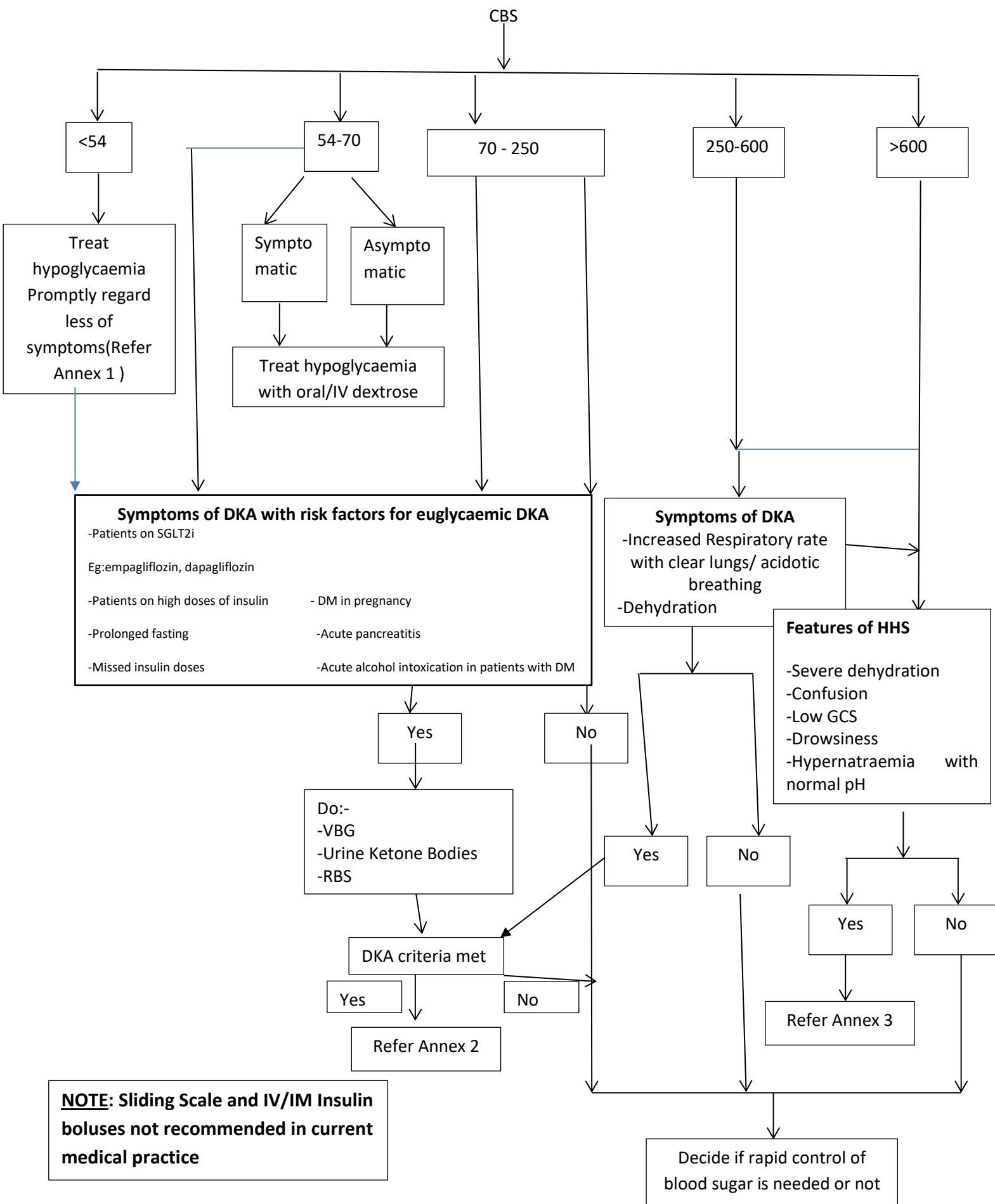
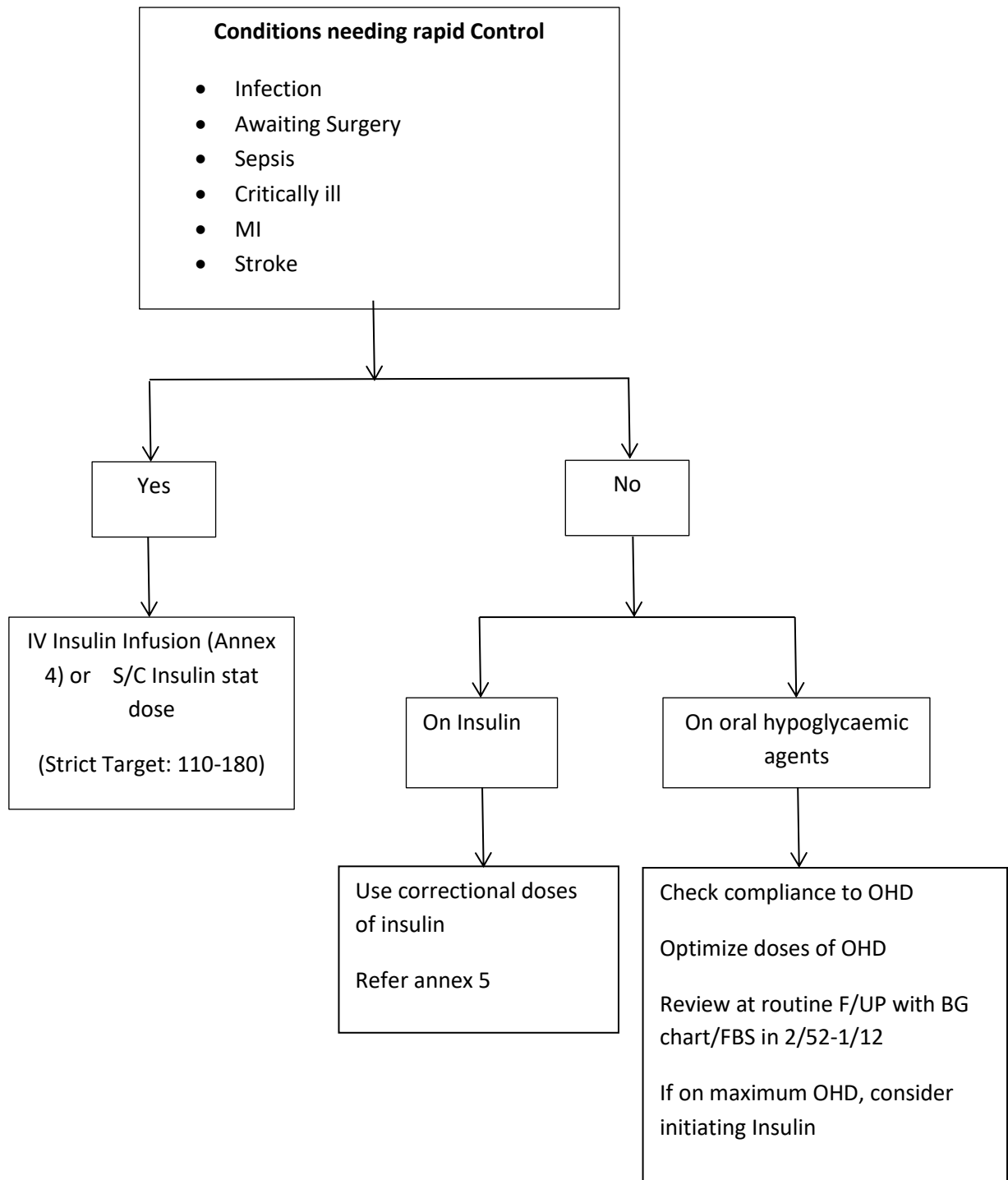


