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Understanding safety culture to improve the safety of individual patients

Prof Darren Ashcroft
Director, Centre for Innovation in Practice
School of Pharmacy and Pharmaceutical Sciences
University of Manchester, UK

darren.ashcroft@manchester.ac.uk

Introduction

- Medications are the most commonly used clinical intervention
- Complications associated with their use or misuse constitute one of the most common causes of adverse events in health care
- Medication problems are often not pharmacological, but rather the results of failures in the medicines management system to provide the ***right*** drug for the ***right*** diagnosis to the ***right*** patient and in the ***right*** way

Prescribing errors in primary care: evidence of the safety net

- Prospective study of pharmacists interventions on prescriptions
- 34 pharmacies dispensing 60,525 prescription items
- Incidence & reasons for prescription interventions

- 71.2 (95% CI 64.7 – 78.3) interventions per 10,000 items dispensed

- 10.7% judged potentially serious

Quinlan P, Ashcroft DM and Blenkinsopp A. IJPP (2002); 10: R67

Main types of interventions

Type	Frequency (%)	Rate/10,000 items (95% CI)
Prescription not signed	55 (12.8%)	9.1 (6.9 – 11.8)
Incorrect dose	41 (9.5%)	6.8 (4.9 – 9.2)
Incorrect strength	34 (7.9%)	5.6 (3.9 – 7.9)
Incorrect drug	32 (7.4%)	5.3 (3.6 – 7.5)
Incorrect quantity	53 (12.3%)	8.8 (6.6 – 11.5)

Dispensing errors in community pharmacies

- Prospective study of dispensing errors and near miss events
- 35 pharmacies dispensing 125,395 prescription items
- Rates per 10,000 items dispensed
  - Overall: 26.3 (95% CI 23.6 – 29.3)
  - Near miss: 22.3 (95% CI 19.8 – 25.1)
  - Dispensing errors: 4.0 (95% CI 3.0 – 5.3)

