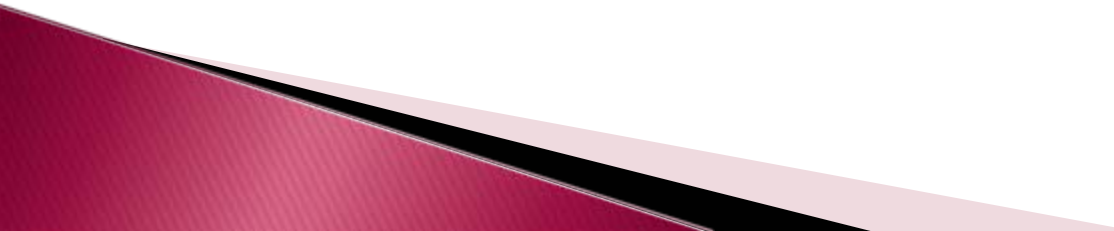


Diabetes Mellitus

Managing children and the young person with diabetes at school.

A England September 2009

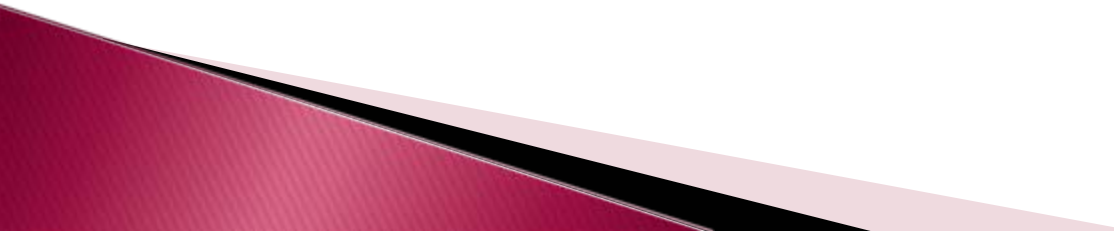
Aims

- ▶ To establish the principles of managing Diabetes Mellitus
 - ▶ Discuss the types of diabetes
 - ▶ To inform/update staff of the importance of supervising the treatment of Hypoglycaemia
 - ▶ To teach first-aid principles
 - ▶ Improve training and dissemination of information and advice within schools.
 - ▶ To discuss alternative methods of insulin delivery
- 

Diabetes Mellitus

- ▶ A chronic disorder of carbohydrate metabolism, characterised by the inability to control blood glucose levels.
- ▶ Insufficient insulin production by the pancreas.
- ▶ Insulin is essential to the utilisation of glucose as a cellular energy source.
- ▶ Diabetes Mellitus is the third most common chronic condition affecting more than 20,000 children in the United Kingdom. Hanas(2004)
- ▶ Diabetes is increasing on an annual basis of 5–7% in Cornwall.

Types of Diabetes

- ▶ Type 1: an auto-immune disease that destroys the insulin cells in the pancreas. Usually affects the younger person and requires essential treatment with insulin replacement to control blood glucose.
 - ▶ Type 2: the development of resistance to insulin, associated with insufficient or ineffective insulin production.
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Treatment

▶ Type 1 Diabetes

- ▶ No cure
- ▶ Insulin replacement via injections x 2–5 times daily or continuous subcutaneous insulin infusion (CSII) pump therapy
- ▶ Regular carbohydrate food
- ▶ Extra food to cope with extra activity

▶ Type 2 Diabetes

- ▶ Dietary modifications
- ▶ Weight control
- ▶ Increased exercise
- ▶ Tablet medication to improve own insulin's function
- ▶ Ultimately, insulin may be required

Signs and Symptoms

- ▶ Blood glucose levels rise: lack of insulin
- ▶ Sugar excreted by kidneys: need for the toilet
- ▶ Nocturia
- ▶ Increased thirst
- ▶ Reduced energy
- ▶ Lethargy
- ▶ Weight loss
- ▶ Blurred vision
- ▶ Genital itching/thrush
- ▶ Frequently runs in families