Management of Hypo/Hyperglycaemia





Rough guide for S/C Insulin Stat dose -

- CBS: 180-250 - S/C Insulin 4-6 units
- CBS: 250-350 - S/C Insulin 6-10 units
- CBS: 350-450 - S/C Insulin 8-15 units
- CBS: 450-HI – S/C Insulin 15-20 units

Annex 1

Hypoglycaemia in patients with DM

Table 6.4—Classification of hypoglycemia		
Glycemic criteria/description		
Level 1	Glucose <70 mg/dL (<3.9 mmol/L) and ≥54 mg/dL (≥3.0 mmol/L)	Onset of neuroglycopaenic symptoms
Level 2	Glucose <54 mg/dL (<3.0 mmol/L)	
Level 3	A severe event characterized by altered mental and/or physical status requiring assistance for treatment of hypoglycemia, irrespective of glucose level	

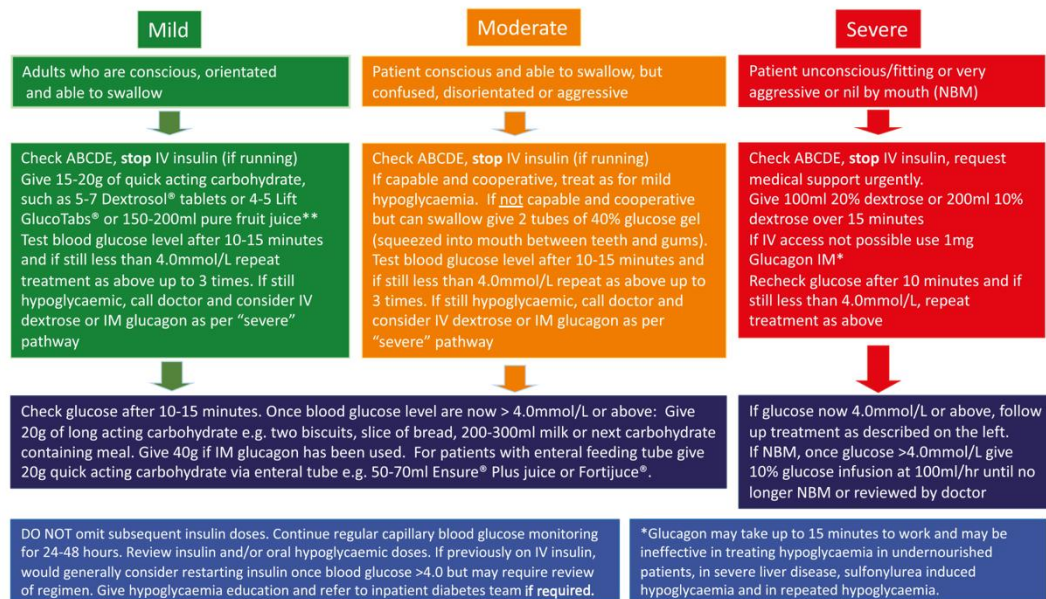
Warrants urgent treatment

Symptoms of hypoglycemia include, but are not limited to, shakiness, irritability, confusion, tachycardia, sweating, and hunger.

Because many people with diabetes experience impaired hypoglycemia awareness, a measured glucose level <70 mg/dL (<3.9 mmol/L) is considered clinically important, regardless of symptoms.

