The Management of a Child (aged 0 – 18 years) with a Decreased Conscious Level

An evidence-based guideline for health professionals based in the hospital setting

Review date January 2008

Nationally developed by
The Paediatric Accident and Emergency Research Group

Appraised by

Royal College of Paediatrics and Child Health

British Association for Emergency Medicine
Explanatory notes
Recommendations marked with the symbol A or B are based on the highest quality of evidence.

Entry criteria
The following algorithm should be used for children aged 0 – 18 years who present to hospital with a reduced level of consciousness. This is defined as scoring <15 on the Glasgow Coma Scale (GCS) modified for children or responding only to voice, pain or being unresponsive on the AVPU scale. Ensure the child is maximally roused from sleep before recording conscious level.

Exclusion criteria
Infants on a neonatal intensive care unit.
Children with a known condition for episodes of reduced conscious level (e.g. epilepsy, diabetes) where a management plan is already agreed upon.
Children with learning disabilities, whose score on the GCS is <15 when they are healthy.

In certain children with reduced conscious level, it may be appropriate to watch and wait. However, if a decision is made to stick a needle into a child to investigate the cause, take all the samples listed as “core investigations” at the first opportunity.

<table>
<thead>
<tr>
<th>Glasgow coma scale with modification for children</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Best eye response</strong></td>
</tr>
<tr>
<td><strong>1. No eye opening</strong></td>
</tr>
<tr>
<td><strong>2. Eye opening to pain</strong></td>
</tr>
<tr>
<td><strong>3. Eye opening to verbal command</strong></td>
</tr>
<tr>
<td><strong>4. Eyes open spontaneously</strong></td>
</tr>
<tr>
<td><strong>5. Incomprehensible sounds</strong></td>
</tr>
</tbody>
</table>

**Best motor response**

<p>| 1. No motor response to pain |
| 2. Abnormal extension to pain |
| 3. Abnormal flexion to pain |
| 4. Withdrawal to painful stimuli |
| 5. Localises to painful stimuli or withdraws to touch |
| 6. Obeys commands or performs normal spontaneous movements |</p>
<table>
<thead>
<tr>
<th>AVPU Scale</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Record the condition which best describes the patient</td>
<td></td>
</tr>
<tr>
<td><strong>Alert</strong></td>
<td>responds to <strong>Voice</strong></td>
</tr>
<tr>
<td></td>
<td>responds to <strong>Pain</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Unresponsive</strong></td>
</tr>
</tbody>
</table>

Decreased conscious level            Version: 3.0            Page 3 of 15
Author:                              Authorised by:           Issue Date: March 2011
Last reviewed: Feb 2015               Q-Pulse Ref: YOR-A&E-039  Review date: Feb 2017
Algorithm for the management of a child aged 0-18 years with a decreased conscious level

**Patient entry criteria**
(see page 2)

**GCS<15 V, P or U on AVPU scale**

**Assessment**
- **AIRWAY**
- **BREATHING**
- **CIRCULATION**
- **DISABILITY**

**Give oxygen**
Consider intubation if:
- Airway obstructs if not supported
- Airway compromised by vomiting
- Resp rate inadequate for ventilation
- O₂ sats <92% despite high flow O₂ / airway opening manoeuvres
- Signs of shock despite 40ml/kg fluid
- Exhaustion
- GCS<8 or deteriorating
- Signs of raised ICP

**Monitoring**
- Heart rate **
- Resp rate *
- O₂ sats *
- BP *
- Temperature
- ECG†
  *recorded every hour
  †monitored continuously

**GCS assessment**
If GCS <12 every 15mins
If GCS 12-14 every hour

**Start urine collection**

**Core investigations** (see page 9)

**All children**
- Capillary Glucose

**Blood gas** (capillary, venous, arterial)
**Urinalysis** (dipstick at bedside)
**Laboratory glucose** (even if capillary glucose normal)
**Urea and electrolytes** (Na, K, Cr)
**Liver function tests**
**Plasma ammonia**
**Full blood count**
**Blood culture**
1-2ml plasma to be separated, 1-2ml plain serum frozen and saved
10ml urine to be frozen and saved

