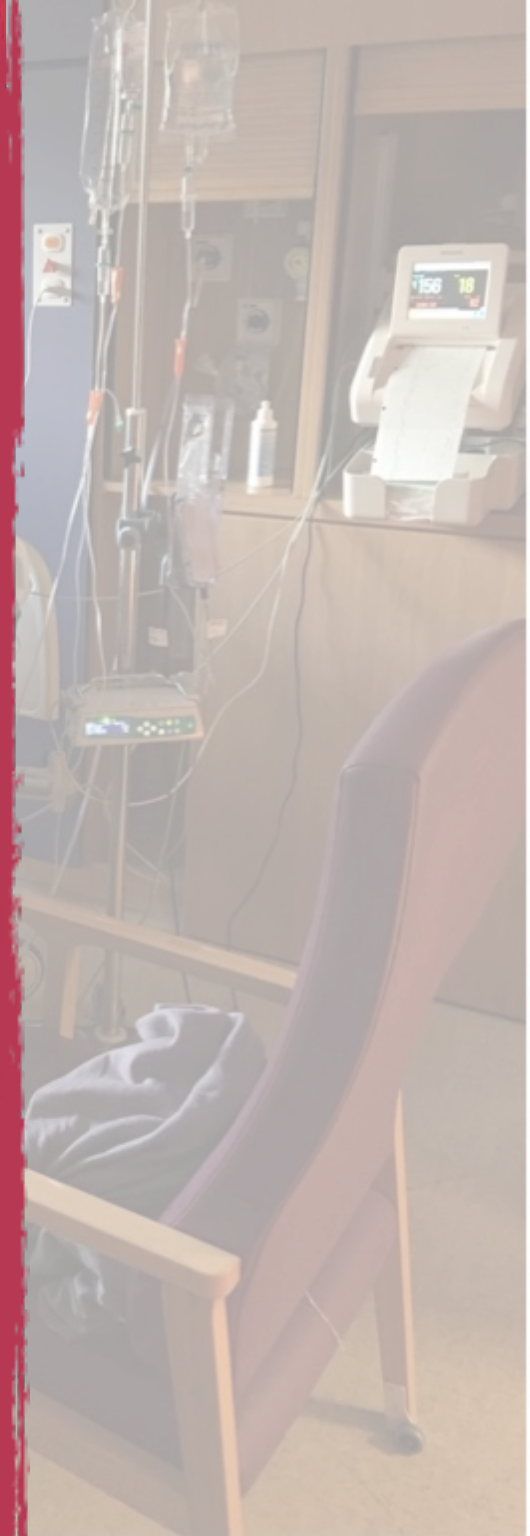
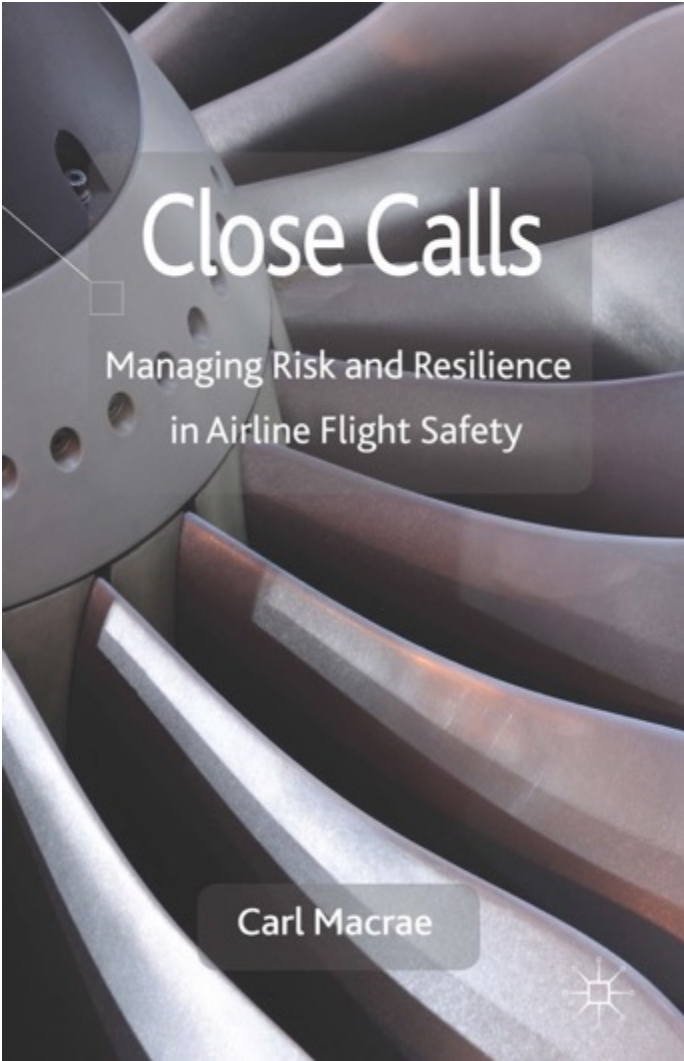


How (not) to learn from patient safety incidents

Carl Macrae PhD
c.macrae@mac.com
@CarlMacrae





Close Calls

Managing Risk and Resilience
in Airline Flight Safety

Carl Macrae



Carl Macrae



Welcome to



↑ Main Car Parks **P**

Welcome to
Good Hope Hospital

Visitor parking is restricted
Visitor Car Parks only
All other parking is for Patient Visitors






THE LANCET

Volume 364, Issue 9445, 30 October–5 November 2004, Pages 1567–1568

Comment

When will health care pass the orange-wire test?

Liam Donaldson^a  (Chairman)

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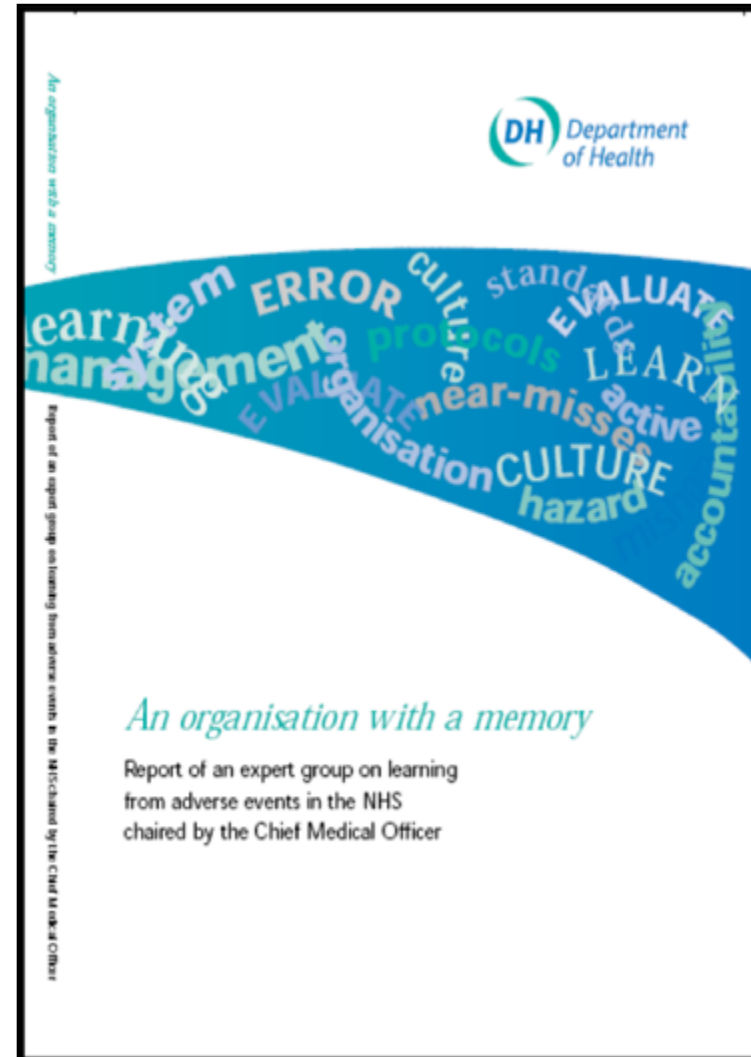
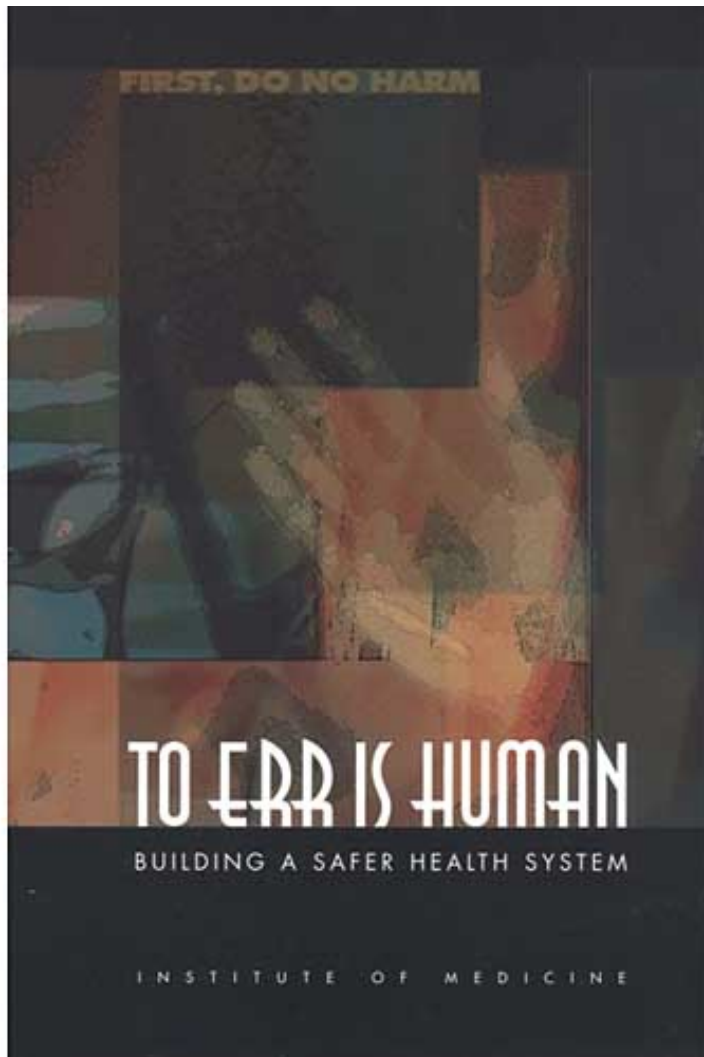
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Imagine that a Boeing 757 aircraft engine contained an orange-coloured wire essential to its safe functioning. Imagine that an airline engineer doing a preflight inspection spotted that the wire was frayed in a way that suggested a systematic fault rather than routine wear and tear. Imagine what would happen next. It is likely that most 757 engines in the world would be inspected—probably within days—and the orange wire, if faulty, renewed.

Like airlines, hospitals take charge of people's lives many times a day. Yet, health care has lagged behind other industries in putting safety first in dealing with its consumers. A systematic fault that put patients' lives at risk discovered in one country would not surely be rapidly and simultaneously corrected by health services





Department of Health (2000) An organisation with a memory. DH: London
Kohn et al (1999) To err is human. Institute of Medicine: Washington, DC

2,075,569 per year

17,337,962 to 12/2017

Five years of cerebral palsy claims

A thematic review of NHS Resolution data

September 2017

Written by: Michael Magro BS(PhD) MBBS MRCCOG, Senior Fellow, NHS Resolution



Learning from Bristol:

The Department of Health's Response to the Report of the Public Inquiry into children's heart

BRIEFING Learning from serious incidents in NHS acute hospitals

A review of the quality of investigation reports

June 2016

Introduction

"Is it safe?" is one of the five questions CQC asks in every inspection of health and social care services in England. We have found many good and outstanding services over the past three years, and yet, safety continues to be our biggest concern. One of the most common issues we find is the way that organisations investigate, communicate and learn when things go wrong.

We wanted to get a better understanding of these issues, so we decided to carry out a review of a sample of serious incident investigation reports. We also wanted to test a method that we could use in our inspections and identify ways that we could help to encourage improvement.

Our review included a sample of 74 investigation reports from 24 NHS acute hospital trusts, representing 13% of the 159 acute trusts in England at the time of this review. We used an assessment framework based on NHS England's Serious Incident Framework and associated guidance, templates and tools (further information about how we carried out this review is included in the appendix).

Many of our findings are not new, but they echo many of the issues raised by the Public Administration Select Committee in March last year; the Government's response in July 2015; and the Parliamentary and Health Service Ombudsman's report in December 2015. They also reinforce further evidence of the need for a

This briefing provides a summary of our findings, linked to five opportunities for improvement.

1. Prioritising serious incidents that require full investigation and developing alternative methods for managing and learning from other types of incident.
2. Routinely involving patients and families in investigations.
3. Engaging and supporting the staff involved in the incident and investigation process.
4. Using skilled analysis to move the focus of investigation from the acts or omissions of staff, to identifying the underlying causes of the incident.
5. Using human factors principles to develop solutions that reduce the risk of the same incidents happening again.

These issues raise important questions about how we now work together across the system to align expectations and create the right environment for open reporting, learning and improvement. The development of the new Healthcare Safety Investigation Branch and the move of the National Patient Safety team from NHS England to NHS Improvement provides a timely opportunity for us to come together to develop a shared definition of good practice and agree how we will work together to support and encourage

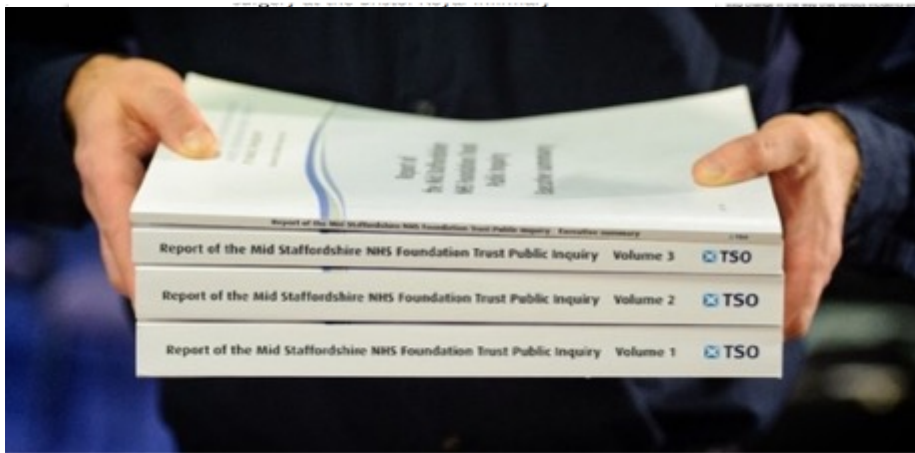
Learning from mistakes

An investigation report by the Parliamentary and Health Service Ombudsman into how the NHS failed to properly investigate the death of a three-year old child

The Report of the Morecambe Bay Investigation

Dr Bill Kirkup CBE

March 2015



Developed the technical infrastructure

but

overlooked the social infrastructure



“We collect too much
and do too little”

THE PROBLEM WITH...

The problem with incident reporting

Carl Macrae

Correspondence to
Dr Carl Macrae, Department of
Experimental Psychology,
University of Oxford, Tinbergen
Building, 9 South Parks Road,
Oxford OX1 3UD, UK;
carlmacrae@mac.com

Accepted 19 August 2015
Published Online First
7 September 2015

‘The Problem with...’ series covers controversial topics related to efforts to improve health-care quality, including widely recommended, but deceptively difficult strategies for improvement and pervasive problems that seem to resist solution. The series is overseen by Ken Catchpole (Guest Editor) and Kaweh Shojania (Editor-in-Chief).

Seminal reports that launched the modern field of patient safety highlighted the importance of learning from critical incidents.^{1,2} Since then, incident reporting systems have become one of the most widespread safety improvement strategies in healthcare, both within individual organisations and across entire healthcare systems.³

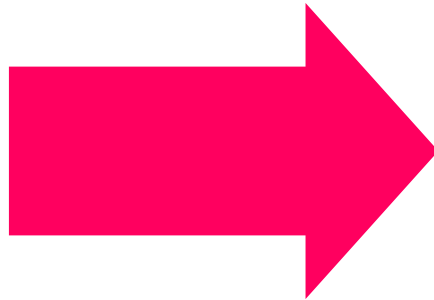
There are some strong examples of learning and improvement following serious patient safety incidents.^{4,5} But major disasters have also revealed widespread failures to understand and respond to reported safety incidents.^{6,7} Between these two extremes exists a range of frustrations and confusions regarding the purpose and practice of incident reporting.⁸⁻¹⁰ These problems can be traced to what was lost in translation when incident reporting was adapted from aviation and other safety-critical industries,¹¹ with fundamental aspects of successful incident reporting systems misunderstood, misapplied or entirely missing. This mistranslation of incident reporting from other industries has left us with confused and contradictory approaches to reporting and learning, seriously limiting the impact of

system-wide learning in the same way that the discovery of a defective ‘orange wire’ in a particular aircraft type might cause rapid and systematic action across the entire aviation industry.¹² But, in translating incident reporting into healthcare from aviation, what was largely missed was that, in airlines and other industries, the rapid detection and resolution of safety issues depend on a deeply embedded and widely distributed social infrastructure of inquiry, investigation and improvement.

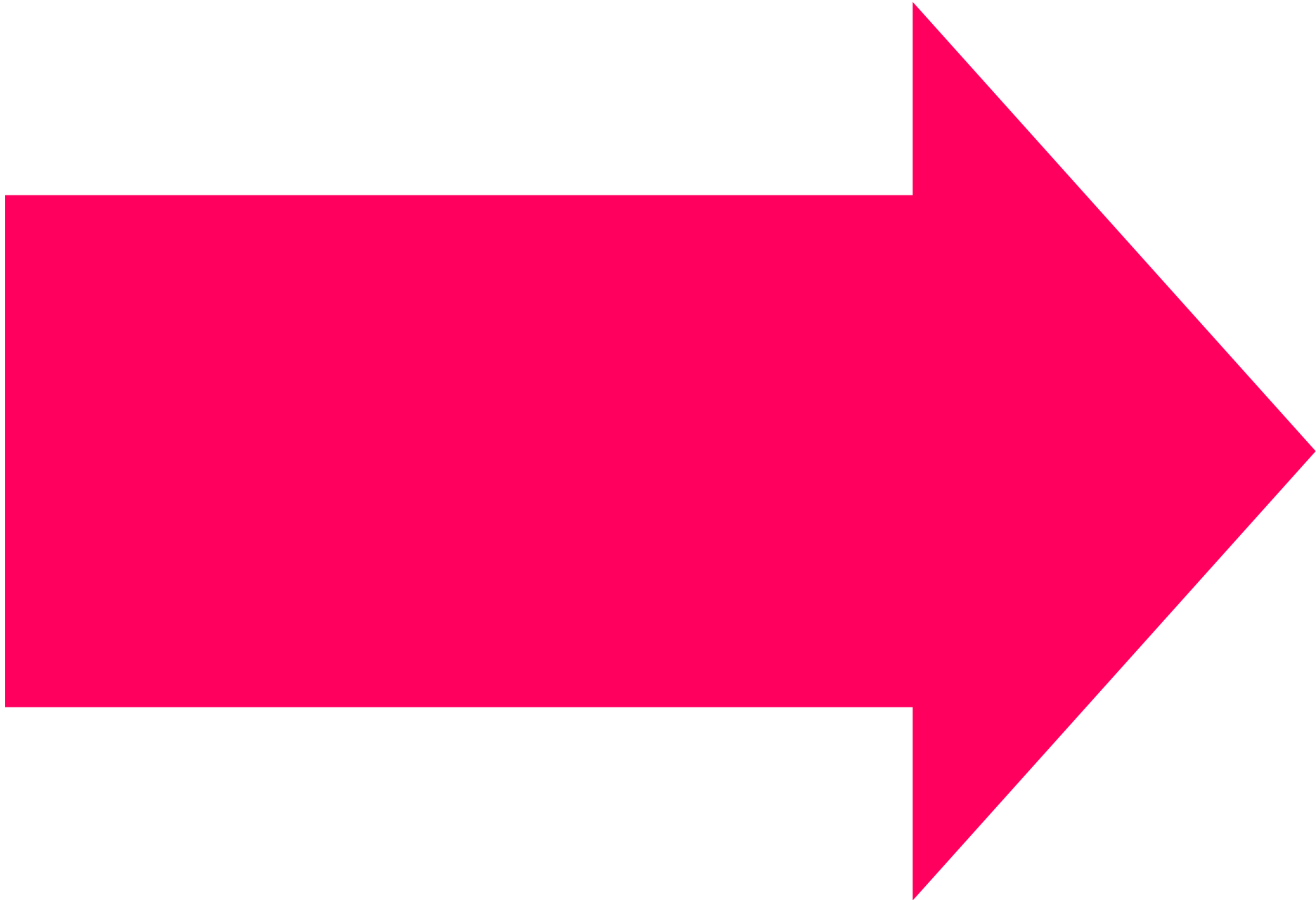
Incident reports provide brief—and usually ambiguous and sometimes mundane—triggers for collective inquiry and coordinated action. The incident reports themselves do not matter nearly as much as the practical work of investigating and understanding a particular aspect of an organisational system and then working collaboratively to improve it.¹⁴ In aviation, incident reporting systems grew out of a decades-long history of conducting routine, structured, systematic investigations into the most serious aviation incidents and accidents.