Algorithm for the Management of Hypoglycaemia in Adults with Diabetes in Hospital

Hypoglycaemia is a serious condition and should be treated as an emergency regardless of level of consciousness. Hypoglycaemia is defined as blood sugar glucose of $<4.0\text{mmol/L}$ (if not $<4.0\text{mmol/L}$ but symptomatic give a small carbohydrate snack for symptom relief) See full guideline "The Hospital Management of Hypoglycaemia in Adults with Diabetes Mellitus" at www.diabetes.org.uk/joint-british-diabetes-society



Level 1 and 2 hypoglycaemia Management (mild-mod)-

Rapid acting Carbohydrate 15-20 g in Sri Lankan setting-

- 15-20 g of pure glucose preferred

Alternatives-

- 150-200ml pure fruit juice (e.g. orange juice), do not use if following a low potassium diet (e.g. to treat chronic kidney disease) in view of its potassium content.
- 3-4 heaped teaspoons of sugar dissolved in water.
- In moderate hypoglycaemia, glucose dissolved in water can be applied to buccal mucosa as an alternative to dextrose gel.
- Once blood glucose is above 4.0mmol/L and the person has recovered, give a long acting carbohydrate snack (20g) of their choice where possible, taking into consideration any specific dietary requirements.
- People given glucagon require a larger portion of long-acting carbohydrate (40g) to replenish glycogen stores (double the suggested amounts below) although nausea associated with glucagon injections may be an issue.
Examples include: a. Two biscuits b. One slice of bread/toast c. 200-300ml glass of milk (not soya or other forms of 'alternative milk, e.g. almond or coconut) d. Normal meal if due (must contain carbohydrate).

Level 3 hypoglycaemia-

- Immediate treatment with 25g of 25-50% glucose solution administered IV.
- No IV access-
If no IV access is available then give 1mg Glucagon IM. Glucagon is only licensed for insulin induced hypoglycaemia and may be less effective in people prescribed sulfonylurea therapy (may take up to 15 minutes to take effect).
Glucagon mobilises glycogen from the liver and will be less effective in those who are chronically malnourished (including those who have had a prolonged period of starvation), abuse alcohol or have chronic liver disease.
In this situation IV glucose is the preferred option. If no IV access is available initially, continue trying to achieve IV access as IM glucagon is less likely to be successful if required for a second time.

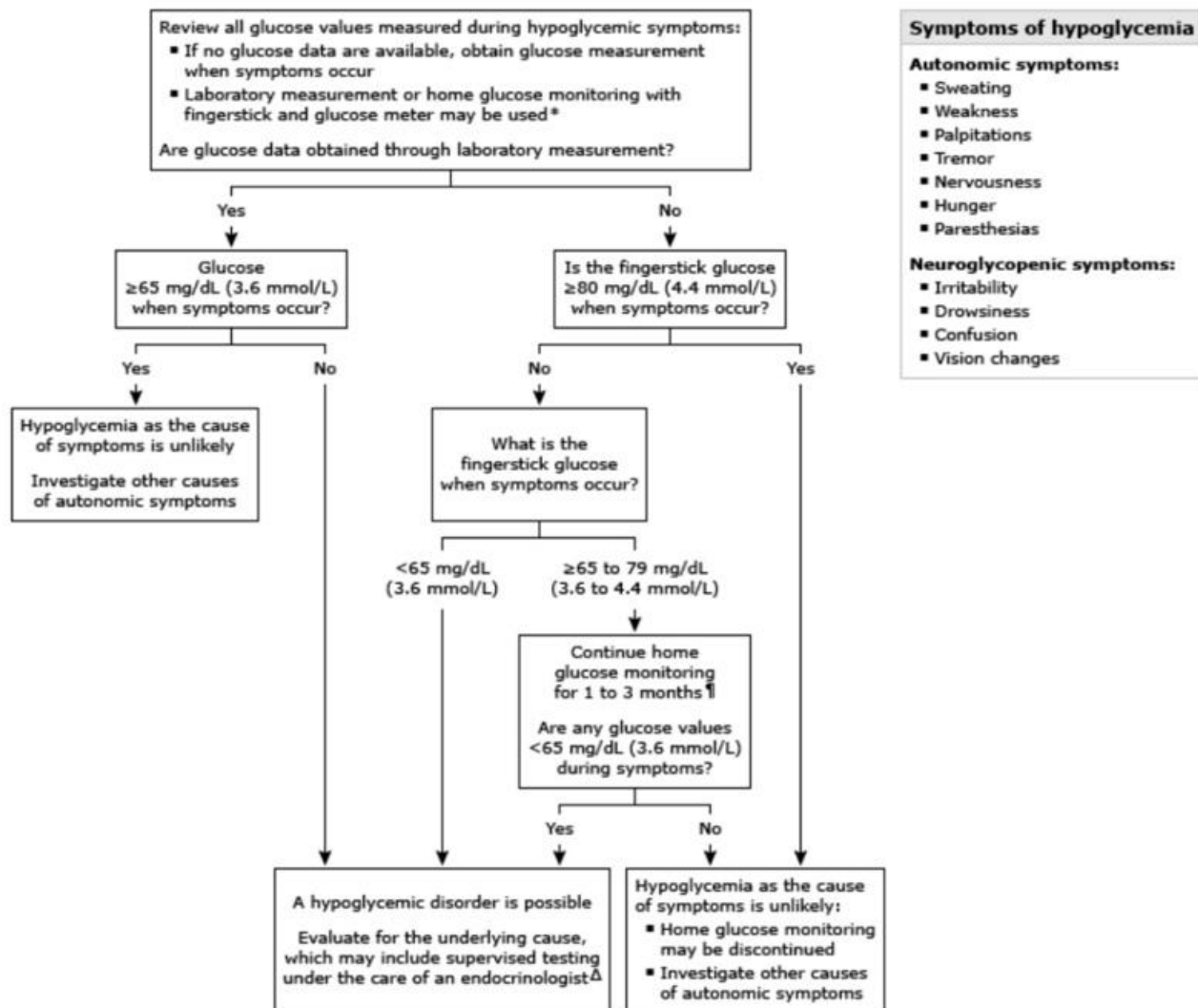
References

1. Joint British Diabetes Societies guideline on The Hospital Management of Hypoglycaemia in Adults with Diabetes Mellitus, January 2023 Revision
2. American Diabetes Association **Glycemic Goals and Hypoglycemia: *Standards of Care in Diabetes—2024***
3. Upto date

Hypoglycaemia in patients without DM

Management of hypoglycaemia according to severity similar to patients with DM and hypoglycaemia.

