

LRI Children's Hospital

(Children's Hospital Parenteral Nutrition Part 4 of 4) **Parenteral Nutrition Administration UHL Children's Hospital Guideline**

Staff relevant to:	Health Professionals who administer PN to Children and Young People at UHL and applies to children and young people cared for in the Children's Hospital
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1. Introduction and who Guideline applies to

The aim of this guideline is to provide a step-by-step procedure for the Administration of Parenteral Nutrition (PN) (*Aqueous & Lipid*) with the aim to provide safe and effective care and prevent micro-organism contamination of the line.

This guideline applies to all Health Professionals who administer PN to Infants, Children and Young People cared for in UHL Childrens Hospital, including those aged 16-25 on Ward 27 (Teenage, Young Adult Cancer Unit) or in EMCHC. Young adults aged 16-18 years who are being cared for on all other UHL wards requiring PN should be referred to the Leicester Intestinal Failure team (LIFT)

Related documents:

For administration of PN in;

- **Adults - Parenteral Nutrition via a Central Venous Catheter UHL Policy B22/2015**
- **Neonates - Parenteral Nutrition UHL Neonatal Guideline C28/2018**

This guideline is in 4 sections:

1) UHL Parenteral Nutrition - Initiation UHL Childrens Hospital Guideline C42/2018

- | | |
|-----------------------------|---------------------------------------|
| a. Indication | Will TPN be beneficial? |
| b. Vascular Access | Is a central line present or planned? |
| c. Nutritional requirements | Is there enough volume available? |

2) UHL Parenteral Nutrition - Monitoring and Weaning UHL Childrens Hospital Guideline C43/2018

- | | |
|--------------------|---------------------------------|
| a. Monitoring | Are these assessments feasible? |
| b. Troubleshooting | What can go wrong? |

3) UHL Parenteral Nutrition – Supporting Information UHL Childrens Hospital Guideline C44/2018

- | |
|---|
| a. Appendices of forms and basis for advice |
|---|

4) This document - Parenteral Nutrition – Administration by Nurses UHL Childrens Hospital Guideline C45/2018

2. Procedure for Administering Parenteral Nutrition in Babies, Children and Young People

Parenteral nutrition is nutrition that is delivered to the circulation without using the gut. It is complex and expensive. A multidisciplinary approach to the management of these patients is needed to optimise therapy and reduce complications. Close liaison between the patient's clinical team and the ward Dietitian or Paediatric Gastroenterologist on service is vital to achieve optimum care.

Parenteral Nutrition is the intra-venous administration of a solution containing amino acids, glucose, fat, electrolytes, trace elements and vitamins, as treatment for acute or chronic

intestinal failure. 'Intestinal failure occurs when the gastro intestinal (GI) tract is unable to ingest, digest and absorb sufficient macronutrients and/or water and electrolytes to maintain health and growth. Children differ from adults in that their food intake must provide sufficient nutrients not only for the maintenance of body tissues but also for growth' (Koletzko et al, 2005)

'If the gut works - use it'

Enteral feeding should always be the first route of choice as it is safer in terms of mechanical, septic and metabolic complications (Reilly 1998). Parenteral feeding is considered when a child cannot tolerate or absorb adequate nutrition orally or enterally.

PN should be administered if it is anticipated that significant improvement in gastrointestinal function, will not occur within 7 days.

PN is used therapeutically for conditions in Neonates such as:

- Intestinal failure,
- short bowel,
- functional immaturity,
- surgical GI conditions,
- suspected confirmed necrotising enterocolitis,
- congenital abnormalities

PN is used therapeutically for conditions in Older Infants, Children & Young People:

- Short bowel syndrome,
- protracted diarrhoea,
- Crohns disease,
- post-operative abdominal surgery,
- bowel fistulae,
- Cardio thoracic surgery,
- radiation/cytotoxic therapy,
- acute renal/liver failure,
- extensive burns/severe trauma (*not an exhaustive list*)

The treatment may be Total Parenteral Nutrition (TPN) or Partial Parenteral Nutrition (PPN) and used when it proves impossible to provide adequate nutrition by the gastro-intestinal route. All PN must be administered using a non-touch aseptic technique via a central line, long line or peripherally inserted central catheter (PICC). Parenteral Nutrition cannot be administered via a peripheral cannula. All paediatric patients (including neonates) requiring PN should be referred to the Paediatric Parenteral Nutrition team.

