



HEALTHCARE SAFETY  
INVESTIGATION BRANCH



# Summary report COVID-19 transmission in hospitals: management of the risk – a prospective safety investigation

Independent report by the  
**Healthcare Safety Investigation Branch** I2020/018

October 2020



HEALTHCARE SAFETY  
INVESTIGATION BRANCH





## Providing feedback and comment on HSIB reports

At HSIB we welcome feedback on our investigation reports. The best way to share your views and comments is to email us at [enquiries@hsib.org.uk](mailto:enquiries@hsib.org.uk)

We aim to provide a response to all correspondence within five working days.

This document, or parts of it, can be copied without specific permission providing that the source is duly acknowledged, the material is reproduced accurately, and it is not used in a derogatory manner or in a misleading context.

[www.hsib.org.uk/tell-us-what-you-think](http://www.hsib.org.uk/tell-us-what-you-think)

## About HSIB

The Healthcare Safety Investigation Branch (HSIB) conducts independent investigations of patient safety concerns in NHS-funded care across England. Most harm in healthcare results from problems within the systems and processes that determine how care is delivered. Our investigations identify the contributory factors that have led to harm or the potential for harm to patients. The recommendations

we make aim to improve healthcare systems and processes, to reduce risk and improve safety. Our organisation values independence, transparency, objectivity, expertise and learning for improvement. We work closely with patients, families and healthcare staff affected by patient safety incidents, and we never attribute blame or liability to individuals.

---

## Considerations in light of coronavirus (COVID-19)

A number of national reports were in progress when the COVID-19 pandemic significantly affected the UK. Much of the work associated with developing the reports necessarily ceased as HSIB's response was redirected. For this national report, while the learning

described has not changed due to COVID-19, the processes by which HSIB engages with patients and families had to be adapted. These changes are acknowledged in this report and described further.

---

## A note of acknowledgement

The investigation would like to thank the NHS staff, patients and families that gave their time to assist with the investigation, providing open and honest accounts of events to support learning and improve patient safety.

The investigation would like to note its gratitude for their efforts in allowing rapid access to enable investigation activities to take place, and for engaging with and responding to the investigation within condensed timescales.

## Our investigations

Our team of investigators and analysts have diverse experience working in healthcare and other safety critical industries and are trained in human factors and safety science. We consult widely in England and internationally to ensure that our work is informed by appropriate clinical and other relevant expertise.

We undertake patient safety investigations through two programmes:

### National investigations

Our national investigations can encompass any patient safety concern that occurred within NHS-funded care in England after 1 April 2017. We consider potential incidents or issues for investigation based on wide sources of information including that provided by healthcare organisations and our own research and analysis of NHS patient safety systems.

We decide what to investigate based on the scale of risk and harm, the impact on individuals involved and on public confidence in the healthcare system, and the learning potential to prevent future harm. We welcome information about patient safety concerns from the public, but we do not replace local investigations and cannot investigate on behalf of families, staff, organisations or regulators.

Our investigation reports identify opportunities for relevant organisations with power to make appropriate improvements through:

- ‘**Safety recommendations**’ made with the specific intention of preventing future, similar events; and
- ‘**Safety observations**’ with suggested actions for wider learning and improvement.

Our reports also identify ‘**safety actions**’ taken during an investigation to immediately improve patient safety.

We ask organisations subject to our recommendations to respond to us within 90 days. These responses are published on our website.

More information about our national investigations including in-depth explanations of our criteria, how we investigate, and how to refer a patient safety concern is available on our **website**.

### Maternity investigations

From 1 April 2018, we have been responsible for all NHS patient safety investigations of maternity incidents which meet criteria for the **Each Baby Counts programme** (Royal College of Obstetricians and Gynaecologists, 2015) and also maternal deaths (excluding suicide). The purpose of this programme is to achieve learning and improvement in maternity services, and to identify common themes that offer opportunity for system-wide change. For these incidents HSIB’s investigation replaces the local investigation, although the trust remains responsible for meeting the Duty of Candour and for referring



the incident to us. We work closely with parents and families, healthcare staff and organisations during an investigation. Our reports are provided directly back to the families and to the trust. Our safety recommendations are based on the information derived from the investigations and other sources such as audit and safety studies, made with the intention of preventing future, similar events. These are for actions to be taken directly by the trust, local maternity network and national bodies.