Evaluation of hypoglycemic symptoms in adults without diabetes mellitus

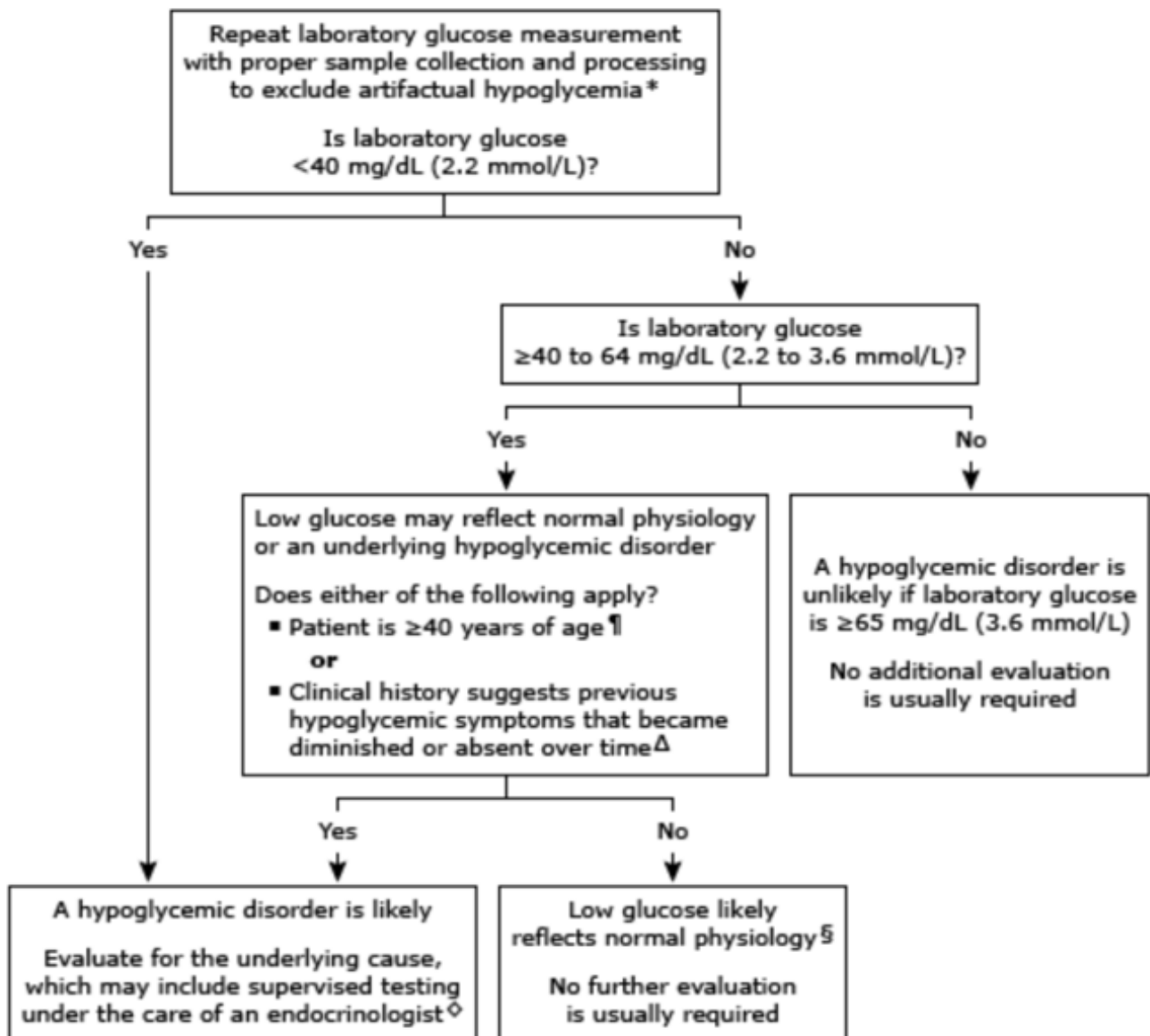


* If laboratory glucose measurement is pursued, insulin, C-peptide, and proinsulin levels should be obtained concurrently at the time of hypoglycemic symptoms. A detailed approach to home blood glucose monitoring with fingersticks and a glucose meter is described in other UpToDate content. Continuous glucose monitoring should **not** be used in the evaluation of hypoglycemic symptoms in individuals without diabetes.

¶ The duration of continued monitoring depends on factors including frequency of hypoglycemic symptoms and clinical suspicion for an underlying hypoglycemic disorder.

Δ Supervised testing can entail a supervised fast or mixed meal test, or evaluation may be performed during a spontaneous episode of hypoglycemia. Selection of a supervised test when hypoglycemia is not fortuitously observed depends on the timing of symptoms in relation to meals.

Evaluation of hypoglycemia in asymptomatic adults without diabetes mellitus



* Artifactual hypoglycemia can occur if an antiglycolytic agent (eg, fluoride) is not present in the blood collection tube and sample processing is delayed. Artifactual hypoglycemia also may be seen in individuals with leukocytosis, erythrocytosis, or hemolysis.

¶ A low glucose value is less likely to reflect normal physiology in individuals aged ≥40 years and usually warrants further evaluation.

Δ Individuals who report the loss of a symptomatic response to hypoglycemia over time should undergo additional evaluation as this history could reflect the evolution of impaired awareness of hypoglycemia that can occur with recurrent episodes of hypoglycemia.

◇ Supervised testing can entail a supervised fast or mixed meal test, or evaluation may be performed during a spontaneous episode of hypoglycemia. Selection of a supervised test when hypoglycemia is not fortuitously observed depends on the timing of symptoms in relation to meals.

§ In young (aged <40 years), healthy individuals, glucose values ≥40 to 64 mg/dL (2.2 to 3.6 mmol/L) can reflect normal physiology in the fasting state.