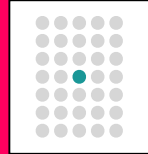
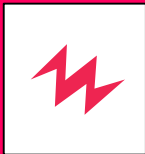
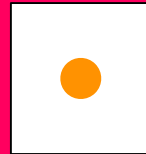
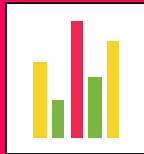
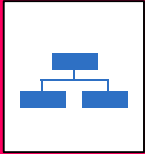
Healthcare has nothing like this history of systematic investigation. Instead, incident reporting systems have functioned as

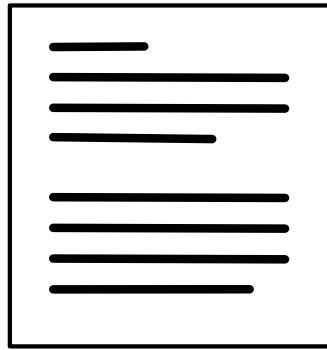
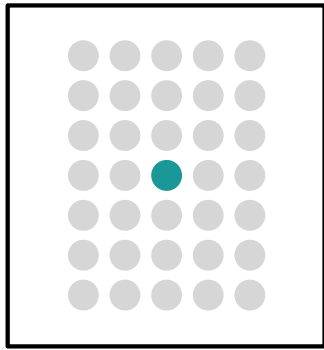
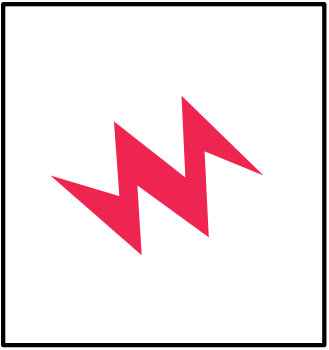
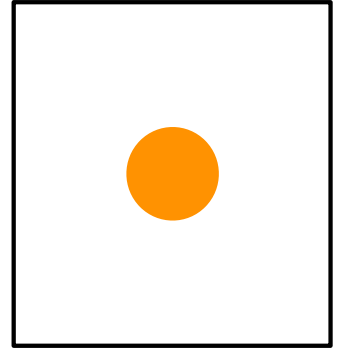
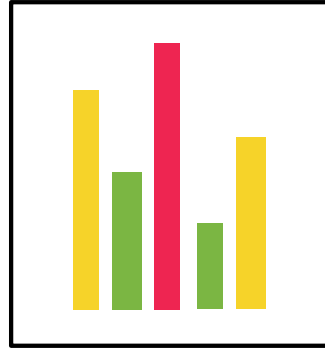
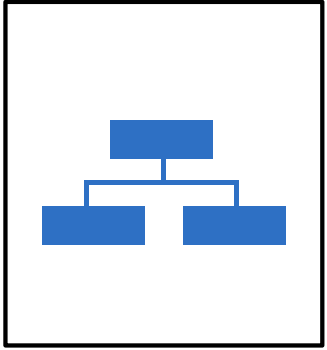
incidents

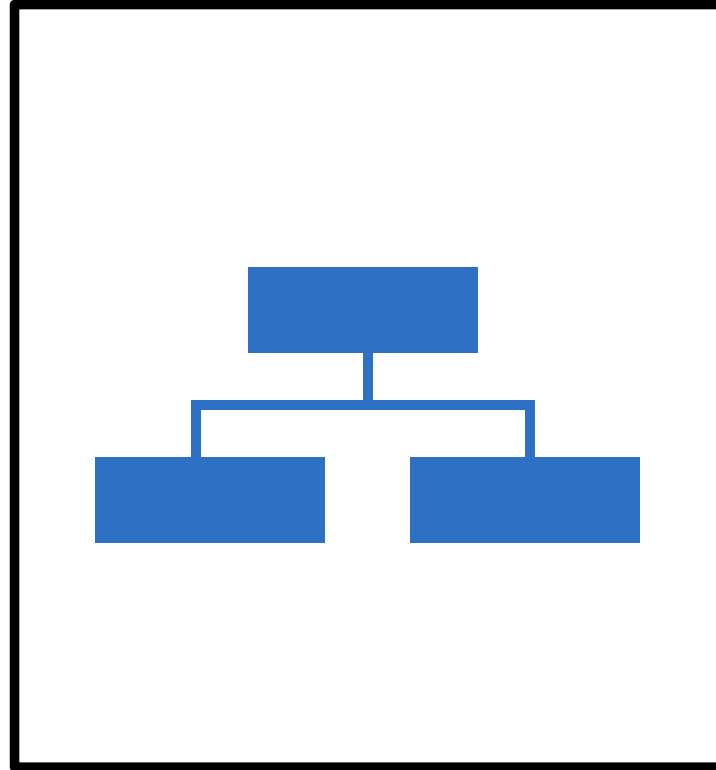


improvement









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I'LL READ YOUR
FAULTS ONE AT A
TIME. TELL ME WHEN
YOUR PERFORMANCE
IMPROVES.




“

Fear is toxic to both safety and
improvement

”

Don Berwick

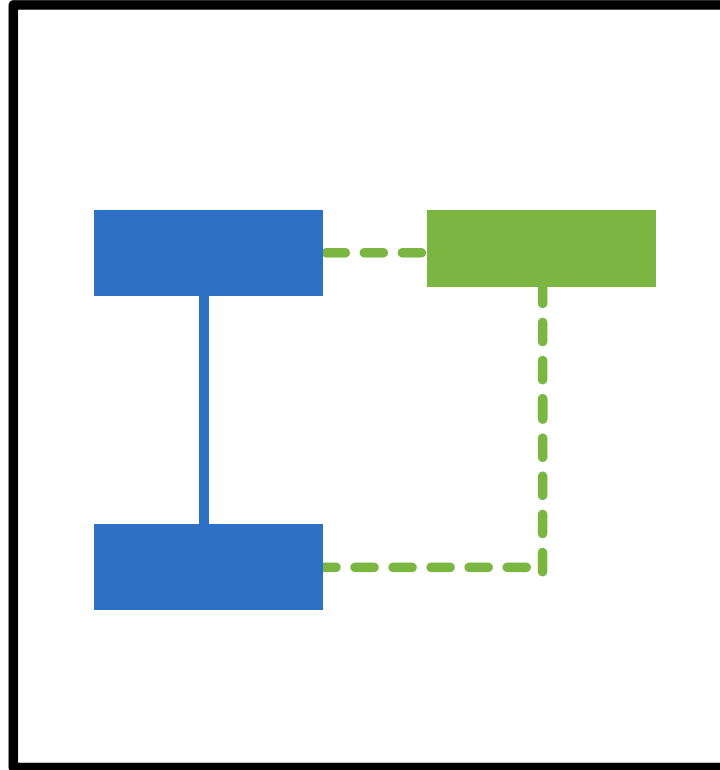
A background image showing several people in a meeting, with their hands resting on a table. The image is overlaid with a semi-transparent blue filter. The text is centered over the image.

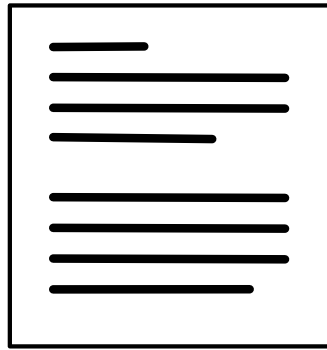
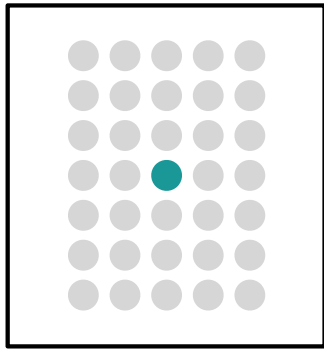
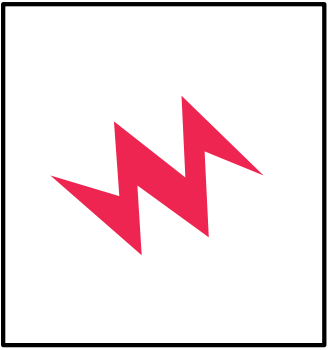
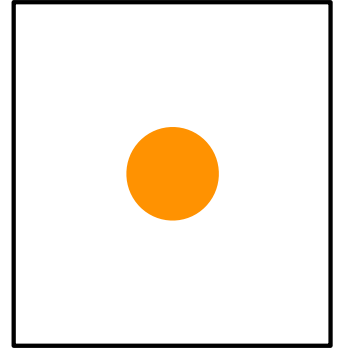
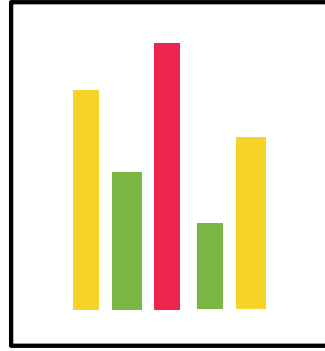
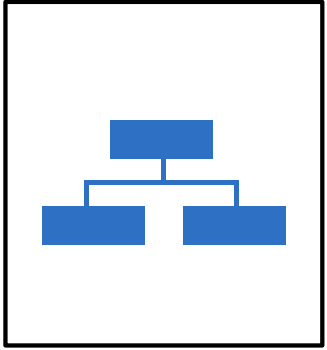
#PatientSafety

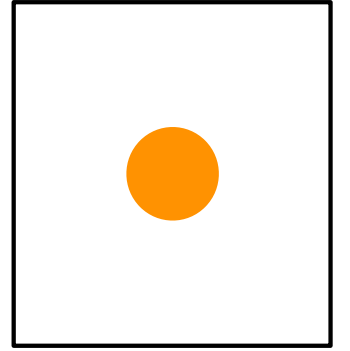
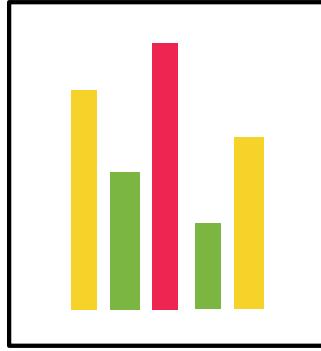
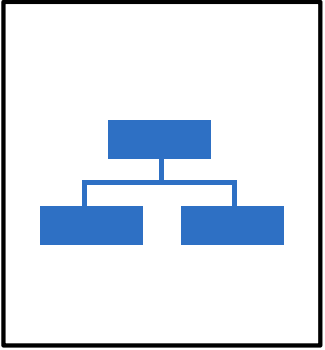
Modelled on the Air Accidents Investigation Branch, the new Healthcare Safety Investigation Branch will give legal protection to anyone who speaks up following a hospital mistake.



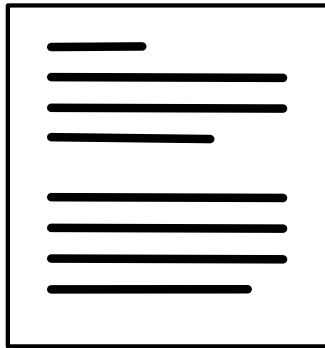
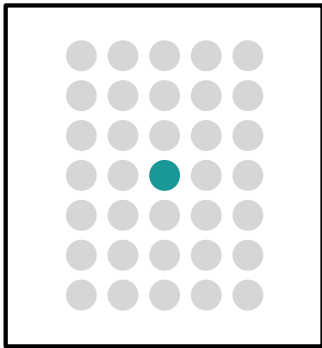
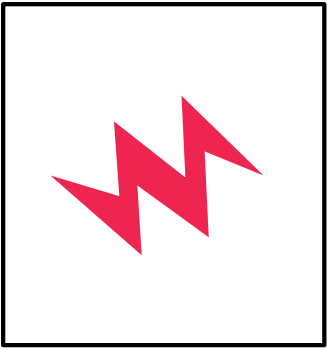
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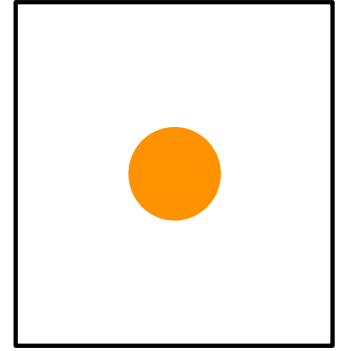
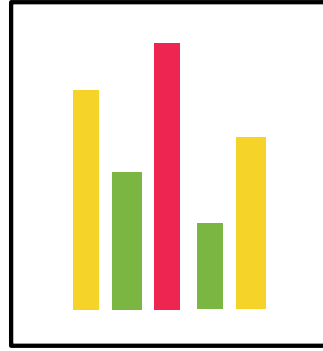
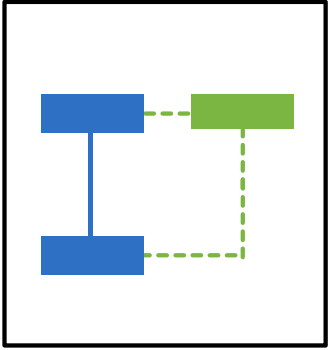




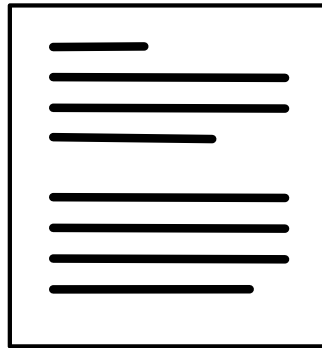
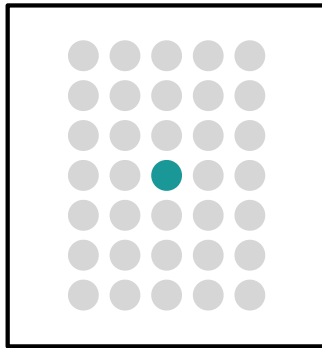
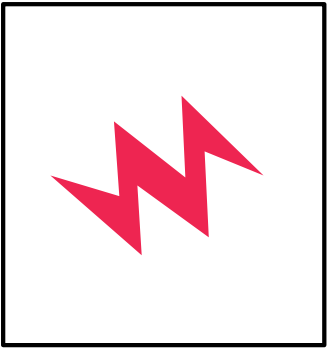


From hierarchy





From hierarchy
to safe space





A relentless focus on increasing reporting

REVIEW ARTICLE

Underreporting of Patient Safety Incidents Reduces Health Care's Ability to Quantify and Accurately Measure Harm Reduction

Douglas J. Noble, BSc, BMBCh, MRCS, MPH* and Peter J. Pronovost, MD, PhD, FCCM*†

Abstract: Underreporting of patient safety incidents creates a reservoir of information that is plagued with epidemiological bias. These include systematic biases such as the practice of reporting minor incidents at the expense of more serious ones. This leads to inaccurate rates of errors and an inability to generalize results to whole patient populations. It leaves reporting incidents, in epidemiological terms, comparable to nonrandom samples from an unknown universe of events.

These epidemiological problems lead to a situation where priorities are skewed toward what "we know we know." As "we know what we do not know," for example, gaps in knowledge about serious incidents due to low reporting rates, due caution must be applied in making policy based on biased underreporting.

Barriers to reporting contribute to low participation rates and further bias information. Lack of feedback and fear of personal consequences are common barriers.

Evaluation of reporting systems indicates reports can be used as tools for learning, but it is not yet possible to monitor improvement in patient safety or measurably prove reduction in harm. Mandatory reporting makes sense from an epidemiological point of view, but there are legitimate fears that it could further reduce reporting rates due to fear of reprisal.

Underreporting and the associated biases are a significant problem in realizing the epidemiological potential of incident reporting in health care.

Key Words: reporting, bias, health policy, diagnostic errors, risk

(*J Patient Saf* 2010;6: 247–250)

Systems that report patient safety incidents are widely used.¹ Yet, underreporting of patient safety incidents is common,^{2–4} and incident reports may only account for 4% to 50% of events that occur in the United States each year.^{1,5} In the United Kingdom, at least 22% to 39% of errors go unreported and more serious errors are often not reported.⁶

When reports are cumulatively analyzed at a hospital, regional, national, or international level, underreporting creates a systematic bias toward or away from certain errors. This severely

the controversy between voluntary and mandatory reporting systems. We argue that underreporting of patient safety incidents contributes to health care's inability to accurately identify and measurably reduce risks to patients.

BARRIERS TO REPORTING

Adverse event and near-miss reporting should preferably elicit all relevant information from incidents,⁷ be subjected to suitable analysis by skilled personnel,⁸ publicize findings in a way that benefits both the local institution and the wider health care community, and make efforts to reduce risk of harm to future patients. Underreporting make the latter 2 less likely.

Common barriers leading to underreporting are classified in 2 ways in Figure 1^{1,9–11}: first, according to *Donabedian's* structure, process, and outcome model of health care¹²; and second, by considering the attitudes and fears of individual professionals. Lack of feedback to the reporter and fear associated with reporting are common themes.

An anonymous survey of approximately 800 health care professionals highlighted that lack of feedback to the reporter was among the most significant barrier to reporting. Approximately 60% of physicians and nurses felt this to be the case.¹¹ Failing to feedback to the reporter demoralizes their efforts and, coupled with lack of support and fear of reprisal, decreases their likelihood of reporting again. A voluntary questionnaire study of 315 health care professionals revealed that reporting was most common to a colleague. Involving senior colleagues was not routine, more so for physicians than nurses.⁴

EPIDEMIOLOGICAL PROBLEMS

In addition to individual barriers, incident reporting has been plagued by epidemiological problems in 3 principal areas (Table 1). Paradoxically, establishing a reporting system creates a false impression of increasing levels of error within health care systems: the *Reporting Paradox*. As systems develop, professionals become more comfortable with reporting, and the systems are used more frequently. Error rates stay the same but are

Incidents \neq epidemiology

Surveillance bias is helpful!

