

Recommendations for
Management of Diabetes
for Children in School

Vermont Department of Health
Diabetes Control Program
108 Cherry Street
Burlington, VT 05402
802-865-7708

TABLE OF CONTENTS

SECTION	PAGE
1. Acknowledgements	iii
2. Introduction	1
3. About Diabetes	2
4. Care Planning	5
Parent Conference	6
Planning Meeting	12
Individual Care Plan	13
Training	19
5. Daily Management	20
Blood Glucose Monitoring	21
Hypoglycemia	24
Hyperglycemia	26
6. Food and Special Occasions	28
Meal Planning	28
Special Occasions	31
7. Exercise and Sports	32
Routine Exercise	32
Sports	32
8. Insulin	33
Types and Characteristics	33
Administration	34
Care and Storage	34

SECTION	PAGE
9. Roles and Responsibilities	35
Parent/Guardian	35
Student	35
The Health Care Team	35
Principal	36
School Nurse	37
Classroom and Substitute Teacher	38
Food Service Director and Staff	39
Physical Education Teacher and Coach	40
Counselor	41
Bus Driver	42

Appendices

1. Comparison of Manifestations of Hypoglycemia and Hyperglycemia
 2. Child Development and Participation in Self-Care
 3. Regulations Affecting School Populations
 4. Authorization for Release of Information
 5. Prescription Medication Order and Permission Form
 6. Medical Statement for Children Requiring Modifications in school meals
 - 7a. Sample 504 Plan
 - 7b. Sample Student Accommodation Plan
- Universal Precautions
- Resources
- Sample Record Keeping Forms

ACKNOWLEDGEMENTS

This manual was developed by Eileen Crawford, BSN, RN and was supported by Grant # U32/CCU 113560, Centers for Disease Control and Prevention, Division of Diabetes Translation.

The Vermont Department of Health, Diabetes Control Program, wishes to thank the following for their time, talent and materials offered for the writing of this manual:

Jo Busha
Nathaniel Clark, MD
Paul Costello, MD
Paula Duncan, MD
Nancy Emberley
Barbara Farrell, RD
Donna Filipek
Erin Filipek
Fiona Gagnon
Mary Alice Giannoni, NP
Mary Gill, RN, PNP
Carlie Geer, RD, MS
Bonnie Hudspeth
Lynn Hurley, RN, CDE
Sue Johansen, RD, CDE
Linda LaShure, RD, CD
Marilyn McSweeney, RN
Amy Nickerson, RD
Alison Precourt, RD, CDE
Pam Spinney
Margaret Terrien, MSN, CDE
Elizabeth Warren
Janice Whitaker, RN

INTRODUCTION

This manual has been prepared to assist school staff to assure that children who have diabetes, and their families, have the support needed to manage the disease in the school setting

The Vermont Department of Health, Diabetes Control Program (DCP) has been established to reduce the burden of diabetes for people with diabetes and their families. The Diabetes Awareness Wellness Network (DAWN) is a coalition of individuals and groups concerned with diabetes that advises the Department regarding its program.

One compelling need identified through DAWN is the management and safety of children with diabetes in school. Parents throughout the state have identified many instances where schools have not responded appropriately to the needs and the rights of their children. Examples include: not allowing children with diabetes to go on field trips or to participate in sporting events; denying modification of school meals when needed; and unwillingness to train staff to assist children to manage their disease in the school setting.

Specific goals of the manual include:

- To assure the safety of the child is maintained in the school setting through development and implementation of an individual care plan and training of school staff.
- To support the student in becoming independent with their self-care management that is consistent with their age and interest.
- To guide schools in their understanding of diabetes and its management; and, assure the coordination of diabetes care in school with the care provided in the home.
- To enhance opportunities for children with diabetes to participate fully in all school functions.

The manual is designed to be copied and distributed to school staff, parents and others as deemed appropriate and is available on diskette if requested.

ABOUT DIABETES

Description

Diabetes is a chronic metabolic disorder, resulting in the body's inability to utilize glucose for energy due to a lack of insulin. Diabetes is not contagious. The cause is unknown, but appears to be a combination of genetic and environmental factors.

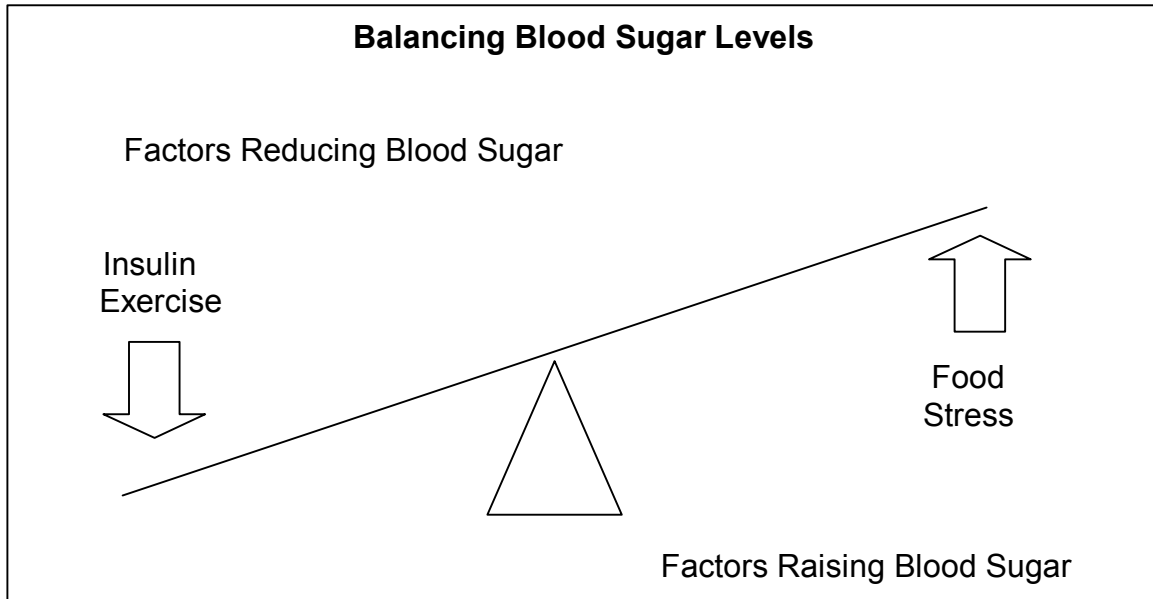
Type 1 diabetes, previously called juvenile, or insulin dependent diabetes, is an autoimmune disease in which the insulin producing cells of the pancreas are destroyed, resulting in the need for daily injections of insulin. Insulin is necessary for blood glucose (also called "blood sugar") to be maintained at normal levels.

Type 2 diabetes, previously called adult onset, or non-insulin dependent diabetes, rarely occurs in children, though in recent years it appears to be becoming more common in adolescents. A resistance to insulin rather than a deficiency of insulin characterizes Type 2 diabetes.

The information in this manual applies to Type 1 diabetes.

Control of Diabetes

There is no cure for diabetes so the treatment plan is directed at managing or controlling its course. This is achieved by balancing insulin, food and exercise. A blood glucose test enables people with diabetes to monitor these three components of management and adjust one or more of them to correct or maintain a good balance.



Low blood sugar, *hypoglycemia*, may be caused by too little food, too much insulin or more exercise than usual. Elevated blood sugar, *hyperglycemia*, may be caused by too much food, too little insulin, illness, stress or less exercise than usual.

The child’s school performance will be best if the blood sugar remains in the acceptable range. Left untreated both high and low blood sugar levels can effect the child’s ability to concentrate on schoolwork and participate in school activities.

Appendix 1 provides a comparison of hypo- and hyper-glycemia.

Psychosocial Concerns

Trust. Parents need to be reassured that the school will be able to manage their child’s diabetes related needs. Trust will be enhanced by working closely with the parents in planning for the child’s care, by training all staff, and by establishing clear lines of communication and responsibility among team members.

Developmental level. It is important to consider the child with diabetes within the context of their developmental level, both currently and at the age of diagnosis.

Developmental level will determine, to a large degree, the child's acceptance and response to the disease and level of participation in self-care. Appendix 2 provides guidance on the level of responsibility children may be able to accept at each age level. It should be noted that there is wide variation of "normal" among children, so that some may accept responsibility for components of their care at younger ages than shown.

Living with chronic illness. A condition, such as diabetes, that interferes with daily functioning for more than three months in a year is defined as a chronic illness. Like all chronic conditions, diabetes has a profound affect on the family. Planning for the care and meeting the needs of a child with diabetes can be exhausting. Family coping mechanisms should be supported and enhanced so that acute and chronic complications for the child can be avoided.

The child with diabetes is subject to many feelings about his/her condition. School personnel can be instrumental in assisting the child and his/her family to accept the disease and be prepared to cope with behaviors related to denial, fear, anger, guilt and depression.

Self-empowerment. The child living with diabetes must learn to integrate the many facets of self-care diabetes management into their individual life-style. Children may be assisted along this continuum with the careful consideration of individual capabilities. Providing the opportunity to develop skills in self-care will promote self-confidence. Ultimately, a child's improved self concept will go far toward achieving better control over the disease.

