MMPR038 PROTOCOL FOR THE TREATMENT OF HYPOGLYCAEMIA IN
IN-PATIENTS AND OUTPATIENT SETTINGS
Table of Contents

Why we need this Protocol........................................................................................................4
What the Protocol is trying to do.........................................................................................4
Which stakeholders have been involved in the creation of this Protocol .........................4
Any required definitions/explanations ..................................................................................4
Key duties................................................................................................................................4
The Medicines Management Committee ........................................................................4
Ward Matrons, Team Managers .........................................................................................4
Ward / Unit / Clinic staff ......................................................................................................5
Protocol detail.......................................................................................................................5
Symptoms and Signs of Hypoglycaemia ..........................................................................5
Risk Factors for Hypoglycaemia ........................................................................................5
1. In-patient Treatment of hypoglycaemia - please refer to flowchart in appendix 1.......6
Potential Causes of Inpatient Hypoglycaemia ..................................................................6
Management of hypoglycaemia .........................................................................................6
Severe Hypo: patient is unconscious/fitting or very aggressive........................................6
Moderate Hypo: patient is conscious and able to swallow but confused/disorientated or aggressive........................................................................................................7
Mild Hypo: patient is conscious orientated and able to swallow......................................7
2. Hypoglycaemia management in the community setting - please refer to flowchart in appendix 2.................................................................8
Management of hypoglycaemia .........................................................................................8
Severe Hypoglycaemia: patient able to swallow ..............................................................8
Severe Hypoglycaemia: patient unable to swallow............................................................8
Mild Hypo: patient able to self treat ..................................................................................8
3. Hypoglycaemia management in patients attending for retinal screening ..................9
Treatment .............................................................................................................................9
Severe Hypo: patient is unconscious/fitting or very aggressive.........................................9
Moderate Hypo: patient is conscious and able to swallow but confused/disorientated or aggressive.................................................................9
Mild Hypo: patient is conscious orientated and able to swallow......................................9
Ask the patient to remain in the screening venue until they are sure that the hypo has been fully treated.

Ask the patient to remain in the screening venue until they are sure that the hypo has been fully treated.

Reporting.

Training requirements associated with this Protocol.

Mandatory Training.

Specific Training not covered by Mandatory Training.

How this Protocol will be monitored for compliance and effectiveness.

Equality considerations.

Document control details.

Appendix 1 - In-patient management of hypoglycaemia.

Appendix 2 – Hypoglycaemia management in the Community Setting.
**Why we need this Protocol**

Hypoglycaemic episodes are common, particularly with Type 1 Diabetes Mellitus (DM) (insulin dependent diabetes) and may also occur in patients with Type 2 DM treated with insulin or sulphonylureas. Hypoglycaemia in Type 2 DM is more common in the elderly and those with renal impairment. Hypoglycaemia should be excluded in any person with diabetes who is unwell, drowsy, unconscious, unable to co-operate, or presenting with aggressive behaviour or seizures.

Hypoglycaemia in people with diabetes is defined as blood glucose less than 4 mmol/L but please note:

- Patients may not have blood testing equipment with them
- Some patients experience symptoms at higher blood glucose levels
- If the patient says they are hypo, they probably are

**What the Protocol is trying to do**

To describe the protocol for the treatment of a patient experiencing a Hypoglycaemic episode either whilst and inpatient in NHFT services or attending an outpatient area including the Diabetes Retinal Screening Clinic

**Which stakeholders have been involved in the creation of this Protocol**

Medicines Management Committee

Reviewed by Lynsey Burgess, Diabetes Specialist Nurse and Diabetes Clinical Lead and Russell Parsons, Senior Pharmacist Community Services

**Any required definitions/explanations**

NHFT – Northamptonshire Healthcare NHS Foundation Trust

BG – blood glucose

**Key duties**

**The Medicines Management Committee**

Will approve and review the protocol as required

**Ward Matrons, Team Managers**

Are responsible for

- the dissemination of this protocol to relevant staff
- updating the protocol when necessary
Ward / Unit / Clinic staff
Are responsible for