Ashcroft DM, et al. Pharmacoepidemiol Drug Saf (2005); 14: 327-332

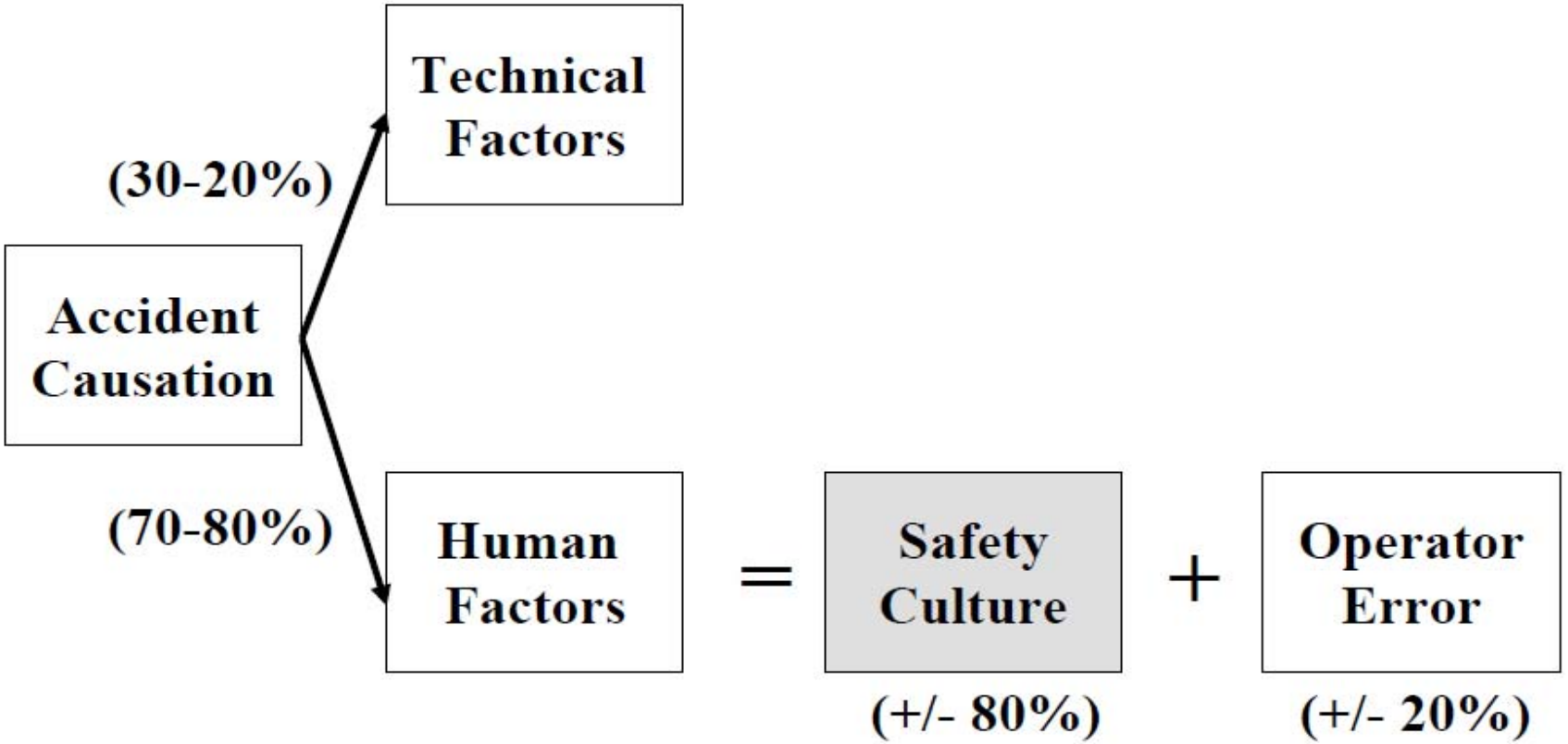
Classification of dispensing errors

- Types of error:
  - Selection of wrong medicine (60.3%)
  - Incorrect labelling of the medicine (33.0%)

- Causes attributed to:
  - misreading the prescription (24.5%)
  - similarity of drug names (16.8%)
  - selecting the previous drug or dose from the patient's medication record on the pharmacy computer (11.4%)
  - similar medicine packaging (7.6%)

- Circumstances associated with errors:
  - Staffing issues (25.9%)
  - Excessive workload and distractions (34.5%)

Organisational Safety
in High Reliability Organisations

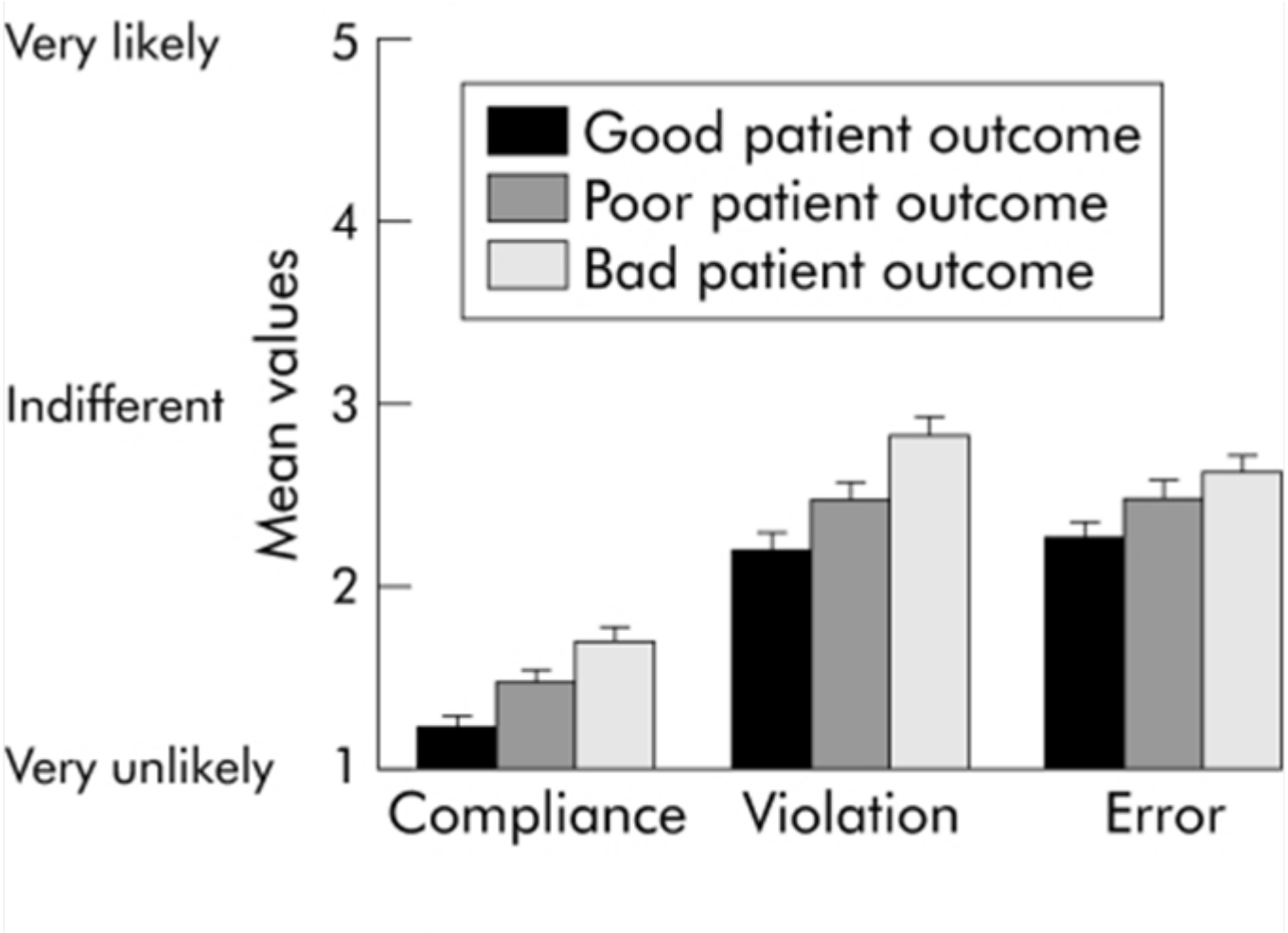


What is the likelihood of reporting adverse events?