**History features to ask about**
- Vomiting
- Headache
- Fever
- Convulsions
- Alternating periods of consciousness
- Trauma
- Ingestion of drugs
- Presence of any drugs at home
- Any previous infant deaths in family
- Length of symptoms

**Examine the child**

**Problem list**
- **Shock**
- **Sepsis**
- **Intracranial infections**
- **Trauma**
- **Raised ICP**
- **Metabolic illness**
- **Prolonged convulsions**
- **Hypertension**
- **Post-convulsive state**

**Identify all the problems considered below**
(see pages 4 and 5)

**Cause unknown e.g. drug ingestion**

**Management**
Manage concurrently all the problems identified from the Problem list
(see pages 6, 7 and 8)
Identify All Problems

Several suspected problems may co-exist and need concurrent management. Identify if each problem is suspected and tick the box. When all problems have been considered go to tables for tests and treatments (pages 6, 7, and 8).

### SHOCK

**Recognised** clinically if reduced consciousness and **one or more** of the following:

- Capillary refill > 2 seconds
- Mottled, cool extremities
- Diminished peripheral pulses
- Systolic BP < 5th percentile for age
- Decreased urine output <1ml/kg/hour

**Go to table 1**

### SEPSIS

**Recognised** clinically if reduced consciousness and **two or more** of the following 4:

- Temp >38°C or <36°C
- Tachycardia
- Tachypnoea
- White cell count <4000cumm or >12000cumm
- A non-blanching rash

**Go to table 2**

### TRAUMA

**Recognised** from history and examination findings

**Go to table 3**

### METABOLIC ILLNESS

#### DIABETIC KETOACIDOSIS

**Recognised** if reduced consciousness and all of the following:

- Capillary glucose >11mmol/l
- pH <7.3
- Ketones in urine

**Go to table 4**

#### HYPOGLYCAEMIA

**Recognised** if reduced consciousness and capillary glucose < 2.6 mmol/l

**Go to table 5**

#### HYPERAMMONAEMIA

**Recognised** if plasma ammonia >200 micromol/l

**Go to table 6**

#### NON-HYPERGLYCAEMIC KETOACIDOSIS

**Recognised** if reduced consciousness and pH <7.3 and ketones in urine without hyperglycaemia

**Go to table 7**

#### INTRACRANIAL INFECTION

#### BACTERIAL MENINGITIS

**Recognised** clinically if neck stiffness / pain and total summed score is **8.5 or more** using the following rule:

<table>
<thead>
<tr>
<th>Symptom/sign</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCS ≤ 8</td>
<td>8</td>
</tr>
<tr>
<td>Neck stiffness</td>
<td>7.5</td>
</tr>
<tr>
<td>Time of symptoms</td>
<td>1 per each 24hrs</td>
</tr>
<tr>
<td>Vomiting</td>
<td>2</td>
</tr>
<tr>
<td>Cyanosis</td>
<td>6.5</td>
</tr>
<tr>
<td>Petechiae</td>
<td>4</td>
</tr>
<tr>
<td>Serum CRP</td>
<td>(CRP in mg/l) / 100</td>
</tr>
</tbody>
</table>

If no neck stiffness suspect bacterial meningitis **if fever and two or more** of the following 3:

- Rash
- Bulging fontanelle
- Irritability

**Go to table 8**
**POST-CONVULSIVE STATE**

Go to table 15

Recognised clinically if reduced conscious level within one hour post convulsion and a normal capillary glucose.

**INTRACRANIAL INFECTION**

**TB MENINGITIS**

Go to table 11

Recognised clinically if reduced consciousness and signs of meningitis and / or contact with pulmonary TB.

**RAISED ICP**

Go to table 12

Recognised clinically if papilloedema or two or more of the following 5:
- Reduced consciousness (U on AVPU or GCS ≤ 8)
- Abnormal pattern of respiration
- Abnormal pupils
- Abnormal posture
- Abnormal doll’s eye / caloric response

**CAUSE UNKNOWN**

Go to table 16

No clinical clues to the cause after core investigations reviewed, consider drug ingestion, non-convulsive status, metabolic encephalopathy not presenting with hyperglycaemia / hypoglycaemia / hyperammonaemia / non-hyperglycaemic ketoacidosis, other infectious agents, inflammatory conditions – see Table 16.
Have you identified all the suspected problems?

