

DIAMORPHINE – ADMINISTRATION OF INTRANASAL DIAMORPHINE IN THE EMERGENCY CARE SETTING (CHILDREN & YOUNG PEOPLE) POLICY

POLICY

| | | |
|--|---|--|
| Reference | CPG-TW-PAIN/IND | |
| Approving Body | Emergency Department (ED) Clinical Governance Group | |
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| Sponsor (Position) | Chief Nurse | |
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| Lead Division/ Directorate | <ul style="list-style-type: none"> • Urgent and Emergency Care • Surgery | |
| Lead Specialty/ Service/ Department | <ul style="list-style-type: none"> • Emergency Medicine • Anaesthetics, Critical Care & CSSD/ Anaesthetics – Pain Management | |
| Position of Person able to provide Further Guidance/Information | <ul style="list-style-type: none"> • Denise Grieves – Lead Paediatric Nurse – ED • Clare Burton – Nurse Consultant – Pain Management | |
| Associated Documents/ Information | Date Associated Documents/ Information was reviewed | |
| <i>Not Applicable</i> | <i>Not Applicable</i> | |

CONTENTS

| Item | Title | Page |
|----------------------------|---|-------|
| 1.0 | INTRODUCTION | 3 |
| 2.0 | POLICY STATEMENT | 3 |
| 3.0 | DEFINITIONS/ ABBREVIATIONS | 4 |
| 4.0 | ROLES AND RESPONSIBILITIES | 4 |
| 5.0 | APPROVAL | 4 |
| 6.0 | DOCUMENT REQUIREMENTS | 5-7 |
| 7.0 | MONITORING COMPLIANCE AND EFFECTIVENESS | 8 |
| 8.0 | TRAINING AND IMPLEMENTATION | 9 |
| 9.0 | IMPACT ASSESSMENTS | 9 |
| 10.0 | EVIDENCE BASE (Relevant Legislation/ National Guidance) and RELATED SFHFT DOCUMENTS | 9 |
| 11.0 | APPENDICES (list) | 10 |
| Appendix A | Assessment of Pain in Children in the Emergency Department | 11 |
| Appendix B | Algorithm for Treatment of Pain in Children in the Emergency Department | 12 |
| Appendix C | APLS Weight (kg) Formula | 13 |
| Appendix D | Equality Impact Assessment Form | 14-15 |
| Appendix E | Environment Impact Assessment Form | 16 |

1.0 INTRODUCTION

Recognition and alleviation of pain should be a priority when treating ill and injured children. This process should start at the triage, be monitored during their time in the ED and finish with ensuring adequate analgesia at, and if appropriate, beyond discharge (The Royal College of Emergency Medicine: RCEM 2017).

Intranasal diamorphine is an effective route for the administration of opioids in the paediatric population attending ED in severe pain. It offers rapid relief of pain while avoiding injection and the speed of onset is comparable to that of intravenous opioid route. The advantages are:

- It lasts for approximately 45 minutes
- Is easy and non-invasive administration
- It's well tolerated

2.0 POLICY STATEMENT

This policy is to establish standards of safe practice for children and young people using IN diamorphine for the management of severe acute pain in ED (algorithm for treatment of pain in children in ED – see [Appendix B](#)).

This clinical document applies to:

Staff group(s)

- Appropriately trained registered nurses
- ED doctors

Clinical area(s)

- Emergency Department

Patient group(s)

- Children and young people with a weight of between 10 – 60kg

Exclusions

- Children and young people weighing less than 10 kg or over 60 kg
- An allergy or sensitivity to diamorphine
- Significant adverse reactions to diamorphine or other opioids

3.0 DEFINITIONS/ ABBREVIATIONS

| | |
|------------------|---|
| The Trust | means Sherwood Forest Hospitals NHS Foundation Trust |
| Staff | means all employees of the Trust including those managed by a third party organisation on behalf of the Trust |
| mg | Milligrams |
| mL | Millilitres |
| IN | Intranasal |
| IV | Intravenous |
| ED | Emergency department |
| RCEM | Royal College of Emergency Medicine |
| MTS | Manchester Triage Scale |
| GCS | Glasgow Coma Scale |
| APLS | Advanced Paediatric Life Support |
| AVPU | Alert, Voice, Pain, Unresponsive (Consciousness Level Score) |

4.0 ROLES AND RESPONSIBILITIES

4.1 RESPONSIBILITIES OF THE ED DOCTOR:

- Be conversant with this policy
- To ensure that IN diamorphine is appropriately prescribed as per RCEM Best Practice Guidelines: 2017 (see narrative – section 7: 7.5).