- Ensuring stocks of original Lucozade® and biscuits are available
- Date checking stock on a regular basis
- Undertaking relevant training associated with this protocol as required by the service
- Documenting any use of either original Lucozade® or biscuits in the patient’s notes

Protocol detail

Symptoms and Signs of Hypoglycaemia
The following may indicate a hypoglycaemic episode and should prompt confirmation by capillary blood glucose measurement as above:

- Autonomic symptoms – pallor, sweating, tremor, palpitations, tachycardia
- Neuroglycopenic symptoms – loss of concentration, behavioural changes (e.g. irritability, aggression), fits, transient neurological deficits, reduced level of consciousness
- Some patients especially with long standing Type 1 diabetes may lose their awareness of hypoglycaemia

Risk Factors for Hypoglycaemia

<table>
<thead>
<tr>
<th>Medical Issues</th>
<th>Lifestyle Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tight glycaemic control</td>
<td>Increased exercise (relative to usual)</td>
</tr>
<tr>
<td>Previous history of severe hypoglycaemia</td>
<td>Irregular lifestyle</td>
</tr>
<tr>
<td>Undetected nocturnal hypoglycaemia</td>
<td>Increasing age</td>
</tr>
<tr>
<td>Long duration of diabetes</td>
<td>Alcohol</td>
</tr>
<tr>
<td>Poor injection technique</td>
<td>Early pregnancy</td>
</tr>
<tr>
<td>Impaired awareness of hypoglycaemia</td>
<td>Breast feeding</td>
</tr>
<tr>
<td>Preceding hypoglycaemia</td>
<td>Injection into areas of lipohypertrophy (lumpy injection sites)</td>
</tr>
<tr>
<td>Severe hepatic dysfunction</td>
<td>Inadequate blood glucose monitoring</td>
</tr>
<tr>
<td>Renal impairment / Renal dialysis therapy</td>
<td>Reduced carbohydrate intake - eg, coeliac disease, gastroenteritis</td>
</tr>
<tr>
<td>Inadequate treatment of previous hypoglycaemia</td>
<td></td>
</tr>
<tr>
<td>Terminal illness</td>
<td></td>
</tr>
</tbody>
</table>

This document is uncontrolled once printed. Please refer to the Trust intranet for the current version.
Review May 20
1. **In-patient Treatment of hypoglycaemia** - please refer to flowchart in appendix 1

**Potential Causes of Inpatient Hypoglycaemia**

<table>
<thead>
<tr>
<th>Medical Issues</th>
<th>Reduced Carbohydrate Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inappropriate use of “stat” / “prn” quick acting insulin</td>
<td>Missed or delayed meals</td>
</tr>
<tr>
<td>Discontinuation of long term steroid therapy</td>
<td>Dietary changes – less carbohydrate than usual</td>
</tr>
<tr>
<td>Recovery from acute illness / stress</td>
<td>Change of the time of the biggest meal of the day, ie, main meal at midday rather than evening</td>
</tr>
<tr>
<td>Mobilisation after illness</td>
<td>Lack of access to usual between meal or before bed snacks</td>
</tr>
<tr>
<td>Major amputation of a limb</td>
<td>Prolonged starvation time eg, NBM</td>
</tr>
<tr>
<td>Inappropriately timed diabetes medication for meal / enteral feed</td>
<td>Vomiting</td>
</tr>
<tr>
<td>Incorrect insulin prescribed and administered</td>
<td>Reduced appetite</td>
</tr>
<tr>
<td>Inadequate mixing of intermediate acting or mixed insulins</td>
<td></td>
</tr>
<tr>
<td>Regular insulin doses being given in hospital when these are not routinely taken at home</td>
<td></td>
</tr>
</tbody>
</table>

**Management of hypoglycaemia**

This depends on whether the hypo is mild, moderate or severe. The severity of hypoglycaemia is determined by the patient’s symptoms, not the blood glucose level.

**Severe Hypo: patient is unconscious/fitting or very aggressive**

Check: Airway, Breathing, Circulation.

Use Recovery position if unconscious.

Administer Glucagon 1mg IM

Call 999 for ambulance

Do not attempt to restrain an aggressive patient

If blood glucose rises above 4.0mmols and the patient recovers, provide long acting carbohydrates, e.g. one of the below:

4 Biscuits
2 Slices of bread/toast

500ml Glass of milk

Normal meal if due.

