HOW DO WE ENSURE NEW HEALTHCARE FACILITIES ARE SAFE FROM A WATER / WASTEWATER

HOW DO WE ENSURE NEW HEALTHCARE FACILITIES ARE SAFE FROM A WATER / WASTEWATER

PERSPECTIVE

IF YOU CANNOT SEE THE RISK

YOU CANNOT MITIGATE THE RISK

A RISK BASED APPROACH IS ESSENTIAL



ANYTHING ELSE IS NOTHING BUT AN ELABORATE SMOKE SCREEN

GOVERNANCE

NO MORE PAPER EXERCISES

REGULATORY BODIESERGONOMICS RESEARCH ACCOUNTABILITY RESPONSIBILITY
ARCHITECTS
ARCHITECTS
CONTRACTING
CONTRACTURERS MANUFACTURERS PATIENT GROUPS

PATIENT GROUPS

FINANCE

INFECTION

TENCH **WATER SAFETY GROUP** ERGONOMICS HIERARCHY OF CONTROLS GUIDANCE CRITICAL CONTROL POINTS(RAINING

CREATING THE IDEAL PATIENT ENVIRONMENT



CREATING THE IDEAL PATIENT ENVIRONMENT



ERGONOMICS PATIENT GROUPS RESEARCH ACCOUNTABILITY CLERK OF WORKS RESPONSIBILITY CLINICIANS ERGONOMICS CONTRACTING TIME REGULATORY BODIES CONTRACTORS AUDIT **MANUFACTURERS** COMPLIANCE INFECTION CONTROL FINANCE GUIDANCE ENGINEERS WATER SAFETY GROUP HIERARCHY OF CONTROLS ERGONOMICS CRITICAL CONTROL POINTS DESIGN TEAMS COMMUNICATION ARCHITECTS TRAINING



NFORMED GOVERNANCE

CREATING THE IDEAL PATIENT ENVIRONMENT



The primary motivation is to do things as quickly and cheaply as possible rather than to deliver buildings which are safe for people.

Learning about illness from defects in the pipes occurring at the new state of the art Hospital it was suggested that the architect, builder, plumber ought to be 'shut up in a sink'.

A cultural issue exists across the construction sector, which can be described as a 'race to the bottom' caused either through ignorance, indifference, or because the system does not facilitate good practice.

I know no class of murderers who have killed so many people as hospital architects.

DAME JUDITH HACKITT 2018

FLORENCE NIGHTINGALE 1858



Building a Safer Future

Independent Review of Building Regulations and Fire Safety: Final Report

Dame Judith Hackitt DBE FREng

Cm 9607

The primary motivation is to do things as quickly and cheaply as possible rather than to deliver buildings which are safe for people.

Learning about illness from defects in the pipes occurring at the new state of the art Hospital it was suggested that the architect, builder, plumber ought to be 'shut up in a sink'.

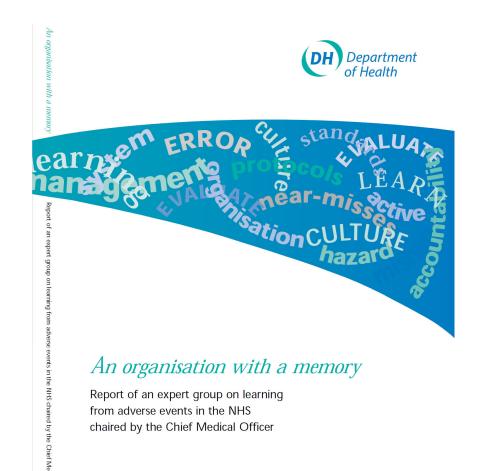
A cultural issue exists across the construction sector, which can be described as a 'race to the bottom' caused either through ignorance, indifference, or because the system does not facilitate good practice.

I know no class of murderers who have killed so many people as hospital architects.





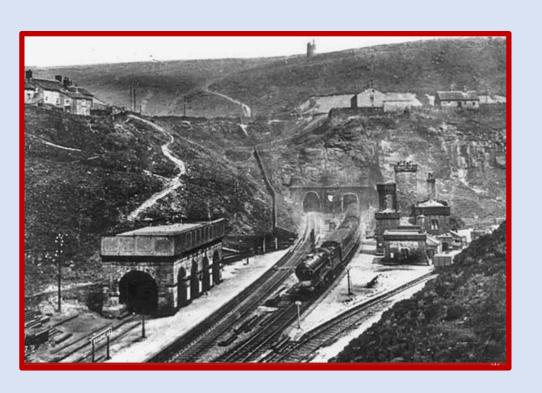
Safety Information Systems



Detecting and accurately recording errors is a fundamental step in learning from experience

It is common-sense that we need to know what is wrong before we can take steps to put it right

The Woodhead Tunnel



- Built between Manchester and Sheffield.
- Completed in 1845, the tunnel took six years to build.
- In that time, 60 workers died and 140 were seriously injured.

ì







Investigation into Belfast baby deaths

Updated / Wednesday, 1 Feb 2012 11:55





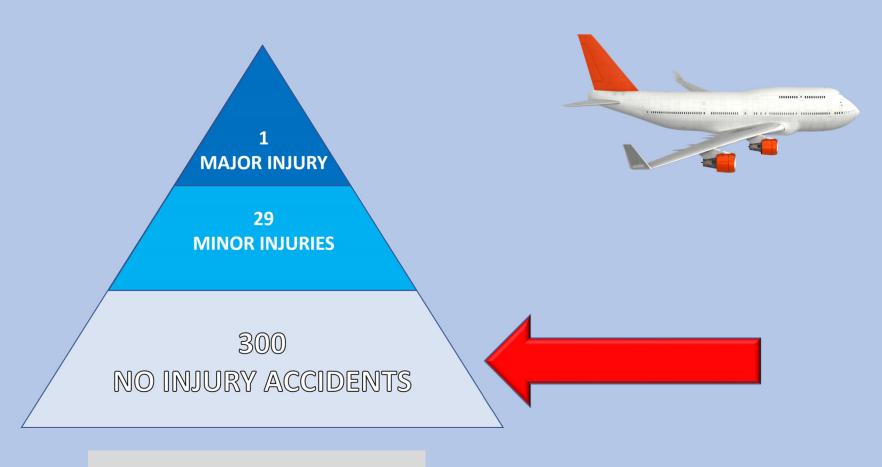






Three babies died from the infection at Belfast's Royal Jubilee Maternity Hospital

An independent investigation is to be held into the pseudomonas outbreaks that claimed the lives of four children at two hospitals in Northern Ireland in the past two months.