Causes of hypoglycemia in adults

Ill or medicated individual
1. Drugs
Insulin or insulin secretagogue
Alcohol
Others (refer to UpToDate table on drugs that cause hypoglycemia)
2. Critical illnesses
Hepatic, renal, or cardiac failure
Sepsis (including malaria)
Inanition
3. Hormone deficiency
Cortisol
Glucagon and epinephrine (in insulin-deficient diabetes mellitus)
4. Nonislet cell tumor
Seemingly well individual
5. Endogenous hyperinsulinism
Insulinoma
Functional beta cell disorders (nesidioblastosis)
Noninsulinoma pancreatogenous hypoglycemia
Post-gastric bypass hypoglycemia
Insulin autoimmune hypoglycemia
Antibody to insulin
Antibody to insulin receptor
Insulin secretagogue
Other
6. Accidental, surreptitious, or malicious hypoglycemia

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Drugs other than antihyperglycemic agents and alcohol reported to cause hypoglycemia

Moderate quality of evidence
Cibenzoline
Gatifloxacin
Pentamidine
Quinine
Indomethacin
Glucagon (during endoscopy)
Low quality of evidence
Chloroquineoxaline sulfonamide
Artesunate/artemisin/artemether
IGF-1
Lithium
Propoxyphene/dextropropoxyphene
Very low quality of evidence
Drugs with >25 cases of hypoglycemia identified
Angiotensin-converting enzyme inhibitors
Angiotensin receptor antagonists
Beta-adrenergic receptor antagonists
Levofloxacin
Mifepristone
Disopyramide
Trimethoprim-sulfamethoxazole
Heparin
6-mercaptopurine

IGF-1: insulin-like growth factor-1.

Reference

Up to date section on hypoglycaemia in adults without Diabetes.

Annex 2 – DKA Management

The Management of Diabetic Ketoacidosis in Adults

Where individuals aged 16-18 are managed by paediatric teams, the paediatric guidelines should be followed: [IRSPED IRSPED DKA Guidelines](#)

Diagnostic criteria: **all three of the following must be present**

- capillary blood glucose above 11 mmol/L
- capillary ketones above 3 mmol/L or urine ketones ++ or more
- venous pH less than 7.3 and/or bicarbonate less than 15 mmol/L

BOX 1: Immediate management: time 0 to 60 minutes (T=0 at time intravenous fluids are commenced)

If intravenous access cannot be obtained request critical care support immediately

- Action 1:** Commence 0.9% sodium chloride solution (use a large bore cannula) via an infusion pump
See Box 2 for rate of fluid replacement
- Action 2:** Commence a fixed rate intravenous insulin infusion (FRII), (0.1unit/kg/hr based on estimate of weight) 50 units human soluble insulin (Actrapid® or Humulin S®) made up to 50ml with 0.9% sodium chloride solution. If patient normally takes long acting insulin analogue (glargine, detemir, degludec) continue at usual dose and time
- Action 3:** Assess patient
- Respiratory rate, temperature, blood pressure, pulse, oxygen saturation
 - Glasgow Coma Scale
 - Full clinical examination
- Action 4:** Further investigations
- Capillary and laboratory glucose
 - Venous BG
 - U&E and FBC
 - Blood cultures
 - ECG
 - CXR
 - MSU
- Action 5:** Establish monitoring regimen
- Hourly capillary blood glucose
 - Hourly capillary ketone measurement if available
 - Venous bicarbonate and potassium at 60 minutes, 2 hours and 2 hourly thereafter
 - 4 hourly plasma electrolytes
 - Continuous cardiac monitoring if required
 - Continuous pulse oximetry if required
- Action 6:** Consider and precipitating causes and treat appropriately

HDU/level 2 facility and/or insertion of central line may be required in following circumstances (request urgent senior review)

- Young people aged 18-25 years
- Elderly
- Pregnant
- Heart or kidney failure
- Other serious co-morbidities
- Severe DKA by following criteria
 - Blood ketones above 6 mmol/L
 - Venous bicarbonate below 5 mmol/L
 - Venous pH below 7.0
 - Hypokalaemia on admission (below 3.5 mmol/L)
 - GCS less than 12
 - Oxygen saturation below 92% on air (Arterial blood gases required)
 - Systolic BP below 90 mmHg
 - Pulse over 100 or below 60 bpm
 - Anion gap above 16 [Anion Gap = (Na⁺ + K⁺) – (Cl⁻ + HCO₃⁻)]

litre of fluid

Systolic BP on admission 90 mmHg and over

Give 1L 0.9% sodium chloride over the first 60 minutes

Potassium replacement	Potassium replacement mmol/L of infusion solution
Potassium level (mmol/L)	
> 5.5	Nil
3.5-5.5	40 mmol/L
< 3.5	senior review – additional potassium required

BOX 4: 6 to 12 hours

Aims:

- Ensure clinical and biochemical parameters improving
- Continue IV fluid replacement
- Avoid hypoglycaemia
- Assess for complications of treatment e.g. fluid overload, cerebral oedema
- Treat precipitating factors as necessary

Action 1: Re-assess patient, monitor vital signs

- If patient not improving by criteria in Box 3, seek senior advice
- Continue IV fluid via infusion pump at reduced rate
 - 0.9% sodium chloride 1L with KCl over 4 hours
 - 0.9% sodium chloride with KCl over 6 hours
- Add 10% dextrose 125ml/hr if the glucose falls below 14 mmol/L
- **Consider** reducing the rate of intravenous insulin infusion to 0.05 units/ kg/hour when glucose falls below 14 mmol/L

Reassess cardiovascular status at 12 hours; further fluid may be required

Check for fluid overload

- Action 2 – Review biochemical and metabolic parameters**
- At 6 hours check venous pH, bicarbonate, potassium, capillary ketones and glucose
 - Resolution of DKA is defined as ketones <0.6 mmol/L AND venous pH >7.3 (do not use bicarbonate as a marker at this stage)
 - Ensure a referral has been made to the diabetes team
 - **If DKA not resolved review insulin infusion (see BOX 3 Action 3)**
 - **If DKA resolved go to BOX 6**

