

## USE OF STAT DOSES OF RAPID-ACTING INSULINS FOR HYPERGLYCAEMIA TREATMENT OF ADULT INPATIENTS WITH DIABETES BEST PRACTICE GUIDANCE

<b>Guideline Reference</b>	G440
<b>Version Number</b>	1.1
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<b>Date of Last Changes (This Version)</b>	2 September 2024
<b>Date of Next Review</b>	July 2027
<b>Approved by: Date</b>	Weeliat Chong – Chief Pharmacist 2 September 2024

**VALIDITY – Guidelines should be accessed via the Trust intranet to ensure the current version is used.**

### CHANGE RECORD

Version	Date	Change details
1.0	25 July 2024	<i>New guidelines developed. Approved at Drug and Therapeutics Group (25 July 2024).</i>
1.1	2 Sept 2024	<i>Minor amendment of inaccuracies in Appendix 5 guidance chart. Approved by Weeliat Chong – Chief Pharmacist (2 September 2024).</i>

## Contents

1. INTRODUCTION .....	3
2. SCOPE .....	3
3. PROCEDURES.....	3
3.1. FLOWCHART FOR CLINICAL DECISION MAKING .....	3
3.2. INSULIN DOSES AS PER BLOOD GLUCOSE LEVELS .....	4
4. REFERENCES/DEFINITIONS .....	4
5. RELEVANT TRUST POLICIES/PROCEDURES/PROTOCOLS/GUIDELINES.....	4
APPENDIX 1 – INFORMATION ON INSULIN .....	5
APPENDIX 2 – INFORMATION ON PEN DEVICES USED IN WARD SETTINGS .....	9
APPENDIX 3 – INFORMATION AROUND HYPEROSMOLAR HYPERGLYCAEMIC STATE (HHS).....	13
APPENDIX 4 – INFORMATION FOR DKA .....	14
APPENDIX 5 – DKA TRAFFIC LIGHT GUIDANCE.....	15
APPENDIX 6 – COPY OF FLOWCHART AND INSULIN DOSES FOR PRINTING.....	16

## 1. INTRODUCTION

These guidelines are to support staff on inpatient Mental health wards to manage patients that have not been administering their own insulin and/or have no supply with them on admission. This guidance allows the staff to support the patients in giving short acting insulin in cases of emergencies.

Stat doses of fast acting insulin should be avoided provided the patient is clinically well and asymptomatic. Stat doses of fast acting insulin can result in insulin stacking and hypoglycaemia. A patient's own insulin regime is the best course of treatment when every possible.

The use of stat doses of insulin interferes with the regular blood glucose patterns making it difficult to safely adjust the patient's regular diabetes medication. If the use of a stat dose of fast acting insulin is necessary. Please follow the guidelines below and refer the patient to the local diabetes specialist nursing team.

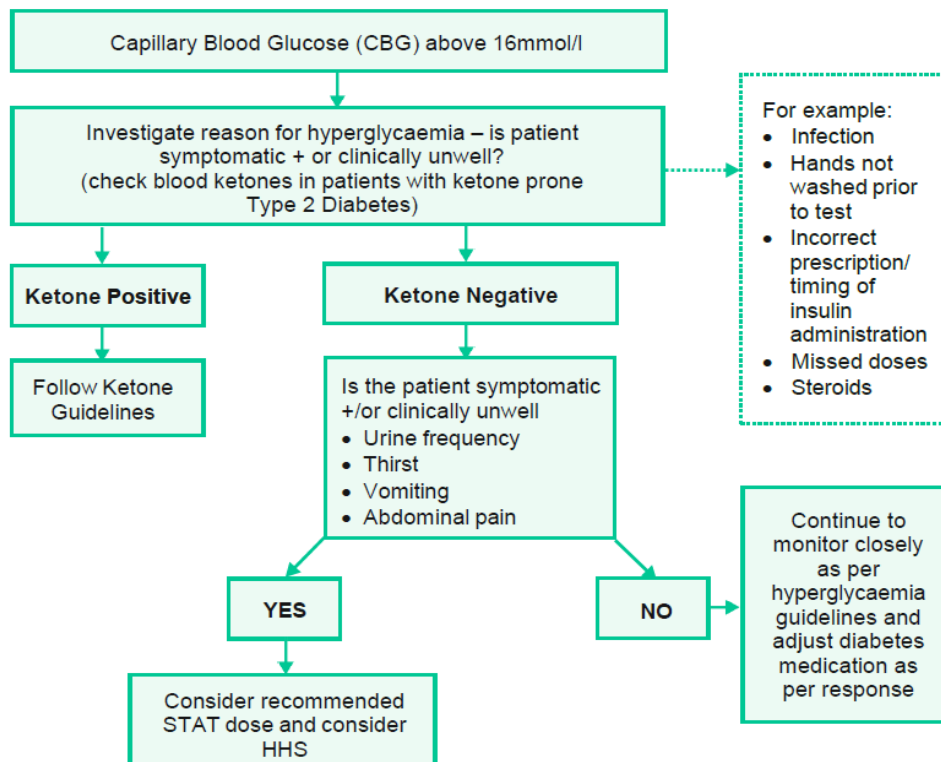
The main aim is to work towards the patient using their own insulin regime,