As the liver needs to restock its glucose supplies, a higher blood glucose level of 8.0mmols would be advisable post glucagon for 48 hours

**Moderate Hypo: patient is conscious and able to swallow but confused/disorientated or aggressive**

If patient is capable and co-operative, initial management - offer either 170ml Lucozade® or 200mls Fruit Juice / 150mls Full Sugar Fizzy Drink / 5-6 Dextro Tablets / 4 Jelly Babies. If unable to swallow, consider the use of Glucagon 1mg IM.

Repeat blood glucose after 10 minutes. If blood glucose remains below 4.0mmols repeat the above advice again to a maximum of 3 times. If blood glucose remains below 4.0mmols, contact doctor and consider use of Glucagon 1mg IM if not already administered.

Once blood glucose is above 4.0mmols and patient is recovered, provide long acting carbohydrates, e.g one of the below:

- 2 Biscuits
- 1 Slice of bread/toast
- 200-300mls Glass of milk

**Mild Hypo: patient is conscious orientated and able to swallow**

Initial management - offer either 170ml Lucozade® or 200mls Fruit Juice / 150mls Full Sugar Fizzy Drink / 5-6 Dextro Tablets / 4 Jelly Babies.

Repeat blood glucose after 10 minutes. If blood glucose remains below 4.0mmols repeat the above advice again to a maximum of 3 times. If blood glucose remains below 4.0mmols, contact doctor and consider use of Glucagon 1mg IM.

Once blood glucose is above 4.0mmols and patient is recovered, provide long acting carbohydrates, e.g one of the below:

- 2 Biscuits
- 1 Slice of bread/toast
- 200-300mls Glass of milk

Normal meal if due
2. Hypoglycaemia management in the community setting - please refer to flowchart in appendix 2

Management of hypoglycaemia
This depends on whether the hypo is mild, moderate or severe. The severity of hypoglycaemia is determined by the patient’s symptoms, not the blood glucose level.
Ask the patient if they are carrying the treatment they would normally use to treat a hypo. If so, encourage them to take it.

Severe Hypoglycaemia: patient able to swallow
Initial management: 15-20g carbs

- 170ml Lucozade
- 150ml (a small can) of fizzy non-diet drink
- 200ml (a small carton) of smooth orange juice
- 5 or 6 dextrose tablets
- 4 large jelly babies

When the person starts to feel better, and if they are not due to eat a meal, make sure they eat some starchy food (sandwich, biscuits or banana).

If the person does not feel better (or their blood glucose is still less than 4mmol/L after 5-10min) repeat treatment (x3 max before dialling 999)

Severe Hypoglycaemia: patient unable to swallow
Treatment options:
Use Recovery position if unconscious. Glucose treatment should not be given.
Call 999 for ambulance
Stay with the person at all times.

Mild Hypo: patient able to self treat

Treatment options: 15-20g carbs

- 170ml Lucozade
- 150ml (a small can) of fizzy non-diet drink
- 200ml (a small carton) of smooth orange juice
- 5 or 6 dextrose tablets
- 4 large jelly babies

When the person starts to feel better, and if they are not due to eat a meal, make sure they eat...
some starchy food (sandwich, biscuits or banana).

If the person does not feel better (or their blood glucose is still less than 4mmol/L after 5-10min) repeat treatment (x3 max before dialling 999)

3. Hypoglycaemia management in patients attending for retinal screening

Treatment
This depends on whether the hypo is mild, moderate or severe. The severity of hypoglycaemia is determined by the patient’s symptoms, not the blood glucose level

Severe Hypo: patient is unconscious/fitting or very aggressive
Dial 999 for ambulance/paramedic
Put an unconscious patient in the recovery position
Do not attempt to restrain an aggressive patient

Moderate Hypo: patient is conscious and able to swallow but confused/disorientated or aggressive
If patient is capable and co-operative, offer original Lucozade® (initially 170ml but can be repeated)
Offer biscuits after 10-20mins once BG is above 4-5mmols/l.
If patient is uncooperative dial 999 for ambulance/paramedic
Do not attempt to restrain an aggressive patient but try to respond in a calm manner and offer original Lucozade® and biscuits as above, while awaiting the ambulance response

