

DIABETES MANAGEMENT IN COLLEGE

Diabetes is a condition in which the body is unable to regulate the amount of glucose in the blood, due to either a lack of insulin production or reduced insulin effectiveness. There are several forms of diabetes, the most common in childhood being Type 1 Diabetes. Type 1 Diabetes is always managed by insulin replacement, given via injection or insulin pump therapy. The overall aim of any treatment is to maintain blood glucose levels as close to the normal range of 4-7mmol/l as possible.

Diabetes management can affect daily activities such as college attendance, participation in extra-curricular activities, social inclusion and family life, having an impact on the child's mental health, emotional wellbeing and development (DOH 2007).

It has been shown however, that improved management and control of diabetes in children young people can improve academic performance and college attendance, reduce hospital admissions, and reduce the chances of developing long term complications of diabetes (DCCT 1993).

The Department of Health (2007) therefore recommend that college and young people be offered a range of diabetes management options and support which have the potential to improve control and encourage/enable self management, and hence lessen the impact diabetes has on their lives.

What does this mean for college?

Colleges have a statutory duty to ensure that arrangements are in place to support students with medical conditions and should ensure that children and young people can access and enjoy the same opportunities in college as any other person (Department for Education 2014).

This requires:-

- Completion of an Individual Health Care Plan (see below).
- All staff should be aware that the student has diabetes. They should also be aware of their responsibilities towards the student and any training they should access in accordance with the college policy for supporting students with medical conditions.
- Storage of blood glucose monitoring equipment, insulin pen and insulin, and hypoglycaemia treatments in accordance with college policy on the safe storage of medicines in college.
- Maintenance of consumables needed for diabetes management in college via student's parents/guardian.
- Safe storage of used sharps in an approved container and replacement of the container every 3 months via the student's parents/guardian.
- Record of diabetes related activities performed by staff on behalf of the student.
- Relevant training and support for all staff with regard to diabetes management.

Students should be given the option of carrying a blood glucose monitor and fast acting glucose with them to enable the rapid detection and treatment of hypoglycaemia. This will not only encourage and support self-management and reduce time spent out of class in first aid rooms, but also reduce delays in hypoglycaemia treatment which could lead to unconsciousness.

Students may also be given the option of carrying their insulin with them at the discretion of the college. NB. Students using insulin pump therapy will need to be attached to their insulin pump containing insulin throughout the school day.

Additional information:

Absence from school - Children and young people with diabetes are required to attend medical appointments at least every 3 months most of which will be during college hours. They may also require time off college to attend psychology or counselling appointments, dietetic appointments or structured education sessions related to their condition. The student's parent/guardian will inform college whenever such absences are necessary.

Exams – If a student is due to sit an exam, please inform their Diabetes Specialist Nurse, who will provide written information for the examination officer, explaining why extra time may be required to complete the exam.

College trips and activities outside of normal college hours – A risk assessment should be carried out and arrangements put in place to ensure the student can participate fully in all activities. If additional diabetes training is required for staff, this should be requested from the Diabetes Specialist Nurse at least 4 weeks before the activity is due to take place.

Individual Health Care Plan for Diabetes Management in College using Insulin Pump Therapy

This care plan has been agreed by the student's diabetes specialist nurse, parents/guardian, the child/young person and relevant college staff. The plan should be reviewed at least annually by parents/guardian and college staff, with the involvement of the diabetes specialist nurse if there have been major changes in management.

Name of College: _____

Date of Plan: _____

Review Dates: _____

Student's Name: _____

Date of Birth: _____

Address: _____

Who to contact for further information/advice

Mother/Guardian: _____

Telephone: Home _____ Work _____ Mobile _____

Father/Guardian: _____

Telephone: Home _____ Work _____ Mobile _____

Diabetes Nurse Name: _____ Phone number: _____

College/Home Link staff member: _____

NB. The college/home link staff member should have received training by a Diabetes Specialist Nurse to enable them to support the student in the management of their diabetes.

Is an Education, Health and Care Plan in place? Yes/No

Blood Glucose Monitoring

Blood glucose checks are required before the student eats any food containing carbohydrate. They should also be carried out if the student exhibits symptoms of hyperglycaemia (blood glucose level above 10mmols/l) or hypoglycaemia (blood glucose level below 4 mmol/l) and appropriate action taken (see flow charts below).

Blood glucose levels should be routinely checked at the following times:-

- Before Lunch
- Midmorning Time _____
- Midafternoon Time _____
- At the end of college day Before after college clubs
- Before, during (every 30-45 minutes) and after exercise

Target range for blood glucose is _____ mmol/l.

