

Root Cause Analysis Investigation Report

Incident Investigation Title:	A delay in the recognition of infection and commencement of treatment in a lady who was post-partum: the lady developed Sepsis and had to undergo a hysterectomy
Incident Date:	4 August 2021
Incident Number:	2021/17062
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Executive Summary

Mrs. A is a 35-year-old woman in good health; her second child was born on 20 July 2021 by a Neville Barnes Forceps delivery assisted by an episiotomy. The third stage of labour was complicated by a manual removal of her placenta and this resulted in a one litre post-partum hemorrhage.

From one week after her birth Mrs. A reported various concerns and felt unwell; she made four telephone calls for advice to the Maternity Assessment Centre (MAC). On her fourth call she was invited for post-natal assessment, late evening on 2 August 2021. On clinical assessment findings were normal but, given her reported symptoms, Mrs. A was offered admission for observation. Mrs. A declined admission wanting to return home to join her newborn baby and was therefore discharged early in the morning on 3 August 2021.

Mrs. A presented at the Accident and Emergency Department (AED) by ambulance on 4 August 2021 feeling shivery, generally unwell and had developed an itchy rash. She was diagnosed with sepsis on clinical assessment and treated with intravenous fluids and first line intravenous antibiotics. AED referred her to acute medicine for review and possible admission.

Mrs. A was at high risk of post-partum infection and obstetric colleagues were involved in her treatment. Mrs. A's condition remained unstable and senior consultants from obstetrics, acute medicine and ICU were involved in the decision making process which led to her hysterectomy and bilateral salpingectomy to remove the source of infection.

Mrs. A has reflected on her experiences and, overall, has expressed that she received some excellent and compassionate care.

The purpose of the investigation was to learn and reflect on this patient safety event, the decision making processes and to identify areas for improvement.

MAIN REPORT:

1. Incident description and consequences

Incident description:	A delay in the recognition of infection and commencement of treatment in a lady who was post-partum: the lady developed severe sepsis and underwent a hysterectomy
Incident date:	4 August 2021
Incident type:	Sub-optimal care of the deteriorating patient meeting SI criteria
Specialty:	Urgent care/Obstetrics and Gynecology
Actual effect on patient:	Hysterectomy due to sepsis
Actual severity of the incident:	Moderate

2. Background and context

Situation

Mrs. A contacted the Maternity Assessment Centre (MAC) helpline on several occasions over the course of seven days, starting almost one week after her baby was born. The symptoms discussed were diverse and less clearly related to a single condition or pathology and initially more conservative advice was given. There were missed opportunities during telephone triage calls to invite Mrs. A for an earlier post-natal assessment however earlier assessment may not have altered the outcome.

Mrs. A was invited to MAC after her fourth telephone triage call on 2 August at 23.00 for a post-natal clinical assessment. She complained of mild abdominal and back pain and reported losing blood vaginally which had soaked sanitary pads during the day. She also complained of itching on her hands and feet. A raised heart rate was attributed to her low hemoglobin level of 77 (normal levels 12-15.5g/dl). The investigators considered this to be a reasonable diagnosis given the patient's recent history. No other potential causes for tachycardia on clinical examination were considered at this time.

The first on call obstetric doctor and MAC midwife completed a thorough examination; her abdomen was soft and non-tender and vaginal examination did not identify any unusual signs of bleeding or infection. Mrs. A's heart rate was slightly raised at 101 beats per minute (normal MEOWS¹ 51-100bpm) with all other vital signs within normal parameters.

¹The Modified Early Obstetric Warning System (MEOWS) tool has been specifically modified to reflect the physiological adaptations of normal pregnancy with differing parameters from the National Early Warning Score (NEWS). It is used for pregnancy, labour and postnatal women up to 28 days after birth in maternity services. The NEWS tool is generally used to assess all patients elsewhere within the NHS services.

Examination findings were discussed with the senior obstetric doctor and Mrs. A was advised admission to observe her symptoms. Mrs. A declined admission and wanted to go home, she was advised to take regular Antihistamines (anti-itching) tablets.

There was a possible opportunity for base line blood tests to be taken prior to her leaving MAC which may have identified infection and instigated earlier treatment and thus had an impact on further events and outcome. Mrs. A did not present with any immediately obvious symptoms which would have indicated that she was developing a critical illness. Mrs. A was discharged home in the early hours on 3 August 2021 with contact numbers to ring should her symptoms change.

The next morning, 4 August 2021 at 05.40, Mrs. A arrived in AED feeling light headed and generally unwell with a progressive rash on her hands and feet 14 days after giving birth. She was assessed by the triage nurse as priority 3 and assigned to amber zone in AED.

The Advanced Nurse Practitioner (ANP 1) examined Mrs. A; he considered post-natal infection but the source of infection was unclear as her abdomen was soft and non-tender with no reports of offensive vaginal discharge. Mrs. A was diagnosed with sepsis² and treated with first line intravenous antibiotics, Cefotaxime and Metronidazole and fluids as per BTHFT sepsis guidance. Antibiotic treatment was instigated within one hour.