Adolescence. Many adolescent issues stem from the need to "fit in" or not appear to be different from peers. Fearing rejection, the adolescent may attempt to hide the fact that he/she has diabetes. In some instances, denial may lead to a deliberate rejection of components of self-management, which may result in poor disease control. Other issues that may interfere with the successful management of diabetes in adolescents include weight awareness and/or body image, particularly with females, as well as depression, which is related to self-image or disease management.

The school team should be sensitive to the adolescent who is struggling with issues related to their diabetes. In some situations, referral to counseling may be appropriate. Good communication with parents and other influential adults may assist passage through this tumultuous developmental stage. School personnel can offer important support and guidance for families throughout adolescence to foster the positive growth and development of adolescents living with diabetes.

CARE PLANNING

Care planning in the school has four components:

Parent Conference. A conference with parents, and the school nurse to identify the child’s needs, discuss components of the care plan, and develop the agenda for a school wide planning meeting.

Planning Meeting. This meeting of key staff should be held in the fall before the school year starts, or when a child is newly diagnosed.

“Individual Care Plan”. The School Nurse, using information gathered at the planning meeting, should prepare the written plan. Key staff and the child’s family must agree to the plan. The plan may be incorporated into a “504” plan if the child’s needs will be covered by this legislation. See Appendix 3 for a description of legislative rules that may apply to children with diabetes.

Training. The school nurse should arrange for training for all school staff. The nurse should do the training with the assistance of the child’s parents and/or invited members of the child’s health care team. This may involve one or more sessions depending on the roles assigned to different people.

NOTE: A list of resources that may help the school staff with care planning is included in the Resources section at the end of the appendices.

Parent Conference

This meeting is held with parents, the principal, the school nurse and others who may be invited by one of these parties. The purpose is to get to know one another, share information about the child and school, prepare for the initial planning meeting, and determine who will need to attend the planning meeting.

The parent checklist should be prepared at the parent conference so that the necessary forms and supplies can be brought to the planning meeting. Appendices 4, 5 and 6 have sample forms that the school might want to use.

The information needed from the parent is included on the suggested Data/Information sheet, which follows. This may be completed by the parent in advance of the parent conference and brought with them or filled out during the conference.

Data/Information Sheet—Diabetes Care in School
To be completed by parent or legal guardian

Child's Name _____ Date of Birth _____

Mother's Name _____ Father's Name _____

Child's age at time of diagnosis _____

Contact phone numbers: (list by order in which calls should be made, and note if it is a parent, friend, or caregiver and whether the number is home and or work. Also note if each person has legal authority to respond in an emergency situation.

Call Order	Number	Name, relationship	Location	Authority
1.				
2.				
3.				
4.				
5.				

Primary Care Physician:

Name: _____ phone: _____

Other Health Providers:

Name: _____ phone: _____

Name: _____ phone: _____

Name: _____ phone: _____

Monitoring: Usual Blood glucose monitoring times:

_____ Morning _____ Night
 _____ Mid-day _____ Other _____
 _____ Afternoon _____ Other _____

Does your child have a preferred location for monitoring (classroom, health office, etc.)?

Data/Information Sheet—page 2.

Goal range for blood glucose: Between _____ and _____.

Lows:

If below _____, please do the following:

Call parent if below: _____

Usual signs/symptoms of low blood glucose are:

Highs:

If above _____, please do the following:

Blood glucose level at which to measure ketones: _____

Call parent if above: _____

Usual signs/symptoms of high blood glucose are:

Insulin (circle the answer's below):

Will daily insulin be needed in school? YES NO

Will insulin be needed in school at any other time? YES NO

If YES to either, identify time, amount and circumstances for administering insulin.

Food:

Will child participate in school breakfast and/or school lunch? YES NO

If yes, will modifications to the regular menu be needed? YES NO

What are usual times for meals/snacks?

_____	Breakfast	_____	Mid-afternoon
_____	Mid-morning	_____	Supper
_____	Lunch	_____	Bed-time

Data/Information Sheet—page 3.

Exercise:

What are your child’s favorite physical activities?

Will your child participate in school sports?

YES NO

Self Care:

Please put an X in the box that best describes your child’s role:

	Does it alone	Does it with supervision	Helps parent	Parent does it
Picks finger				
Puts strip in monitor				
Reads monitor				
Records result				
Adjusts food based on result				
Adjust insulin based on result				
Knows which foods to limit				
Can select kind and amount of food				
Helps plan meals				
Selects insulin injection site				
Prepares for injection, selects site				
Injects insulin				
Measures insulin				
Determines amount and type of insulin				
Measures ketones				
(Other)				

Data/Information Sheet—page 4.

Parties and Special Food or Meals:

Do you wish to be contacted before each event? YES NO

Additional instructions for the school:

Emergencies:

What do you feel should be treated as an emergency?

What do you want the school to do in an emergency?

Other Requests:

Parent Check List

This checklist is provided to help parents identify the forms, supplies and other materials they need to bring to the school. The list needs to be modified for individual children.

All items on the checklist should be sent to the school nurse.

- Data / Information form
- Photograph of child
- Signed Release of Information for physician (s)
- Monitoring supplies:
Lancets, meter, strips, alcohol, ketone strips, etc.
- Snack (Low) packs. Number: _____
- Glucose tablets, Gel (tubes). Number _____
- Record keeping sheets
- Insulin and related supplies:
Syringes, alcohol, etc.
- Prescription Medication Order and Permission form for Insulin
- Glucagon kits with premeasured dosage. Number _____
- Prescription Medication Order and Permission form for Glucagon

Planning Meeting

Each fall, and at other times during the school year for children who are newly diagnosed, the school nurse in the school district should organize and facilitate a planning meeting to develop an individual diabetes care plan for use in the school setting.

Meeting participants should include everyone that may have a role in the child's diabetes care. Participants may include:

- Family and child
- Principal
- School nurse
- Current year classroom teacher(s)
- Past year classroom teacher(s)
- Food service manager
- Physical education teacher/coach
- Counselor or Social Worker
- Bus driver
- Other school staff with direct responsibility for child
- Members of the health care team, if invited by parents

Suggested agenda items:

- Overview of Type 1 Diabetes and its management
- Roles and responsibilities of staff members
- Identify staff in the school who will serve as resources for others
- Determine the hierarchy of personnel expected to respond to emergency situations
- Determine the location of food kits, glucagon and other supplies in the school building
- Determine where the plan will be kept and how individual components will be shared with appropriate staff
- How training for staff with specific responsibilities will be done
- What is an emergency and what to do

Individual Care Plan

Planning is key to the successful management of care for children with diabetes. In schools, the individual care plan is a good tool for accomplishing successful management.

The school nurse, in collaboration with parents and others, develops this care plan outlining specific health care to be given to the student. It should be available to all staff working with the child. The school nurse may extract sections of the plan or copy pages from this manual clip them to the care plan and distribute them to each team member.

Routine daily care includes:

- Blood glucose monitoring routine
- Phone numbers of parents, guardians, care providers and emergency contacts
- Blood glucose values and specify responses required
- Daily schedule of food, insulin and activity
- Special events/circumstances
- Location of supplies and food
- Disposal of syringes, lancets, etc.
- Developmental levels and cognitive and physical abilities of the school-aged child and adolescent should be incorporated in the care plan for the child with diabetes

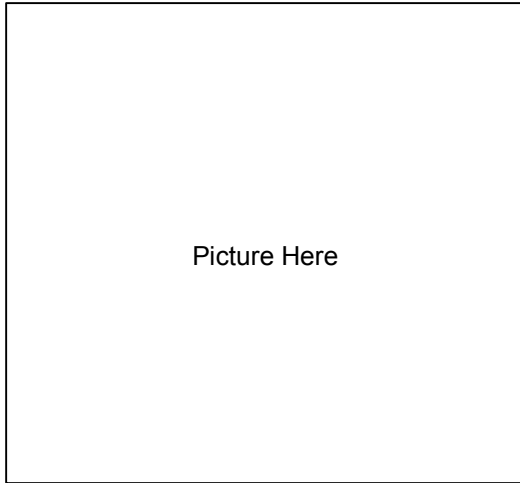
Emergencies:

Children with diabetes can have problems despite the best efforts at control. School staff needs to determine and record what constitutes an emergency situation and what to do about it. Parents and the health care team should provide guidance for the care plan.

Sample Care Plans:

Please see Appendix 7 A and 7B for sample care plans done by a school nurse. These have integrated aspects of the individual care plan that follows with a School 504 Plan and a Student Accommodation Plan.

Individual Care plan—Diabetes Care in School



Child's Name : _____

Grade: _____

Contact phone numbers (in priority order):

Call	Number	Name, relationship	Location
1.			
2.			
3.			
4.			
5.			

Primary Care Physician:

Name: _____ phone: _____

Routine blood glucose monitoring

	Time	Place	Who
1.			
2.			

Indications for special blood glucose monitoring:

Individual Care Plan--page 2.

