communities of Practice

SILVIA GHERARDI
University of Trento, Italy

DAVIDE NICOLINI
Tavistock Institute

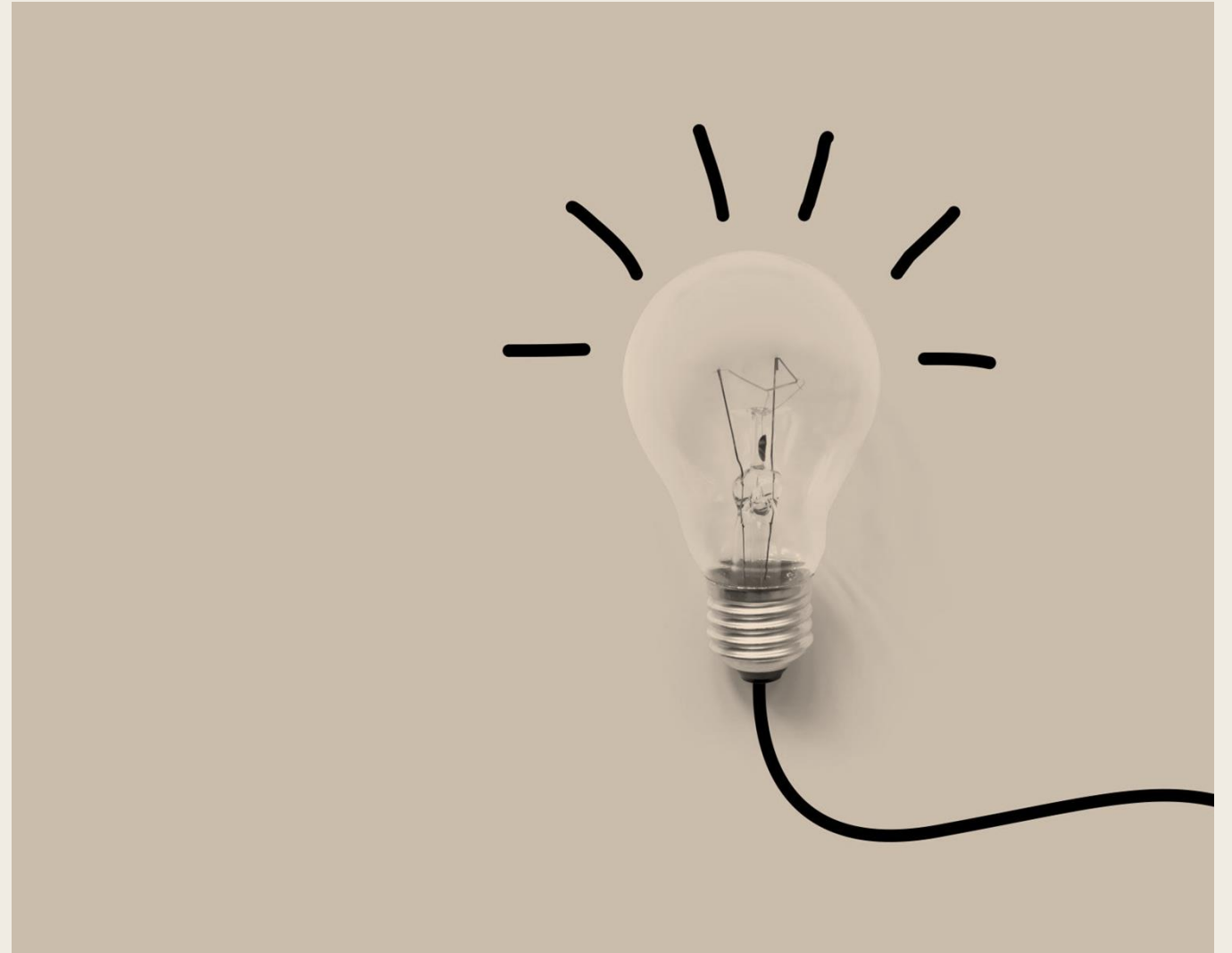
Key features



- Learning as a collective process
- Learning through reflection
- Structures, leadership, and culture for learning
- Regulation to support learning
- Learning across system interfaces and levels

Learning is part of everyday
work, but it is not just happening
– or always as planned

Reflexive spaces - What are they?