Doctor B, the acute medical registrar arrived in AED at 14.30, Mrs. A appeared visibly unwell and was noted to have rigors, back and lower abdominal pain. Severe sepsis caused by probable endometritis³ complicated by toxic shock syndrome, secondary to Group A streptococci infection was suspected. Outstanding investigations were requested and an urgent referral to the Obstetric team was made.

Mrs. A's condition was stabilised and she was transferred to Labour Ward on the evening of 4 August 2021 for enhanced maternity care. Her condition continued to cause concern and she was referred for a CT⁴ scan of the abdomen and pelvis and from there taken to the Intensive Care Unit (ICU). A multi-disciplinary team of senior consultants from obstetrics, ICU, anaesthetists and acute medicine concluded that the best course of treatment was to perform a hysterectomy and bilateral salpingectomy⁵ under general anesthetic to save Mrs. A's life.

Mrs. A made a good post-surgery recovery and she was discharged home on 16 August 2021.

²It is estimated that sepsis claims 36,800 UK lives annually. Sepsis is caused when the body's immune system overreacts to infection setting off a series of reactions that can lead to widespread inflammation (swelling) and blood clotting. It is an unpredictable condition that can strike at any time.

² The National Institute of Clinical Excellence (NICE) recommends the use of the 'Sepsis 6' bundle. This consists of investigations and interventions all patients should receive ideally within one hour of identification of severe sepsis. The pathway includes blood culture tests preferably before starting antibiotics, a catheter to monitor urine output, fluid resuscitation to ensure adequate tissue perfusion, antibiotics intravenously to treat infection, a lactate result via Arterial Blood Gas (ABG) and oxygen as required.

³ *Postpartum endometritis refers to infection of the decidua (IE, pregnancy endometrium). It is a common cause of postpartum fever and uterine tenderness.*

Background

Mrs. A is a 35 year old woman in general good health; her first child was born by caesarean section at full dilatation of the cervix in 2016. Antenatal care in her second pregnancy identified appropriate risk factors, care and management was in line with best evidence based practice.

Her second child was born on 20 July 2021 by a Neville Barnes Forceps delivery at thirty nine weeks and three days gestation. Mrs. A had an episiotomy to assist with delivery and her 3rd stage of labour was complicated by a manual removal of her placenta which resulted in a one litre post-partum blood loss. An increased risk of infection is associated with operative delivery and therefore a single dose of 1.2g of Co-amoxiclav was administered during the birth as per BTHFT local guidance. Mrs. A had an uneventful recovery on the post-natal ward and did not show any signs of infection. In the absence of signs of infection an oral course of antibiotics is not recommended. She was keen for discharge home which occurred on 22 July 2021.

Assessment

On 4 August 2021 at 06.22 Mrs. A was asked to wait in the AED Amber Zone (AZ) waiting area for a cubicle to become available to complete her examination. Her NEWS⁶ (National Early Warning Score) was 3, she was noted to have a raised Heart Rate (HR) of 126 beats per minute (Normal NEWS 51-90bpm), her temperature was 36.3°C (normal NEWS 36.1-38°C) and her blood pressure was slightly low. (Systolic blood pressure reading score -1, Heart Rate score 2 = NEWS 3). She was given simple analgesia, Chlorphenamine to relieve an itchy rash and an Electrocardiogram (ECG) and Chest X Ray (CXR) were ordered.

Mrs. A waited 3 hours and 32 minutes for a cubicle to become free due to the high activity in AED, her NEWS was repeated at 10.24 which scored 2, HR 112bpm. On clinical examination at 10.33, Advanced Nurse Practitioner (ANP) 1 diagnosed Mrs. A with suspected sepsis, possible pneumonia. Initial first dose intravenous antibiotics and fluids were administered as per Sepsis BTHFT guidance, completing the most important aspect of the sepsis 6 bundle. A chest x-ray was completed and the ANP 1 referred Mrs. A for acute medical admission. A short time later ANP 1 was sent home ill and handed over Mrs. A's care to Consultant K.

NEWS was rechecked 71 minutes later with a raised score of 9, temperature of 39.1, Mrs. A needed urgent review and Nurse F escalated this information to the AED doctor but there is no doctor's name documented. There is no evidence to support that an AED review took place. Nurse F took the initiative to bleep the acute medical registrar to expedite acute medicine review.

Doctor B (acute medicine) examined Mrs. A at 14.30 and recognised that there was a high risk of severe sepsis likely due to endometritis complicated by toxic shock syndrome. He escalated his concerns and initiated rapid treatment beyond that expected of the medical registrar. An additional antibiotic, Clindamycin was prescribed but was then un-prescribed for an unknown reason on the Electronic Patient Record (EPR) drug chart. Mrs. A was urgently referred to the obstetric team and Doctor C attended AED at 15.02.

⁴A computerized tomography (CT) scan combines a series of X-ray images taken from different angles around your body and uses computer processing to create cross-sectional images (slices) of the bones, blood vessels and soft tissues inside your body. CT scan images provide more-detailed information than plain X-rays do.

⁵Sub partial hysterectomy, remove the upper portion of the uterus and leave the cervix in place. Bilateral Salpingectomy is the surgical removal of both fallopian tubes.