Over-reporting swamps
weak signals with noise

Incident reports are opportunities to question current assumptions, beliefs and practices

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VIEWPOINT

Early warnings, weak signals and learning from healthcare disasters

Carl Macrae

Correspondence to

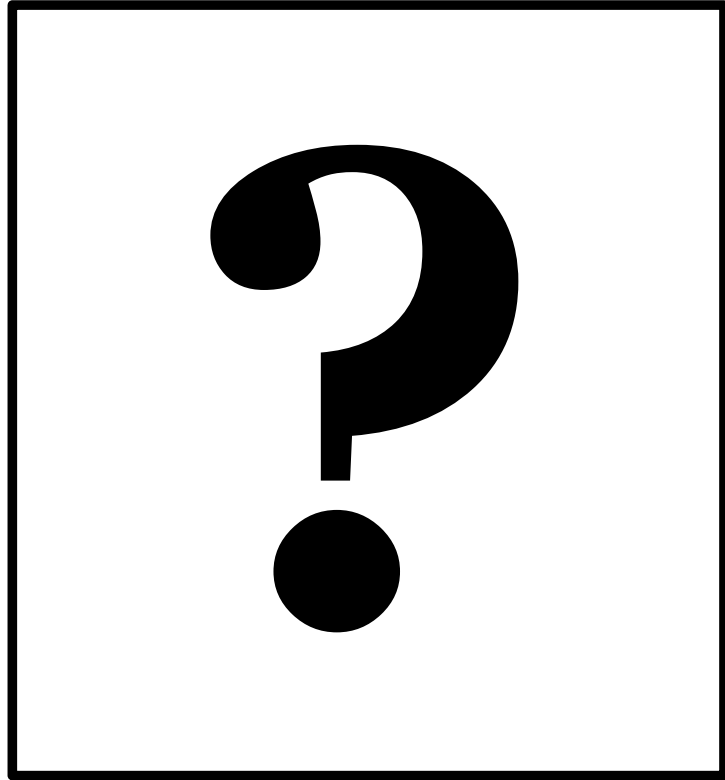
Dr Carl Macrae, Centre for Patient Safety and Service Quality, Imperial College London, 5th Floor Medical School Building, Norfolk Place, London W2 1PG, UK; carlmacrae@mac.com

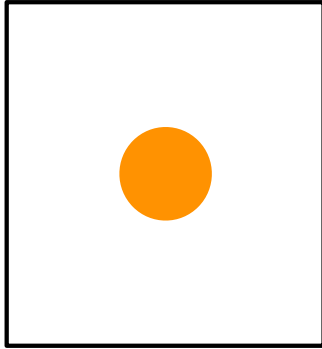
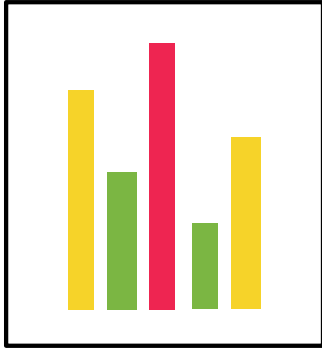
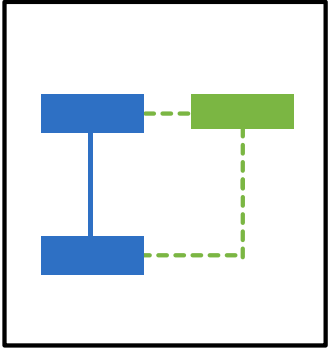
Received 25 November 2013
Revised 16 February 2014
Accepted 17 February 2014
Published Online First

ABSTRACT

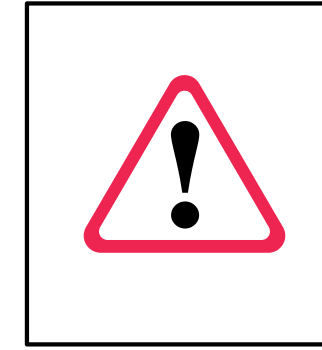
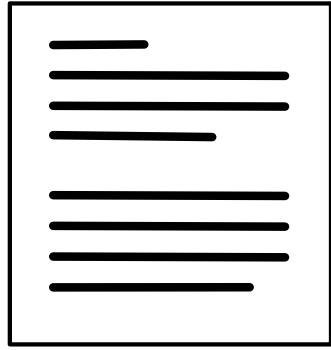
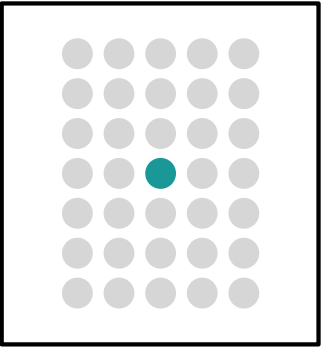
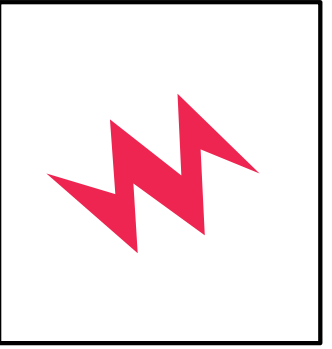
In the wake of healthcare disasters, such as the appalling failures of care uncovered in Mid Staffordshire, inquiries and investigations often point to a litany of early warnings and weak signals that were missed, misunderstood or discounted by the professionals and organisations charged with monitoring the safety and quality of care. Some of the most urgent challenges facing those responsible for improving and regulating patient safety are therefore how

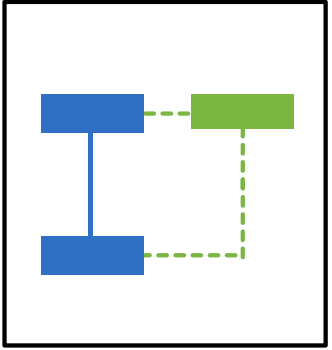
raised by this disaster are therefore: how can healthcare organisations—and those that supervise and regulate them—interpret weak signals, identify early warnings and investigate and address the risks that underlie major failures of care such as those at Mid Staffordshire? More fundamentally, how can healthcare systems be designed to ensure that the signs of systemic failure are routinely surfaced, understood, and addressed? To answer





From hierarchy
to safe space

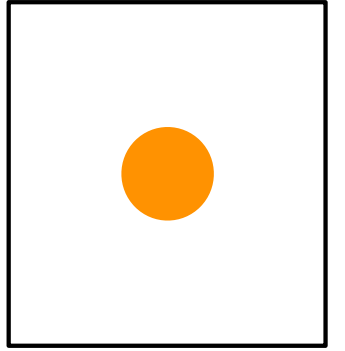
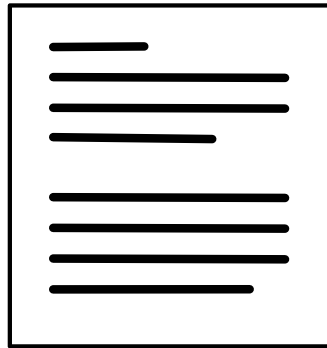
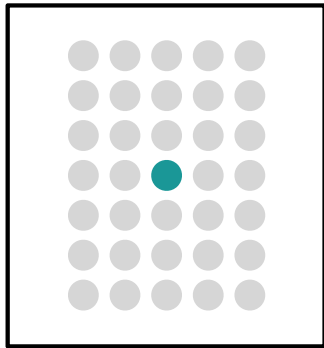
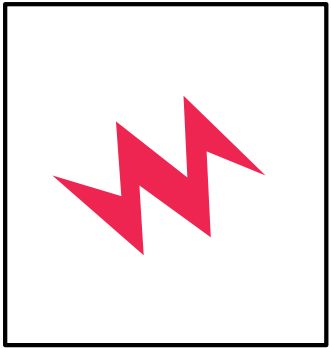
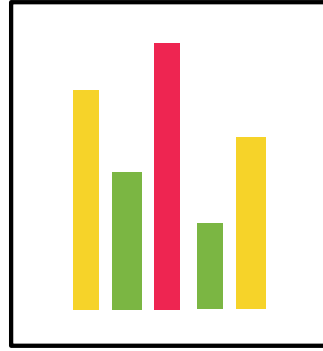


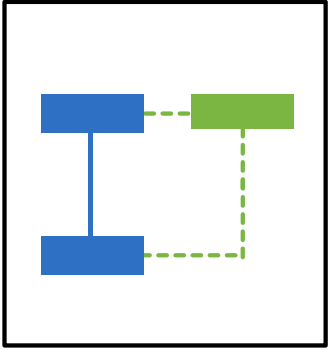


From hierarchy
to safe space

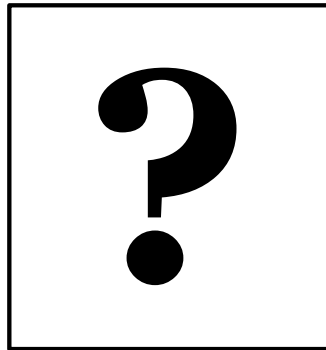


From reporting

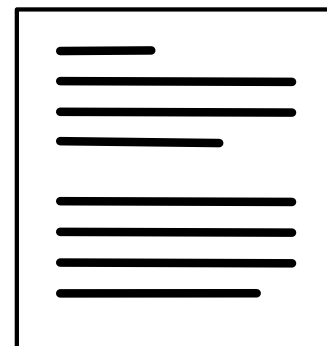
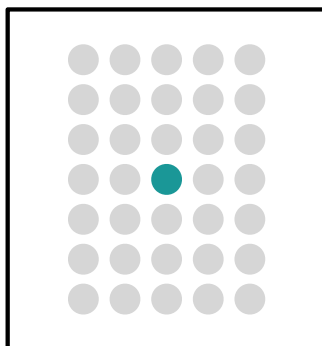
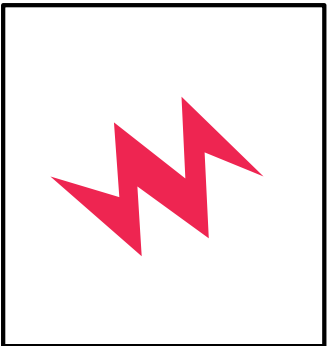
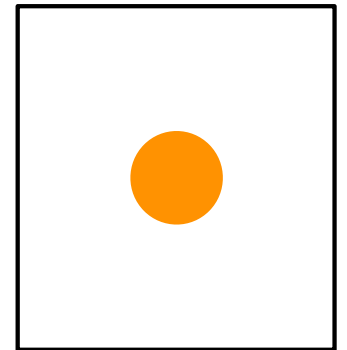
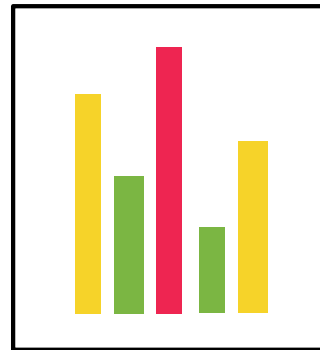


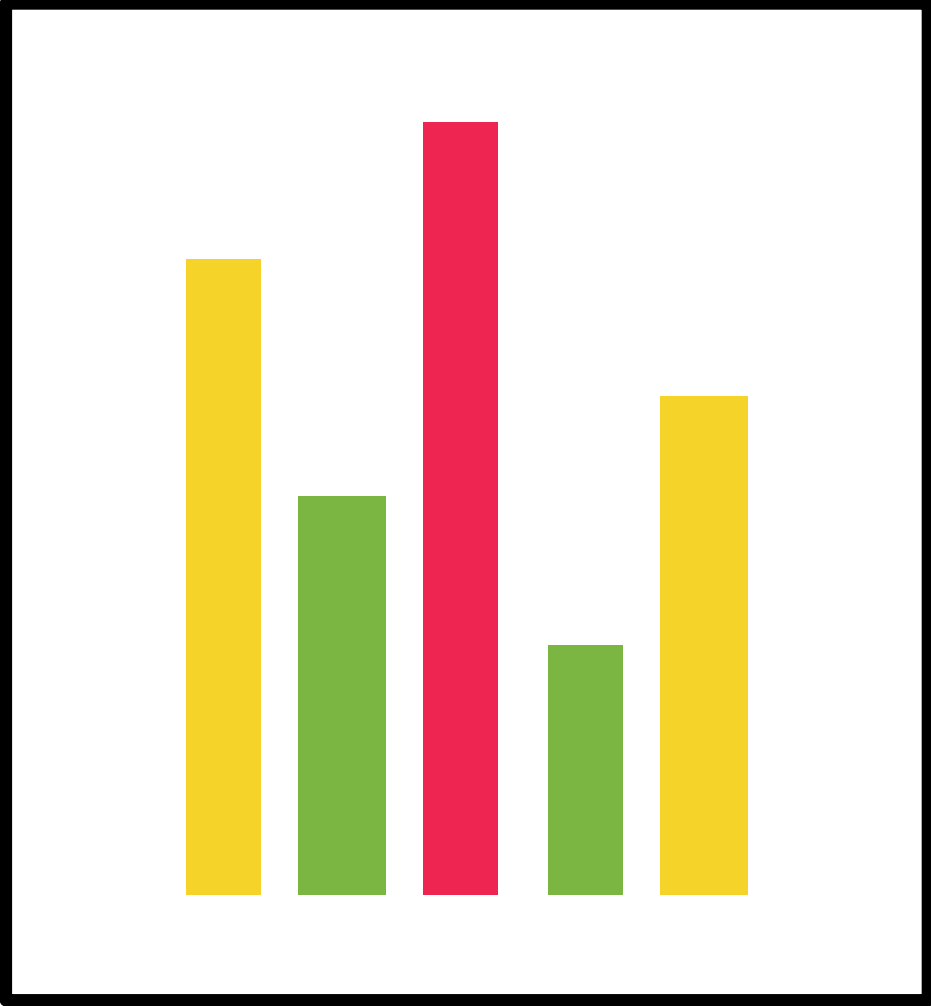


From hierarchy
to safe space

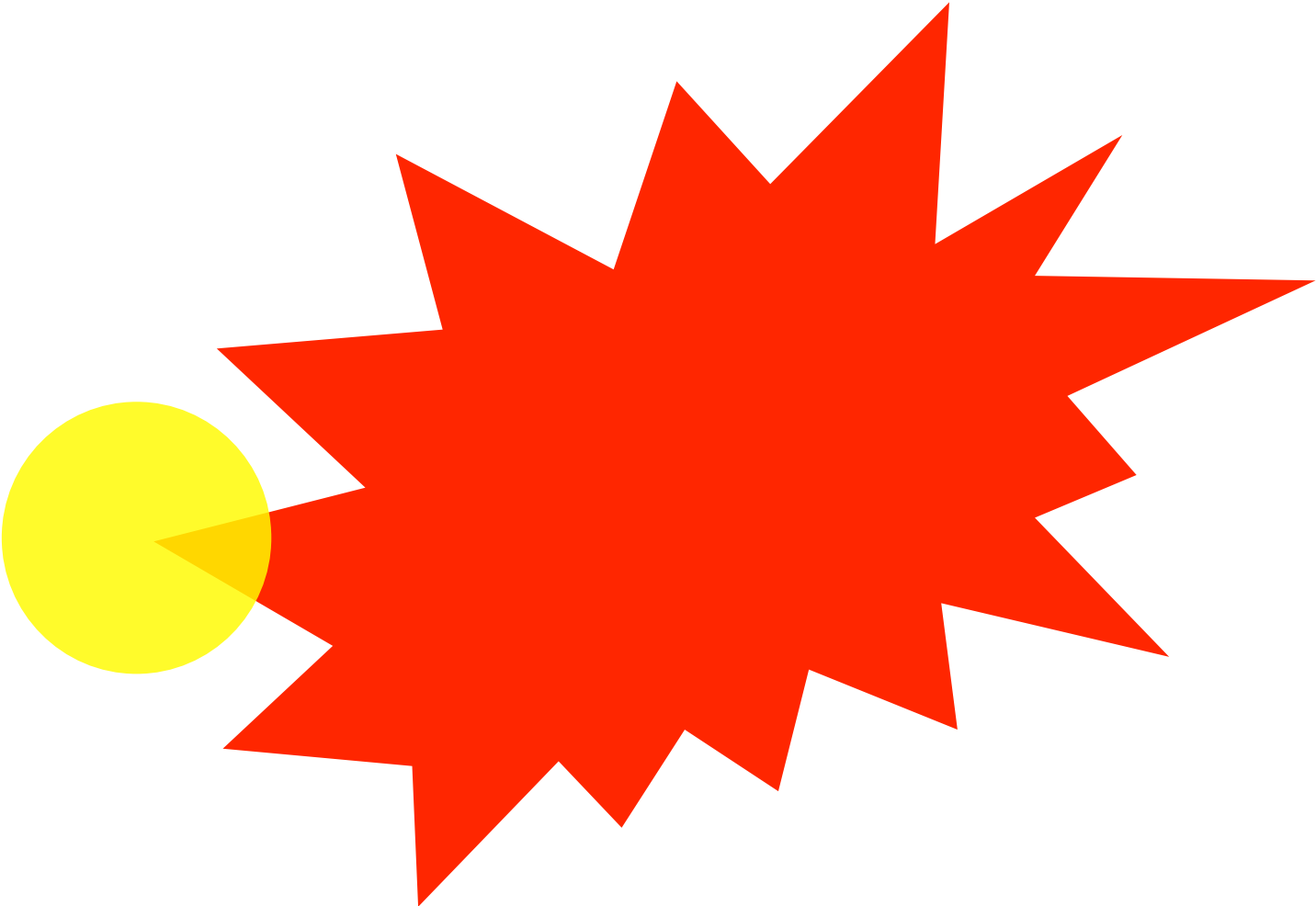


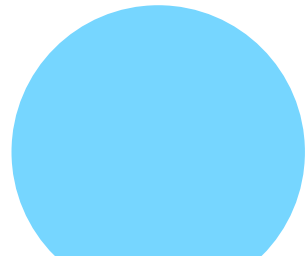
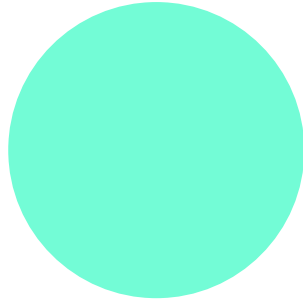
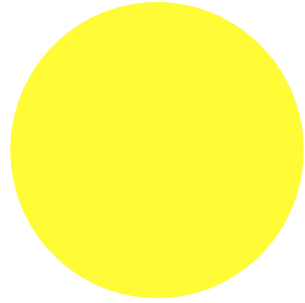
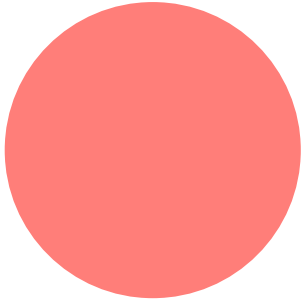
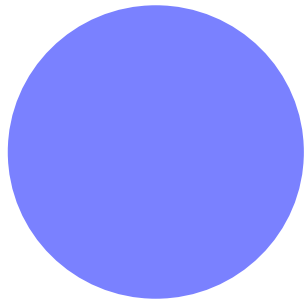
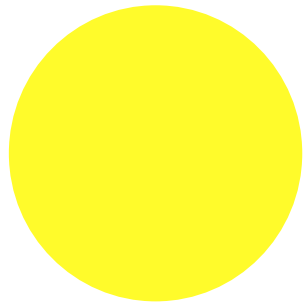
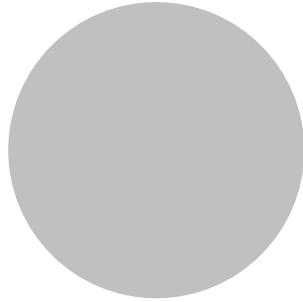
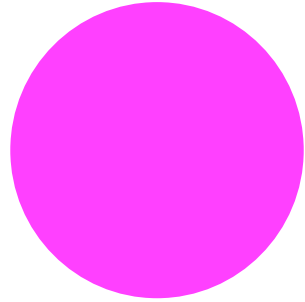
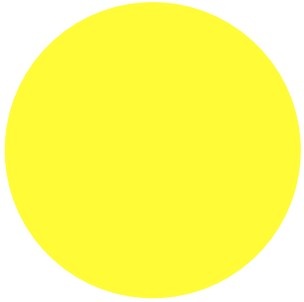
From reporting
to questioning