**Usual signs/symptoms of
Low blood glucose:**

High blood glucose:

Actions required by blood glucose levels in mg/dl- (call parents/guardians, give snacks, measure ketones, etc.):

	Glucose Level	Action
1.		Normal. No action needed.
2.		
3.		
4.		
5.		

Food

	Time	What (snack, lunch, other)
1.		
2.		
3.		

Requires menu modification by Food Service: YES NO

If yes, form has been completed and is on file in Food Service Office: YES NO

Parties, Special Occasions—(Special considerations, if indicated by parents)

Physical activity/exercise/ sports—(Special notes, if indicated by parents)

Individual Care Plan--page 3.

Insulin-time or circumstance (e.g. Blood Glucose over 300mg/dl) when to administer and who will be responsible:

	Time or ?	Place	Who
1.			
2.			

Glucagon:

Will school staff administer Glucagon? YES NO
 If yes, describe circumstances when it should be given.

Does the child weigh less than 45 pounds? If yes, note on Glucagon kit. YES NO
 Location of supplies in the school:

Site	Staff Name	Extension	Notes
Monitoring for blood glucose			
Snack or low packs, glucose tablets or gel			
Insulin and /or Glucagon			

Individual Care Plan—page 4.

Disposal of Supplies:

Emergency Plan:

Situation(s) constituting and emergency:

Action Needed:

Phone Numbers:

Number	Who
	Rescue Squad
	Parent

Goals:

Describe goals for child 's care in the school setting for the year.

- 1.
- 2.
- 3.

Signatures:

Parent

School Nurse

Principal

Training

Goals for training: Everyone mentioned in the plan knows their role in carrying out the plan, how it relates to the roles of others and when and where to seek help.

Preparation: Assess school personnel to determine their knowledge of and comfort level with caring for the student. Modify the training session accordingly.

Time: The initial session should take about 30 minutes. Some members of the staff may need additional individual training around their specific roles.

Attendance: Include all staff mentioned in the plan plus administrative and counseling staff and any others who may interact with the child during the school session .

Suggested components of training:

- Introduction to the child's individual care plan
- Type 1 Diabetes: what it is, how it is managed (if not covered at planning meeting)
- Monitoring tools: glucometer, written records, etc.
- Signs and symptoms of hypoglycemia and hyperglycemia
- Procedures for routine care of the individual student
- Emergency procedures
- Overview of universal health and safety guidelines (OSHA) and disposal of supplies.
- Monitoring techniques (for those who may do finger sticks)
- Glucagon administration (for those named in the emergency plan)
- Insulin administration (if in the plan)

DAILY MANAGEMENT

Blood glucose monitoring is done to check the child's blood glucose level so that appropriate decisions about the balance of insulin, food and exercise can be made.

This section describes how to perform monitoring as well as how to interpret and act upon the results.

Monitoring Procedures: Times, record keeping and specific procedures are established at the planning meeting and included in the individual care plan.

Hypoglycemia: Low blood sugar is the most common event that will need attention in school. Generally, it is not an emergency situation. Hypoglycemia is discussed in detail in the section that follows.

Hypoglycemia with loss of consciousness An *emergency* response is indicated, guidance is included.

Hyperglycemia: High blood sugar, may also be seen in school. It is also described in some detail with suggested interventions presented. Hyperglycemia is generally not an emergency situation.

Ketoacidosis: The result of relatively long-term elevation in blood glucose levels, ketoacidosis requires action, but will rarely constitute an emergency.

Parents should inform the schools as to what levels require specific intervention for their child in order to avoid either high or low blood glucose levels. This information should be in the individual care plan.

Blood Glucose Monitoring Procedures

Checking versus testing:

“Checking” may be considered to be a kinder term than “testing” when describing blood glucose monitoring. Some children may be somewhat intimidated by the term “testing” in the school setting.

Report the specific values to the child and describe blood glucose results as “high, low, or normal”, avoid terms like “good or bad,” attitudes are generally improved when feelings of good or bad, right or wrong are not attached.

Check with parents for guidance as to which term you should use. Keep them consistent with those used by the child’s family and primary health care team.

When:

Glucose monitoring in school should closely follow the monitoring schedule done at home. In general, monitoring is done four times per day, usually before meals and before bedtime. In addition, some children may need monitoring before or after exercise, and all children will need additional tests if they exhibit symptoms of high or low blood sugar or are ill. The care plan should specify when regular monitoring is to occur and when symptoms require.

Where:

Monitoring should be done wherever a child with diabetes feels most comfortable in the school setting and where it will cause the least disruption to the child’s academic program. This may be in the classroom if that is acceptable to the child.

If the child is exhibiting signs of hypoglycemia, either accompany the child to the health office or have a designated member of the school team come to the child. This is necessary because the child may become confused and may not be able to make it the test site alone.

It is usually unsafe to ask another child to be responsible for accompanying a child who may be exhibiting signs of hypoglycemia. Junior or Senior high school students who have been specifically trained and are willing and able to accept the responsibility may be considered if the students and both families agree.

Who:

The school nurse, teacher or other staff member who has been trained should do the monitoring. Older children will usually prefer to carry their own monitoring/insulin kits and do their own checking.

Tools and steps:

Checking the blood glucose level is simple to do. It requires pricking the finger with a lancet to obtain a drop of blood. This is placed on a specially prepared strip. The results are read by a hand held machine (meter) or if a meter is not available, by visual comparison with a color chart located on the bottle. The information is then recorded. The specific steps are shown in the box below.

Consult the student's individualized care plan for specific responses and information pertaining to blood glucose levels, equipment and supply storage and disposal.

Steps for Blood Glucose Monitoring

- ① Gather supplies.
- ② Wash hands in warm water.
- ③ Load device with lancet
- ④ Wipe finger with warm soapy water. Let dry. Alcohol swabs should be used only if warm water is not available.
- ⑤ Hold lancet device to side of fingertip and press button to stick finger.
- ⑥ Turn finger down to get a full drop of blood.
- ⑦ If a larger drop of blood is needed, squeeze finger.
- ⑧ Put drop of blood on strip pad.
- ⑨ Follow directions for using a monitor or to read the result on the bottle of strips.
- ⑩ Record on sheets provided by parents.

Disposal of supplies:

Cotton balls, swabs or strips with blood: The small amount of blood, with its exposure to air, makes the risk of contamination extremely low. In the home and in the clinic setting disposal is generally done in the regular trash. Schools may prefer to put them in a plastic bag prior to disposal.

Sharps:

Needles and lancets should never be put in the trash. A sharps disposal device should be used if available. If not, a plastic soda bottle with a screw top can be used. The lid should be taped shut before disposal in the trash.

Record keeping:

Record keeping is fundamental to the optimal management of diabetes. The diabetes record will travel with the child from home to school thereby enabling the communication of patterns of blood glucose values, food intake, variations to normal exercise and the possibility of developing an illness.

Frequent episodes of high or low blood sugar levels in school should alert the school nurse, classroom teacher and others of a need for more communication with the family and/or health care team in order to assess and plan appropriate interventions.

Examples of blood glucose records can be found in resource section of the Appendix.

Classification of numbers

70-110 mg/dl	Normal fasting serum glucose
80-180 mg/dl	Goal range for children with diabetes
≤ 70 mg/dl	Hypoglycemia
≥ 240 mg/dl	Hyperglycemia

The individual care plan is the source of appropriate responses to blood glucose values outside of the child’s normal range.

Emergency care:

Most situations are easily managed and do not constitute true emergencies. Low blood sugar is the condition most likely to escalate into an emergency in the school setting. ***It is critical to act quickly at the first signs of hypoglycemia so that an emergency situation does not occur.***

An emergency response is required under the following conditions:

1. Loss of consciousness, seizure or is unable to take food by mouth. *See section on hypoglycemia for appropriate action.*
2. Blood sugar level does not increase with food ingestion. *Follow parents instructions or section on hypoglycemia.*
3. Hypoglycemia with vomiting and with medium or large ketone levels. *See section on ketoacidosis.*

Hypoglycemia (low blood glucose)

APPROXIMATE LEVEL: < 70 mg/dl

CAUSES: When the body gets too much insulin, meals or snacks are missed or with increased physical activity or exercise.

ONSET: Rapid. Most likely to occur at peak insulin action times, such as before lunch.

SYMPTOMS: Low blood glucose feels different to different people; it may include any of the following. It is important to be aware of a child's specific symptoms.

faintness	dizziness
shakiness	weakness
muscle cramping	pale skin
hunger	inappropriate actions
nervousness	confusion
stomachache	irritability
blurred vision	crankiness
headache	convulsions
fatigue	unconsciousness
sweating	

TREATMENT:

1. Test blood glucose. If the child is incoherent, is having difficulty following instructions or is combative, go to step 2.
2. Stop activity in order to prevent further reduction in the blood glucose level.
3. Eat 15 grams of quick acting carbohydrate glucose such as a small juice box or 4-glucose tablet. If child is having difficulty eating or drinking, Glucose Gel (tubes) may be used. Avoid carbohydrate foods that also contain protein or fat (e.g. chocolate or cookies). These foods are digested more slowly than pure carbohydrate foods.
4. Wait 15 minutes.
5. Repeat step 1. If glucose level is <80 have the child eat a snack or go to lunch.