Clindamycin was recommended on the advice of the microbiologist and administered intravenously; the outstanding sepsis bundle tasks were completed. A COVID-19 swab was sent and later returned as negative. NEWS remained high and offensive vaginal discharge was noted on vaginal examination by obstetric Doctor C. It remains unclear if Mrs. A's NEWS was rechecked manually or mechanically but this is not fully documented despite multiple interventions of care taking place. Continuous pre-set timings for NEWS monitoring are commonly used when patients are unwell. A second peripheral cannula was inserted and intravenous paracetamol given. An arterial blood gas returned normal and a catheter was inserted to help monitor Mrs. A's fluid balance.

Mrs. A was transferred to labour ward at 19.38 that evening for enhanced maternity care (EMC).

Labour Ward/ICU

Mrs. A's condition deteriorated further and an abdominal and pelvic Computerised Tomography (CT) scan did not directly confirm the cause for infection. Mrs. A's clinical condition continued to deteriorate and her overall clinical picture indicated severe endometritis complicated by toxic shock syndrome. Intensive intervention and microbiologist's guidance for intravenous antibiotic therapy were delivered. Advice was sought from several senior obstetric colleagues accompanied by discussions with the critical care team for further intervention and treatment options.

The consultant obstetrician discussed further treatment with Mrs. A and her husband and gained consent to perform a hysterectomy and bilateral salpingectomy. Both the right and left ovaries were left intact. A less invasive procedure was considered however, the decision to perform a hysterectomy was thought to be necessary to save Mrs. A's life.

Mrs. A recovered post-surgery on ICU prior to being transferred back to Labour ward on 7 August 2021. The Consultant Obstetrician spoke to Mrs. A and her husband to ensure they understood the complications they had faced and the reasons for the team's decision making.

Once Mrs. A's condition improved she was transferred to the postnatal ward where her husband and baby were given permission to visit as restrictions were in place due to COVID-19. Mrs. A continued on intravenous antibiotics, her mobility improved and she was eventually discharged home on 16 August 2021.

3. Terms of reference

The Terms of Reference for the investigation were agreed by the Executive Lead for the investigation, the Chief Medical Officer, and can be found in Appendix 1.

4. Level of investigation

At the Trust's Quality of Care (QuOC) Panel it was recognised that this safety event met the threshold for the declaration of a serious incident (National Serious Incident Framework, 2015)

A comprehensive level 2 investigation was commissioned by the Chief Medical Officer. A standardised investigation approach was used to identify improvements and learning.

5. Involvement and support of patient and relatives

The obstetric consultant provided information to Mrs. A and her husband, and gained consent prior to a hysterectomy and bilateral salpingectomy being performed.

The Consultant Obstetrician had an in-depth discussion about the events that had taken place with Mrs. A and her husband during her initial post-surgery recovery period. She explained the decision making and ensured that Mrs. A was fully informed and understood the reasons behind the treatment outcome. Mrs. A was offered a future de-brief once she had made a good recovery, this took place on 14 October 2021 with the Consultant Obstetrician.

A verbal apology was given and a Duty of Candour conversation took place, followed by a written letter, which was sent on 10 August 2021.

Mrs. A has been contacted several times by the investigation team to provide information and investigation updates. Mrs. A has provided some questions, and responses to her questions have been incorporated into the final report.

6. Involvement and support provided for staff involved

The health professionals involved have been reassured that the purpose of the investigation is to identify learning and areas for improvement and not to apportion blame. They have been supported by their immediate line managers.

The Trust provides supportive services which are easily accessible to any member of staff for all wellbeing, professional or personal needs. All staff are offered support and encouraged to report if they are affected by a patient safety event. Members of staff are made aware of the 'second victim' website which has been developed by the Improvement Academy and the Yorkshire Quality & Safety Research Group.

As outlined in the guiding principles and standards to patient safety investigation in NHS-funded care, BTHFT embraces a just culture in order to support staff to be honest and open.

7. Information and evidence gathered

- Electronic Patient Records (EPR), Medway, Evolve and paper written documentation were searched for and reviewed using the patient's details for relevant information.
- Selected health professionals involved in the investigation provided verbal and written accounts of their involvement in this safety event.

The following BTHFT Guidelines and Standard Operating Procedures have been accessed:

ANODE (2019): Prophylactic antibiotics in the prevention of infection after operative delivery.
[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(19\)30773-1/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(19)30773-1/fulltext)

BTHFT (2021) Sepsis protocol: V1

BTHFT (2020) Enhanced Maternity care and critical care, V1

BTHFT (2021) Management of the pregnant and postnatal woman attending the Accident and Emergency Department or requiring admission: V6

BTHFT (2020) Accident and Emergency Department Covid 19: Adults clinical pathway

BTHFT (2019) Operative vaginal delivery: V6

BTHFT (2020) Venous Thromboembolism in Pregnancy – Prevention and Management, V10

BTHFT (2019) Heavy menstrual bleeding in women under 45: V3

BTHFT (2020) Gynaecological ultrasound guidance: V1

BTHFT (2017) Third stage of labour: V7

BTHFT (2020) Obstetric haemorrhage: V6

BTHFT SOP (2021). Clinically ready for transfer from Accident and Emergency to a ward.