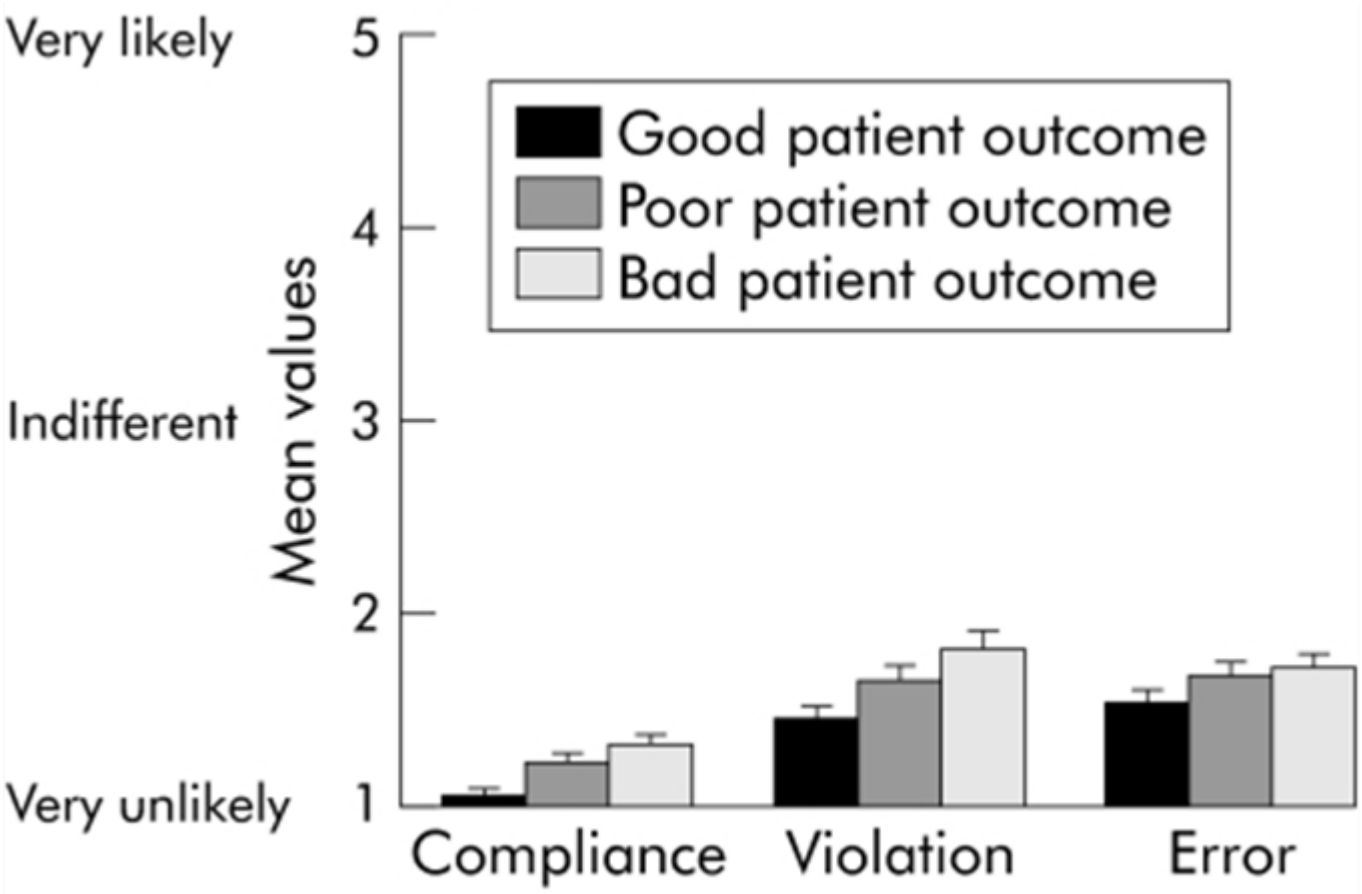
- Questionnaire containing nine patient safety incident scenarios
- Completed by 223 community pharmacists
  - Pharmacist's behaviour:
    - **Compliance**: in line with a protocol
    - **Error**: not being aware of a protocol
    - **Violation**: intentional deviation from a protocol
  - Patient outcome: good, poor, or bad