Aims of Treatment

- ▶ To achieve near normal blood glucose levels
- ▶ Promote a healthy lifestyle and improve well-being
- ▶ Protect against long-term damage to eyes, kidneys, nerves, heart, blood vessels



Diabetes Mellitus

- ⌘ Impacts on every aspect of life
- ⌘ Optimise development

- ▶ Physical
- ▶ Psychological
- ▶ Educational
- ▶ Social
- ▶ Emotional
- ▶ Intellectual

Type 1: Principles of insulin administration

- ▶ Insulin: has to be injected:
- ▶ Majority of patients will be on 4 injections per day regardless of age
- ▶ These injections will be given prior to food.
- ▶ Pump therapy will be introduced in the next two years, business plan being written for extra funding. However, children may go out of County at the moment for this treatment and the relevant health authority will liaise with the school for advice.
- ▶ If injecting pre-meals, will require privacy for injection at school

continued



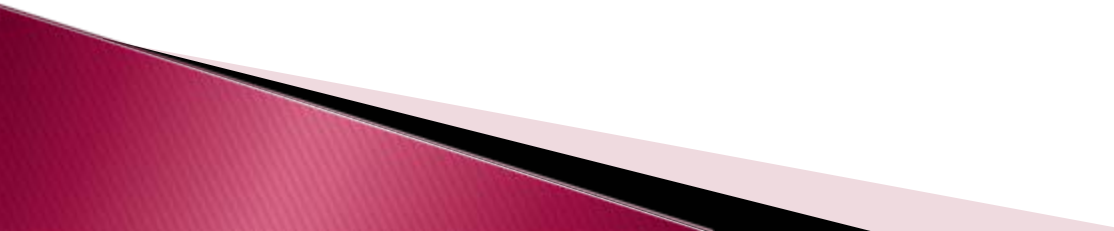
I always feel close to you.



Even when we're 9.84 feet apart.



Diet

- ▶ Normal healthy diet : Low sugar, low fat, high fibre, carbohydrates/fruit/vegetables
 - ▶ Needs to eat regularly: fit into break-times
 - ▶ Keep sweets and cakes for occasional treats only, and time them after main meals or before exercise
 - ▶ Steady weight
 - ▶ Special diabetic foods x unnecessary
- 

Blood testing

- ▶ Daily blood test encouraged
- ▶ Needs to alternate timing of blood test to achieve profile over the week
- ▶ May need to blood test at school. If needing to complete, requires a quiet place to ensure privacy, hygiene, safety
- ▶ May require to monitor pre-games
- ▶ Own equipment provided

Management of Exercise

- ⌘ Enable to achieve full potential
- ⌘ Involve in normal activities and school trips
- ⌘ Increase self-esteem and self-management
 - ▶ Either:
 - ▶ Extra food required for increased activity
 - ▶ Chocolate boost or carbohydrate snack
 - ▶ Hypoglycaemic remedy at hand
 - ▶ Or:
 - ▶ Insulin reduction
 - ▶ Increased blood glucose monitoring
 - ▶ Snack after exercise

Extra Curricular Activities

- ▶ Extra food, to cope with change of routine, or unanticipated delays
- ▶ Insulin and injection kit, if delays continue over usual injection time/meal
- ▶ Spare medical equipment, if travelling
- ▶ Discrimination and stigmatization are unacceptable

Hypoglycaemia

- ▶ Low blood glucose levels $< 4\text{mmols/l}$
- ▶ Normal part of Diabetes. Caused by :
- ▶ too little food : missed/delayed intake
- ▶ too much insulin
- ▶ extra exercise above normal activities
- ▶ Change in temperature
- ▶ Stress
- ▶ Alcohol