## 2. SCOPE

This guidance will allow qualified Mental Health Nurses to administer doses of short acting insulin to Type one Diabetes patients. In line with the guidelines below.

## 3. PROCEDURES

### 3.1. FLOWCHART FOR CLINICAL DECISION MAKING



### 3.2. INSULIN DOSES AS PER BLOOD GLUCOSE LEVELS

**Recommended STAT dose**

Novorapid, Apidra and Humalog – Onset 15mins, peak 1-2 hrs, duration 2-5 hrs.  
**Recommended prescribed frequency if needed is 4 hry.**

Blood Glucose range	Dose
16 to 20 mmol/l	2 units
21 to 25 mmol/l	4 units
Above 25 mmol/l	6 units

Check **CBG** 1 hour post dose to prevent Hypoglycaemia

These doses are recommendations only always consider the clinical context

### 4. REFERENCES/DEFINITIONS

Guidelines supplied from York and Scarborough on stat doses of rapid insulin on inpatient wards.

Information for Novorapid insulin and FlexPen all taken from Novo Nordisk webpages patient leaflets.

Information for HHS and DKA taken from Diabetes UK

### 5. RELEVANT TRUST POLICIES/PROCEDURES/PROTOCOLS/GUIDELINES

Medicines Management pages [Medicines Management \(humber.nhs.uk\)](https://www.humber.nhs.uk)

Safe and secure handling of medicines procedure

Ward-based dispensing SOP

Critical Medicines

## APPENDIX 1 – INFORMATION ON INSULIN

# a guide to your insulin therapy with NovoRapid®



This guide is intended for people who have been prescribed NovoRapid®

Please read the full instruction leaflet that comes with your NovoRapid®

**NovoRapid®**  
(insulin aspart)

changing  
diabetes®

  
novo nordisk®

## About NovoRapid®

### What is NovoRapid®?

NovoRapid® is a rapid-acting analogue insulin for the treatment of diabetes. It differs from soluble human insulin by a single amino acid. This change enables it to act more quickly than injected soluble human insulin and to mimic more closely the body's own insulin. NovoRapid® is called a bolus or mealtime insulin.

### How is it used?

NovoRapid® is used to cover your mealtime insulin requirements.

### What does it do?

When injected, NovoRapid® lowers your blood glucose. It works for a short time, long enough to cover your mealtime insulin requirements.

### How long does NovoRapid® work for?

NovoRapid® has a shorter duration of action than soluble human insulin. The blood glucose lowering effect of NovoRapid® lasts for about 3-5 hours.

## What to do before injecting NovoRapid®?

- Check the label on your cartridge, vial, FlexTouch® or FlexPen® to make sure you have the right insulin. Remember, NovoRapid® is always colour coded orange
- Check for any damage to your cartridge, vial, FlexTouch® or FlexPen®. If it is damaged, do not use it and use a new one instead
- You do not need to resuspend NovoRapid® before you inject
- Before each injection you must do an air-shot of a couple of units to remove any air bubbles from the insulin and the needle
- Remember to use a new needle each time you inject NovoRapid®

## **Injecting NovoRapid®**

### **How do I inject NovoRapid®?**

NovoRapid® is for injection under the skin (subcutaneously). Never inject your insulin directly into a vein or muscle. Always use the injection technique shown to you by your doctor or diabetes nurse.

