# LRI Children's Hospital

## Paediatric Outpatient Parenteral Antibiotic Therapy (p-OPAT) Standard Operating Procedure

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|---|---|
| Staff relevant to: | Medical, Nursing, Microbiology working within UHL Hospitals and community settings. |
| Approval date: | August 2024 |
| Revision due: | August 2027 |
| Written by: | M Tweddle, S Bandi, E Birrell, D Minhas |
| Version: | 2 |
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## Contents

## 1. Introduction and who this standard operating procedure applies to

In its most basic form, Paediatric outpatient parental antibiotic therapy simply refers to the administration of IV antimicrobials for at least two consecutive days without an intervening hospitalisation. There is compelling evidence to support the rationale for managing children on IV antimicrobial therapy at home whenever possible, including parent and patient satisfaction, psychological well-being, return to school/employment and reductions in healthcare-associated infection and cost savings.

There are naturally some elements of consideration and limitation which must be poised concerning the utilisation of p-OPAT in an acute setting. To ensure coherence to this, the following criteria must be met before a patient can be considered for p-OPAT:
(i) The patient has currently no further predictable need for hospital-based care apart from the administration of antimicrobial therapy.
(ii) The infection and any associated comorbidity should have a stable or predictable course suitable for non-inpatient management.
(iii) There is no equally safe and effective oral antimicrobial that can be given. This component should be overseen as part of a formal antibiotic stewardship programme.

This SOP outlines the process and management of the UHL Paediatric outpatient antimicrobial therapy (p-OPAT) pathway and patients being treated via this pathway.

This SOP has been developed to provide a framework for consistent and safe management of patients being treated within the p-OPAT pathway.
The SOP must be used in conjunction with the Vascular Access UHL Policy (B13/2010).

## 2. p-OPAT team: Roles and responsibilities

### 2.1 Named p-OPAT clinical leads

i. Overall responsibility for the governance of the p-OPAT service including development of policies and procedures, audit and benchmarking.
ii. Leading the virtual p-OPAT ward round/MDT twice a week to discuss all patients.
iii. Overseeing the individual patient's management plan in terms of the confirming of the diagnosis, evaluating clinical suitability for discharge, deciding on the choice of antimicrobials and choosing the most appropriate device for delivery (in conjunction with clinical pharmacist).
V. Advice on antimicrobials in conjunction with the Consultant Microbiologist.
Vi. Deciding upon the timing of an IV to oral switch if applicable and the total duration of antimicrobial therapy (in conjunction with p-OPAT lead and clinical pharmacist).
Vii. Monitoring for side effects or clinical deterioration (in conjunction with Diana nursing staff and parents/carers). This information is referenced in the 'Your child's home intravenous Antibiotic treatment plan' document.
Viii. Taking overall clinical responsibility for p-OPAT patients.

### 2.2 Nursing Staff involved in discharging children on iv antibiotics

i. Offering clear verbal and written communication of the p-OPAT plan to the child, family and Diana nurses, including the pathway for accessing emergency care in the event of complications.
ii. Ensure all equipment, drugs, charts and paperwork are given to parents.

### 2.3 Clinical Microbiologist

i. Offering advice on choice of antimicrobial, timing of iv to oral switch and total duration of antibiotics (in conjunction with paediatrician managing the child).
ii. Taking part in 1-2 virtual ward rounds.
iii. Laboratory liaison for additional testing and 'advice on additional laboratory monitoring requirements i.e. FBC, CRP, U+Es, CK etc.

### 2.4 Clinical Antimicrobial Pharmacist

i. Providing clinical advice on antimicrobial options in terms of selection, pharmacokinetics, tissue penetration, IV to oral switch, dosing, tolerability, allergies, potential drug interactions and side effects, stability and compounding.
ii. Providing information on iv antibiotic reconstitution and administration.
iii. Providing antimicrobials, devices and other consumables.
IV. Providing information on therapeutic drug monitoring'.