This procedure should be used in conjunction with the UHL Consent Policy to ensure the child receives safe care and children and families are able to understand the reasons for care to facilitate co-operation and the UHL Administration of Intravenous Medication Policy, UHL Venous Access Policy and Guidelines on Parenteral Nutrition for Children, Infants and Neonates produced by the Children's Hospital Nutrition Team.

2.1 Complications of PN administration:

Refeeding syndrome
Acute sepsis, significant acidosis, liver derangement
Cholestasis
Chylothorax
Hyperglycaemia
Hypertriglyceridemia
Hypoglycaemia
Increased fluid requirements
Line Failure
Line infection
Medication incompatibilities
Metabolic acidosis
Metabolic complications
Failure to thrive whilst on PN
Unavailability of PN

For guidance on all of the above complications please refer to UHL Parenteral Nutrition in Children - [Parenteral Nutrition - Monitoring and Weaning UHL Childrens Hospital Guideline](#)

2.2 Locking Central Lines using Taurolock

- I. When using Central Lines (including *Tunnelled and Non-Tunnelled Central and PICC Lines*) if accessing line within 2 hours lock line with 0.9% sodium chloride, if not accessing for more than 2 hours you must lock the line with 2mls Taurolock.
- II. Instill TauroLock™ slowly (not more than 1 mL per second, infants and children less than two years of age not more than 1 mL per 5 seconds) into the access device in a quantity sufficient to fill the lumen completely. Consult the manufacturer's instructions for the specific fill volume or specify fill volume during implantation. The volume has to be strictly respected. TauroLock™ will remain inside the access device until the next treatment (up to a maximum of 30 days).
- III. Prior to the next treatment, TauroLock™ must be aspirated and discarded in accordance with the institution's waste policy
- IV. If aspiration of TauroLock™ is not needed or not possible, e. g. in parenteral nutrition, slow flushing of TauroLock™ (not more than 1 mL per 3 seconds) prior to the next treatment does not cause any systemic effect due to its active ingredients (not applicable to infants and children less than two years of age due to insufficient clinical experience).
- V. When using Needled Portacaths after each use you must lock with 4ml Heparinised Sodium Chloride 100units/ml. Before removing the needle you must also flush with 10mls Sodium Chloride 0.9% before locking with 4ml Heparinised Sodium Chloride 100units/ml

- VI. When using Longlines after each use you must lock with Heparinised Sodium Chloride 10units/ml unless the line is more prone to blocking for example when using Neonatal Longlines when 2ml Heparinised Sodium Chloride 100units/ml can be considered

2.3 Other Care

- I. It is important to remember with double/triple lumen lines that the lumens are separate and therefore the mixing of medication running concurrently does not occur until they exit the catheter – however there are exceptions such as Blood Products with Amphotericin therefore compatibilities must be checked before any medication is administered via any Central Line.
- II. Due to the risk of incompatibilities no other fluids or medication should be administered through the same lumen as PN. However in exceptional circumstances with some young patients this risk may be considered and a *triple lumen anti-reflux device (squid)* used as part of the administration line but advice **MUST** be taken from a Pharmacist
- III. You must only use syringes of 10mls or greater as smaller size syringes may cause the line to rupture due to excess pressure. The exceptions are where syringes are pre-mixed, giving smaller quantities or when accessing Central Lines in Neonates.
- IV. All relevant light protection measures should be taken e.g. covering hanging bags.

