HUMAN FACTORS IN HEALTHCARE

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A 360° Approach for Smarter, Safer Practice

Editor and Lead Author
Robert Galloway

Co-Authors
Eleanor J. Crossley and Mitul Patel

Human Factors in Healthcare

'Whatever your experience, whether you're working in healthcare already, maybe thinking about a career in healthcare, or simply an interested bystander, this book will change what you do, in your work, and in your life.'

Captain Martin Bromiley OBE, Airline Pilot and
Founder of the Clinical Human Factors Group

Healthcare is full of brilliant, dedicated people but the conditions we work in often mean we fall short of the care we want to give. Mistakes aren't usually the result of bad individuals; they are the predictable outcome of poorly designed systems and cultures that don't make safety easy. When staff don't feel supported or listened to, it is almost impossible for them to deliver safe care.

This book was written for the entire multidisciplinary team—doctors, nurses, allied health professionals, managers, educators, students, indeed anyone and everyone involved in delivering or improving care—and is an essential guide to recognising the human and organisational factors that shape our actions and learning how to do better. It draws a straight line from staff well-being and psychological safety, connecting these directly to the techniques needed to deliver safe and effective patient care.

Practical and accessible, and sometimes light-hearted, this book focuses on real clinical stories, reflections from the frontline and a healthy dose of honesty about how tough healthcare can be for staff and patients. It's also packed with simple, doable changes that anyone can implement, whatever your role or seniority. From improving communication, reducing error or learning how to speak up, these are tools you can start using tomorrow to make care safer for both staff and patients.

If you're fed up with tick boxes, jargon or lip-service to safety, and you want something to make things better and effect real change, this is the book for you.

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Miss Eleanor Crossley is currently an ST7 Specialist Registrar in Otolaryngology in the South London Deanery and was the President of the Association of Otolaryngologists in Training (AOT) in 2024–25. She graduated from the University of Birmingham Medical School, where she also completed a BMedSci Intercalated degree in Public Health and

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Foreword

I want you to imagine that you're with a family member. Then suddenly your world is plunged into tragedy, your family member is suddenly taken seriously ill and clearly requires life-saving treatment. They're rushed to hospital, but when you arrive alongside them in the ambulance, what greets you is not what you'd hoped for.

The hospital emergency department is dirty; it doesn't look like it's been cleaned in months. The bed linen is soiled, the staff have grubby hands and ignore your pleas to wash before laying hand to skin. The instruments they use are equally dirty, and can't have been sterilised. When you try to explain to the staff about these obvious and basic hygiene measures, they look at you as if to say, "What's wrong? You're over-reacting!" It's as if they've never heard of bacterial infections or viruses.

To a healthcare professional, this scenario seems completely implausible. Even the most basic healthcare systems recognise the essential role of good hygiene. You'd be up in arms, appalled and disbelieving that good people aren't aware of such a basic part of patient safety.

Yet in 2005, this sense of disbelief was exactly what I experienced, but from a very different perspective.

In 2005, my then wife, Elaine, went into hospital. Problems occurred during attempted surgery, and she died 13 days later having never regained consciousness. An independent review months later talked about "communication problems" and errors being made. However, as the author of the review talked to me, I recognised that what he was saying was simply

not right. I was appalled and disbelieving that what had happened to Elaine could have happened in a modern well-functioning healthcare system with experienced and highly trained staff.

It was as if they'd never heard of Human Factors and non-technical skills.

To someone like myself, a professional working in another safety-critical industry, this scenario seemed completely implausible. I thought to myself, "surely even the most basic safety-critical organisations recognise the essential role of Human Factors?"