Mild Hypo: patient is conscious orientated and able to swallow
Ask the patient if they are carrying the treatment they would normally use to treat a hypo. If so, encourage them to take it
If the patient does not have treatment with them offer original Lucozade® as first line.
If the patient has blood glucose testing equipment with them, ask them to check the blood glucose 10-20 minutes after treatment to ensure it has risen above 5 mmol/L. Repeat treatment if necessary.
If they do not have blood glucose testing equipment with them, ensure they are feeling fully recovered. Repeat treatment if necessary
Offer biscuits after 10-20mins once BG is above 4-5mmols/l.
Ask the patient to remain in the screening venue until they are sure that the hypo has been fully treated
A snack such as 1-2 biscuits should be offered once the hypo has been treated.
Do not drive for at least 45 minutes after recovery from hypoglycaemia.

Do not attempt to restrain an aggressive patient but try to respond in a calm manner and offer original Lucozade® and biscuits as above, while awaiting the ambulance response

**Ask the patient to remain in the screening venue until they are sure that the hypo has been fully treated**
A snack such as 1-2 biscuits should be offered once the hypo has been treated.

Do not drive for at least 45 minutes after recovery from hypoglycaemia.

**Reporting**
The incident will be reported in line with CRM002 Policy for the management of Incidents

**Training requirements associated with this Protocol**

**Mandatory Training**
There is no mandatory training associated with this protocol

**Specific Training not covered by Mandatory Training**
Ad hoc training sessions based on an individual’s training needs as defined within their annual appraisal or job description.

**How this Protocol will be monitored for compliance and effectiveness**
There is no monitoring associated with this protocol

**Equality considerations**
See MMP001 Control of Medicines Policy.

**Reference Guide**
There are no references or bibliography associated with this document
### Document control details

| Author: | Dr Krishnan – Consultant Diabetologist NGH, Clinical Lead – Northamptonshire Diabetes Retinal Screening Service  
|         | Lynsey Burgess, Diabetes Specialist Nurse and Diabetes Clinical Lead  
|         | Katie Hards, South Northamptonshire-Senior Diabetes Nurse Specialist  
|         | Russell Parsons, Senior Pharmacist Community Services |
| Approved by and date: | 15.5.18 |
| Responsible committee: | Medicines Management Committee |
| Any other linked Policies: | CRM002- Policy for the Management of Incidents  
|         | MMP001-Control of Medicines Policy |
| Protocol number: | MMPR010 |
| Version control: | 1.0 |

<table>
<thead>
<tr>
<th>Version No.</th>
<th>Date Ratified/ Amended</th>
<th>Date of Implementation</th>
<th>Next Review Date</th>
<th>Reason for Change (e.g. full rewrite, amendment to reflect new legislation, updated flowchart, minor amendments, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>16.01.18</td>
<td>16.01.18</td>
<td>31.07.18</td>
<td>Review</td>
</tr>
<tr>
<td>2.0</td>
<td>15.5.18</td>
<td>15.5.18</td>
<td>31.5.20</td>
<td>Rewritten to include inpatient and community guidance</td>
</tr>
</tbody>
</table>
Appendix 1 - In-patient management of hypoglycaemia
### Management of hypoglycaemia

Patients who present with a blood glucose of less than 4.0mmols, should be assisted to follow one of the below care pathways.