Ashcroft DM, et al. QSHC 2006; 15: 48 -52

Likelihood of reporting safety incident within the pharmacy



Likelihood of reporting the incident to the NPSA

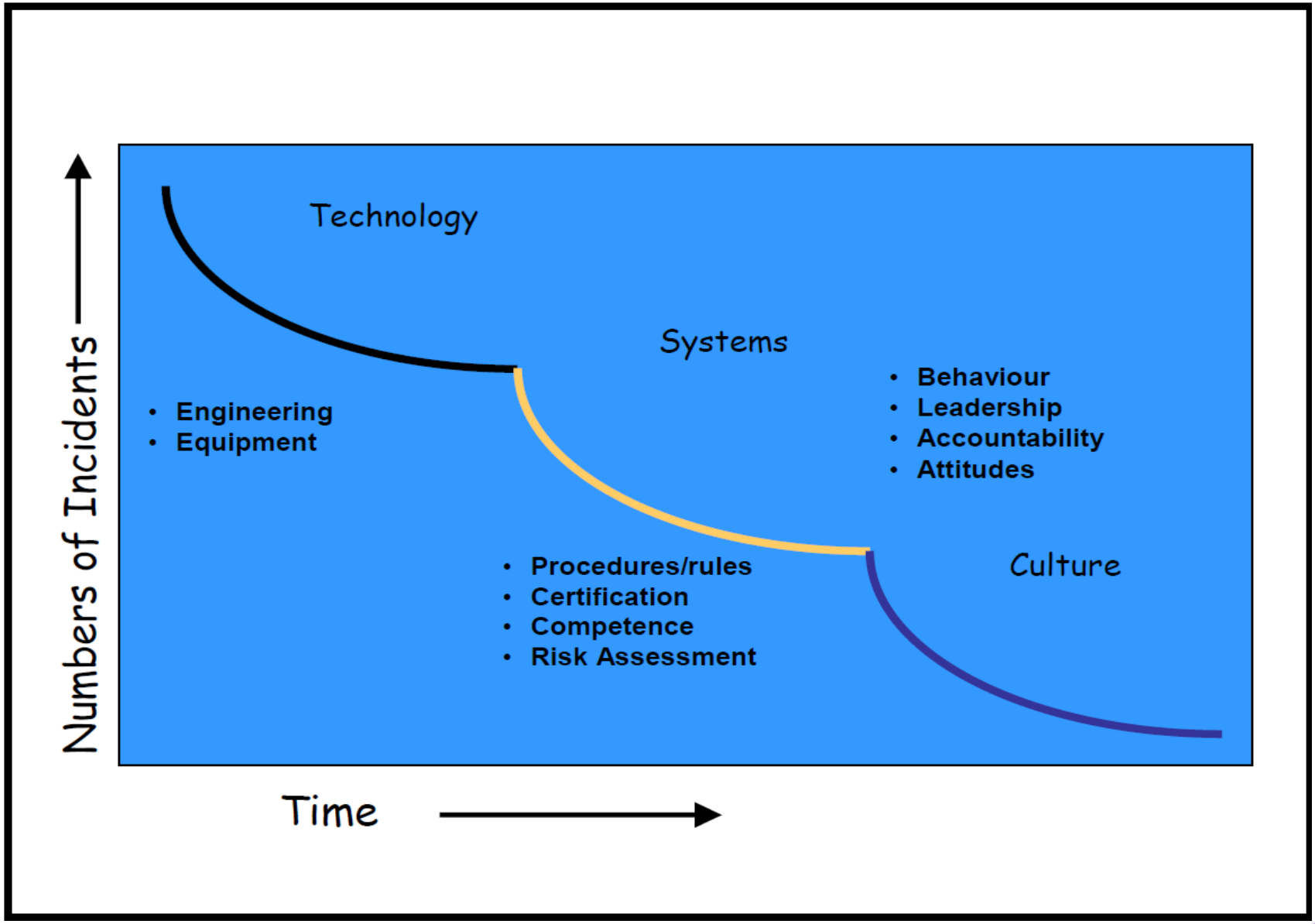


Why the reluctance to report?

- **Fear of blame**:
  - "I would feel more comfortable if the information went to someone other than my line manager"
  - "I would be far more likely to use an anonymous system because we have still got a residual blame culture"
  - "Some managers don't like errors being reported…because of that particular manager you tend to keep things to yourself"
- **Pressure of work**:
  - "We are very busy and we don't have the time to start writing all this stuff down"
- **Loyalty to colleagues**:
  - "I told them and we talked about it, but I didn't report it to Head Office"

Penalties of blaming individuals

- Failure to discover latent error-provoking conditions
- Failure to identify error-traps
- Management having its eye on the wrong ball
- A blame culture and a reporting culture cannot co-exist


Numbers of Incidents
Time
Technology
• Engineering
• Equipment
Systems
• Procedures/rules
• Certification
• Competence
• Risk Assessment
Culture
• Behaviour
• Leadership
• Accountability
• Attitudes

What is safety culture?

