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**Tackling  
hierarchies  
and waste  
in theatres**



# Tackling hierarchies and waste in theatres

The team brief is an important part of effective team working in theatres. An innovative but simple initiative to ensuring everyone feels part of the team is simultaneously tackling environmental and infection control issues in theatres. **Danielle Checketts** provides an insight.

The NHS is striving to be more sustainable, moving to greener alternative products, away from disposable items where the daily contribution results in millions of single-use throw-away items going to landfills. The Royal College of Surgeons has recognised that it is imperative to act collectively and urgently to address this issue, so they have developed a Green Theatre Checklist to help drive greener changes. Reusable textiles advice, from this checklist, includes switching to reusable theatre hats, sterile gowns, patient drapes, and trolley covers.

A recent innovation in this area has been developed, which follows the sustainable changes, but can also help to flatten hierarchies, improve teamwork, reduce the risk of infection and create efficiencies, ultimately having positive impacts on patient safety and care quality.

## Communication in surgery

The UK healthcare system operates within a stringent framework designed to ensure high-quality patient care. However, beneath this structure lies a complex network of hierarchical barriers that can impede effective communication, collaboration and, ultimately, patient outcomes. These barriers arise from various sources, such as professional hierarchies with differing levels of authority within healthcare teams. In operating theatres, confusion often surrounds the names and roles of team members, leading to communication breakdowns.

An initiative is helping to address these concerns by identifying every individual involved in the operating theatre team, ensuring clear recognition of roles. Additionally, this initiative has the potential to promote sustainable practices, aligning with efforts to reduce waste and improve environmental efficiency within healthcare settings. By tackling both communication and environmental challenges, this approach offers a comprehensive improvement to the operating theatre experience for both staff and patients.



In one survey, two-thirds of nurses and physicians cited better communication in a team as the most important element in improving safety and efficiency in the operating room.<sup>1</sup> The WHO developed a checklist to include formal introductions, which are to be made in the morning before surgery commences, to address these problems.<sup>2</sup> However, many members of staff forget, shortly after these introductions are made, who their co-workers are. As one Consultant Anaesthetist commented, "The team huddle is all well and good in the morning, but I don't remember everyone's names and if we had named caps for everyone that would be great."<sup>3</sup>

## Identification in theatres

The operating theatre is a setting where patient harm and medical errors continue to happen, many of which are preventable.<sup>4</sup> Everyone looks the same in theatres and typically wear the same colour scrubs and disposable caps. Name

badges are frequently covered by surgical attire and are difficult to read from afar. Lanyards are sometimes worn but are banned in many theatres, due to their infection risk, and often turn and twist around, which makes trying to read the names challenging and awkward. Recent studies point out that using the time just before skin incision to review the names and roles of all team members is a vital requirement and forms part of the surgical safety checklist,<sup>5</sup> which was designed to reduce surgical complications and improve communication and teamwork in the operating theatre.<sup>6</sup>

As a regular visitor to operating theatres in various hospitals in the UK, I rarely knew the names of the other people in the room and sometimes I assumed that the people I was standing beside were clinicians, when often they were students or representatives from companies. New starters would rarely know anyone in the room, and they struggled to remember the names and roles of the staff - ►

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despite the team briefing.

Effective collaboration within operating theatre teams and between specialties is critical, especially during crisis situations, to facilitate a safe outcome for the patient.<sup>7</sup> The WHO states that communication interventions, such as team briefings and debriefings, aid in task completion and foster a culture of open communication. It points out that such interventions “standardise processes and act as reminders, so that team members need not rely solely on memory recall.”<sup>6</sup> However, due to name badges not being worn, memory recall is consistently required to remember who everyone is.

## Names and roles on theatre caps

The implementation of name and role theatre caps, in operating theatres in the UK, has provided an abundance of advantages. Having names on hats has improved communication, reduced hierarchical barriers, and enhanced human factors – all of which play a part in improving patient safety.