4.2. RESPONSIBILITIES FOR THE REGISTERED NURSE:

- To be conversant with this policy
- To access formal training and assessed as competent in the use of diamorphine via intranasal route
- To ensure required patient observations are carried out as this policy dictates
- To appropriately respond to untoward events.

5.0 APPROVAL

This document was originally approved by the Joint Drugs and Therapeutics/ Medicines Optimisation Committee. The current version has been approved via the ED Clinical Governance Group.

6.0 DOCUMENT REQUIREMENTS

Intranasal diamorphine has been shown to be a safe and effective alternative for severe pain in the Paediatric ED setting. It is commonly used for children throughout UK EDs. This painless, quick mode of administration makes it popular with patients, carers and staff (5)

The IN route for administration is applicable for drugs that show high lipid solubility and lack of mucosal irritation. Drugs must be suitable for use in small volumes, avoiding run-off down the pharynx. The nasal mucosa provides a highly vascularized, large surface area with a thin permeable barrier through which selected drugs can access the systemic circulation, thus avoiding hepatic first pass metabolism (3)

RCEM (2017) recommends that “analgesia for moderate & severe pain within 20 minutes of arrival in the ED should be applied to children in all Emergency Departments. Patients in severe pain should have the effectiveness of analgesia re-evaluated within 60 minutes of receiving the first dose of analgesia” (4)

Appropriate pain assessment, dependent on age and development stage using Trust recognised modified pain assessment tools should be used for guidance and formal documentation (see [Appendix A](#)). Reference to the algorithm for treatment of pain severity in children in the emergency setting must be made when deciding which type of analgesia is required (see [Appendix B](#)).

Injury or illness where rapidly acting opioid analgesia would normally be administered for severe pain such as crush fingertip injuries, burns and scalds, displaced fractures/ dislocation and appendicitis are some examples of indications for the use of IN diamorphine.

6.1 Contraindications (Any deviation from these must be a consultant only decision following clinical assessment).

- Blocked nose or concurrent upper respiratory tract infection.
- Allergy to diamorphine or morphine.
- Children weighing less than 10kg or over 60kg
- GCS of 13 or less
- Any evidence of head or chest injury, respiratory depression, hypotension due to trauma, risk of airway difficulties, drowsiness or concussion.
- Paralytic ileus
- Already administered opioid analgesia or sedative (seek senior medical advice)
- Facial abnormalities including cleft palate deformity (consider other routes of analgesic administration)

6.2 Preparation of Patient

- Explain to child / parent or carer the process and rationale, obtaining and documenting informed verbal consent.
- Weigh the child in preparation or estimate weight using weight formula: (age in years + 4) x 2 = weight in kg or as per APLS guidance (see [Appendix C](#))
- Obtain baseline observations (SpO2, respiratory rate, pulse, pain score and GCS/AVPU)
- Medication prescribed on drug chart
- Correctly identify child/ young person against prescription.
- Contraindications considered and excluded.

6.3 Equipment Required

- 1 ml syringe
- Red filter needle for drawing up solution
- Water for injection – 5mL ampule
- Nasal filter atomizer
- Diamorphine 10mg ampule

6.4 Procedure

- Wash hands
- In accordance with Trust Medicines Policy for two nurse checking procedures; draw up the solution of diamorphine & water for injection to the correct concentration as per formal instruction documented in the table below (this gives a diamorphine dose of approximately 0.1mg/ kg).
- **NB If weight measured on the table below falls between the whole kg e.g. 10.5 then the decimalized figure will be rounded up or down (0.5 of a kg or above rounded up, 0.4 of a kg or below rounded down):**

