National Advisory Board
Human Factors in Dentistry

Human Factors and Patient Safety in Dentistry

The National Advisory Board for Human Factors in Dentistry (NABHFD)

Our Mission

Advise and raise awareness and understanding of Human Factors to enhance safety, quality, health and wellbeing for patients and dental teams in all sectors.

About Us

The Board, established in July 2018, following discussion with the General Dental Council, brings together expert representation of the dental team from different sectors delivering dental care (Appendix A). The focus of the Board is to advise and raise awareness and understanding of the interplay of the multitude of factors called Human Factors that affect the provision of high-quality dental care leading to unforeseen outcomes compromising patient and team safety.

The NABHFD is unique in that it is the only forum of its kind which brings together the views of several leaders on the importance of human factors for improving patient safety.

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Executive Summary

Dentistry is delivered through a challenging and diverse healthcare environment where multiple system factors (people, technology, procedure, culture) interact through various processes aiming to deliver high quality of care while maintaining patient and staff safety. When interactions between these systems fail, both patient and team safety is compromised resulting in undesired outcomes with a commonly held action being one of 'blame'.

The rising number of these undesired outcomes potentially affecting patients received by the regulator has led to the formation of the National Advisory Board for Human Factors in Dentistry, whose mission is to 'advise, raise awareness and understanding of human factors to enhance safety, quality, health and wellbeing for patients and dental teams in all sectors'. Although there are several publications in the field of dentistry, promoting human factors in patient safety, the cognisance of these factors and their impact on dental team members and the subsequent effect on patients remains poorly recognised.

The focus of this Board is to empower dental teams to be open, thus promoting the effect of human factors on patient safety. Channelling the concept of 'something will go wrong and how are we going to deal with it' at an early stage in professional development will help embed this into the day-to-day working environment.

We aim to do this by:

- Providing clarity on the types of events/mishaps in dentistry that could compromise patient/team safety.
- Establishing an understanding of what constitutes a mishap that should be discussed.
- Providing an explanation of the different terms used to describe such events in dentistry.
- Encouraging a culture of open discussion and dialogue to promote a learning environment thus moving away from the culture of 'blame'.
- Highlighting the importance of recording and reporting events at a local and national level to drive learning.

By using this approach, the Board hopes early awareness of the role of Human Factors will foster a culture of openness and give people the confidence to share their experiences without fear of retribution or repercussion.

This document outlines the Board's intention of how they aspire to achieve this. It will provide individuals, health care providers, educational institutions and regulators involved in delivery and education of dental services guidance on the steps they may opt to take to raise the profile of Human Factors and its influence on patient and team safety.

Ulpee Darbar
Deputy Chair, NABHFD

1. Introduction

Dentistry, within and out with, the National Health Service (NHS), cares for thousands of patients who are living longer, retaining their teeth for longer and often presenting with complex multifactorial conditions that are challenging to manage. As complexity of patients' treatment needs has increased, the need to focus on factors influencing the provision of high-quality care has become essential. Quality in health is the standard by which healthcare providers operate to optimise clinical treatment outcomes and protect patient safety.

The Institute of Medicine has defined quality in health as the provision of care that is 'safe, effective, patient-centred, timely, efficient and equitable'[1] while the Agency for Healthcare Research and Quality[2] outlines it as 'doing the right thing, for the right patient, at the right time, in the right way to achieve the best possible results'. To avoid confusion, the NHS has established a nationally agreed single definition of quality in health which states **'quality is care that is effective, safe and provides as positive an experience as possible'** to the patient[3]. This single definition provides a universal understanding about quality which centres on the dimensions of clinical effectiveness, patient experience and patient safety. The latter is defined by NHS Improvement[4] as 'the avoidance of unintended or unexpected harm to people during the provision of health care' and has become one of the most topical subjects within the NHS today. In July 2019, the introduction of the NHS Patient Safety Strategy[5] saw the primary focus on continuously improving patient safety based on foundations of a safer culture and safer systems.

In dentistry, the focus on high quality care is gathering momentum due to the patient safety agenda, complicated by the diverse healthcare environment through which dental care is delivered. In this environment, multiple system factors (people, technology, procedure, culture) interacting through various processes may produce unwanted outcomes (mishaps, adverse events, incidents, near misses) for patients and in turn affect team health and wellbeing[6]. Whilst in industry, reporting and learning from such mishaps is integral to the culture, in healthcare and particularly in dentistry, the concept of reporting and learning from such events remains "vague" and is often compounded by the lack of effective reporting systems across the sectors in which dental care is provided.

The Challenge in Dentistry

Service delivery in dentistry takes place in many different sectors which include General Dental Services, Community Dental Services, (including schools, prisons, portable dental units), Hospital Services (secondary and tertiary) and the Ministry of Defence. Although how services are delivered in each sector varies, the main goal is 'quality' with dental care being patient- centred, delivered by teams working in complex multifaceted systems and environments. Additionally, the provision of dental treatment involves treating conscious patients within their personal space with procedures (non-surgical and surgical) being undertaken in the most sensitive and important anatomical area of the body, the oral cavity. These treatments include the coordination of patients with increasing medical complexity managed through multidisciplinary teams and usually involve manual tasks of varying difficulty and challenge. This requires clinical knowledge, high dexterity, precision and accuracy underpinned by optimally

functioning daily operational systems alongside the pressure of patient demand. This interaction of multiple factors, alongside time constraints, as well as financial and external pressures places a burden on the dental team, which in turn has the potential risk of compromising safety with adverse and compromised outcomes.

