LEARNING MATTERS

ISSUE 19
FEBRUARY 2022

## IN THIS EDITION



Link below to previous Learning Matters:
Learning Matters Newsletters | HSC Public Health Agency (hscni.net)

**Welcome to issue 19 of the Learning Matters Newsletter. Health and Social Care in Northern Ireland endeavours to provide the highest quality service to those in its care. We recognise that we need to use a variety of ways to share learning therefore the purpose of this newsletter is to complement the existing methods by providing staff with short examples of incidents where learning has been identified.**

HSC Health and Social Care

QUALITY 2020

# Advanced Life Support protocol and early consideration of a Pulmonary Embolism (PE)

**A patient with a history of repeated miscarriages underwent an evacuation of uterus for a suspected molar pregnancy. There were no concerns post-operatively. Five weeks later the patient presented to the Emergency Department (ED) complaining of sudden onset of knee pain whilst out walking.**

The patient was able to weight bear and on examination, swelling was noted over the right knee with tenderness over the medial aspect. There was no indication for x-ray so the patient was discharged with tubigrip, safety net advice and a referral was made for physio.

Two days later the patient presented to the ED with sudden onset of severe shortness of breath (SOB), chest tightness and unable to speak in full sentences. The patient collapsed just prior to triage. An immediate assessment was carried out and vital signs indicated the patient was pale, clammy, ayprexic, tachycardic, tachypneic, hypotensive and hypoxic, with oxygen saturations of 83% on room air. Initial management focused on Airway, Breathing and Circulation (ABC) as per standard emergency assessments. Blood pressure (BP) and oxygen saturations improved and the patient was transferred to the resuscitation area.

An electrocardiograph (ECG) was performed, intravenous access obtained and IV fluids commenced. Oxygen therapy was commenced at 15 litres/minute via non-rebreather face mask. A full history could not be obtained from the patient as she was too SOB to speak in sentences. Intravenous paracetamol was administered for pain relief. A portable Chest X-ray was requested. Clinical observations were recorded as pulse154 bpm, BP 100/67, SpO2 98% on 15 litres of oxygen. The patient went into cardiac arrest, 20 minutes after presenting to the ED. A cardiac arrest call was made and cardiopulmonary resuscitation (CPR) was commenced. Management followed the UK Resuscitation Council Advanced Life Support guidelines (ALS) and a return of spontaneous circulation (ROSC) was achieved within 5 minutes. Unfortunately the patient re-arrested 5 minutes later and CPR re-commenced.

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The medical doctor contacted the ED consultant approximately **40 minutes** into CPR, to discuss giving lysis treatment for a potential Pulmonary Embolism. However at this point it was felt a lysis attempt would be futile. Following discussion with the senior medical and nursing team, resuscitation was ceased and the patient was pronounced deceased.

On review it was felt that a discussion regarding lysis administration with the ED consultant should have happened sooner. The D dimer was noted to be 6.95. The normal value is < 0.5. In view of the clinical history and the raised D dimer the cause of death was recorded as **pulmonary embolism**.

A prophylactic venous thromboembolism (VTE) risk assessment (Risk assessment for venous thromboembolism (VTE) (nice.org.uk)) was completed when the patient had surgery and managed as per guidance. The attendance in ED 2 days prior to arrest was also managed appropriately. On review it was felt that a discussion regarding PE and lysis administration could have happened earlier in the arrest situation. However, it is important to note that earlier consideration of lysis may not have altered the outcome, especially due to the seriousness of the patient's condition at time of presentation.

RISK ASSESSMENT FOR VENOUS THROMBOEMBOLISM (VTE)

*All patients should be risk assessed on admission to hospital. Patients should be reassessed within 24 hours of admission and whenever the clinical situation changes.*

**STEP ONE**
Assess all patients admitted to hospital for level of mobility (tick one box). All surgical patients, and all medical patients with significantly reduced mobility, should be considered for further risk assessment.

**STEP TWO**
Review the patient-related factors shown on the assessment sheet against **thrombosis** risk, ticking each box that applies (more than one box can be ticked).

Any tick for thrombosis risk should prompt thromboprophylaxis according to NICE guidance.

The risk factors identified are not exhaustive. Clinicians may consider additional risks in individual patients and offer thromboprophylaxis as appropriate.

**STEP THREE**
Review the patient-related factors shown against **bleeding risk** and tick each box that applies (more than one box can be ticked).

Any tick should prompt clinical staff to consider if bleeding risk is sufficient to preclude pharmacological intervention.