Our reports also identify good practice and actions taken by the Trust to immediately improve patient safety.

Since 1 April 2019 we have been operating in all NHS Trusts in England.

We aim to make safety recommendations to local and national organisations for system-level improvements in maternity services. These are based on common themes arising from our trust-level investigations and where appropriate these themes will be put forward for investigation in the National Programme. More information about our maternity investigations is available on our **website**.

# Executive Summary

## Introduction

This prospective patient safety investigation looks at how the healthcare system operates to minimise the likelihood of patients catching coronavirus (severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2 or COVID-19) on acute hospital wards. Transmission of COVID-19 can cause serious illness and death.

HSIB identified evidence to suggest that people were being admitted to hospital without signs of COVID-19 and by the time they were discharged, or soon after, they had contracted COVID-19.

Hospital acquired infections – also referred to as nosocomial infections – are significant both because of the effect on the health of patients and staff and the risk of transmission between patients and staff. Fear of contracting COVID-19 can deter people with healthcare needs from attending hospital, and healthcare staff who contract COVID-19 or are required to isolate can be absent from work for prolonged periods, often at a time of maximum strain on the workforce.

## NHS response to COVID-19

The investigation recognises the unprecedented response the NHS has been required to deliver due to the COVID-19 pandemic. The investigation has heard evidence of the significant organisational and personal impact of COVID-19 and the exceptional efforts that have been necessary to manage the healthcare system response.

HSIB aim to improve patient safety through effective and independent investigations that do not apportion blame or liability. This investigation does not intend to provide any criticism of the NHS response to the COVID-19 pandemic. The investigation instead seeks to provide a prospective view of actions that may help to facilitate an enhanced response in the face of continuing COVID-19 pressures.

## The national investigation

The investigation focused on understanding the national situation regarding nosocomial transmission during July and August 2020. The intention was to assist the NHS as it prepares itself for the coming autumn/winter period and any longer-term implications of responding to COVID-19.

The investigation identified six reference trusts that represented a range of geographical locations, socioeconomic conditions, building and environmental conditions and local population ethnicity. Observations and interviews were conducted with staff at all levels within these trusts as well as national system leaders and patient focus groups. Data analysis software and an established investigation methodology were used to corroborate and triangulate the findings from multiple sources.

There is rapidly developing knowledge of COVID-19 and how best for the healthcare system to respond. The number of reference trusts was selected to allow the investigation the broadest possible basis for evidence to be

collected within the available reporting timeframe and resources available. HSIB considers it has struck an appropriate balance by providing information that may be beneficial to the various different layers of the healthcare system in a timescale that would enable a practical response.

The investigation fieldwork was completed between 13 July and 28 August 2020. A draft report was shared for consultation with the relevant stakeholders on 16 September 2020 so that they could carry out a factual accuracy check to ensure the validity of the investigation findings.

The terms of reference were as follows:

- 1 Consider how national guidance aimed at reducing nosocomial transmission reflects the accepted international scientific knowledge as stated by the government's Scientific Advisory Group for Emergencies.
- 2 Identify the environmental and other systemic factors that help or hinder efforts to manage the risk of nosocomial transmission of COVID-19 on acute hospital wards.
- 3 Identify the implications of the findings for prevention and mitigation measures within hospitals.

The investigation report presents findings, national safety recommendations and safety observations that may help to assist the NHS in its future response to COVID-19. The investigation report presents the voice of healthcare staff and members

of the public to represent the key themes identified following analysis of the evidence collected.

The investigation report also includes key findings from the investigation analysis that may assist local NHS trusts in immediately identifying:

- Factors influencing the risk of nosocomial transmission.
- Questions to prompt considerations of what action may be taken to mitigate this risk.

The investigation acknowledges that its findings and recommendations are potentially complex and therefore the timescales in which it is possible to put them into practice may differ.

Some recommendations will have an impact on the response to COVID-19 over the short to medium term, while other recommendations will aid the healthcare system in its response to future rises in COVID-19 activity and other potential large-scale system responses to infectious disease.

## Findings

### Guidance

- Although there has been an increase in collaborative working there remains a lack of clarity regarding national responsibilities, ownership, and process for the development of national infection prevention and control (IPC) guidance.