- The shared beliefs and values of staff working in an organisation, that determine the commitment to and quality of that organisation's health and safety management
- Alternatively…."the way we do things round here"
- Safety culture is manifested in many different aspects of an organisation
- Involves individual and group behaviours which are accepted and reinforced in the organisation


The launch of STS-107 on January 16, 2003

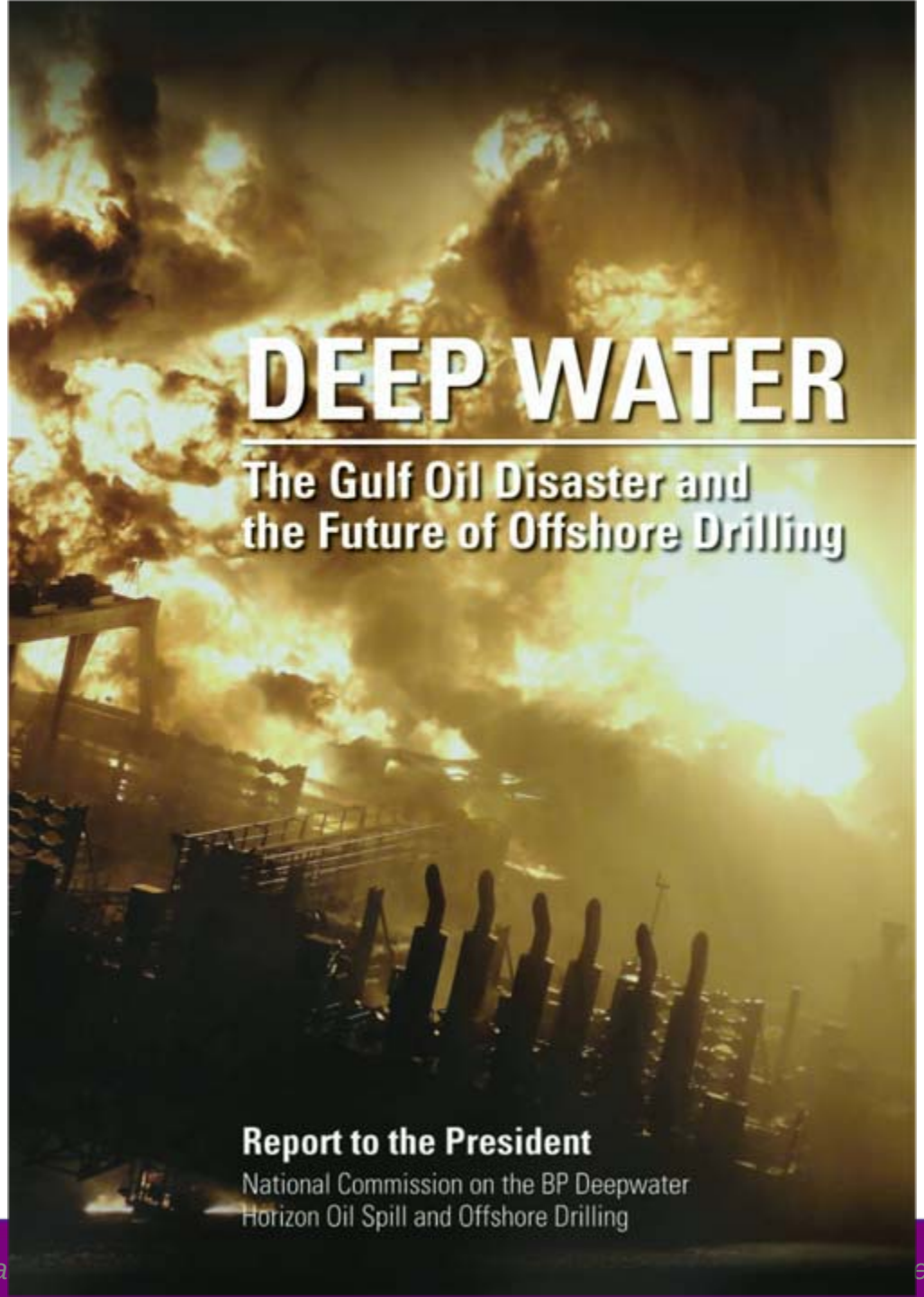
Why measure safety culture?

" The organizational causes of this accident are rooted in the Space Shuttle Program's history and **culture**….

…Cultural traits and organizational practices detrimental to safety were allowed to develop, including:

- reliance on past success as a substitute for sound engineering
- organizational barriers that prevented effective communication of critical safety information and stifled professional differences of opinion …"

from Exec summary of Accident Investigation Board report on Columbia


DEEP WATER
The Gulf Oil Disaster and the Future of Offshore Drilling
Report to the President
National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling

Why measure safety culture?

As a result of our investigation, we conclude:

- The immediate causes of the well blowout can be traced to a series of identifiable mistakes … that reveal such systematic failures in risk management that they place in doubt the **safety culture** of the entire industry.

- Because regulatory oversight alone will not be sufficient to ensure adequate safety, the oil and gas industry will need to take its own, unilateral steps to increase dramatically safety throughout the industry, including self-policing mechanisms that supplement governmental enforcement.

Report to the President. ***National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling*****, January 2011.**

Assessing safety culture

- Growing recognition within healthcare of the importance of transforming organisational culture to improve patient safety
- Safety culture assessments developed in a range of “high-risk” industries
- Key issues for pharmacy:
  - What to measure in the pharmacy setting?
  - How to measure it?

What to measure in the pharmacy setting?