Wright et al reported a dentist (and their team) will have at least 2 errors per day. 1.4% of these progressed to an adverse event with the majority of causes understood to be related to non-technical factors and not ability or knowledge[7]. Others have reported similar observations and until recently, the error-promoting conditions and contributory factors impacting the delivery of quality dental care has been poorly recognised[8, 9,10]. The latter may be due to confusion relating to the terminology used to describe these events (mishaps) as well as a lack of appreciation of the need to report them. It is further compounded by the lack of easy access to a central repository where mishaps can be reported and analysed. The reasons for dental teams not reporting mishaps are covered later in this document.

We have used the word ‘mishap’ in this document to describe any adverse events, incidents or near misses that may affect patient safety.

2. Human Factors and Patient Safety

Human Factors is defined as 'the study of the interrelationship between humans, the tools and equipment they use in the workplace, and the environment in which they work'[11, 12]. Also known as ergonomics, it is concerned with understanding of interactions among humans and their individual characteristics which could affect their behaviour and other elements of organisational systems which influence conduct in a way that can affect safety [13]. The concordat [14] from the National Quality Board states "a wider understanding of Human Factors principles and practices will contribute significantly to improving the quality (effectiveness, experience and safety) of care for patients". Patient safety is thus everyone's responsibility and not an individual responsibility which spreads across the organisation or practice. The human factor approach takes into consideration the different elements that interact and influence each other aiming to 'make it easy to do the right thing'. These elements can be categorised into system related, culture related and performance related which are all affected by wider local and national parameters.

• System Related

These are job related aspects and include what an individual is being asked to do. It takes into consideration the nature of the task, the workload, the role of procedures and the working environment. This includes equipment, design of displays and controls, devices and information systems and the physical environment in which the service is being delivered. The physical environment influences how well teams work together and is critical in supporting people to do their job. Systems should be designed such that unfavourable working conditions minimise the risk of error. Tasks should therefore be ergonomically designed to take into consideration human strengths and limitations; by doing so, it promotes the principle that people undertaking the tasks have the correct attributes required of them.

• Culture Related

These are organisational attributes which can foster a culture where teams feel empowered to promote safe practice and to 'speak out' to challenge negative attitudes (openness) and report things when they are not working (just). These attitudes and behaviours along with organisational philosophies that encourage open discussion amongst teams to share experiences (both positive and negative) will drive learning that minimises the recurrence of error without the fear of retribution or reprimand and restriction linked to the legal protection of intellectual property[15]. Organisations should also have easily accessible, efficient and effective reporting systems which can be used to share and disseminate information without judgement or bias. Team members should be empowered to reduce their risk by proactively participating in safety efforts in the work environment, but also take the initiative to investigate reasons for a 'mishap' occurring including a systems inquiry as a possible contributory factor. The question that should be asked is 'what went wrong' as opposed to 'who caused the problem' which in turn promotes the initiation of a 'just' culture. This type of culture aims to create an environment where individuals feel free to report errors which can help the team to learn from them. It also refers to a 'systems thinking' approach which emphasises that mistakes can be linked to outputs from a faulty organisational culture rather than directly due to the person or persons involved. Honest errors made

by individuals are seen as learning opportunities, with the necessary support given to them. Nonetheless, people who have acted deliberately and wilfully to inflict harm are held to account[16]. Effective and strong clinical leadership is essential to foster this type of openness and fairness within a culture. By promoting effective communication and resource allocation across the whole team, it becomes everyone's responsibility to embed a 'just culture' into daily working practice.

• Performance Related

These are individually driven characteristics of all health care professionals, including dental teams, that influence performance through attitudes, behaviours and knowledge in complex ways. These include the individual's competence, personality, attitude, skillset, insight and risk perception. Commonly referred to as non-technical skills, these are general cognitive and social skills that enable healthcare professionals to take a leadership role, monitor the situation, make decisions and communicate and co-ordinate their actions within the team to achieve high levels of safety and efficiency[17]. 80% of healthcare errors have been reported to be related to the non-technical factors of poor communication and team working[18]. Understanding and paying heed to 'how people feel', 'how they behave and 'how they interact with each other' and their environment, acknowledges human limitations and is critical in fostering a safe environment to reduce 'mishaps'. Performance related outcomes are intricately connected to how individuals react to and manage their daily pressures. The role and importance of human performance in the delivery of healthcare was first reported by the World Health Organization Group (WHO) on Patient Safety in 2009[19]. The need for early understanding and adoption of the role of Human Factors has since been highlighted by both NHS Improvement (2019) in their patient safety strategy and Health Education England[20] (HEE) in their publication 'In Safe Hands'.