Some blood glucose meters will automatically transfer the test result to the student's insulin pump. For other blood glucose meters, the test result will need to be programmed into the insulin pump.

Can student perform own blood glucose checks? Yes / No

If Yes, do they require college staff supervision? Yes/No

Names of staff to perform blood glucose tests/ supervise student carrying out their own blood glucose test. (delete as applicable)

All staff named above should have received training by a Diabetes Specialist Nurse and if carrying out blood glucose tests on behalf of the student, been assessed as competent to carry out these tests (see attached competency documents).

Meals and snacks required

Mid-morning snack: _____

Lunch: _____

Mid-afternoon snack: _____

After school snack: _____

Insulin administration

Insulin is delivered continuously (basal insulin) via an insulin pump which is worn by the student throughout the day and night. Additional insulin is delivered via the pump when foods containing carbohydrate are eaten or to correct an elevated blood glucose level (bolus insulin). Please refer to the insulin pump instruction manual/sheets for step by step instructions on how to use the pump.

Name of insulin in the insulin pump : _____

Possible side effects of insulin:

- Localised pain, inflammation or irritation - apply cold compress and inform parent/guardian.
- Hypoglycaemia (blood glucose less than 4mmol/l) – see below for signs, symptoms and management.

Correction bolus (for elevated blood glucose levels) to be considered if blood glucose is above _____mmol/l

Please refer to hyperglycaemia flow chart for action required if the blood glucose level is above 14mmol/l.

If insulin is to be delivered to correct an elevated blood glucose level (determined by a blood glucose test), the blood glucose level should be programmed into the insulin pump. The insulin pump will then calculate the dose of insulin required and this should be delivered via the pump as a *normal* bolus.

Insulin bolus for food

If insulin is to be delivered for carbohydrate foods, a blood glucose test should be carried out and the result programmed into the insulin pump along with the number of grams of carbohydrate to be eaten. The insulin pump will then calculate the dose of insulin required and this should be delivered via the pump immediately before the food is eaten unless blood glucose result is less than 4 mmols/l, in which case the student should be treated for hypoglycaemia (see below) and should eat before receiving the insulin bolus.

NB. Students should not be required to queue for food after receiving their insulin bolus as any delay in eating could result in hypoglycaemia.

Type and duration of insulin bolus required for food at:-

Morning snack _____

Lunch _____

Afternoon snack _____

Can student programme the blood glucose result and carbohydrate amount (if required) into their insulin pump and deliver their insulin via the pump? Yes / No

If Yes, do they require college staff supervision? Yes/No

Names of staff to programme the insulin pump and deliver insulin/supervise student self programming the insulin pump and self delivering insulin via the pump (delete as applicable).

All staff named above should have received training by a Diabetes Specialist Nurse and if delivering insulin via the pump on behalf of the student, been assessed as competent in the use of the insulin pump (see attached competency documents).

Exercise and Sports

Exercise can lower blood glucose levels and cause hypoglycaemia, therefore always take a blood glucose meter and foods/drinks to treat hypoglycaemia with the student when they exercise. Do not leave this equipment in the changing room or class room.

Does the insulin pump require disconnection for sport? Yes/No

If the pump is disconnected for sport, a blood glucose test should be carried out when the pump is reconnected and a correction dose of insulin given if the blood glucose level is above _____mmol/l.

Can the student disconnect their own insulin pump? Yes/No

Is a temporary basal rate reduction required for sport? Yes/No

If Yes, time temporary basal rate to begin _____

% basal rate reduction required _____

Duration of basal rate reduction _____

Can student programme temporary basal rate reduction into their insulin pump? Yes/No

If Yes, do they require college staff supervision? Yes/No

Names of staff to disconnect insulin pump/programme temporary basal rate reduction into insulin pump/supervise student self programming temporary basal rate reduction into their insulin pump (delete as applicable).

All staff named above should have received training by a Diabetes Specialist Nurse and if removing the pump or setting temporary basal rates on behalf of the pupil, been assessed as competent in the use of the insulin pump (see attached competency documents).

Check blood glucose levels before, during (every 30–45 minutes) and after exercise and follow advice below.

Blood glucose:-

- **less than 4 mmol/l** Allow student to treat their hypoglycaemia (see below), then eat a carbohydrate snack (**do not** give insulin for this snack)
- **4-7 mmol/l** Allow student to eat a carbohydrate snack (**do not** give insulin for this snack).
- **7.1-14 mmol/l** No snack needed, but stop and check blood glucose levels after 30-45 minutes of exercise. If levels have fallen to less than 7.1 mmol/l, follow the advice above. If levels have risen to more than 14 mmol/l, follow the advice below. Otherwise carry on.
- **more than 14mmol/l** **Check blood for ketones and follow advice on the Hyperglycaemia Flow Chart.**

N.B.