NOTE: Over-treatment can result in a rebound effect resulting in high blood glucose levels.

Hypoglycemia (low blood glucose)–WITH Loss of Consciousness or Seizure

EMERGENCY RESPONSE IS INDICATED

Early recognition and treatment of hypoglycemia is extremely important. Left untreated, hypoglycemia can result in loss of consciousness and/or seizure activity. If that occurs, the child may need treatment with the administration of Glucagon, a hormone that causes a rise in blood sugar.

Parents should indicate whether they want the school to administer the Glucagon or to call the Rescue Squad. If the parents wish, they should provide the Glucagon Emergency Kit and the order to administer it (ONLY THE KIT FORM SHOULD BE USED AT SCHOOL). The school should have a list of designated-trained individuals who can administer Glucagon. This list should be kept in an accessible, agreed upon location.

Instructions for using Glucagon:

1. Use *only* when the child is unconscious or having a seizure.
2. If **two people** are present: One should first call the Rescue Squad (911) and then notify the parents, while the other prepares the Glucagon. If only **one person** is present: First, call 911, then administer the Glucagon and then notify the parents.
3. Use the fluid-filled syringe in the Emergency Kit. Inject it into the bottle containing the Glucagon tablet. Shake well to mix.
4. Draw Glucagon mix back into the syringe. ***If the child weighs less than 45 pounds, use ½ of the dose.***
5. Inject Glucagon the same way you would insulin, using the buttock, thigh or arm.
6. Turn the person onto one side or stomach (vomiting generally occurs with Glucagon).
7. Wait 10 minutes. Check blood sugar.
8. Give sips of juice, regular (sugared) soda, or sugar in water initially as soon as he/she awakens. If the child is unable to drink, Glucose gel, honey, frosting or maple syrup may be given to help raise the blood sugar. After 10 minutes, encourage solid food (crackers and peanut butter or cheese, sandwich, etc.)
9. Complete recovery may take 1-2 hours. The effects of Glucagon lasts for 12-25 minutes.

Hyperglycemia (high blood glucose)

APPROXIMATE LEVEL: >240 mg/dl

CAUSE: Too little insulin, too much food or too little physical activity. Infections, illness, and/or stress may precipitate the condition.

ONSET: Slow.

SYMPTOMS:

thirst
frequent urination
dry mouth
fatigue
headaches
abdominal pain
ketones in the urine.

TREATMENT:

1. Check blood glucose levels.
2. Check for ketones if blood glucose levels are over 240 mg/dl and/or symptoms of stress or illness are present.
3. If ketones are not present, drink water.
4. If moderate or large ketones are present, call parents. Administer extra insulin only if advised by parents.
5. Anytime ketones are moderate to large, push fluids.
6. The child should return to the classroom and their regular routine. They must be allowed to have a water bottle in class and to leave to use the restroom when needed.

To Check for Ketones	
①	Dip ketone test strips in a urine filled paper cup.
②	Wait several seconds.
③	Read results by visual comparison to a color chart. Refer to instructions printed on the test strip vial.
④	Record result for parents.
⑤	Ketone test strips out-date. Be sure to read information on the bottle and discard when out-dated.

NOTE: Exercise should be avoided if ketones are present. Increased physical activity can cause blood glucose to become more elevated and result in further ketone development.

Hyperglycemia (high blood glucose)

Ketoacidosis

Hyperglycemic episodes may result in a serious condition called DKA or diabetic ketoacidosis. When insulin levels are deficient, the cells of the body are starved for energy and will burn fat in response to their need. Ketones are acids produced by the abnormal metabolism of fats.

The risk of DKA occurring at school is extremely low.

ONSET: Can be rapid and can lead to severe illness or even death.

SYMPTOMS:

dehydration
drowsiness
abdominal pain
vomiting
labored breathing and fruity smelling breath.

Adolescents may be at higher risk of DKA than other school age groups.

TREATMENT: (Test as for Hyperglycemia):

1. Check blood glucose levels and ketones.
2. If over 350, and ketones are moderate to large, and the child has *any* symptoms of ketoacidosis, ***call parents immediately.*** Administer extra insulin only if advised by parents. Start pushing fluids.
3. If the child is vomiting and is unable to take fluids, call the Rescue Squad (911).
4. Avoid all forms of exercise.

To Check for Ketones

- ① Dip ketone test strips in a urine filled paper cup.
- ② Wait several seconds.
- ③ Read results by visual comparison to a color chart. Refer to instructions printed on the test strip vial.
- ④ Record result for parents.
- ⑤ Ketone test strips out-date. Be sure to read information on the bottle and discard when out-dated.

FOOD AND SPECIAL OCCASIONS

Food. Planning for meals, snacks, special events and emergency situations for a child with diabetes is an integral part of the diabetes management plan. Each child should have an established meal plan which the child and family has developed with a Registered Dietitian. This meal plan includes time, type and amount of food needed to balance the child's nutritional needs with his/her activity level and insulin regime.

There may be times when the balance of timing of insulin and food with activity and other aspects of the child's life will not be as precise as desired and the child will experience episodes of hypoglycemia. Emergency food supplies, usually called snack packs or low packs by families, will be needed.

Special Occasions. There are NO forbidden foods or activities in the lives of people with diabetes. Advance planning will allow the child to participate fully in non-routine activities of the school.

Meal Planning

Food. Meals for children with diabetes are based on the same principles of nutrition as for any child. The primary difference is that the carbohydrate intake for the child with diabetes is usually "controlled" or "planned." Carbohydrates are the body's main source of energy and have the greatest effect on blood glucose levels. They are found in fruit, vegetables, grains, milk and many other foods including those containing sugar. Meats and fats contain no carbohydrate.

The key to good blood glucose control is balancing and spacing carbohydrate food throughout the day at meals and snacks. The **total amount** of carbohydrate eaten at one time is the primary concern, not the **source** of carbohydrate. Research has shown that sugars and sweets included in meals do not raise the blood glucose any quicker than the same amount of carbohydrate from starches or "complex carbohydrates." The healthy nutrition advice suitable for everyone should be followed: "Eat sugar and sweets in moderation."

The method of measuring carbohydrate is usually a combination of two systems:
1) "Carbohydrate Counting" and 2) "Exchanges" or "Carbohydrate Choices."

Carbohydrate Counting includes counting the specific number of grams of carbohydrate that are “assigned” to each meal and snack. Food labels and a variety of lists are available to provide the information about how many grams of carbohydrate are in a food. Consult food labels when possible, as this information is more accurate for specific foods. The **TYPE** of carbohydrate food eaten is not emphasized.

With the “Exchanges,” a meal plan is established recommending a number of “exchanges” or “servings” from each food group at each meal or snack. Often, the food groups, which are primarily carbohydrate (starch, fruit, milk, and other), are grouped together and referred to as “carbohydrate choices.” Each choice is equal to 15 grams of carbohydrate for the serving size listed. Vegetables also contain carbohydrate, but many contain lesser amounts than a similar size serving of other exchanges. Therefore, foods listed on the Vegetable Exchange are not limited.

Although children with diabetes have the same nutritional needs as other children, there are special considerations for the school setting. Children with diabetes need to eat regular snacks and to eat their meals and snacks at consistent times.

Snacks. It is often necessary for a child with diabetes to have a snack mid way between breakfast and lunch, depending on his/her insulin regime and activity level. A mid-afternoon snack may be eaten at school or at home depending on the child’s individual needs. The care plan should define the timing of snacks and alternatives in case of unforeseen circumstances.

School Meals. The child with diabetes may not need modifications in the school meal. If some changes are necessary, the food service director should be a member of the care plan team and guide the necessary adaptations to the regular menu items. For additional information on school meal modification consult, “*Special Meals for Special Needs: A Manual for School Food Service Managers,*” available from the Department of Education, Child Nutrition Programs.

Federal regulations require that schools participating in the “National School Meals Program” modify meals for children whose disability restricts their diet. A physician must certify the necessary modifications. A copy of the “Medical Statement for Children Requiring Modifications in School Meals” form is included as Appendix 6.

Emergency Food Supplies (“Snack Packs” or “Low packs”). Good overall planning and access to carbohydrates ensures that the child with diabetes has the means of obtaining appropriate emergency responses during the school day.

The family should furnish emergency food supplies to provide the child’s preferred choice of food to respond to a low blood sugar. The food supplies should be in several locations and travel with the child. Appropriate locations for “low packs” might be the health office, physical education office, classroom, school office and school bus.

A typical “low pack” would include easy to eat sources of pure carbohydrate such as fruit juice packs or glucose tablets. It may also contain foods to be used as a snack after the low blood sugar level has been raised, such as prepackaged cheese or peanut butter crackers.