BTHFT SOP (2021) Roles and responsibilities of medical team leader

MBRRACE-UK Saving Lives, Improving Mothers' Care 2016-2018. December 2020

MBRRACE-UK Saving Lives, Improving Mothers' Care - Lessons learned to inform maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2013–15, December 2017
<https://www.npeu.ox.ac.uk/mbrrace-uk/reports>

NICE (2017) Sepsis: Quality standard: <https://www.nice.org.uk/guidance/qs161>

8. Detection of incident

The safety event was reported on the Bradford Teaching Hospitals NHS Foundation Trust (BTHFT) Datix reporting system.

On 17 August 2021 this safety event was escalated to the Quality of Care Panel (QuOC) and the decision was made to declare a serious investigation to NHS England under the National Serious Incident Framework (2015).

9. Findings

Maternity

There is a high risk of women developing complications in the post-natal period including: infections predominantly affecting urine tract and uterus, excessive bleeding, and formation of emboli (blood clots).

All post-natal women up to 6 weeks after birth may self-refer to, or be referred to the Maternity Assessment Centre (MAC) by any healthcare professional for help and advice. An initial telephone triage helpline is used where concerns are discussed with a midwife and should it be necessary, women are invited for clinical assessment and treatment. MAC is situated near to Labour Ward and staffed by midwives 24 hours a day, seven days a week.

The Birmingham Symptom-Specific Obstetric Triage System (BSOTS) has recently been introduced in MAC at BTHFT and is based on established triage systems replicated from emergency medicine. BSOTS uses clinical assessment to prioritise common reasons that present within maternity triage areas.

On all telephone triage calls patients should be asked when they last contacted a health professional or received hospital treatment, multiple calls over a short period of time would normally trigger early assessment on MAC. There was no evidence documented in the MEDWAY electronic records to acknowledge Mrs. A's previous contact and Mrs. A was not asked when she had last spoke to a midwife at any telephone contact.

BSOTS completed paper booklets are currently scanned and uploaded onto MEDWAY maternity electronic records system within 24 hours. Telephone triage calls during the week leading up to Mrs. A's admission to AED had not yet been uploaded and information was therefore not readily accessible.

CERNER is a new maternity electronic patient records package due to be launched at BTHFT in March 2022. This will provide contemporaneous documentation and alleviate the need to scan and upload BSOTS information.

On post-natal re-admission to maternity services as a new mum, BTHFT give the parent the choice of rooming the baby in with mum to promote bonding. It is not clear how strongly the reasons for admission were advised and it is documented that Mrs. A wanted to return home to her newborn baby.

The BTHFT do not have any powers to compel patients to accept treatments and are only able to weight its advice accordingly, in order to explain possible risks. Mrs. A did not present with any immediately obvious symptoms which would have indicated that she was developing a critical illness.

Accident and Emergency Department (AED)

The Bradford AED triage uses the principles of the Manchester Triage System (MTS) which is one of the most commonly used systems in Europe. It enables nurses to assign a clinical priority to patients, based on presenting signs and symptoms, without making any assumption about the underlying diagnosis. It is used as a clinical risk management tool by clinicians worldwide to enable them to safely manage patient flow when clinical need far exceeds capacity.

AED urgent cases are seen in the high dependency resuscitation area, the Red Zone (RZ) for immediate treatment. Patients allocated to the Amber (AZ) and Green Zones GZ) are able to wait longer to be seen by a medical professional. Additionally the Purple Zone (PZ) accommodates pediatric patients and more recently there has been an increase need to isolate patients due to the COVID-19 pandemic.

The National Standards set for all UK AED departments is to treat and discharge patients within 4 hours. On 4 August 2021 the potential waiting time to be seen in the AZ of AED was approximately 9 hours.

The AED acute areas were full with admission bed waits exceeding 11 hours. This is a major concern for AED as it causes delays in timely patient care as the team are reliant on being able to discharge patients who are ready to transfer to a ward to free cubicle space. The impact of COVID-19 has further challenged patient flow within the hospital with an increased need to admit patients into an isolated environment as needed within hospital wards. Records show that there were 63 patients in the AED at 08.00, the majority of these patients presented with acute conditions and concerns. Bed waits were high and the nurse in charge and medical coordinator in AZ contacted the different specialities to review patients in AED to try to enhance patient flow.

The high risk of post-partum sepsis was not initially appreciated and the obstetric team were not notified of Mrs. A's case by ANP 1. The current AED agreement is that any patient who is up to 28 days post birth and requires admission under a different specialty is identified to the Labour Ward coordinator or the obstetric registrar. The Labour Ward documents the details of the patient which is communicated urgently or at each doctor's round. The consultants can then identify which patients require assessment outside the maternity unit.

The MEOWS tool used in maternity care, as opposed to NEWS used in the general population, has subtle differences in parameters to account for the pregnancy and post-natal condition. Final NEWS may have differed from MEOWS scores but would not have changed treatment or the outcome for Mrs. A. The introduction of maternity CERNER will provide the clinical staff with an option to choose NEWS or MEOWS.

ANP1 had felt ill since the start of his shift and was sent home at approximately 11.30.

A NEWS score of 9 was escalated by nurse F, an experienced registered nurse, to the AED Consultant but did not state the name of the doctor she spoke to.