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Article

David E. Gray
University of Surrey, UK

**Facilitating Management Learning
Developing Critical Reflection Through Reflective Tools**

Management Learning
Copyright © 2002 Sage Publications
London, Thousand Oaks, CA
and New Delhi
Vol. 33(1): 35–61



Ann L. Cunliffe
California State University, Hayward, USA

**Reflexive Dialogical Practice in
Management Learning**

1999, Vol. 24, No. 3, 522–537.

**AN ORGANIZATIONAL LEARNING
FRAMEWORK: FROM INTUITION TO
INSTITUTION**

MARY M. CROSSAN
HENRY W. LANE
RODERICK E. WHITE
Richard Ivey School of Business

Although interest in organizational learning has grown dramatically in recent years, a general theory of organizational learning has remained elusive. We identify renewal of the overall enterprise as the underlying phenomenon of interest and organizational learning as a principal means to this end. With this perspective we develop a framework for the process of organizational learning, presenting organizational learning as four processes—intuiting, interpreting, integrating, and institutionalizing—linking the individual, group, and organizational levels.



The current issue and full text archive of this journal is available at
www.emeraldinsight.com/0953-4814.htm

The “clinalyst”
**Institutionalizing reflexive space to realize
safety and flexible systematization
in health care**

The “clinalyst”

Rick Iedema
University of Technology Sydney, Sydney, Australia, and
Katherine Carroll
University of Sydney, Sydney, Australia

175

OPEN

Reflexive Spaces: Leveraging Resilience Into Healthcare Regulation and Management

Siri Wiig, PhD, MSc, Karina Aase, PhD,* and Roland Bal, PhD†*

Healthcare is increasingly seen as a complex, adaptive system in which resilience is a key factor in creating patient safety. A need exists to understand how organizations are able to perform with success under varying conditions, that is, to be resilient. So far, the attention in resilience research has been on the sharp end of the system, such as emergency departments and clinicians' adaptation of work practices to constantly varying conditions. However, we have limited knowledge about the role of regulators and managers in creating and supporting environments that cultivate resilience.^{1,2} In this article, we argue that (a) regulators and managers need to understand and acknowledge reflexivity as a foundation for resilience in healthcare organizations and that (b) creating and supporting reflexive spaces are a key for leveraging resilience into healthcare regulation and management.

Reflexive spaces

Physical or virtual platforms in which reflexive dialogical practice occurs between people.

The reflexive dialogical practice is key in learning processes, because it bridges tacit and explicit knowledge.

Reflexive spaces



- Can **bring people together to reflect** on current challenges, adaptations, and needs in work practice.
- Are **forums** inviting **accountability and feedback** on concrete practices and effects.
- Are **collective** and mobilize experiences of relevant actors.



How are reflexive spaces created?

Formally and informally

Tools, processes, and structured arenas

Key projects

- **Resilience in Healthcare** – developing, implementing, and evaluating a theoretical and practical resilience in healthcare framework (2018-2024)
- **SAFE-LEAD** - Leadership intervention in nursing homes and homecare (2016-2023)

Open Access

Protocol




BMJ Open Improving quality and safety in nursing homes and home care: the study protocol of a mixed-methods research design to implement a leadership intervention

Siri Wiig,¹ Eline Ree,¹ Terese Johannessen,¹ Torunn Strømme,¹ Marianne Storm,¹ Ingunn Aase,¹ Berit Ullebust,² Elisabeth Holen-Rabbersvik,^{1,3,4} Line Hurup Thomsen,⁵ Anne Torhild Sandvik Pedersen,⁶ Hester van de Bovenkamp,⁷ Roland Bal,⁷ Karina Aase¹

Open access

Protocol

BMJ Open Resilience in Healthcare (RiH): a longitudinal research programme protocol

Karina Aase ¹, Veslemøy Guise ¹, Stephen Billett,² Stephen Johan Mikal Sollid,^{1,3} Ove Njå,⁴ Olav Roise ^{1,5}, Tanja Manser,⁶ Janet E Anderson,^{1,7} Siri Wiig¹

Resilience capacities



(Lyng et al 2022)

Learning tools' principles and logic models

Haraldseid-Driftland et al. *BMC Health Services Research* (2023) 23:646
<https://doi.org/10.1186/s12913-023-09653-8>