Latent Factors

Latent risk factors are human factors that may not be directly visible nor manifest immediately in the working environment. They make the risk of 'mishaps' more likely and potentially dangerous[21]. These factors are embraced under the previous headings but highlight the close interaction and their integration in patient and team safety. Parameters of risk reduction can only be set by individuals and their teams who are delivering the care supported by the wider organisation. In dentistry, 'mishaps' are usually as a result of an interplay of multiple unfavourable latent risk factors which may influence what happens on a day to day basis. If they remain unidentified, they can potentially cause harm to teams and patient safety. Latent factors pose a serious risk to safety and so early identification is crucial to minimise any potential unforeseen complications. These factors can be categorised as:

- Stress and fatigue
- Lack of insight and reflection
- Leadership (the 'macho' approach to clinical work; hierarchy in teams)
- Increased workload within the same time frame
- Distraction caused by internal and external pressures (administrative errors; personal issues)
- Lack of confidence (related to knowledge, skill and ability)
- Internal self-driven pressures (feeling of being judged or inadequate)
- External pressures (peers, managers, commissioners and regulators)

- Different priorities within teams caring for patients
- Equipment availability, accessibility, function, design and maintenance
- Protocols and procedures (ambiguous, misleading, or conflicting protocols/ procedures)
- Time management and time constraints

Dental professionals, stakeholders and the regulators need to recognise the importance and impact of latent factors affecting quality of care and safety, particularly in the complex clinical environments from which patient care is delivered, especially when limited peer support could propagate their manifestation into a ‘mishap’. Early recognition and establishing appropriate support for an individual at the outset is of paramount importance if patient and team safety are to be promoted. Issues that can protect, or promote, these latent ’risk’ factors are shown in Appendix B.

3. Definitions

If clinicians are expected to report 'mishaps' (adverse events, incidents, near misses), it is crucial that the terminology used is clear and standardised.

Types of mishaps can be separated into two categories: deliberate and unforeseen. Deliberate mishaps are intentional behaviours or actions e.g. fraud, criminal activity, violations and repeated errors or consistently poor clinical practice. These are not the focus of this document and should be managed through other established pathways[22].

Unforeseen mishaps have the potential risk of causing or leading to harm compromising patient safety and should be reported. Several different terms are used to describe these:

• Near miss

An unplanned event (mishap) that did not result in injury, illness or damage but had the potential to do so.

• Patient safety incident

Unintended or unexpected incidents which could have or did lead to harm for one or more patients or team members receiving NHS funded healthcare [23].

• Never events

'Adverse' events that are serious, largely preventable and of concern to both the health care providers and the public for the purpose of public accountability. A never event is usually detected at any time after it has taken place. They are described as "serious incidents" that are wholly preventable because guidance or safety recommendations are available at a national level and should have been implemented by all healthcare providers" [24]. These events are reported through a specific pathway. Formal information and guidance on these events are published by the Welsh Government and NHS Improvement.

• Severe harm

Incidents that result in the permanent lessening of a bodily, sensory, motor, psychological or intellectual function that is not related to the natural course of an underlying illness or condition and/or psychological harm that is proven which a person has experienced or likely to experience for a period of at least 28 days.

In dentistry, the majority of mishaps fall into categories that lead to lesser harm or 'near misses'. This term has originated from the air traffic industry, and whilst being useful in context, has led to much confusion about what constitutes a 'near miss' in clinical dental practice'. A classification system has been proposed by Nashref[25] for 'near misses' but remains unused due to possible ambiguity within

the proposed descriptions and the national terms. Whilst we have used ‘mishap’ as the umbrella term to describe these events, the dental team members must be cognizant of the nationally accepted terms described above.

All dental team members as GDC registrants have a ‘duty of candour’ which is ‘the statutory and legal duty to be open and honest with patients, service users or their families, when something goes wrong that appears to have caused or could lead to significant harm in the future’ [26]. The Care Quality Commission (CQC) interpret this using the terms openness, transparency and candour which are described in detail in their ‘Regulation 20: Duty of Candour’[27]. This is integral to the provision of high-quality care for patients and thus to uphold this duty, dental team members should be mindful that mishaps will occur. Once a mishap has been identified, they need to understand why this has happened and what should be done to minimize the risk of recurrence. Ideally, learning is then cascaded to turn reactive outcomes into proactive learning opportunities for the whole team.

Although mishaps can result in low harm, serious harm or, very rarely, death, they do not necessarily lead to complications. By remaining unrecognised, the likelihood of reducing the safety margins in the provision of clinical care increases. Mishaps can be stressful and upsetting for both patients and the dental team and can lead to complaints with the potential to undermine confidence and raise anxiety; a trend that is evident from information available from the regulator and the defence organisations.