### 2.5 Administration

i. Admitting and discharging patients in and out of the virtual p-OPAT ward.
ii. Responsible for maintaining the p-OPAT database.
iii. Arranging MDT/taking notes on virtual ward round.
iV. Communicating with Diana community nursing team.

### 2.6 Ward team

The patient will be discharged from the ward onto the p-OPAT team by the ward team.
Those CYP needing outpatient follow up will remain under the respective Lead Consultant Paediatrician (not the p-OPAT consultant).

## 3. Evaluation of p-OPAT suitability

Assessing the eligibility of a patient for p-OPAT should be a joint decision between the treating clinician and the p-OPAT clinician.

### 3.1 Clinical

i. Is the patient clinically stable? Any evidence of haemodynamic instability?
ii. Is the infection well defined and is the prognosis predictable?
iii. Is the pathology amenable to p-OPAT management and are the risks of complications from the underlying infection minimal.
iV. Are there any other reasons for inpatient management apart from the administration of iv antimicrobials?
V. Can an oral switch be considered?
Vi. Is there a suitable p-OPAT antibiotic?
Vii. Persisting fever is not an absolute contraindication for discharge but a deep-seated collection requiring drainage must be excluded.

**Inclusion Criteria:**

- Patients who are under the care of a hospital consultant who will provide shared clinical care and responsibility with OPAT.
- First dose given without side-effect (within the hospital environment).
- Patient medically fit for discharge.
- Patient/Carer has telephone access and can communicate if there are any problems.
- Patient has suitable home environment (space for a small fridge and trolley; easily accessible; able to keep pets away from equipment, etc.).

**Exclusion Criteria:**

- Patients who are medically or biochemically unstable.
- Patients requiring urgent investigations or who are at high risk of early readmission.
- Patients who have a moderate to high risk of harm associated with reduced monitoring as a consequence of OPAT.
- Any child under a safeguarding review, or child protection order.

### 3.2 Social

The following conditions are formulated within the p-OPAT ground rules document and signed by the parent/carer of the patient. Diana community nurses will make a secondary assessment of the below conditions during the home visits and if the below conditions are not met the patient may require admittance into a paediatric ward.

i. Is the home arrangement suitable for p-OPAT, working refrigerator (if applicable), any concerns identified by the Diana team need to be escalated to the p-OPAT consultant

ii. Does the family have a telephone?

iii. Do the family have access to transport?

iV. Special consideration should be given to adolescents who are more likely to engage in risk-taking activities.

V. Are there any child protection concerns?

Vi. Has the parent/carer signed consent? (Appendix 3)

### 3.3 Parent/Carer

i. Special consideration should be given to adolescents who are more likely to engage in risk-taking activities.

ii. Demonstrates competence in line care (including administration of antibiotics if applicable) and is aware of potential complications.

## 4. Service Structure

Once daily Antimicrobials, in agreement with p-OPAT and the microbiology teams could be used and will be administered at home by appropriately trained paediatric nurse (Diana nursing team).

## 5. Pathologies suitable for p-OPAT management

**In the current format, almost all CYP under p-OPAT will be on once a day Ceftriaxone. This is likely to change as the service expands and consideration will be given to twice a day antimicrobials.**

### 5.1 Febrile infants (1-3 months)

i. Normal CSF
ii. Haemodynamically stable
iii. Adequate feeding
iV. No other indication to stay in hospital
V. Parents happy for home IVs

### 5.2 Osteomyelitis and Septic Arthritis

Following a discussion with the treating orthopaedic team in conjunction with Microbiologist oversight.

### 5.3 Meningitis

i. Consider p-OPAT if patients are seizure free and apyrexial for > 24 hours.

## 6. Vascular access

It is essential that a secure venous access is in place prior to p-OPAT discharge. Children needing short course of antimicrobials can have a peripheral venous cannula.

Peripherally inserted central catheters (PICC) are ideal for those needing antimicrobials for longer periods (weeks or months). PICC can be inserted either under local or general anaesthetic and have a relatively low incidence of complications.
Patients with CVL access that require removal under anaesthetic will have the removal booked by the COW, until that appointment the patient will stay under OPAT service for weekly Heparin flush until removed.