| Weight (kg) | Volume of water (mL) to be added to diamorphine ampoule 10mg | Dose of diamorphine (mg) to be administered in 0.2mL |
|-------------|--|--|
| 10 | 2mL | 0.2mL = 1.0mg |
| 11 | 1.8mL | 0.2mL = 1.1mg |
| 12 | 1.7mL | 0.2mL = 1.2mg |
| 13 | 1.55mL | 0.2mL = 1.3mg |
| 14 | 1.4mL | 0.2mL = 1.4mg |
| 15 | 1.3mL | 0.2mL = 1.5mg |
| 16 | 1.25mL | 0.2mL = 1.6mg |
| 18 | 1.1mL | 0.2mL = 1.8mg |
| 20 | 1.0mL | 0.2mL = 2.0mg |
| 25 | 0.8mL | 0.2mL = 2.5mg |
| 30 | 0.7mL | 0.2mL = 2.9mg |

| | | |
|----|--------|---------------|
| 35 | 0.6mL | 0.2mL = 3.3mg |
| 40 | 0.5mL | 0.2mL = 4.0mg |
| 45 | 0.45mL | 0.2mL = 4.4mg |
| 50 | 0.4mL | 0.2mL = 5.0mg |
| 55 | 0.36mL | 0.2mL = 5.5mg |
| 60 | 0.3mL | 0.2mL = 6.0mg |

NB – trapping a bubble of air between the plunger of the syringe and drug acts as a flush to clear the dead space of the atomizer.

- Discard all but 0.2mL of solution.
- Ensure syringe labelled with diamorphine sticker.
- Ensure bubble of air in syringe to enable the child to receive the full dose of diamorphine.
- Attach atomizer to syringe.
- Position child to 45 degrees and tilt head backwards.
- Insert atomizer into one nostril ensuring that the second nostril is closed.
- Administer drug into the nostril.
- Safely discard equipment used.
- Document procedure on drug chart and nursing documentation and record in controlled drug register.

6.5 Monitoring and Discharge planning

- Repeat full observations (as per baseline) after 15 minutes of procedure
- Repeat at 45minutes post procedure (or earlier if required according to clinical presentation)
- IN diamorphine may cause side effects such as nausea and vomiting, itching or dizziness; common side effects can be treated by simple measures such as positioning or counteractive medication. If severe drug reaction or respiratory depression occurs medical attention must be sought immediately.
- If naloxone is required to treat adverse effects such as respiratory depression or over sedation.
- If observations are within child's normal parameters at 45 minutes, then a final set of observations should be completed prior to discharge or transfer. Frequency of observations should be increased if child's clinical condition dictates additional monitoring.
- Give additional supplementary analgesia if required following formal pain assessment as effects of diamorphine may last as little as 20 minutes (NB – diamorphine used concomitantly with other analgesia such as Entonox will increase sedation).
- Discharge should only be made once treatment is completed and observations have returned to the child's normal parameters.

7.0 MONITORING COMPLIANCE AND EFFECTIVENESS

| Minimum Requirement to be Monitored (WHAT – element of compliance or effectiveness within the document will be monitored) | Responsible Individual (WHO – is going to monitor this element) | Process for Monitoring e.g. Audit (HOW – will this element be monitored (method used)) | Frequency of Monitoring (WHEN – will this element be monitored (frequency/ how often)) | Responsible Individual or Committee/ Group for Review of Results (WHERE – Which individual/ committee or group will this be reported to, in what format (eg verbal, formal report etc) and by who) |
|---|---|--|--|--|
| Quality control compliance | Paediatric Lead Nurse ED Pain Link Nurse ED | Clinical audit | Annually | ED Governance Group |
| Training / competency pack availability | Training and Development and Paediatric Lead Nurse ED / Pain Link Nurse ED | Register of training | On going | Practice development forum |
| Reported Incidents Including the use of naloxone | Department Leaders | Datix | Following each incident | ED Clinical Governance Group ED Grand Round |

8.0 TRAINING AND IMPLEMENTATION

8.1 For Doctors

- Be conversant with this policy and prescribing guidance set out within it.

8.2 For Nurses

- Be conversant with this policy
- To access formal training in administration IN diamorphine for children via experienced colleagues within ED.
- Observed/ assessed practice of full process on completion of theoretical training.
- Competence of safe practice to be recorded on the ED administration of IN diamorphine for children training record.
- Reflective statement of competent practice to be evident within professional portfolio.