Mishaps are multifactorial. Different descriptors have been applied to categorise a mishap within the remit of patient care; a system; malfunction of equipment or the reaction of a person. The latter highlights issues within ‘human blame’ and observationally implies a need for a service to improve their understanding of Human Factors leading to mishaps. More recently, another definition of mishaps has been used with the key categories being liveware (people, communications and their interactions), hardware (tools and systems), software (rule, processes and manuals) and environment (stressors, data and climate). These categories interplay with one another synonymously so should all be considered when conducting an after-action review or investigation following a mishap. Examples of commonly occurring ‘mishaps’ can be found in Appendix C.

4. Reporting

Effective and efficient reporting systems are necessary to record the factors that led to the 'mishap' in the first place. Not only will it act as a database, but over time, will help identify trends or common themes occurring. As the impact of Human Factors is increasingly recognised in safety initiatives across healthcare, the success of good clinical practice becomes underpinned by this sharing of knowledge of why things went well and why they did not go so well. These reports are invaluable in:

- Sharing information and driving learning thus fostering team members to support each other as well as patients and carers.
- Recognising and promoting good practice.
- Reducing the risk of recurrence and upholding duty of candour.
- Improving culture and safety.

Data from the National Reporting and Learning System has shown that of more than two million reported incidents, only 800 were related to Dentistry[28]. The low number of reported mishaps in dentistry has a multifactorial aetiology and could be related to:

- **Knowledge and Understanding**

▶ Not knowing what to report i.e. lack of understanding about what constitutes a mishap/near miss
▶ Not understanding the need to report
▶ Not knowing when and how to report
▶ Lack of awareness of the systems in place for recording and reporting
▶ Uncertainty in relation to what happens once reported and action taken

- **Reporting Systems**

▶ Lack of a standardised universally accepted anonymous reporting system
▶ Poorly designed system affecting ease of use, limiting a user's ability
▶ Depth of information needed to report the mishap becoming a potential barrier
▶ Accessibility and availability for all dental professionals

- **Others**

▶ Worry about being blamed i.e. 'the blame culture'
▶ Hierarchy (top down approach)
▶ Unaware of the learning and sharing experience to minimise recurrence
▶ Not having the time to report due to the way in which care is delivered
▶ Concern that information will be used to criticise/reprimand the dental team
▶ Fear of adverse consequences from regulators
▶

- Poor reported experience from teams where reporting has taken place (e.g. using DATIX) but no shared learning follows
- Worrying about the repercussions of what could happen if reported (usually negative)

Under the Health and Social Care Act 2012[29], dental professionals are mandated to report mishaps that have resulted in never events, severe harm or death. However, the reporting of 'near misses' remains ambiguous especially in dentistry where patient care is delivered in different settings which include General Dental Services, Community Dental Services, Hospital Services and the Ministry of Defence. All settings delivering patient care should have a simple reporting structure with local accountability in place that encourages the timely documentation and discussion of all types of mishaps. For this to be effective it is important that teams:

- Understand what defines a mishap/near miss
- Acknowledge that mishaps and near misses will happen
- Understand the importance of reporting mishaps and what they should report
- Understand the need to report openly and honestly
- Analyse the reported mishaps at local level and know when to seek external help
- Appreciate that this is about learning and not 'blaming'
- Work in a culture that eliminates the 'fear factor' of what could happen to them

Reporting and recording of mishaps should occur::

1. Locally

This could be at practice and/or commissioner level. There should be a local reporting and recording of system that all team members are familiar with. The system should encourage real time reporting of the mishap, with ownership and immediate resolution of the issues along with the implementation of improvement plans to mitigate future risk. Contractually, the dentist is also expected to report significant 'near misses' and 'never events' into the Commissioners' reporting system to help establish the need for support and identify any obvious trends.

2. Nationally

The national systems are useful to collate data from all sectors which help establish trends of mishaps and the need for training and support of teams. Unfortunately, the current National Reporting and Learning System (NRLS) is poorly utilised by dentists for many reasons, with access and ease of use issues being recognised barriers. The newly developed Patient Safety Incident Management System (PSIMS) intends to supersede all previous forms of national reporting systems and all health service sectors delivering dental services will be expected to use this new system. This reporting system will become the single centre point for recording, accessing, sharing and learning from patient safety incidents and it is anticipated that it will support NHS-funded dental services at all levels of the health system with a simpler and user-friendly interface. In Wales, a "Once for Wales" reporting system is being developed which will link to PSIMS.

The reporting of mishaps should be timely and ideally be done as soon as possible after the mishap occurs or when recognised. This promotes a contemporaneous recall of what happened and why.

This may be immediately (e.g. extraction of the wrong tooth) or delayed (e.g. the harm comes to light after a period of time). The reporting should be through a local recording system from which data and information is collated, shared and discussed. This should be fed into one of the systems noted above. Early escalation should be considered if the mishap is deemed of a significant nature.

The report can be to one or any of the following:

- In the practice only
- The contracting organisation (NHS organisation, corporate body etc)
- A topic specific organisation (Yellow card report to Medical & Health Regulatory Authority (MHRA), Reporting of Injuries, Diseases, Dangerous Occurrences Regulations (RIDDOR) etc)
- A practice regulator Care Quality Commission (CQC), Healthcare Improvement Scotland (HIS) Regulation and Quality Improvement Authority (RQIA)
- A UK reporting system (NRLS or similar)
- The team member may decide it is appropriate to inform their defence organisation, depending on the nature of the mishap.