Other benefits include an improved patient journey and reduced patient anxiety. In a case study, published by the Centre for Sustainable Healthcare, it was highlighted that patients undergoing surgical procedures come into contact with several team members; knowing who they are talking to helps them feel more comfortable.<sup>3</sup>

Since 2018, various hospitals have been trying to use their theatre caps to identify who they are. Situating the names and roles above where eye contact is made is the easiest place to identify who people are, including all staff who wear sterile attire such as surgical gowns.

Yeovil Hospital has adopted a simple yet effective method for improving communication and patient satisfaction by writing on their

disposable caps each day. This strategy, though practical, is not particularly sustainable, as it relies on disposable materials. However, the staff have found that it significantly enhances communication within the team and improves the patient experience. Patients have expressed a strong preference for knowing who is providing their care, which builds trust and reassures them. Some hospitals have also implemented bespoke embroidered hats as a way of identifying who they are.

The handful of hospitals that have been fortunate enough to have the time, drive, and collaborative support to implement embroidered reusable theatre hats have encountered several challenges, as bespoke embroidery is a complex process. Hospital uniforms and surgical scrubs typically don't feature personalised names or roles for a good reason. Factors like hair length must be considered, as relying solely on head circumference is not sufficient. I've known nurses who have had to guess their hat size, only to find that when their hats arrive, they cannot wear them because their hair length wasn't accounted for and needs to be accommodated inside the hat. This leads to significant waste and inefficiencies.

With embroidered hats, clinicians usually have four hats each (for home laundering cycles), these hats or assets are lost by the hospital each time someone leaves, and some hospitals have expressed to me that their staff turnover can be as high as 25% annually! As new starters come on board, the department inevitably ends up reverting to disposables again and the cycle continues.

## Theatre badge hats

My experiences of being mistaken in many situations, under various roles, combined with

my passion for patient safety, led me to innovate a fabric theatre hat which can identify every single person in the operating theatre, including students, visitors, reps and birthing partners. The theatre badge hats from Eco Ninjas are a recombinant innovation, which is the process of combining an existing product/idea in a new creative way. The theatre badge hat range that Eco Ninjas has innovated is designed to combine sustainability and identification of everyone in operating theatres, and includes hats for different cultures and religions. The solution also facilitates efficient infection control measures.

The simple addition of a name badge on a fabric theatre hat can make a significant impact on both staff and patients. It can help to break down the communication barriers which will ultimately contribute to enhanced patient safety.

The hats can remain within the department, whether laundered at home or centrally, ensuring they are not lost by the Trust who purchased them. The complexity of ordering bespoke sizes for each individual is eliminated, as all hats can be laundered and easily worn interchangeably by any member of the surgical team, much like scrubs.

The surgical environment is complex enough; by clearly displaying name badges in a position where eye contact can be made, staff can easily identify each other, leading to improved communication, better quality of care, and a more positive working environment.

## Hierarchical barriers

The operating theatre is a setting where patient harm and medical errors often happen, many of which are preventable.<sup>4</sup> Regardless of the level of experience, it is essential to empower and respect every member of the surgical team,



**Above: Without name badges, it can be difficult to remember who everyone is or to know what their role is within the team. Misunderstandings can occur and team working can be impacted.**

including medical students and those who are less experienced. If staff do not know the names of those they are working with, how can they speak up and direct their query or question to any specific individual? In an emergency, when seconds are critical, how can staff act with the speed they require when they don't know the names or roles of the people around them? If a member of the team feels inadequate, due to being lower down in the hierarchical ladder, wouldn't having the names and roles on their hats be a good start in an attempt to flatten the hierarchical challenge and encourage everyone to speak up?