BMC Health Services Research

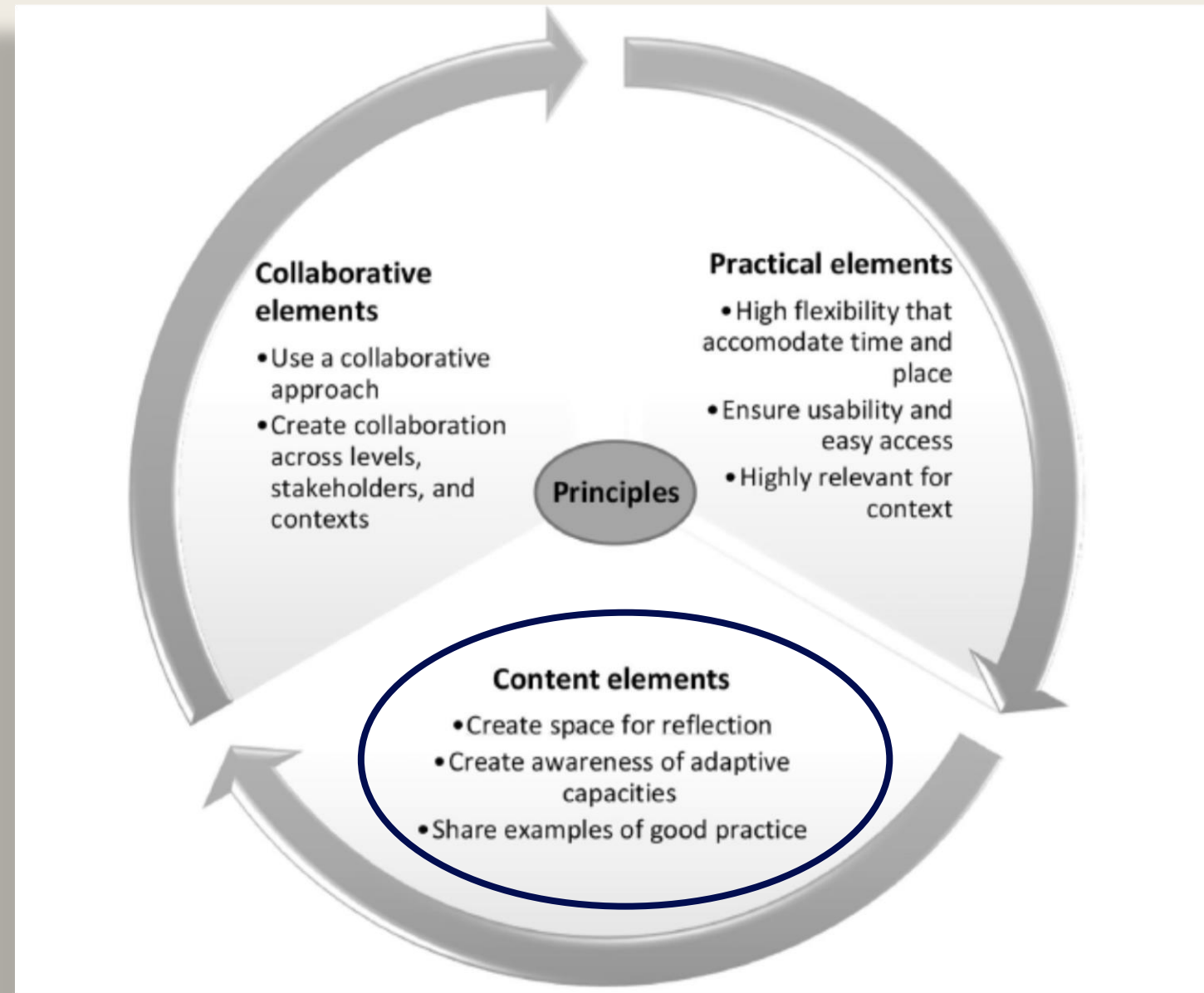
RESEARCH

Open Access

Learning does not just happen: establishing learning principles for tools to translate resilience into practice, based on a participatory approach