At the time, healthcare didn't. In fact, in 2005, it didn't even think too much about patient safety. Patient safety was regarded as a niche academic topic, because, the thinking went, if you just do your job, your patients will be safe. Safety was assumed. In fact, we now know how perverse that thinking was, yet that thinking was all around healthcare. A couple of years after Elaine died, a surgeon wrote a book about patient safety. It was reviewed in the literature. Of course, one individual started his review by saying, "As a Junior Doctor with no special interest in patient safety…"

A core part of safety in any high-risk domain or profession is Human Factors, also known as ergonomics (or HFE for short). It is a science, or, more accurately, a group of sciences, that look at how we design the system and how we work together, to make it easier to get it right, and harder to get it wrong.

It teaches us, for example, the normalcy (and even the predictability) of human error, even with the most experienced and capable staff. It teaches us the value of humility. It teaches us the impact of our behaviour on other staff and how we might make it easier for those around us to speak up when they see us make a mistake, thus keeping ourselves and our patients safe. It teaches us how our brainstem can hijack us when under pressure to act, when in fact we should pause, take a breath and think first. It teaches us the frailty of human memory. However, it also teaches us techniques to combat these normal human traits. It helps us build our situational awareness, develop strategies for thoughtful decision-making, how to manage under stress and how to work effectively within a team.

My late wife was witness to a safety-critical system that wasn't safe. This is not just about the patients. As Rob so eloquently writes, this is about you. No one comes to work expecting to do harm. Yet we know it happens. So the question is, how can you use an understanding of Human Factors to keep your work safe and your conscience clear?

I wrote earlier that healthcare has moved forward since Elaine died. Robert Galloway is one of the people who has helped move healthcare forward. Rob and I have known each other for a long time, and he's exactly the sort of person to move healthcare forward. His passion and energy for Human Factors and for making healthcare better as a safety-critical organisation is infectious. His role, at the heart of healthcare, actually doing this stuff, makes him inspirational.

Whatever your experience, whether you're working in healthcare already, maybe thinking about a career in healthcare or simply an interested bystander, this book will change what you do, in your work and in your life.

Captain Martin Bromiley OBE,
Airline Pilot and Founder of the Clinical Human Factors Group
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CHAPTER

1 Introduction

This book is dedicated to the memory of Kimberly Hiatt. An amazing paediatric ITU nurse of 25 years, she died because of an unintended medical error.

To understand the importance of Human Factors you could read thousands of highbrow medical studies. You could critically appraise these scientific papers, showing which interventions lead to lower mortality. You could read about ergonomics, patient safety, cognitive heuristics and such like and be bombarded with scientific theorems from ivory tower gurus. All of this, you could put in your annual appraisal portfolio and convince yourself that this is what is needed to be "up to date" with patient safety. In reality, none of this would actually help you understand what Human Factors are and why the implementation of them is so essential to patient care.

To truly understand what these so-called Human Factors are, you need to reflect on what you do for your patients on the ward, on the A&E shop floor, in your GP practice, in your pharmacy, your mental health hospital, your physiotherapy clinic, your operating theatre or in your patient's home when you are doing an occupational therapy home visit. However, when we reflect, we often think about the four pillars which have the most obvious impact on patient care, without realising the fifth and crucial one—Human Factors.

Technical knowledge is, of course, the key pillar. However brilliant a surgeon's understanding of Human Factors is, if he or she does not know their anatomy, doesn't know what vessels they are tying off or how to suture, in my time of need, I want them nowhere near my anaesthetised body.

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An understanding of critical appraisal is the next key pillar. Fifty per cent of what is taught at medical schools is going to be wrong in 20–30 years. The problem is that we are not yet sure which 50%. Only by understanding and appraising the evidence can we change our practice and improve patient care. This is not about being evidence-based zealots who only implement treatments and advice based on randomised controlled studies (RCTs); if that was the case, doctors would not recommend quitting smoking; the evidence for how bad smoking is for you is drawn mainly from observational studies. Instead, it's about being an advocate for translating best available evidence into clinical practice: from papers to patients. Look at the success of the rapidly implemented and successfully managed RCTs during the COVID pandemic which showed the importance of steroids and rebuked the commonly held belief in the effectiveness of chloroquine.

Without going into politics, resources are the third key pillar and no amount of Human Factors training is going to make a corridor full of patients waiting for a hospital bed a safe environment.