## 7. Antimicrobial selection, drug delivery and patient monitoring

The choice of antimicrobial agent should depend on the site of infection, microbiological susceptibilities (if known) and should be chosen after discussion with the p-OPAT MDT (p-OPAT consultant, Microbiologist and Pharmacist). The first dose of antibiotic should be given in the hospital to ensure that there is no drug reaction.

### 7.1 Choice of antimicrobial agent

i. The choice of antimicrobial agent will be an informed decision shared between the antimicrobial Pharmacist and Microbiologist at the time the patient is an inpatient. The standardised antimicrobial agent for p-OPAT will be once a day antimicrobials.

### 7.2 Drug delivery

The method of delivery for the antimicrobial agent will be intravenously via cannulation, short PICC line or mid line device (to be removed in hospital).
i. If IV access is not an option then IM can be an option, the following needs to be considered, age of CYP, dosage, mls required, prescription and dispensing of lignocaine, long term effect.

ii. In some rare circumstance there may be a requirement for the use of oral anti-microbial agents, this will be discussed via MDT and decided upon in this clinical setting.
iv. Administration of the prescribed drug will be as recommended in Medusa NHS Injectable Medicines Guide.

### 7.3 Devices

i. Cannula
ii. Infusion pump supplied by the Diana Team.
iii. These devices will be supplied at the time of discharge as part of the patients discharge pack.
iv. Post discharge the devices will be returned back to the ward by the Diana team.

### 7.4 Drug delivery and storage

i. Antimicrobial agents will be dispensed by pharmacy to the respective wards, in cases when satellite pharmacy is unable to dispense.
ii. Upon clinical and parental acceptance of a board onto p-OPAT services the parent/patient will be provided with the appropriate antimicrobial agent to take home.

### 7.5 Patient monitoring

i. Clinical monitoring – Daily community nursing review when visiting to administer IV antibiotics (seven days a week service).
ii. Laboratory monitoring – For children on long term antibiotics may need weekly FBC, CRP etc.; these will be reviewed by the p-OPAT team in weekly MDTs.

## 8. Clinical governance and outcome monitoring

### 8.1 Clinical responsibility

**Patients must be under joint care of Paediatrics and other speciality's for example ENT, Orthopaedics, surgical team. Referrals without Paediatric input will not be accepted.**

i. Clinical responsibility should lie equally between the referring and p-OPAT teams. A lead Consultant should be identified at the time of discharge to p-OPAT team.

### 8.2 Effective communication

i. Effective communication - Weekly virtual rounds/MDT; contact points provided for parents/carers; Out of hours service – how to contact the on-call team.

### 8.3 Documentation

Electronic/paper, patient leaflet, p-OPAT info on InSite.

Re-siting of cannulas should be documented. The IV cannula insertion documentation located in appendix 2 of the Vascular Access UHL Policy must be completed and filed in the patients notes.

### 8.4 Pathway for urgent review and readmission

The Diana Community Nursing team will liaise with the p-OPAT administrator or Virtual ward Team for any child who needs a clinical review during Monday to Friday 09:00 – 17:00. Any issues at night the patient/parent should contact the On-call Paediatric Consultant/Registrar.
CYP needing a cannula change would be done on one of the paediatric wards after discussion with the p-OPAT Administrator during working hours and through the on-call paediatric Registrar outside of working hours inclusive of weekends.
CYP coming to the wards for reviews/cannula re-siting should be classed as ward attenders and ensure antimicrobial is given if arrived late in the afternoon.
**Families would be advised to contact the Paediatric Registrar for any urgent queries between 17:00 – 09:00 hours contactable through Switch board.**