- Leading thinkers have suggested that organisational culture is shaped through:
  - leadership (Schein, 1990)
  - communication (Westrum)
  - informedness via reporting (Reason, 1998)
  - structure, process and outcome (Donabedian, 1980)

- My conclusion:

  A good measure covers several aspects of organisational functioning that contribute to the overall safety culture

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Manchester Patient Safety Assessment Framework

Risk management culture in community pharmacy

Why was the framework developed?

The safety of both patients and staff in a healthcare organisation is influenced by the extent to which safety is perceived to be important across the organisation. This 'safety culture' is a new concept in the health sector and can be difficult to assess and change. This is particularly true for community pharmacy.

We have produced this framework to help make the concept of safety culture more accessible. It was initially designed for use by general practices and PCTs to help these organisations to understand their level of development with respect to the value that they place on patient safety. It uses eight dimensions of patient safety and for each of these describes what a pharmacy would look like at five levels of safety culture maturity. The framework is based on an idea used successfully in non-health sectors. The content is derived from in-depth interviews with a range of primary care health professionals and managers, and focus group discussions with both community pharmacists and support staff.

Ashcroft DM, et al. QSHC 2005: 14: 417 – 21

Westrum's classification of three types of safety culture

- GENERATIVE
- CALCULATIVE
- PATHOLOGICAL

Main differences lie in the way organisations treat safety-related information. Some deny it, others are bothered by it, yet others actively seek it out and reward the messenger

The theory behind the framework

Pathological

- Information is hidden
- Messengers are “shot”
- Responsibilities are shirked
- Bridging is discouraged
- Failure is covered up
- New ideas are actively crushed

Characteristics of the calculative organisation

Calculative

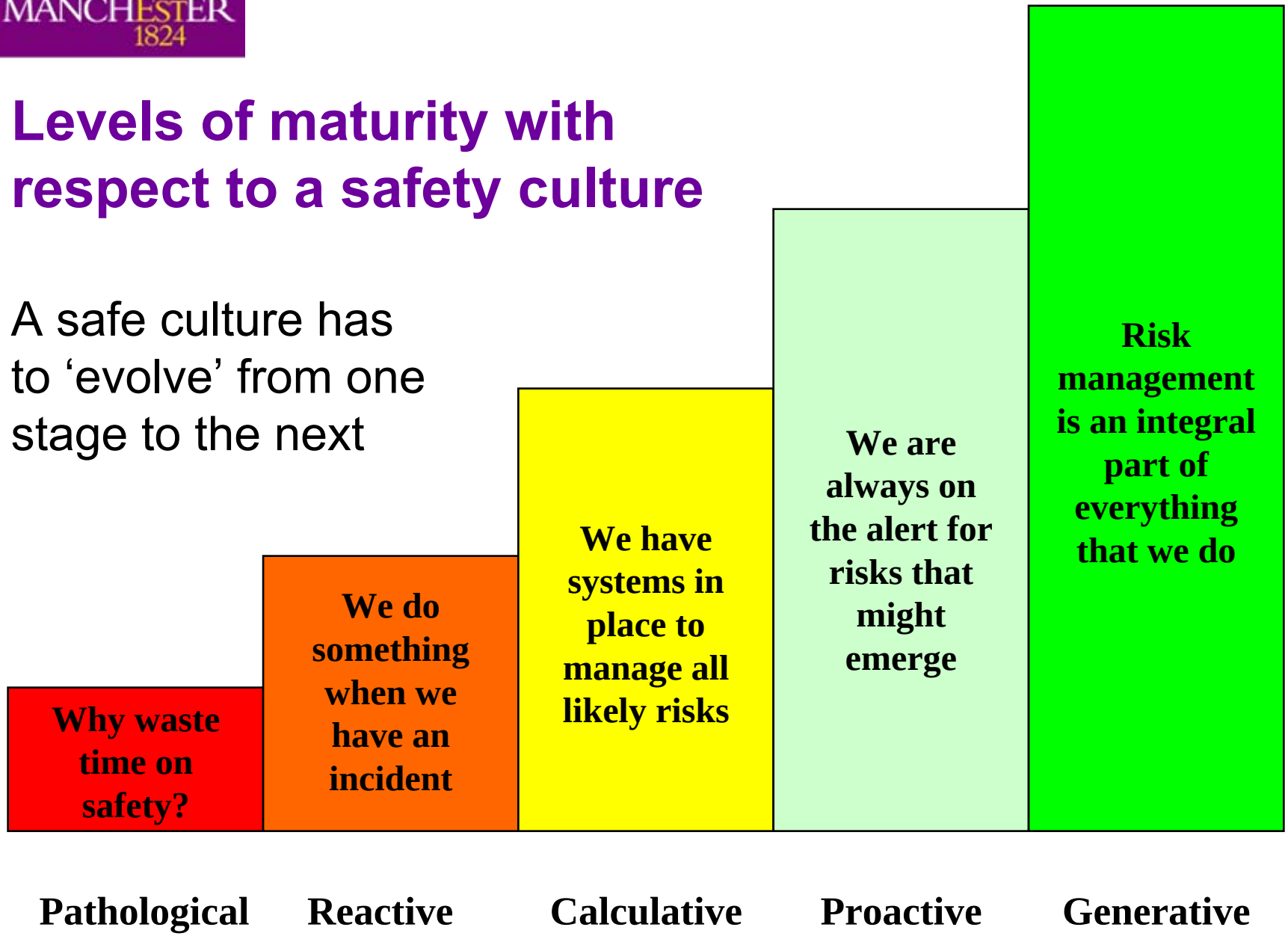
- Information may be ignored
- Messengers are tolerated
- Responsibility is compartmentalised
- Bridging is allowed but neglected
- Organisation is just and merciful
- New ideas create problems