BOX 3: 60 minutes to 6 hours

Aims of treatment:

- Rate of fall of ketones of at least 0.5 mmol/L/hr OR bicarbonate rise 3 mmol/L/hr and blood glucose fall 3 mmol/L/hr
- Maintain serum potassium in normal range
- Avoid hypoglycaemia
- Action 1: Re-assess patient, monitor vital signs**
 - Hourly blood glucose (ab blood glucose if meter reading 'HI')
 - Hourly blood ketones if meter available
 - Venous blood gas for pH, bicarbonate and potassium at 60 minutes, 2 hours and 2 hourly thereafter
 - If potassium is outside normal range, re-assess potassium replacement and check hourly. If abnormal after further hour seek immediate senior medical advice
- Action 2: Continue fluid replacement via infusion pump as follows:**
 - 0.9% sodium chloride 1L with potassium chloride over next 2 hours
 - 0.9% sodium chloride 1L with potassium chloride over next 2 hours
 - 0.9% sodium chloride 1L with potassium chloride over next 4 hours
 - Add 10% glucose 125ml/hr if blood glucose falls below 14 mmol/L
 - **Consider** reducing the rate of intravenous insulin infusion to 0.05 units/ kg/hour when glucose falls below 14 mmol/L

More cautious fluid replacement in young people aged 18-25 years, elderly, pregnant, heart or renal failure. (Consider HDU and/or central line)

Action 3: Assess response to treatment

- Insulin infusion rate may need review if
- Capillary ketones not falling by at least 0.5 mmol/L/hr
 - Venous bicarbonate not rising by at least 3 mmol/L/hr
 - Plasma glucose not falling by at least 3 mmol/L/hr
 - Continue FRII until ketones less than 0.6 mmol/L, venous pH >7.3 and/or venous bicarbonate over 18 mmol/L

If ketones and glucose are not falling as expected always check the insulin infusion pump is working and connected and that the correct insulin residual volume is present (to check for pump malfunction).

If equipment working but response to treatment is inadequate, increase insulin infusion rate by 1 unit/hr increments hourly until targets achieved.

Additional measures

- Regular observations and Early Warning Score (NEWS2)
- Accurate fluid balance chart, minimum urine output 0.5ml/kg/hr
- Consider urinary catheterisation if incontinent or anuric (not passed urine) by 60 minutes
- Nasogastric tube with airway protection if patient obtunded or persistently vomiting
- Measure arterial blood gases and repeat chest radiograph if oxygen saturation less than 92%
- Thromboprophylaxis with low molecular weight heparin
- Consider ECG monitoring if potassium abnormal or concerns about cardiac status

BOX 5: 12 to 24 HOURS

Expectation: By 24 hours the ketonaemia and acidosis should have resolved. Request senior review is not improving

Aim:

- Ensure that clinical and biochemical parameters are continuing to improve or are normal
- Continue IV fluid replacement if not eating and drinking
- If ketonaemia has cleared and the person is not eating or drinking, move to a variable rate intravenous insulin infusion (VRII) as per local guidelines
- Reassess for complications of treatment, e.g. fluid overload, cerebral oedema
- Continue to treat precipitating factors
- Transfer to subcutaneous insulin if the person is eating and drinking normally and biochemistry is normal

Action 1 – Re-assess patient, monitor vital signs

Action 2 – Review biochemical and metabolic parameters

- At 12 hours check venous pH, bicarbonate, potassium, capillary ketones and glucose
- Resolution is defined as ketones <0.6 mmol/L, venous pH >7.3
- If not resolved review fluid Box 4 Action 1 and insulin infusion Box 3

Action 3

If DKA resolved go to Box 6

BOX 6: Resolution of DKA

Expectation: Patient should be eating and drinking and back on normal insulin

If DKA not resolved identify and treat the reasons for failure to respond. This situation is unusual and requires senior and specialist input

Transfer to subcutaneous insulin

Convert to subcutaneous regime when biochemically stable (capillary ketones less than 0.6 mmol/L AND pH over 7.3) and the patient is ready and able to eat. Do not discontinue intravenous insulin infusion until 30 minutes after subcutaneous short acting insulin has been given. Conversion to subcutaneous insulin should be managed by the Specialist Diabetes Team. If the team is not available use local guidelines. If the patient is newly diagnosed it is essential they are seen by a member of the specialist team prior to discharge. Arrange follow up with specialist team

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DISN
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A

ABCD
Association of British Clinical Diabetologists

WEDS

NHS
SCOTLAND

Diabetes

Royal College
of Physicians

The Association for
Clinical Biochemistry &
Laboratory Medicine

Imperial College
of Nursing

Represented: Association of British Clinical Diabetologists; British Society for Endocrinology and Diabetes and Association of Children's Diabetes Clinicians; Diabetes Inpatient Specialist Nurse (DISN) Group; Diabetes UK; Diabetes Network Northern Ireland; Society of Acute Medicine; Welsh Endocrine and Diabetes Society, Scottish Diabetes Group.

