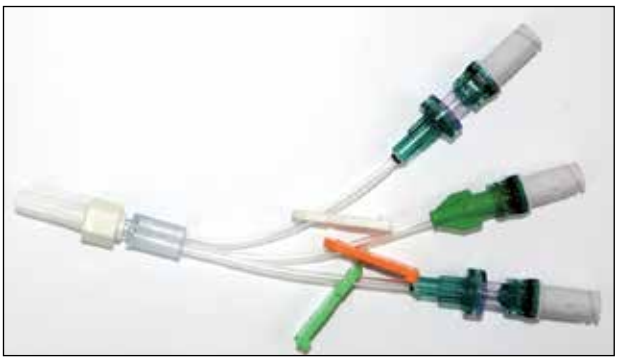
LM Learning Matters

Issue 5: April 2016

Residual Anaesthetic Drugs

Two Serious Adverse Incidents (SAIs) occurred in recent months due to unintended intravenous administration of residual anaesthetic drugs (opiates and/or muscle relaxants) via multiple lumen extension sets (sometimes called "octopus extensions").



This occurred because residual drug which had been previously administered via a limb of an octopus extension with no infusion running, remained in the dead space of the extension set. Later this was flushed inadvertently into the patient when the limb was used to give intravenous fluids or another drug.

Both patients suffered severe distress and compromise to their airway and breathing - resulting in a peri-arrest situation.

On 24 July 2014, a Patient Safety Alert from NHS England (NHS/PSA/W/2014/008) highlighting this risk was issued to Trusts, RQIA and NIMDTA for dissemination to relevant staff.

Key Learning

The World Health Organisation checklist sign out should include actions which ensure flushing of any multiple lumen extension sets ("octopus extensions") occur before the patient leaves the operating theatre. If such extensions are not absolutely necessary for post-operative care, they should be removed before the patient leaves the theatre recovery ward.

Introduction

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

Contents **Page**

Consider the diagnosis of HIV

In 2014, there were 94 new cases of Human Immunodeficiency Virus (HIV) diagnosed in Northern Ireland. Whilst the number of new diagnoses is much lower than other parts of the UK, in the last ten years Northern Ireland has seen a 47% increase in new cases, whereas the UK overall has had a fall of 20%.

Key Learning

- Consider a diagnosis of HIV if the patient may have been at risk.
- Consider a diagnosis of HIV if the patient has an indicator condition.
- Contact with sexually transmitted infections increases the risk of contracting HIV.

43 (51%) of the new HIV diagnoses were made at a late stage (CD4 count <350 cells/mm3). Often people with HIV infection present to clinical services but remain undiagnosed because they are not offered an HIV test, including those presenting with indicator conditions which should prompt testing. This requires improvement because:

- Late diagnosis of HIV can have a major physical impact on the individual.
- Mortality within a year of HIV diagnosis is ten times higher for late diagnosed individuals.
- Individuals who present late show a reduced response to HIV treatment.
- Late diagnosis represents a missed opportunity to initiate treatment which prevents onward transmission of HIV.
- Costs of care are significantly higher for individuals diagnosed late.

Many people who are living with HIV have no obvious signs and symptoms. Someone who has any clinical indicators as listed in the UK National Guidelines for HIV Testing (2008) as per link below, should be offered a test.

www.bhiva.org/documents/Guidelines/Testing/GlinesHIVTest08_Tables1-2.pdf

Laboratory testing can provide a reliable result four weeks after exposure to HIV. Post exposure prophylaxis following sexual exposure, available from Genito-urinary Medicine (GUM) Clinic Emergency Departments, should be considered 24 hours post risk but may be given up to 3 days (72 hours) post risk.
Further information on GUM services is available from www.sexualhealthni.info

Patients receiving prophylactic enoxaparin

An elderly patient with limited mobility was admitted to hospital with a chest infection. Following venous thromboembolism risk assessment, prophylactic enoxaparin was started.

One week after admission, the patient experienced a sudden decrease in oxygen saturation and an increase in shortness of breath without other symptoms. Clinical assessment was performed and showed harsh breath sounds throughout and bronchial breathing, with no other specific findings. Chest X-Ray and ECG (electrocardiogram) showed no new changes and Troponin was normal. Antibiotic therapy was escalated and oxygen titrated to maintain oxygen saturation.

The following morning, on review by a more senior clinician, the possibility of pulmonary embolism (PE) was considered and the patient was switched to therapeutic enoxaparin. This diagnosis of PE was subsequently confirmed.

Two days later, the patient became suddenly unresponsive and died, and the cause of death was given as pulmonary embolism.

Key Learning

Patients receiving prophylactic enoxaparin may still develop venous thromboembolism, and it is important to consider this as part of the differential diagnosis in any relevant setting.