### **Where should I inject NovoRapid®?**

The recommended places to inject your insulin are the front of your thighs, buttocks, your upper arm or your abdomen (to the front of your body about waist height).

### **Should I always inject NovoRapid® in the same place?**

As with other insulins, NovoRapid® may work a bit differently when injected in different parts of the body. It is therefore advisable to inject at different injection sites within the same part of your body, for example, always in your upper arm or always on the front of your thigh.

### **How can I avoid lumps at the injection site?**

Injecting yourself too often at the same site can cause lumps. To prevent this, simply choose a different injection site within the same area of the body each time you inject NovoRapid®.

## **Your needle**

### **Can I use the needle again?**

It is recommended to discard the needle after each injection.

### **What happens if I use the same needle more than once?**

The needle may become blunted, causing more pain when injecting. Also, leaving the needle on your injection device between injections may cause insulin to leak out.



## Using NovoRapid® PumpCart®

### How do I use NovoRapid® PumpCart®?

Follow the display messages shown on the screen of your insulin pump device, to insert a new NovoRapid® PumpCart® cartridge.

- When prompted in the display message, turn the adapter anti-clockwise
- When you reach an angle of about 120° remove the adapter
- When inserting cartridge, the plunger end goes in first
- Replace the adapter onto your insulin pump device
- Again, follow the display messages shown on the screen to continue using your insulin pump device

Before using NovoRapid® PumpCart® in a pump, you must have thorough training in the use of the pump.

## Storing NovoRapid®

### How do I store my NovoRapid®?

After injection, keep your NovoRapid® with you and protect it from excessive sunlight and heat. Always remember to put the cap back on your injection device.

### Do I need to keep my NovoRapid® in the refrigerator?

NovoRapid® that you are currently using does not need to be kept in the refrigerator. As long as it is kept at room temperature (not above 30°C) it can be used for up to 4 weeks. NovoRapid® that you are not currently using should be kept in the refrigerator (between 2–8°C) away from the freezer compartment. Any NovoRapid® that has been frozen must not be used. Always check the expiry date on the label or carton and do not use any NovoRapid® past the expiry date.



## APPENDIX 2 – INFORMATION ON PEN DEVICES USED IN WARD SETTINGS

# NovoRapid® FlexPen®

Active ingredient(s): *Insulin aspart*

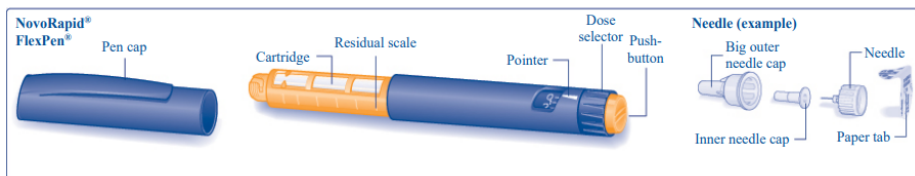
### INSTRUCTIONS FOR USE

#### Introduction

Please read the following instructions carefully before using your NovoRapid® FlexPen®. If you do not follow the instructions carefully, you may get too little or too much insulin, which can lead to too high or too low blood sugar levels.

Your NovoRapid® FlexPen® is a pre-filled, dial-a-dose insulin pen. You can select doses from 1 to 60 units in increments of 1 unit. FlexPen® is designed to be used with NovoFine® disposable needles up to a length of 8 mm.

As a precautionary measure, always carry a spare insulin delivery device in case your FlexPen® is lost or damaged.



#### Caring for your pen

Your FlexPen® must be handled with care. If it is dropped, damaged or crushed, there is a risk of insulin leakage. This may cause inaccurate dosing, which can lead to too high or too low blood sugar levels.

You can clean the exterior of your FlexPen® by wiping it with a medicinal swab. Do not soak it, wash or lubricate it as this may damage the pen.

Do not refill your FlexPen®.

#### Preparing your NovoRapid® FlexPen®

Check the name and coloured label of your pen to make sure that it contains the correct type of insulin. This is especially important if you inject more than one type of insulin. If you inject the wrong type of insulin, your blood sugar level may get too high or too low.

##### A

Pull off the pen cap.



##### B

Remove the paper tab from a new disposable needle.

Screw the needle straight and tightly onto your FlexPen®.



C

Pull off the big outer needle cap and keep it for later.



D

Pull off the inner needle cap and dispose of it. Never try to put the inner needle cap back on the needle. You may stick yourself with the needle.