Cecillie Haraldseid-Driftland^{1*}, Hilda Bø Lyng¹, Veslemøy Guise¹, Hilde Valen Waehle^{1,2}, Lene Schibevaag¹, Eline Ree¹, Birte Fagerdal¹, Ruth Baxter³, Louise A. Ellis⁴, Jeffrey Braithwaite⁴ and Siri Wilg¹





rih.uis.no/en

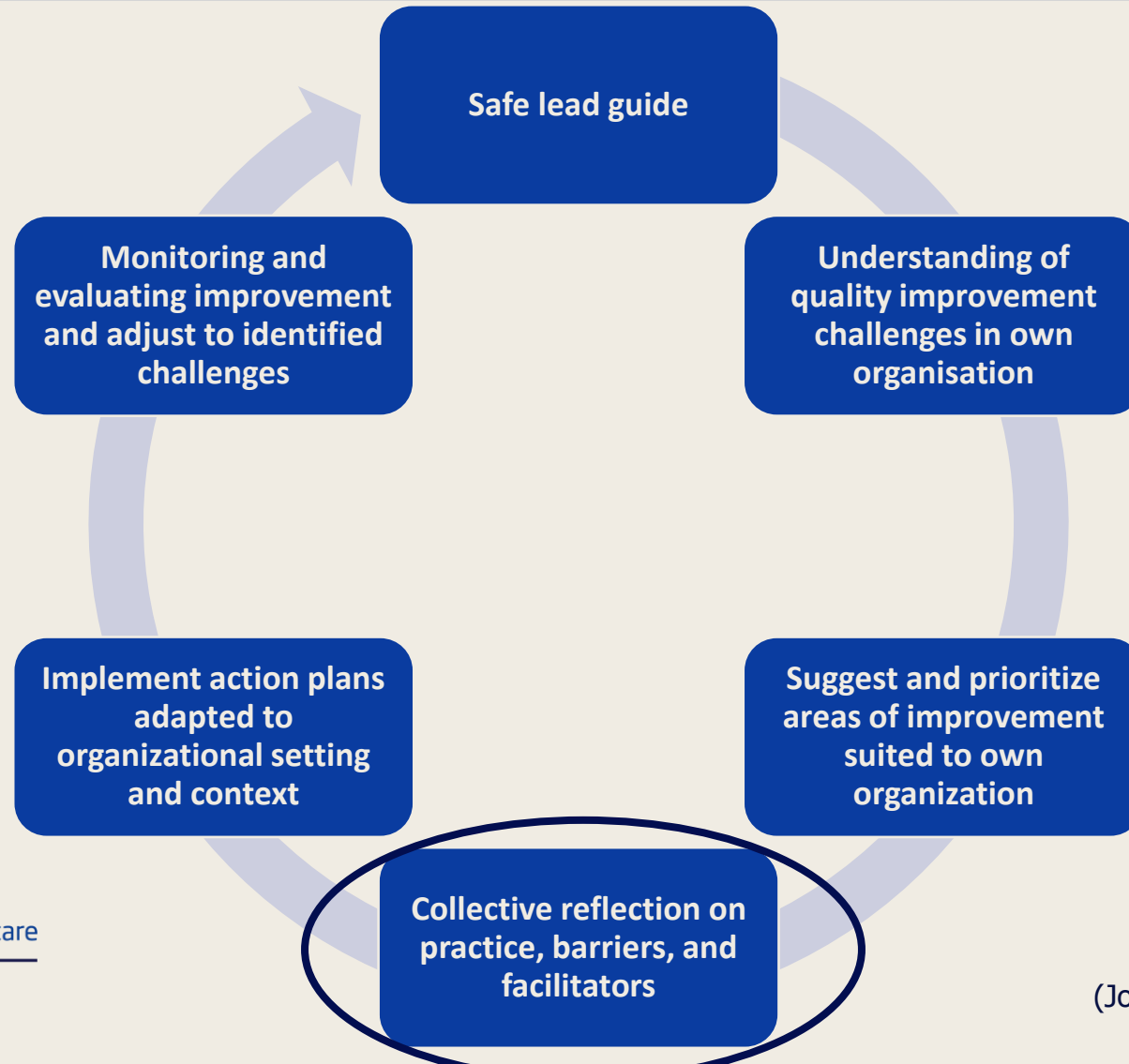
Welcome to the Resilience in Healthcare reflection tool - learning from what goes well



Safe-Lead Guide



Safe-Lead logic model emphasising reflexive spaces in work practice



RESEARCH ARTICLE

Open Access

Learning tools used to translate resilience in healthcare into practice: a rapid scoping review



Cecilie Haraldseid-Driftland¹, Heidi Dombestein^{1*}, Anh Hai Le², Stephen Billett² and Siri Wiig¹

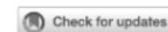
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Original research

BMJ Open Quality

Exploring managers' response to a quality and safety leadership intervention: findings from a multiple case study in Norwegian nursing homes and homecare services