Only move on to the tables for further tests and treatments (pages 6, 7, and 8) when ALL PROBLEMS have been considered.
### Table 1 SHOCK

**Investigations**
- Core Investigations
- and look for sepsis, trauma, anaphylaxis, heart failure

**Treatment:**
- Fluid bolus 20ml/kg (colloid / crystalloid) and assess response (Good response = tachycardia, improved capillary refill time, urine output, GCS)
- Further fluid therapy guided by clinical response and >60ml/kg may be required
- If >40ml/kg has been given consider intubation / ventilation and drugs for circulatory support

### Table 2 SEPSIS

**Investigations**
- Core Investigations and consider:
- coagulation studies, chest X-ray, throat swab, lumbar puncture (if safe*), urine culture (if urinalysis +ve), PCR meningococcal / pneumococcus, skin swab, joint aspiration, thick/thin film, intracranial imaging (if no source detected)

**Treatment:**
- Broad spectrum IV antibiotics after appropriate cultures have been taken
- Review by experienced paediatrician within 1 hour of admission

### Table 3 TRAUMA

**Investigations**
- Imaging appropriate to examination
- Consider Core Investigations if medical collapse led to cause of trauma

**Treatment:**
- Follow ATLS guidelines

### Table 4 DIABETIC KETOACIDOSIS

**Investigations**
- Core Investigations

**Treatment:**
- Follow NICE guideline for DKA in children and young people

### Table 5 HYPOGLYCAEMIA

**Investigations**
- If lab glucose result from Core Investigations is <2.6mmol/l then request following tests from saved samples:
  - plasma lactate, insulin, cortisol, growth hormone, free fatty acids, beta-hydroxybutyrate, acyl-carnitine profile (on “Guthrie card” or saved frozen plasma) and urine amino / organic acids

**Treatment:**
- If capillary or lab glucose <2.6mmol/l
  - After Core Investigations taken:
    - child > 4 weeks old give 5ml/kg I.V. 10% glucose bolus
    - child ≤ 4 weeks old give 2ml/kg I.V. 10% glucose bolus
  - Start IV infusion 10% glucose to keep blood glucose between 4 and 7 mmol/l
  - Seek advice from endocrinologist / metabolic specialist for further management
  - If SYMPTOMATIC and capillary or lab glucose 2.6-4.0 Treat orally or with regime above. Full investigation with bloods other than core investigations not usually necessary.

### Table 6 HYPERAMMONAEMIA

**Investigations**
- If ammonia result from Core Investigations is >200 micromol/l then request following from saved samples:
  - plasma amino acids, urine amino acids, urine organic acids, urine orotic acid and check coagulation studies

**Treatment:**
- Seek urgent advice from a metabolic specialist
- Start IV sodium benzoate (loading dose 250mg/kg over 90 mins; followed by infusion 250mg/kg over 24 hrs – both diluted in 15ml/kg 10% glucose)
- If ammonia >500 micromol/l or is not improving and remains between 200-500 micromol/l after 6 hours of sodium benzoate therapy, consider emergency haemodialysis
### Table 7: Non-Hyperglycaemic Ketosis

**Investigations**
- If pH < 7.3, ketones in urine and a normal or low capillary glucose noted from Core Investigations then request following from saved samples:
  - Plasma lactate, plasma amino acids, urine amino acids, urine organic acids

**Treatment:**
- Seek urgent advice from a metabolic specialist if child has non-hyperglycaemic ketoacidosis or plasma lactate >15 mmol/l
- Carefully monitor fluid balance due to risk of raised ICP
- Nutrition should be re-started early to prevent catabolism

### Table 8: Bacterial Meningitis

**Investigations**
- Core Investigations and lumbar puncture (if safe*)

**Treatment:**
- Give IV dexamethasone 0.15 mg/kg before / with antibiotics
- Broad spectrum antibiotics – don’t delay if lumbar puncture contraindicated*