## 9. Referral Pathway

1. COW identifies a patient for p-OPAT and an email is to be sent to pOPAT@uhl-tr.nhs.uk mail box for confirmation of suitability for service, once confirmed by microbiology/pharmacy then can be referred.
2. Diana referral must be made online, emailed and followed up with a phone call.
3. P-OPAT administrator receives the email and updates the p-OPAT database
4. Phone call/message left for Diana Team on 0116 2955080 to ensure referral is actioned in a timely manner.
5. Confirm Diana Service has p-OPAT slot available for referral prior to discharge home, referrals will need to be received by 12:00 noon for acceptance for appointment the next day.
6. Clear management (documented in patient notes on Nerve centre) and follow up plan given after liaising with Pharmacy and Microbiology as appropriate.
7. On-going management: We anticipate that most patients will be on shorter courses of antibiotics (<5 days) and won't need a clinical review before discharge. CYP on long term antibiotics and those who require blood monitoring will have reviews on day care unit.
8. Removal of PICC line, long lines and midlines to be arranged within the hospital by the COW.
9. P-OPAT team (p-OPAT Consultant, Consultant Microbiologist and Pharmacist) would discuss patients under their care on weekly virtual rounds/MDTs. The discussion and plans will be documented on Nerve centre under individual patients.

## 10. Education and Training

None

## 11. Monitoring Compliance

| What will be measured to monitor compliance | How will compliance be monitored | Monitoring Lead | Frequency | Reporting arrangements |
|---|---|---|---|---|
| Clinical outcomes | Audit | p-OPAT lead | Prior to SOP review date | Clinical governance |
| Microbiological outcome | Audit | | Prior to SOP review date | |
| Adverse drug reactions | Datix Review | | As occurs | |
| Adverse line events | Datix Review | | As occurs | |
| Antibiotics used | Audit | | Prior to SOP review date | |
| Patient/carer satisfaction surveys | Audit | | Prior to SOP review date | |

## 12. Supporting documents

Vascular Access UHL Policy

## 13. Keywords

Antibiotics, Children, Diana community nursing team, Intravenous, Young people

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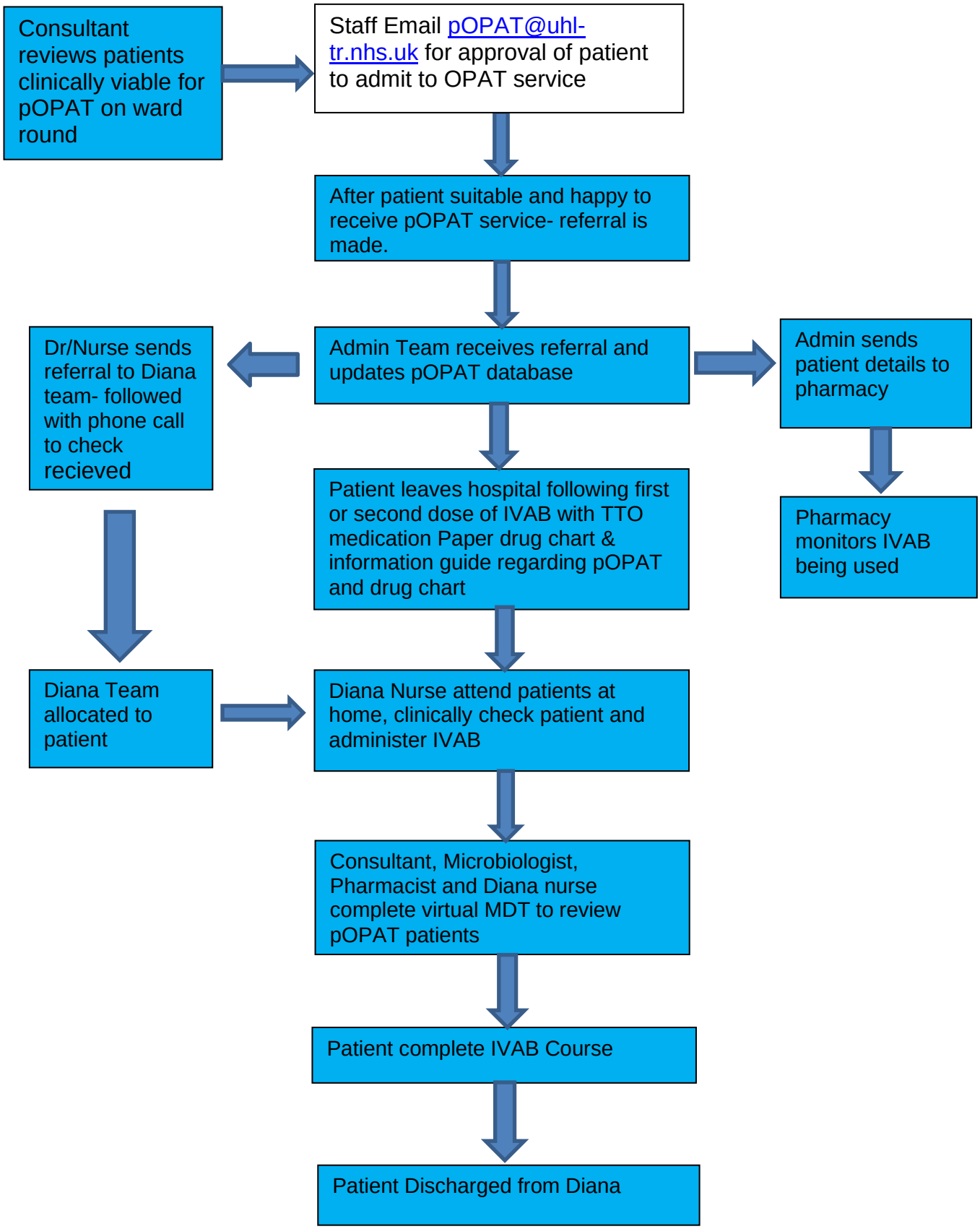
**The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs.**
**As part of its development, this policy and its impact on equality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