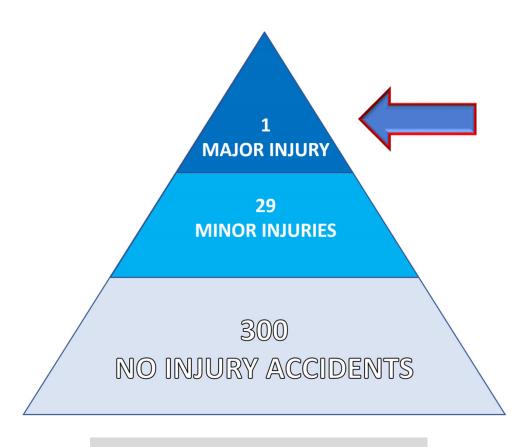


HEINRICH RATIO

What went wrong?

- Failure to listen to warnings or understand the risk.
- Previous fires but no major deaths.
- Material had been downgraded but was still being used
- The manufacturer was economical with truth at point of sales
- The parent company took no efforts to ensure used correctly
- Everyone else using it
- No one stopped to think what the consequences might be (72 DEATHS)





HEINRICH RATIO



BIOFILM



Standardised design
Honed by nature
Continuous feedback
Adaptation
RISK BASED APPROACH



Bespoke design

No built-in assessment

of what works and

does not work

No feedback in system



Available online at www.sciencedirect.com



www.elsevierhealth.com/journals/jhin

Building new hospitals: a UK infection control perspective

J.M. Stockley^{a,*}, C.E. Constantine^a, K.E. Orr^b, The Association of Medical Microbiologists' New Hospital Developments Project Group

Received 18 May 2004; accepted 23 March 2005 Available online 6 December 2005

KEYWORDS

Infection control; Hospital design and construction

Summary Infection control input is vital throughout the planning, design and building stages of a new hospital project, and must continue through the commissioning (and decommissioning) process, evaluation and putting the facility into full clinical service. Many hospitals continue to experience problems months or years after occupying the new premises; some of these could have been avoided by infection control involvement earlier in the project. The importance of infection control must be recognized by the chief executive of the hospital trust and project teams overseeing the development. Clinical user groups and contractors must also be made aware of infection control issues. It is vital that good working relationships are built up between the infection control team (ICT) and all these parties. ICTs need the authority to influence the process. This may require their specific recognition by the Private Finance Initiative National Unit, the Department of Health or other relevant authorities. ICTs need training in how to read design plans, how to write effective specifications, and in other areas with which they may be unfamiliar. The importance of documentation and record keeping is paramount. External or independent validation of processes should be available, particularly in commissioning processes. Building design in relation to infection control needs stricter national regulations, allowing ICTs to focus on more local usage issues. Further research is needed to provide evidence regarding the relationship between building design and the

© 2005 The Hospital Infection Society. Published by Elsevier Ltd. All rights reserved.

Some problems encountered were unique to a particular building project, but most were common to all.

If these problems are recognized at an early stage, costly alterations and delays (not to mention clinical risk) could be minimized.

^aDepartment of Medical Microbiology, Worcestershire Royal Hospital, Charles Hastings Way, Worcester WR5 1DD. UK

^bDepartment of Microbiology, Freeman Hospital, High Heaton, Newcastle-upon-Tyne NE7 7DN, UK

NEW HOSPITAL ISSUES RELIANCE ON MAKING HEADLINE NEWS MAJOR INCIDENTS TO DRIVE CHANGE MAJOR INJURY 29 **NO DATABASE OF** NOR INJURIE **NEW HOSPITAL ISSUES** WHAT GOES WRONG NOT **MAKING HEADLIN** NO AUDIT /FEEDBACK 300 **BUILT INTO SYSTEM** NO INJURY ACC

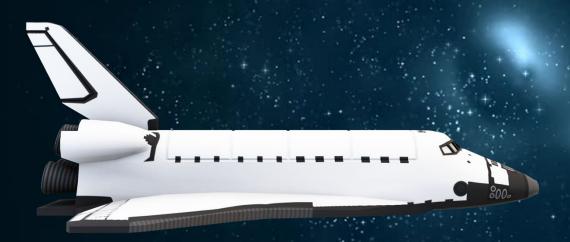
Int. J. Environ. Res. Public Health 2020, 17, 2168

Table 1. Article/study characteristics and quality assessment of articles.