9.0 IMPACT ASSESSMENTS

- This document has been subject to an Equality Impact Assessment, see completed form at [Appendix D](#)
- This document has been subject to an Environmental Impact Assessment, see completed form at [Appendix E](#)

10.0 EVIDENCE BASE (Relevant Legislation/ National Guidance) AND RELATED SFHFT DOCUMENTS

Evidence Base:

1. Kendal, J., Maconochie, I., Wong I.C.K. & Howard, R. (2014) ***A novel multipatient intranasal diamorphine spray for use in acute pain in children: pharmacovigilance data from an observational study.*** Emergency Medicine Journal: online issue 1472-0213.
2. Paediatric Formulary Committee (2014). ***BNF for Children.*** BMJ Group, Pharmaceutical Press, and RCPCH Publications. London.
3. Shelley, K., Paech, M. (2008). ***The clinical applications of intranasal opioids.*** Current Drug Delivery: 5: 55-58
4. The College of Emergency Medicine (2017) ***Best Practice Guideline – Management of Pain in children.*** CEM. London.
5. Wilson, J., Kendall, J., Cornelius, P. (1997). ***Intranasal diamorphine for paediatric analgesia: assessment of safety and efficacy.*** Journal of Accident and Emergency Medicine: 14: 70-72

Related SFHFT Documents:

- Medicines Policy
- Policy for Consent to Examination, Treatment and Care
- Hand Hygiene Policy ICP 17
- Standard Operating Procedure Infection Prevention and Control ICP 1

11.0 APPENDICES

[Appendix A](#) – Assessment of Pain in Children in the Emergency Department

[Appendix B](#) – Treatment of Pain in Children in the Emergency Department

[Appendix C](#) – APLS Weight (kg) Formula

[Appendix D](#) – Equality Impact Assessment Form

[Appendix E](#) – Environmental Impact Assessment Form

Appendix A



Assessment of Pain in Children in the Emergency Department

| | | | | |
|---------------------------|---------|-------------------------|-----------------------------|----------------------------|
| Verbal Rating Score (VRS) | 0 | 1 | 2 | 3 |
| | No Pain | Mild Pain (Hurts a Bit) | Moderate Pain (Hurts a Lot) | Severe Pain (Really Hurts) |
| Faces | | | | |

FLACC Behavioural Scale

FLACC Score - 1-3 = mild pain (1), 3-7 = moderate pain (2) or 8-10 = severe pain (3)

| Categories | Scoring | | |
|---------------|---|--|---|
| | 0 | 1 | 2 |
| Face | No particular expression or smile | Occasional grimace or frown | Frequent to constant quivering chin, clenched jaw |
| Legs | Normal position or relaxed | Uneasy, restless, tense | Kicking or legs drawn up |
| Activity | Lying quietly, normal position moves easily | Squirming, shifting back and forth, tense | Arched, rigid, or jerking |
| Cry | No cry (awake or asleep) | Moans or whimpers, occasional complaint | Crying steadily, screams or sobs, frequent complaints |
| Consolability | Content, relaxed | Reassured by occasional touching, hugging or being talked to, distractible | Difficult to console or comfort |