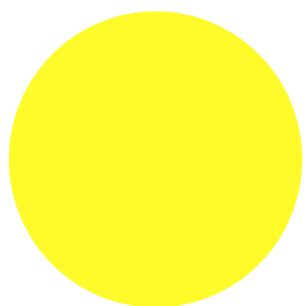


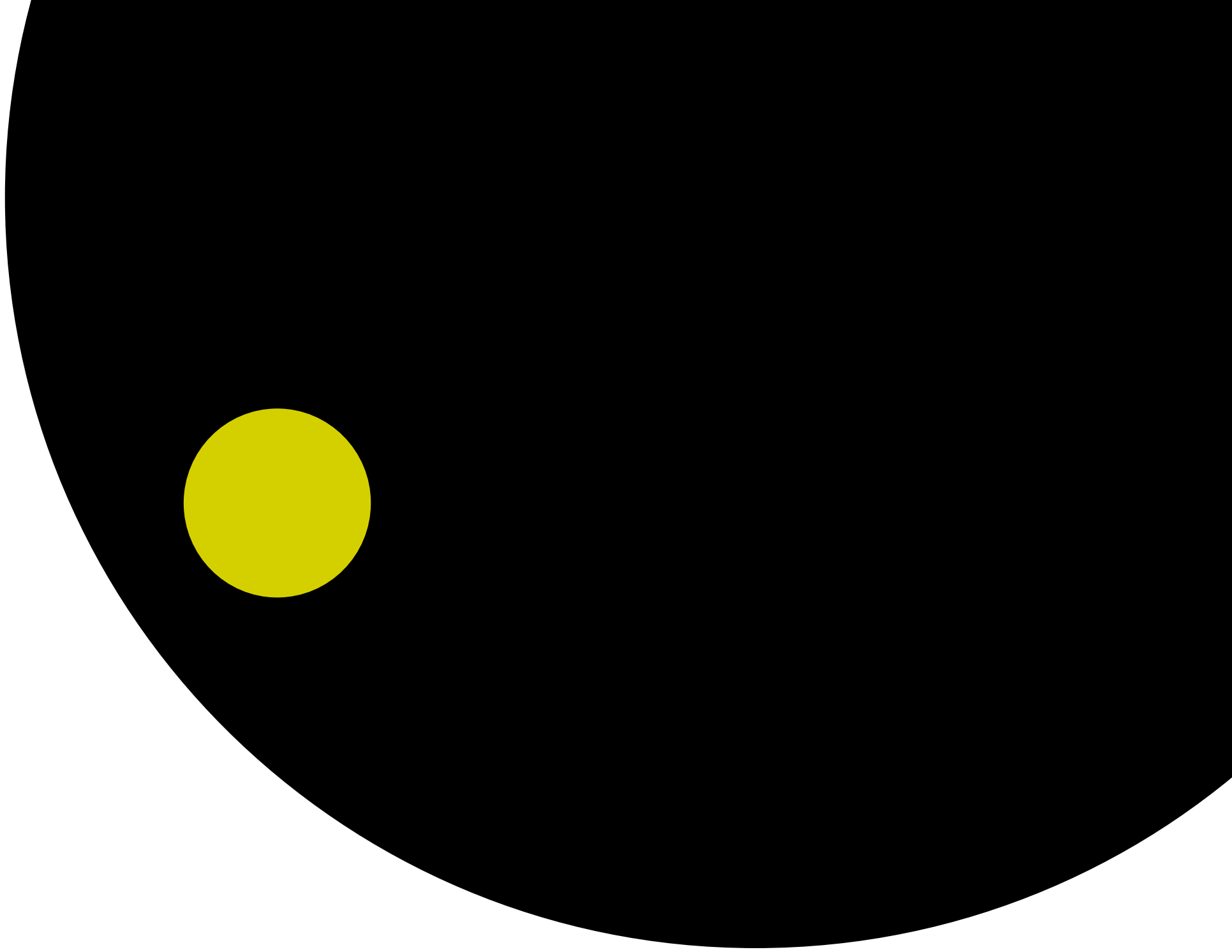


Uncovering risks and
identifying opportunities for
improvement









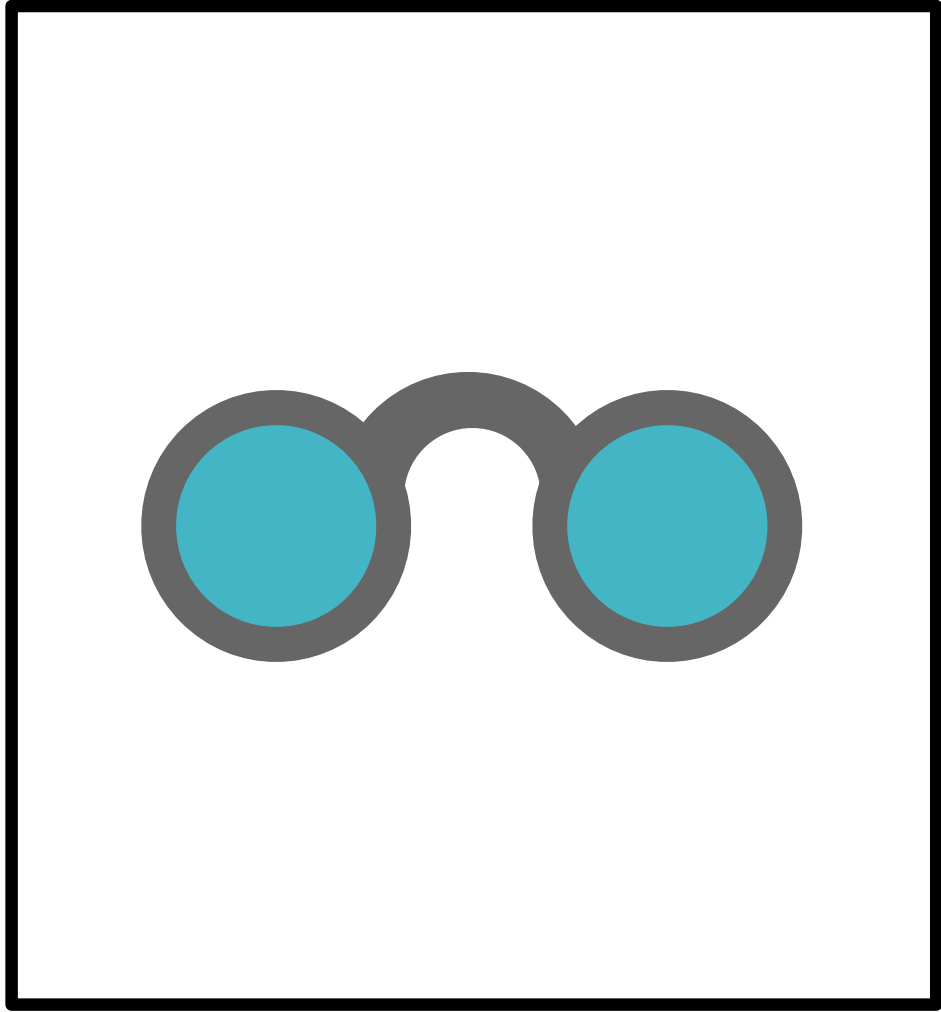
Drawing connections

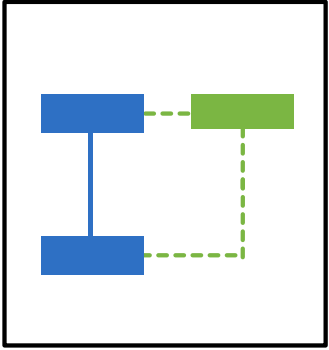
Making patterns

Sensing discrepancy

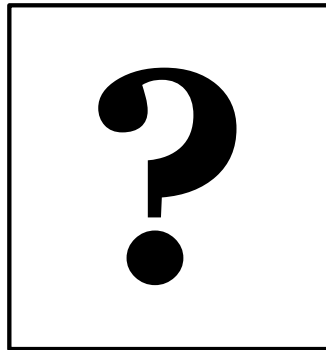
Perceiving novelty

Macrae, C. (2009). Making risks visible: Identifying and interpreting threats to airline flight safety. *Journal of Occupational and Organizational Psychology*, 82(2), 273–293.

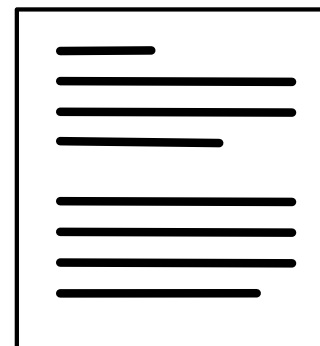
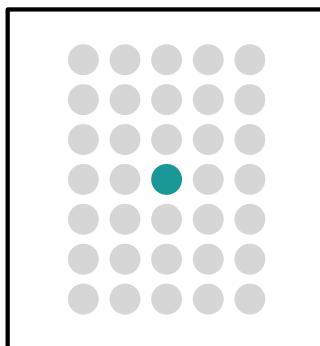
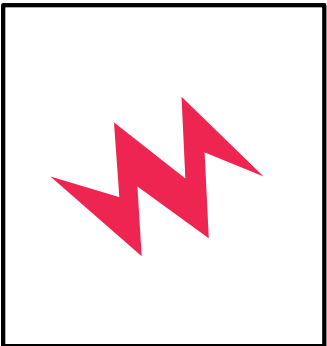
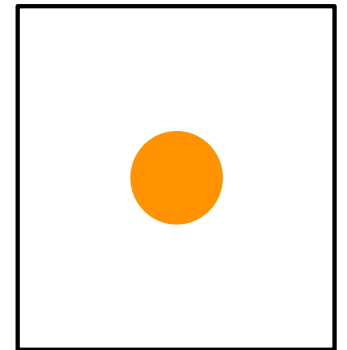
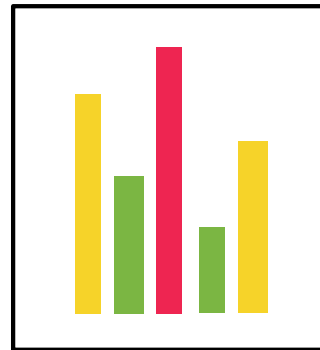


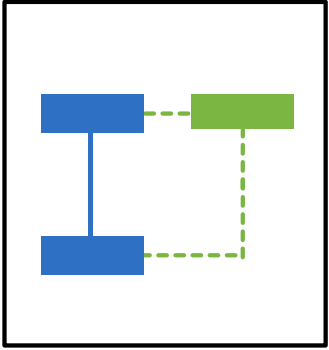


From hierarchy
to safe space

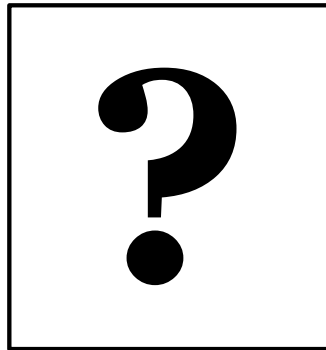


From reporting
to questioning

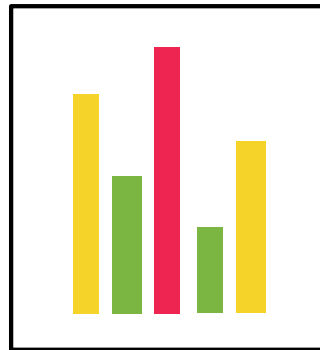




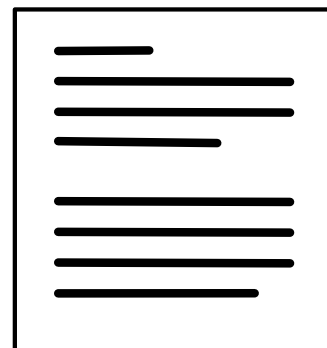
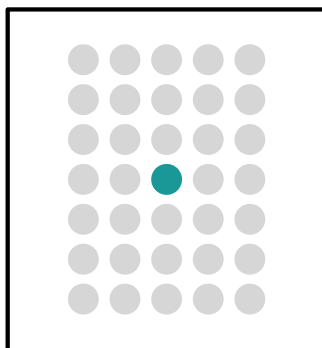
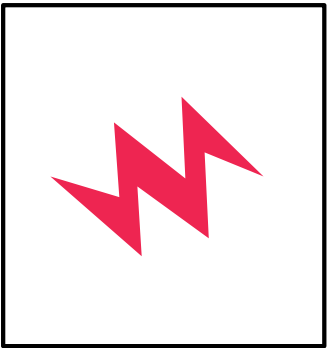
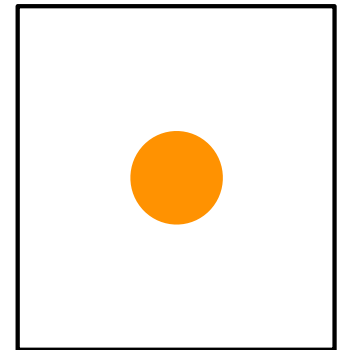
From hierarchy
to safe space

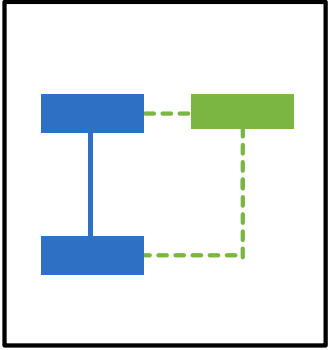


From reporting
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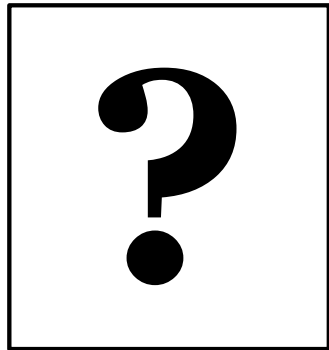


From counting

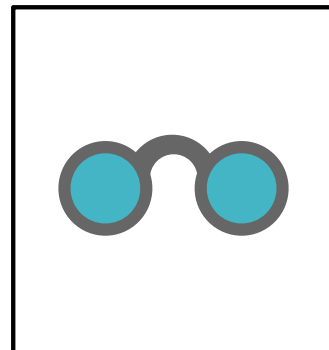




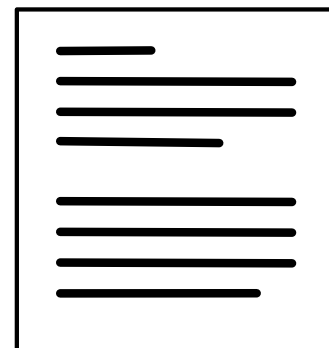
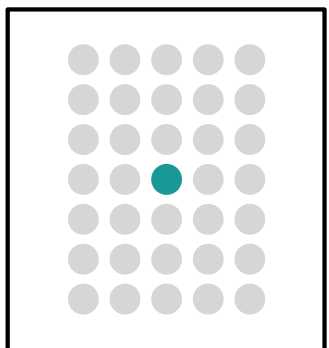
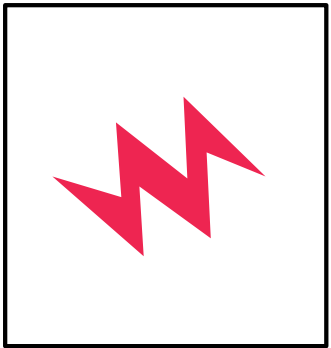
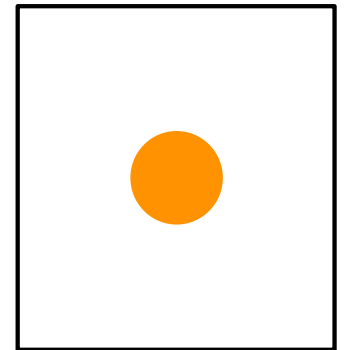
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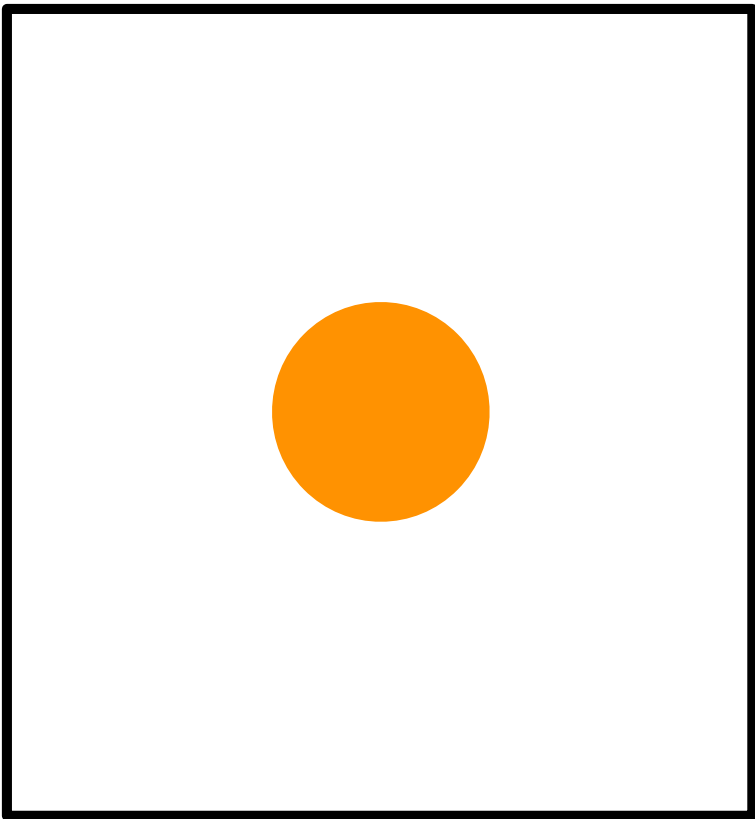


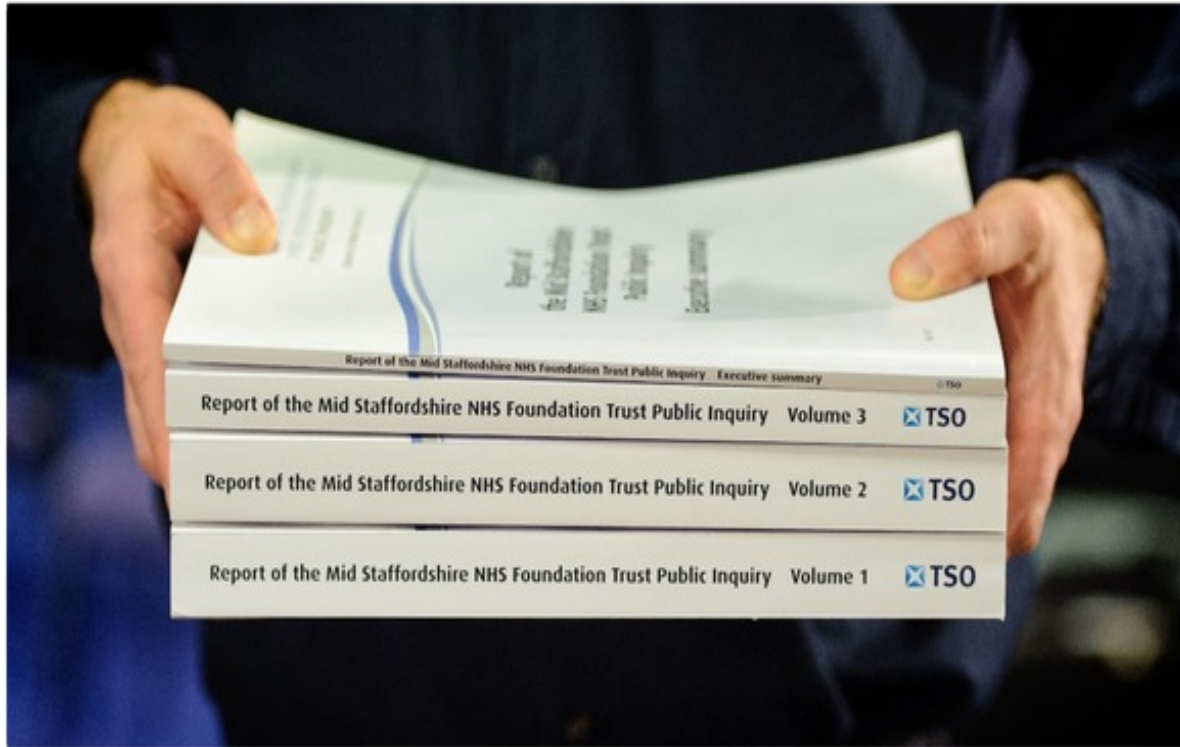
From reporting
to questioning



From counting
to searching







The Report of the Morecambe Bay Investigation

Dr Bill Kirkup CBE

March 2015

March 2015

“

One of the most challenging issues in healthcare is that the same situations keep creating similar kinds of error across the system

”

- Prof James Reason

Learning from failure: the need for independent safety investigation in healthcare

Carl Macrae¹ and Charles Vincent²

¹Centre for Patient Safety and Service Quality, Imperial College London, London W2 1PG, UK

²Department of Experimental Psychology, University of Oxford, Oxford OX1 3UD, UK

Corresponding author: Carl Macrae. Email: carlmacrae@mac.com

Tragedies are powerful motivators for learning and improvement. The only honourable response to the victims is to try to ensure that similar tragedies are not repeated in the future. In the NHS the report that led to the National Reporting and Learning System was entitled 'An Organisation with a Memory' precisely because of the ambition to capture the learning inherent in tragic incidents.¹ The recent Berwick review into patient safety in the NHS similarly speaks of 'A Promise to Learn' but also, tellingly, of a 'Commitment to Act'.² We clearly need a capacity for intelligent, thoughtful reflection on the causes of tragic events and, still more, a capacity for using this hard won knowledge to build a safer healthcare system. In this paper we suggest that this would be most effectively achieved by the creation of a small, permanent independent agency charged with coordinating major inquiries and safety investigations in the NHS. Such a model, if successful, could be applied in other healthcare systems.

occasional exceptions,³ local investigations rarely encompass the wider systemic factors that can contribute to serious failures of care, such as ambiguous regulatory requirements or inappropriate commissioning.

Regulators, commissioners, and other NHS and professional bodies all conduct their own different forms of safety investigation. These provide important insights into patient safety from the perspective of the agency involved.⁴ However, these investigations are necessarily conducted by organisations that may themselves inadvertently contribute to the emergence of system-wide safety issues and recommendations from these inquiries tend to focus on punitive sanctions, regulatory enforcement and performance management.

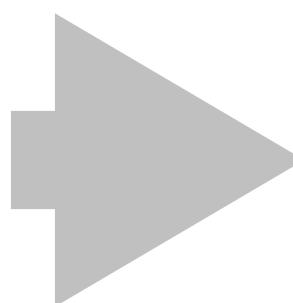
At a national level efforts to learn from major tragedies take a variety of forms. The most high-profile approaches are independent or public inquiries,

Safety investigation in the NHS

The NHS currently has no consistent way of investigating and learning from safety incidents. It is a smorgasbord of approaches to investigate systemic safety issues at various levels of the healthcare system with little apparent logic or strategy underlying their distribution. These span locally managed investigations, commissioning and regulations, rapid reviews, service reviews and public inquiries (see online supplement for details and examples).

Individual NHS trusts conduct large investigations into serious safety incidents with the assistance of external advisers. Investigations can lead to important local safety improvements, particularly when linked to a broader strategy. However, the scope of these investigations is necessarily focused on a specific

The screenshot shows a BBC News article from 4 June 2016. The headline is "NHS bungles 'need air-crash investigators'". The sub-headline reads: "The NHS needs an aviation-style independent safety investigation agency to make sure it learns from its mistakes, experts have said." The article text states: "Academics have criticised a 'straggled' of approaches to investigating incidents that could put patients at risk 'with little apparent consistency, logic or strategy underlying their design or execution'." It also mentions that the report was published in the Journal of the Royal Society of Medicine and that the authors are Carl Macrae of Imperial College London and Charles Vincent of the University of Oxford.