7					, ,		aria quarry usses			
Ref.	Authors	Year Pub.	Geographic Locations Country, Region	BOE Rating	Year Event Began	Event Duration (Months)	Pathogen of Interest	Total Disease Cases	Total Deaths	Construction Risk Factor(s)
Healthcare-associated										
[14]	Abbas, et al.	2003	CAN, ON	3	2002	2	Legionella	5	0	Demolition, repressurization
[15]	Baker, et al.	2017	US, NC	3	2013	29	Mycobacterium	116	26	Commissioning at building opening, and water efficiency challenges
[16]	Blatt, et al.	1993	US, TX	2	1989	12	Legionella	14	6	Excavation, underground utility connections
[17]	Boivin, et al.	2012	CAN, QC	1	2008	3	Legionella	2	0	Excavation, vibration
[18]	Chafin, et al.	2011	US, TX	2	2006	3	Legionella	10	0	Water main, repressurization
[19]	Demirjian, et al.	2015	US, PA	3	2011	24	Legionella	22	6	Repressurization
[20]	Garbe, et al.	1985	US, RI	3	1983	3	Legionella	15	10	Repressurization
[21]	Grove, et al.	2002	AU, Adelaide	3	2000	5	Legionella	7	2	Demolition
[22]	Guspiel, et al.	2017	US, MN	3	2011	10	Mycobacterium	15	0	Commissioning at building opening, water efficiency challenges
[23]	Haley, et al.	1979	US, CA	3	1977	15	Legionella	49	15	Excavation, underground utility connections, commissioning at building opening
[24]	Helms, et al.	1983	US, IW	3	1981	10	Legionella	24	11	Commissioning at building opening
[25]	Johnson, et al.	2018	US, DC	3	2005	144	Shingomonas	31	3	Commissioning at building opening, water emciency challenges
[26]	Kandiah, et al.	2012	US, PA	2	2011	9	Legionella	0	0	Repressurization
[27]	Marks, et al.	1979	US, OH	1	1977	4	Legionella	9	0	Excavation
[28]	Martin, et al.	1988	CAN, NS	2	1984	2	Legionella	8	2	Demolition, excavation
[29]	Mermel, et al.	1995	US, RI	2	1992	3	Legionella	2	2	Repressurization, vibration
[30]	Parry, et al.	1985	US, CT	3	1983	5	Legionella	5	0	Excavation, underground utility connections, demolition, repressurization
[31]	Prabaker, et al.	2015	US, IL	3	2012	12	Mycobacterium	35	0	Commissioning at building opening
[32]	Sautour, et al.	2012	FR, Dijon	2	2009	9	Fusarium	O	0	Repressurization, vibration
[33]	Shands, et al.	1985	US, CA	3	1978	47	Legionella	171	0	Commissioning at building opening, repressurization
[34]	Srivastava, et al.	2011	UK	3	2007	22	Legionella	0	0	Commissioning at building opening, water efficiency challenges
[35]	Stout, et al.	2000	US, PA	3	1992	36	Legionella	6	3	Commissioning at building opening, water efficiency challenges
[36]	Thacker, et al.	1978	US, DC	3	1965	3	Legionella	81	16	Excavation
[37]	Watkins, et al.	2017	US, AL	3	2014	4	Legionella	10	0	Commissioning at building opening

Those who practice without measurement are like the crew of an orbiting ship travelling through space without instruments, unable to identify their current bearings, the probability of hazards, their direction or their rate of travel





SURVEILLANCE

AIRLINE INDUSTRY



SEEN AROUND THE WORLD

> J Hosp Infect. 2023 Sep;139:99-105. doi: 10.1016/j.jhin.2023.05.018. Epub 2023 Jun 10.

Sinks in patient rooms in ICUs are associated with higher rates of hospital-acquired infection: a retrospective analysis of 552 ICUs

G-B Fucini ¹¹, C Geffers ², F Schwab ², M Behnke ², W Sunder ³, J Moellmann ³, P Gastmeier ² Affiliations + expand PMID: 37308060 DOI: 10.1016/j.jhin.2023.05.018

'MISSING THE BIGGER PICTURE'

higher in ICUs with sinks in patient rooms. After adjusting for confounders, sinks were found to be an independent risk factor for HAI (adjusted IRR 1.21, 95% CI 1.01-1.45).

Conclusions: Sinks in patient rooms are associated with a higher number of HAIs per patient-day in the ICU. This should be considered when planning new ICUs or renovating existing ones.

SERIAL KILLER







Spontex Washups Non Scratch Sponge Scourers, Pack of 4

Visit the Spontex Store

4.6 ★★★★★ × 323 ratings

£ 1 60 (£0.40 / count)

Brand Spontex Polyester Material

Colour Green Spongewhite Scourer

Item package

quantity

Item dimensions 40 x 270 x 85 millimetres

LxWxH

Madelmon ✓ See more



- · Ideal for washing up and wiping surfaces
- Made with anti-grease technology so stays cleaner and efficient for e