Characteristics of the generative organisation

Generative
• Information is actively sought • Messengers are trained • Responsibilities are shared • Bridging is rewarded • Failure causes inquiry • New ideas are welcomed

Levels of maturity with respect to a safety culture

A safe culture has to 'evolve' from one stage to the next



Dimensions of safety in community pharmacy

- Commitment to patient safety
- Perceptions of the causes of incidents and their reporting
- Investigating incidents
- Learning following an incident
- Communication
- Staff management and safety issues
- Staff education and training about risk management
- Team working

Pathological

Perceptions of the causes of incidents and and their reporting	**Incidents are seen as ‘bad luck’ and outside the control of pharmacy staff. Ad hoc reporting systems are in place, but the pharmacy is largely in ‘blissful ignorance’ unless serious adverse events occur or they are visited by a pharmacy inspector. Incidents and complaints are ‘swept under the carpet’ if possible. There is a blame culture with individuals subjected to disciplinary action.**

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Generative

Perceptions of the causes of incidents and and their reporting	**Failures are noted, although staff are aware of their own accountability in relation to errors. It is second nature for staff to report incidents as they have confidence in the investigation process and understand the value of such reporting. Integrated systems enable incidents and complaints to be analysed together. Staff and patients are actively supported from the time of the incident.**

MaPSAF findings

- “it makes you think about the whole picture of risk management.’’
- ‘‘It’s a breakdown of our different reactions and it makes you reflect on your work and your practice.’’

- ‘‘I kind of fitted my experience as a locum pharmacist in the community to where I find myself, and it’s quite shocking to think that you never ever reach the idea which is generative. And whilst often in pathological, not pathological in terms of myself, but in terms of the support you would get from the organisation, especially if you’re a locum pharmacist.’’

Uses of MaPSAF

- To raise awareness and profile the strengths and weaknesses in an organisation of patient safety culture
- To highlight differences in perceptions across staff groups, organisations, regions
- To identify areas for improvement and show what a more mature patient safety culture would be like

Pharmacy Safety Climate Questionnaire (PSCQ)

- 34 item safety climate survey tool
- 998 community pharmacists in the UK

- Uses:
  - Measurement of staff attitudes to 7 safety climate domains
  - Comparison of findings between pharmacies
  - Prompt interventions to improve the prevailing safety climate within the pharmacy
  - Measure the effectiveness of these interventions

Ashcroft DM, Parker D. QSHC 2009; 18: 28-31

Component structure and internal reliability

Components	Cronbach α
Investigating and learning from incidents	0.9
Staffing and management	0.8
Perceptions of the causes of incidents and reporting	0.9
Team working	0.7
Communication	0.9
Commitment to patient safety	0.7
Education and training about safety	0.7

Some key findings from UK (2010)…..

- 49% felt that similar patient safety incidents tend to reoccur
- 30% felt that staff worked longer hours than is sensible for patient care
- 53% felt that there were not enough staff to handle the workload
- 38% reported that there were tensions between staff members in the pharmacy
- 48% stated that when an incident is reported, it felt like the person was being reported, not the problem

Multiple linear regression analysis: Results

Predictor	B coefficient	95% CI
Age (year)	-0.0595	-0.398 to 0.279
Male	Reference	
Female	-0.191	-2.932 to 2.549
Work in CP (years)	0.051	-0.154 to 0.256
Qualified (years)	0.156	-0.203 to 0.515
Owner	Reference	
Employee	-3.942	-8.723 to 0.838
Locum	-15.413	-19.866 to -10.960†
Independent pharmacy	Reference	
Small chain (2-5 branches)	-0.140	-4.360 to 4.079
Local/regional chain	-4.167	-8.988 to 0.664
National chain	-8.098	-11.927 to -4.269†

†$p<0.001$

Sample composition from European countries

Country	Sample composition
Denmark	Community pharmacy staff with responsibility for patient safety activities (online survey, N = 198)
Germany	Population of community pharmacists with email contact details (online survey, N = 1524)
Netherlands	Random sample of community pharmacist members of the Royal Dutch Pharmacists' Association (online survey, N = 375)
Portugal	Community pharmacists with email contact details (online survey, N = 573)
UK	Convenience sample of attendees on a pharmacist CPD course (postal survey, N = 998) and a random sample of community pharmacists (postal survey, N = 853)