The National Health Service Trust Development Authority (Healthcare Safety Investigation Branch) Directions 2016

The Secretary of State for Health, in exercise of the powers conferred by sections 7, 8, 27(2) (7) and (8) and paragraph 3 of Schedule 6 to the National Health Service Act 2006(a), makes the following Directions:

Citation, Interpretation, coming into force and application etc

- 1.—(1) These Directions—
 - (a) may be cited as the National Health Service Trust Development Authority (Healthcare Safety Investigation Branch) Directions 2016;
 - (b) come into force on 1st April 2016.
- (2) In these Directions—
 - “the 2006 Act” means the National Health Service Act 2006;
 - “accidents” includes clinical accidents;
 - “annual allocation” has the meaning given in paragraph 11(5);
 - “the Authority” means the National Health Service Trust Development Authority established pursuant to section 28 of the 2006 Act(b);
 - “the Chief Investigator” means the person holding that appointment pursuant to paragraph 3(1);
 - “commissioner” means a clinical commissioning group(c) or the Board(d), or a local authority exercising functions pursuant to the 2006 Act in relation to the health service;
 - “financial year” means a twelve-month period beginning on the 1st of April;
 - “health service regulator” means the Care Quality Commission(e) or Monitor(f);
 - “the Investigation Branch” has the meaning given in paragraph 2(1);
 - “patient” means users of services provided as part of the health service(g) in England;
 - “professional regulatory bodies” means regulatory bodies within the meaning of section 23(3) of the National Health Service Reform and Health Care Professions Act 2002(h);
 - “provider” means any body or person, other than a clinical commissioning group or the Board, engaged in the provision of goods or services for the purposes of the health service in England;
 - “safe space principle” has the meaning given in paragraph 6(1).
- (3) These Directions are given to the Authority and relate to the following matters provided for in the 2006 Act—
 - (a) the Secretary of State for Health, in exercise of the powers conferred by sections 7, 8, 27(2) (7) and (8) and paragraph 3 of Schedule 6 to the 2006 Act, and



Health

Air crash investigator to head new health safety body

4 June 2016 | Health

Share



The UK's chief inspector of air accidents is the leading contender to run a new organisation which aims to make the NHS in England safer.

Keith Conradi's appointment as head of the new Healthcare Safety Investigation Branch is due to be confirmed at a parliamentary hearing next week.

Leading doctors have said for many years that healthcare has a lot to learn from

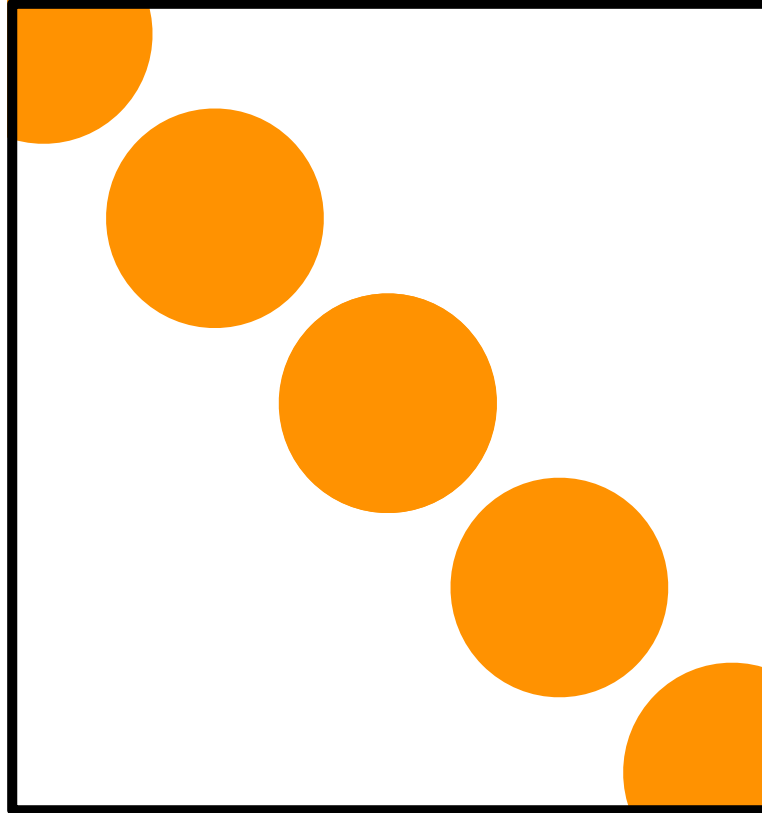
Investigating for Improvement

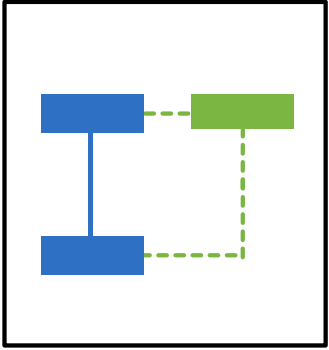
Building a national safety investigator for healthcare

Carl Macrae and Charles Vincent
University of Oxford

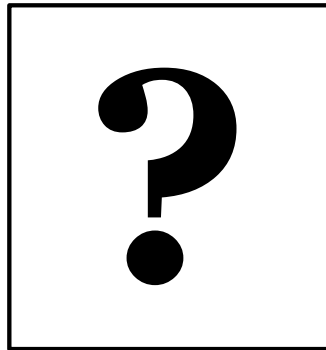


chfg Thought paper
March 2017

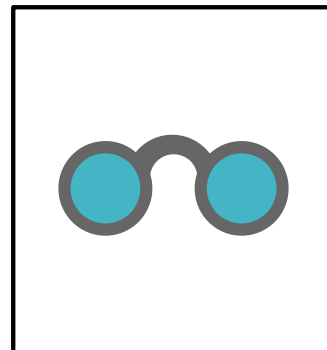




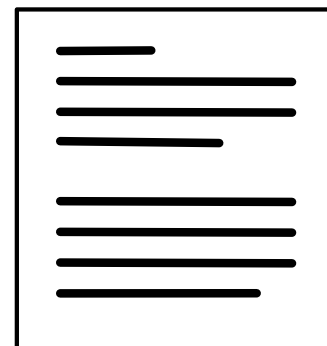
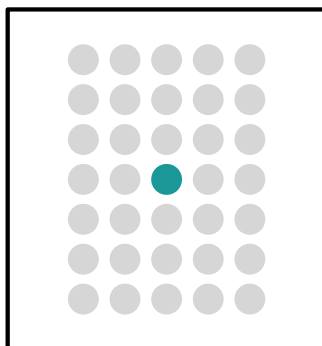
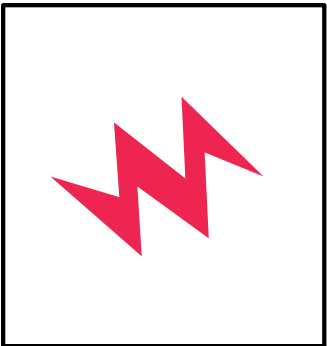
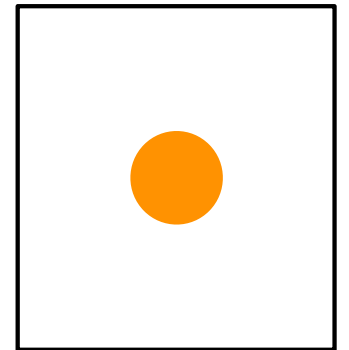
From hierarchy
to safe space

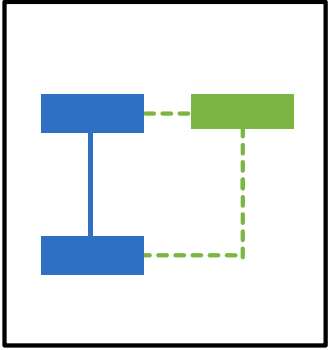


From reporting
to questioning

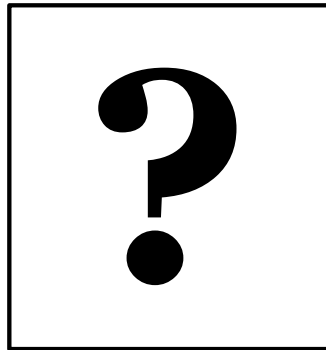


From counting
to searching

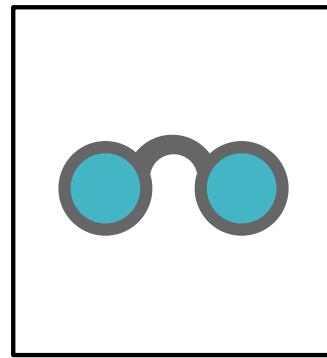




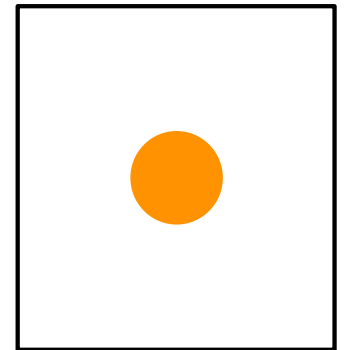
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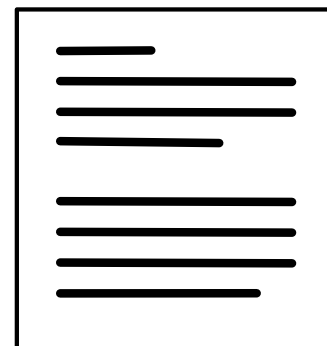
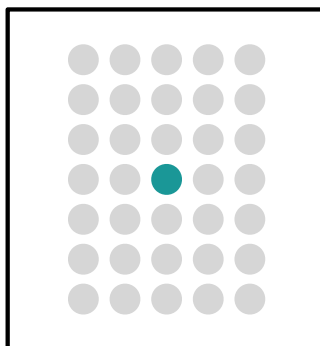
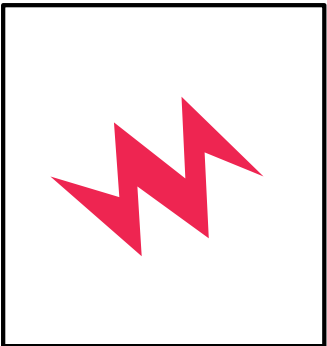
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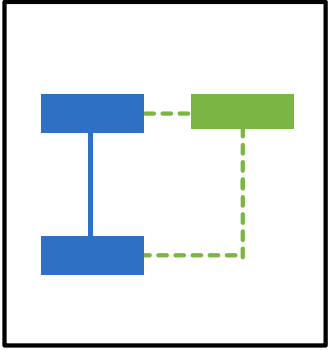


From counting
to searching

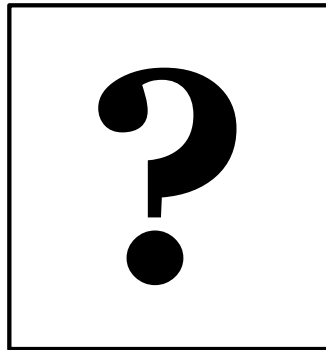


From incidents

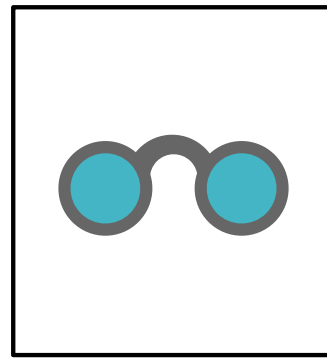




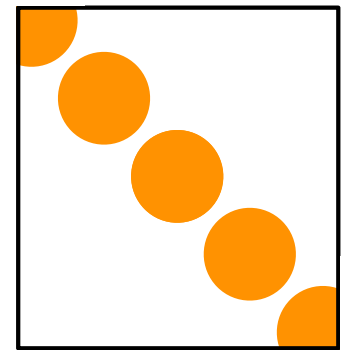
From hierarchy
to safe space



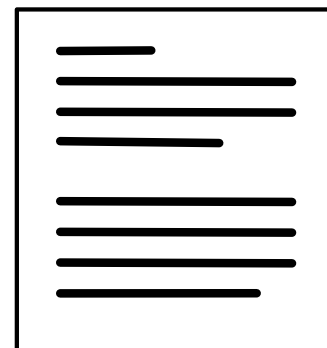
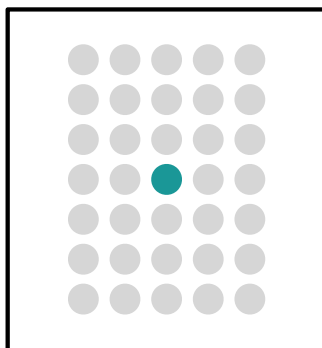
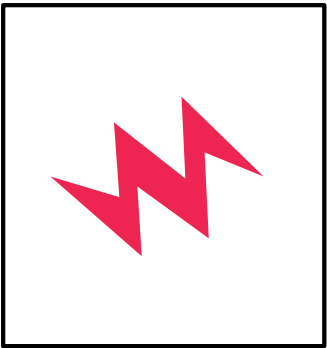
From reporting
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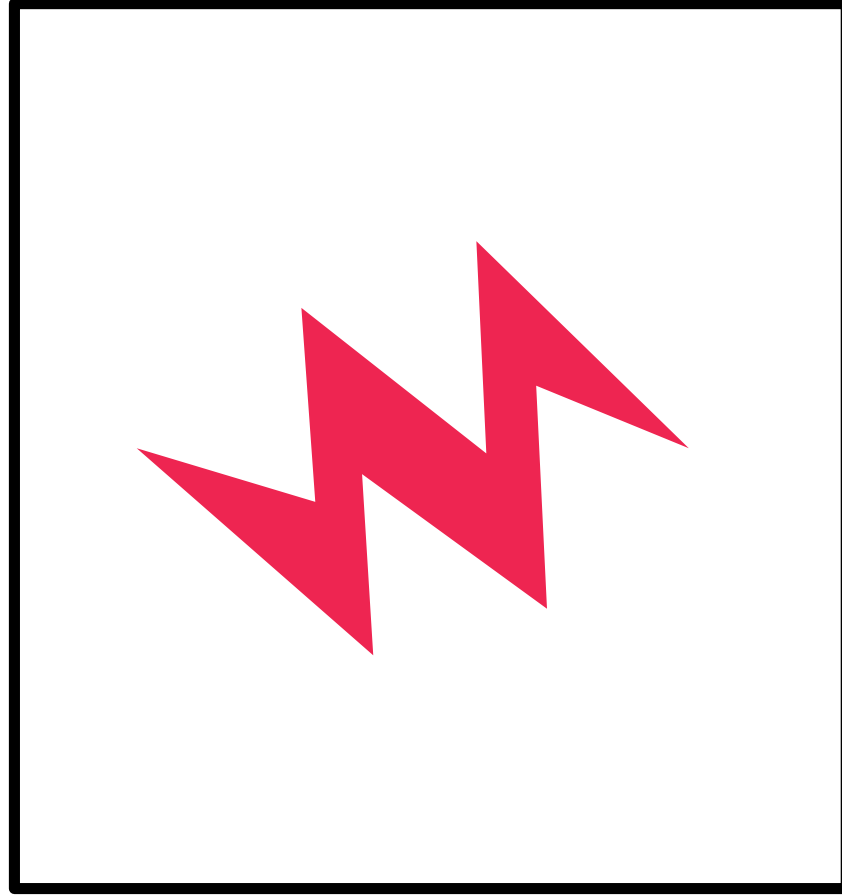


From counting
to searching



From incidents
to issues







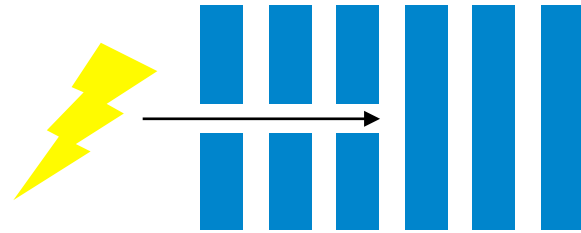
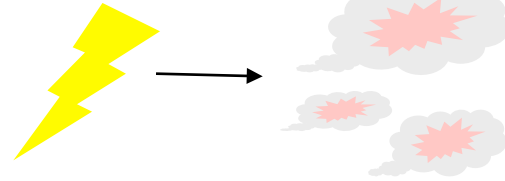
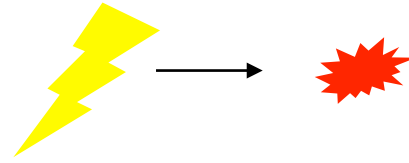
Incident analysis

Analysis of clinical incidents: a window on the system not a search for root causes

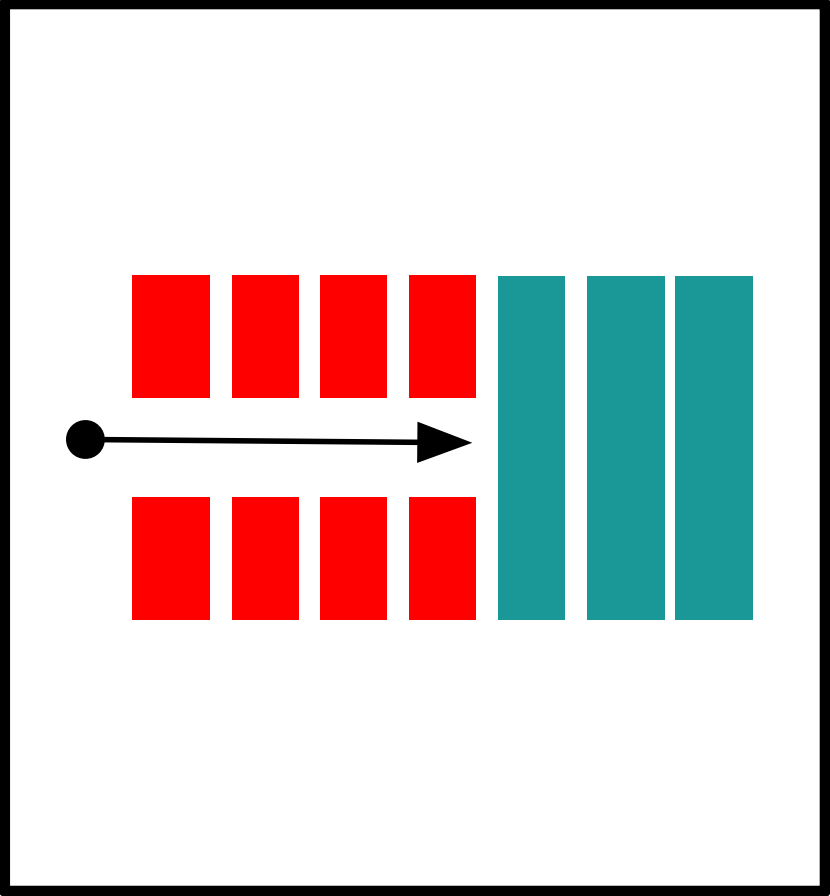
C A Vincent

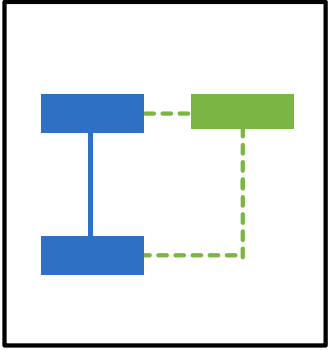
Qual Saf Health Care 2004;**13**:242–243.
doi: 10.1136/qshc.2004.010454



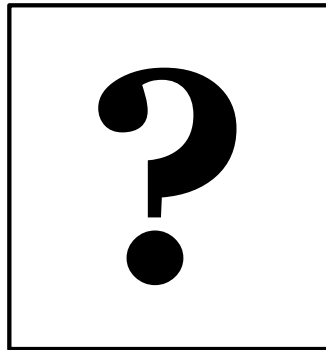


Understanding how work is done in practice, how practices are organised and implemented, and how close we are to breaching safety defences

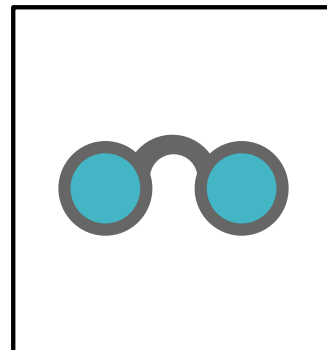




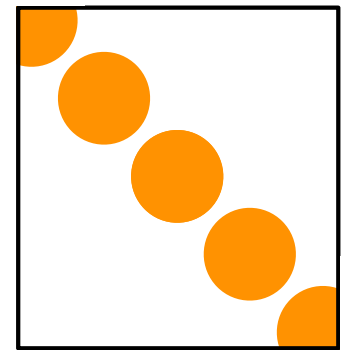
From hierarchy
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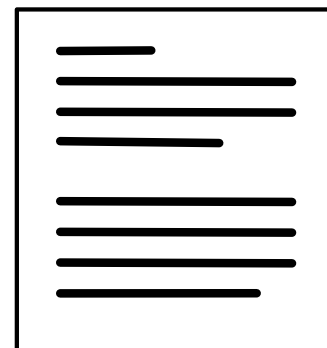
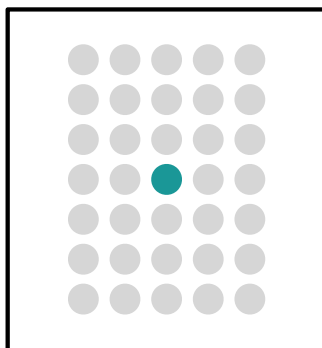
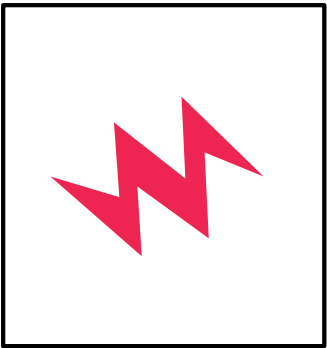
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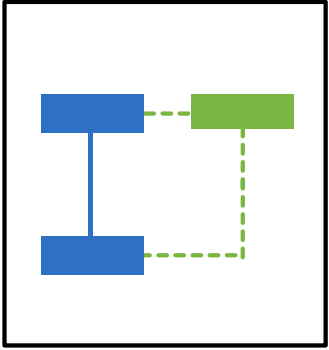