Terese Johannessen¹,^{*} Eline Ree,¹ Ingunn Aase,¹ Roland Bal,² Siri Wiig¹



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EDITED BY
Yvonne Tran,
Macquarie University, Australia

REVIEWED BY
Arunima Mukherjee,
University of Oslo, Norway
Klay Lamprill,
Macquarie University, Australia

*CORRESPONDENCE
Hilda Bø Lyng
✉ hilda.b.lyng@uis.no

Making tacit knowledge explicit through objects: a qualitative study of the translation of resilience into practice

Hilda Bø Lyng^{1*}, Cecilie Haraldseid-Driftland¹, Veslemøy Guise¹, Eline Ree¹, Heidi Dombestein¹, Birte Fagerdal¹, Hilde Valen Wæhle^{1,2} and Siri Wiig¹

Reflexive spaces created through tools establish structures and meeting arenas, and foster understanding of work practice

- Bring people together
- Talk about system safety
- Boundary objects
- Translate theory into practice
- Creates collective understanding of safety concepts and practices

Other examples?

Handover, M&M, checklists, Green cross, team reflection, indicators, simulation, gaming, morning meeting, huddles, reporting systems, investigations, lunch talks, pandemic management meetings.....



Short Report 

BJS, 2023, 1–5
<https://doi.org/10.1093/bjs/znad111>
Short Report

Surgical team dynamics in a reflective team meeting to improve quality of care: a qualitative analysis of a shared mental model

Merel J. Verhagen^{1*}, Marit S. de Vos², Jan van Schaik¹, Joost R. van der Vorst¹, Abbey Schepers¹, Perla J. Marang-van de Mheen³ and Jaap F. Hamming^{1*}

¹Department of Vascular Surgery, Leiden University Medical Centre, Leiden, the Netherlands
²Directorate of Quality and Patient Safety, Leiden University Medical Centre, Leiden, the Netherlands
³Department of Biomedical Data Sciences, Leiden University Medical Centre, Leiden, the Netherlands

*Correspondence to: Jaap F. Hamming, Department of Surgery, Leiden University Medical Centre, Albinusdreef 2, 2333 ZA Leiden, the Netherlands (e-mail: j.f.hamming@lumc.nl)

Wahl et al. *BMC Health Services Research* 2022, **22**(1):1101
<https://doi.org/10.1186/s12913-022-08462-9>

BMC Health Services Research

RESEARCH

Open Access

Experience of learning from everyday work in daily safety huddles—a multi-method study



Karina Wahl^{1,2*}, Margaretha Stenmarker^{2,3,4} and Axel Ros⁵

Received: 8 February 2023 | Revised: 31 May 2024 | Accepted: 5 June 2024

DOI: 10.1111/nicc.13114

QUALITY IMPROVEMENT REPORT

 Nursing in Critical Care 

Learning from patient safety incidents: The Green Cross method

Hilde Kristin Jacobsen MSc, CPN¹ | Randi Ballangrud PhD² |
Gørill Helen Birkeli MSc, CCN³