Guidance on thromboprophylaxis is available at:

*National Institute for Health and Clinical Excellence (2010) Venous thromboembolism: reducing the risk of venous thromboembolism (deep vein thrombosis and pulmonary embolism) in patients admitted to hospital. NICE clinical guideline 92. London: National Institute for Health and Clinical Excellence.*

**http://www.nice.org.uk/guidance/CG92**

This document has been authorised by the Department of Health
Gateway reference no: 13078

DH Department of Health

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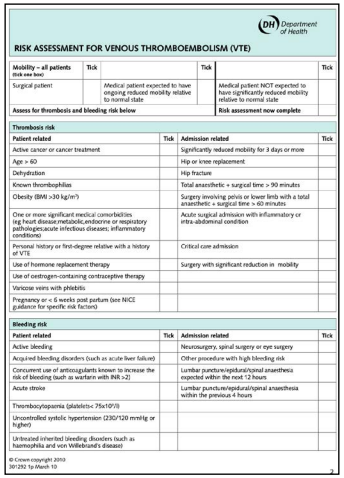

DH Department of Health

RISK ASSESSMENT FOR VENOUS THROMBOEMBOLISM (VTE)

| Mobility – all patients (tick one box) | Tick | | Tick | | Tick |
|---|---|---|---|---|---|
| Surgical patient | | Medical patient expected to have ongoing reduced mobility relative to normal state | | Medical patient NOT expected to have significantly reduced mobility relative to normal state | |
| Assess for thrombosis and bleeding risk below | | | | Risk assessment now complete | |

**Thrombosis risk**

| Patient related | Tick | Admission related | Tick |
|---|---|---|---|
| Active cancer or cancer treatment | | Significantly reduced mobility for 3 days or more | |
| Age > 60 | | Hip or knee replacement | |
| Dehydration | | Hip fracture | |
| Known thrombophilias | | Total anaesthetic + surgical time > 90 minutes | |
| Obesity (BMI >30 kg/m²) | | Surgery involving pelvis or lower limb with a total anaesthetic + surgical time > 60 minutes | |
| One or more significant medical comorbidities (eg heart disease,metabolic,endocrine or respiratory pathologies;acute infectious diseases; inflammatory conditions) | | Acute surgical admission with inflammatory or intra-abdominal condition | |
| Personal history or first-degree relative with a history of VTE | | Critical care admission | |
| Use of hormone replacement therapy | | Surgery with significant reduction in mobility | |
| Use of oestrogen-containing contraceptive therapy | | | |
| Varicose veins with phlebitis | | | |
| Pregnancy or < 6 weeks post partum (see NICE guidance for specific risk factors) | | | |

**Bleeding risk**

| Patient related | Tick | Admission related | Tick |
|---|---|---|---|
| Active bleeding | | Neurosurgery, spinal surgery or eye surgery | |
| Acquired bleeding disorders (such as acute liver failure) | | Other procedure with high bleeding risk | |
| Concurrent use of anticoagulants known to increase the risk of bleeding (such as warfarin with INR >2) | | Lumbar puncture/epidural/spinal anaesthesia expected within the next 12 hours | |
| Acute stroke | | Lumbar puncture/epidural/spinal anaesthesia within the previous 4 hours | |
| Thrombocytopaenia (platelets< 75x10⁹/l) | | | |
| Uncontrolled systolic hypertension (230/120 mmHg or higher) | | | |
| Untreated inherited bleeding disorders (such as haemophilia and von Willebrand's disease) | | | |



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## KEY LEARNING

- **The importance of a comprehensive medical history being completed to identify any early risks or any prior interventions which may contribute to the diagnosis.**
- **In the event of a cardiac arrest, follow the ALS guidelines - Adult advanced life support Guidelines | Resuscitation Council UK or the algorithm at Adult Advanced Life Support Algorithm 2021.pdf (resus.org.uk)**
- **For quick access, there is an app available for your phone or you can scan the Q Code below**
- **If there are any concerns regarding patient management these should be escalated promptly to a senior clinician to allow timely decision making about appropriate care.**
- **Where there is clinical concern regarding treatment option an escalation protocol should be followed, with prompt escalation to senior medical staff to avoid any delays.**
- **ABCDE Assessment is useful for all medical emergencies and more information can be accessed at The ABCDE Approach | Resuscitation Council UK**