From counting
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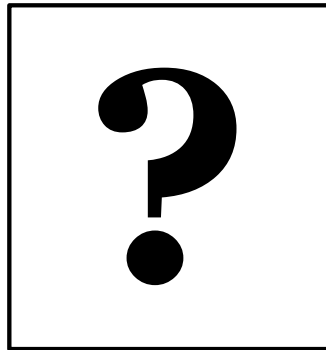


From incidents
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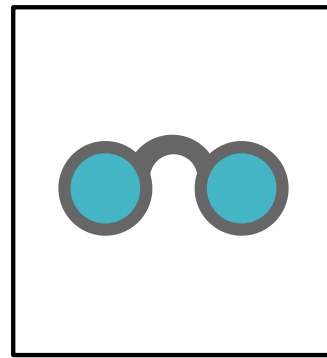




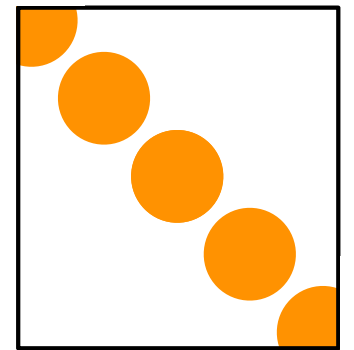
From hierarchy
to safe space



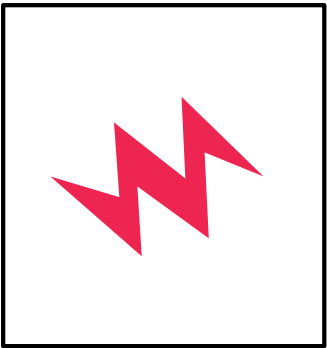
From reporting
to questioning



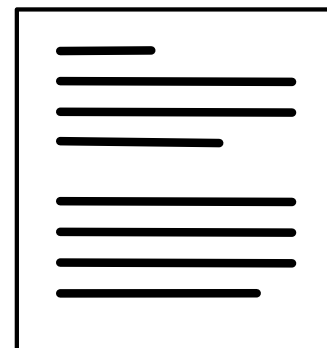
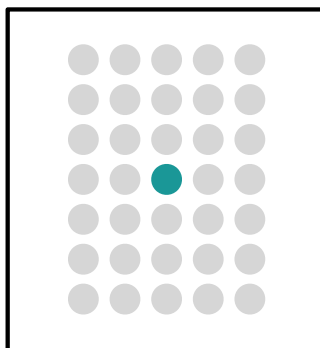
From counting
to searching

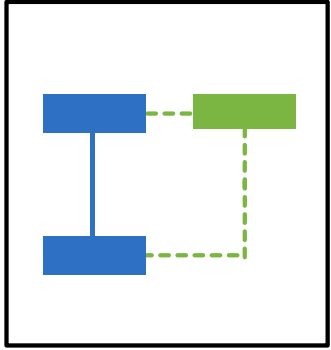


From incidents
to issues

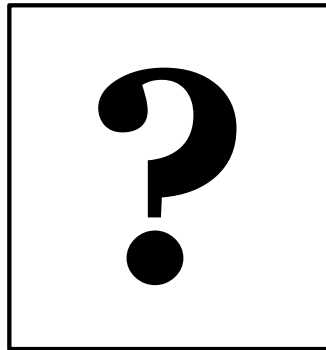


From outcomes

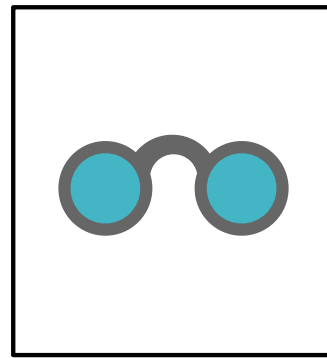




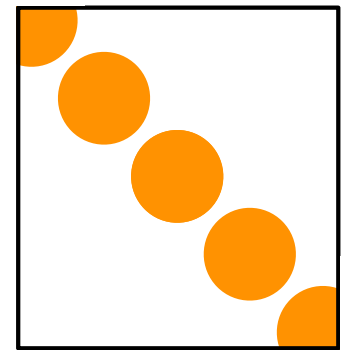
From hierarchy
to safe space



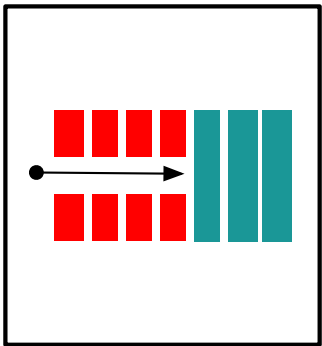
From reporting
to questioning



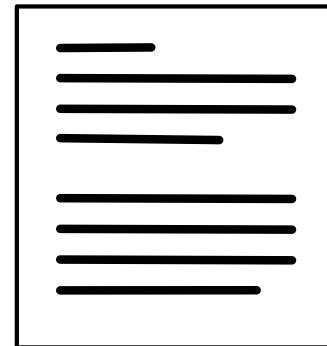
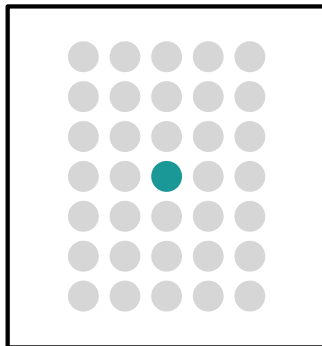
From counting
to searching

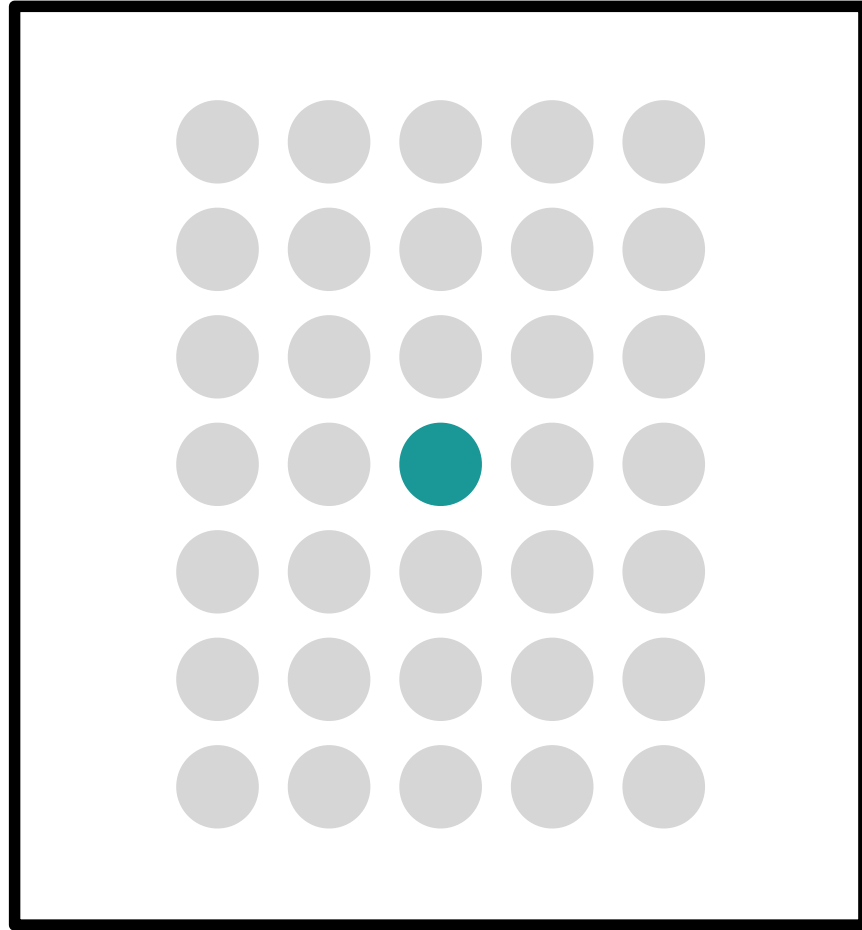


From incidents
to issues



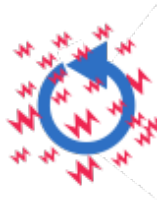
From outcomes
to systems

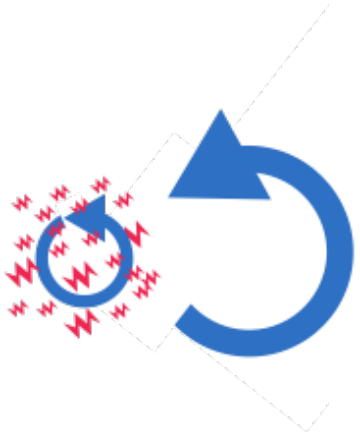


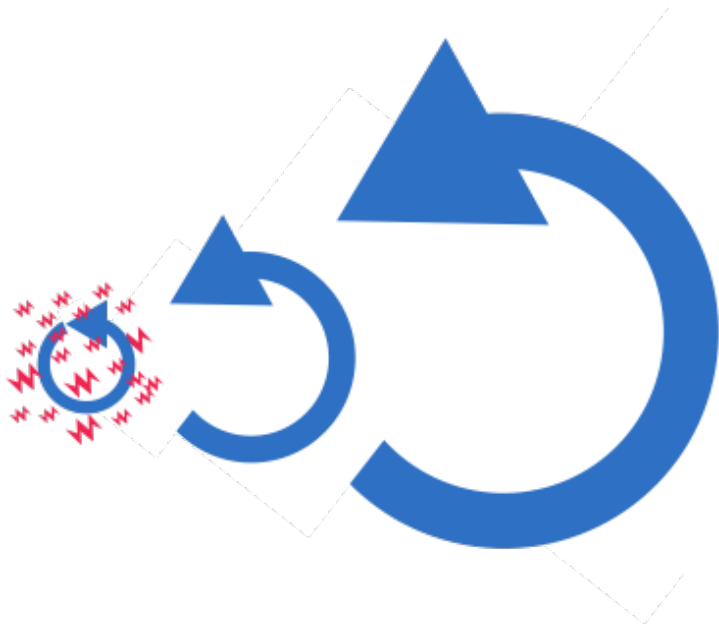


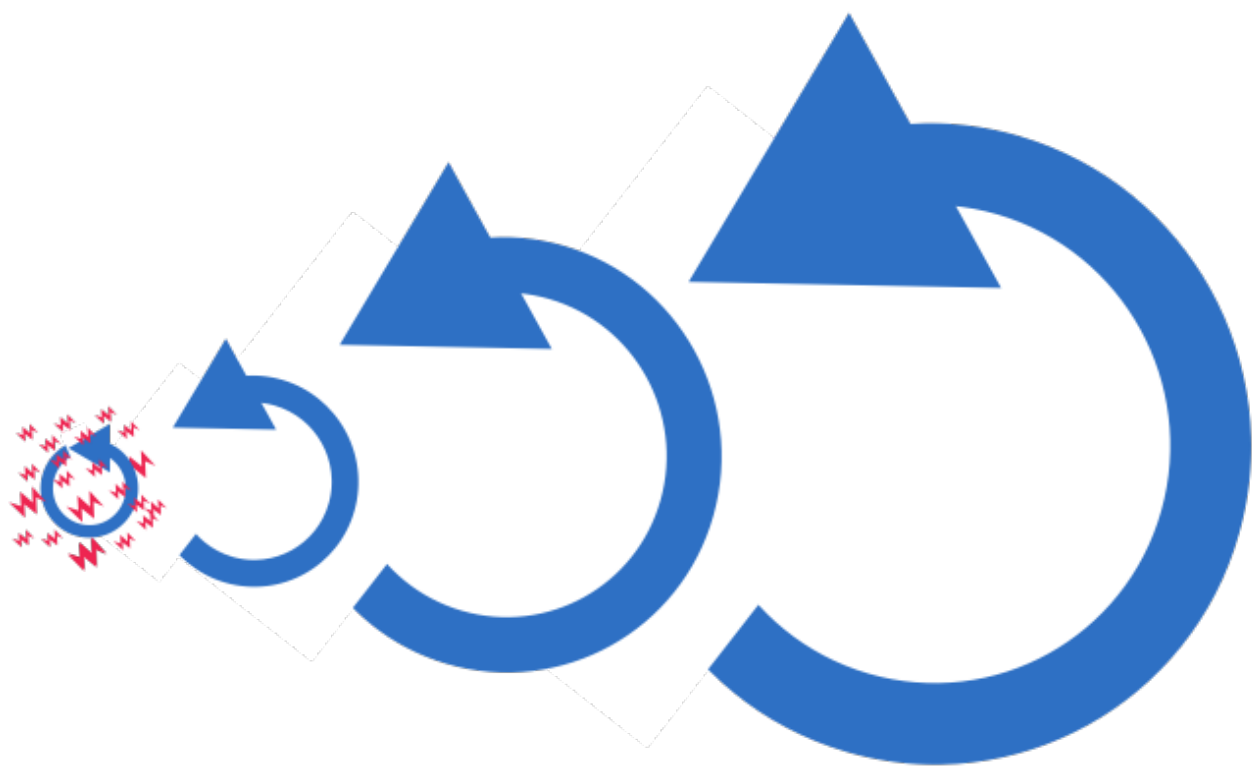
Culture can be defined by the
quantity and quality of
conversations about safety

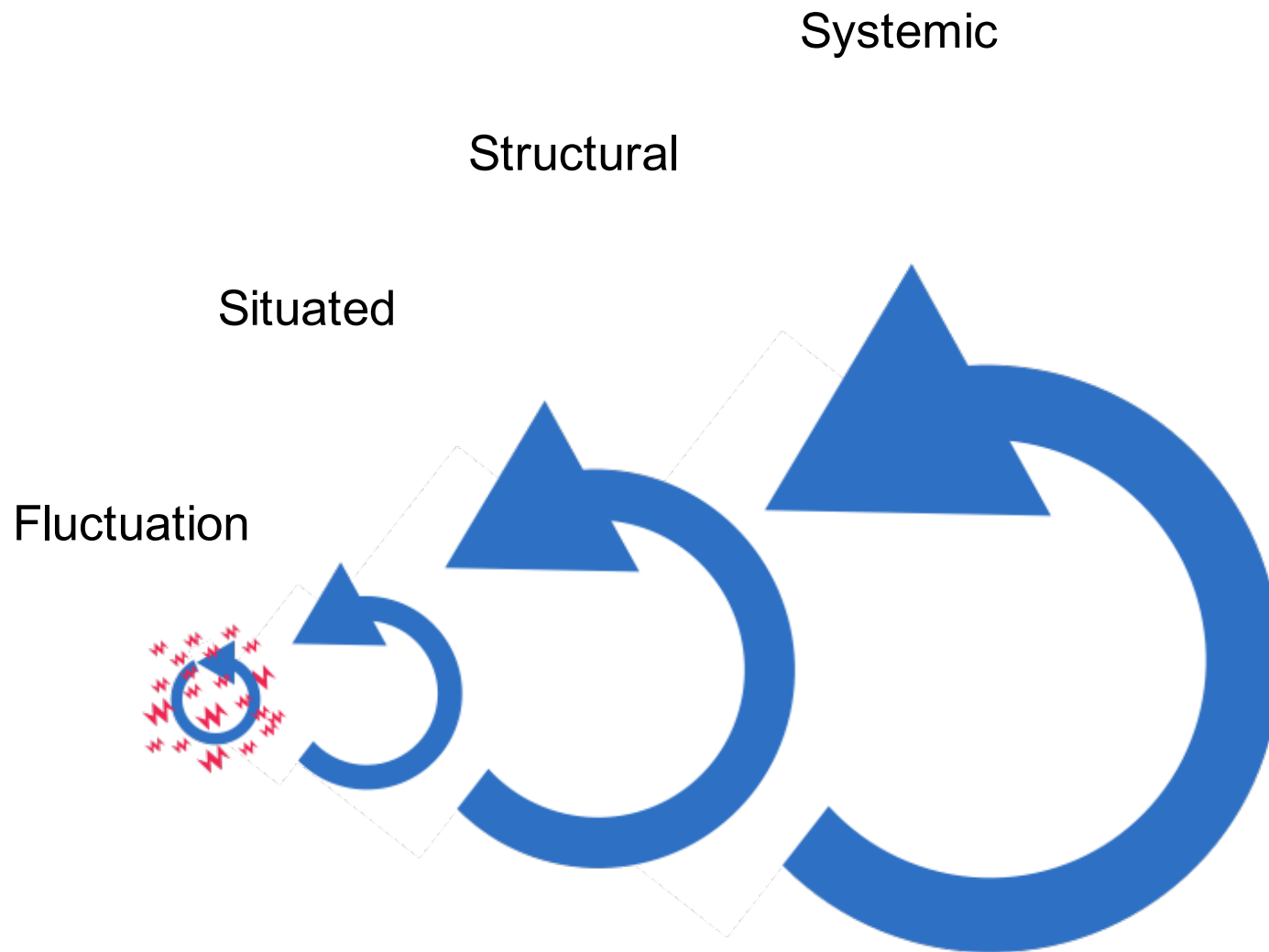
Process of collectively re-examining
and reflecting on work systems, and
making this a routine part of
everyone's work

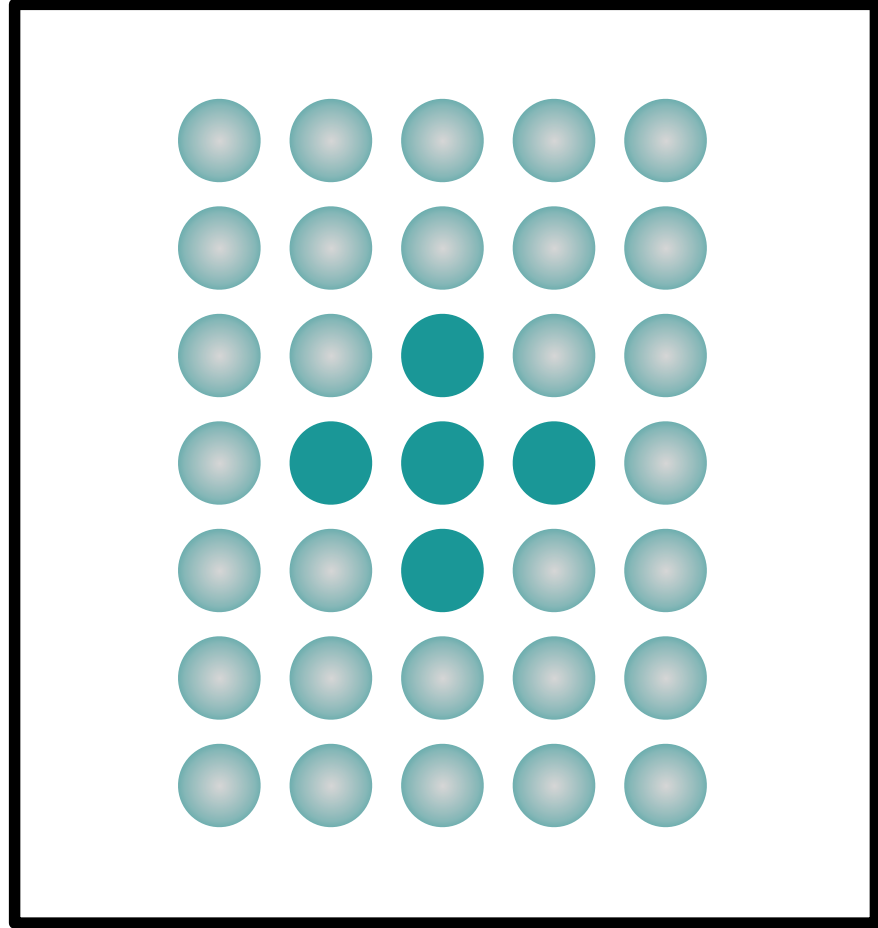


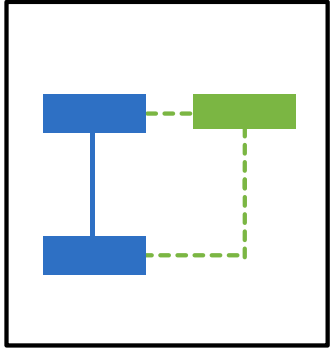




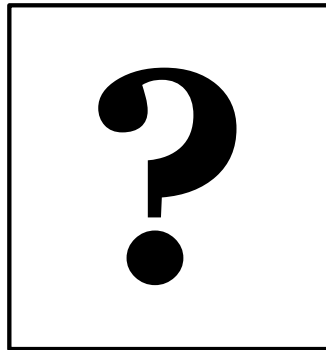




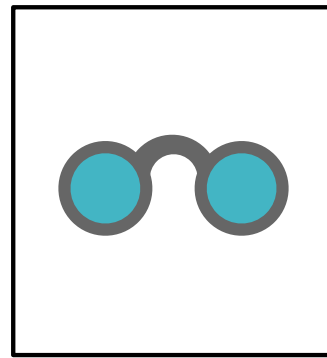




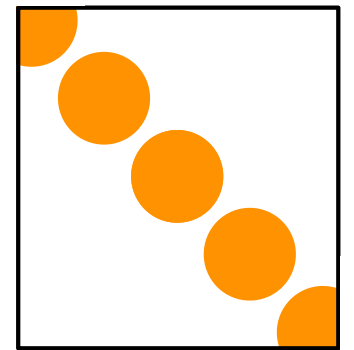
From hierarchy
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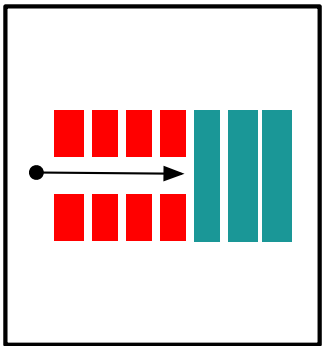
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to questioning