- Current key national guidance does not fully reflect the range of mitigation measures suggested within the principles of the hierarchy of controls (an approach that sets out measures to mitigate risk ranked by their effectiveness).
- Current national and local guidance and initiatives have focused on the role of personal protective equipment (PPE) as a mitigation strategy.
- It has been challenging for the NHS to develop, interpret and implement guidance due to the volume of guidance disseminated and the speed at which guidance updates have been required.
- At local level, the need to interpret the volume of guidance requires the use of additional organisational resources.
- There has been a lack of consistency across some guidance which creates challenges in implementation.
- Strategies used to manage the first wave of COVID-19 based on reduced elective (planned) activity, and the subsequent reduction of bed occupancy, may not be available in a future peak in COVID-19 activity.
- Some reference trusts were seeking to procure and deploy in-house testing facilities.
- There was no regular surveillance testing of staff in the reference trusts outside of the Public Health England SIREN (Sarscov2 Immunity and Reinfection Evaluation) study.
- The potential risk of asymptomatic staff transmission (transmission by staff who are not showing COVID-19 symptoms) was not always well understood in the reference trusts.
- There was little evidence of a national strategic approach to address how trusts might overcome the obstacles faced when attempting to implement national guidance on patient testing.

### **Testing and capacity factors**

- Access to sufficient patient and staff testing (Pillar 1 testing) and rapid testing plays a key role in how effectively NHS trusts can manage operational capacity.
- Rapid testing will help to facilitate appropriate cohorting (grouping together) and isolation of patients.

### **Personal protective equipment (PPE) and infection prevention and control factors (IPC)**

- Current PPE supply levels were satisfactory in the reference trusts.
- Some reference trusts had concerns that there may be challenges to PPE provision in any further peak in COVID-19 activity.

- A lack of clarity and changing guidance on PPE use created anxiety for staff, patients and families.
- Clinical activities in hospitals could be restricted because of the provision of different types of FFP3 (filtering facepiece class 3) respirator masks, which required repeated fit testing for staff.
- In the reference trusts, cleaning regimes had focused on public and ward areas and this increased workload had required trade-offs in cleaning other areas.
- IPC specialists have taken a key role in the response to COVID-19, but availability of this type of expertise was variable across the reference trusts. There is a national lack of IPC staff and shared understanding of their role and national IPC requirements.
- Staff experienced difficulties in following PPE guidance where it contradicted training and cultural expectations of staff and families.
- Proactive management of IPC and PPE risks may help to alleviate future pressures from additional increases in COVID-19 activity.
- comply with IPC guidance and take mitigation efforts to reflect the higher levels of the hierarchy of control.
- Hospital design does not always account for how staff are required to interact in non-clinical areas and the way in which these interactions may increase the risk of nosocomial transmission.
- The flow and layout of staff work activities and equipment create additional transmission risks.
- All the reference trusts needed to reconfigure their estate and bed numbers to comply with IPC guidance.
- Considerations about the design and use of hospital ventilation systems are an emerging factor in mitigating the risk of COVID-19 transmission.
- Controlled entry/exit points and controlling the flow of people around hospitals helped to build patient confidence and mitigate transmission risk.
- A consistent national approach to barriers and signage may increase public confidence and mitigate transmission risks.

### **Environmental factors**

- The design of the hospital estate (buildings and other infrastructure in clinical and non-clinical environments) impacted on the reference trusts' ability to

### **Staff factors**

- Staff who engaged with the investigation reported significant fatigue and emotional distress associated with COVID-19 activity.

- Staff fatigue and emotional distress may impact on the NHS's ability to mitigate against nosocomial transmission of COVID-19 and its ability to respond to a further rise in COVID-19 activity.
- The reference trusts had developed staff health and wellbeing initiatives to assist with the emotional impact of COVID-19 activity.
- National approaches had been developed to help NHS staff to access support services.
- Across the NHS there was a lack of a national strategic focus on adapting work systems to mitigate the risks associated with staff fatigue.
- There was limited evidence of how technological developments had been used to address COVID-19 transmission risk in clinical areas.
- There were recognised benefits of networked and regional working to support trusts to mitigate the impact of challenges faced by hospitals with less agile infrastructure.

## Recommendations and observations

HSIB acknowledges that the safety recommendations identified by the investigation may require action over the short, medium and longer term.

### HSIB makes the following safety recommendations

#### **Safety recommendation R/2020/095:**

It is recommended that the Department of Health and Social Care, working with NHS England and NHS Improvement, Public Health England, and other partners as appropriate, develops a transparent process to co-ordinate the development, dissemination and implementation of national guidance across the healthcare system to minimise the risk of nosocomial transmission of COVID-19.