Recommended Foods for “Low-Packs”

Food	Grams of Carbohydrate
Immediate Treatment	
4 Glucose tablets	16
1 Tube Glucose gel or cake frosting	15
½ cup of Juice (orange, apple, grape, pineapple)	15
½ cup of non-diet soda	15
½ cup of Kool-Aid	15
Follow-up Snack (15-30 minutes following hypoglycemia)	
1 cup milk	12
Cracker snack pack (cheese or peanut butter)	(as listed on food label)
Granola Bar	(as listed on food label)

Special Occasions

Food carries many emotional overtones. It is wise to avoid giving food any special power. This can be accomplished by avoiding terms such as “diet” and “cheat” in dealing with food issues. **Remember** that there are no forbidden foods in a diabetic meal plan.

School Parties. High sugar treats are often high in fat as well and should be discouraged from inclusion at school parties. Providing more nutritious foods, such as low-fat fruit desserts, at school parties is healthier for all children. And serving more nutritious foods gives the message that healthy foods are fun and taste good. This can also serve as a reminder that parties provide an opportunity to share and celebrate important events in our lives; the focus need not be food.

When parties include high sugar/high fat foods notice should be sent to the parents. With appropriate planning children with diabetes may have small amounts of high sugar-high fat party foods, such as cake or ice cream. If no alternative foods are available, the child should be given the same food as everyone else.

Field Trips. Field trips and bus trips also require advance planning. Parents should provide written instructions concerning the special needs of the child while traveling. Supplies that should travel with the child include the items needed to monitor blood glucose level, snack packs, glucose tablets and gel and insulin and/or Glucagon if requested by the parent. The chaperone on the bus and/or the driver, must be informed and provided with instructions regarding the child’s care. The child should be allowed to eat on the bus if necessary.

Staying after School. Staying after school should be planned for in advance. Monitoring, mid-afternoon snacks or insulin injections may be part of the routine for children with diabetes and must be accommodated in any after-school activity. This after-school routine should be outlined in the care plan. If the school nurse is not available during after-school events, another staff member should be identified as the primary contact for questions or concerns about the child.

EXERCISE AND SPORTS

In addition to insulin, food and regular monitoring of blood glucose, exercise is a key component of diabetes management. Children are naturally active and play is their work.

Children and adolescents can fully participate in gym class, team sports, and general playground and individual activities. Professional athletes with diabetes have successfully achieved their physical and athletic potential.

With few special considerations, the student with diabetes can fully participate in the athletic opportunities available in schools. Since exercise is an important part of good management of the student's blood glucose level, it should be encouraged on a consistent basis. Children with diabetes can and should be encouraged to "do it all."

Routine Exercise

Exercise improves insulin sensitivity; the duration and intensity of exercise will influence blood glucose levels. This may result in a decreased requirement for insulin and/or an increased potential of hypoglycemic episodes. To avoid this, the student may need to eat an additional snack before exercising. If a child has symptoms of low blood sugar or will be participating in more than 40-45 minutes of physical activity, blood glucose levels should be checked before exercising. Glucose monitoring equipment and a "low pack" should be available at the activity site.

Team Sports

Team sports should be encouraged if the child expresses an interest. The child, parents and care plan will provide the guidance necessary to accommodate full participation. The only accommodations needed will be to have monitoring supplies and snacks available at the site of the activity and staff trained regarding their use. Most children old enough to participate in school sports are able to monitor their own blood and to adjust their snacks accordingly. Many children will chose to sip Gatorade or other sports beverages during practice and games to keep their blood glucose levels high. Children should be allowed this independence.

INSULIN

Children with Type 1 diabetes must inject insulin daily. The physician and family determine the insulin types, dosages and times needed. Insulin needs vary with each child. Most children will not need to inject insulin during the school day. Children who do need to inject insulin may need assistance and supervision.

Types and Characteristics

Insulins vary in their onset and in their duration of action. Most children will be on a schedule that includes a combination of short and intermediate acting insulin, taken one-half hour before both breakfast and the evening meal. Blood glucose is lowest when insulin has its peak effect. Thus, meals and snacks are planned for this time.

The following table summarizes duration, source and color by each type of insulin. The times of onset, peak and duration of effect may vary among individuals. All bottles of insulin sold in the United States have 100 units per milliliter of fluid, thus are labeled U-100. The appropriate syringes are also labeled U-100.

Comparison of Insulins					
Type	Source	Color	Approximate Length of Action		
			Onset	Peak	End
Rapid Acting					
Humalog/Lispro	Human	Clear	5 minutes	1 hour	2-4 hours
Short Acting					
Regular	Human, Pork	Clear	0.5-1 hour	2-5 hours	6-16 hours
Intermediate acting					
NPH	Human, Pork	Cloudy when mixed	1-1.5 hours	4-12 hours	24+ hours
Lente	Human, Pork	Cloudy when mixed	1-2.5 hours	6-15 hours	22+ hours
Long Acting					
Ultralente	Human, Pork	Cloudy when mixed	4-6 hours	8-30 hours	36+ hours

Administration

The school nurse might be responsible for injecting insulin or in assisting a student to draw up and self inject insulin. The procedure for administration of insulin is in the box at the right.

Inspect the insulin. Check the expiration date printed on the label. Humalog and Regular insulins are clear, others are cloudy. Long and intermediate acting insulins must be gently mixed by rolling the vial between palms. There should be no clumping of particulate in the insulin. Do not use insulin that is not uniform in consistency.

Select injection site. Injections may be given in the abdomen, thighs, buttocks or arms. Insulin sites should be rotated in order to avoid tissue damage, which results in the poor absorption of the insulin. Speed of absorption decreases with each of the following sites: arms, legs and buttocks.

Steps for Insulin Injection

- ① Get supplies.
- ② Wash hands.
- ③ Roll bottle to mix. Wipe top with alcohol swab.
- ④ Pull plunger down to ____ units.
- ⑤ Push needle into bottle. Push plunger up.
- ⑥ Pull plunger down to _____ units.
- ⑦ Pick injection site. Wipe with alcohol swab.
- ⑧ Pinch up skin. Push needle into skin and push plunger in.
- ⑨ Pull needle out.
- ⑩ Dispose of syringe per care plan.

Care and Storage

Effectiveness of insulin is dependent on its careful handling and storage. Date the insulin when it is opened and discard 30 days after opening. Check the expiration date on stored insulin regularly.

- Keep insulin refrigerated for longer shelf life, if a refrigerator is not available, a cool pack may be used. Unrefrigerated insulin should be kept as cool as possible.
- Do not let insulin freeze, if it does, discard it immediately.
- Keep insulin away from heat and light.
- Clumping or frosting results from too much shaking or rough handling. Discard.
- Insulin may be carried in a fanny pack or backpack with an ice pack, as long as it is positioned so it does not freeze or get too warm.

ROLES AND RESPONSIBILITIES

The well being of a child with diabetes requires a collaborative relationship between the school and home. The child and his/her family and the health care team are responsible for overall care planning and management. The school is responsible for assuring that the care plan is implemented and supported in the school setting, and that all factors related to the child's diabetes care are communicated to the family.

The staff section of the manual is designed to be individualized for each child and copied for each team member.

Parent/Care Giver/Guardian

- Advocate on behalf of the child
- Participate in the parent conference and planning meetings with school personnel
- Approve the care plan and emergency procedures
- Provide written permission for sharing of medical information with school nurse
- Provide medical equipment, prescriptions, supplies, etc. as indicated in the plan
- Provide food packs for several locations in school and on the bus
- Keep the school informed of any changes in plan of care
- Assist with the staff training if desired

Student

- Consistent with their ability, willingness and parental guidance, students may help:
- Monitoring and recording her/his blood glucose
- Informing adults of symptoms of potential emergencies
- Eating the right foods, in the right amounts, on time
- Exercising regularly
- Carrying supplies for possible hypoglycemic reactions

The Healthcare Team

The child's health care team works with the family to educate them about diabetes and day to day management. They have helped the family and child to make the needed life-style changes and developed the overall plan of care. The child may see one or more members of the team as often as every three months. It is critical that the services provided in school support and assist in the implementation of the overall care plan. Members of the child's health care team may include: pediatric endocrinologist, pediatrician or family practitioner, nurse practitioner, certified diabetes educator (CDE), dietitian (RD).