Ketones less than 0.6mmol/l – once a correction has been given, it should be OK to take part in exercise, but stop after 30-45 minutes to check blood glucose and ketone levels. If these levels have fallen it should be OK to continue with exercise. However, if these levels have risen, **stop** exercising and contact parents for advice.

Ketones over 0.6mmol/l – **do not** exercise and follow the advice on the hyperglycaemia flow chart.

Parent/Guardian Agreement for the staff members named above to programme the insulin pump and deliver insulin/supervise student self programming the insulin pump and self delivering insulin via the pump (delete as applicable).

Signed _____ Date _____

Hypoglycaemia (blood glucose level below 4mmols/l)

Hypoglycaemia is the full name for a hypo or low blood glucose level. Hypos occur when blood glucose levels fall too low for the body to work normally. For most people this happens when their blood glucose levels fall below 4 mmols/l.

Common causes

Too much insulin
Not enough food
Delayed/missed meal or snack
Exercise or activity
Extremes of hot or cold weather
Stress or excitement

Common signs

Looking pale
Sweating
Shaking
Tiredness
Unusual behaviour
Slurred speech

Common symptoms

Weakness
Shaking
Blurred vision
Pins & needles
Dizziness
Headache
Tiredness
Hunger
Confusion

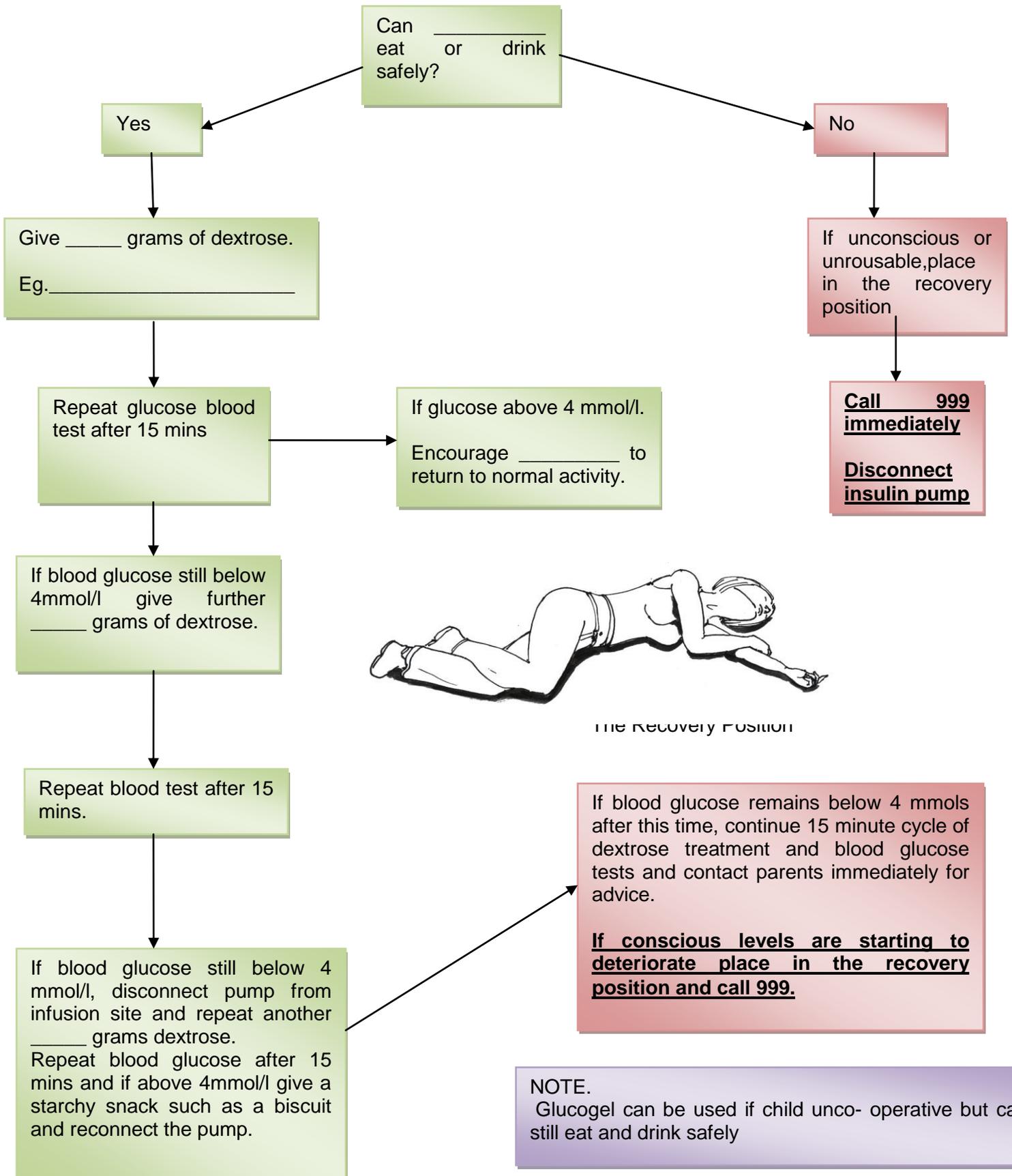
Students usual signs & symptoms of hypoglycaemia:

Treatment of hypoglycaemia (requires immediate treatment)

Do not send student out of the room to seek help, call for assistance to come to the student, as walking can further reduce blood glucose levels. Student should wash their hands and check blood glucose level. If below 4 mmol/l, follow the advice in the hypoglycaemia flow chart below:-

N.B. If the student has a blood glucose level under 4mmol/l and the pump is delivering an extended bolus of insulin from a meal or snack, or there is a temporary increased basal rate active, these should be cancelled and treatment for hypoglycaemia given as below.

Hypoglycaemia Management Flow Chart



Hyperglycaemia (blood glucose level above 10mmols/l)

Hyperglycaemia is the medical term for blood glucose levels above 10mmol/l. It is common to detect high blood glucose levels if it is less than 2 hours since carbohydrate was last eaten as the insulin has not had sufficient time to work. However, if it is more than 2 hours since the student last ate, high blood glucose may be due to a lack of insulin which can lead to the breakdown of fat for energy and the production of ketones as a waste product.

Common causes

Wrong carbohydrate calculation
Missed/ delayed insulin injections
Snacking frequently between meals
Illness
Problem with insulin, insulin pump or cannula
Being less active than usual
Not drinking enough fluids
Stress and anxiety
Periods of growth e.g. puberty

Common signs & symptoms

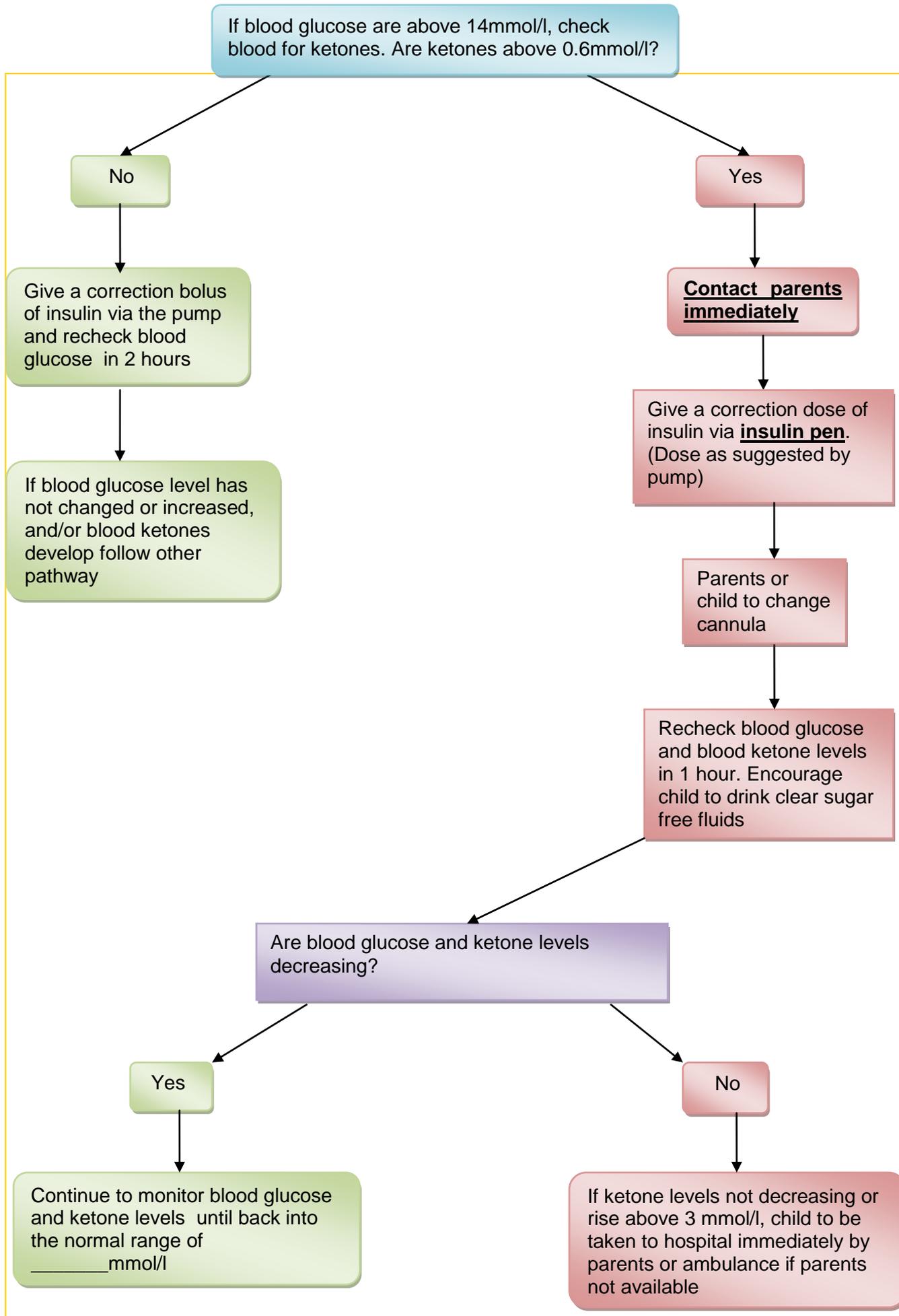
Thirst
Frequent passing of urine
Tummy pains
Tiredness
Moody
Nausea/vomiting
fast breathing
Headache
Blurred vision

