DIABETES MANAGEMENT IN SCHOOL

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 Type1 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 school 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 can improve academic performance and school 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 children 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 schools?

Schools have a statutory duty to ensure that arrangements are in place to support pupils with medical conditions and should ensure that children can access and enjoy the same opportunities in school as any other child (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 school's policy for supporting pupils with medical conditions.
- Storage of blood glucose monitoring equipment, insulin pen and insulin, and hypoglycaemia treatments in accordance with school policy on the safe storage medicines in school.
- Maintenance of consumables needed for diabetes management in school 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 school. 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 school hours. They may also require time off school to attend psychology or counselling appointments, dietetic appointments or structured education sessions related to their condition. The student's parent/guardian will inform school 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.

School trips and activities outside of normal school 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 School 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 school staff. The plan should be reviewed at least annually by parents/guardian and school staff, with the involvement of the diabetes specialist nurse if there have been major changes in management.

Name of School: _____

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: _____

School/Home Link staff member: _____

NB. The school/home link staff member should have received training by a Paediatric 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 school day ☐ Before afterschool 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 school 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 Paediatric Diabetes Specialist Nurse and if carrying out blood glucose tests on behalf of the pupil, 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 school 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 Paediatric Diabetes Specialist Nurse and if delivering insulin via the pump on behalf of the pupil, 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 school 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 Paediatric 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 pupil to treat their hypoglycaemia (see below), then eat a carbohydrate snack (**do not** give insulin for this snack)

- **4-7 mmol/l** Allow pupil 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	Common signs	Common symptoms
Too much insulin	Looking pale	Weakness
Not enough food	Sweating	Shaking
Delayed/missed meal or snack	Shaking	Blurred vision
Exercise or activity	Tiredness	Pins & needles
Extremes of hot or cold weather	Unusual behaviour	Dizziness
Stress or excitement	Slurred speech	Headache
		Tiredness
		Hunger
		Confusion

Pupil's 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

Can _____ eat or drink safely?

Yes

Give _____ grams of dextrose.

Eg._____

Repeat glucose blood test after 15 mins

If glucose above 4 mmol/l.

Encourage _____ to return to normal activity.

If blood glucose still below 4mmol/l give further _____ grams of dextrose.

Repeat blood test after 15 mins.

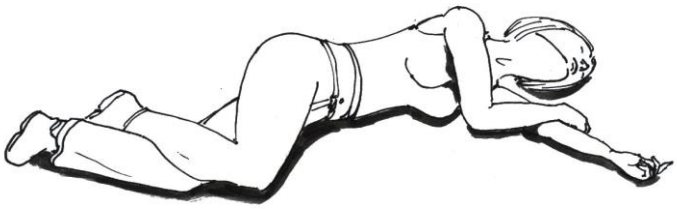
If blood glucose still below 4 mmol/l, disconnect pump from infusion site and repeat another _____ grams dextrose.
Repeat blood glucose after 15 mins and if above 4mmol/l give a starchy snack such as a biscuit and reconnect the pump.

No

If unconscious or unrousable,place in the recovery position

Call 999 immediately

Disconnect insulin pump



The Recovery Position

If blood glucose remains below 4 mmols after this time, continue 15 minute cycle of dextrose treatment and blood glucose tests and contact parents immediately for advice.

If conscious levels are starting to deteriorate place in the recovery position and call 999.

NOTE.
Glucogel can be used if child unco- operative but can still eat and drink safely

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	**Common signs & symptoms**
Wrong carbohydrate calculation	Thirst
Missed/ delayed insulin injections	Frequent passing of urine
Snacking frequently between meals	Tummy pains
Illness	Tiredness
Problem with insulin, insulin pump or cannula	Moody
Being less active than usual	Nausea/vomiting
Not drinking enough fluids	fast breathing
Stress and anxiety	Headache
Periods of growth e.g. puberty	Blurred vision