2.4 Equipment

PN Aqueous bag PN

Lipid bag Opaque

over bag

Metal Dressing Trolley

Clinell[®] Wipes – to clean trolley

Alcohol Sanitiser Hand Rub Clean

gloves* x 4 sets & aprons

Chlorhexidine 2% and Alcohol 70% wipes (Large PDI Wipes)

Sterile Non-Absorbent Dressing Towel

A selection of 10ml Luer-Lock Sterile Syringes

Blunt Fill needle with 5 Micron Filter for drawing up flush

Fluid Administration Sets

Sterile Needle-free (Bionector Hub if changing the Hub(s))

Taurolock(Central Lines) Heparinised Sodium Chloride 100units/ml (Longlines/Portacath) and Sodium Chloride 0.9% (or other compatible flush).

PN Double Anti-Reflux 1.2 micron Filter Device

Polo Skin Fixes or mepore tape
 Parafilm
 Yellow and white Aqueous and lipid signs for pumps
 Completed PN Order Form
 PN Prescription Chart

**All clean gloves referred to in this guideline are non-sterile gloves from a dedicated box kept for the sole use of IV and CVL administration.*

2.5 Procedure / Process for Administration of Parenteral Nutrition in Children	
No	Action
1	<p>Approach the child or young person and family in a friendly and open manner</p> <p>Depending on the age and development of the child or young person, explain the procedure to them and their parents or carers and obtain their verbal consent. <i>(You may need to involve a play specialist in the explanation to gain a suitable level of understanding)</i></p> <p>Reassure child and parent throughout procedure</p>
2	<p>Switch off fans and close windows in immediate area.</p> <p>Before starting the procedure you must clean your hands, put on a plastic apron and gloves from a dedicated box – you only need to wash rather than use alcohol hand rub on your hands if you have been in contact with bodily fluids or an infected patient.</p>
3	<p>Clean a trolley with Clinell® Wipes. You do not need to use any additional solutions if you allow the trolley to air dry but if you dry the trolley with paper towels you must also disinfect using 70% Industrial Methylated Spirits – your trolley now provides a clean surface.</p> <p>Remove gloves and apron, clean hands and put on clean apron and gloves.</p>
4	<p>Gathering the equipment you need check the packages are intact, the equipment is in date and you have the correct patient.</p> <p>Following the 'Procedure for the Administration of Infusion via a Central Line in Children and Young People', two registered practitioners, one of whom is paediatric PN and CVL competent must check and administer PN together.</p> <p>Both practitioners must check the child's details both verbally and from their identity band against the prescription chart and PN Chart, if a child is not wearing an identity band then this must be replaced before any medication or flush is given.</p> <p>Place on a clean surface or the bottom of the trolley</p>
5	<p>Take the prepared trolley (if using) to the child's bedside, re-explain the procedure to the child and family and gain consent</p> <p>Put on a clean apron clean hands using the alcohol hand rub and apply clean gloves</p>