### Table 9: Herpes Simplex Encephalitis (HSE)

**Investigations**
- Core Investigations and consider: MRI scan, EEG, lumbar puncture (if safe*) for HSV PCR

**Treatment:**
- Give IV aciclovir 10 mg/kg (or 500 mg/m² if aged 3 months to 12 years) TDS
  - don’t delay if lumbar puncture contraindicated*
- Treatment should continue for 14 days if HSE highly suspected
- If no ongoing clinical suspicion of HSE aciclovir can be stopped before 14 days

### Table 10: Intracranial Abscess

**Investigations**
- Core Investigations and CT scan

**Treatment:**
- Broad spectrum antibiotics after blood cultures taken
- Seek urgent advice from a paediatric neurosurgeon

### Table 11: Tuberculous Meningitis

**Investigations**
- Core Investigations and lumbar puncture (if safe*)

**Treatment:**
- If CSF microscopy is abnormal seek urgent advice from microbiology department

### Table 12: Raised ICP

**Investigations**
- Core Investigations and consider CT scan

**Treatment:**
- Position patient’s head in midline
- Tilt patient head-up 20 degrees and avoid neck lines
- Maintenance fluids should not be hypotonic
- Rate of maintenance fluids to be agreed locally
- Consider intubation and maintain PaCO₂ between 4.0 - 4.5 kPa
- Mannitol or 3% saline indications and dose to be agreed locally

### Table 13: Hypertension

**Investigations**
- Core Investigations especially reviewing urinalysis, creatinine and urea, look for raised ICP, papilloedema, and check four limb BP

**Treatment:**
- Seek urgent advice from a paediatric nephrologist or intensivist
Management of all 16 identified problems

**Table 14 PROLONGED CONVULSION**

**Investigations**
- Core Investigations if child not known to have epilepsy

**Treatment:**
- Follow APLS guidelines for anticonvulsant therapy
- If the convulsion is ongoing despite anticonvulsants, consider specific treatments for electrolyte imbalance, e.g.
  - plasma sodium <115mmol/l, give 5ml/kg of 3% saline IV over one hour
  - plasma calcium is <1.7mmol/l or ionized calcium <0.75 mmol/l, give 0.3ml/kg of 10% calcium gluconate IV over 5 mins
  - plasma magnesium <0.65mmol/l, give 50mg/kg of magnesium sulphate IV over one hour

**Table 15 POST CONVULSIVE STATE**

**Investigations**
- It may be appropriate to closely observe the child if normal capillary glucose, without performing any further tests, in the first hour
- Detailed history and exam
  - If still reduced GCS after one hour perform Core Investigations and investigations for “Cause unknown” (Table 16)

**Treatment:**
- Treat according to history and examination findings
- If after 1 hour child has not recovered to their normal conscious level, treat as “Cause unknown” (Table 16)

**Table 16 CAUSE UNKNOWN**

**Investigations**
- Core Investigations and if after reviewing these results the cause of reduced consciousness remains unknown request / perform the following: CT scan, lumbar puncture (if safe*), urine toxicology screen, urine organic and amino acids, plasma lactate

**Treatment:**
- Supportive treatments to protect airway, breathing and circulation
- Start broad spectrum antibiotics and IV aciclovir
- Discuss with paediatric neurologist within 6 hours of admission

- If the cause is still unknown after reviewing Core Investigations results, CT scan and initial CSF results, consider the following: EEG (?non-convulsive status); acyl-carnitine (on Guthrie card or from saved plasma); ESR and autoimmune screen (?cerebral vasculitis); thyroid function test and thyroid autoantibodies (?Hashimoto’s encephalitis)

**Table 17 LUMBAR PUNCTURE**

A lumbar puncture should be deferred or not performed as part of the initial acute management in a child who has:
- GCS ≤ 8
- deteriorating GCS
- focal neurological signs
- had a seizure lasting more than 10 mins and still has a GCS ≤ 12
- shock
- bradycardia (heart rate <60)
- hypertension (BP >95th centile for age)
- clinical evidence of systemic meningococcal disease

*For acute contraindications and other details regarding lumbar punctures see Table 17
Useful information:

**LOCAL CONTACT DETAILS** (e.g. name / hospital / contact number / out of hours service):

- Anaesthetist covering paediatrics =
- PICU =
- Metabolic specialist / Biochemist =
- Paediatric neurologist =
- Paediatric neurosurgeon =
- Paediatric endocrinologist =
- CT service =
- EEG service =
- Toxicology unit =

Toxbase = [www.spib.axl.co.uk](http://www.spib.axl.co.uk)

**CORE INVESTIGATIONS**

These will be requested in most children with reduced conscious level.