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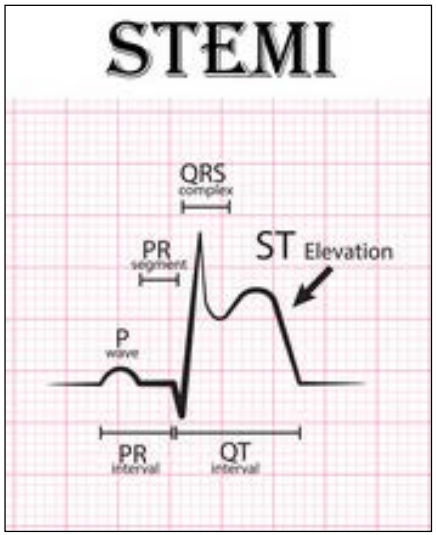
# Reporting of Troponins for Patients Presenting to ED with Chest Pain

## Summary of Event:

**A patient attended the Emergency department (ED) with chest pain and shortness of breath. On examination there was nothing significant found. The chest x-ray and the ECG were unremarkable.**

A diagnosis was made of Pleurisy and this patient was discharged prior to blood results returning and no results documented in the notes. After the patient was discharged the doctor was notified of a Troponin of 23 with no baseline Troponin on the patients record. The doctor however declined to recall the patient to repeat a second Troponin.

The following day the patient attended a different ED and was found to have an anterior ST elevation myocardial infarction (STEMI) which was complicated by Ventricular Fibrillation and required one shock. The Patient underwent primary Percutaneous Coronary Intervention (pPCI). A repeat Troponin was 936.




## KEY LEARNING

**Patients should not be discharged until Troponin blood results are satisfactorily reported on.**

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# Delay in Diagnosis causes Harm

**Three serious adverse incidents related to delays in diagnosis leading to harm were reported recently:**

In the first case a patient was identified as high risk for breast cancer and a bilateral prophylactic mastectomy was planned. However, as this service was not available in their own Trust they were added to a waiting list in another Trust. This patient spent 3 years on this waiting list, the acceptable timeframe is under 13 weeks. At the time of this referral the waiting list consisted of 18 people with 10 patients waiting over 52 weeks.

Annual Magnetic resonance imaging (MRI) were performed and had been normal up to the 3rd screening MRI, where breast cancer was detected. Due to the delay for this prophylactic treatment the patient developed breast cancer that was unsuitable for surgical intervention.

A second patient had repeated attendances at A&E due to flare ups of Ulcerative Colitis (UC). This patient had regular endoscopies. During one admission a CT scan was reported with a differential of potential malignancy in keeping with UC changes. On a repeat scan, perforation was identified as well as tumours and the patient underwent emergency surgery. Further examination showed late-stage cancer with metastasises. There were 2 missed opportunities over the period of 2 years, to review earlier endoscopy samples however it would appear that the results were not reviewed by the medical staff at the time. There was also an opportunity for a Multidisciplinary Meeting (MDM) where there could have been a discussion regarding this patient's management as well as review of previous biopsies. Had the surveillance endoscopy results been reviewed when they had been completed, this may have indicated the need for discussion at a multi-disciplinary meeting and may have allowed for earlier identification of this malignancy, as well as providing an opportunity for earlier intervention.

A third patient was attending regular appointments to the oral medicine service, due to a pathology which had a high risk of becoming malignant. As per consultant request review appointments were to be scheduled for every 6 months. However the patient was not offered any appointment until 9 months. For personal reasons the patient was unable to attend and there were further delays with the next appointment which given was 4 months after this. At this review a lesion was noted and on biopsy was confirmed as oral squamous cell carcinoma. The delay of 13 months may have had an impact on treatment or outcome however this is unknown.

## KEY LEARNING

- **Screening protocols for patients who have high risk malignancy must include comprehensive risk assessment to ensure 1st appointments and review appointments are allocated within the accepted timescales.**
- **Urgent review appointments should be prioritised with waiting list structures amended to allow easy identification.**
- **Where there are long/unacceptable delays in patients waiting for treatment – Trusts should escalate to the commissioner to determine if regional intervention is required to expedite surgical interventions.**
- **Ensure MDM have a co-ordinator and that they are able to monitor appropriate frequency of surveillance of patients.**
- **BSG guidelines can be viewed at Clinical Resources | The British Society of Gastroenterology (bsg.org.uk)**
- **Ensure patients can access a point of contact within MDT if concerned.**
- **Protocols for appointment allocations should be agreed and communicated with all members of the team.**

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# Importance of Communication, Escalation and Documentation.