Principal

General Role:

- Learn about diabetes
- Promote a supportive learning environment
- Treat the child normally and help other children do the same
- Participate in development of the individual care plan
- Understand one's own role and the role of others
- Know what to do in an emergency and the order of responsibility for emergency care
- Know the phone numbers of the child's parent(s) and physician

Specific Responsibilities:

- Support the school nurse and care team in the implementation of the individualized care plan throughout the school
- Know regulations that apply to children with diabetes and assure staff compliance
- Explain laws and regulations to community members if necessary
- Facilitate problem solving and negotiations among members of the school team
- Designate and coordinate the 504 team
- Delegate nursing duties if nursing staff is not full time
- Assure substitute teachers know that the child is diabetic and that they are familiar with classroom procedures

Care Plan Implementation Role/Notes From Planning Meeting

Child's name

Planned snack times

Usual signs/symptoms of low blood glucose:

Call order for assistance (name and extension):

Other notes:

School Nurse

General Role:

- Learn about diabetes
- Promote a supportive learning environment
- Treat the child normally and help other children to do the same
- Participate in development of the individual care plan
- Understand one's own role and the role of others
- Know what to do in an emergency and the order of responsibility for emergency care
- Know the phone numbers of the child's parent(s) and physician

Specific Responsibilities:

- Generate a nursing assessment of the child based on home or school visit
- Obtain pertinent medical and psychosocial information
- Assure the participation of the parents and student in development of the Individual Care Plan, Emergency Plan, staff training and other aspects of care management in the school
- Coordinate the student's in-school health care as specified in the Health Care Plan
- Organize and conduct Pre-planning and Planning Meetings
- Ensure that caregivers in the school have received competency-based training in child specific techniques and problem management
- Communicate with school team members on a regular basis
- Maintain appropriate documentation of care provided
- Regularly review and update the Individual Care plan and training of caregivers
- Serve as child advocate

Care Plan Implementation Role/Notes From Planning Meeting

Child's name

Planned snack times

Usual signs/symptoms of low blood glucose:

Call order for assistance (name and extension):

Other notes:

Classroom and Substitute Teacher

General Role:

- Learn about diabetes
- Promote a supportive learning environment
- Treat the child normally and help other children to do the same
- Participate in development of the individual care plan
- Understand one's own role and the role of others
- Know what to do in an emergency and the order of responsibility for emergency care
- Know the phone numbers of the child's parents and physician

Specific Responsibilities:

- Learn to recognize the signs and symptoms of hypo- and hyper-glycemia and be able to respond in accordance with the emergency plan
- Help the child to comply with food and snack requirements and monitoring routines
- Communicate diabetes-related needs to substitute and special teachers and instructional assistants
- Educate the class about the special needs of the child (with his/her permission) with diabetes and use this as an opportunity to educate students regarding diet, exercise and health. The student with diabetes may be willing to present information to his or her classroom peers that can enhance peer knowledge and support for the student
- Guide the student in choosing a buddy who will be an advocate for him/her in the event of an emergency
- Assure substitute teachers know that the child is diabetic and that they are familiar with classroom procedures

Care Plan Implementation Role/Notes From Planning Meeting

Child's name

Planned snack times

Usual signs/symptoms of low blood glucose:

Call order for assistance (name and extension):

Other notes:

Food Service Director and Staff

General Role:

- Learn about diabetes
- Promote a supportive learning environment
- Treat the child normally and help other children to do the same
- Participate in development of the individual care plan
- Understand one's own role and the role of others
- Know what to do in an emergency and the order of responsibility for emergency care
- Know the phone numbers of the child's parent(s) and physician

Specific Responsibilities:

- Guide the meal modification process
- Assure that food is prepared and served according to the care plan
- Collaborate with the family and child on a menu plan when school meals are chosen
- Work with the school nurse to obtain a medical statement for meal modification
- Keep medical statements on file and update as necessary
- Communicate with the school's nutrition consultant when necessary to implement complex recommendations
- Train the food service staff on meal modification and the needs of the child

Note: The responsibility of the Food Service is to accommodate the medical needs of the child, not personal food preferences. When menus are reviewed and appropriate substitutions are offered, the family may choose to occasionally pack a child's lunch.

Care Plan Implementation Role/Notes From Planning Meeting

Child's name

Planned snack times

Usual signs/symptoms of low blood glucose:

Call order for assistance (name and extension):

Other notes:

Physical Education Teacher and Coach

General Role:

- Learn about diabetes
- Promote a supportive learning environment
- Treat the child normally and help other children to do the same
- Participate in development of the individual care plan
- Understand one's own role and the role of others
- Know what to do in an emergency and the order of responsibility for emergency care
- Know the phone numbers of the child's parent(s) and physician

Specific Responsibilities:

- Be sure blood glucose level is checked before and/or activity if this is in the care plan
- Be aware of the student's usual level of activity
- Allow snacks before or after physical activity if indicated
- Encourage increased fluid consumption
- Learn to recognize the signs and symptoms of hypo- and hyper-glycemia and be able to respond in accordance with the emergency plan
- Communicate diabetes-related needs to substitute and special teachers and instructional assistants
- Encourage participation in sports and athletic opportunities as appropriate
- Ensure that glucose monitoring equipment and "low-packs" are available at all activity sites

Care Plan Implementation Role/Notes From Planning Meeting

Child's name

Planned snack times

Usual signs/symptoms of low blood glucose:

Call order for assistance (name and extension):

Other notes:

Counselor

General Role:

- Learn about diabetes
- Promote a supportive learning environment
- Treat the child normally and help other children to do the same
- Participate in development of the individual care plan
- Understand one's own role and the role of others
- Know what to do in an emergency and the order of responsibility for emergency care
- Know the phone numbers of the child's parents and physician

Specific Responsibilities:

- Assist the student with concerns he or she may have regarding their diabetes
- Communicate with the child, family and school staff as necessary
- Respond to ineffective coping mechanisms demonstrated by child and family
- Support the child, family and school personnel in compliance with the treatment plan
- Coordinate a class discussion about diabetes and management needs (if the child doesn't mind)
- Encourage participation in self-management that is appropriate to the child's developmental level

Care Plan Implementation Role/Notes From Planning Meeting

Child's name

Planned snack times

Usual signs/symptoms of low blood glucose:

Call order for assistance (name and extension):

Other notes:

Bus Driver

General Role:

- Learn about diabetes
- Promote a supportive learning environment
- Treat the child normally and help other children to do the same
- Participate in development of the individual care plan
- Understand one's own role and the role of others
- Know what to do in an emergency and the order of responsibility for emergency care
- Know the phone numbers of the child's parents and physician

Specific Responsibilities:

- Learn to recognize the signs and symptoms of hypo- and hyper-glycemia and be able to respond in accordance with the emergency plan
- Know that the *end of the school day* is often the time of low blood glucose episodes
- Communicate diabetes-related needs to substitute drivers and transportation assistants
- Allow the child to consume a snack on the bus as indicated in their plan. Keep a food kit, provided by the family, readily available on the bus
- Keep a "low-pack" food kit, provided by the family, readily available on the bus

Care Plan Implementation Role/Notes From Planning Meeting

Child's name

Planned snack times

Usual signs/symptoms of low blood glucose:

Call order for assistance (name and extension):

Other notes:

APPENDICES

1. Comparisons of Manifestations of Hypoglycemia and Hyperglycemia
 2. Child Development and Participation in Self Care
 3. Regulations Affecting School Populations
 4. Authorization for Release of Medical Information
 5. Prescription Medication Order and Permission Form
 6. Medical Statement for Children Requiring Modifications in School Meals
 - 7b. Sample 504 Plan
 - 7b. Sample Student Accommodation Plan
- Universal Precautions
- Resources
- Sample Record Keeping Forms

Appendix 1

Comparison of Manifestations of Hypoglycemia and Hyperglycemia

Characteristic	Hypoglycemia	Hyperglycemia
Onset	Rapid (minutes)	Gradual (days)
Mood	Labile, irritable, nervous, weepy, combative	Lethargic
Mental Status	Difficulty concentrating, speaking, focusing, coordinating	Dulled sensorium, confused
Inward feeling	Shaking feeling, hunger, headache, dizziness	Thirst, weakness, nausea/vomiting, abdominal pain
Skin	Pallor, sweating	Flushed, signs of dehydration
Mucus membranes	Normal	Dry, crusty
Respiration's	Shallow	Deep, rapid (Kussmaul)
Pulse	Tachycardia	Less rapid, weak
Breath odor	Normal	Fruity, acetone
Neurologic	Tremors Late: hyperreflexia, dilated pupils, convulsion	Paresthesia
Ominous signs	Shock, coma	Acidosis, coma
Blood Glucose Ketones Osmolarity pH Hematocrit HCO ₃	Low: below 70 mg/dl Negative/ trace Normal Normal Normal Normal	High: 240 mg/dl or more High/large (only if DKA) High Low (7.25 or less) High Less than 15eEq/L
Urine: Output Sugar Acetone	Normal Negative Negative/trace	Polyuria to oliguria High High

Appendix 2

Child Development and Participation in Self Care

Age	Food	Insulin	Testing	Psy
4-5	Knows likes and dislikes.	Can tell where injection should be Can pinch skin.	Collects urine for ketones. Turns on meter. Helps w/recording.	Identifies with 'These words sh child this age m she is bad if the "bad."
6-7	Can begin to tell carbohydrate content of foods. Know which ones to limit.	Can begin to help with aspects of injection.	Can help with blood test. Can prick finger.	Needs many rer supervision.
8-10	Can select foods according to criteria. Know if foods fit diet plan.	May begin to do own shots.	Can do blood tests with supervision. Can keep records. Can do own urine test with supervision.	Needs reminder Understands on consequences o long term. "Scientific mind intrigued by tes
11-13	Helps plan meals and snacks.	Can measure and inject own insulin.	Can see blood test results forming a pattern. Still needs help interpreting urine test.	May be somewh Concerned with
14+		Can mix two insulins.	Can begin to use test results to adjust insulin.	Knows consequ control. Independence a important. Rebellion conti

Note: These are guidelines only. Each child is an individual.