Annex 3 – HHS Management

Hyperosmolar Hyperglycaemic State (HHS) care pathway in adults

Clinical features (all the below)		Aims of therapy		Criteria for resolution of HHS: Holistic assessment of the following:		
1) Marked hypovolaemia	A mixed picture of HHS and DKA occurs relatively frequently	1) Improvement in clinical status and replacement of all estimated fluid losses by 24 hours		1) Clinical and cognitive status is back to the pre-morbid state		
2) Osmolality ≥ 320 mOsm/kg		2) Gradual decline in osmolality: drop of 3-8 mOsm/kg/hr		2) Osmolality <300 mOsm/kg		
3) Marked hyperglycaemia (≥ 30 mmol/L)		3) Blood glucose: aim to keep to 10-15 mmol/L in the first 24 hours		3) Hypovolaemia has been corrected (urine output ≥ 0.5 ml/kg/hr)		
4) Without significant ketonaemia (≤ 3.0 mmol/L)		4) Avoid hypoglycaemia and hypokalaemia		4) Blood glucose <15 mmol/L		
5) Without significant acidosis (pH ≥ 7.3) and bicarbonate ≥ 15 mmol/L		5) Prevent harm: VTE, osmotic demyelination, fluid overload, foot ulceration				
Theme	Time	0-60 minutes	60 minutes - 6 hours	6-12 hours	12-24 hours	24-72 hours
Clinical assessment and monitoring						
Clinical status / NEWS		History/examination, NEWS, cardiac monitoring, urine output Establish adequate intravenous lines (preferably 2 large bore IV cannulas) Discuss with outreach/ICU team early if there are markers of high severity (see Table 1 overleaf)			Check for continuing improvement	Expect steady recovery, patient eating and drinking, and biochemistry as it was prior to HHS Ongoing management of the precipitating cause(s) Replacement of all estimated fluid losses by 24 hours Individual BG target 6-10 mmol/L
Precipitating cause(s)		Assess for precipitating cause(s): sepsis, diabetic foot infection, treatment omissions, vulnerable adult, vascular event (myocardial infarction, stroke)			Ongoing management of the precipitating cause(s)	
Osmolality (VBG/blood) Measure/calculate ($2 \times \text{Na}^+$) + Glucose + Urea Aim for gradual decline of 3-8 mOsm/kg/hr		Check every hour for 6 hours Until the urea is available, calculate using ($2 \times \text{Na}^+$ + glucose). Recalculate osmolality once urea is available, and then use ($2 \times \text{Na}^+$ + glucose + urea)		Check every 2 hours	Check every 4 hours (if no clinical improvement then check every 2 hours)	
How to interpret osmolality results		Check Figure 1 overleaf	Check Figure 1 overleaf	Check Figure 1 overleaf	Check Figure 1 overleaf	
Blood glucose (BG) (Aim for 10-15 mmol/L in the first 24 hours)		Check every hour Fall in BG should be up to 5.0 mmol/L per hour (check Figure 2 overleaf for details)		Check every hour (check Figure 2 overleaf for details)	Check every hour (check Figure 2 overleaf for details)	
Interventions						
Intravenous fluids (0.9% saline) (In IV line 1) (caution in HF/CKD/BW <50 kg)		1 litre over 1 hour (caution in HF/CKD/BW <50 kg)	Aim for 2-3 litres positive balance by 6 hours	Aim for up to 6 litres positive balance by 12 hours	Reassess fluid balance to plan fluids replacement for the next 12 hours	Can be stopped if patient is eating and drinking
Insulin infusion (FRIII 0.05 units/kg/hr using Actrapid*) (In IV line 2)		Use DKA guidelines if ketonaemia (>3.0 mmol/L) or ketonuria ($\geq 2+$) Start FRIII if ketonaemia (>1.0 - ≤ 3.0 mmol/L) or ketonuria ($\geq 2+$)	Only commence if positive fluid balance and BG plateaued on repeated measurements (>2 occasions)		Rate may need adjustment to 1 unit/hr to achieve BG target 10-15 mmol/L	VRIII if not eating and drinking Otherwise convert to subcutaneous insulin
Glucose infusion: 5% or 10% @ 125ml/hr (In IV line 2)		Not required at this stage	Only initiate if BG <14 mmol/L		Continue infusion at 125 ml/hr	Can be stopped if patient is eating and drinking
Potassium		Senior review / ICU outreach if potassium <3.5 or >6.0 mmol/L	Check Table 2 overleaf for potassium replacement guidelines	Check Table 2 overleaf for potassium replacement guidelines	Check Table 2 overleaf for potassium replacement guidelines	Check U&Es daily
Assessments and prevention						
Prevent harm		VTE prophylaxis (low molecular weight heparin) Assess for complications e.g. fluid overload, cerebral oedema, osmotic demyelination (deteriorating conscious level)				VTE prophylaxis until discharge Daily feet checks
Prevent hypoglycaemia		Glucose 5% or 10% at 125 ml/hr if BG <14 mmol/L				Target BG 6-10 mmol/L
Prevent foot ulceration		Daily foot checks				Daily foot checks
Refer to the inpatient diabetes team early. Escalate management if there is clinical deterioration.						Review by inpatient diabetes team before discharge
Abbreviations: BG=blood glucose; BW=body weight; CKD=chronic kidney disease; FRIII=fixed rate intravenous insulin infusion; HF=heart failure; hr=hour; ICU=intensive care unit; IV=intravenous; kg=kilograms; NEWS=national early warning score; U&Es=urea and electrolytes; VBG=venous blood gas analysis; VRIII=variable rate intravenous insulin infusion; VTE=venous thromboembolism						
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Abbreviations: BG=blood glucose; BW=body weight; CKD=chronic kidney disease; FRIII=fixed rate intravenous insulin infusion; HF=heart failure; hr=hour; ICU=intensive care unit; IV=intravenous; kg=kilograms; NEWS=national early warning score; U&Es=urea and electrolytes; VBG=venous blood gas analysis; VRIII=variable rate intravenous insulin infusion; VTE=venous thromboembolism