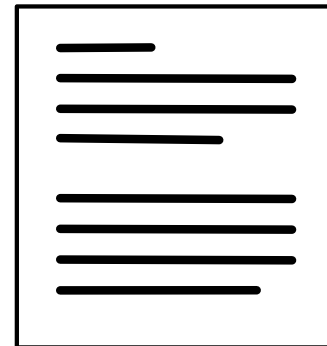
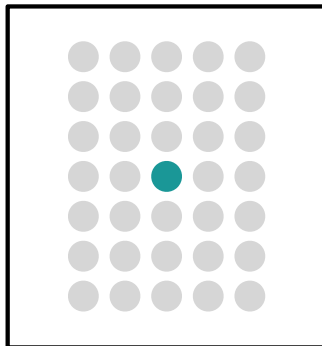
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to searching

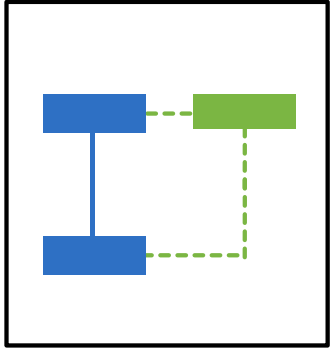


From incidents
to issues

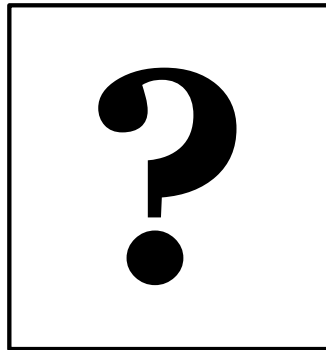


From outcomes
to systems

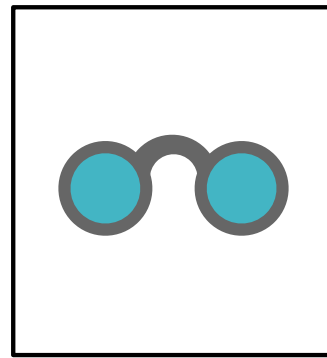




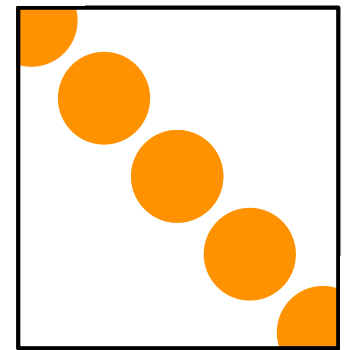
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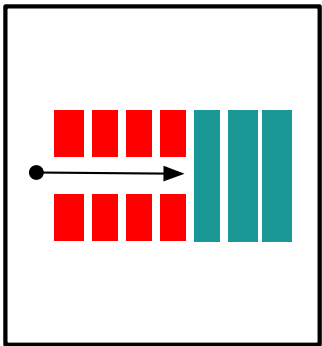
From reporting
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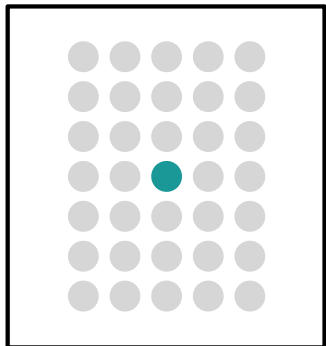
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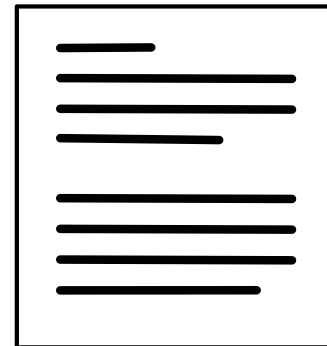
From incidents
to issues

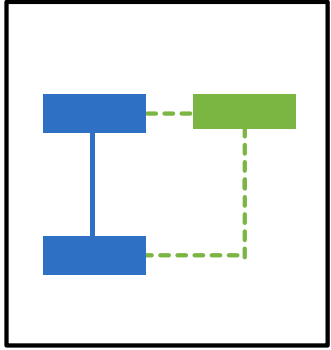


From outcomes
to systems

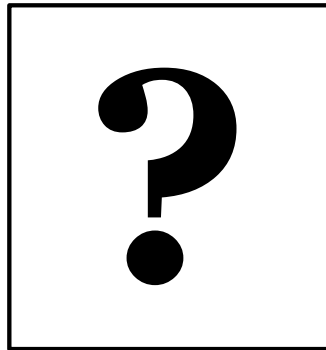


From centralised

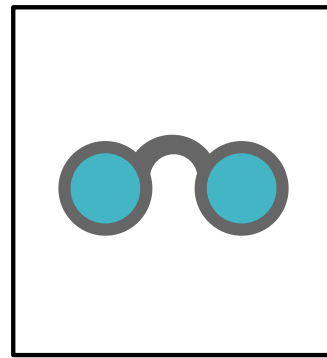




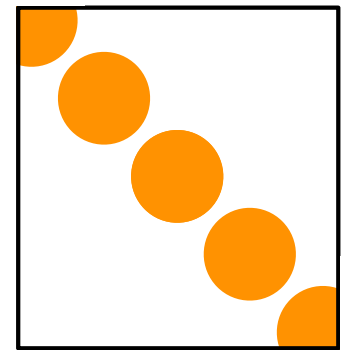
From hierarchy
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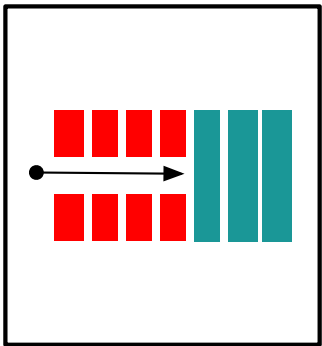
From reporting
to questioning



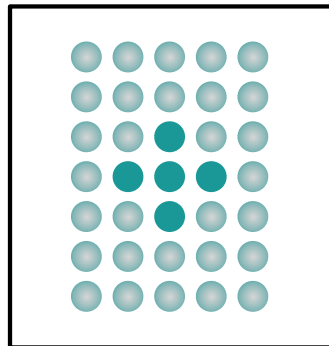
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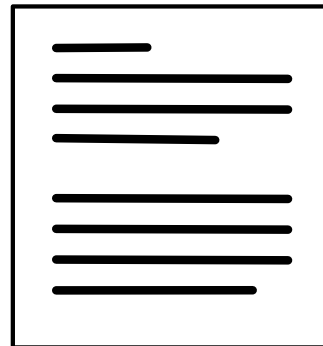
From incidents
to issues

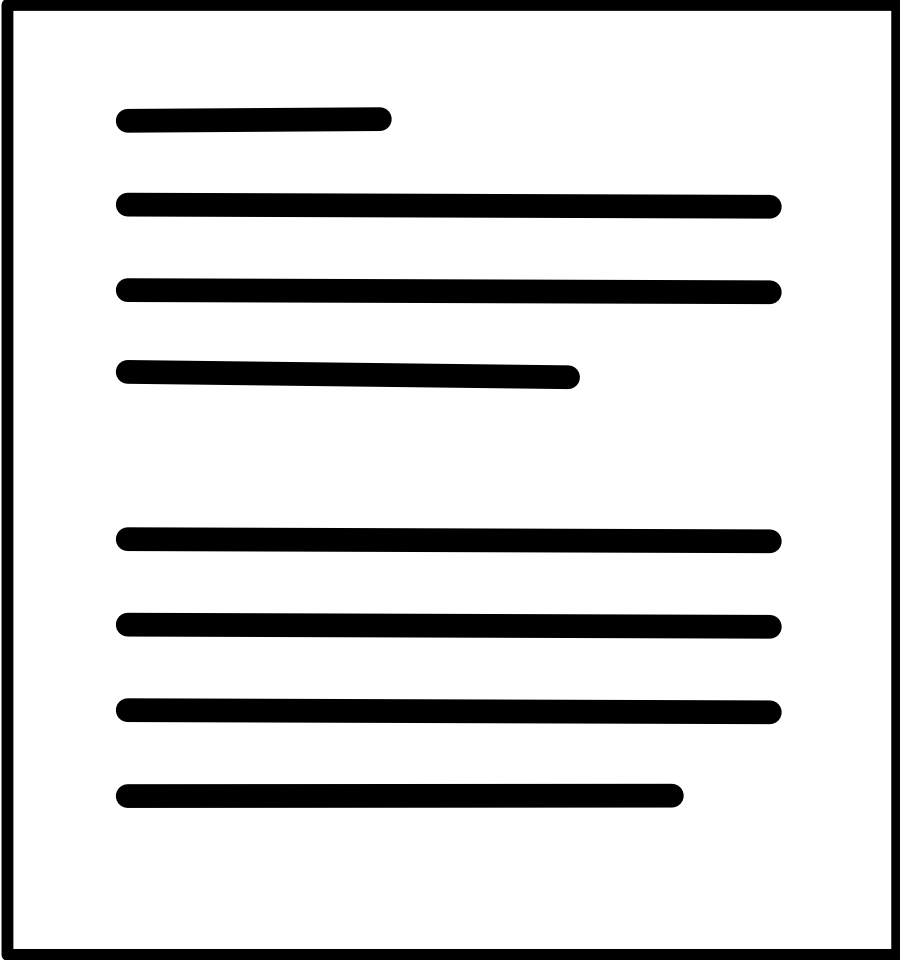


From outcomes
to systems



From centralised
to distributed





The situation which led to the establishment of the British Airways safety information system (BASIS)

"In 1989 British Airways possessed 47 four-drawer filing cabinets full of the results of past investigations. Most of this paperwork had only historic value. An army of personnel would have been required if the files were to be comprehensively examined for trends or to produce useful analyses."

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THE ROYAL AIR FORCE
The Royal Aero Club of the United Kingdom
AN OFFICIAL SOCIETY OF THE ROYAL AIR FORCE

The Royal Aero Club of the United Kingdom is a charitable organization which promotes the development of aviation in the United Kingdom. It was founded in 1909 and is the largest aviation organization in the world. The Club is a member of the International Federation of Aeronautical Organizations (IFAO) and the International Council of Aeronautical Organizations (ICO). The Club is also a member of the Royal Aeronautical Society (RAeS) and the Royal Society of Aeronautics (RSA).

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CH

In situ simulation: detection of safety threats and teamwork training in a high risk emergency department

Mary D Patterson,^{1,2} Gary Lee Geis,^{1,3,4} Richard A Falcone,⁵ Thomas LeMaster,¹ Robert L Wears^{6,7}

ABSTRACT

Objective Implement and demonstrate feasibility of in situ simulations to identify latent safety threats (LSTs) at a higher rate than lab-based training, and reinforce teamwork training in a paediatric emergency department (ED).

Methods Multidisciplinary healthcare providers responded to critical simulated patients in an urban ED during all shifts. Unannounced in situ simulations were limited to 10 min of simulation

BACKGROUND AND CONTEXT

In situ simulation has been described as 'crash testing the dummy'.¹ More recently, it is a team-based training technique conducted in actual patient units using equipment and resources from that unit and involving members of the healthcare team. While simulation has often been used as a strategy to train individuals in

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Safety Science xxx (2016) xxx-xxx

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Delivering high reliability in maternity care: In situ simulation as a source of organisational resilience

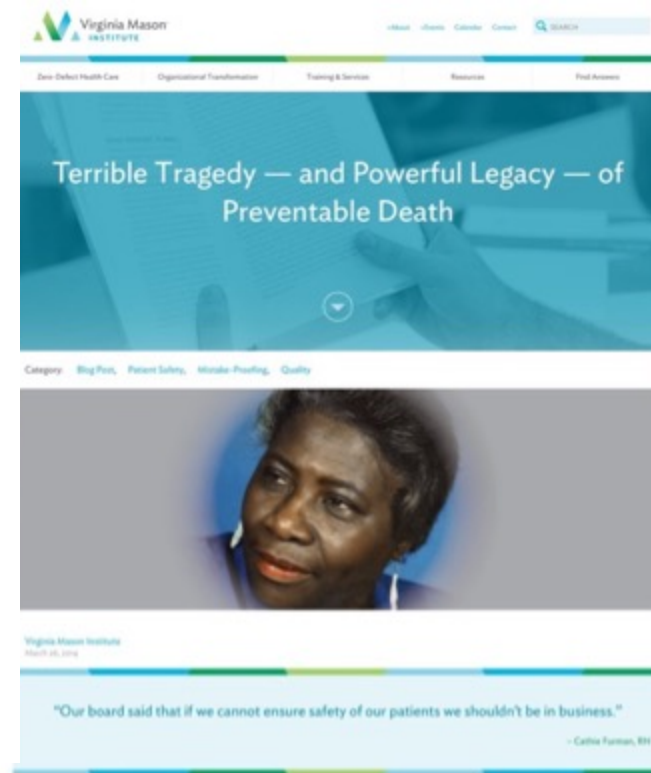
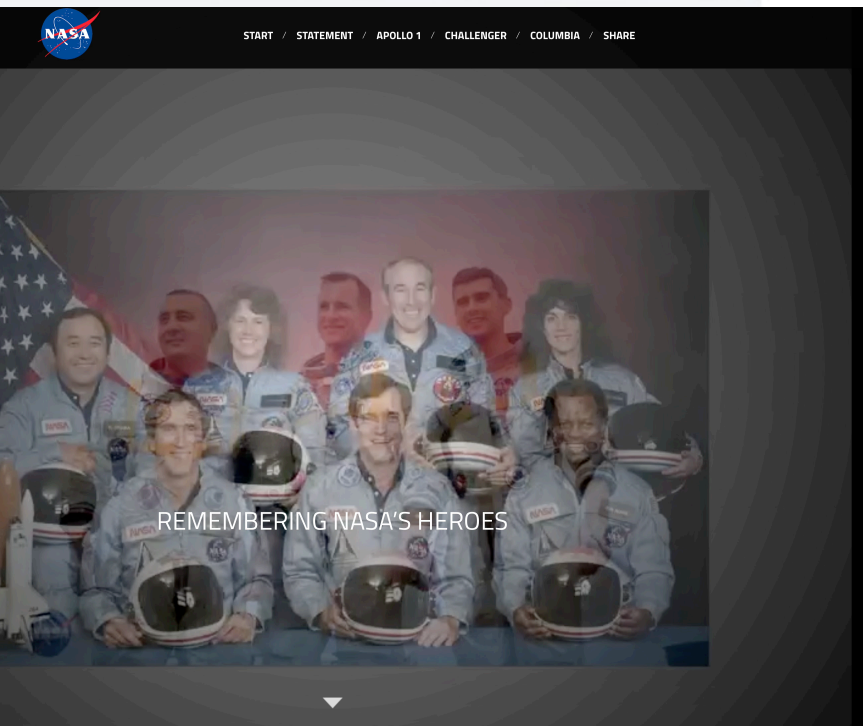
Carl Macrae^{a,*}, Tim Draycott^b

^aDepartment of Experimental Psychology, University of Oxford, Tinbergen Building, 9 South Parks Road, Oxford OX1 3UD, United Kingdom

^bSchool of Social and Community Medicine, University of Bristol, Southmead Hospital, Bristol BS10 5NB, United Kingdom

ARTICLE INFO

ABSTRACT



Remembering to learn: the overlooked role of remembrance in safety improvement

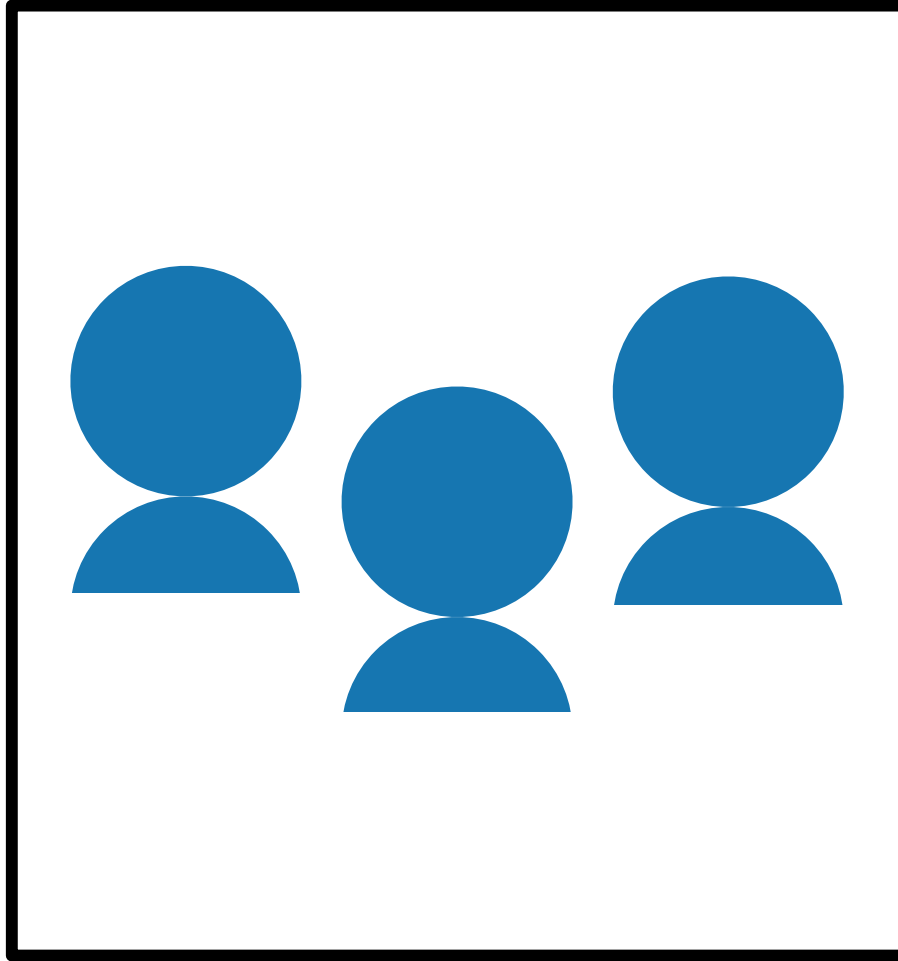
Carl Macrae

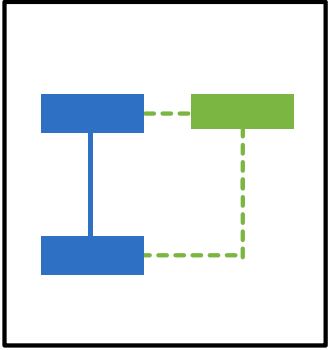
Correspondence to
Dr Carl Macrae, Department
of Experimental Psychology,
University of Oxford, Tinbergen
Building, 9 South Parks Road,
Oxford OX1 3UD, UK;
carlmacrae@mac.com

Received 31 March 2016
Revised 16 September 2016
Accepted 28 October 2016
Published Online First
18 November 2016

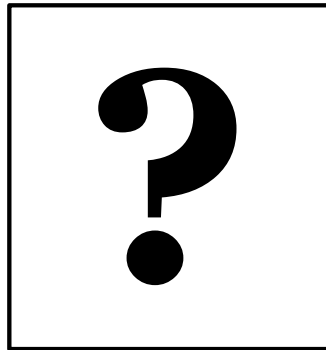
Memory, and remembering the past, are fundamental to patient safety. One of the core objectives of safety improvement is to learn from the past in order to improve the future. This commitment to remember and to learn is central to the strategies that have shaped the evolution of patient safety such as 'An organisation with a memory',¹ and underpins definitive academic research such as Bosk's 'Forgive and Remember'.² Remembering

is and what its defining features look like, drawing on three practical examples in safety-critical settings. Then, the paper analyses the functions and purposes that remembrance might serve in organisational settings and why these resonate with current challenges in patient safety. The paper then considers the potential risks of remembrance, and concludes by considering how this new arena of research and practice might be taken

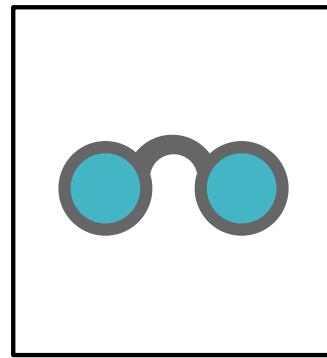




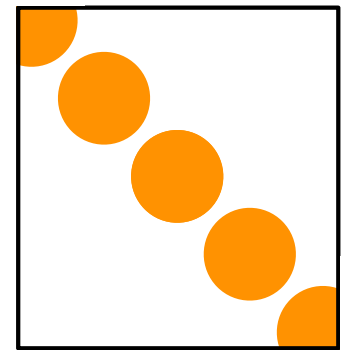
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to safe space