6	<p>Hang both Aqueous and Lipid Bags onto a drip stand with light protection covers then roll back the light protection covers to carefully expose the access ports.</p> <p>Swab the access port of PN bag with a Chlorhexidine 2% and Alcohol 70% wipe firstly scrub the top of the port for at least 10-15 seconds and then using an alternative place on the wipe scrub the sides for at least 10-15 seconds wait for the port to dry for at least 30 seconds.</p> <p><i>On occasions: Aqueous and Lipid can be in a combined bag and Lipid infusions can be delivered in a syringe.</i></p>
7	<p>Open non-absorbent dressing towel onto the top of the trolley using the corners only pull open to provide a sterile surface pick-up and open the syringes attach the needles straight onto the syringes tips and loosen sheaths.</p>
8	<p>Arrange syringes in an orderly manner to one side of the towel so syringe tips remain sterile once the needles have been removed. Open other equipment including the administration set (ensure roller clamps are closed) and blue filter ensuring they are placed on the towel protecting key parts.</p>
9	<p>Utilising an aseptic non-touch technique attach the fluid administration sets to the two individual anti-reflux hubs on the PN filter.</p> <p><i>The blue filter is a 1.2 micron filter and is used to filter both the Aqueous and Lipid together. It is part of the device and once filtrated with the solution will be attached directly onto the needlefree hub of the central line/longline.</i></p>
10	<p>Remove the protective cap on the administration set and hold Aqueous PN bag insert the spike end into the entry port of the Aqueous bag pushing firmly to ensure full connection using an aseptic non-touch technique</p> <p>Squeeze the drip chamber until about one third full open clamp slowly and allow fluid to run through the rest of the line (inverting the soft section of line and controlling the speed of priming).</p> <p>Run the Aqueous through the line and through the PN filter</p> <p>Once the PN filter is completely infused with fluid, apply all clamps on that line being careful not to contaminate key parts</p>
11	<p>Repeat step 10 for Lipid infusion</p> <p>If the lipid infusion is in a syringe, using an aseptic non-touch technique pick up fluid administration set, remove protective cap from the female end of the set and screw onto luer-lock syringe. Attach the fluid administration set to the double lumen anti-reflux device. Then prime the line.</p>
12	<p>Ensure the blue filter is completely infused with fluid, being careful not to remove the protective cap and contaminate key parts. Lay the ends of the giving set on the sterile towel ensuring that you do not contaminate the other syringes. Remove gloves and clean hands with alcohol hand rub. Use 0.9% sodium chloride flush to prime the Octopus. Connect the filter to the octopus ensuring ANTT adhered to.</p> <p>The PN filter device and administration sets must be changed every 24 hours</p> <p>If the PN is being weaned the bag, administration set and filter can remain in situ for 48 hours but a record must be made in the case notes.</p>
13	<p>Commencing PN: Both nurses must also independently check the correct flush and dose has been prescribed against the child's weight, after drawing-up flush you must label all syringes</p> <p><i>N.B. Coring occurs when small fragments of rubber shear off when the needle punctures the vial top. Any solutions drawn up through a rubber vial top should be closely observed for signs that the vial top may have cored. Any indication that coring has occurred must be reported to Health & Safety and the cored vial and syringe/needle retained for later collection.</i></p>

14	<p>Thread the fluid administration sets through the infusion device(s) checking the direction of the arrows. ALL fluids MUST have the giving set attached to the pump BEFORE attaching to the patient</p> <p>Aqueous must be placed in the pump above the lipids and both pumps must be clearly labelled, use a yellow Aqueous sign for the top pump and a white lipid sign for the bottom pump.</p> <p>The total amount to be infused and rate is labelled on both individual bags/syringe and should also be checked against the PN prescription chart. Label administration set.</p>
15	<p>If the child already has PN running, clamp the line and stop the current infusion.</p> <p>Disconnect the PN filter and administration set from the needlefree hub directly from the central line/long-line. Discard with the old PN bag(s) to the bottom of the trolley or into another tray.</p> <p>Set the fluid rate and the volume to be infused rate on the infusion device (this must be checked independently by the two practitioners).</p> <p>New pumps which are side by side. Aqueous right, Lipid left</p>
16	<p>At this stage the independent checker must sign the chart ensuring that they clean their hands before leaving the bed space, they do not have to wait until the PN or flush have been fully administered.</p>
17	<p>Clean hands and take the central line from the protective tapes or dressing uncovering the majority of the line so you are able to easily access the needlefree hub.</p> <p>If an intravenous infusion is in progress on another lumen, check for medication incompatibilities and consider stopping the infusion temporarily.</p>
18	<p>Clean your hands before applying clean gloves from the trolley</p> <p>Hold the end of the line firmly and using a Chlorhexidine 2% and Alcohol 70% wipe firstly scrub the top of the hub for at least 10-15 seconds and then using an alternative place on the wipe scrub the sides for at least 10-15 seconds wait for the hub to dry for at least 30 seconds. To prevent contamination of the hub you must continue to hold the end of the line firmly.</p> <p>You must remove the wipe and place back onto the sterile field ensuring you do not contaminate the key parts of the other equipment.</p>
19	<p>If Commencing PN:</p> <p>Connect 10 ml luer-lock syringe containing the flush to the end of the needlefree hub, undo the clamp and pull back gently to check for a flashback (<i>longlines will not bleed back</i>), administer a small amount of the flush into the line checking for signs of leakage, pain or swelling around the wound site and line damage, ballooning or rupture.</p>
20	<p>If Continuing PN:</p> <p>You do not need to flush if you just changing over the PN that is already in progress & using the same lumen</p> <p><i>In some children on long term PN it is advisable to take the PN bloods at this time to avoid breaching the line & increasing risk of infection.</i></p>
21	<p>Without touching any key parts connect the male luer end of the blue double PN anti-reflux device directly onto the needlefree hub attached directly onto the end of the central line and secure.</p> <p><i>(The PN filter must be nearest to the patient)</i></p>