The fourth pillar is compassion and kindness. A cold hearted and standoffish paramedic is not the one you want whisking you to hospital when you are panicking about having a heart attack (however good their knowledge of Starling's curve may be).

It's the fifth pillar—Human Factors—that is intangible and so hard to explain. So what exactly are Human Factors? The traditional description is as follows:

> Enhancing clinical performance through an understanding of the effects of teamwork, tasks, equipment, workspace, culture and organisation on human behaviour and abilities and application of that knowledge in clinical settings.

What does that actually mean? Maybe it is easier to think of it as a set of behavioural and cognitive skills, over and above technical competence. It encompasses judgement and decision-making, leadership, team work and communication, all underpinned by empathy and compassion; it is how we behave and think at work.

In a more practical setting, my favourite definition of Human Factors is:

> Learning how not to bugger up at 2am, when you are tired and overworked, looking after ungrateful and angry patients whilst working with IT systems which are not fit and with colleagues that you may not particularly like.

Although this book is an academic textbook, it hopefully is different to others in the field. It is filled with clinical cases rather than analysis of papers. It is about practical application rather than theorem. In many ways, I hope this book will be read more as a non-fiction book that you would read for interest rather than a pre-exam revision textbook. It is often written in the first person in a light-hearted way to get people to engage with what can be quite a dull subject.

The aim of this book is to try and get a culture change which will lead to an improvement in patients' outcomes. Equally important is making clinical work less stressful for the doctor, nurse, pharmacist, paramedic or physiotherapist, whilst allowing that care to be delivered in a more cost-effective manner.

The authors are all front-line healthcare workers who are involved in this area day to day. We may not be traditional academics but our focus is the patients we treat. Ellie, Mitul and Chloe are senior resident/resident doctors involved in elective and emergency care. Their day-to-day application of the techniques and tactics upon which this book is based make their explanations extremely applicable to those also working on the front line. Mel is an experienced nurse who has developed a special interest, expertise and experience in patient safety and spends her working days looking at the causes of error through a Human Factors diagnostic lens. I (Robert Galloway) qualified as a consultant in A&E and ITU in 2010 but because of my minute concentration span I now only practice in A&E. I am also involved in pre-hospital mass crowd medicine and for ten years was the Medical Director of the Brighton Marathon and Medical Advisor and lead Crowd Doctor for the greatest ever football team—Brighton and Hove Albion FC. In all these areas, Human Factors are of the greatest importance and I have used them alongside my interest of related areas: staff welfare, recruitment and rostering design (healthrota.co.uk) and appraisal of medical evidence (co-author of *Critical Appraisal from Papers to Patient: A Practical Guide* by Taylor & Francis) to help deliver safe and effective care wherever I work.

As an A&E doctor I have been obsessed with this subject from the moment I realised that learning more and more facts for an exam was not what was needed when caring for my patients (especially if these needed facts can now be looked up on Google or ChatGPT and misremembering these facts is dangerous). On occasion, the care I was delivering was suboptimal and patients suffered. I studied hard, worked hard and always went to work with the intention of delivering the best possible care I could. I was also completely up to date with all my mandatory training.

Errors still happened; patients still came to harm. When I tried to assess why, the same old answers—lack of resources, bad luck or a doctor or nurse who didn't know their stuff—were used to explain mistakes. However, these explanations were superficial and non-preventative of future ones. Mistakes became traditions and the medical culture meant people did not want to change the orthodoxy of what was happening. As a medical profession, we were not learning. The medical world was too insular, too hierarchical and in many ways too arrogant to embrace new ways of thinking that were having massive beneficial impacts from the 1970s onwards on other industries, such as the airline industry.