#### **Safety recommendation R/2020/096:**

It is recommended that NHS England and NHS Improvement:

- supports additional capacity for testing for NHS patients and staff (Pillar 1 testing)

## Organisational factors

- The organisational response to COVID-19 has required significant adaptability in NHS systems and leadership.
- The COVID-19 response has facilitated an increased role of leadership on the frontline.
- The response to COVID-19 required the reference trusts to increase their tolerance for organisational risk to ensure rapid response to emerging COVID-19 concerns.
- There has been rapid organisational technological development to facilitate the response to COVID-19.



- facilitates the accessibility of rapid testing for NHS trusts, as soon as an increase in rapid testing supplies becomes available.

**Safety recommendation R/2020/097:**

It is recommended that NHS England and NHS Improvement:

- develops a national intensive infection prevention and control (IPC) safety support programme for COVID-19 which focuses on leadership, IPC technical support, education, practice, guidance and assurance
- develops a national IPC strategy which focuses on developing IPC capacity, capability and sustainability across the NHS in England.

**Safety recommendation R/2020/098:**

It is recommended that NHS England and NHS Improvement reviews the principles of the hierarchy of controls in its health building notes (HBN) and health technical memoranda (HTM) for the design of the built environment in existing and new hospital estate to reduce the risk of nosocomial transmission.

**Safety recommendation R/2020/099:**

It is recommended that NHS England and NHS Improvement responds to emerging scientific evidence and shared learning when reviewing guidance for NHS trusts on the role of hospital ventilation systems in nosocomial transmission.

**Safety recommendation R/2020/100:**

It is recommended that NHS England and NHS Improvement investigates and evaluates the risks associated with the potential impact of staff fatigue and emotional distress on nosocomial transmission of COVID-19.

**Safety recommendation R/2020/101:**

It is recommended that the Department of Health and Social Care reviews and identifies the mechanisms which enabled regional and local organisations to adapt and respond with agility during the pandemic. This should inform the development of a strategic approach to national leadership models at times of crisis and under normal conditions.

**Safety recommendation R/2020/102:**

It is recommended that NHSX considers how technology can assist in mitigating nosocomial transmission in the ward environment with regard to:

- the use of digital communication technologies in assisting with the deployment of staff and the dissemination and circulation of key information
- the increased use and availability of personal computing devices and electronic health record systems.

## HSIB makes the following safety observations

### **Safety observation O/2020/075:**

It may be beneficial to analyse data collated on asymptomatic staff infection rates to consider how this may impact on mitigation strategies to reduce the risk of nosocomial transmission.

### **Safety observation O/2020/076:**

It may be beneficial to have greater consistency in the provision of FFP3 respirator masks to assist in their response to COVID-19.

### **Safety observation O/2020/077:**

It may be beneficial to reconsider the design of ward work systems and equipment layout to mitigate the risk of nosocomial transmission.

### **Safety observation O/2020/078:**

It may be beneficial if interventions aimed at reducing the risk of nosocomial transmission more closely consider non-clinical areas in which staff are required to work or gather.

### **Safety observation O/2020/079:**

It may be beneficial to facilitate shared learning across the NHS so that effective strategies that have been adopted by local NHS organisations for the management of staff fatigue and emotional wellbeing can be shared.

### **Safety observation O/2020/080:**

It may be beneficial to evaluate the change in organisational risk tolerance to consider the potential future impact on NHS governance and regulation processes.

The investigation report also includes key findings from the investigation analysis that may assist NHS trusts in immediately identifying:

- Factors influencing the risk of nosocomial transmission.
- Questions to prompt considerations of what action may be taken to mitigate this risk.

# Factors influencing the risk of nosocomial transmission



### Workforce to deliver safe patient care

The sustainability and availability of clinical and non-clinical staff within an organisation impacts approaches to implementing infection prevention and control guidance.



### Ability of teams to identify and mitigate against existing or arising threats of increased transmission

A network of expertise and healthcare resources can support the approach and capability to implement strategies to mitigate against transmission of COVID-19.



### Leadership and communication

Close engagement and communication with frontline staff to understand how to minimise the risk of transmission of COVID-19.



### Physical wellbeing of people within the hospital environment

A comprehensive approach to monitoring the prevalence of COVID-19 among all people within the hospital environment and balancing the risks associated with maintaining physical and mental wellbeing, and transmission of COVID-19.