Magnetic Resonance Imaging (MRI) Referrals

A Serious Adverse Incident (SAI) occurred in which a patient with an implanted cardiac pacemaker inadvertently underwent an MRI examination. Fortunately, no harm to the patient was caused by this incident but it highlights the need for all medical staff to be aware of the serious safety concerns when patients are referred for MRI. The majority of deaths in MRI have involved patients with pacemakers.

MRI uses a combination of an extremely strong static magnetic field, time-varying gradient magnetic fields that are turned on and off very rapidly, and pulses of radio-frequency energy to produce images of the patient.

This extreme electromagnetic environment in which the patient is immersed is considered safe and does not involve ionising radiation, such as x-rays or nuclear medicine. However, implants within the patient may be affected by MRI, which can cause injury or death by a number of mechanisms:

- **Device malfunction**
  Implanted medical devices can malfunction, such as inhibition of pacemaker output or the induction of ventricular fibrillation, reprogramming of implantable drug infusion pumps or programmable hydrocephalus shunts, inappropriate application of electrical pulses of neurostimulators, etc.

- **Thermal trauma**
  Implanted medical devices can rapidly increase in temperature which can cause severe thermal injury to surrounding tissue. For example, lead tip heating of deep brain stimulation systems can burn surrounding tissue. Leads are a particular concern in MRI, whether connected to a device or not.

- **Ferromagnetic interaction**
  Some implants are made of ferromagnetic materials and can move or align with the main static magnetic field when the patient is brought into the MRI scanner room. For example, a ferromagnetic intracranial aneurysm clip moving within a patient can be fatal. Some implants also contain magnets as part of their operation, such as cochlear implants and tissue expanders. Metallic foreign bodies, such as shrapnel and piercings are also a concern.

Key Learning

When a patient is referred for MRI, all implanted medical devices should be stated, including the make and model of these devices. If there is uncertainty about a patient's suitability, the MRI department should be contacted for further advice.

Further information is available in the MHRA Safety Guidelines for MRI (https://www.gov.uk/government/publications/safety-guidelines-for-magnetic-resonance-imaging-equipment-in-clinical-use)

Prescription of IV Fluids

There have been a number of incidents where intravenous medicines have been prescribed and recorded both in the clinical notes and on the Daily Fluid Balance Chart (Figure 1) but not documented on the Medicine Kardex (Figure 2).

This has resulted in delays for these patients receiving their appropriate medications and has the potential to result in serious harm.

Figure 1

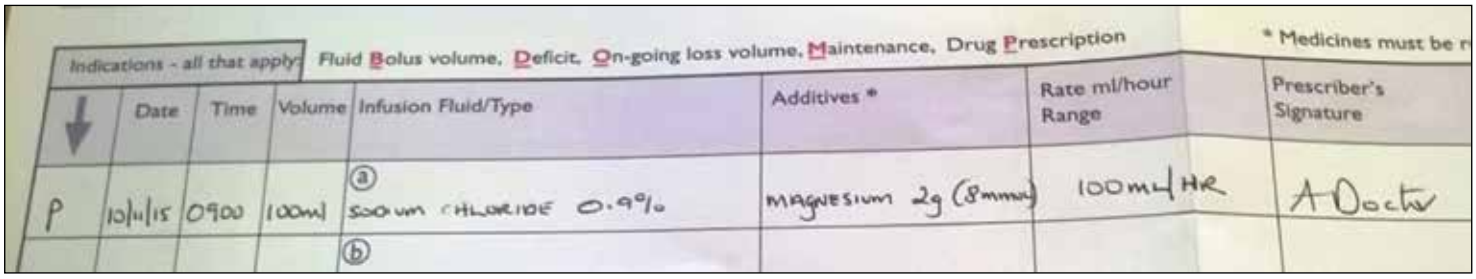
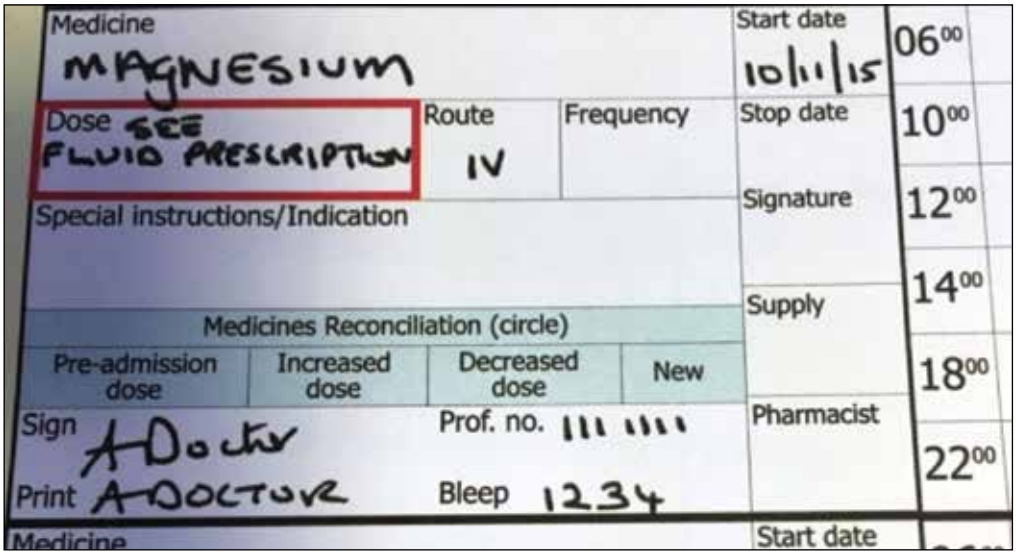


