



HEALTHCARE SAFETY  
INVESTIGATION BRANCH

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## Summary report

# Management of venous thromboembolism risk in patients following thrombolysis for an acute stroke

Independent report by the  
**Healthcare Safety Investigation Branch** I2018/023

October 2020



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## 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

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.

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## 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.

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## A note of acknowledgement

We would like to thank the patient and her family for their time and support in sharing their experiences and allowing the investigation a valuable insight into the patient's care. We would also like to express our gratitude

to the healthcare professionals who cared for the patient and gave their time to assist with the investigation, providing open and honest accounts of events to support learning and improve patient safety.

## 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 though:

- ‘**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

A 78-year-old woman had a stroke while at home, where she had been living an active and independent life with her husband. She was taken by ambulance to hospital where an acute stroke nurse saw her immediately on arrival in the emergency department and initiated the Trust's protocol for the assessment and treatment of stroke.

Following an urgent computerised tomography (CT) scan of her brain, the patient was transferred to the Hyper Acute Stroke Unit (HASU), where she was diagnosed with an acute ischaemic stroke (a blockage of the blood supply to the brain, which can be caused by a blood clot). The doctors assessed that she was suitable to receive thrombolytic drugs and she was given this treatment. Thrombolytic drugs break down clots in the blood and are effective for eligible patients who have had an ischaemic stroke.

During the consultant ward round, a doctor completed the required initial risk assessment for venous thromboembolism (VTE), a condition in which a blood clot forms in a vein. This can detach and travel through the venous system to the lungs and may cause a pulmonary embolism (PE). This risk assessment recorded that the risk of bleeding was high, and therefore the patient could not be administered a preventative anticoagulant medication (treatment to prevent a blood clot). An intermittent pneumatic compression (IPC) device was considered an appropriate treatment for the patient and the relevant box on the VTE risk assessment form was ticked. IPC

devices are cuffs which inflate and deflate according to a predetermined programme and help the veins return blood to the heart in immobile patients. In order for IPC devices to be fitted, the Trust's process was for the doctor to document the order to fit the IPC device on the patient's prescription chart; this step was not completed. A subsequent VTE risk assessment, that should have been conducted 24 hours after the first, was not completed.

For the next 13 days the patient received therapy as per her care plan, including sitting, standing and walking with assistance. On day 15, the therapy team found the patient slumped over her table. She was diagnosed with dehydration and a urinary tract infection for which she was given fluids and antibiotics, and she responded well to these. On the following day, during a therapy session, the therapist observed that the patient was experiencing shortness of breath and informed the medical team of this.

The patient was seen the next day (day 17) by the same therapist, who again noted that the patient was displaying shortness of breath. It was suspected that the patient had had a PE and a CT scan of her chest was arranged. No treatment for the suspected PE was started until the CT scan was performed two days later. As a result of the scan, the patient was diagnosed with '**pulmonary emboli including saddle embolism**' and anticoagulant medication, the standard treatment for PE, was prescribed.

The patient was transferred to the Medical High Dependency Unit (MHDU) so that her condition could be monitored closely; she remained there for the next six days. On admission to the MHDU, it was noted that 'No IPC' had been recorded in the patient's notes and that no IPC device had been fitted. The patient then returned to the Stroke Unit and continued to receive rehabilitation for a month before being discharged home.

## Focus of the investigation

The Healthcare Safety Investigation Branch (HSIB) investigation focused on:

- the management of VTE risk in inpatients following thrombolysis for an acute stroke
- detection of medical problems (that impact on VTE risk) occurring in inpatients following thrombolysis for an acute stroke.

## Findings

- There is no national guidance on a proactive, stroke-specific, VTE risk management system to monitor VTE assessments and check that the VTE assessment requirements and recommendations have been undertaken.
- The generic inpatient VTE assessment does not take into account the specific circumstances for patients who have had a stroke.
- The generic VTE assessment does not produce a stratified risk – that is, it does not determine the level of a patient's risk of VTE.
- There is a general belief that IPC devices must be written on the prescription chart to allow them to be fitted and a VTE risk assessment needs to be carried out before IPC devices are fitted to a patient who has had a stroke.
- Non-pharmacy items, orders (an instruction from a doctor to carry out a specific treatment or procedure) and tasks that are considered important are being written on the prescription chart. There are no nationally approved standards for inpatient documentation relating to medicines, non-pharmacy items, orders and tasks.

## HSIB makes the following safety recommendation

### Safety recommendation R/2020/090:

It is recommended that the Intercollegiate Stroke Working Party with support from the Joint Stroke Medicine Committee and NHS England and NHS Improvement develop a stroke specific venous thromboembolism (VTE) assessment tool and system for ordering the associated treatment for patients who have suffered a stroke. HSIB recommend that the Intercollegiate Stroke Working Party supports development of a tool that ensures that important information is recorded and reviewed at appropriate intervals. The following points should be considered in the development of this tool:

- The aetiology/type of stroke (ischaemic and haemorrhagic).
- A record of the individual risk factors for VTE that are identified.

- Contraindications for VTE treatment measures.
- The VTE preventative treatment recommendation.
- The record of administration of that treatment.
- The reason that treatment is not administered.
- Patient's level of mobility and activity (in relation to IPC administration).
- Frequency of IPC devices checking.
- Record of patient's consent and understanding of risk/benefits of intervention, including patient's decision.

### HSIB makes the following safety observations

#### **Safety observation O/2020/070:**

There is no validated venous thromboembolism (VTE) risk assessment tool in the UK that produces a stratified risk for predicting a patient's likelihood of developing a deep vein thromboembolism or pulmonary embolism. If it is not possible to produce a stratified VTE risk assessment, it may be beneficial to consider amending the title of the published VTE risk assessment tool in NICE guideline NG89 (National Institute for Health and Care Excellence, 2018). This would reflect its true purpose as a prompt for clinicians to develop an appropriate treatment plan rather than creating the perception that it produces an assessment of risk.

#### **Safety observation O/2020/071:**

It would be beneficial for future venous thromboembolism (VTE) guidelines in relation to stroke to explicitly state when further VTE assessments are required during a patient's stay in hospital.

#### **Safety observation O/2020/072:**

The advantages of multidisciplinary team (MDT) working are well known. It would be beneficial for organisations to ensure that stroke units are structured to ensure the optimal functioning of the MDT. To achieve this requires strong leadership, planning and a culture that empowers and encourages staff to speak up when issues arise. Stroke care involves many healthcare disciplines and in order for them to work efficiently and achieve the best results for patients, it may be beneficial to have formalised, tested and practised joint working with escalation routes known by all.

### HSIB identified the following local considerations

#### **Consideration for commissioners**

It would be beneficial for local commissioners to agree a scheduled programme of audits to ensure that patients assessed for risk of acquiring a venous thromboembolism (VTE) receive appropriate mechanical or pharmacological prophylaxis.

### **Considerations for trusts**

It would be beneficial for trusts to review and amend their local procedures for the ordering and fitting of intermittent pneumatic compression (IPC) devices to allow any trained and competent person to fit them at the earliest opportunity.

It would be beneficial for trusts to give patients who have had a stroke and their families/carers information about anticoagulation and VTE prevention, in particular the importance of IPC devices. They would then have the correct information to help them decide on whether or not to wear IPC devices.





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