| Contact and review details | |
|---|---|
| **Guideline Lead (Name and Title)**<br>S Bandi – Consultant HoS | **Executive Lead**<br>Chief Nurse |
| **Details of Changes made during review:**<br>Section 3.1 – Inclusion/Exclusion criteria added<br>Section 12 – Supporting documents removed<br>p-OPAT ICE referral form removed<br>Appendix 4 Discharge Checklist reviewed and updated<br><br>January 2025 – Minor amendments :<br><br>Section 9 Referral to Pathway – addition of email to be sent to pOPAT@uhl-tr.nhs.uk for confirmation of suitability for service<br><br>Appendix 1 Flow Chart – updated to reflect need for email to be sent to pOPAT@uhl-tr.nhs.uk to admit to OPAT service | |

**Appendix 1 – p-OPAT Pathway flow chart**.



## Appendix 2 – p-OPAT Ground Rules document

Ground rules for the administration of Intravenous Antibiotics at home under the Paediatric OPAT Service (p-OPAT)

Paediatric out-patient Parenteral Antibiotic Therapy (p-OPAT) is an effective way of treating your child's infection in the comfort of their own home. However, it is essential for us to ensure that they receive the same quality of care as they would in hospital, and for that reason, there are certain conditions that must be fulfilled by both the p-OPAT team and the family to ensure that your child is managed safely at home.

The family must have a LLR registered GP and a fixed address where the Diana Children's community nurses can visit each day. Intravenous antibiotics will be given to the family on discharge. All clinical waste will be placed in the sharps bin as appropriate.

The community nurses will schedule a convenient time to visit you each day. If you are not at home when the community nurses visit, your child will be unable to receive their antibiotics, this will therefore be fed back to the p-OPAT team. A decision will then be made whether to readmit your child to hospital for completion of their treatment.

If the community nurse feels at any stage that the home environment is inappropriate or unsafe for treatment to be administered, this will also be fed back to the p-OPAT team and may result in readmission to hospital for completion of treatment.

It is essential that you report any concerns you have about your child's PICC/CVC/cannula to the community nurses or p-OPAT admin member. In addition, if you have any concerns that your child's clinical condition is deteriorating; you must inform the p-OPAT team immediately. Your child will be reviewed weekly at a virtual MDT to ensure continued p-OPAT compatibility.