£500-1000 MILLION

NEW HOSPITAL

NO RATINGS ON ARCHITECTS, DESIGN TEAMS, CONTRACTOR



RISK BASED APPROACH

GOVERNANCE + RISK BASED APPROACH =

INFORMED GOVERNANCE

EVERYONE UNDERSTANDS
THE CONSEQUENCE OF THEIR
ACTIONS ON PATIENT SAFETY

R

M





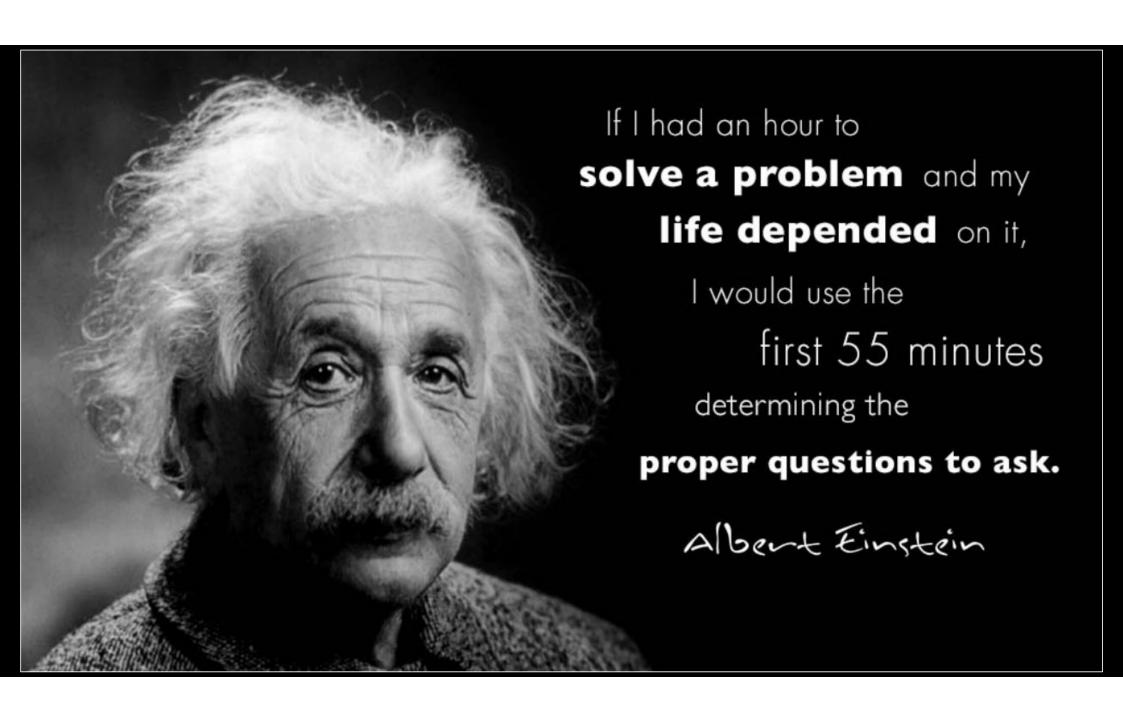


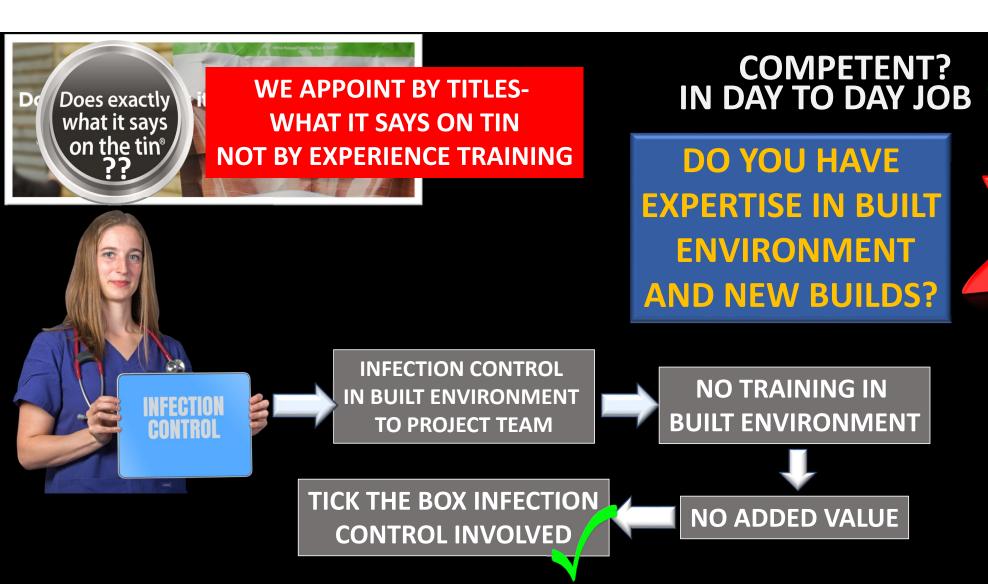
Health & Safety **Executive**

5 Conclusions

164 Boards need a clear understanding of the risks and meaningful assurance that internal control systems are working effectively. Our review has found some worrying weaknesses in governance processes. While we did find some good practice, overall there was much room for improvement. In the worst cases the assurance process had become a paper chase rather than a critical examination of the effectiveness of the trust's internal controls and risk management arrangements. The NHS has, in many cases, been run on trust.







2012/13

Investigation into Belfast baby deaths

Jpdated / Wednesday, 1 Feb 2012 11:55











Three babies died from the infection at Belfast's Royal Jubilee Maternity Hospital

An independent investigation is to be held into the pseudomonas outbreaks that claimed the lives of four children at two hospitals in Northern Ireland in



Health Technical Memorandum 04-01: Safe water in healthcare premises

Part B: Operational management







Health Technical Memorandum 04-01: Safe water in healthcare premises

Part C: Pseudomonas aeruginosa - advice for augmented care units



NO ACCOMPANYING TRAINING

EXTERNAL TEAMS

ARCHITECTS
DESIGN TEAMS

COMPETENT? IN DAY TO DAY JOB







FALSE GODS?



ARE GUIDANCE AND COMPLIANCE LEADING US ASTRAY?

BS 8580-1:2019



Water quality - Risk assessments for *Legionella* control - Code of practice

bsi.



Health Building Note 00-09:

Infection control in the built

environment



Health Technical Memorandum 04-01: Safe water in healthcare



Legionnaires' disease

Part 2: The control of legionella bacteria in hot and cold water systems

AMBIGUOUS- GIVE 100 PEOPLE THE SAME GUIDANCE AND THEY WILL PRODUCE 100 INTERPRETATIONS

OUT OF DATE, FAIL TO DEFINE ROLES AND RESPONSIBILITIES,

of Health



BSI Standards Publication















Department of Health

Health Technical Memorandum 04-01: Safe water in healthcare premises

Part C: Pseudomonas aeruginosa – advice for augmented care units BS 8580-1:2019

BS 8680:2020



Water quality - Risk assessments for Legionella control - Code of practice

HBNs give 'best practice' guidance on Does the scheme comply 3.8.9 with Health Building Note the design and planning of new (HBN) requirements? healthcare buildings and on the adaptation/extension of existing facilities. They provide information to DO NOT support the briefing and design processes for individual projects in IDENTIFY the NHS building programme. They should be complied with; however, **EVERY RISK** where they are not, the deviation from guidance should be included in the derogations.