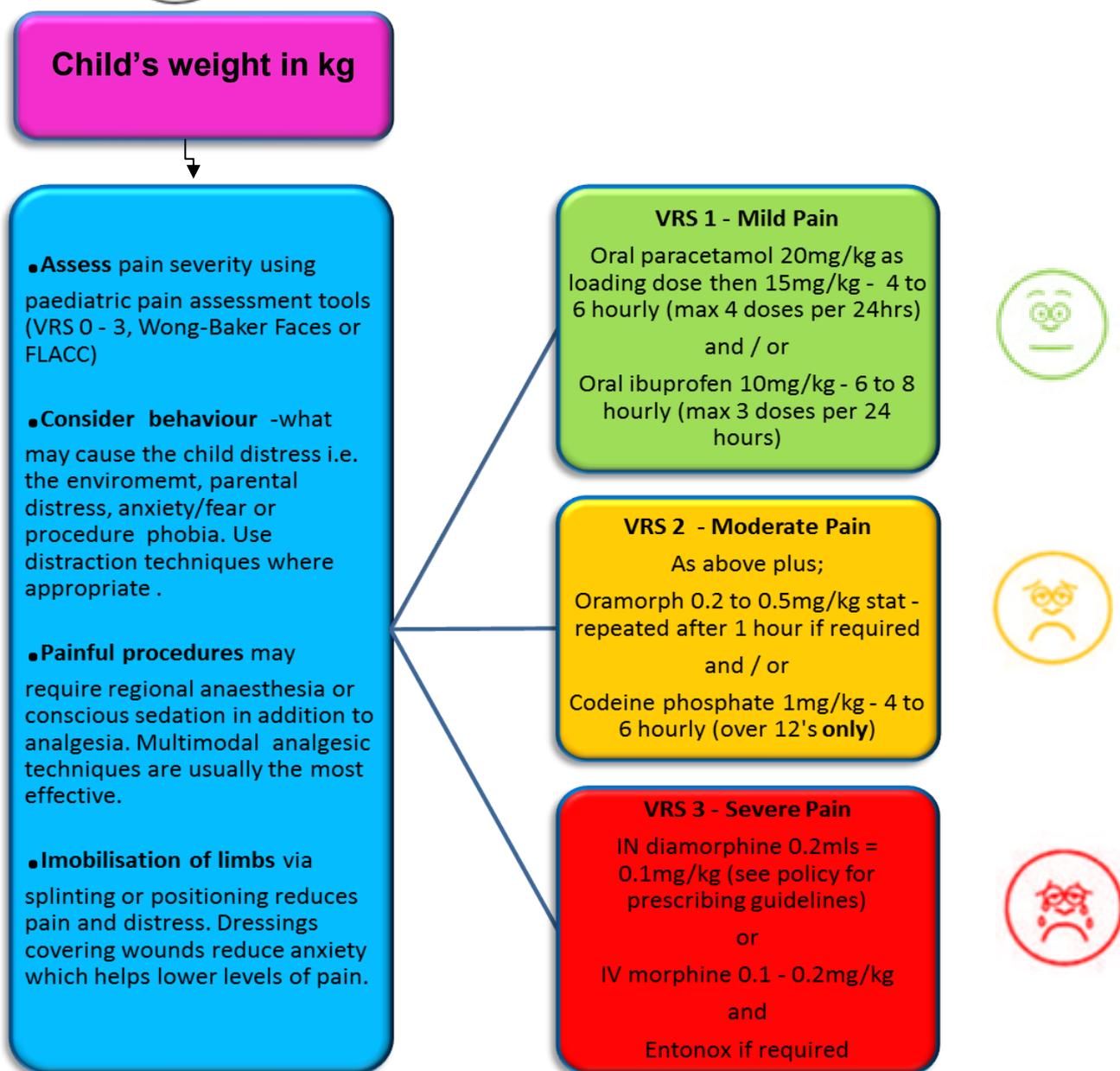
Each of the five categories: (F) face, (L) legs, (A) activity, (C) consolability, is scored from 0-2, which results in a total score

- *Merkel S, Voepel-Lewis T, Shayevitz JR, et al (1997) FLACC: A behavioural scale for scoring postoperative pain in young children. Paediatric nursing 23:293-797*

Appendix B



Treatment of Pain in Children in the Emergency Department



- Ensure that the child has no contraindications to the above medications prior to administration.
- VRS = verbal rating score – 0 = no pain, 1 = mild pain, 2 = moderate pain & 3 = severe pain. Refer to 'Assessment of Pain in Children in the Emergency Department' for Trust pain assessment tools.
- Simple analgesia should be used to supplement opioids in severe pain.

Algorithm adapted from: The Royal College of Emergency Medicine (2013) **Best Care Guidelines – Pain Management in Children**. CEM. London.