A patient was admitted with vomiting and diarrhoea. They had a complex history including addiction to analgesia and malnutrition. During this admission they were under the care of 3 medical consultants. Initially the patient improved clinically; however abnormal imaging results plus worsening blood results led to an emergency CT Abdomen and Pelvis (CTAP) to be completed out of hours. The consultant who arranged the CT verbally handed over concerns to the weekend consultant on call. The report was reviewed **the next day** which showed a potential surgical issue, however upon surgical consultant review no action was required at this time.

That evening the patient deteriorated with significant hypoxia, tachypnoea, tachycardia and hypotension. The National Early Warning Score (NEWs) increased **from 4 to 9** and was reviewed by Foundation Year 1 (FY1) doctor and Foundation Year 2 (FY2)doctor with the Hospital at night team (H@N) within the recommended time frame and appropriate management was commenced, as well as discussion with on-call medical consultant who ordered additional treatment. A FY2 later reviewed the patient as the NEWs continued to **remain high at 8** however; this review time was not documented.

Both on-call consultant and FY2 felt admission to Intensive Care (ICU) was required. There was a delay in anaesthetic review due to capacity and communication issues. Once the anaesthetist had reviewed the patient, they were accepted and a bed was created however there was a **delay almost 2 hours** in transferring the patient to ICU with no further treatment given to the patient within this timeframe. Two hours and 45 minutes following ICU admission the patients condition continued to deteriorate and after discussion with family it was agreed to withdraw active intervention and the patient passed away quickly.

There were several issues identified within this event**. Medical record keeping standards were not met on several occasions,** there were **no handovers documented** between the consultants as well as correction and recorded amounts in the notes.

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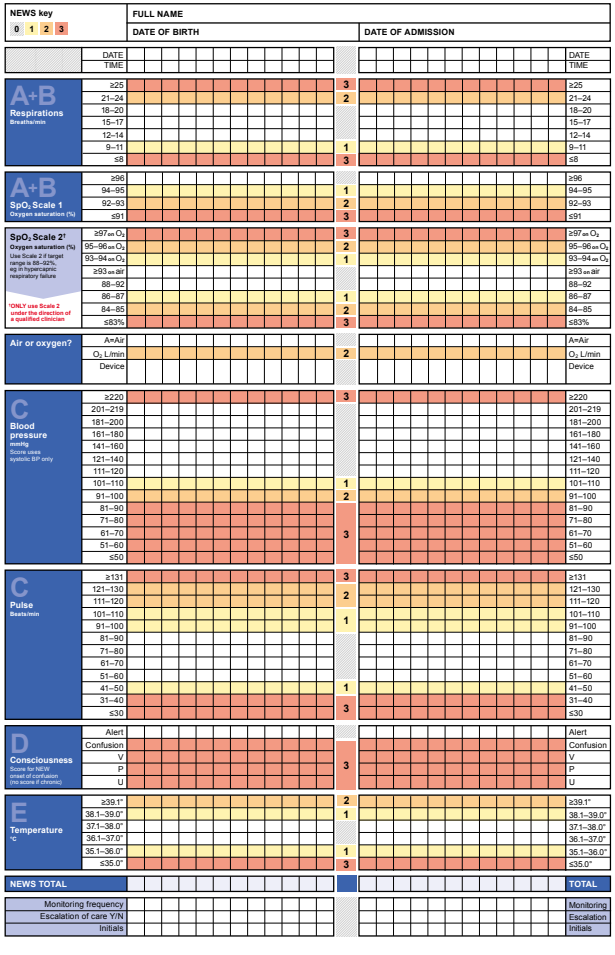
**Daily weights were not carried out** despite being a medical action on the careplan. Although the FY1 management was appropriate any patient that scores a NEWs of 9 should have been seen by the **most senior doctor available**, recommended to be of registrar level or above. The FY2 examination was also appropriate and care was discussed with an on-call consultant, however there was **a delay in escalation** to a more senior doctor at the initial review, this may have led to the patient being transferred to ICU earlier. **Communication was poor** between medical and anaesthetics staff, which led to a delay in transfer of care and may have caused harm to the patient. There was also poor communication between the medical staff and the family.