## What are you doing to control the risk?

Have efforts been made to reduce the number of people moving within a ward or hospital?

Do staffing levels enable staff to remain in the same cohort for the purpose of allocating to wards, shift and break patterns?

Is data collated to understand trends of sickness and absence among staff, including bank/agency staff, to identify early signals of increased prevalence of COVID-19?

Is there a feedback system for wards or departments to understand trends in sickness and absence of staff and transmission rates?

Have people been provided with equipment and technology to minimise sharing and high-frequency touch points?

Have people been supported to work (and communicate) while maintaining two-metre social distancing?

Has critical information been presented to staff to enable staff to understand what is required to minimise risk of transmission?

Have strategies been developed to ensure there is an understanding at all levels of the organisation of specific challenges to the management of risk of transmission within a ward environment?

Have frontline staff been involved in the development of critical information to clarify expectations of behaviours required to minimise transmission?

Has appropriate personal protective equipment (PPE) been provided in line with infection prevention and control (IPC) guidance to mitigate the risk of transmission due to patient behaviour?



## 5.2 Equipment

# Factors influencing the risk of nosocomial transmission



### Ventilation of building

Consistent engagement with engineering and estates expertise to manage the emerging risks associated with transmission of COVID-19.



### Equipment to support clinical and patient related activities

Increased consideration of how technology can mitigate risks of transmission in the context of clinical and non-clinical tasks.



### Personal Protective Equipment (PPE)

A resilient approach to procurement and provision of PPE so that it is available at the right time to ensure staff can be protected when completing all clinical tasks.



### Uniform

Suitable clothing and changing facilities to ensure staff can adhere to guidance and reduce the risk of transmission.

## What are you doing to control the risk?

Is there an understanding of how ventilation systems can help to manage the risk of airborne virus transmission?

Has it been possible to modify ventilation systems to manage the risk of airborne transmission?

Have additional modifications been made within the physical infrastructure to minimise the risk of transmission of COVID-19?

Has technology been implemented to support ward activities to reduce the number of staff on a ward and promote social distancing?

Has sharing of equipment between patients or staff been limited or has additional equipment been ordered?

Has hand sanitiser been located next to commonly used equipment or areas where clinical activities take place?

Has a systems approach been adopted by the organisation to ensure a continual provision of PPE? For example, monitoring stock, consistency in type procured, location on ward, education and training support.

Has the provision of staff uniforms by the organisation been considered to help mitigate staff transmission risks from personal clothing?

## 5.3 Task

# Factors influencing the risk of nosocomial transmission



### Testing practices

Available and efficient hospital testing to enable the COVID-19 status of patients to be identified, patients to be appropriately cohorted, and patient flow and capacity to be optimised.



### Frequency of cleaning

Frequent and enhanced cleaning of patient, staff and high-touch areas, to minimise the risk of transmission and increase the availability of clinical space.



### Infection prevention and control (IPC) requirements

PPE equipment organised within the environment to support effective donning and doffing, with PPE stations located close to hand washing facilities and bins.

## What are you doing to control the risk?

Has the process for COVID-19 test results been optimised to quickly confirm individuals' COVID-19 status?

Have measures been taken to ensure patients awaiting COVID-19 test results are physically distanced from other patients and preferably separated by physical barriers?

Has it been possible to ensure patients suspected to be COVID-19 positive are allocated beds near to effective ventilation, handwashing facilities and PPE donning and doffing stations?

Have measures been taken to ensure any patient recently in close proximity of a suspected COVID-19 patient can be tested and isolated or distanced from other patients until results are confirmed?

Has it been possible to ensure staff exposed to COVID-19 positive patients are tested and segregated from caring for non-COVID-19 confirmed patients?

Has the frequency of cleaning been increased?

Have the number of bins been increased and are they placed near to hand washing facilities to prompt staff to correctly doff PPE?

Has there been effective messaging to staff and the public to make clear the expectations regarding PPE and behaviours to support IPC guidance?

Have guidance documents and posters been designed and tested to ensure they reflect how work can be realistically done in the ward setting?

Has the layout of PPE equipment been arranged in the sequence required by procedures to enable correct donning and doffing?

# Factors influencing the risk of nosocomial transmission



### Building age and design

The age and type of estate influences the work environment and the ability to cohort patients and optimise flow and capacity.