Appendix 3

REGULATIONS AFFECTING SCHOOL POPULATIONS

Federal legislation

Federal legislation ensuring non-discrimination of school aged children includes specific protection for children with diabetes. Section 504 of the Rehabilitation Act of 1973 is a civil rights provision, which prohibits discrimination on the basis of handicap by recipients of federal funds. The law states that “no otherwise qualified individual with handicaps in the United States...shall solely by reason of her or his disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance...”

The term “program or activity” includes all programs or activities of the Vermont Department of Education and all schools and school districts receiving federal funds regardless of whether the specific program or activity involved are a direct recipient of federal funds.

Section 504

Section 504 identifies an individual with a disability as any person whom: *“has a physical or mental impairment which substantially limits participation in one or more of major life activities such as caring for oneself, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, and working.”*

Type 1 diabetes is a physiological disorder which affects the endocrine system, placing the individual at risk for hypoglycemic and hyperglycemic episodes related to this metabolic dysfunction. Potential fluctuations in blood glucose impact the individual’s major life activities as described above. Reasonable accommodations can be planned and documented in a 504 plan by a designated 504 case manager in each school district.

The written 504 plan provides for clearly understood and accepted interventions which support the child and school personnel. Potential discrimination can best be addressed by education of personnel involved in the day to day life of the child with diabetes.

Guidelines for accommodations

Students with disabilities may be eligible for specific health and education-related accommodations to be made in schools. The elements in the following list may serve as basic guidelines for planning the daily interventions for a child with diabetes in the school setting.

1. do blood glucose checks
2. treat hypoglycemia with emergency carbohydrate
3. inject insulin when necessary
4. eat snacks when necessary
5. participate in school meal program
6. have flexible time for eating meals and snacks
7. have free and unrestricted access to water and the bathroom
8. participate fully in physical education (gym class) and other extracurricular activities including field trips.

Individuals with Disabilities Education Act

The Individuals with Disabilities Education Act (IDEA) may also protect certain school-aged diabetic children. To receive special education under IDEA, a child must have one or more disabilities listed by the law and the child must require special education and related services because of the disability. IDEA defines the term “child with a disability” as a child:

- (i) with mental retardation, hearing impairments (including deafness), speech or language impairments, visual impairments (including blindness), serious emotional disturbance?, orthopedic impairments, autism, traumatic brain injury, other health impairments, or specific learning disabilities; and
- (ii) who, by reason thereof, needs special education and related services.

States and local educational agencies have the discretion to expand on this definition for children aged 3 through 9. The 1997 amendments to IDEA emphasize the importance of trying to keep children with disabilities in regular classrooms. Regular teachers must be part of the team that develops a covered child’s Individual Education Program (IEP), and the IEP should include program modifications and supports to enable the child to succeed in the classroom. An IEP that meets IDEA’s requirements also fulfills the requirements of Section 504.

Appendix 4

AUTHORIZATION FOR RELEASE OF MEDICAL INFORMATION

To: _____
(Doctor's Name)

From: (Your name and address)

Please send information about my child _____

Date of birth: ____/____/____

To:

Information to be sent:

- Problem list only
- An update on _____
- Ongoing progress report on _____

(Signature of Parent/Guardian)

Appendix 5

Prescription medication order and permission form (to be returned to the school nurse)

From time to time, it may be necessary for your child to take prescription medicine for treatment of an illness. Medicines that are ordered to be taken less than 4 times a day can and should be taken at home. However, if medicine must be taken 4 times a day, or at a specific time scheduled during school hours, the school nurse, as mandated by state law, may dispense medications **ONLY WITH THE FOLLOWING:**

1. Medication order, signed by the physician
2. Parental authorization, signed by the parent
3. Original pharmacist labeled bottle

MEDICATION ORDER

Student: _____ Date of birth: ___/___/___

Medication: _____

Directions: _____

Reason for giving: _____

Date: ___/___/___ Telephone number of physician: _____

(Signature of Physician)

PERMISSION TO ADMINISTER

Date: ___/___/___

I hereby give my permission for _____
to take the above prescription at school as directed.

(Signature of Parent/Guardian)

APPENDIX 6

Medical Statement for Children Requiring Modifications in School Meals

Name of Student:	Birth date:
Name of Parent/Guardian:	Daytime Phone:

Disability or Medical Condition requiring modification of school meals:	Major life activity affected by student's disability (<i>please circle all that apply</i>): caring for one's self, eating, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, working.
--	---

Required Meal Modification (*check all which apply*):

<input type="checkbox"/> RESTRICTED NUTRIENT	<input type="checkbox"/> INCREASED NUTRIENT	<input type="checkbox"/> MODIFIED TEXTURE
<input type="checkbox"/> Calorie <input type="checkbox"/> Controlled Carbohydrate <input type="checkbox"/> Protein <input type="checkbox"/> Sodium <input type="checkbox"/> Fat/Cholesterol	<input type="checkbox"/> Calorie <input type="checkbox"/> Protein <input type="checkbox"/> Fiber <input type="checkbox"/> Other:	Describe required modification:

FOODS TO BE OMITTED FROM THE DIET

List all that apply:	Foods that may be substituted:
----------------------	--------------------------------

Special Utensils Needed:

Tube Feeding Required:

Other Accommodations needed:

For student with a disability: Signature of Physician:

Date:

For non-disabled student: Signature of Other Medical Authority:

Date:

INSTRUCTIONS FOR COMPLETING THE MEDICAL STATEMENT

1. This form may be completed by a parent but must be signed by a physician if the child has a disability. *A Major Life Activity* must be circled if the child has a disability. In many cases it is "eating."
2. If the child does not have a disability it may be signed by a recognized "medical authority" which includes a physician, physician assistant, registered dietitian, registered nurse, or occupational therapist or other health professional specified by the Vermont Department of Education.
3. Check the required meal modification(s) the student needs. Both the modification category and the detailed type of modification should be checked. The more information provided, the better able the school is to meet the student's needs.
4. Food omission is most often needed due to a food allergy. Specify to what extent a food must be avoided. For example: "omit milk as a beverage", "omit foods which have milk or other dairy products as a major ingredient," "milk and all dairy products must be completely omitted from the diet."

Food to be substituted: Be as specific as is reasonable. Typical substitutions would be: "juice for milk," "any other vegetable for tomatoes," "equivalent menu item which does not contain eggs," "fresh or unsweetened fruit for dessert," etc.

5. Special Utensils refers to special silverware, plates, cups or other items the student needs in order to eat the meal.
6. Other information includes needs which do not directly relate to the modification of a food such as: fluid intake at other than meal time; additional time to eat or specific timing of a meal or snack; feeding techniques.

Note: The responsibility of the Food Service is to accommodate the medical needs of the child, not personal food preferences. When menus are reviewed and appropriate substitutions are offered, the family may choose to occasionally pack a child's lunch.

Once completed, this form should be returned to the Food Service Manager who, with the input of the parents and appropriate school staff, will establish the necessary routines to provide the modified meal. The original copy of this Medical Statement should be kept on permanent file in the nurse's office or food service office. It remains in effect until replaced or inactivated.

Appendix 7a

Sample--504 Plan for the School Year 97/98

Student Name: Mary Jones Date of Birth: 11/15/ 89 Grade: 4

Date of Disability Determination: 8 / 15 / 98 Case Manager: Susan Doe, RN

Area of disability that “substantially limits a major life activity”/Description of how this disability limits a major life activity:

- Mary has Type I diabetes mellitus. This is a condition in which the pancreas is unable to make insulin. Without insulin, the body cannot change glucose (sugar) into the energy a person needs. To compensate for the lack of natural insulin, she must take daily insulin injections, usually at home but sometimes in school.
- Mary’s daily insulin injections must be balanced with her meals, snacks and regular physical activity. To consistently achieve this balance, she must eat daily snacks and meals on a regular schedule. During the school day she must check her blood sugar before lunch, and physical education class, as well as when her body tells her blood sugar is low or too high.
- While Mary is achieving independence in self-management of her diabetes, the adults who work with her will need to be supportive and understanding about the daily regimen. Her self-care needs will be integrated into the school day so there are minimal interruptions in the learning environment.
- Mary is generally responsible and independent about her blood sugar tests, diet, and necessary equipment. The adults in the school community will help by reminding Mary to bring her pack on all out-of-school trips and to keep it with her when she is away from the classroom for extended periods of time. Mary will need this reminder especially before special events.
- Mary’s blood sugar levels affect the way he/she learns.
 - Mary’s behavior is related to blood sugar levels. She can feel “racey” and excited when her blood sugar is high, tired and “spacey” when it is low.
 - When Mary is excited and/or stressed as in a testing situation, her blood sugar can potentially go up. When her blood sugar is high (over 200) her body responds by trying to decrease this sugar level. She may become thirstier as her body is acting to dilute or flush out the extra sugar. She needs to drink more water and then urinate more frequently.
 - The learning environment is altered when Mary must stop an activity to test her blood sugar, go to the bathroom, eat a snack or get a drink of water.
 - Mary must continuously remind herself to monitor her blood sugar at appropriate times, to eat/exercise regularly and to bring supplies with her. This self-monitoring is a big task and is a distraction in itself.