SPECIAL ESA LECTURE 2020

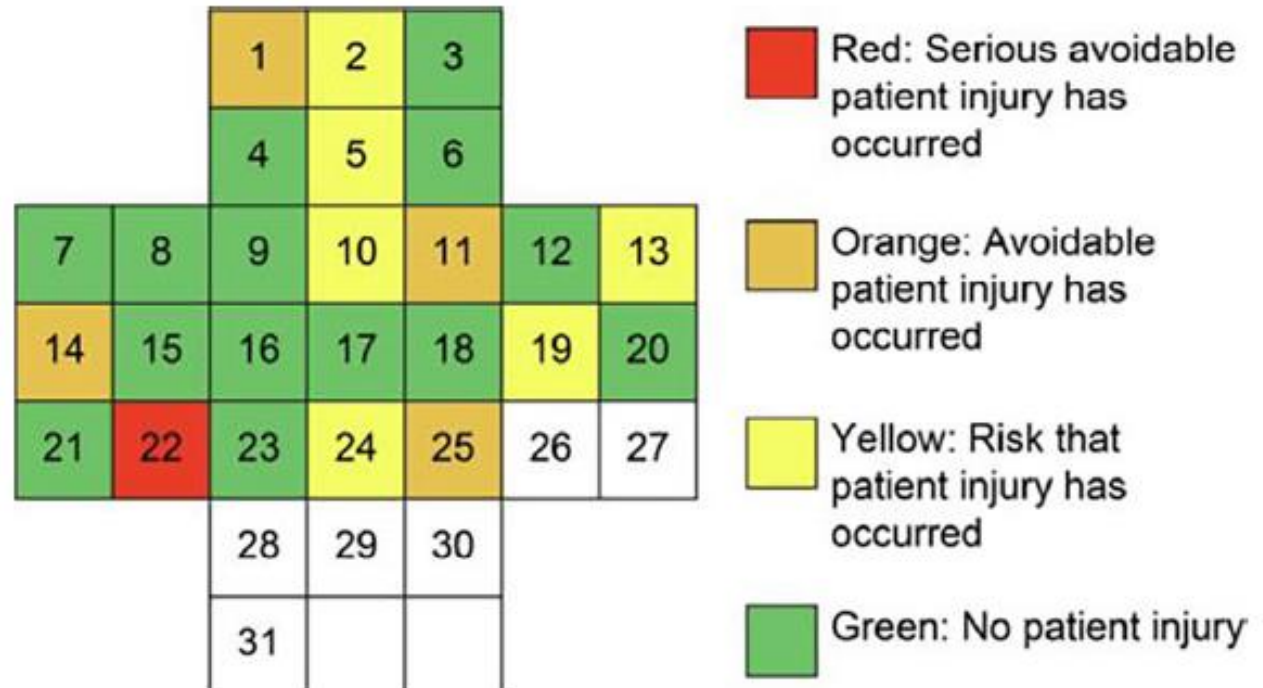
Taking Morbidity and Mortality Conferences to a Next Level *The Resilience Engineering Concept*

Merel J. Verhagen, MD,* Marit S. de Vos, MD, PhD,† and Jaap F. Hamming, MD, PhD*✉

ACM
paperonline

Green Cross

- Proactive learning method enabling professionals to identify PSIs.
- Each day displayed in a cross shape and evaluated with a colour-code system



Green Cross

TABLE 3 Findings before implementing the Green Cross method.

Subcategory	Category
Lack of openness hampers learning	Limited openness and learning
Adverse events were taken seriously	
Insufficient visible improvements	

TABLE 4 Findings 3 months after implementing the Green Cross method.

Subcategory	Category
Transparency increases learning	A learning environment is emerging
Increased patient safety awareness	
Committed to quality improvements	

(Jacobsen et. al 2024)

Green Line

The **Green Line** is a **tool** to support daily conversations and to **promote learning** and improvement **based on ordinary** work in a patient safety **huddle**.

Theme	Code
Supporting factors	Seeing benefits with reflection
	Learning from what happens
	Finding improvements for a rewarding reflection
Hindering factors	Seeing difficulties with reflection
	The impact of the work climate

Surgical team dynamics in a reflective team meeting to improve quality of care: a qualitative analysis of a shared mental model

Merel J. Verhagen^{1*}, Marit S. de Vos², Jan van Schaik¹, Joost R. van der Vorst¹, Abbey Schepers¹, Perla J. Marang-van de Mheen³ and Jaap F. Hamming^{1*}

- Adapted M&M meeting to collectively discuss all cases (successful and complicated)
- Promoted shared mental model -> improving quality