### Layout and use of physical spaces

Layout and design of physical space can support other controls used to mitigate transmission.



### Staff areas

All physical spaces have the potential to transmit COVID-19; organisational approaches to managing this risk are equally relevant in clinical and non-clinical and staff areas.

## What are you doing to control the risk?

Have a sufficient number of side rooms been identified to accommodate patients with an unconfirmed COVID-19 status?

Have patients been physically separated, or have physical barriers been put in place to limit risk of transmission?

Has every effort been made to safely increase ventilation and air exchange?

Has the layout and design of the environment and equipment been positioned to enable the movement of people within ward spaces to increase social distancing and reduce interaction with high-touch areas?

Have local sites combined resources to ensure poor environments for the isolation or separation of unconfirmed COVID-19 patients can be avoided?

Have clinical and non-clinical spaces been modified to increase ventilation and ensure adequate air changes and appropriate distribution and extraction?

Has the effectiveness of ventilation, sanitation and drainage systems been assessed, and have any requirements identified from their maintenance been addressed?

Have high-contact areas been reduced through increasing availability of, and implementation of, no-touch technologies such as door opening mechanisms?

Have non-patient facing ward activities such as handovers been modified to optimise social distancing or supported through technical solutions?

Has the risk of transmission been mitigated by the design of the physical environment and can the use of PPE compensate for the remaining risk?



## 5.5 Organisation

# Factors influencing the risk of nosocomial transmission



### Management of risk

Understanding of emerging organisational risks and how to apply the hierarchy of controls to help mitigate the risk of transmission.



### Organisational ability to respond

The availability and visibility of key staff roles and resources, to quickly respond to emerging risks and the development of effective strategies.



### Organisational learning

Access to timely and relevant data to identify, learn and respond to emerging risks.



### Organisational ability to monitor

Data on the prevalence of COVID-19 among all people within the hospital environment to monitor the effectiveness of strategies to manage transmission.



### Guidance and communication

Clear and accessible communication on how to minimise transmission.

## What are you doing to control the risk?

Has the organisation done as much as is practicable to ensure the physical infrastructure can separate different patient pathways?

Has the organisation accessed analysts to understand the data and signals indicative of an increase in transmission among patients and staff?

Has the organisation recognised and applied engineering controls (for example physical spaces, ventilation, barriers, hand hygiene facilities, separation of equipment and people through design) where possible and effectively as an integral element of IPC measures?

Has the organisation used a prospective hazard analysis to identify, address and evaluate mechanisms to manage emerging risks rather than just relying on retrospective learning from incidents of transmission?

Has the organisation identified when trade-offs are emerging and adaptations required by staff to manage existing demands?

Has the organisation developed an effective communication system to ensure staff gain feedback on performance relative to IPC guidance?

Has the organisation developed an effective approach to ensuring guidance and policies delivered are usable and practical for staff?

Has the organisation developed a process to monitor, evaluate and learn from the effectiveness of existing administrative measures (for example hand hygiene, cleaning, use of signage and barriers)?

Has the organisation ensured, as far as practicable, supplies of consistent and appropriate PPE?



[WWW.HSIB.ORG.UK](http://WWW.HSIB.ORG.UK)

 [@hsib\\_org](https://twitter.com/hsib_org)




HEALTHCARE SAFETY  
INVESTIGATION BRANCH

# Further information

More information about HSIB – including its team, investigations and history – is available at [www.hsib.org.uk](http://www.hsib.org.uk)

If you would like to request an investigation then please read our **guidance** before contacting us.

 [@hsib\\_org](https://twitter.com/hsib_org) is our Twitter handle. We use this feed to raise awareness of our work and to direct followers to our publications, news and events.

## Contact us

If you would like a response to a query or concern please contact us via email using [enquiries@hsib.org.uk](mailto:enquiries@hsib.org.uk)

We monitor this inbox during normal office hours - Monday to Friday (not bank holidays) from 09:00 hours to 17:00 hours. We aim to respond to enquiries within five working days.

To access this document in a different format – including braille, large-print or easy-read – please contact [enquiries@hsib.org.uk](mailto:enquiries@hsib.org.uk)

© Healthcare Safety Investigation Branch copyright 2020. Any enquiries regarding this publication should be sent to us at [enquiries@hsib.org.uk](mailto:enquiries@hsib.org.uk)