BLIND COMPLIANCE WITH GUIDANCE KILLS PATIENTS



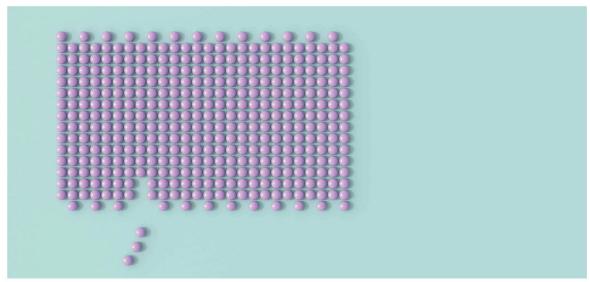


Regulation

Why Compliance Programs Fail

The key to success is better measurement. by Hui Chen and Eugene Soltes

From the Magazine (March-April 2018)



Huber & Starke/G

Summary. Firms spend millions of dollars annually on whistle-blower hotlines, training, and other efforts to ensure adherence to laws, regulations, and company policies. Yet malfeasance remains entrenched in the corporate world. Why? Too many firms treat compliance as a boxchecking exercise, making employees sit through training and attest that they understand the rules, but failing to assess the effectiveness of their compliance programs, or doing so with faulty metrics.



For example, one question in the DOJ document asks firms how they evaluate the quality and effectiveness of their training.

A <u>survey</u> by Deloitte and *Compliance Week* suggests that the most common way is to measure completion rates and to deem training effective if enough employees—perhaps 90% or 95%—finish it.

However, that metric reflects neither the quality of a training (how appropriate and valuable the content is) nor its effectiveness (how much employees actually learn and put into practice).

Why Compliance Programs Fail

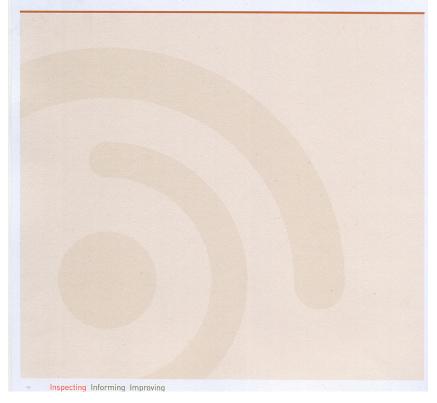
COMPLIANCE

- Firms rely on completion rates not because doing so has been shown to be the "right way" to measure success but because their objective is merely to demonstrate to regulators that they've accomplished the task—they can check that training box.
- The DOJ recognised that firms might be spending a lot and creating all the components of compliance programs but actually producing hollow facades.
- In its 2008 revision of the 'Principles of Federal Prosecution of Business Organizations', the department specifically calls for prosecutors 'to determine whether a corporation's compliance program is merely a paper program or whether it was designed, implemented, reviewed, and revised, as appropriate, in an effective manner.'
- The same year, in a case against Siemens in which a record-setting \$800 million penalty was paid to the U.S. authorities, the prosecution repeatedly called out the inadequacies of Siemen's paper program.

Investigation into outbreaks of Clostridium difficile at Stoke Mandeville Hospital, Buckinghamshire Hospitals NHS Trust

July 2006

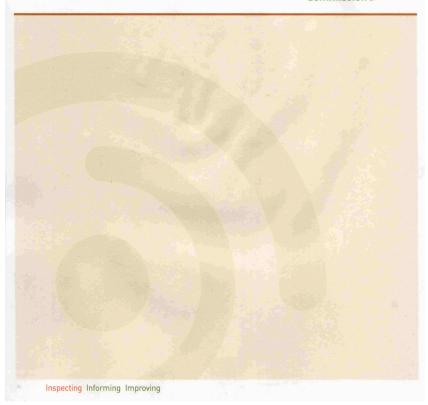




Investigation Into outbreaks of Clostridium difficile at Maidstone and Tunbridge Wells NHS Trust

October 2007





The Guardian

Mid Staffs hospital scandal: the essential guide

With a new inquiry into the causes of poor care at the hospital being released, the findings may have ramifications for the rest of the NHS. Study the issue in depth and learn all you need to know about what happens next with our essential guide



THE MID STAFFORDSHIRE NHS FOUNDATION TRUST PUBLIC INQUIRY

The report has identified numerous warning signs which cumulatively, or in some cases singly, could and should have alerted the system to the problems developing at the Trust. That they did not has a number of causes, among them:

th N

יייי אווטווק

Executive summary



Infection prevention and control standards

Practical examples of evidence of achievement (NOTE: this list is not exhaustive)

Practical examples: healthcare and social care organisations

- Compliance with legislation and national guidance, including the National Infection Prevention and Control Manual.²
- Evidence that learning has been shared within and across organisations.
- Assurance mechanisms and accreditation checks when working with external partners.
- Water safety policy.
- Water outlet monitoring records.
- Infection-related risk assessment, for example Legionella risk assessment.
- Inspection reports and improvement plans.
- IPC audits with improvement plans, for example audits in line with the Safe Management of the Care Environment.⁶¹
- Feedback from people receiving care and their representatives, and evidence of learning from complaints or feedback.



Classification: Official

Publication approval reference: B1231



Appendix: Suggested framework for Board report on 7 Day Services

Please use these prompts to frame your Board report on 7 Day Services and to discuss with regulators when asked.