One effective way to flatten the hierarchy in healthcare settings is by using first names. For example, when a team member lower in the hierarchy feels that someone like Mr. Surgeon holds more authority, they may hesitate to speak up, believing their input is less important. By addressing the surgeon as "Andy" rather than "Mr Surgeon," it can make the environment feel more approachable, empowering everyone to communicate more freely. Even if the decision is to keep using formal titles like "Mrs. Surgeon," the key is that everyone on the team knows her name and can personally address her, fostering a sense of inclusivity and respect.

## Hello, my name is...

For patients, entering a theatre department can be a daunting experience, especially when they don't know the names of the staff providing their care. In my own experience of being a patient undergoing a C-section, I met with the surgeon and anaesthetist prior to surgery, but once I was in the room, I had no idea who they were, which made me feel incredibly nervous and anxious. I struggled to identify the caring professional who administered my epidural amidst the sea of blue scrubs and caps. I just wanted to focus on a familiar face, someone I trusted from my earlier experience, but everyone looked the same and I couldn't remember her name.

Such experiences highlight the emotional and psychological challenges patients face when they are in a vulnerable state and don't feel a personal connection to the people around them. The 'Hello my name is' campaign, which has gained tremendous momentum throughout the UK over the past decade, was created to address this very issue. It was inspired by Dr. Kate Granger, a Consultant Geriatrician in the NHS, who, after becoming a patient herself, recognised the importance of humanising healthcare by ensuring patients know who is caring for them.

Kate looked at life from the other side of the hospital bed and after numerous encounters with a whole range of healthcare



professionals, she felt she was losing a sense of her personal identity until, one day, a porter named Brian arrived to take her to the operating theatre. 'Hello, my name is Brian' he said – those words restored Kate's feeling of self-worth, and so the campaign was born!<sup>9</sup> Communication is of paramount importance. Timely and effective communication, which is bespoke to the patient, makes a huge difference and starts with a simple introduction.<sup>9</sup>

'Hello my name badges' (yellow with black text which is the best colour contrast for everyone to read, including those who are visually impaired) are now worn in most departments in the UK, throughout many hospitals in all regions.

The theatre badge hat range is a simple product which incorporates the benefits of the 'Hello my name is campaign', enhanced infection control measures and sustainability. Name badges in healthcare have already been identified to "help to build trust and confidence and improve patients experience of receiving care".<sup>9</sup> So, the theatre badge hats will do this in the surgical setting, which is very much needed.

## Visual identification of roles: a patient perspective

Patient's partners and families can also benefit from this initiative. Daniel, a father of twins delivered via C-section, shared a distressing experience in the maternity theatre. Dressed in the same scrubs and hat as the surgical team, he was frequently mistaken for staff and asked to assist during the procedure, despite repeatedly identifying himself as a visitor. This confusion led to Daniel being moved away from his wife during the delivery, leaving him unable to provide the support he had hoped to offer.

This incident highlights a critical gap in operating theatre protocols: the lack of clear visual identifiers for visitors. Misidentification disrupts workflows and can lead to emotional distress for families during significant moments.

By addressing this issue, theatres can create a safer and more supportive environment for patients and their loved ones. Daniel's story is a powerful reminder of the need for thoughtful innovation in healthcare settings.

## Feedback

Mr Andrew Stevenson, Orthopaedic Surgeon and Sustainability Chair from the Royal College of Surgeons has expressed to me: "In theatre, there can be a really high turnover of staff, with new people coming and going all the time. This can make it really difficult to know who is who, let alone what jobs they have. Some days, I won't know half the people I am working with."

Team members knowing and using each other's names leads to better communication and is a recognised component of good team function, particularly in the event of a clinical crisis.<sup>10</sup> One study from 2022 looked at 'Disruptive behaviour in the operating room' and one of the outcomes determined that 'systemic determinants were critical, such as poorly defined working roles'.<sup>11</sup>

Even when staff have worked together previously, the rapid changeover of staff and the fact that hundreds of personnel may work in the theatre department means that situations frequently arise in which staff do not know the names of everyone working in the theatre.<sup>12</sup>

I spoke with many surgeons at the Future Surgery event which was held at the Excel, London in September 2024, and several of these surgeons expressed to me that they feel that they 'ostracised' the staff they worked with daily because they cannot remember their names after the initial introductions. Some conveyed that they feel bad and under pressure when they can't remember their names and worry that colleagues may think they are rude or ignorant towards them. One surgeon commented that the changes would be transformational if he and the clinicians he worked with had the badge hats.