Pupil's usual signs & symptoms of hyperglycaemia: _____

Treatment of hyperglycaemia.

Allow easy access to drinks and toilet facilities. Be aware that concentration levels, energy levels and mood will probably be affected by high blood glucose levels. If unwell in any way, for example headache, nausea, vomiting, lethargy, check blood ketone level and contact parents/guardian for advice/assessment. If blood glucose levels are above 14mmol/l, check blood ketone levels and follow the advice on the hyperglycaemia flow chart below:-

Hyperglycaemia Management Flow Chart



Supplies to be provided by parent/guardian and kept at college

- Blood glucose meter, blood glucose and blood ketone test strips
- Lancet device and lancets
- Insulin pen, pen needles, insulin cartridges
- Sharps box (to be replaced by parent/carer every 3 months)
- Fast-acting source of glucose
- Glucogel
- Carbohydrate containing snacks
- Spare cannula, infusion set and batteries

Area in college where spare supplies to be kept and where student will carry out routine

diabetes management _____

Signatures

I give permission for the release of information in this health care plan to all staff members of _____ college to enable them to support my child with the diabetes care tasks outlined above. I also give permission for any school staff member to contact members of the Diabetes Nursing Service, School Nursing Service or other healthcare professionals for advice or information about managing my child's diabetes and for these healthcare professionals to release the necessary advice or information required to maintain my child's health and safety.

Student's Parent/Guardian: _____ Date: _____

This Diabetes Care Plan has been agreed with:

Student's Diabetes Specialist Nurse:

Name: _____ Signed: _____ Date: _____

College staff representative:

Designation _____

Name: _____ Signed: _____ Date: _____

Handling and storage of insulin in college (for spare insulin to be used in the event of hyperglycaemia with elevated blood ketones)

In accordance with the Control of Substances Hazardous to Health Regulations 2002, (COSHH) insulin, a prescribed medication, must be handled and stored safely. The Head teacher is responsible for ensuring that medicines are stored safely. All emergency medicines such as glucogel should be readily available and not locked away. Insulin should generally be kept in a secure place not accessible to children and young people.

At the discretion of the school, if they are satisfied that the young person will be responsible for the safe handling and administration of their own insulin, they may allow them to keep it with them. This is on the understanding that if the insulin is to be left out of control or sight of the young person, they should hand it in to a member of school staff for safe storage.

This arrangement is agreed between the school, the parents/guardian and the pupil.

_____ college Representative _____ Date

_____ Parent/Guardian _____ Date

_____ Student _____ Date

References

Diabetes Control and Complications Trial Research Group (1993) The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. New England Journal of Medicine, 329(14) 977-86.

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ISPAD Clinical Practice Consensus Guidelines 2009 Compendium – Assessment and management of hypoglycaemia in children and adolescents with diabetes. Paediatric Diabetes, 10 (suppl. 12), 134-145

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