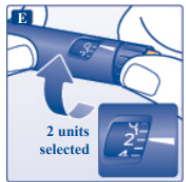
- ▲ Always use a new needle for each injection. This reduces the risk of contamination, infection, leakage of insulin, blocked needles and inaccurate dosing.
- ▲ Be careful not to bend or damage the needle before use.

### Checking the insulin flow

**Prior to each injection small amounts of air may collect in the cartridge during normal use. To avoid injection of air and ensure proper dosing:**

E

Turn the dose selector to select 2 units.



F

Hold your FlexPen® with the needle pointing upwards and tap the cartridge gently with your finger a few times to make any air bubbles collect at the top of the cartridge.

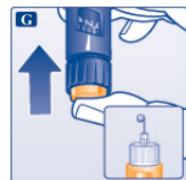


G

Keeping the needle upwards, press the push-button all the way in. The dose selector returns to 0.

A drop of insulin should appear at the needle tip. If not, change the needle and repeat the procedure no more than 6 times.

*If a drop of insulin still does not appear, your FlexPen® is defective, and you must use a new one.*



- ▲ Always make sure that a drop appears at the needle tip before you inject. This makes sure that the insulin flows. If no drop appears, you will not inject any insulin, even though the dose selector may move. This may indicate a blocked or damaged needle.
- ▲ Always check the flow before you inject. If you do not check the flow, you may get too little insulin or no insulin at all. This may lead to too high blood sugar levels.

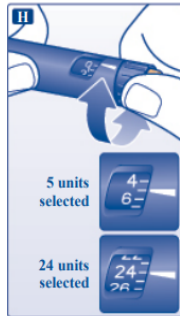
## Selecting your dose

Check that the dose selector is set at 0.

H

Turn the dose selector to select the number of units you need to inject. The dose can be corrected either up or down by turning the dose selector in either direction until the correct dose lines up with the pointer. When turning the dose selector, be careful not to push the push-button as insulin will come out.

You cannot select a dose larger than the number of units left in the cartridge.



- ▲ Always use the dose selector and the pointer to see how many units you have selected before injecting the insulin.
- ▲ Do not count the pen clicks. If you select and inject the wrong dose, your blood sugar level may get too high or too low. Do not use the residual scale, it only shows approximately how much insulin is left in your pen.

## Making the injection

Insert the needle into your skin. Use the injection technique shown by your doctor or diabetes education nurse.

I

Inject the dose by pressing the push-button all the way in until 0 lines up with the pointer. Be careful to only push the push-button when injecting. Turning the dose selector will not inject insulin.

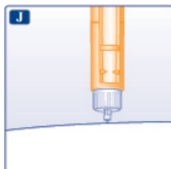


J

Keep the push-button fully depressed and let the needle remain under the skin for at least 6 seconds. This will make sure you get the full dose.

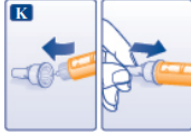
Withdraw the needle from the skin, then release the pressure on the push-button.

Always make sure that the dose selector returns to 0 after the injection. If the dose selector stops before it returns to 0, the full dose has not been delivered, which may result in too high blood sugar levels.



## K

Guide the needle into the big outer needle cap without touching it. When the needle is covered, carefully push the big outer needle cap completely on and then unscrew the needle. Dispose of it carefully and put the pen cap back on.



- ▲ Always remove the needle after each injection and store your FlexPen® without the needle attached. This reduces the risk of contamination, infection, leakage of insulin, blocked needles and inaccurate dosing.

### **Further important information**

- ▲ Caregivers must be very careful when handling used needles, to reduce the risk of needle sticks and cross-infection.
- ▲ Dispose of your used FlexPen® carefully without the needle attached.
- ▲ Never share your pen or needles with other people. It might lead to cross-infection.
- ▲ Never share your pen with other people. Your medicine might be harmful to their health.
- ▲ Always keep your pen and needles out of sight and reach of others, especially children.

### **APPENDIX 3 – INFORMATION AROUND HYPEROSMOLAR HYPERGLYCAEMIC STATE (HHS)**

HHS is Hyperosmolar Hyperglycaemic State. This occurs in people with Type 2 Diabetes who experience very high blood glucose levels (often over 40mmols). It can develop over a course of weeks through combination of illness (e.g., infection) and dehydration.