So, in operating theatres, everyone looks the same, easily readable name badges are not worn and there can be up to 15 people at any one time working in a theatre room together. A combination of various authority figures ranging from Surgeons and Anaesthetists high in the chain of command to students and visitors can make communication and human factors complex.

## A more sustainable NHS

According to the World Health Organization, humanity faces its greatest ever threat: the climate and ecological crisis. Healthcare services globally have a large carbon footprint, accounting for 4-5% of total carbon emissions. Surgery is particularly carbon-intensive, with a typical operation estimated to generate ►

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between 150-170kgCO<sub>2</sub>e, equivalent to driving 450 miles in an average petrol car.<sup>13</sup>

Sustainable, washable products that can be reused are essential in reducing waste, which is why many hospitals are evaluating reusable equipment and textiles. As highlighted at the start of this article, The Royal College of Surgeons has acknowledged the urgent need to address environmental concerns, and they have developed a Green Theatre Checklist to guide surgical teams in adopting sustainable practices in operating departments. Reusable theatre hats are among the key items recommended within this checklist.

While some hospitals have successfully transitioned to reusable textiles, others have faced various challenges. Changing from disposable items to reusables which require laundering involves significant logistical planning. The process of collection, washing and delivery for large staff numbers must be carefully managed, and the complexity increases if the products need to be sterilised.

Cost is another major consideration. Disposable items are typically less expensive upfront compared to reusable alternatives, which require a laundry-managed service, so this involves an additional outlay. There is also a need for a culture shift to understand that, although the initial investment in reusable products like theatre hats may be higher, the long-term savings become apparent over the lifetime of the product. This type of financial planning is different from the typical short-term expenditure model that hospitals are accustomed to.

Moreover, the financial barriers are compounded by logistical challenges, such as the lack of a reusable product framework in some purchasing systems like NHSSC. These barriers, along with the complexities of laundering and managing reusable equipment, must be navigated for hospitals to realise the long-term environmental and financial benefits.



**Operating theatres are facing increasing pressure to move to more sustainable, reusable solutions, to reduce the impact of the NHS on the environment. Reusable hats could help to reduce the waste associated with disposables.**

## Infection Control

All hospitals have different infection control teams who have their unique views and beliefs on taking theatre attire home to wash. Many infection prevention teams will not allow the home laundering of hats. Some IPC teams express that there is a good reason why surgical scrubs are not taken home to wash and that effective decontamination of attire in the surgical environment is essential to reduce the risk of cross-contamination. Others argue that staff are trusted to take their underwear home to wash so why not their hats?

When clinicians ask how the badges from the badge hats are cleaned (once detached from the hats) my reply is always "How do you wash your current name badges?" to which the initial response is often a paused silence, combined with a confused expression, closely followed by "I have never (or rarely) cleaned my current name badge". At first, I found this surprising. However, this appears to be a standard reply by many theatre staff.

Studies suggest that lanyards are rarely if ever, cleaned. One study found that only 16% of lanyards had ever been washed. Those cleaned recently had lower bacterial counts.<sup>14</sup> In another study conducted on lanyards, the mean age of lanyards was 22 months and 91% had never been laundered. Nine staff (8.8%) had laundered their lanyard, ranging from one week to one year previously.<sup>15</sup> In a microbial study, which Eco Ninjas conducted with Birmingham University, it was found that a non-worn, 'clean' disposable theatre cap had more microbes on it than used fabric hats after being worn for a full shift. It was hypothesised that this may be due to