<table>
<thead>
<tr>
<th>Adults who are conscious and can swallow</th>
<th>Adults who are confused/disorientated and agitated but can swallow</th>
<th>Adults who are unconscious, severely agitated or having seizures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>One</strong> of the following to be given:</td>
<td>Follow the advice as per the conscious patient. If unable to swallow, consider the use of Glucagon 1mg IM</td>
<td>Check: Airway, Breathing, Circulation. Use Recovery position: Administer Glucagon 1mg IM Call for ambulance</td>
</tr>
<tr>
<td>170mls Lucozade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>200mls Fruit Juice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>150mls Full Sugar Fizzy Drink</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-6 Dextro Tablets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Jelly Babies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeat blood glucose after 10 minutes.</td>
<td>Repeat blood glucose after 10 minutes. If BM remains below 4.0mmols, follow the above advice again to a maximum of 3 times</td>
<td>If blood glucose rises above 4.0mmols and the patient recovers, provide long acting carbohydrates, e.g <strong>One</strong> of the below: 4 Biscuits 2 Slices of bread/toast 500 ml Glass of milk Normal meal if due.</td>
</tr>
<tr>
<td>If blood glucose remains below 4.0mmols, contact doctor and consider use of Glucagon 1mg IM</td>
<td>If blood glucose remains below 4.0mmols, contact doctor and consider use of glucagon if no already administered</td>
<td>As the liver needs to restock its glucose supplies, a higher blood glucose level of 8.0mmols would be advisable post glucagon for 48 hours.</td>
</tr>
<tr>
<td>Once blood glucose is above 4.0mmols and patient is recovered, provide long acting carbohydrates, e.g <strong>One</strong> of the below: 2 Biscuits 1 Slice of bread/toast 200-300mls Glass of milk Normal meal if due</td>
<td>Once blood glucose is above 4.0mmols and the patient is recovered, provide long acting carbohydrates, e.g <strong>One</strong> of the below: 2 Biscuits 1 Slice of bread/toast 200-300mls Glass of milk Normal meal if due</td>
<td></td>
</tr>
</tbody>
</table>
Patients who are on insulin or have hypos on sulphonyl urea medications should carry their own monitors. They should also test before driving and be ‘5+ to drive’.

Patients who have had a hypo ‘should be 5+’ for 45 minutes before driving.

People with diabetes who are at risk of Hypoglycaemia are taught to carry their blood glucose kit with them and their preferred hypo treatment. When consulting with people with diabetes it is helpful to establish the above information. When a hypo is suspected, support and encourage the individual to self-manage the hypo. If hypos are a frequent problem suggest they see their regular healthcare provider. When people are unprepared a HYPOBOX in your work area is important and should contain a selection of the above stated items appropriate to the work area.
**ALGORITHM: HYPOGLYCAEMIA MANAGEMENT IN THE COMMUNITY SETTING**

(Recognition, treatment and prevention of hypoglycaemia in the community—Adapted from TREND UK; Dec 2011)

Is it hypoglycaemia?
If patient self-testing and blood glucose greater than 4mmol/L
- Consider GP referral for alternative cause of symptoms
- Small carbohydrate snack to relieve symptoms.

**HYPOGLYCAEMIA**
- Early symptoms—sweating, palpitations, shaking, hunger, irritable
- Late symptoms—confusion, drowsiness, odd behaviour, speech difficulty, lack of co-ordination, coma

Patients who are on insulin or have hypos on sulphonylurea medications should carry their own monitors. They should also test before driving and be ‘5+ to drive’.
Patients who have had a hypo ‘should be 5+ for 45 minutes before driving.

**Mild—person can self-treat**

Treatment options: 15-20g carbs
- 170ml Lucozade
- 150ml (a small can) of fizzy non-diet drink
- 200ml (a small carton) of smooth orange juice
- 5 or 6 dextrose tablets
- 4 large jelly babies

When the person starts to feel better, and if they are not due to eat a meal, make sure they eat some starchy food (sandwich, biscuits or banana)

**Severe—person cannot self-treat**

Treatment options:
The person should be put in the recovery position. Glucose treatment should not be given.
Dial 999 for an ambulance.

If the person does not feel better (or their blood glucose is still less than 4mmol/L after 5-10min) repeat treatment (x3 max before dialling 999)

Stay with the person at all times

Patients ‘nil by mouth’ or ‘enteral feeding’ should be treated as ‘severe—cannot self-treat’
Diabetes management should be reviewed to prevent further episodes of hypoglycaemia.
Contact the diabetes care provider or refer to the NMDT
People with diabetes who are at risk of Hypoglycaemia are taught to carry their blood glucose kit with them and their preferred hypo treatment. When consulting with people with diabetes it is helpful to establish the above information. When a hypo is suspected, support and encourage the individual to self-manage the hypo. If hypos are a frequent problem suggest they see their regular healthcare provider.