Appendix C

APLS Weight (kg) Formula

| Age | |
|-------------|---|
| 0-12 months | $(0.5 \times \text{age in months}) + 4$ |
| 1-5 years | $(2 \times \text{age in years}) + 8$ |
| 6-12 years | $(3 \times \text{age in years}) + 7$ |

APPENDIX D – EQUALITY IMPACT ASSESSMENT FORM (EQIA)

| | | | |
|---|--|---|---|
| Name of service/policy/procedure being reviewed: ADMINISTRATION OF INTRANASAL DIAMORPHINE IN THE EMERGENCY CARE SETTING (CHILDREN & YOUNG PEOPLE) POLICY | | | |
| New or existing service/policy/procedure: Existing | | | |
| Date of Assessment: 14/09/2018 | | | |
| For the service/policy/procedure and its implementation answer the questions a – c below against each characteristic (if relevant consider breaking the policy or implementation down into areas) | | | |
| Protected Characteristic | a) Using data and supporting information, what issues, needs or barriers could the protected characteristic groups' experience? For example, are there any known health inequality or access issues to consider? | b) What is already in place in the policy or its implementation to address any inequalities or barriers to access including under representation at clinics, screening? | c) Please state any barriers that still need to be addressed and any proposed actions to eliminate inequality |
| The area of policy or its implementation being assessed: | | | |
| Race and Ethnicity | No | | |
| Gender | No | | |
| Age | No | | |
| Religion | No | | |
| Disability | No | | |
| Sexuality | No | | |
| Pregnancy and Maternity | No | | |
| Gender Reassignment | No | | |
| Marriage and Civil Partnership | No | | |

| | | | |
|--|----|--|--|
| Socio-Economic Factors (i.e. living in a poorer neighbourhood / social deprivation) | No | | |
| What consultation with protected characteristic groups including patient groups have you carried out? <ul style="list-style-type: none"> N/A | | | |
| What data or information did you use in support of this EqIA? <ul style="list-style-type: none"> N/A | | | |
| As far as you are aware are there any Human Rights issues be taken into account such as arising from surveys, questionnaires, comments, concerns, complaints or compliments? <ul style="list-style-type: none"> No | | | |
| Level of impact From the information provided above and following EQIA guidance document Guidance on how to complete an EIA (click here) , please indicate the perceived level of impact: <ul style="list-style-type: none"> Low Level of Impact For high or medium levels of impact, please forward a copy of this form to the HR Secretaries for inclusion at the next Diversity and Inclusivity meeting. | | | |
| Name of Responsible Person undertaking this assessment: | | | |
| Signature: | | | |
| Date: 140918 | | | |

APPENDIX E – ENVIRONMENTAL IMPACT ASSESSMENT

The purpose of an environmental impact assessment is to identify the environmental impact, assess the significance of the consequences and, if required, reduce and mitigate the effect by either, a) amend the policy b) implement mitigating actions.

| Area of impact | Environmental Risk/Impacts to consider | Yes/No | Action Taken (where necessary) |
|----------------------------|--|----------------|---|
| Waste and materials | <ul style="list-style-type: none"> • Is the policy encouraging using more materials/supplies? • Is the policy likely to increase the waste produced? • Does the policy fail to utilise opportunities for introduction/replacement of materials that can be recycled? | No No No | |
| Soil/Land | <ul style="list-style-type: none"> • Is the policy likely to promote the use of substances dangerous to the land if released? (e.g. lubricants, liquid chemicals) • Does the policy fail to consider the need to provide adequate containment for these substances? (For example bounded containers, etc.) | No No | |
| Water | <ul style="list-style-type: none"> • Is the policy likely to result in an increase of water usage? (estimate quantities) • Is the policy likely to result in water being polluted? (e.g. dangerous chemicals being introduced in the water) • Does the policy fail to include a mitigating procedure? (e.g. modify procedure to prevent water from being polluted; polluted water containment for adequate disposal) | No No No | |
| Air | <ul style="list-style-type: none"> • Is the policy likely to result in the introduction of procedures and equipment with resulting emissions to air? (For example use of a furnaces; combustion of fuels, emission or particles to the atmosphere, etc.) • Does the policy fail to include a procedure to mitigate the effects? • Does the policy fail to require compliance with the limits of emission imposed by the relevant regulations? | No No No | |
| Energy | <ul style="list-style-type: none"> • Does the policy result in an increase in energy consumption levels in the Trust? (estimate quantities) | No | |
| Nuisances | <ul style="list-style-type: none"> • Would the policy result in the creation of nuisances such as noise or odour (for staff, patients, visitors, neighbours and other relevant stakeholders)? | No | |