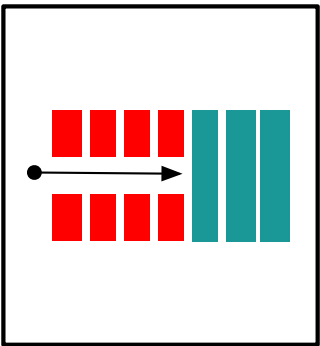
From reporting
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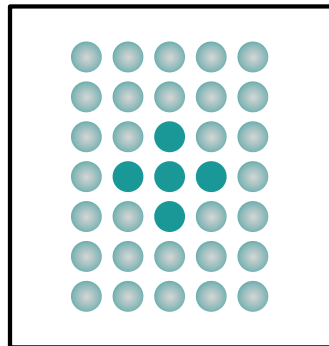
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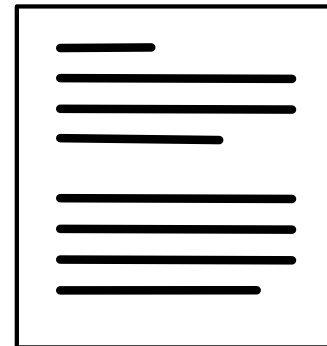
From incidents
to issues

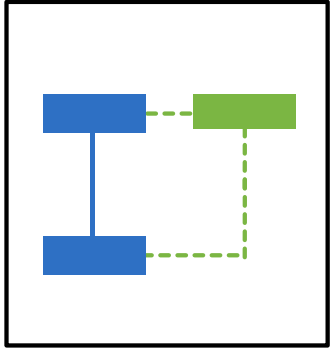


From outcomes
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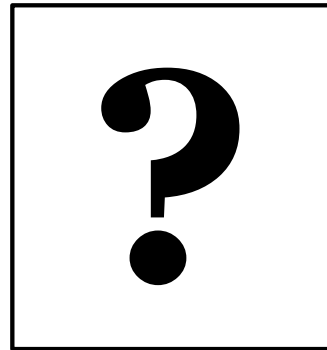


From centralised
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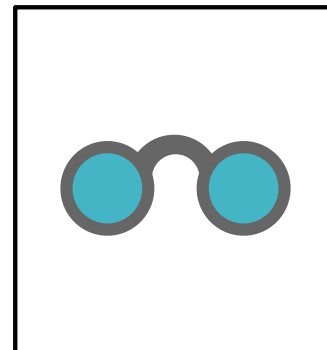




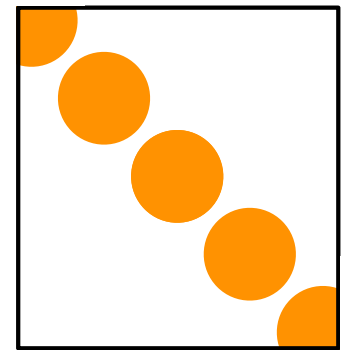
From hierarchy
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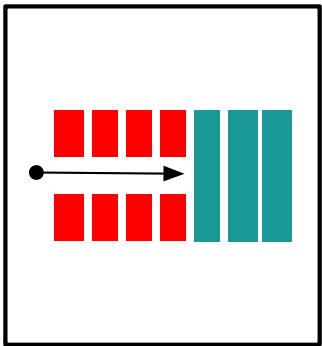
From reporting
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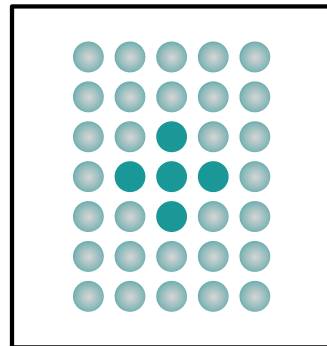
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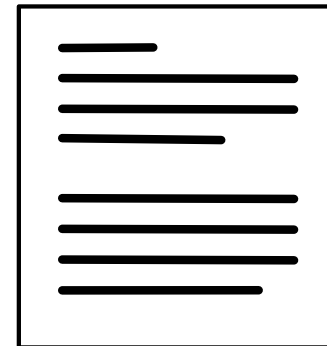
From incidents
to issues



From outcomes
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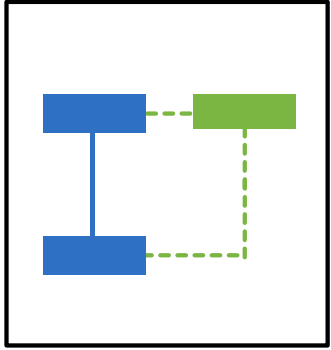


From centralised
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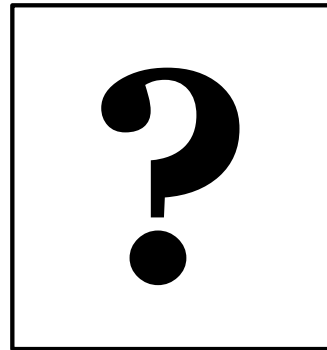


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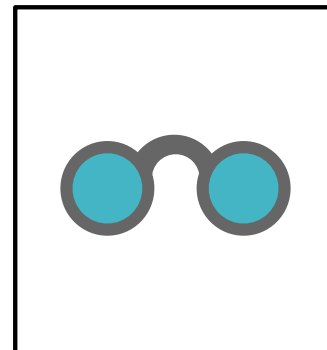




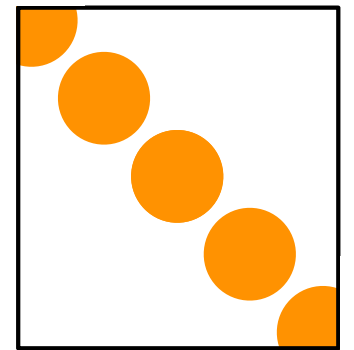
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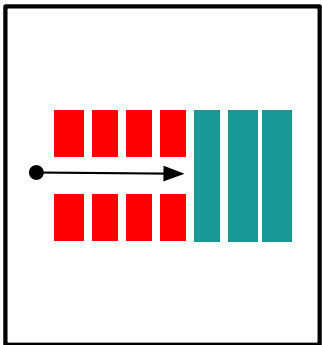
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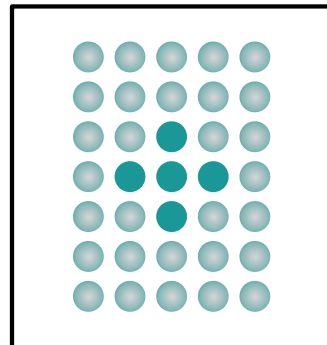
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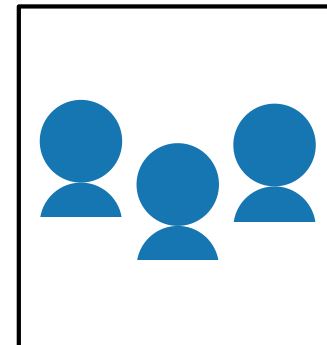
From incidents
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From outcomes
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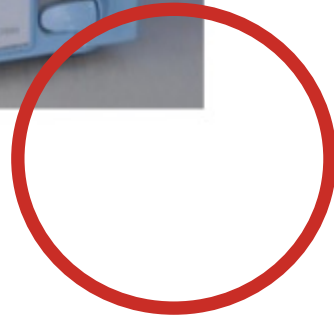
From centralised
to distributed



From data
to conversation

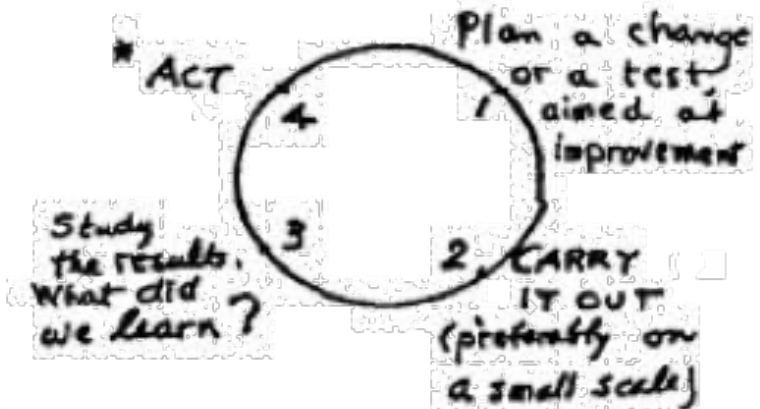






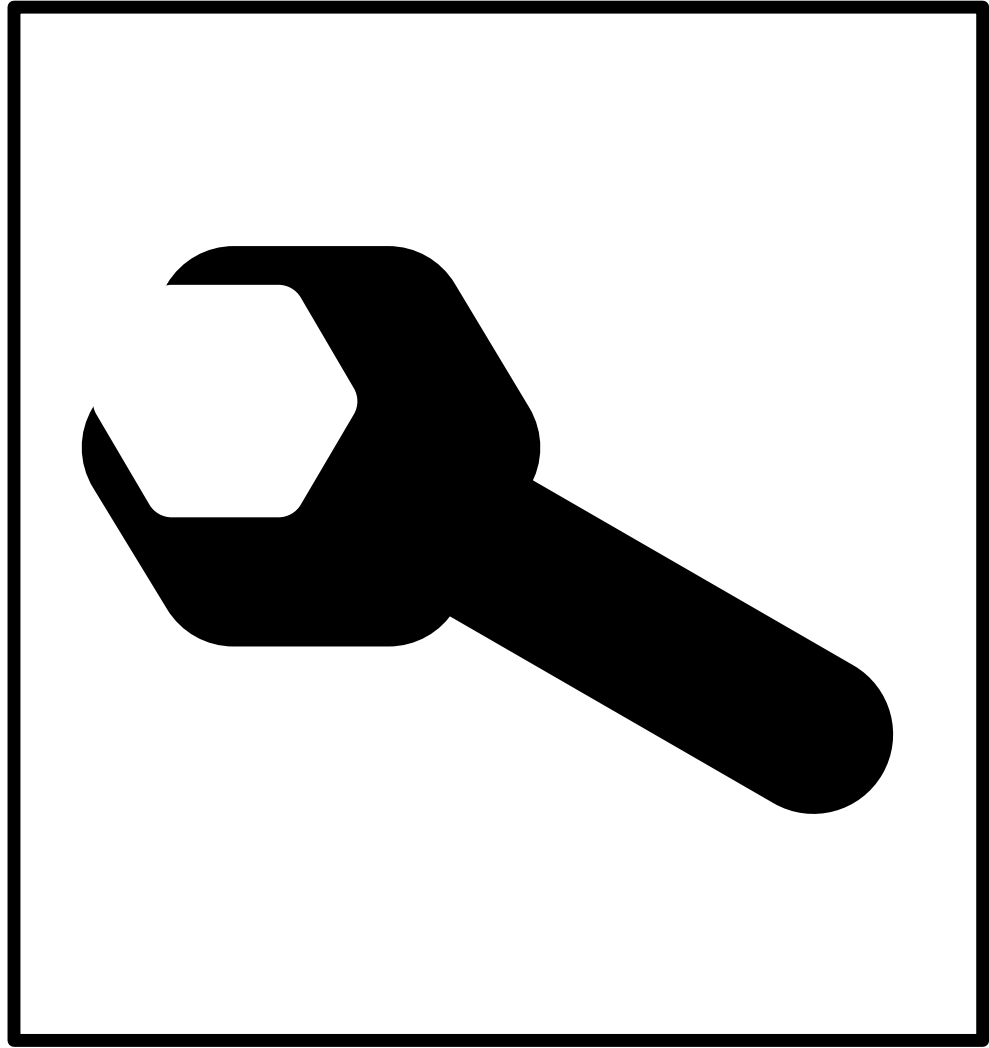


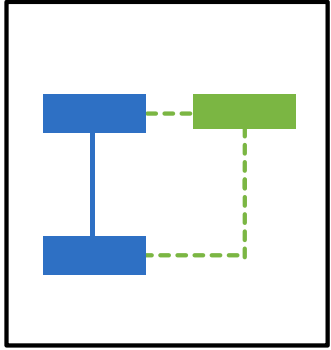
THE SHEWHART CYCLE



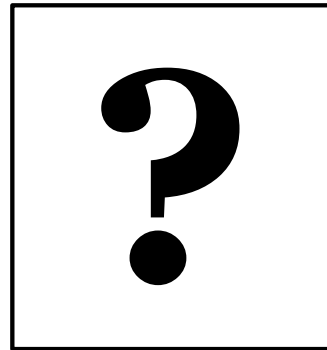
- * ACT: Adopt the change,
or Abandon it,
or Run through the cycle again, possibly under different environmental conditions.

Deming, 1985

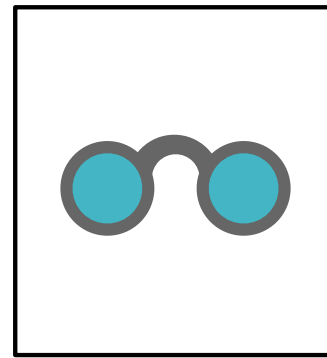




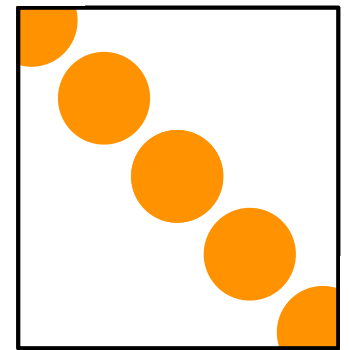
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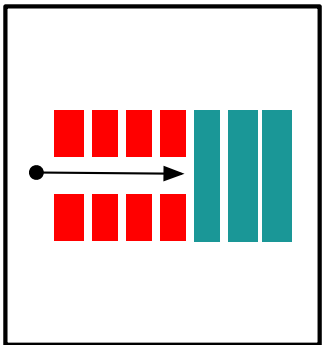
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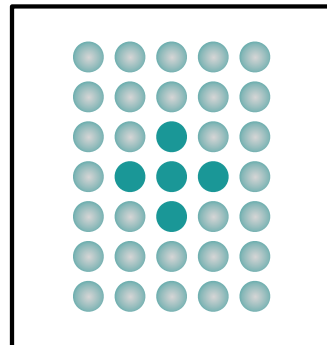
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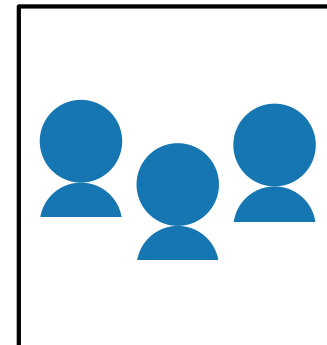
From incidents
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From outcomes
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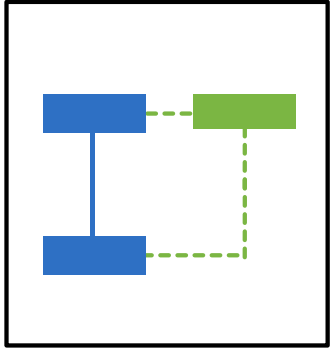


From centralised
to distributed

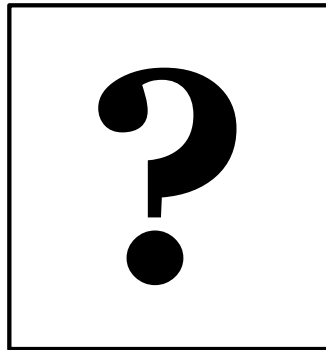


From data
to conversation

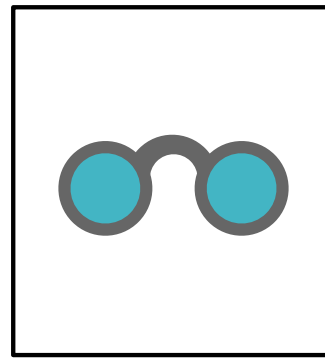




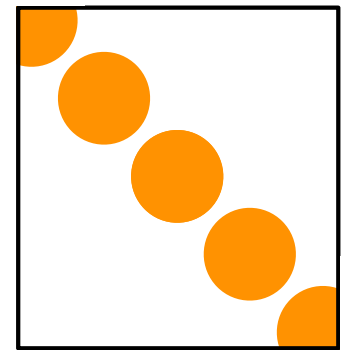
From hierarchy
to safe space



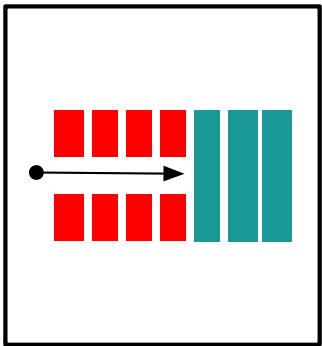
From reporting
to questioning



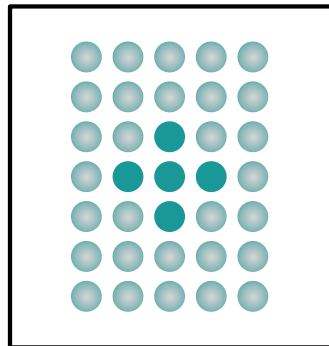
From counting
to searching



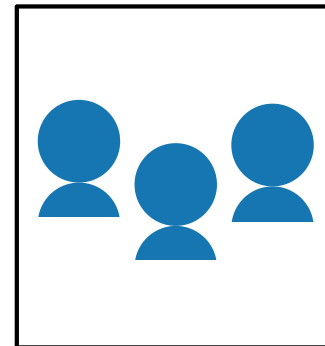
From incidents
to issues



From outcomes
to systems



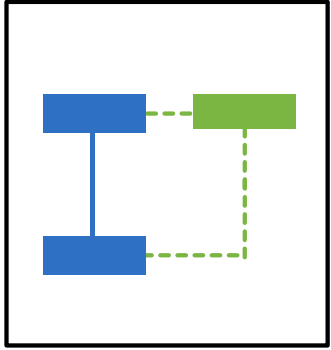
From centralised
to distributed



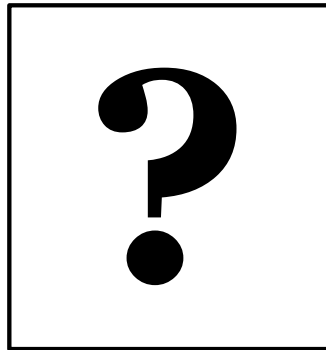
From data
to conversation



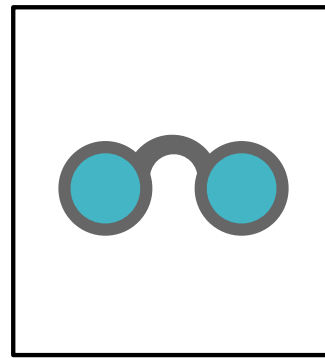
From reminders



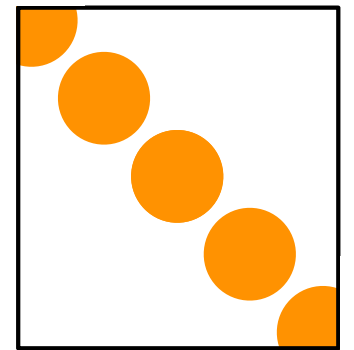
From hierarchy
to safe space



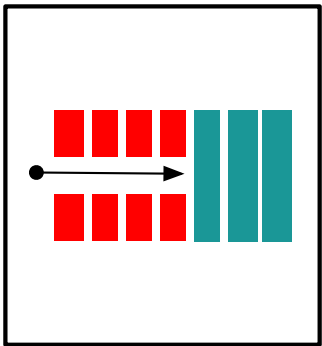
From reporting
to questioning



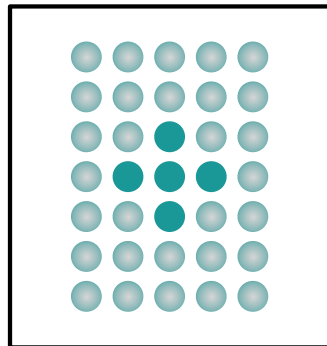
From counting
to searching



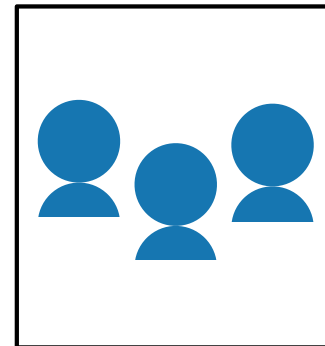
From incidents
to issues



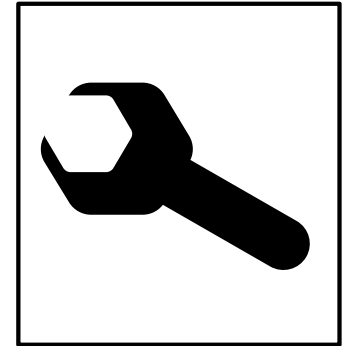
From outcomes
to systems



From centralised
to distributed



From data
to conversation



From reminders
to re-engineering