cross-contamination of dipping fingers inside the box of single-use caps. Hand washing before retrieving a disposable cap from a box is not mandatory. In contrast, the badges from the badge hats can be washed with any hard surface wipe, or with soap and water and the hats can be laundered like scrubs. Infection control measures would be improved if staff were compliant with this recommendation. Because press studs are simple and have no intricate parts that can trap dirt or bacteria, they are generally considered hygienic. In contrast to buttons, press studs are less likely to harbour pathogens when used in environments where cleanliness is paramount. Press studs are simple to fasten and unfasten, making them a practical option for busy healthcare environments where staff may need to quickly attach their badges and remove them after a busy shift.

## Efficacy and testing

We anticipated questions concerning the potential of the badges falling off into the sterile field, so we performed a peel test conducted by an independent test centre in Cambridge. A team of expert engineers measured the force in Newtons to remove several badges from the hats. The forces on the first removal were not significantly different to the 400th removal and none of the press studs failed during the tests. This fixation method provided a secure, reliable closure without the need for complicated mechanisms.

A degradation test was also conducted on the badges by experts, in which they were submerged in various cleaning chemicals for 25 hours. The results showed that the badges maintained their quality, with no



degradation in material or fading of the print. This demonstrated their durability and suitability for repeated use in healthcare environments. The stainless-steel press studs on the badges proved that, after being exposed to the substances for an extended period, they maintained their integrity and did not weaken or corrode after this prolonged exposure.

Wash testing on the hats has also been conducted by two independent laundries and the hats passed all tests. One is a small laundry based in Shrewsbury and the other is Elis, who launders a large proportion of scrubs and hospital garments already throughout the UK. Elis has confirmed that if they launder scrubs for hospitals, they will also launder their hats.

## Conclusion

Ultimately, theatre teams in the UK are not always properly identified which has the potential to cause issues such as communication errors - which have been identified as one of the lead causes of medical error. Hierarchical barriers are another common issue where staff do not feel that they can speak up about their concerns - when names are not known, this can be even harder to do. Writing on theatre caps has been proven to enhance teamwork by identifying who everyone is in the operating theatre, but initiatives also need to be sustainable.

The importance of personalising care for patients has been highlighted and this can also help to reduce the hierarchical barriers between healthcare providers and patients, allowing them to feel more comfortable to speak up if they have any concerns. Naming everyone in operating theatres will help to make a difference and impact for all staff and patients, and there is now a simple solution to help to achieve this.

As a Clinical Specialist and former ODP, Mike Williams, comments: "During high-stress scenarios such as trauma calls, rapid and clear identification of team members is essential. Theatre badge hats, featuring prominently displayed names and roles, enable seamless communication, particularly for agency staff or

new team members. This simple yet effective innovation can enhance teamwork, reduce delays, and improve patient outcomes in critical situations."

As the UK continues to evolve its healthcare system to include sustainability, addressing these issues will be crucial in building a more effective and responsive environment for both patients and healthcare professionals alike. **CSJ**

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## About the author

Danielle Checketts is a former medical professional who transitioned away from nursing after raising concerns to advocate for patient safety. With nearly 20 years of experience in the medical devices sector, Danielle has gained invaluable insights into the challenges of misidentification within healthcare settings, drawing from her experiences as a student nurse, a patient, and a representative.

Over the past four years, Danielle has dedicated herself to extensive research, collaborating with universities, engineers, surgeons, anaesthetists, and sustainability leaders. This work has culminated in the development of an innovative product designed to enhance communication in operating theatres, aimed at reducing errors and improving patient outcomes.

Danielle's deep commitment to patient safety and her comprehensive understanding of the complexities of surgical environments position her to make a significant impact in the field of healthcare.

**Recent studies point out that using the time just before skin incision to review the names and roles of all team members is a vital requirement and forms part of the surgical safety checklist, which was designed to reduce surgical complications and improve communication and teamwork in the operating theatre.**