Quite rightly we said that medicine is far more complex than flying a plane. Whereas flights get cancelled if they are not going to be safe, as a doctor in A&E, I still have to do the equivalent of flying the plane, with half the number of pilots needed, not enough stewards and stewardesses and with fewer seats than passengers (most of which haven't got a seat belt on and are sitting in the aisle, drunk and abusive). It was argued, quite wrongly, by many that we couldn't learn from outside of our own expertise. For our problems, we came up with the same answers and expected different results. Einstein defined that as insanity. Maybe we were insane. Or maybe, even though the status quo was not liked, we just didn't like change. But why? It's because however much change is needed, it leads to criticism. Aristotle said (allegedly, although there is no proof of this) that only by saying nothing, doing nothing and being nothing can we avoid criticism. So maybe the medical profession did not adopt Human Factors, like other industries did, because of our fear of criticism.

Whatever the reason, the result is that although medical care has moved on in so many brilliant ways in the last 50 years, it is still tethered to a culture which holds back our ability to optimise patient safety and efficiency of care. The expert is still the doctor who remembers the clinical signs of obscure diseases rather the one who can successfully co-ordinate complex teams and multiple sources of information.

My passion for Human Factors led to the writing of a Human Factors course, which I have delivered since 2010 (email drrobgalloway@gmail.com for information on this course).

The clinical cases (in the course and this book) are all real cases, some with details changed to protect confidentiality. The first case is taken from when I was working as an intensive care trainee. Although my involvement was limited, the effect on me was profound and affected my whole belief in how we, as healthcare professionals, should practice.

A 33-year-old man was admitted for pneumonia. I knew him a little as he was a porter at the hospital I worked at and had a daughter the same age as mine. We would occasionally bump into each other at the park and play on the swings (our daughters, not us).

The afternoon ward round showed that he needed to be intubated, and his oxygenation levels increased by going on the ventilator. There was no rush for this, there was no immediate need.

My involvement stopped when I got a call to go and see another patient in A&E. I called the senior anaesthetist. I asked her to take over the care of the patient and told her not to expect any complications and that he would be an easy patient to intubate.

She was brilliant. She had just completed her postgraduate examinations and was about to take a consultant job. She had done thousands of intubations and never had a complication.

What she didn't do was prepare robustly for the intubation.

There were no checks on if there was a carbon dioxide monitor—crucial to see if you had intubated correctly and not accidently gone into the oesophagus. There were no checks to see if there was a plan for what would happen if they couldn't intubate. They had not gone around the room and checked that everyone knew each other's name or what to do if there was unexpected difficulty. Why would they? She had never had a complication; complications happen to other people—not her.

She thought she had intubated successfully. The resident doctor said that he thought he could hear the sound of breathing. However, without the forgotten CO_2 monitor they couldn't tell 100% for sure. It was only when the saturations fell to 95%, then 90%, that she realised they had a problem. Attempts to reintubate failed, as did attempts to ventilate with simpler airway manoeuvres.

It was a case of can't intubate, can't ventilate; a situation which she had been examined on recently and passed with flying colours. She knew what to do—scalpel to the neck and a hole in the trachea. It's not easy to do—but is lifesaving, if somewhat scary.

She lost hold of the situation. Time seemed to pass her by without her noticing. She got fixated on intubation rather than following the tried and tested can't intubate, can't ventilate protocols she knew so well but in a moment of panic did not remember.

The ITU nurse knew what was needed. She edged the difficult airway trolley closer but without speaking up. She even said, do you want the "tracky set." The anaesthetist responded by saying thanks but actually had not heard her.

Without a formal system to escalate concerns up and speak up, the shy ITU nurse stayed quiet and left the anaesthetist to continue trying to intubate. Eventually the patient was intubated but had had prolonged periods of hypoxia.

He recovered well from his pneumonia and ten days later was discharged, but to a neuro rehabilitation ward rather than home. Six weeks later he died from hypoxic brain damage.

This patient died not because of a lack of knowledge or care but because of a lack of Human Factors. Brilliant people doing brilliant things can sometimes go wrong when they shouldn't because we are humans.

We are not evolved to do anything more complex than run away from woolly mammoths, eat, sleep and procreate. Anything more complex and errors can happen.