The BTHFT has developed a work stream education and training program which is already in place to promote and monitor the use of the NEWS tool and Sepsis 6 bundle. This includes areas of accurate documentation, accurate final assessment scores and escalation pathways. AED department results are consistently good and the investigator is assured that good levels of knowledge and training are present amongst the AED team.

On 4 August 2021, there were 15 Registered Nurses (RN) and 6 Health Care Workers (HCW) on the day shift covering AED. The expected nursing numbers in BTHFT AED are currently 17 RN and 7 HCW. The shortfalls were escalated appropriately through the matron's huddle which occurs three times a day to monitor gaps and redeploy the workforce staff. A prior request for any currently employed AED staff, bank or agency cover was in place. Specialist services and Emergency Nurse Practitioners (ENP) had been considered for redeployment to fill clinical shifts.

The Medical rotas were minus four doctors which can be attributed to the Trust's new starter Junior Doctors induction training which was taking place that day. AED have a full time medical rota co-ordinator who is responsible for trying to fill the gaps to fully cover rotas which is very difficult to achieve. Two senior consultants were working in AED and the Advanced Nurse Practitioner (ANP 1) had been redeployed to increase the medical numbers. Unfortunately he was sent home ill which decreased the medical rota further from 11.30 onwards to red. There had also been multiple unsuccessful attempts to back fill rota gaps with locum Doctors and the command centre had been made aware. There is currently a lack of substantive and locum doctors and there is an increased recruitment for AED, with anticipation for better staffing in the near future.

The shortfalls in tasks and documentation on this occasion can be attributed to the limited staffing resources that were available. The AED department has completed a risk assessment to highlight the issues associated with unsafe staffing levels and this has been placed on the business units risk register.

The various tests taken throughout Mrs. A's stay did not identify a specific organism causing her infection. The uterine histology report showed haemorrhagic endometrium with areas of residual products of conception. The myometrium contains few dilated blood vessels. The fallopian tubes appear unremarkable. There was no evidence of dysplasia or invasive malignancy.

10. Contributory factors

In August 2021 the effects of the COVID-19 pandemic were still evident, especially affecting the acute and critical areas of health care.

There was a lack of capacity in AED due to hospital bed waits.

11. Coincidental findings

Question from Mrs. A: I had cervical scanning in this pregnancy; please can I have an explanation why this was carried out?

Mrs. A delivered her first child in 2016 by emergency Lower Segment Caesarean Section (LSCS) at full dilatation of the cervix (2nd stage of birth). There is a significantly higher rate of subsequent spontaneous preterm birth in women who have had a caesarean section at full dilatation compared with women who have had a caesarean section during the first stage of labour. Mrs. A's antenatal care was good and all appropriate risks were considered. Cervical length ultrasound scanning is recommended to help identify any changes in the cervix which would indicate early delivery. This has no bearing on the outcome in Mrs. A's post-natal period.

Question from Mrs. A: Why was I only given antibiotics at delivery and not in the immediate post-natal period?

During Mrs. A's initial post-natal stay her observations remained stable with no signs of infection. Mrs. A was given a stat dose of intravenous antibiotic at birth recommended by national and local guidance. A routine course of antibiotics is not prescribed in the absence of

signs and symptoms of infection such as a high temperature during or soon after labour. The ANODE (2019) research demonstrated a significant reduction in maternal infection after operative delivery and recommends a prophylactic single dose of Amoxicillin or clavulanic acid compared with a placebo at birth.

Question from Mrs. A: Why did the community midwives not recognise possible abnormal symptoms on their visits?

A community midwife visited on 22 July 2021 to perform a post-natal check on you and your baby where no abnormal findings were reported. The next day a Maternity Support Worker (MSW) attended to check and weigh your baby. Our records show that you were staying at an alternative address. Therefore an alternative midwife from another team visited on 25 July 2021 where no concerns were raised. The next visit would normally be planned for 7 days (due 01/08/2021). There are no further visits recorded prior to your admission to MAC on 2 August 2021.

Mrs. A's comments

Mrs. A has expressed her gratitude to the dedicated paramedics, doctors, nurses, health care assistants and midwives and wanted to thank them all for their excellent care. She has noted that many made a real difference and exceeded her expectations, were empathetic and approachable. Mrs. A gave a special thank you to her named Obstetric Consultant for her reassurance and support. Overall Mrs. A has reported that she had a positive experience whilst in the care of BTHFT.

Question from Mrs. A: I asked the obstetric consultant why I was left alone for long periods during a night shift on Labour ward.

An apology was given by the consultant as Mrs. A's care needs were not met on this occasion. The Matron has raised this issue with the midwife concerned and the wider Labour Ward team. The night in question was a busy shift with midwives caring for multiple women on the Labour Ward.

12.Improvements

MAC

To ensure that all women are asked about previous contact with health professionals during any telephone triage conversations and that responses are documented.

Prior to the launch of maternity CERNER in March 2022, ensure that a robust system is in place to scan and upload paper documents onto MEDWAY within 24 hours.

The obstetric team must consider if any necessary investigations should be offered, prior to a patient leaving, when they have been advised to stay in hospital but decline.

To consider and explore alternative causes for an increase in MEOWS/NEWS parameters (i.e. raised heart rate).