By signing below, I agree to comply with the terms and conditions above:-

Patient name……

NHS number……DOB……..

Parent / guardian name……..….. Signature……..

OPAT consultant name……...Signature……

## Appendix 3: Discharge Nurse check list

Child/ young person will have been identified on Dr handover/ P-OPAT ward round. Any concerns with suitability of the patient for p-OPAT to be discussed with Dr Bandi or Consultant of the week.

Diana referral has been completed and sent to fypc.referrals@nhs.net and p-OPAT shared mailbox: pOPAT@uhl-tr.nhs.uk ☐

Emeds TTO ordered and a Paper copy Drug chart has been completed, to include:-

Prescribing of Sodium chloride flush and reconstitution water/saline depending on dose ☐

Dose of adrenaline prescribed as a STAT dose on front of child's drug chart☐

Parent/carer education has been completed, to include:

- Red flag and safety netting advice ☐
- How to call for help if child becomes unwell e.g. 999, 111 ☐
- Cannula care advice, including how to dispose of cannula if it becomes dislodged ☐

Paperwork given to parents and signed, to include:

- Ground rules for p-OPAT service ☐
- Your child's home intravenous antibiotic treatment plan ☐
- Contact numbers given for any concerns, including out of hours contact details ☐

Discharging ward nurse must ensure the following is completed to enable the Diana team to administer the intravenous antibiotics safely and effectively:

- Change the bung on the cannula immediately prior to discharge ☐
- Flush cannula to ensure it is patent, observing for any signs of extravasation ☒
- Check the cannula dressing is secure, change if needed ☐
- Securely bandage or tubi-grip the cannula ☐

Give the family a small yellow sharps bin and the administration pack. ☐

Patient name……NHS no……..

Parent/ guardian name……..Signature……

Discharging nurse name……..…… Signature……

**THE SHARPS BIN AND PACK MUST BE RETURNED TO THE DISCHARGING WARD ONCE TREATMENT IS COMPLETED**

## Appendix 4: Dianna Referral Form (on next page)

## Referrer Information

| Referrer Name | Hospital/Ward |
|---|---|
| | |
| **Consultant** | **GP Surgery** |
| | |
| **Telephone Number** | **Fax Number** |
| | |
| **Signed** | **Date** |
| | |

## Patient Information

| Title | Forename(s) | Surname | NHS Number |
|---|---|---|---|
| | | | |
| **Date Of Birth** | **Gender** | **Ethnicity** | **Religion** |
| | | | |

**Address (including postcode)**

| Home Telephone Number | Mobile Telephone Number | Preferred Contact Number |
|---|---|---|
| | | |
| **Parent Names** | **GP** | **Consultant** |
| | | |
| **Languages Spoken** | **Languages Read** | **Is interpreter needed?** |
| | | Yes ☐ No ☐ |

**Please record if the patient has given consent to access information recorded via the SystmOne Electronic Record System.** *(please note referrals cannot be processed without consent obtained)*

Consent given ☐ Dissent given ☐ Consent obtained on patient's behalf ☐

## Referral Information

| Reason for admission\diagnosis | Planned date of discharge |
|---|---|
| | |
| **Date first visit required** | **Allergies** |
| | |

**Reason for referral/frequency of interventions required**

*(please note 10 day supply of all equipment/medication/dressings required to be sent home with family for visit to take place)*

**Additional information of relevance** (special instructions for medication/interventions/diagrams of wound stomas etc)

**Any Safeguarding concerns?**

Yes ☐ No ☐ Not known ☐

*(If yes please specify with details of Social Worker if Known)*

## Once completed please return form to us by:

| **Email:** fypc.referrals@nhs.net | |
|---|---|

*Where possible please complete the form electronically, if completing by hand please use additional sheets if needed. For*

*www.leicspart.nhs.uk/Our Services A - Z/FYPC (Families, young children & children referrals*