22	Secure the weight of the PN anti-reflux device and fluid administration sets looping the line with a skin fix (polo shaped tape), to the child in additional places to support the weight. Cover all key parts with parafilm. Only use polo if required.
23	In order to administer the fluid/infusion at the prescribed rate, undo the clamps on the administration sets and press the start button on the infusion devices continuing to check for signs of leakage, extravasation and/ or pain.
24	Remove the apron and gloves, ensure the child is comfortable and then the primary practitioner must document on the prescription sheet that the Sodium Chloride 0.9% Flush and PN have been commenced Clean hands before leaving the bedside.
25	Dispose of all sharps, syringes into a sharps container and other equipment into an orange bag and decontaminate the trolley before putting it away.
26	Document procedure in child's notes.
27	DO NOT infuse other solutions or drugs into the same line as the PN. Additions must not be made to the bag at ward level, discuss any concerns directly with the pharmacist.
28	Monitoring the child with short-term PN requires (<i>the decision not to undertake any monitoring patient must be done with Paediatric Consultant & Pharmacy</i>) <ul style="list-style-type: none"> Daily bloods before 07.00am (Request "PN Bloods" + Glucose for Biochemistry) As the PN line must not be breached during infusion, bloods must be taken from another CVL lumen or peripherally. For children on long-term PN the bloods can be taken from the line the previous evening before connecting the new PN infusion. This should be checked with Paediatric Pharmacist Twice weekly weight, in long term PN please refer to individual care plan (Refer to PN nursing checklist)
29	PN should never be stopped abruptly, unless for medical reasons e.g. line infection, line related sepsis, thrombotic obstruction, damage or misplacement of line.
30	Should the PN be unavailable check with the on-call pharmacist <ul style="list-style-type: none"> The order has been sent Other areas have received it by mistake?
31	Should the PN become damaged in transit or otherwise unsuitable for use out of hours, then: <ul style="list-style-type: none"> Replace with 10% glucose Monitor Blood glucose 1 hour after, then 2 hourly for the 6-8 hours thereafter If stable then monitoring can stop Contact the pharmacist at next best available time

3. Education and Training

Any staff (including agency staff) who have not undertaken specific medication administration training and competence assessment, must receive local training before being involved in the administration of central line medication to patients under 16 years of age. (LMC 5th edition)

All staff who undertake administration of PN must:

- a) Have been assessed as competent to administer medications to children via a central venous access device. This is achieved by attending a children's IV study day and completing the 'Administration of Central Intravenous Medications to Infants and Children' competency assessment.
- b) Have attended a Children's Central Line/PN theory study day or equivalent local training and completed the 'Administering Parenteral Nutrition to Infants and Children' competency assessment
- c) Competency for blood sampling from a central line can be achieved by attending Children's Central Line/PN theory study day or equivalent local training and completing 'blood sampling via central venous access device' competency assessment

Staff who are new to the Trust who have been trained and assessed elsewhere:

- a) Provide evidence accepted by their Line Manager of the training and assessment of competence. If the member of staff is unable to provide suitable evidence they may be required to undertake UHL training. This must be discussed with the Line Manager and Children's Education Team
- b) Staff member must read relevant Trust policies and undertake additional local training relating to equipment and documentation as required
- c) Undertake a one off LCAT assessment of competency within own ward/department

Pharmacy Staff - Successful completion of Assessment of Competency in ordering Neonatal and Paediatric PN

4. Monitoring Compliance

What will be measured to monitor compliance	How will compliance be monitored	Monitoring Lead	Frequency	Reporting arrangements
Monitoring of Central Line Infection on all Children on PN 100%	Line infections highlighted by UHL reporting system	Medical & Pharmacy Teams	Monthly/Quarterly	Local Quality & Safety Board
Procedure used by all staff administering PN to children (under 16yrs)	Peer review by LCAT assessment	Ward Sisters	Monthly/Quarterly	Senior Nurses Board

5. Supporting References

Agostoni et al 2010 Enteral Nutrient Supply for Preterm Infants: Commentary from the European Society of Paediatric Gastroenterology, Hepatology and Nutrition Committee on Nutrition. *Journal of Paediatric Gastroenterology and Nutrition (JPGN)* **50(1)**: 85-91.