Pharmacy Safety Climate Questionnaire

- Exploratory and confirmatory factor analysis on aggregated datasets
- 24 item tool emerged that yielded four scales:
  - Organisational learning (willingness to develop and maintain safety) Cronbach $\alpha = 0.92$
  - Blame culture (propensity to blame individuals when an incident occurs) $\alpha = 0.85$
  - Working conditions (extent to which the working environment supports safe working) $\alpha = 0.78$
  - Safety focus (priority given to safety in day-to-day work) $\alpha = 0.69$

Comparison of scale scores between sector: Northern Ireland 2011

Scale	Community (n=296)	Hospital (n=100)	Other (n=25)	p
Org. learning	34.51 (7.50)	33.49 (8.51)	30.36 (7.32)	0.03
Blame culture	7.21 (3.44)	6.64 (3.04)	8.76 (3.26)	0.02
Working conditions	10.16 (3.51)	9.34 (2.64)	8.88 (3.47)	0.03
Safety focus	9.07 (2.27)	8.98 (2.20)	8.64 (2.63)	0.65

(SD)

Key differences between sector and roles

- Community pharmacists generally gave more favourable ratings for job characteristics than hospital pharmacists, with the exception of the autonomy afforded by the job
- Within community pharmacy, smaller organisations (independents and small chains) attracted more favourable ratings for safety climate than larger chains.
- Community pharmacists working in more than one type of pharmacy had less favourable perceptions of safety climate

What is needed?

- A systematic approach to patient safety
- In risky systems, standardisation is a useful tool to increase predictability
- In healthcare, rules (guidelines, procedures, protocols) are multiplying, but evidence relating to compliance is patchy

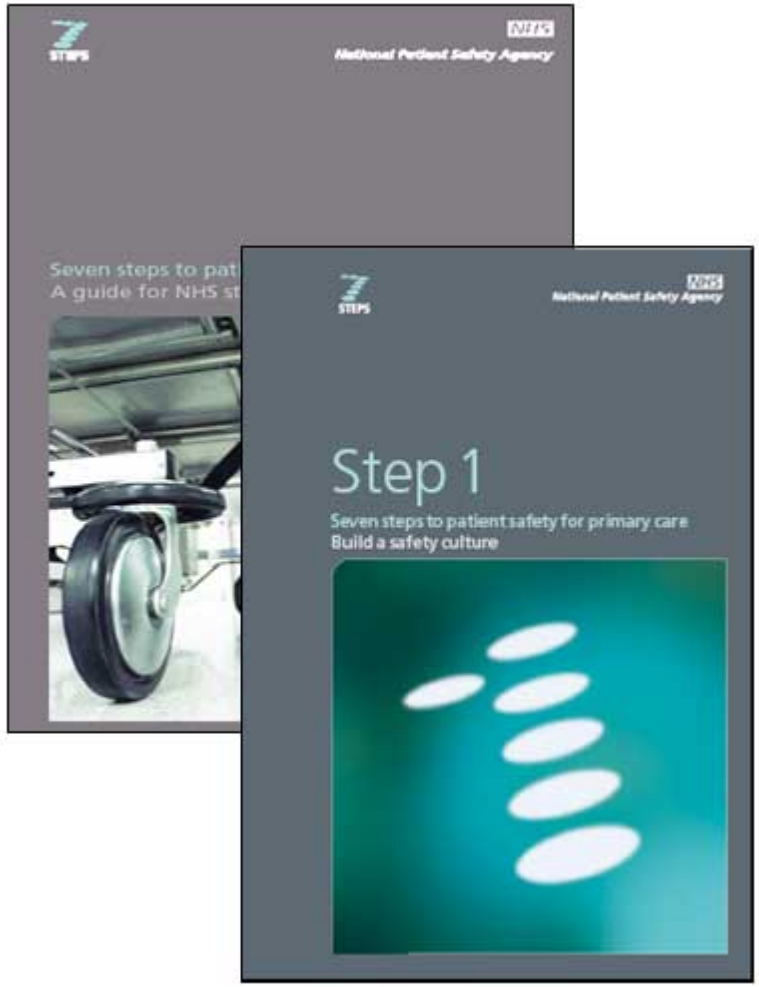
What is a Safety Management System?

- a systematic approach to the management of safety, via formal organizational structures and processes
- applies concepts from human factors and psychology
- has the aim of maintaining and enhancing organizational safety
- used extensively across high risk industries

Seven Steps to Patient Safety

1. Build a safety culture
2. Lead & support staff
3. Integrated risk management
4. Promote incident reporting
5. Involve patients and the public
6. Learn and share lessons
7. Implement solutions

www.npsa.nhs.uk/sevensteps



Benefits of a SMS

- allows for the identification of safety critical issues before they give rise to an adverse event
- enables priorities to be set
- takes a proactive approach to the identification of system factors (latent failures) before they combine with active failures, resulting in an adverse event

A bit like the Second Law of Thermodynamics …. if complex systems are not actively managed – they tend to descend into chaos

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Thank you

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