The family sent a letter a few weeks later: "Thank you for your care. You gave us six weeks longer than we would have otherwise had." However, what they didn't realise is that he shouldn't have died at all. It was hard to take for the anaesthetist as well. The senior support was based on "chin up," "we all make mistakes" and "learn from it and it won't happen again." It does happen time and time again and will continue to do so without a real change to our culture. Our anaesthetist knew that and she couldn't cope with what happened. She ended up giving up medicine—a secondary victim to this awful case. Working in healthcare we are surrounded by tragedy, guilt and our own version of imposter syndrome. When patients unexpectedly die, it is hard to take.

About the same time, I had my own tragedy. I discharged a 38-year-old dad of four with groin pain. He had come to A&E three times in two days with this right-sided pain; discharged twice before seeing me. As a fresh pair of eyes, I examined him and even organised a CT scan and a battery of tests—all normal. I discharged him at 3am, with reassurance but without an explanation of his pain.

A few hours later I was woken from my post-night's sleep with the six most scary words any doctor will hear—"Rob, do you remember that patient…?" He had died after being brought in from cardiac arrest. The post mortem showed a ruptured iliac artery aneurysm secondary to undiagnosed collagen disorder. The review of my care showed that there was nothing different I could have done to prevent this tragedy; a tragedy I could live with.

When there were things that could be prevented, that's when we find it hard mentally to cope. The term "secondary victim" was named after Kimberly Hiatt—who this book is dedicated to. She was an experienced nurse looking after a sick child on the paediatric ITU. She had an impeccable 25 year record of service. She went to work every day to do the best she could for her patients. On one tragic occasion, she gave ten times the dose of calcium to an eight-month-old child, Kaia, who died five days later. Straight away, she realised and logged her error on her hospital's error reporting systems.

> "I messed up. I've been giving CaCl (Calcium Chloride) for years. I was talking to someone while drawing it up. Miscalculated in my head the correct mls according to the mg/ml. First med error in 25 years of working here. I am simply sick about it. Will be more careful in the future."

Instead of receiving support, she was suspended from work. On April, 2011, Kimberly committed suicide because she couldn't cope with what had happened to her patient. She left behind her partner, Lyn, and their two children Eli, 18, and Sydney, 16.

Both Kaia and Kimberly died from a medical error which shouldn't have happened—and died because of a lack of Human Factors: a primary and a secondary victim.

So far you are probably reading and getting depressed but also thinking that these are only rare occurrences which you will never be involved in. This couldn't be further from the truth. Even when outcomes are good, if we take the time to reflect through a Human Factors lens, we often uncover ways the care could have been delivered more safely, more efficiently or with less stress for staff—but the trouble is, we rarely pause to do that.

I want to take an example of a case I was involved with, where the patient did brilliantly but could have done better. Even if their outcome was no better, they could have been at least been treated in a more efficient way.

> *Sally was a 75-year-old retired teacher. She had been ballroom dancing at the local leisure centre. She collapsed following a cardiac arrest. She had been treated successfully pre-hospital and came to me in A&E with a return of spontaneous circulation but a large amount of bleeding into the lung pleura from fractured ribs.*
>
> *She was unstable with a low blood pressure and episodes of ventricular tachycardia. I had asked for four units of cross-matched blood but 30 minutes after my request it hadn't arrived. So what? She still did well. Blood arrived 30 minutes*

later and she soon went to ITU. She developed renal failure—acute tubular necrosis—from the hypoperfusion. She spent seven days in ITU (five on dialysis) and a further ten days in hospital whilst recovering, with a four week community physio programme to get her back to her previous quality of life. If I had got the blood in quicker then she would have had a shorter period of hypotension, less renal damage, less of a need for dialysis and fewer days needed in hospital. Better care, better patient outcomes and allowing my other patients in A&E to spend less time in a corridor as there would have been more free ward beds.