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UHL Policy for Consent to Examination or Treatment Trust Ref: A16/2002

Leicestershire Medicines Code Trust Ref: B60/2011
LNR Cytotoxic Policy Trust Ref: E13/2016

UHL Children's IV Monographs (available via INsite)

UHL Patient ID Band Policy Trust Ref: B43/2007

UHL Infection Prevention & Control Policy Trust Ref: B4/2005

UHL Health and Safety Policy Trust Ref: A17/2002

UHL Control of Substances Hazardous to Health (COSHH) Policy Trust Ref: B10/2002

UHL Personal Protective Equipment Policy (PPE) Trust Ref: B9/2004

UHL Assessment and Administration of Medicines by Nurses and Midwives Policy Trust Ref: B13/2009

UHL IV Policy Preparation and Administration of Intravenous Medications and Fluids to Adults, Babies, Children and Young People Trust Ref: B25/2010

1. Key Words

Parental Nutrition Central Lines, Medication, Infusions, Aseptic Non-Touch Technique, Babies, Children, Young People, Children's Nurses

The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs. As part of its development, this policy and its impact on equality have been reviewed and no detriment was identified.

CONTACT AND REVIEW DETAILS	
Guideline Lead (Name and Title) D Harris – Pharmacist R. Zseli – Children's Gastroenterology Specialist Nurse	Executive Lead Chief Nurse
Details of Changes made during review: Added – Switch off fans and close windows in immediate area. Ensure roller clamp is closed Use 0.9% sodium chloride flush to prime the Octopus New pumps which are side by side. Aqueous right, Lipid left Removed daily urine as part of monitoring	

Appendix 1 – Weekly check list

Weekly check list

Week Commencing:-

Tasks to be completed	Mon	Tue	Wed	Thur	Fri	Sat	Sun
Bung Change.							
Octopus Change.							
Bloods Taken.							
Weight Checked.							
Dressing + Bio Patch Change.							

Appendix 2 – NHS improvement PSA

[https://improvement.nhs.uk/documents/1756/Patient_Safety_Alert - TPN in babies FINAL.pdf](https://improvement.nhs.uk/documents/1756/Patient_Safety_Alert_-_TPN_in_babies_FINAL.pdf)

Classification: Official



Improvement



**Patient
Safety
Alert**

*Risk of severe harm and death
from infusing total parenteral
nutrition too rapidly in babies*

27 September 2017

Alert reference number: NHS/PSA/W/2017/005

Warning Alert

Total parenteral nutrition (TPN, also known as PN) is a method of providing nutrition directly into the bloodstream to those unable to absorb nutrients from the food they eat.

TPN is used in all age groups, but in babies its use is often as part of a temporary planned programme of nutrition to supplement milk feeds in those too immature to suckle or too sick to receive milk feeds as a result of intestinal conditions. TPN consists of both aqueous and lipid components, which are infused separately into the baby via specific administration sets and infusion pumps.

The rate at which TPN is administered to a baby is crucial: if infused too fast there is a risk of fluid overload, potentially leading to coagulopathy, liver damage and impaired pulmonary function as a result of fat overload syndrome. In a recent three and a half year period 10 incidents were identified where infusion of the aqueous and/or lipid component of TPN at the incorrect rate resulted in severe harm to babies through pulmonary collapse, intraventricular haemorrhage or organ damage, and where intensive intervention and treatment were needed. Most of these incidents involved too rapid a rate of infusion. Review of samples of 'low harm' and 'no harm' reports (including 'near misses') in the same period suggested around 700 similar incidents were reported.