Hyperosmolar Hyperglycaemic State (HHS) care pathway in adults

Figure 1: Managing osmolality changes during treatment of HHS

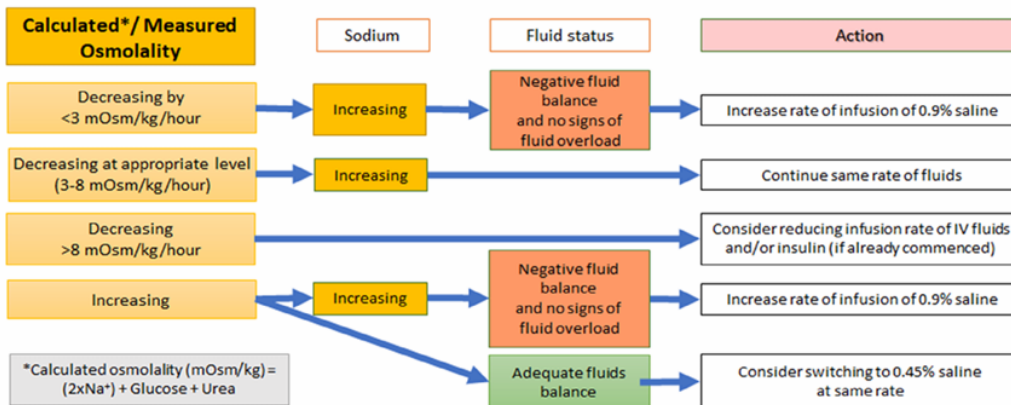
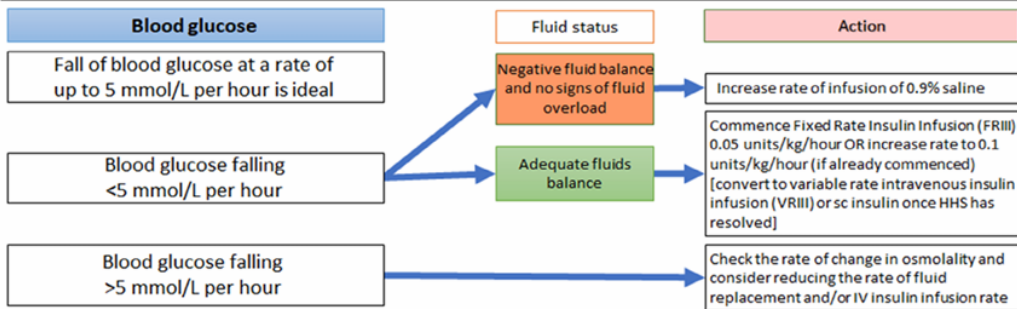


Figure 2: Managing glucose changes during treatment of HHS



If the parameters in Figures 1 and 2 above are not met, seek specialist input early to help tailor the management according to the individual's need

Table 1: Escalate to ICU/outreach if any of the following is present:

- Osmolality >350 mOsm/kg
- Sodium >160 mmol/L
- Venous/arterial pH <7.1
- Hypokalaemia (<3.5 mmol/L) or hyperkalaemia (>6 mmol/L) on admission
- Glasgow Coma Scale (GCS) <12 or abnormal AVPU (Alert, Voice, Pain, Unresponsive) scale
- Oxygen saturation <92% on air (assuming normal baseline respiratory function)
- Systolic blood pressure <90 mmHg
- Pulse >100 or <60 beats per minute
- Urine output <0.5 ml/kg/hour
- Serum creatinine >200 µmol/L and/or Acute kidney injury
- Hypothermia
- Macrovascular event such as myocardial infarction or stroke
- Other serious co-morbidity

Table 2: Potassium replacement guidelines

Potassium level in first 24 hours (mmol/L)	Potassium replacement in infusion solution
≥6.0	Senior review ICU/outreach
5.5-5.9	Nil
3.5-5.5	40 mmol/L
<3.5	Senior review ICU/Outreach. Additional potassium is required

Annex 4

DIABETES TREATMENT ALGORITHM CHART

CBS VALUE <60mg/dl

ALGORITHM 1		ALGORITHM 2		ALGORITHM 3		ALGORITHM 4	
CBS VALUE (mg/dl)	INSULIN (u/hr)	CBS VALUE (mg/dl)	INSULIN (u/hr)	CBS VALUE (mg/dl)	INSULIN (u/hr)	CBS VALUE (mg/dl)	INSULIN (u/hr)
<70	OFF	<70	OFF	<70	OFF	<70	OFF
70-109	0.2	70-109	0.5	70-109	1	70-109	1.5
110-119	0.5	110-119	1	110-119	2	110-119	3
120-149	1	120-149	1.5	120-149	3	120-149	5
150-179	1.5	150-179	2	150-179	4	150-179	7.5
180-209	2	180-209	3	180-209	5	180-209	9
210-239	2	210-239	4	210-239	6	210-239	12
240-269	3	240-269	5	240-269	8	240-269	16
270-299	3	270-299	6	270-299	10	270-299	20
300-329	4	300-329	7	300-329	12	300-329	24
330-359	4	330-359	8	330-359	14	330-359	28
>360	6	>360	12	>360	16	>360	32

Annex 5 – Correctional Dose

3 components of insulin required for a patient in hospital.

1. Basal Insulin and 2. Bolus insulin

Pre-admission dose or 0.5 u/kg – > 50% as basal and 50% as bolus insulin.

Can be given as Mixtard Insulin or basal insulin (eg NPH/ glargine) and bolus insulin (eg soluble insulin/ rapid acting analogue) with meals .

+

3. Correctional dose

Provides real time adjustment of insulin dosing based on insulin sensitivity.

In a normal patient 1 unit of pre-meal soluble insulin will reduce the next pre-meal CBS by 10 mg/dL .

Correctional dose needs to be calculated to relate this to patients with impaired insulin sensitivity.

Correctional dose calculation

Correctional factor (CF) = $1700/\text{TDD}$ (Total Daily Insulin)

Or

$3000/\text{Body weight (kg)}$

Correction Bolus Formula

Current BG – Ideal BG

Glucose correction factor

Example for correctional dose calculation

Blood sugar pre- lunch: 200 mg/dL

Pre- meal goal: 140 mg/dL

$200 - 140 = 60 \text{ mg/dL}$

Total Daily Insulin = 50 U

CF= $1700/50=34$

Extra dose of Insulin needed to cover 60mg/dL= $60/34=1.8$

Give extra 2 units of Insulin for pre-lunch dose