The timely reporting of all mishaps and subsequent discussion within the team with an action plan to prevent recurrence, are essential steps in the learning experience for the team members. Patients can also be part of the dialogue and such openness helps implement change which mitigates both patient and staff risk as seen in the example in Appendix D.

Appendix E provides outlines of a reporting structure and the escalation process. It could, for example, be implemented for local reporting, feeding into the new PSIMS system when it is established.

5. Sharing and Learning from Mishaps

The timely reporting of mishaps is crucial to learning and helping team members in understanding what happened and what to do next to minimise the risk of recurrence. The report will form the framework from which a discussion is stimulated, aiming to focus on the mishap that has taken place rather than the 'individual' involved. This type of 'after action review' debriefing helps create an environment that fosters trust and encourages openness. Whilst anonymisation of the report is important, necessary information about the team involved should be available to key people, to enable discussion. Information should be used constructively, fairly and openly to deliver key learning. By minimising fear of reporting, the commonality of sharing what happened and why, can in turn, promote a sense of pride in driving the safety agenda forward.

The information collected after the mishap should include what happened after the mishap took place and the actions taken to mitigate the risk of recurrence. This data is key to ensure that the immediate team members learn from the experience and should also be shared with the wider team to foster learning. Where appropriate, patients can be part of this team especially where patient care has been compromised. Representation of this nature will help patients get a better understanding of the constraints and influences faced by the team members in the work environment, thereby potentially reducing the number of complaints encountered by the dental team.

The collation of the reports will help stimulate collaborative working and sharing by demonstrating trends, repeated recurrences and the level of compromise caused to patients and the team. This can be done locally within the practice or through any of the nationally driven reporting systems. The reports can form a component part of team meetings. The agenda for discussion should include both reported mishaps/near misses that have been managed well with successful outcomes as well as those with compromised outcomes. Sharing of both positive and negative outcomes will foster collaborative working across teams, enabling them to work together towards a single goal with shared priorities. It will promote safe practice and encourage people to talk about what has happened instead of feeling shame or fear. This requires people to be encouraged and supported to speak out when they may feel overwhelmed or unable to do so.

Trends demonstrated by the reports can be used to address the causes of the mishaps and where consistent, may enable the information to be shared with education providers to raise awareness of inclusion into their educational models. This shared information will help in championing the value of shared and reflective learning to mitigate recurrence and promote the concept of 'lessons learnt from mishaps'.

6. Outcomes

The Board anticipates that through their mission and the work, there will be:

- A greater awareness of the influence of contributory factors, in particular latent factors,and how they may affect patient safety
- Basic understanding of principles of Human Factors science for improving dental systems
- The use of a single term such as ‘mishaps’ that reflects a universal understanding in dentistry of the terms used to describe the different events/incidents
- Improvement and timely reporting of all mishaps including ‘near misses’ to foster a greater understanding of the factors and trends of mishaps
- Encouraging an open and just culture that promotes and embeds shared learning experiences which in turn will influence patient safety and mitigate risk
- Empowerment of dental teams to speak out and share their concerns, through guidance, in promoting patient safety as well as their own safety and well-being.

Furthermore, the Board will actively engage with:

- The General Dental Council to emphasise that the majority of registrants do not set out to harm patients but have mitigating challenges with latent factors that should be recognised.
- The General Dental Council to look towards embedding human factors into the learning outcomes for all pre-registration academic studies.
- HEE, Health Education and Improvement Wales and other educational organisations to embed human factors early in training for all members of the dental team.
- Postgraduate and undergraduate educational organisations to adopt the role of Human Factors and its impact on safety early in their curricula.
- Stakeholders who deliver and commission oral healthcare services to promote the value of open and just cultures.
- Defence organisations, regulators, systems and professional groups to recognise the role of Human Factors on behaviours and mishaps.

7. Appendices

Appendix A: Membership of the NABHFD

Name	Organisation
Simon Wright (Chairperson)	Human Factors Researcher and Primary Care Practitioner
Ulpee Darbar (Deputy Chairperson)	Consultant Restorative Dentistry - Secondary Care
Jane Carthey	CHFG Ambassador and HF Researcher
Sam Curtin	Human Factors Researcher
Len D'Cruz	BDA Indemnity
Andrew Dickenson	Vice-Chair COPDEND
Peter Dyer	Chair. BDA Central Committee for Hospital Dental Services
Fiona Ellwood	Dental Care Professional
Shareena Ilyas	Local Dental Committee Confederation - London
Rupert Hoppenbrouwers	Senior Dento-Legal Adviser, Dental Defence Union
Mick Horton	Immediate Past Dean FGDP
Lisa Howells	Former Deputy Chief Dental Officer - Wales
Selina Master	Royal College of Surgeons England - Vice Dean
John Milne	Senior Dental Advisor Care Quality Commission
Ian Mill	Dean Faculty of General Dental Practitioners (FGDP)
Kirstie Moons	General Dental Council
Frances O'Leary	Human Factors Researcher
Divyash Patel	Clinical Lead - Office of the Chief Dental Officer
Hannah Pugh	Clinical Fellow, General Dental Council
Tara Renton	Human Factors Researcher and Specialist Oral Surgeon
Alistair Ross	Senior Lecturer in Human Factors, Glasgow Dental School
Alka Saksena	Consultant Oral Surgeon, Secondary Care
Eddie Scher	Specialist Oral Surgery and Prosthodontist- Primary Care
Tom Scott	Executive Director Fitness to Practice GDC
Alistair Sloan	Dean Cardiff Dental School - Chair Dental Schools Council
Deborah Stratford	BSDHT Representative
Cemal Ucer	Human Factors Researcher and Specialist Oral Surgery - Primary Care
Patrick Waterson	CHFG Ambassador and HF Researcher