Home/School Communication: To develop parent/student school communications:

1. There will be on going communication between parents and case manager.
2. Parent-teacher meetings will be scheduled at regular times especially at the beginning of the school year and other transition times. Parents want to be contacted immediately if any academic or social concerns arise.
3. Health concerns will be addressed as the need indicates.
4. Consistency is important in Mary's academic plan. Transition meetings including last and current teaching staff, nursing and parents will be scheduled.

II **Organization/Management:** To modify the instructional day:

1. Mary will need modification of non-academic time (long lunch, extra snack period on occasion).

III **Alternative Teaching Strategies/Accommodations:** To modify teaching methods:

1. Adjust testing procedures:
 - Mary may need to have open bathroom privileges during standardized tests. She should be seated so she can come and go from the room easily. Please remind her that she can go at anytime despite testing rules.
 - Mary must keep her low pack with equipment and snacks next to her in the testing area.
 - If Mary goes to the bathroom before or during the testing, special accommodations may need to be made to repeat instructions or to lengthen her testing time.
 - Mary may need to have snack at different times and intervals than the other students.
2. Individualize classroom/homework assignments:
 - There will be a need to explain assignments or adjust them if Mary's blood glucose is unusually high or low on certain days. Her level of concentration is affected and she will need accommodations.
3. Repeat or structure instructions for in-class or homework assignments.
 - Mary may miss part of an assignment or a class while testing, in the bathroom or eating his/her snack. Repeating verbal/written instructions will be needed.
 - If Mary's blood sugar is unusually high or low (>300 or < 80), she may feel shaky, slightly disoriented or very distracted. The classroom teacher will need to revisit instructions or concepts she may have missed in class.

IV **Student Precautions:** Please see attached Diabetic Day Plan
Evaluation data used to make this decision:

- Diagnosis of Diabetes Mellitus Type I
- Parents Report and past concerns
- Teachers observation in class
- Academic performance
- Articles and data provided by parents

The following related aids and services are recommended:

1. Health services: The school nurse will be available on a daily basis to provide support and guidance to Mary and the school staff. A trained substitute nurse will be available if Susan Doe is not in school.
 - Mary's classroom teacher and one other adult staff member will be trained in the administration of Glucagon.
 - Susan Doe, RN, will inform all appropriate teaching staff and cafeteria staff about condition and what to do in an emergency.
2. Equipment and Food Items
 - Mary will carry her own glucometer, finger lancets and glucose strips. She will also carry a "low pack" with juice, and a snack.
 - There will be extra juice, and snacks kept in the classroom area, the library and in exploratory classes as needed.
 - The nurse's office will have extra juice, crackers, peanut butter and other snacks for Mary and will keep a vial of insulin, extra glucose strips, syringes and ketone strips for urgent use. A Glucagon kit will be kept in the locked medicine cabinet in the nurse's office.
 - Mary's parents will provide all food and equipment to the school. Susan Doe, RN, will be responsible for distributing the food and maintaining the supply.

Appendix 7b

Sample Student Accommodation Plan

Student Name: Mary Jones Date of Birth: 11/15/ 89 Grade: 4

Case Manager: Susan Doe, RN School: Central

Date of Meeting: 8 / 15 / 98

1. Describe the nature of the concern:

Type 1 diabetes

2. Describe the basis for the determination of disability:

Type 1 diabetes is a physiological disorder that affects the endocrine system.

3. Describe how the disability affects a major life activity:

The student is at risk for hypo and hyperglycemic episodes related to her/his metabolic dysfunction.

4. Describe the reasonable accommodations that are necessary:

- Perform or receive assistance with blood glucose monitoring
- Treat or receive assistance with treatment of hypoglycemic episodes (glucose and or Glucagon as prescribed)
- Treat or receive assistance with treatment of hyperglycemic episodes (inject insulin if ordered and drink water)
- Eat whenever and wherever necessary
- Have free and unrestricted access to water and the bathroom
- Participate fully in physical education (gym class) and other extracurricular activities, including field trips.

Review/Reassessment Date: / /

Participants (name and title):

CC: Student's Cumulative File

Attachment: Information regarding Section 504

Universal Precautions and Infection Control

Schools should have established procedures for responding to universal precautions and infection control. The following is provided as general guidance.

In response to the increase in hepatitis B and human immunodeficiency virus (HIV) infections, the Centers for Disease Control have recommended “universal blood and body-fluid precautions.” These measures are intended to prevent transmission of these and other infections, as well as to decrease the risk of exposure for care-providers and students. As it is currently not possible to identify all infected individuals, these precautions must be used with every student, regardless of their medical diagnosis.

Universal precautions pertain to blood and body fluids containing blood, cerebrospinal fluid, synovial fluid, vaginal secretions, semen, and pericardial fluid. These precautions do not apply to other body products such as saliva, sputum, feces, tears, nasal secretions, vomitus and urine unless blood is visible in the materials. However, these other fluids and body wastes can be sources of other infections and should be handled as if they are infectious.

The single most important step in preventing exposure to and transmission of any infection is anticipating potential contact with infectious materials in routine as well as emergency situations. Based on the type of possible contact, the caregiver should be prepared to use the appropriate precautions and techniques prior to providing care. Diligent and proper hand washing, the use of barriers, appropriate disposal of waste products and needles, and proper decontamination of spills are essential techniques of infection control. Using common sense in the application of these measures will enhance protection of both the caregiver and the student.

Hand Washing

Proper hand washing is crucial to preventing the spread of infection. Textured jewelry on the hands or wrists (such as rings with stones) should be removed prior to washing and kept off until completion of the care procedure and hands are rehashed. Use of running water, lathering with soap and using friction to clean all surfaces of remaining jewelry and hands is key. Rinse well with running water and dry hands with paper towels. If soap and water are unavailable, wet towelettes or “Handi-wipes” may be used.

- Hands should be washed before physical contact with student and after the contact is completed.
- Hands should be washed after contact with any used equipment.

- If hands (or other skin) become soiled with blood or body fluids, they should be washed immediately before touching anything else.
- Hands should be washed whether gloves are worn or not and after gloves are removed.

Barriers

Barriers include disposable gloves, protective eyewear, masks and gowns. The use of barrier is intended to reduce the risk of contact with blood and body fluids for the caregiver as well as to control the spread of infectious agents from student to student. It is essential that appropriate barriers be used when contact with potentially infectious materials is possible.

Gloves should be worn when direct care of the student may involve contact with blood or body fluids. For infection control, it is recommended that gloves be worn as well for contact with urine, feces and respiratory secretions. Gloves should be disposed of after each use and not reused.

Disposal of Waste

Needles, syringes and other sharp objects should be placed in a metal or other punctured-proof container immediately after use. To reduce the risk of an accidental needle stick or cut, needles should not be recapped, bent or removed from the syringe before disposal. Once it is full, the container should be sealed, double bagged and then disposed of in the garbage away from the reach of children.

INTERNET RESOURCES

American Diabetes Association	www.diabetes.org
Juvenile Diabetes Foundation	www.jdfcure.com
Centers for Disease Control	www.cdc.gov/nccdphp
National Institute of Diabetes and Digestive and Kidney Diseases	www.niddk.nih.gov
Bureau of Primary Care	www.bphc.hrsa.dhhs.gov
The Diabetes Monitor	www.mdcc.com
The Vermont Program for Quality in Health Care	www.vtmednet.org/vpqhc
The American Heart Association	www.amhrt.org
The National Library of Medicine	www.nlm.nih.gov
Diabetes Action Research and Education Foundation	www.daref.org
The Diabetes Children's Foundation (Bi-lingual: French/English)	Fed_dcf@videotron.ca
National Diabetes Information Clearing House	www.niddk.nih.gov/health/diabetes/ndic.htm
American Association of Diabetes Educators	www.aadenet.org
American Dietetic Association	www.eatright.org
Diabetes Incorporated	www.diabetesinc.org
The Whittier Institute for Diabetes	www.whittier.org
NOAH: New York Online Access to Health	www.noah.cuny.edu/diabetes/diabetes.html

ADDITIONAL COMMUNITY RESOURCES

VERMONT DEPARTMENT OF HEALTH COMMUNITY NUTRITION CONSULTANTS HAVING EXPERIENCE DEALING WITH TYPE 1 DIABETES:

Jane Bennett, RD, CD
RR1, box 224
South Royalton, VT 05068
763-9915

Virginia Campbell, RD, CD
109 Temple Street
Rutland, VT 05701
773-5982

Lynn Grieger, MS, RD, CD
RD 3, Box 586
Arlington, VT 05250
375-9069
lgrieger@sover.net

Linda LaShure, RD, CD
55 Grand Avenue
Swanton, VT 05488
868-2142
linda.lashure@vtmednet.org

Kay Tran, RD, CDE, CD
9 Mill Pond Lane
South Burlington, VT 05403
660-9028
arnietran@aol.com

Joan West, RD, CD
RD 2, Box 1560
Morrisville, VT 05661
888-5379
chelmweast@aol.com