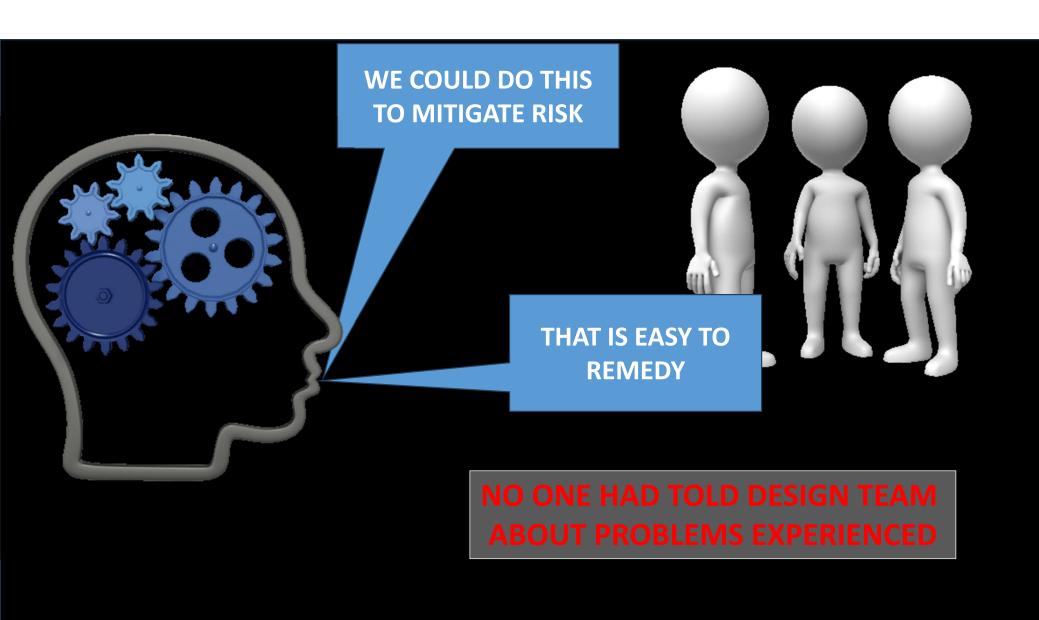
- The daily hospital sitrep shows significant variation in LOS associated with the day of the week patients are admitted. Yes/No
- The daily hospital sitrep shows significant variation in the number of discharges by day of the week. Yes/No
- Job plans for consultants in all acute specialties provide scheduled on-site consultant cover every day that reflects the likely demand for that specialty.

 Yes/No.
- 4) The template below shows the level of compliance with Standard 5 regarding 24/7 access to these emergency diagnostic tests:

weekends	network at	
	weekends	
		weekends















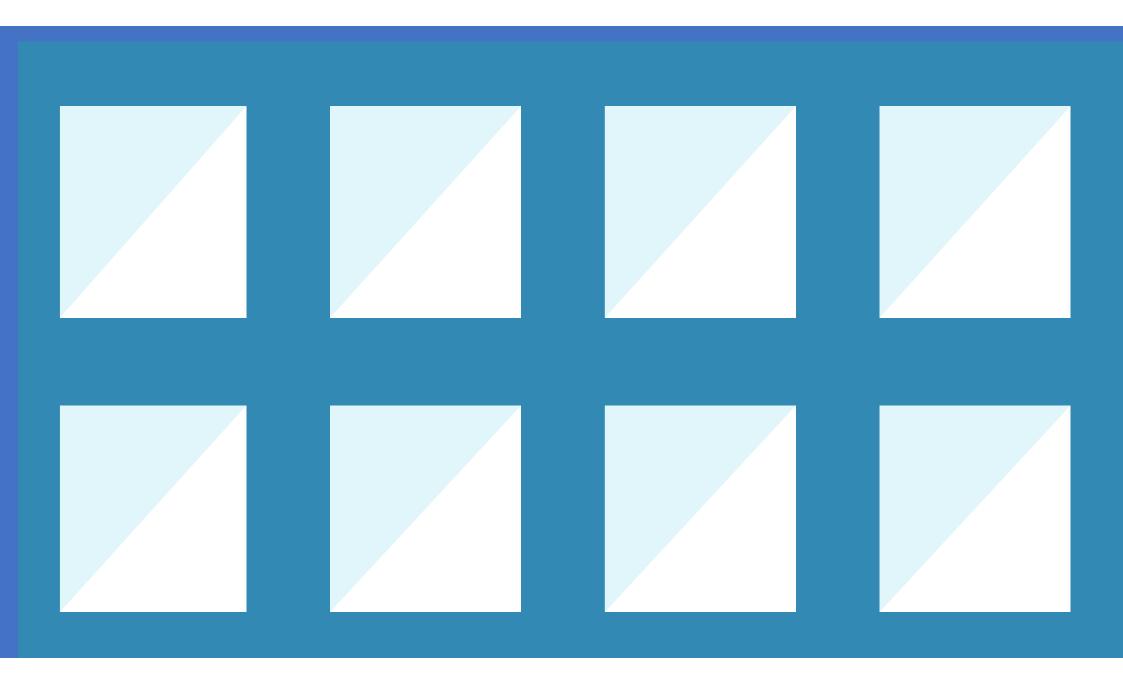


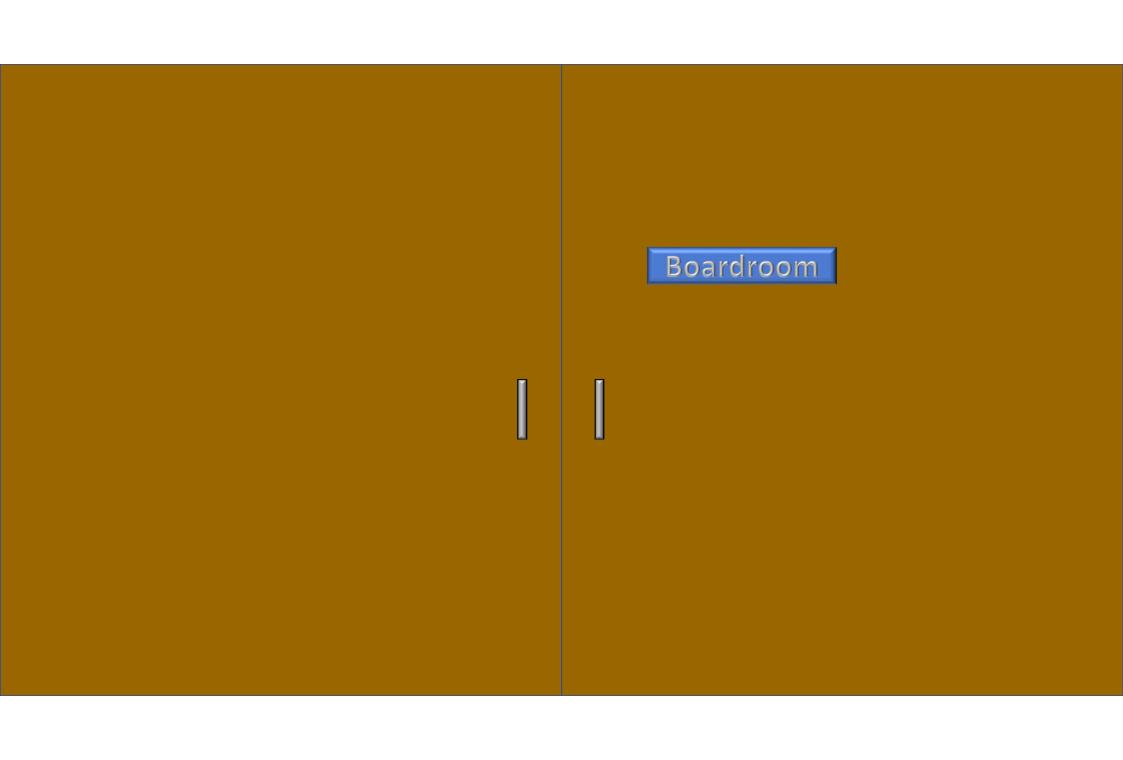
























DESIGN TEAM











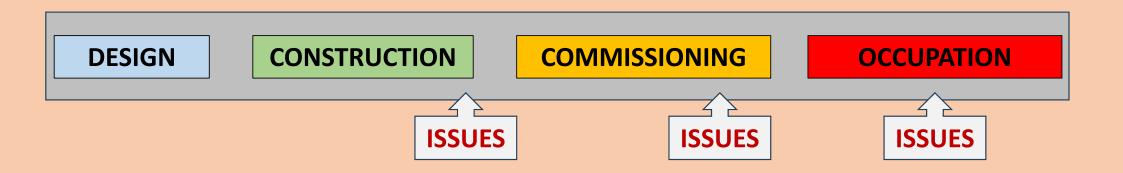
What processes are required to change to produce safe buildings?

- 1. Patient safety becomes the priority
- 2. Identification of risk
- 3. Supportive learning environment

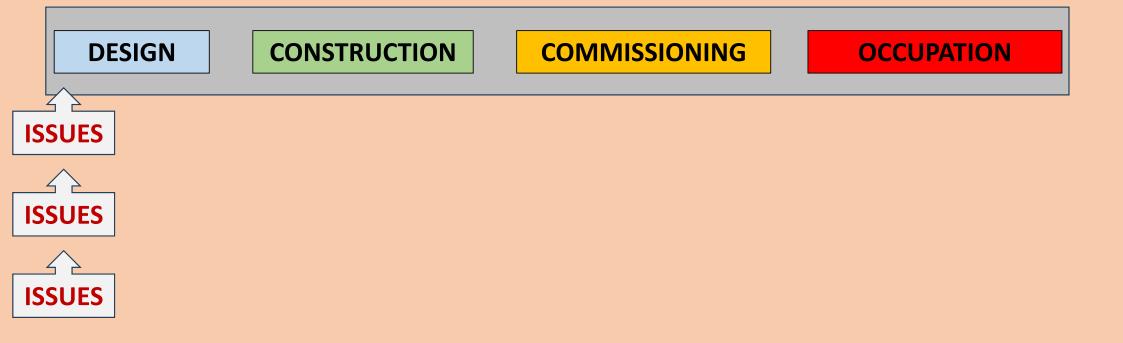
PROJECT WATER SAFETY GROUP

HOW ARE YOU GOING TO ENSURE THE WATER SYSTEM IS SAFE?