AED

Provide training to highlight the risks of common post-partum complications amongst the ANP's and other members of the AED multi-disciplinary teams.

Ensure that, when escalating concerns, the name, date, time and person escalated to is recorded in EPR documentation.

To establish a process whereby AED patients, up to 6 weeks after birth, who present with concerning symptoms are discussed and advised on associated aspects of care with the obstetric or gynaecology team.

When all available AED resources have been exhausted and nursing and/or medical staff rota shortages remaining unresolved, to consider how the current Trust arrangements can be improved to further mitigate risks.

Conclusion

Mrs. A's antenatal and intrapartum care was in line with best evidence based practice. Her birth was complicated and women who experience an operative birth are at higher risk of infection. Telephone triage midwives must remain vigilant and consider if an earlier clinical assessment is needed. The investigation concludes that there were missed opportunities to invite Mrs. A for earlier post-natal assessment during several telephone triage calls. Administrative tasks will no longer be needed when maternity CERNER software is introduced in 2022. Specific questions will be included to provide future electronic contemporaneous record keeping within the telephone triage services.

On post-natal clinical assessment there was no indication of critical illness; anemia was associated with tiredness and a slightly raised heart rate. Maternity patients who present outside of this specialty would benefit from a discussion with the obstetric team when post-partum complication is suspected. A wider appreciation in AED of the risks associated with the post-natal period will promote team work and provide quick and effective specialist intervention for the patient.

The COVID-19 pandemic has been a difficult and challenging time especially within the acute/critical care areas. The investigation team acknowledges that there were not the expected numbers of medical and nursing staff on duty on 4 August 2021, despite the escalation processes being exhausted. This had a major impact on the expected standard of medical and nursing care that is delivered.

13. Arrangements for Shared Learning

This report will be formally discussed at the Trust's Quality and Patient Safety Academy. This report will be shared with Care Groups for discussion in appropriate forums.

14. Distribution List

Staff members involved in the investigation.

Individual staff members named within the improvement plan.

Planned and unplanned care groups to disseminate to the wider workforce.

Patient and family.

15. Appendices

Appendix 1: Terms of reference.

Appendix 2: Timeline MAC and AED

Appendix 3: Action Plan.

Appendix 1 Terms of Reference 2021 17062

Purpose To undertake a systematic, thorough and impartial investigation, in order to identify the root causes and key learning from the incident. This will enable the use of this information to significantly reduce the likelihood of a recurrence in the future.
Objectives To establish the facts of what happened to whom, when, where, why and how (root cause) Undertake a systematic, thorough and impartial investigation using appropriate techniques and analytical tools. To establish whether failings occurred in processes. To look for improvements rather than to apportion blame To establish how recurrence may be reduced or eliminated. To formulate recommendations and an improvement plan. To provide a report and record of the investigation process & outcome. To provide a means of sharing learning from the incident. To have regards for the welfare of the individuals involved in the investigation, directing them to sources of advice and support as appropriate.
Key questions/issues to be addressed. <ul style="list-style-type: none">• To determine the appropriateness of the telephone triage and assessment process for Maternity Assessment Centre (MAC) post-partum patients.• To review documentation and guidance for the AED triage, assessment, NEWS/MEWS and Sepsis pathways when a post-partum patient presents.• To consider alternative causes for clinical physiological changes (i.e. tachycardia) which may be associated with various post-partum complications.• Establish the effectiveness of SBAR and escalation processes that are in place in AED.• Determine contributory factors that may have affected the delivery of care and treatment on 4 August 2021.• Determine what impact COVID-19 had on the delivery of care
Key Deliverables Investigation Report, improvement Plan and Implementation of improvements.
Scope The investigation will look at Mrs. A's care and treatment from 27 July 2021 up until her transfer from AED to Labour Ward on 4 August 2021.
Investigation type, process and methods used This investigation will be undertaken using the Yorkshire Contributory Factors framework. The policies and guidelines relevant will be accessed to consider whether they were followed and remain fit for purpose.
Arrangements for communication, monitoring, evaluation and action An improvement plan focusing on the learning will be developed in response to the recommendations made in this report. Care will be taken to ensure that these improvements will confer more benefit than risk. It is the responsibility of the relevant Clinical business unit, Clinical Directors to ensure the learning from the incident is distributed widely and received by the clinical areas; that the improvement plan is completed within the specified timescale and that evidence of completion is recorded. It is the responsibility of each person named in the improvement plan to complete the actions required by the target date and to provide the clinical business unit risk manager with evidence of this within one calendar month of the target date. The implementation of the improvement plan is monitored by the

Assurance department.
Investigation Commissioner NHS Bradford District and Craven CCG
Investigation team Julie Baker, Clinical Risk Manager (RCA trained). Jay Gokhale, Consultant General Surgeon.
Stakeholders/audience NHS Bradford District and Craven CCG
Investigation timescales/schedule Write a report which meets the criteria set by the Serious Incident Team, ensure it undergoes appropriate internal consultation and approval processes and is submitted no later than 12 February 2022.