Figure 2



Further information on 'How to prescribe intravenous medicine infusions ' is available at: http://www.medicinesgovernance.hscni.net/secondary-care/safety-documents/safety-toolkits/regional-kardex-templates/

Key Learning

All medicines must be prescribed on the Medicines Kardex. Where intravenous infusions containing medicines are prescribed on the Daily Fluid Balance Chart they must be referenced in the injectable section of the Medicines Kardex with the instruction 'see fluid balance chart'.

See example above with IV Magnesium. The dose and frequency are not documented on the Kardex but must be included on the Daily Fluid Balance Chart.

National Patient Safety Alerts

Patient Safety Alerts (PSAs) are used to rapidly alert the healthcare system to risks and provide guidance on preventing potential incidents that may lead to harm or death. From August 2015 there have been 7 PSAs issued by NHS England which are outlined below.

Further information on PSA is available at: http://www.england.nhs.uk/ourwork/patientsafety/psa/

NHS England Ref No	Title of Alert	Stage	Link to NPSA on NHS England Website	DHSSPS Issued
NHS/PSA/W/2016/001	Risk of severe harm or death when desmopressin is omitted or delayed in patients with cranial diabetes insipidus	1	https://www.england.nhs.uk/patientsafety/wp-content/uploads/sites/32/2016/02/psa-desmopressin-080216.pdf	15/02/2016
NHS/PSA/W/2015/012	Risk of using different airway humidification devices simultaneously	1	https://www.england.nhs.uk/patientsafety/wp-content/uploads/sites/32/2015/12/psa-humidification-devices.pdf	18/12/2015
NHS/PSA/W/2015/011	The importance of vital signs during and after restrictive interventions/manual restraint	1	https://www.england.nhs. uk/wp-content/uploads/2015/12/psa-vital-signs-restrictive-interventions-031115.pdf	16/12/2015
NHS/PSA/W/2015/010	Risk of death and serious harm by falling from hoists	1	https://www.england.nhs.uk/patientsafety/wp-content/uploads/sites/32/2015/10/psa-falling-from-hoists-1015.pdf	27/11/2015
NHS/PSA/Re/2015/009	Support to minimise the risk of distress and death from inappropriate doses of naloxone	2	https://www.england.nhs.uk/patientsafety/wp-content/uploads/sites/32/2015/10/psa-naloxone-stage2.pdf	17/11/2015
NHS/PSA/RE/2015/008	Supporting the introduction of the National Safety Standards for Invasive Procedures	2	https://www.england.nhs.uk/patientsafety/wp-content/uploads/sites/32/2015/09/psa-natssips.pdf	18/12/2015
NHS/PSA/Re/2015/007	Addressing antimicrobial resistance through implementation of an antimicrobial stewardship programme	2	https://www.england.nhs.uk/patientsafety/wp-content/uploads/sites/32/2015/08/psa-amrstewardship-prog.pdf	25/01/2016

Reminder of Best Practice Guidance (SQR) Letters

Reference	Title	Date of Issue
SQR/SAI/2015/013 (AS & MCH)	Alcohol Based Skin Preparation Solutions and the risk of fire in operating theatres	15 September 2015
SQR/SAI/2015/014 (AS)	Identifying an Acutely Unwell Child on Arrival at an Emergency Department	21 September 2015
SQR/SAI/2015/015 (OPS/MH/LD/AS)	Management and advice for patients/clients with swallow/dysphagia problems	1 October 2015
SQR/SAI/2015/016 (AS)	Management of Patients who are on combined anticoagulant and/or antiplatelet therapy, pre and post a procedure/surgery	14 October 2015
SQR/SAI/2016/017 (AS & PHC)	Safe use of oral bowel-cleansing agents	8 January 2016
SQR/SAI/2016/018 (PHC & AS) *Not related to an SAI*	Reminder of risks associated with long term oral bisphosphonate therapy	12 January 2016
SQR/SAI/2016/019 (AS & MCH)	Residual Anaesthetic Drugs in Cannulae and Intravenous Lines	19 January 2016

Contact us

HSC Health and Social Care

If you have any comments or questions on the articles in the newsletter please get in contact by email at learningmatters@hscni.net or by telephone on **0300 555 0114 ext: 3446**

Learning Matters is available on:
www.publichealth.hscni.net/publications
www.hscboard.hscni.net/publications/index.html