## KEY LEARNING

- **Throughout all Trusts there should be consistency across sites relating to the escalation policy for patients with a critical NEWS score of 7 or above (Critical levels as per RCP NEWS 2 2017) and these should be reviewed by an appropriately experienced clinician at tier 2 (registrar equivalent).**
- **Everyone should be aware of the NEWs scoring system and escalation plans – if in doubt discuss with a senior professional.**
- **Trusts need to ensure Foundation doctors have appropriate levels of supervision on night and weekend shifts**
- **When care is transferred from one consultant to another, this should be accompanied by a formal handover, and should be formally documented as per Royal College of Physicians (RCP) standard of record keeping guidelines - Generic medical record keeping standards (RCP London)**
- **Ensure action plans in review notes are followed up at least daily**
- **Ensure that when documenting in medical notes that the standards are adhered to, Trusts should consider completing regular audits of medical records to ensure a good standard is adhered to.**

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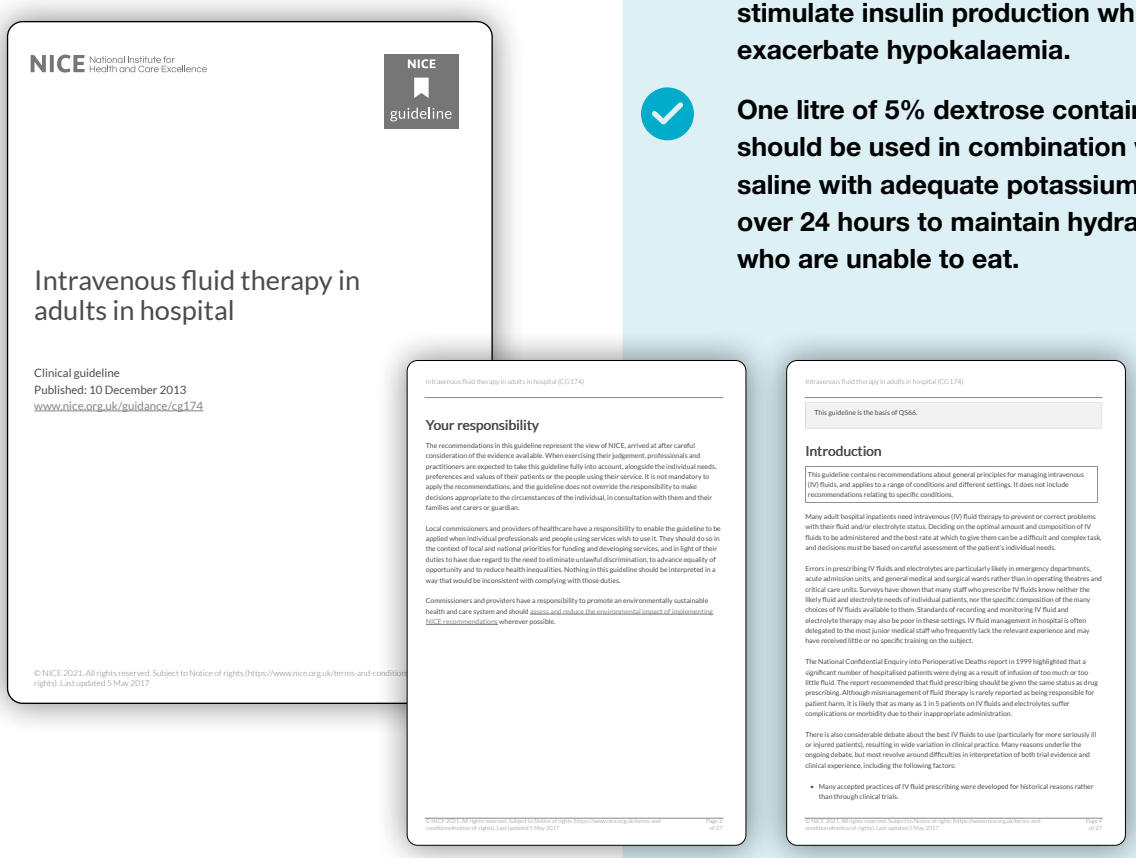
# Starvation Ketosis

**Several cases of starvation ketosis have recently been reported as adverse incidents. All of these occurred in a hospital setting where the patients were unable to eat for several days due to a medical condition such as dysphagia or bowel obstruction.**

Although they were provided with intravenous maintenance fluids, no carbohydrate source was available to them. Blood gas analysis showed low bicarbonate, normal glucose and high ketones. These abnormal results resolved shortly after initiation of parenteral nutrition.