Appendix 2 Maternity Triage and Assessment Timeline

Ref:WR113083/0852245	2021 17062	Obstetrician Consultant G2P1 Previous delivery 2016 – IOL and LSCS at full dilatation AB Negative, BMI 29	
20/07/2021	Trial in theatre-NB Forceps delivery MROP and PPH 1 litre loss	Live male born in good condition. Mum had prophylactic antibiotics dose in theatre.	Patient keen for discharge from hospital. Discharged home 22/07/2021 at 00.04 after paediatric review.
TRIAGE HISTORY 27/07/2021 14.13	Two day history of cough, feeling shivery feels lethargic and has vomited clear fluid	Known PPH with Hb77. On iron tablets	Missed opportunity to rule out sepsis with symptoms of shivering and aching
30/07/2021 08.16	Day 10. Complaints of backache, Pu BO, Not unwell! Paracetamol and Ibuprofen not helping back pain.	Directed to GP services.	Unaware of earlier contact- Place on form to register previous contact incomplete.
02/08/2021 14.30	Day 13. Documented heavy lochia soaking pads today. No clots or membranes seen, continues to take Iron	Too early for menstruation, abnormal to have heavy loss PV at 13 days PN	Asked to observe loss for next few hours and ring back??
02/08/2021 21.27	Pain in hands cannot clench fists, rash on feet. Soaking pads, no clots. Feels lightheaded. Temp said to	? secondary PPH. Side room TCI	Correct triage advice (on 4 th call) 1 week later

	be T 38.2		
02/08/2021 23.00	Arrived at MAC PN triage assessment completed by midwife. However form not completed fully and therefore priority to be seen not completed.	Reviewed by FY Doctor. Speculum and wound inspection. OS closed. No excessive loss PV noted. Escalated to middle grade Doctor offered admission but patient declined.	Seen immediately. Appropriate examination and thorough review took place. Temp 37.2 HR 101 later settled to 95. BP 109/97 =MEWS 1
03/08/2021 03.20	Discharged home.	Anti-histamines for rash administered.	

AED Timeline

2021 17062	04/08/2021	Staffing in AED 08.00	AED Position 08.00
04/08/2021 0540 hrs –	Patient arrived and registered.	Medical Rotas- minus 4 Doctors (Junior Doctors induction and lack of Locums) ANP1 went home sick. 11am Rotas now in RED Nursing numbers 15 + 6 all day	63 Patients at 08.00. GZ-An 11 hour wait to be seen in AED. AZ 9 hour wait to be seen HDU and AZ full with bed waits exceeding 11 hours.
0622hrs –	Patient triaged – complains of feeling	14 days post-partum.	Observations showed BP 101/66 mmHg, HR 126 bpm, RR18, Temp 36.3, O2 sats 100% RA, Alert, Pain score 1.

	light headed at 5am, near collapse, itchy rash to hands and feet,		
0627hrs –	FBC, UE, CRP obtained and an ECG performed.		
0629 hrs –	Chlorpheniramine prescribed and given.		
0705hrs -	Patient placed back in AZ waiting room to wait for an available cubicle since AZ was full.	At the time of nursing handover there was a 9 hour wait to be seen in AZ.	
0944 hrs-	Codeine 30mg and paracetamol 1g prescribed.		
0954 hrs –	patient moved to AZ cubicle 12		
1005 hrs –	<p>Patient seen by ANP1. A good history was taken establishing her post-partum state and at this point ANP1 was informed the patient's discharge had settled.</p> <p>ANP 1 did recognise the patient was septic and prescribed the appropriate treatment for an unknown source</p>	<p>On examination he failed to formally document an abdominal examination however comment is later made that <i>"unclear source but given abdomen is soft and none tender and no discharge I think it is unlikely related to post-</i></p>	Observations documented in the ANP notes are Hr 120 reg, BP 116/72 mmHg, RR17, sats 97%.

	<p>at the time with fluid resuscitation.</p> <p>The patient was referred for medical admission for sepsis.</p>	<i>partum.”</i>	
1024 hrs –	<p>Nursing notes says “named nurse introductions observations recorded” however there are none recorded at this time on EPR.</p>		
1039 hrs –	CXR completed		
1056 hrs –	<p>Cefotaxime 2G, Metronidazole 500mg IV given along with 500mls 0.9% saline.</p>	<p>Shortly after this the ANP1 was sent home ill. There is nothing documented to say he handed the patient over to another clinician.</p>	
1135hrs –	<p>This is the first set of observations recorded on EPR since triage at 0622hrs.</p>		<p>Obs temp 39.1, HR 131 reg, RR 25, BP 107/55 mmHg, sat s 98% RA – NEWS 9.</p>
1143 hrs –	<p>Nursing notes have documented “Introduced myself to patient (Nurse E), NEWS documented,</p>	<p>It is unclear who the doctor was that this was escalated to.</p>	<p>Temp 39.1</p>

	NEWS 9, and Escalated to allocated Doctor. Blankets removed, patient keep putting them back on. , No new concerns raised”		
1207 hrs –	0.9% saline 500mls commenced.		
1221 hrs –	Nursing documentation says “COVID swab competed, Consent gained, COVID swab has been sent off, No new concerns raised”		
1240 hrs –			Temp 38.5, HR 130 reg, RR 24, BP 117/43, sats 98% ra NEWS 5
1243 hrs –	Nursing documentation says “News repeated, escalated to DR K and Dr S both AED consultants. Doctor B bleeped.”	There is no documentation from either of the AED consultants.	
1430 hrs-	Seen by Doctor B, noted the patient looks unwell, rigoring, looks septic, back and lower abdo pain. Worsening tachycardia and tachypnoeic, non-	It was noted there was no gas, cultures, clotting or urinalysis performed.	The plan was for urine dip, gas, cultures, coagulation screen, Clauss fibrinogen levels and a Group and Save. IV fluids, IV clindamycin and to refer to the gynaecology team.