Appendix B: Issues that can Promote/Protect Latent 'Risk' Factors

Issue	Issue	Outcome	Outcome
Barriers/Constraints in the work-place (simple disagreements)	Behavioural change within the team Influences individuals or teams	Poor communication Reduced performance Increased anxiety Increased stress Dissatisfaction Undervalued/Undermined Disharmony in the team	a. Busy dental nurse asked to continue working without a break and no consideration given to how the nurse is feeling. b. Dentist is denied equipment by their principal causing resentment leading to higher risk of a mishap when the treatment is carried out without the equipment *Openness would have allowed both to raise their concerns and how they felt*
Contractual Agreement between the provider of care and the service purchaser (commissioner) needs to be in line with what can realistically be delivered against the service demand, practice setting and competence of the clinician	Anxiety if contractual obligations unlikely to be met; enables reflection and learning	Fear of retribution and loss of income	Generates pressure and anxiety within the team and the team lead, the dentist, potentially leading to behaviours and actions compromising personal and team safety *Openness and confidence to raise issue early to generate discussion and mitigate risk and action plan; fosters reflection and learning*
Check lists, protective tools that proactively help to identify issues early and protect the team and the patient.	Team involvement in development and implementation taking ownership and empowerment	New dentist sceptical in using the pre-treatment checklist but was reminded by the nurse that this was practice protocol and had to be used	A mishap was avoided when use of the check list highlighted radiographs required for a surgical procedure were not available and patient appointment was thus cancelled. *Empowerment of teams to speak* *Facilitate team communication* *Help reduce hierarchy in teams*
Risk of 'Fear' in high pressure environments e.g. general dental practice where a business is run alongside patient care delivery	Unknown outcome of 'what could happen if I admit' i.e. unknown consequences generate greater fear	Blame culture & negativity tends to stimulate a culture of blame and negativity which further impacts on behaviour and becomes a vicious circle with potential to stifle reporting, learning and improvement of patient safety practices	Behavioural changes leading to a downward spiral further increasing risk of 'mishaps' *Regulators/employing & contracting organisations should support the dental team to understand that mishaps in healthcare are inevitable and that whilst patient safety is important, the context of harm needs to be put into perspective especially as the 'fear of unknown consequences' generates a further risk of deterioration.*

Appendix C: Examples of mishaps that should be recorded locally

Mishaps can be categorised broadly into liveware (patient/people related, communications and their interactions), hardware (equipment, tools, materials, infrastructure and systems related), software (rule, processes and manuals), and environment (stressors, data, climate). The list below (not exhaustive) indicates what should be reported and some may fall into more than one category.

Liveware (patient/people, communications & their interactions)	Hardware (equipment, tools, materials, systems, infrastructure)	Software (rules, processes, manuals)	Environment (stressors, data, climate)
Providing treatment to a patient without consent	Failure of equipment e.g. hand piece or suction stops working in the midst of treatment	Standard operating protocols for procedures	Patient fall due to loose flooring in the practice)
Extraction of the wrong tooth	Required materials/instruments not available	Checklists	Assault on staff
Operating on the wrong tooth/preparing the wrong tooth or putting filling on the wrong tooth	Burn caused by poorly serviced instrument e.g. ultrasonic scaler	Action plans	Lack of staff or appropriately trained staff leading to stress
Prescribing antibiotics to a patient who is known to be hypersensitive to them	Breakdown of Dental Chair		Patient records not available
An adverse reaction to a new product, e.g. toothpaste	Patient record system failure		Overbooked clinic
Providing treatment to a patient without consent			Expected to work beyond your comfort zone
Prescribing a drug which is known to interact adversely with a medication the patient is already taking (e.g. Miconazole to a person taking warfarin)			Expected to work beyond your comfort zone Incorrect patient name on models or radiographs
Failing to refer urgent suspected cancer, or failing to follow up a referral to ensure the patient has been seen			
Eye damage caused by dropping an instrument on a patient who is not wearing eye protection			
Breaches of confidentiality			
Providing treatment to a patient without consent			
Giving local anaesthesia to the wrong side			
Sharps Injury			
Providing treatment to a patient without consent			
Causing a burn on the patient due to spillage			
Unintentional trauma to yourself, team member or the patient with instrument			

- Mishaps that have a recurring pattern should be reported to the next level
- Never Events should be reported Nationally

Appendix D: Examples of 'near misses'

These events often cause less anxiety and challenge and teams often find it easier to share their experience of near misses. 'Near Misses' do not result in harm but have the potential to have done so. Reporting these events and sharing learning is critical to ensure the risk of recurrence is minimised. The following examples highlights the importance of reporting 'near misses' to learn and prevent recurrence.