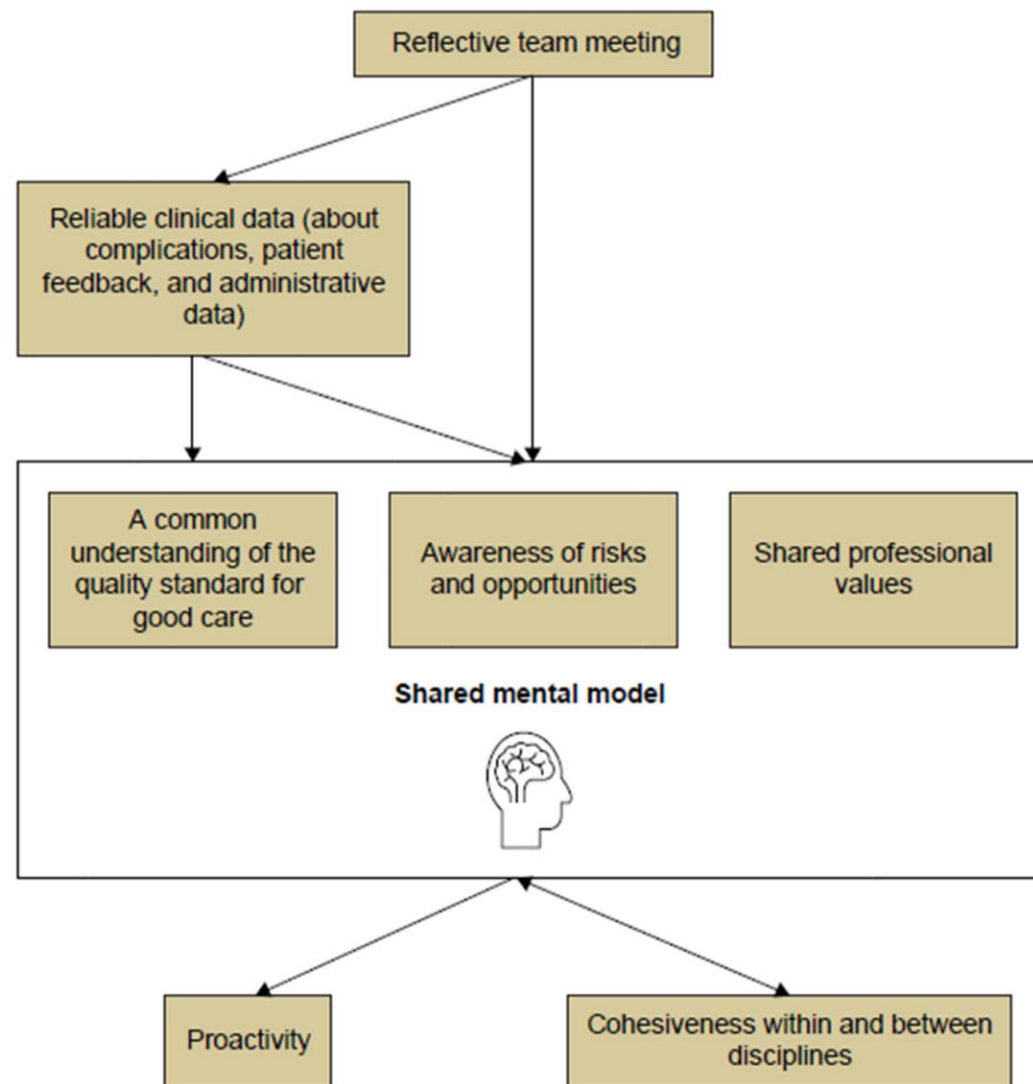


Fig. 1 How a reflective team meeting contributes to a shared mental model

Who, why, and how


- Employees
- Leaders
- Regulators
- Policy makers
- Patients
- Unions
- Professional associations
- Health systems
- ...

Creating reflexive spaces between regulators and the regulated

- Responsive regulation adjusting methods to promote reflection
- Use incident investigation to generate team reflection
- Regulate user involvement processes, structures, and meeting arenas
- Use soft signals as part of regulatory logic



(Kok 2021; Kok et al 2020; Øyri et al 2024; Wiig et al 2020;2024)



Creating reflexive spaces between workers, leaders, patients and families

- Dialogue-based arenas
- Use checklists and indicators as foundations for reflexive spaces
- Encourage storytelling, reflexive conversations, metaphors, critical incident analysis, reflective journals, and focus groups.

(Kok et al 2020; Kok 2021; Wiig et al 2020; Seljemo et al 2023; 2024)

Reflective Learning Health Systems?





System

Data, infrastructure and standardisation

Integration of data and workflow

Culture and climate supporting ongoing learning



Health system worker

Evidence-based practice

Leadership and teamwork skills

Analytical and technological skills, data-science

Self-reflective capacity



Patient

Health literacy


Interact with technology



What are the “risk areas”...?

A large cuttlefish is resting on a sandy beach. The cuttlefish is light-colored with a mottled pattern and has its two large, curled arms extended outwards. The background is a clear, blue sky.

People are already multitasking...
They don't have time!



Slack is bad!?

Rationalization processes may
reduce opportunities for meetings,
training, and tools

Success criteria?