Why was the blood delayed? The only time I realised was when I asked where the blood was. The cardiology registrar who was part of the team looking after Sally had apparently told me that the group and save was mislabelled. I hadn't heard; I was too fixated and worried about the ventricular tachycardia.

Human Factors is about making me hear. The cardiologist could have used techniques from the airline industry to ensure that this happened. "Team leader are you ready to receive information?" would have got my attention. Why do pilots do this but us healthcare workers do not? It's because of culture. The cardiologist, however nice he was (and he was lovely—so lovely I assumed he was a geriatrician) was worried about looking like an idiot if he did. He didn't want to sound like a "knob." If we really want to improve our patient care, we need to embrace our inner "knob."

Then the question is how would I have checked that I heard the correct information? I know every time I order a Chinese takeaway, I get the correct food because they repeat it back to me. I still feel like a "knob" when I do that at work. Either it's a cultural problem we have, or we care more about getting our takeaway order correct than our patient care.

Then there is the question of how this error ever happened in the first place. It's just a matter of correctly labelling a blood bottle. However, without a simple way to access and follow standard operating procedures for things like labelling blood bottles, then errors are going to happen.

This is what Human Factors are about: simple things related to systems, processes, team and individuals' ways of working which can lead to suboptimal care.

Is it still a problem? Things are getting better and there is the start of a culture of change, but we are not "there" yet. Medical error is still estimated to be the fourth biggest killer after cardiovascular issues, infections and cancer. Around one in nine patients gets a wrong diagnosis with one in 20 patients getting a misdiagnosis that could be harmful. This is not because genius

thinking is needed and there are not enough geniuses to go around; rather, because our cognitive decision-making process is not as perfect as we would assume: there are biases we don't realise, coupled with misunderstandings about how to interpret the information we get given. This is why, given the same information, doctors will not always agree with each other on the diagnosis or treatment plan. Often, we may not even agree with ourselves if the same information is given to us at different times of day or when we are in a different mood. Even with a correct diagnosis and when we know what to do, cases we still make errors in one in ten cases—often small and not affecting overall mortality—but affecting costs and the well-being of the patient.

Some would argue that we now have checklists and therefore the problems we have talked about have been solved. It's true that the WHO Surgical Safety Checklist has revolutionised care, leading to a 52% reduction in surgical complications, but only where the culture as well as checklist was adopted. However, a checklist without a change in culture is not only not helpful, it can be harmful. I have reviewed a number of surgical "never events." In each one, the checklist was filled out perfectly, but paperwork without culture change is pointless.

This book contains simple, practical advice backed up by explanation. The same techniques are needed for all; from the HCA to the professor. Being so simple, these techniques should be done with excellence, without falling into the trap of thinking you are "above" Human Factors and mistakenly assuming the basics are beneath you.

The book reviews the key cornerstone of Human Factors. This discussion is underpinned by a wider acceptance of the need for compassion to our fellow workers and ourselves and for organisational candour: a willingness to acknowledge where care is falling short, to confront uncomfortable truths and to prioritise meaningful improvement over reputational management aimed at satisfying regulators, politicians or the public.

We also need to embrace the culture and cornerstones of Human Factors as follows:

1) Learning how to maintain situational awareness
2) Understanding how we make decisions and prevent fixation errors
3) Working as a team—leadership and followership
4) Optimising your environment
5) Communicating effectively between healthcare workers
6) Using cognitive aids

7) Being willing and able to call for help
8) Performing debriefs and learning from cases

With a knowledge of these eight areas and embracing the cultural changes needed for the adoption of a different style of practice, care can be improved, patients' lives can be saved, health delivery can be made more efficient and staff welfare can be improved.

The book also covers broader themes highlighted in the contents pages—such as After Action Reviews and debriefing, the patient safety incident response framework, how to better escalate acute deterioration, Human Factors and simulation, and how culture underpins patient safety.

Each of the chapters stands alone—you don't need to read them in sequence or even read the whole book. Think of each one as a mini-book in its own right: self-contained, focused and practical. Dip in and out as needed. Because of this, some elements of Human Factors may be covered in multiple chapters—but that repetition will hopefully help with the learnings.