**Bedside tests**

- Capillary glucose
- Blood gas (capillary / venous / arterial)
- Urinalysis (dipstick)

<table>
<thead>
<tr>
<th>Laboratory tests</th>
<th>Request form (what to write)</th>
<th>Bottle (top colour)</th>
<th>Minimum volume of sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capillary glucose</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood gas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urinalysis</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[Table of abbreviations]

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP</td>
<td>Blood pressure</td>
</tr>
<tr>
<td>CSF</td>
<td>Cerebrospinal fluid</td>
</tr>
<tr>
<td>DKA</td>
<td>Diabetic ketoacidosis</td>
</tr>
<tr>
<td>GCS</td>
<td>Glasgow coma scale</td>
</tr>
<tr>
<td>ICP</td>
<td>Intracranial pressure</td>
</tr>
<tr>
<td>IV</td>
<td>Intravenous</td>
</tr>
<tr>
<td>TB</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>Temp</td>
<td>Temperature</td>
</tr>
</tbody>
</table>

[Local contact details]

- Anaesthetist covering paediatrics =
- PICU =
- Metabolic specialist / Biochemist =
- Paediatric neurologist =
- Paediatric neurosurgeon =
- Paediatric endocrinologist =
- CT service =
- EEG service =
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**CORE INVESTIGATIONS**

These will be requested in most children with reduced conscious level.

**Bedside tests**

- Capillary glucose
- Blood gas (capillary / venous / arterial)
- Urinalysis (dipstick)
### Useful drug information:

Below is a list of infusions which may be required for support or treatment. Please check with your local pharmacist that the infusion calculations are appropriate for your local procedures.

#### Infusions to support the circulation:

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose calculation</th>
<th>Fluid</th>
<th>Dose per kg per unit time</th>
<th>Usual dose range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adrenaline / Epinephrine</td>
<td>0.3mg x wt (kg) in 50mls</td>
<td>5% Glucose</td>
<td>1ml / hr = 0.1 microgram/kg/min</td>
<td>0.1 – 1 microgram/kg/min</td>
</tr>
<tr>
<td>Noradrenaline base</td>
<td>0.3mg x wt (kg) in 50mls</td>
<td>5% Glucose</td>
<td>1ml / hr = 0.1 microgram/kg/min</td>
<td>0.1 – 1 microgram/kg/min</td>
</tr>
<tr>
<td>Dopamine</td>
<td>30mg x wt (kg) in 50mls</td>
<td>5% Glucose</td>
<td>1ml / hr = 10 microgram/kg/min</td>
<td>2 – 20 microgram/kg/min</td>
</tr>
<tr>
<td>Dobutamine</td>
<td>30mg x wt (kg) in 50mls</td>
<td>5% Glucose</td>
<td>1ml / hr = 10 microgram/kg/min</td>
<td>2 – 20 microgram/kg/min</td>
</tr>
</tbody>
</table>

#### Infusions for ongoing sedation in a ventilated child:

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose calculation</th>
<th>Fluid</th>
<th>Dose per kg per unit time</th>
<th>Usual dose range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>1mg x wt (kg) in 50mls</td>
<td>5% Glucose</td>
<td>1ml / hr = 20 microgram/kg/hour</td>
<td>10 – 40 microgram/kg/hour</td>
</tr>
<tr>
<td>Midazolam</td>
<td>3mg x wt (kg) in 50mls</td>
<td>5% Glucose</td>
<td>1ml / hr = 1 microgram/kg/min</td>
<td>0.5 – 4 microgram/kg/min</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>0.125mg x wt (kg) in 50mls</td>
<td>5% Glucose</td>
<td>1ml / hr = 2.5 microgram/kg/hour</td>
<td>1 – 3 microgram/kg/hour</td>
</tr>
<tr>
<td>Ketamine</td>
<td>30mg x wt (kg) in 50mls</td>
<td>5% Glucose</td>
<td>1ml / hr = 10 microgram/kg/min</td>
<td>10 – 45 microgram/kg/min</td>
</tr>
</tbody>
</table>

