ICU Insulin Sliding Scale

Do not use in DKA/HHS

Intensive Care Services

Surname: ..... NHI: .....
First Names: .....
Date of Birth: ...../...../..... Sex: .....
PLACE PATIENT ID HERE

1 is the patient's blood glucose **> 12 mmol/L** ?

- NO → repeat blood glucose 4 hourly
- YES → add **60 IU** NOVORAPID to **60 mL** 0.9% Saline in 60 mL syringe

To determine starting scale (A or B): is the patient
- post cardiac surgery *or*
- receiving steroids (including hydrocortisone) *or*
- usually on >80 IU insulin per day

2 START INFUSION AT RATE BELOW

BLOOD GLUCOSE (mmol/L)	SCALE A (NO)	SCALE B (YES)	SCALE C (do not start here)	SCALE D (do not start here)	SCALE E (do not start here)
<6	**STOP INFUSION** Recheck BGL every 15 min until ≥6 then restart				
6-10	1	2	3	4	
10.1-12	2	4	6	8	
12.1-14	3	5	8	11	
14.1-16	4	7	10	14	
>16	6	9	12	16	

INFUSION RATE in mLs/hr (= IU/hr)

Type 1 diabetics are at risk of ketosis if insulin is stopped for >1 hour. In these patients, if blood glucose < 6 mmol/L, move **DOWN** a scale **and start 10% dextrose IV at 40 mL/hr**

Start long acting subcutaneous insulin before discharge
(see over page)

3 MONITORING

- Check blood glucose **hourly for 4 hrs** until within range **6 - 12 mmol/L**
- If remains in range, **decrease frequency** of testing to **every 2 hrs** for **next 12 hrs**
- If remains in range for **≥ 12 hrs**, **decrease frequency** of testing to **every 4 hrs**
- If blood glucose **> 12 mmol/L**, increase infusion/scale. Measure **hourly**
- Check blood ketones in T1DM *or* T2DM on empagliflozin

4 CHANGING SCALES

Move **UP** a scale if blood glucose:
> 12 mmol/L for **2 consecutive readings** on a given scale ***OR***
> 16 mmol/L after **1 hour** on a given scale

Inform medical staff if any patient requires ≥ 8 mLs/hr

Higher hourly infusion rates can be prescribed in blank **SCALE E** if scale D is insufficient to achieve blood glucose target range

Move **DOWN** a scale if blood glucose **<8 mmol/L** for **2 consecutive readings or <6 mmol/L** for **1 reading**

5 DOCUMENTATION

DOCTOR NAME & SIGNATURE

Date: ___/___/_____

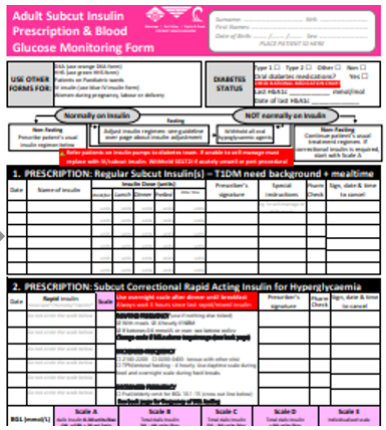
SCALE (A-E)	TIME/DATE STARTED	RN NAME & SIGNATURE
	___:___ ___/___/___	
	___:___ ___/___/___	
	___:___ ___/___/___	
	___:___ ___/___/___	
	___:___ ___/___/___	

ICU Insulin Sliding Scale

Conversion to Hospital subcutaneous insulin chart guide

WHEN TO START SUBCUTANEOUS INSULIN

Start the pink Hospital *Adult Subcutaneous Insulin Prescription & Blood Glucose Monitoring Form* as soon as the **decision to discharge to the ward** has been made. If they require regular subcut long-acting insulin *(Protaphane or Lantus)*, administer it immediately, **before** intravenous insulin is ceased. Any patient who requires ≥ 24 IU insulin a day and is cardiovascularly stable can be started on long-acting insulin during their ICU stay. This simplifies subsequent transition to the *pink* Hospital chart. If the patient is not eating/fed, use *blue* Hospital IV insulin chart (includes I/V dextrose)



HOW TO PRESCRIBE SUBCUTANEOUS INSULIN

1 Calculate **total insulin dose** received in ICU in **last 24 hrs**

≥ 24 IU ?

NO → does not require **regular** subcut insulin **unless patient has T1DM.** If so, **refer Diabetes Service** & prescribe 80% of pre-admission doses long & rapid-acting insulin

YES → does patient usually take intermediate/mixed insulin?

NO → Prescribe regular ***Lantus*** subcut **od**. Dose is **50% of total insulin dose received in last 24 hours**.
*e.g. if patient received 100 IU insulin in last 24 hours, chart 50 IU Lantus subcut **od***

YES → Prescribe regular ***Protaphane*** subcut **bd**. Total dose is **50% of total insulin dose** received in last 24 hours. **Divide this total dose by two** to give **bd subcut dose.**
*e.g. if patient received 100 IU insulin in last 24 hours, chart 25 IU Protaphane subcut **bd***

chart this on section 1 of *pink* Hospital chart

2 Irrespective of amount of insulin received in the past 24 hours in ICU, prescribe ***NovoRapid*** on *Subcutaneous Correctional Rapid Acting Insulin Bolus* (section 2 of pink Hospital chart). Choose appropriate scale based on insulin dose prescribed in **section one** above

3 Restart oral hypoglycaemic drugs prior to ICU discharge if the patient usually takes these unless **significant new renal dysfunction** or is **not being fed/eating**. If patient does not usually take insulin, consider trial of usual regular oral hypoglycaemic drugs alone **before** starting regular long-acting insulin.

WHEN TO REFER PATIENTS TO THE DIABETES SERVICE

Any of the following groups should be referred to the in-patient diabetes service **prior to ICU discharge:**

- *All patients with type 1 diabetes, irrespective of reason for ICU admission*
- *All patients with severe pancreatitis or after major pancreatic surgery who require insulin*
- *Patients with DKA or HHS*
- *Patients new to insulin who required ≥ 24 IU intravenously in previous 24 hours*

Referrals are electronic through MAP: Select Patient ⇒ Add New Document ⇒ Diabetes Inpatient Referral

Wellington ICU protocol: Jason Wright & Paul Young. Chart design: Alex Psirides v4 2023-04