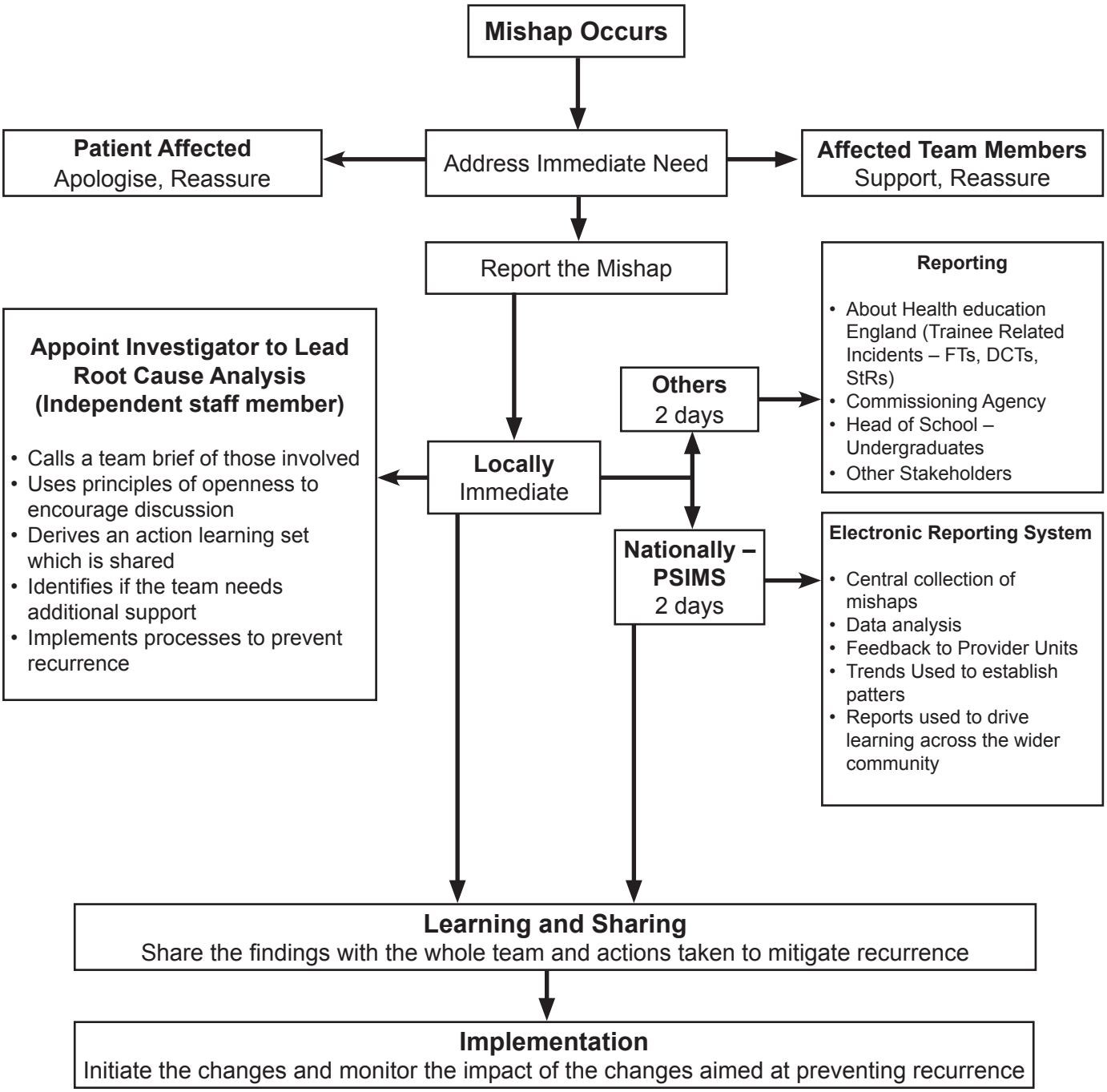
What Happened	Why did this happen	Immediate Action Taken	Short- and Long-Term Action Taken
A patient needed a dental extraction but due to his medical condition was not able to travel and the dentist saw him on a domiciliary visit. On arrival when the dentist asked about his medical condition, the patient's wife mistakenly gave the dentist her NOMAD drug box, thinking it was her husband's. The oversight was rectified when it came to light prior to the extraction taking place, when the patient's wife shared some information about her medical health with the dental nurse. If this had not happened, the patient could have been at risk especially if he was taking anticoagulant medications (e.g. warfarin) which the dentist wouldn't have known about. This was reported on the health board DATIX system.	The NOMAD box had the drug list on one side and patient's name on the other. Mix up as labels were not easy to see. Both husband and wife had a NOMAD box with similar drugs.	Discussion with the district nurse about the mishap. The labelling of the NOMAD box was changed to having the patient name and their drug list on the same side along with a reminder to double check the drug list. Sharing of the mishap	*Sharing of the Mishap due to the Datix reporting with a wider audience and the action taken discussed and learning shared. The dental team was congratulated for the prompt action they took.* *Audit to ensure there was no recurrence*
A patient required extraction of LR 6. The LR 7 was noted to be very carious but the patient did not want it extracted. The dentist, due to the difficulty of the extraction, referred the patient to a more experienced dentist in the practice. There was no official referral letter and the experienced dentist extracted both the 6 and 7. The patient was informed but got very distressed and angry that both teeth had been extracted. An apology was given to the patient and reassurance that the practice would review its' in-house processes in relation to internal referrals.	No internal referral by letter or within the clinical notes requesting the extraction of the LR 6 only. No information that patient did not want the LR 7 to be extracted. Failure of the treating dentist to check the written treatment plan in the records. Failure to consent the patient for the planned treatment and double check the planned treatment.	Team briefing about the mishap; Transpired that due to the pressures of the number of patients waiting, the team overlooked the need to complete the WHO checklist and consent the patient; Assumption made that dentist had checked the patient records. Realise that extraction of a tooth without consent is a 'never event'.	Written protocol for internal referrals was implemented. The use of a pre-treatment checklist as a standard protocol established. Team reminded about the importance of reporting the 'never event'. The extraction of the LR 7 without consent is a 'never event' and should have been reported into the national reporting system.
The elderly relative of a patient collapsed in the waiting room. She was completely non-responsive and appeared to have died. The dental team attempted resuscitation and phoned for an ambulance in line with their training and used the emergency equipment that was readily available and in working order. The staff worked as a team and did not forget to support the patient's daughter and the other patients. The receptionist could not get an answer when dialling 999. The mishap was reported using the national reporting standards.	Due to the stressful situation, the receptionist had forgotten to dial 9 to get an external line, and also realised that she had found it difficult to remember the practice post code. Despite this everything went to plan as the team had been well trained and handled the pressure in the stressful situation they were in.	A debrief and the team were congratulated on their efforts. The reasons for the issues with the 999 line was explored and the impact of the stressful situation.	Laminated notices stating clearly the number to dial in an emergency along with the address of the surgery including the post code were placed. Support mechanisms were put in place for the staff involved in the mishap to help them deal with the aftereffects of the event on them as individuals.