NICE National Institute for Health and Care Excellence

NICE guideline

Intravenous fluid therapy in adults in hospital

Clinical guideline
Published: 10 December 2013
www.nice.org.uk/guidance/cg174

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Intravenous fluid therapy in adults in hospital (CG174)

Your responsibility

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

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Intravenous fluid therapy in adults in hospital (CG174)

This guideline is the basis of QS66.

Introduction

This guideline contains recommendations about general principles for managing intravenous (IV) fluids, and applies to a range of conditions and different settings. It does not include recommendations relating to specific conditions.

Many adult hospital inpatients need intravenous (IV) fluid therapy to prevent or correct problems with their fluid and/or electrolyte status. Deciding on the optimal amount and composition of IV fluids to be administered and the best rate at which to give them can be a difficult and complex task, and decisions must be based on careful assessment of the patient's individual needs.

Errors in prescribing IV fluids and electrolytes are particularly likely in emergency departments, acute admission units, and general medical and surgical wards rather than in operating theatres and critical care units. Surveys have shown that many staff who prescribe IV fluids know neither the likely fluid and electrolyte needs of individual patients, nor the specific composition of the many choices of IV fluids available to them. Standards of recording and monitoring IV fluid and electrolyte therapy may also be poor in these settings. IV fluid management in hospital is often delegated to the most junior medical staff who frequently lack the relevant experience and may have received little or no specific training on the subject.

The National Confidential Enquiry into Perioperative Deaths report in 1999 highlighted that a significant number of hospitalised patients were dying as a result of infusion of too much or too little fluid. The report recommended that fluid prescribing should be given the same status as drug prescribing. Although mismanagement of fluid therapy is rarely reported as being responsible for patient harm, it is likely that as many as 1 in 5 patients on IV fluids and electrolytes suffer complications or morbidity due to their inappropriate administration.

There is also considerable debate about the best IV fluids to use (particularly for more seriously ill or injured patients), resulting in wide variation in clinical practice. Many reasons underlie the ongoing debate, but most revolve around difficulties in interpretation of both trial evidence and clinical experience, including the following factors:

- Many accepted practices of IV fluid prescribing were developed for historical reasons rather than through clinical trials.

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## KEY LEARNING

- **Early dietetic input is ESSENTIAL to reduce the chances of starvation ketoacidosis and refeeding syndrome.**
- **NICE guideline CG174 advises 50-100g per day of glucose in maintenance fluids to limit starvation ketosis.**
- **Potassium should be replaced first if the patient is hypokalaemic as glucose will stimulate insulin production which could exacerbate hypokalaemia.**
- **One litre of 5% dextrose contains 50g glucose; should be used in combination with 0.9% saline with adequate potassium in both fluids over 24 hours to maintain hydration in patients who are unable to eat.**

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# Refusal of Blood products

**A patient, during the consent process for elective surgery, notified the Doctor that receiving blood was against their religious beliefs. The pathway "Management of Adult Patients who decline specified Blood components or Blood products" should have been activated. This was not activated for this patient resulting in a lack of communication regarding potential consequences.**

A second patient due to undergo elective surgery, declined a blood transfusion, therefore the surgery was cancelled as this was interpreted as a "refusal" of treatment by the Surgeon. The correct procedure should have been that the surgeon discussed alternative options as well as risks, which would have allowed the patient to make an informed decision.

General Medical Council (GMC) guidance clearly states that all patients have the right to make an informed decision if able and to be given the information required to make this decision. Alternative options plus consequences should also be explained to the patient.

The NICE Guidance have guidance on decision making and consent, available to view at:

Ethical guidance

Ethical guidance for doctors

The GMC also provide guidance on alternative options:

Overview | Blood transfusion | Guidance | NICE

There is an overview of the algorithm for the pathway - algorithm-pdf-2178655021 (nice.org.uk)

## KEY LEARNING

- **Ensure awareness of how to access local policies and guidelines**
- **Activate the correct pathway for patients declining blood components/products**
- **To ensure good medical practice the clinical records should be clearly recorded and documented to include; the patient's decision; the information provided to the patient; consequences of their decision and alternative options. This should be completed within the appropriate timeframe depending on the urgency of treatment. By recording the patient refusal this allows the opportunity to reconsider at any stage in care.**
- **Clearly document the information and discussion in medical records as per policy**
- **Consider adding this topic into induction and ongoing training**
- **If there are doubts regarding mental capacity this must be clearly document and referred to the Trust Mental Capacity Act team**
- **Consider having the pathway summary easily accessible on the surgical units as a poster on the wall.**