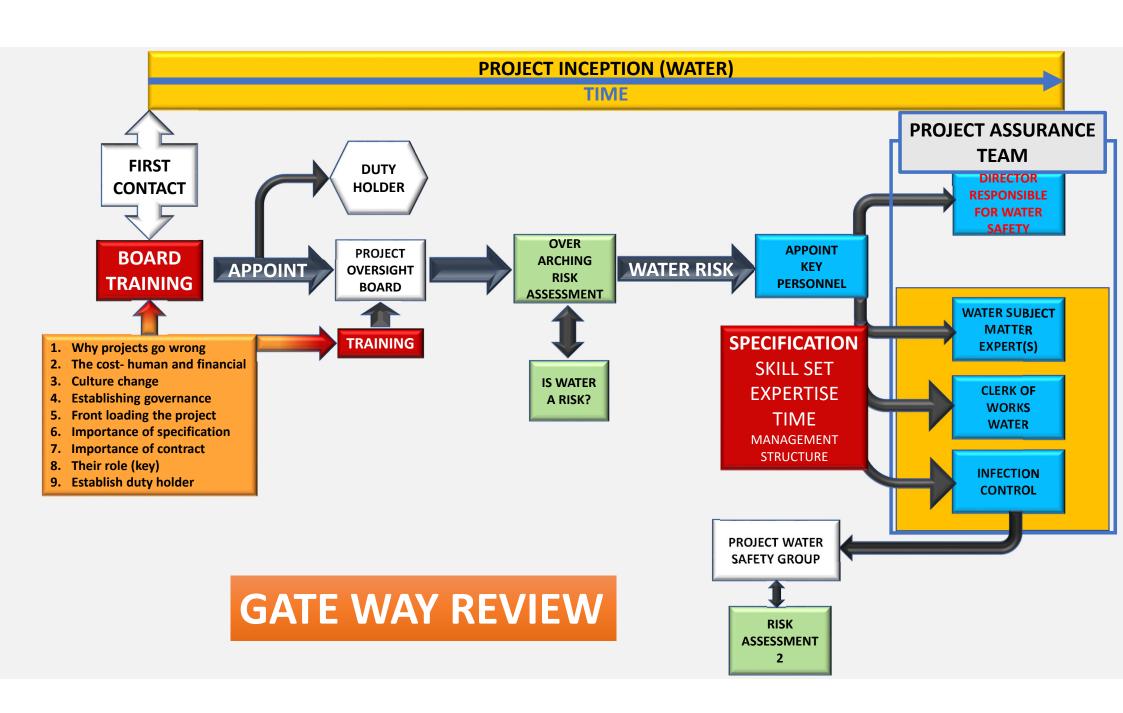
FRONT LOADING PROJECT

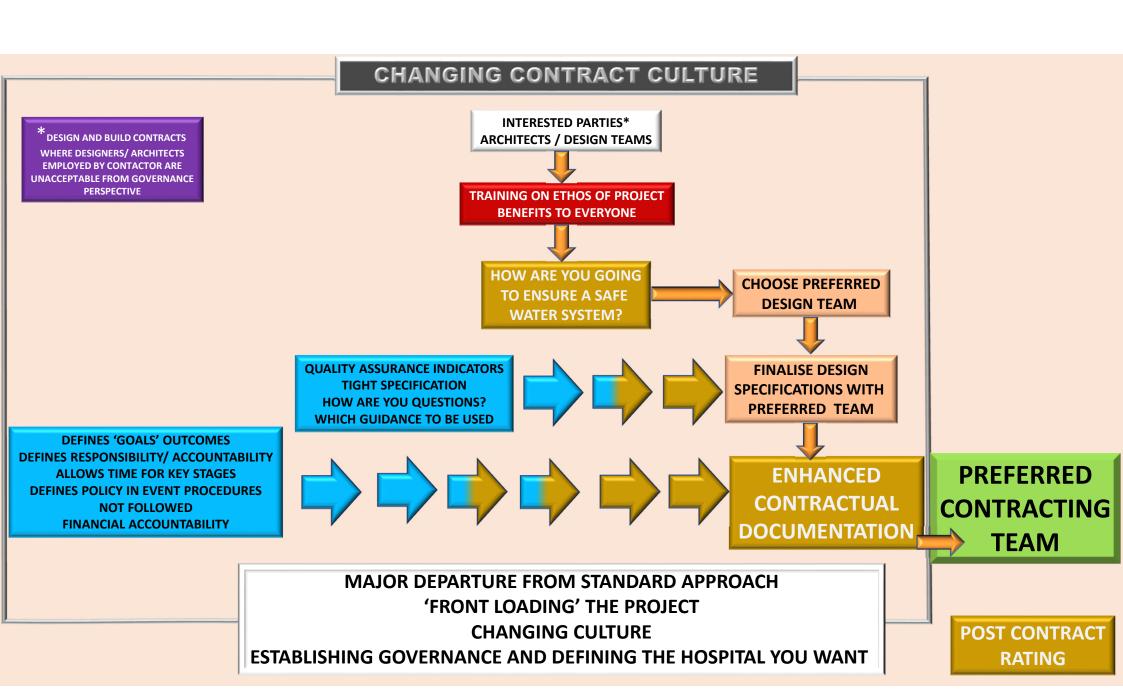


3 FUNDAMENTAL RISK ASSESSMENTS

- 1. Are there high-risk patient groups?
- 2. Are there specialised water services?
- 3. Do you have the right expertise to cover this in the project water safety group?

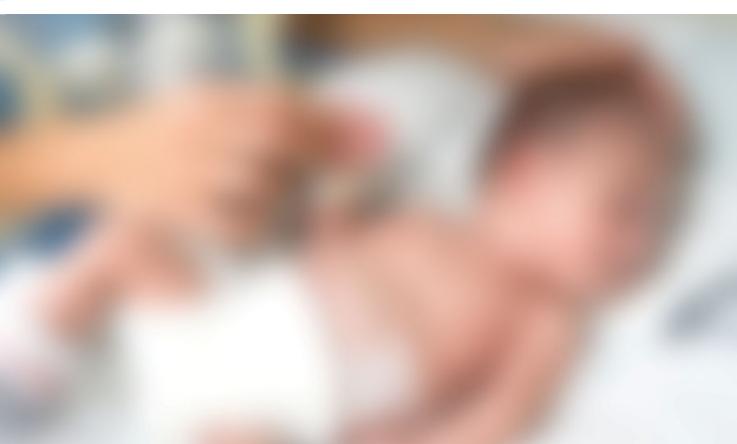
'How are you?' questions to resolve this risk?





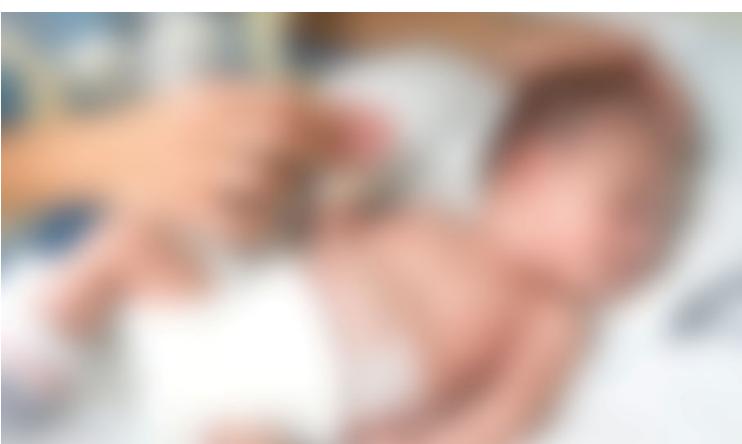


FINANCES GUIDANCE TARGETS



TIME

FINANCES GUIDANCE TARGETS



TIME