	<p>blanching itchy rash on legs and wrists.</p> <p>On examination he found the patient to be tender in the RIF/suprapubic area with a diagnosis of severe sepsis likely due to post-partum endometritis and possible toxic shock secondary to Group A strep.</p>		
1430 hrs -	clindamycin and gentamycin ordered then discontinued by Doctor B.		
1444 hrs –	Bloods took as above.		
1445 hrs-	Ringers lactate 500ml prescribed and commenced.		
1500 hrs -	Urine dip obtained.		
1502 hrs –	<p>Doctor C reviewed patient. Offensive discharge on swabbing the patient PV. Plan was for a pelvic USS, continue antibiotics and documented as already given and discuss with the</p>	<p>Noted the patient had been seen in MAC the day before but had declined</p>	<p>Admission. WCC 9.48, CRP 215, eGFR 77.</p>

	Consultant Gynaecologist for HDU availability on Labour Ward.		
1520 hrs -	Clindamycin re ordered by Doctor L's team.		
1644 hrs –			Obs Temp 39.0, HR 136 reg, RR 23, BP 89/48, no saturations recorded NEWS 9.
1650 hrs –	Nursing documentation says "Observations repeated and recorded. NEWS 9. Doctor L informed. Trolley lowered down and patient's head lowered on trolley. Fluids running.	Asked to be reviewed and documentation from ANP2 to support this written @ 1728"	
1650 hrs –	Asked for Doctor Lon call to re review the patient, noted to have had 1.5 L of 0.9% saline and antibiotics. Plan was for a second IV line, catheter, IV paracetamol and monitor fluid balance.	ANP2 reviewed patient and asked for the blue light transfer to Labour Ward to be cancelled.	A blood gas taken at the time was normal.
1717hrs –	500mls 0.9% saline prescribed and commenced.		
1725 hrs –	Paracetamol 1G		

	prescribed and commenced.		
1746 hrs -	Gynaecology team reassessed patient, noted the Clindamycin prescribed earlier had not been given. Doctor B gave ondansetron and Clindamycin. Doctor L performed catheterisation for the patient. Observations were repeated by Doctor L and noted to be better		BP 113/74, HR 136reg, sats 98% ra, RR 18, Temp 39.9 NEWS 7
1800 hrs-	0.9% saline 500mls commenced.		
1830 hrs-	0.9% saline commenced.		
1938 hrs –	The patient transferred to the labour ward.		

Appendix 3: Improvement plan 2021/17062

Action plan			Date initiated	12/02/2022	
			Date of update		
Accountability		Responsibility			
Lead	Oversight/Governance Structure		Lead	Work Stream/Operational Group	
Ray Smith	Chief Medical Officer		John Anderson	Obstetric consultant	
			Tracy Crocker	MAC Line Manager	
			Jacob Mushlin	AED consultant	
			Emma Clinton	AED Matron	
Aim	Objective		Expected outcome	Assurance mechanism	Review date
	Ref				
Effective detection of a deteriorating patient’s condition	1	All midwives to ask when patient last contacted or received care at each telephone triage call.	Identify any previous concerns to make an informed decision of ongoing care at the end of a telephone triage call.	A spot check of 20 women`s BSOTS telephone triage booklets	Tracy Crocker May 2022
		To ensure that BSOTS documentation is uploaded within a 24 hour	Fully electronic information by 2022.	To ensure that triage documents are uploaded within	

		<p>period prior to the introduction of maternity CERNER.</p> <p>Consider offering women any essential investigations prior to them leaving the maternity unit when they have declined admission</p>	The possible opportunity to detect deviations	<p>24 hours until maternity CERNER is established in practice. Documentation review.</p> <p>Message out to Obstetric and midwifery teams</p>	John Anderson
		<p>To establish a process where AED patients up to 6 weeks after birth that present with concerning symptoms are discussed and advised on associated aspects of care with the obstetric or gynaecology team.</p> <p>Information sharing session/possible simulation for ANP/AED teams on post-partum complications.</p>	<p>Post-partum patients in AED up to 6 weeks after giving birth are discussed with the specially team.</p> <p>Raise awareness.</p>	<p>Review of AED guidance.</p> <p>Short summary of training/simulation scenario for ANP/AED team on high risk post-natal complications.</p>	<p>John Anderson Emma Clinton Jacob Mushlin</p> <p>John Anderson Jacob Mushlin</p>
		When nursing and/or medical staff rota shortages remain unresolved consider any	Achieve the expected number of medical and nursing staff on duty per shift	A review to identify any further mitigation that can be put in place	Jacob Mushlin

		further Trust arrangements to improved and mitigate the risks.			
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