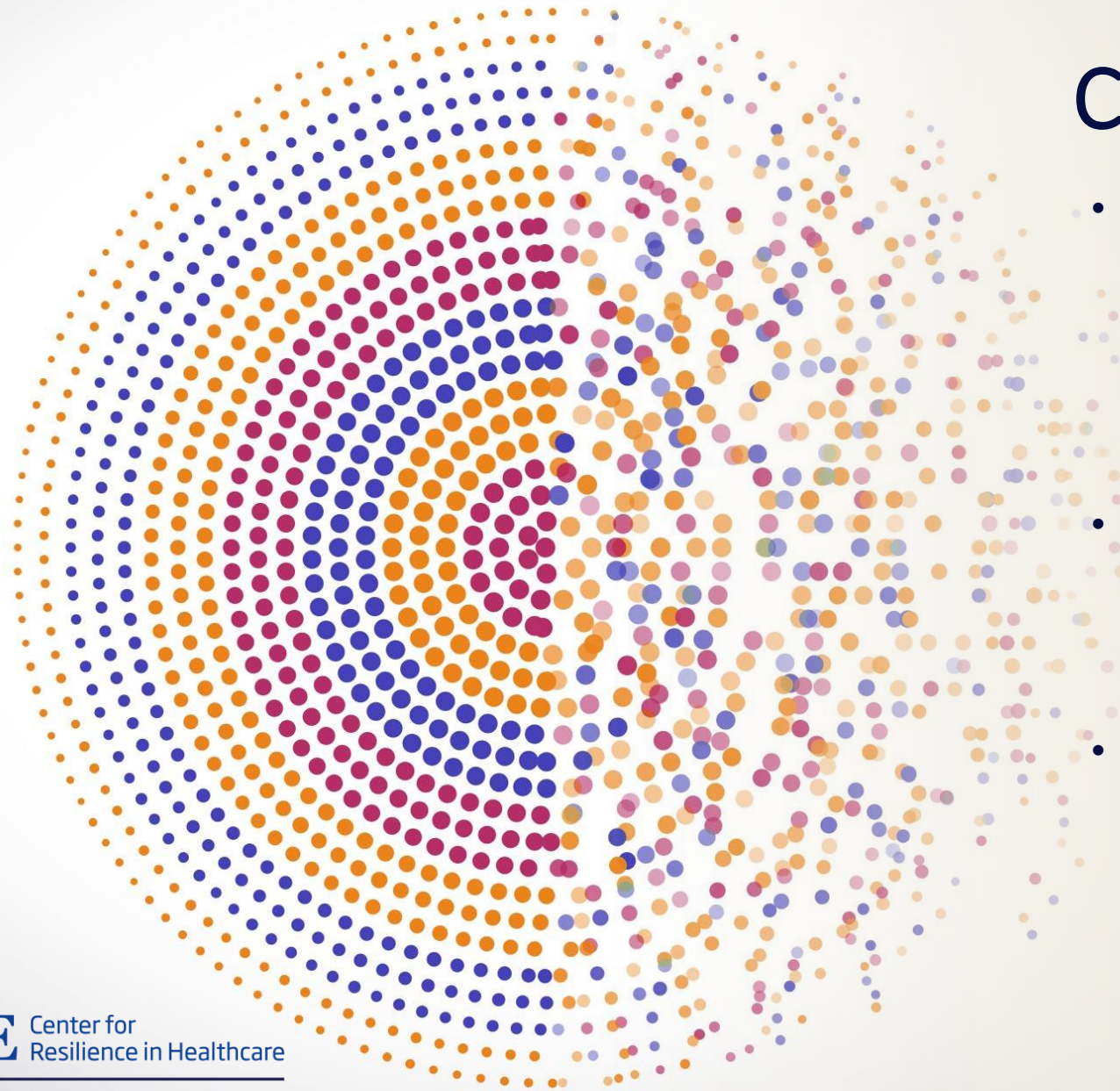
Trust, dialog, respect,
and a psychologically
safe atmosphere.

(Gray 2007; Cunliffe 2002; Wiig et al 2020; Wahl et al 2022;
Jacobsen et al 2024)

For those leading

1. Make reflexive spaces relevant and integral to work
2. Promote continuity in management positions
3. Ensure support and open climate
4. Use tools to structure and guide reflection





Conclusion

- Creating different **constellations of reflexive spaces** is a **foundation** for promoting conditions that may cultivate **patient safety improvement**
- New **managerial and regulatory approaches** can **stimulate**, rather than curb, reflexive learning
- **Improvement** processes could benefit from **acknowledging reflexive spaces** where people **within and across organizations** meet, share experiences, and create opportunities for learning.



Questions to the audience

What may promote or hinder reflexive and multidisciplinary dialogue in your work?

Why is reflexive dialogue important when resources are scarce?