#### Infusions for metabolic illnesses
Drug | Dose calculation | Fluid | Dose per kg per unit time | Usual dose range
---|---|---|---|---
Insulin | 50 units in 50mls | 0.9% Saline | 0.05 ml x wt (kg) / hr = 0.05 Units/kg/hour | 0.025 – 0.1 Units/kg/hour
Sodium Benzoate | Loading dose: 250mg x wt (kg) add this to 15ml x wt (kg) 10% Glucose | 0.05 Units/kg/hour | 0.025 – 0.1 Units/kg/hour
| Continuous infusion: 250mg x wt (kg) add this to 15ml x wt (kg) 10% Glucose | 0.025 – 0.1 Units/kg/hour
Sodium Phenylbutyrate | Loading dose: 250mg x wt (kg) add this to 15ml x wt (kg) 10% Glucose | 0.05 Units/kg/hour | 0.025 – 0.1 Units/kg/hour
| Continuous infusion: 250mg x wt (kg) add this to 15ml x wt (kg) 10% Glucose | 0.025 – 0.1 Units/kg/hour
Infusions for convulsions due to electrolyte imbalance:

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose calculation</th>
<th>Fluid for dilution</th>
<th>Dose</th>
</tr>
</thead>
</table>
3% Saline (3% sodium chloride) | Remove 36ml from a 500ml bag of 0.9% sodium chloride (saline). 
Add 36ml of 30% sodium chloride | This makes a 500ml bag of 3% sodium chloride | 5 ml x wt (kg) / hour single dose |
Magnesium sulphate | 2ml of 50% solution make up to 10ml with 5% Glucose (= 10% solution MgSO₄) | 5% Glucose | 0.5 ml x wt (kg) / hour single dose over 1 hour |
Calcium gluconate | 1g in 10ml = 10% solution | 5% Dextrose | 0.3 – 0.5 ml x wt (kg) over 5 mins |
Infusions for raised intracranial pressure:

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose calculation</th>
<th>Fluid</th>
<th>Dose per kg per unit time</th>
<th>Usual dose range</th>
</tr>
</thead>
</table>
Mannitol | 1.25 ml x wt (kg) | 20% mannitol | 0.25g / kg / hour single dose over 30 mins | 0.25 - 1.0g / kg (1.25 – 5 ml / kg) |
3% saline (sodium chloride) | Remove 36ml from a 500ml bag of 0.9% saline. 
Add 36ml of 30% saline. | This makes a 500ml bag of 3% saline | 5 ml x wt (kg) single dose over 1 hour |
Thiopental Sodium | 100mg x wt (kg) in 50ml | 0.9% Sodium chloride | 1ml / hour = 2mg / kg / hr | 2 – 8 mg / kg /hr |
### Pharmacy information

<table>
<thead>
<tr>
<th>Drug</th>
<th>Emergency availability of drug (e.g. ward / pharmacy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adrenaline / Epinephrine</td>
<td></td>
</tr>
<tr>
<td>Noradrenaline</td>
<td></td>
</tr>
<tr>
<td>Dopamine</td>
<td></td>
</tr>
<tr>
<td>Dobutamine</td>
<td></td>
</tr>
<tr>
<td>Morphine</td>
<td></td>
</tr>
<tr>
<td>Midazolam</td>
<td></td>
</tr>
<tr>
<td>Fentanyl</td>
<td></td>
</tr>
<tr>
<td>Ketamine</td>
<td></td>
</tr>
<tr>
<td>Sodium Benzoate</td>
<td></td>
</tr>
<tr>
<td>Sodium Phenylbutyrate</td>
<td></td>
</tr>
<tr>
<td>Magnesium sulphate</td>
<td></td>
</tr>
<tr>
<td>Calcium gluconate</td>
<td></td>
</tr>
<tr>
<td>30% saline (sodium chloride)</td>
<td></td>
</tr>
<tr>
<td>Mannitol</td>
<td></td>
</tr>
<tr>
<td>Thiopental Sodium</td>
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</tbody>
</table>
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National Reyes Syndrome Foundation UK

Registered Charity No. 288064