Appendix D Continued

What Happened	Why did this happen	Immediate Action Taken	Short- and Long-Term Action Taken
The practice normally orders ready diluted surface disinfectant but the company delivered the concentrated product by mistake. The packaging was slightly different but since the product name was the same, the dental nurse assumed it was simply a new style of packaging. Several team members complained that the product irritated their eyes and throat and later that day a dental nurse had a severe hypersensitive reaction and collapsed. Fortunately, her colleagues acted promptly and she recovered.	The high concentrate surface disinfectant was the cause of the problems.	A team brief took place. Cause of the problem was identified and it was established that an oversight had occurred. Discussion followed about what happens when products are delivered.	*A protocol of checking all orders when received was implemented in the practice, ensuring that the products ordered were the ones delivered, to prevent a recurrence*
A patient collapsed in the surgery and needed emergency admission into hospital. The dental team handled the situation well but found it very distressing and stressful. The senior dentist reported the incident to the organisation's manager. The manager advised the dentist to "write it all up fully in case the patient sues us" without any concerns expressed about how the team were coping or even mentioning that the event should have been reported.	Unforeseen event in which the team had acted well and in line with their training. The reporting was undertaken but the reasons for the reporting were inappropriate with little consideration given to the way the team may have felt about the event	No active debrief took place after the event; No support was given to the team by the manager. On her way back to the surgery, the dentist met a doctor colleague who worked in the same building who was very supportive and asked how the team were feeling after the event. The doctor gave the dentist contact details for occupational health in case anyone needed extra support	The contrast between the reaction of her manager and the doctor was evident! Such a situation could result in the dentist becoming apprehensive. The dentist along with the team should have been encouraged and empowered to speak up about their feelings so that appropriate support could be implemented
A dental practice had an emergency drug box which was updated regularly. At the last update, it was noted that the 'spacer' provided in the emergency box did not fit the asthma inhaler and hence could not be used.	The team informed the pharmacy services of the issue which they were unaware of up to that point.	Information was logged into the local reporting system and shared with the team at the team meeting and with other practices	This sharing of information meant that all teams were aware of the issue but most importantly the early observation led to an action being implemented to mitigate risk for an asthma patient not only in this practice but others who used the same pharmacy as well. The consequences of not reporting may have led to a patient being harmed

Appendix E: Algorithm for Reporting

The suggested algorithm should be used to coordinate local mishaps and these can then feed into the new Patient Safety Incident Management System and Other Reporting Systems.
All team members have a responsibility to report mishaps.



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