Three main types of error were identified:

- The administration set primed with lipid was threaded through the infusion pump intended for the aqueous component and vice versa. Lipids were therefore infused at the rate intended for the aqueous solution and the aqueous solution at the rate for the lipids. A key factor underlying this error appeared to be near identical protective outer covers on the two infusion bags as the contents for both need to be protected from ultraviolet light.

A sample report reads: "Noted at 23.00 that lipid bag was empty. Pump rate had been set the opposite way round so lipids were running at 17.3ml/hour and aqueous at 2.5ml/hour."

- The incorrect infusion rate was entered into the administration pump.
- Miscalculation of volumes when fluid or pump related changes were made.

While a double-checking system at the cot side plays a vital role in reducing the risk of administration error, it cannot be relied upon in isolation. The use of visually distinct light covers, different syringe pumps and administration sets for the two components; use of safety software within administration pumps; training and competency assessments; double checking by pharmacists as part of an additional checking measure whilst on rounds; and regular checks of fluid volumes infused may all have a role in reducing the risk of similar incidents.

Actions

Who: All organisations providing NHS funded-care to neonates and children (especially those under 30 kg) and where TPN is administered.

When: To commence immediately and be completed no later than 8 November 2017.

- 1 Identify if TPN is used in your neonatal and paediatric departments
- 2 Bring this alert to the attention of all those with a leadership role in the prescribing and administration of TPN in neonatal and paediatric settings
- 3 Consider if immediate action is needed to be taken locally, and ensure that an action plan is underway to reduce the risk of harm to babies through TPN administration
- 4 Communicate the key messages in this alert, and your organisation's plan for managing those risks, to all relevant staff

Sharing resources and examples of work

If there are any resources or examples of work developed in relation to this alert you think would be useful to others, please share them with us by emailing patientsafety.enquiries@nhs.net

Patient Safety
improvement.nhs.uk/resources/patient-safety-alerts

See page two for technical notes, stakeholder engagement and advice on who this alert should be directed to.

NHS Improvement (September 2017)

Contact us patientsafety.enquiries@nhs.net

Publication code: IT 08/17

Alert reference number: NHS/PSAW/2017/005

Technical notes

Patient safety incident reporting

The National Reporting and Learning System (NRLS) was searched on 7 August 2017 for incidents reported as occurring between 1 January 2014 and 30 June 2017. NRLS reference number 3942.

Incident category lvl1 equal to medication and key words Vamin, TPN, Lipid, Parenteral nutrition, PN bag, PN feed, PN line.

Filters identifying neonatal incidents were applied and all identified incidents for which the reported degree of harm is moderate, severe or death were reviewed.

Filters identifying babies aged under one year were applied and all incidents where the reported degree of harm is moderate, severe or death were reviewed.

A sample of 150 out of 2,599 incidents from the 'neonatal dataset' where the degree of harm is 'no' or 'low harm' were reviewed. Of the 150 incidents reviewed, 32 were relevant, which suggests around 550 incidents would have been found if we had reviewed the whole sample of 2,599 incidents.

A sample of 150 out of 1,082 incidents from the 'young babies dataset' where the degree of harm is 'no' or 'low harm' were reviewed. Of the 150 incidents reviewed, 22 were relevant, which suggests around 160 incidents would have been found if we had reviewed the whole sample of 1,082 incidents.

The Strategic Executive Information System (StEIS) was searched on 5 September 2017 for Serious Incidents reported between 20 May 2015 and 30 June 2017 and containing the keywords Vamin, TPN, lipid, parenteral nutrition, PN bag, PN feed and PN line.

Stakeholder engagement

- National Patient Safety Response Advisory Panel (for a list of members and organisations represented on the panel, see improvement.nhs.uk/resources/patient-safety-alerts/)

Advice for Central Alerting System officers and risk managers

This alert is relevant to staff working on some paediatric wards and most neonatal units, and wider services that support the delivery of TPN, including pharmacy staff, dietitians and education leads. If you are unsure who to disseminate this alert to, or who will lead on developing the action plan required, the sister/charge nurse of a neonatal unit would be a good contact to signpost the most relevant roles within your organisation.