[https://www.diabetes.org.uk/guide-to-diabetes/complications/hyperosmolar\\_hyperglycaemic\\_sta](https://www.diabetes.org.uk/guide-to-diabetes/complications/hyperosmolar_hyperglycaemic_sta)

## **APPENDIX 4 – INFORMATION FOR DKA**

Diabetes Ketoacidosis, also known as DKA, is when there is severe lack of insulin in the body. This means the body cannot use the glucose of energy and starts to use fat stores instead. When this happens, chemicals called ketones are released. If left unchecked, ketones can build up and make your blood become acidic. This is a life threatening condition and can result in death if left unchecked.

[Diabetic ketoacidosis \(DKA\) | Ketosis symptoms and treatment | Diabetes UK](#)



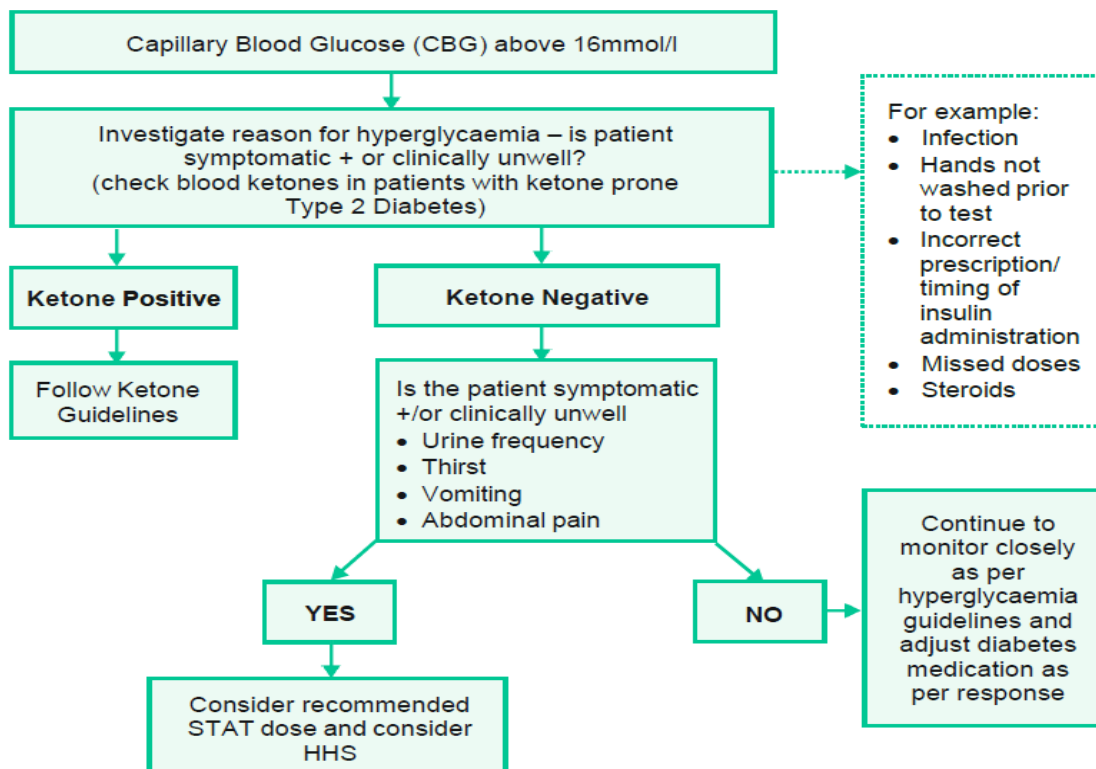
## APPENDIX 5 – DKA TRAFFIC LIGHT GUIDANCE FOR KETONE LEVELS

< than 0.6mmol/L normal consider recheck if glucose levels remain > 15mmols

between 0.7-1.4mmol/L indicates review for additional insulin. Need to seek advice from GP/DSN. Consider 999 if patient deteriorating.

> than 1.5mmol/L indicates risk of DKA. Consider 999 and prompt medical review.

## APPENDIX 6 – COPY OF FLOWCHART AND INSULIN DOSES FOR PRINTING



### Recommended STAT dose

**Novorapid, Apidra and Humalog – Onset 15mins, peak 1-2 hrs, duration 2-5 hrs.**  
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