Pupil's usual signs & symptoms of hyperglycaemia: _____

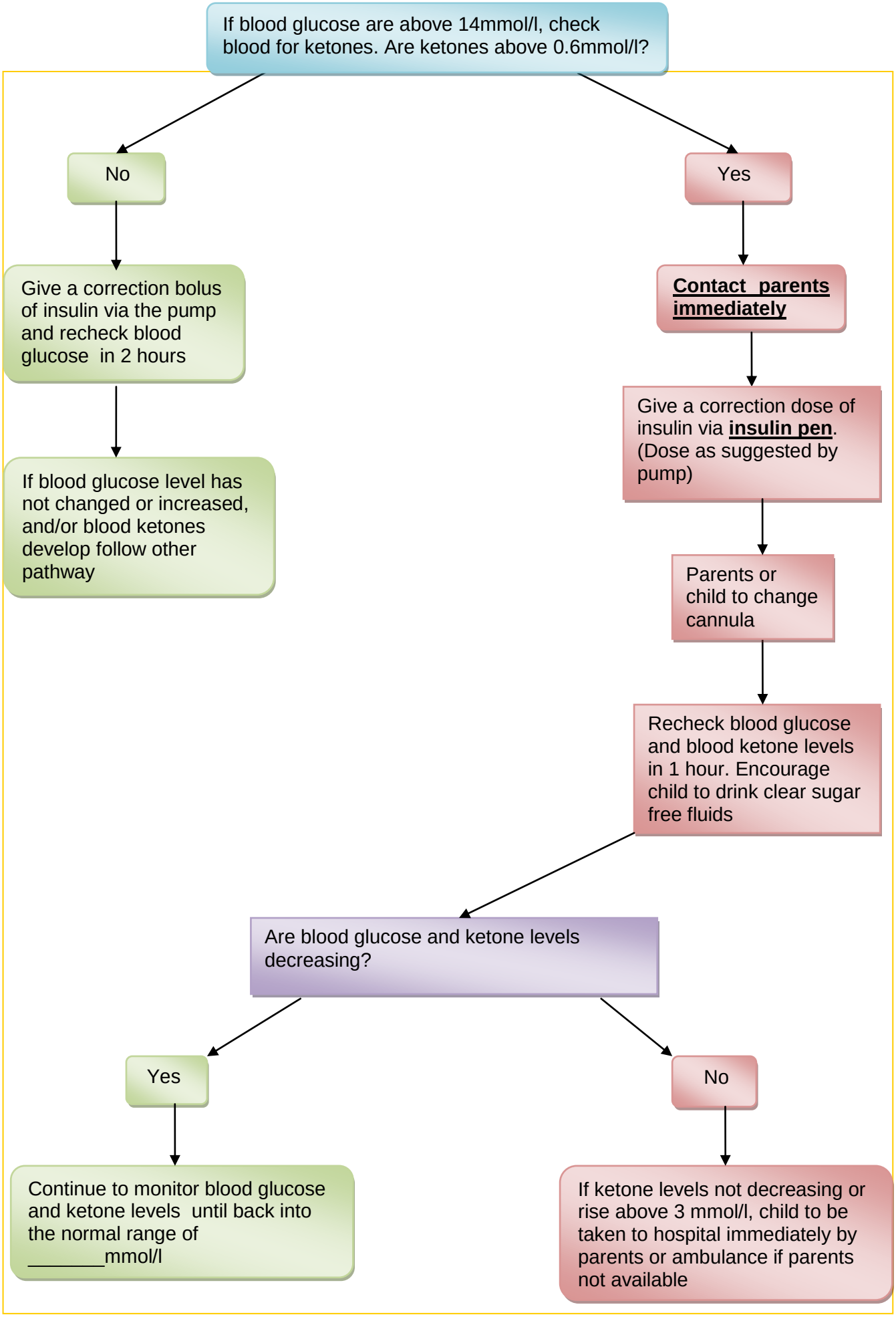
_____

_____

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 school

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 school where spare supplies to be kept and where pupil 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 _____ school 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: _____

School staff representative:

Designation _____

Name:_____Signed:_____ Date: _____

Handling and storage of insulin in school (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.

_____School Representative _____ Date

_____Parent/Guardian _____ Date

_____Pupil _____ 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.

Department of Health (2007) Making Every Young Person with Diabetes Matter. London, DOH (2007).

National Collaborating Centre for Women's and Children's Health (commissioned by NICE) 2004. Type 1 Diabetes - Diagnosis and Management of Type 1 Diabetes in Children and Young People. RCOG Press, London.

Shropshire Community Health NHS Trust. Guideline for the management of Hypoglycaemia.

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

Health and Safety Executive. Control of Substances Hazardous to Health Regulations 2002 (COSHH) www.hse.gov.uk

Department for Education (2014) Supporting pupils at school with medical conditions – Statutory guidance for governing bodies of maintained schools and proprietors of academies in England. London, DFE (2014)