Thank you for reading—and for choosing to care about this. We hope the ideas in this book help make a real difference to your patient care. If you have any thoughts, feedback or just want to get in touch, feel free to email drrobgalloway@gmail.com.

For information on the course that this book is based upon please visit www.360humanfactors.com.

CHAPTER

2 Why errors happen

When we talk about patient safety, it's tempting to go straight to the theory—to Swiss cheese models, root cause analyses, Human Factors diagrams. Before we do that, I want to begin with a real case—a tragic one—because sometimes the best way to understand why things go wrong is to look closely at when they did.

This is the story of a six-month-old boy who died. He was chronically unwell with congenital kidney disease and needed dialysis three times a week. One day, he came into clinic a little off colour—nothing dramatic, just not quite right. He was seen as an "extra," squeezed into an already overbooked clinic.

Now, the service that day was already compromised. The consultant was covering not just their own work but that of a registrar and an SHO—both unexpectedly off due to study leave and annual leave that had been signed off on despite rota rules. A locum hadn't been arranged. Worse, the registrar's clinic hadn't been cancelled. So the consultant was firefighting: trying to do ward rounds, cover two people's clinics and deal with emergency calls.

The boy was seen. He looked a little dry and dialysis was brought forward. The consultant wrote up a drug chart, noting "heparin flush" without details. That might have been fine, if the child had gone to the renal ward, but due to bed pressures, he was placed in paediatric intensive care. On the renal ward, there's only one type of heparin available. In the ICU, there are multiple—some of a dangerously high dose.

There, a senior nurse—who had tried to call in sick due to mental distress and not sleeping during the night but was persuaded to attend due to rota pressures—was

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supervising. As she left her shift—an hour early due to fatigue—she told a junior nurse to give the heparin flush. The junior nurse, unsure of the dose and uncertain of her autonomy, didn't double-check. She picked up the wrong drug, stored alphabetically together in the same cupboard. The high-dose version had been mistakenly returned to a low-dose packet. She gave it.

The child's mother, who usually knew every detail of every drug given, wasn't there; she'd stepped away for ten minutes to call her husband after being told her son had been matched for a potential transplant. In those ten minutes, everything aligned: the under-pressure system, the diluted accountability, the breakdowns in communication and hierarchy, the absent parent voice.

The result: a fatal dose. A preventable death. So who's at fault? The consultant working three jobs without support? The nurse struggling mentally but coming in anyway because there's no resilience in the system? The junior nurse silenced by hierarchy? The pharmacist who didn't challenge because the prescribing doctor was a friend? The mother, absent just once? The system which allowed drugs to be stored dangerously, the lack of beds meaning the child was on the wrong ward or the lack of resilience in the system so that there was understaffing across the whole board?

The answer, of course, is all of them—and none of them. This wasn't a case of one bad apple. It was a case of *multiple, cascading failures*: of poor systems, overloaded humans and normalised risk.

It's a reminder that when things go wrong in healthcare, the causes are rarely simple; there's almost never one reason. Instead, harm arises from a web of pressures, behaviours, omissions and assumptions—each one small, but together catastrophic.

This case also reveals something else: *vulnerable patients* aren't just those who can't speak—those with language barriers, confusion, learning disabilities. They're also the ones who aren't heard. The ones whose parents aren't there. The ones who don't "fit in." And, yes, sometimes the ones we instinctively don't like.

So in this chapter—and throughout this book—we'll look at when things go wrong, but not just to assign blame. We'll use these cases to understand *why* they go wrong. And more importantly, how to make things go *right* more often. Because, just like you wouldn't learn about what makes a happy marriage by only speaking to divorce lawyers, you don't learn about safe care just by looking at disasters. You learn by looking at what worked, what held, and what stopped an error from becoming a tragedy. This is the messy, human, vital work of patient safety. Let's get into it…