Signs and Symptoms

- ▶ Change of character:
Irritable /Emotional
- ▶ Lack of concentration
- ▶ Tiredness/Thumb sucking/Ear Tickling
- ▶ Headache
- ▶ Blurred vision/Rubs eyes
- ▶ Pallor
- ▶ Hunger
- ▶ Abdominal pain
- ▶ Excessive sweating
- ▶ Dizziness
- ▶ Trembling
- ▶ Tingling hands, feet, lips, tongue
- ▶ Palpitations

Treatment

- ▶ Prompt treatment: needs sugar or foods containing sugar
- ▶ 3 glucose tablets (equivalent 10g glucose) 3 sugar lumps / 2 level tsp. sugar / sweet drink: Lucozade x 50mls (2fl.oz) or sugary Lemonade x 150mls (5fl.oz) Chocolate or sweet biscuits
- ▶ Recovery should be 5–10mins. If no improvement, sugar needs to be repeated
- ▶ If blood sugar is still less than <4 mmols to repeat sugar load

Treatment : continued

- ▶ Follow up with additional carbohydrate food: biscuits/sandwich
- ▶ Eat an early meal or snack and eat extra carbohydrate to usual
- ▶ Time-out x 15–30 mins
- ▶ Do not allow to leave alone. Accompany.



Moderate/Severe Hypoglycaemia

- ▶ Present with odd behaviour: increasing rudeness/aggressiveness/bad temper/silliness/laughter/confusion
- ▶ Take immediate action, even if refused
- ▶ Give oral glucose, only if conscious
- ▶ GlucoGel on inside of cheek: once more cooperative, repeat sugar/snack
- ▶ If unconscious: call paramedics. Place in recovery position. Rarely, disruption of brain activity/seizure

Hyperglycaemia

- ▶ Defined as blood sugar more than 15 mmols
- ▶ Encourage fluids to eradicate ketones if present.
- ▶ Presents with increased thirst and frequency of urination
- ▶ Loss of appetite and nausea
- ▶ If ill, needs to go home. Inform parents.
- ▶ Adolescent hormonal changes impact on control during puberty

Main points to remember

- ▶ Good communication with diabetes team to reduce anxieties in mid-day insulin administration.
- ▶ Pump therapy. (presently no service in Cornwall but business plan being drawn up for future development)
- ▶ Teachers attitude to diabetes influences confidence of parents
- ▶ More frequent injections or pumps are to improve glycaemic control for the child.
- ▶ Communicate all observations; thirst, frequency of toileting
- ▶ Inform parents of any incidents: hypoglycaemia
Try not to make the child feel different
- ▶ May need to inform other pupils; avoid disdain or fear
- ▶ Curriculum support
- ▶ Supervision
- ▶ Identity Jewellery
- ▶ Special occasions

School pack

- ▶ Individual school record card
- ▶ Contact emergency telephone numbers
- ▶ Photograph
- ▶ Involve parents in training sessions
- ▶ Individual health care plans: with Parental consent
- ▶ Hypoglycaemia remedies / Emergency food / Storage
- ▶ Timing meals / snacks
- ▶ Exercise management
- ▶ Staff training: dated + signatures

School Record card

- ▶ Involve
- ▶ Class Tutor
- ▶ Year head
- ▶ PE Teacher
- ▶ School first-aider
- ▶ Lunchtime Supervisors
- ▶ Parent/carer
- ▶ Signatures: Head teacher, School nurse, Parent /carer
- ▶ Review date
- ▶ Copies: parents / school / Consultant / Community nurse / school nurse

Summary

- ▶ Diabetes should not alter a child's academic potential
- ▶ The LEA has a duty of care together with several DOH guidance documents.
- ▶ Younger children should not be expected to undertake injections without support and supervision and should not be discriminated against for a treatment to improve their life expectancy.
- ▶ Diabetes should not be the cause for being excluded from any type of activity but safety is paramount during participation
- ▶ Education and social integration is of fundamental importance

Diabetes mellitus

Managing children and the young person with diabetes at school.

Any Questions?

Thank you for your time.

Anita England
Paediatric Diabetes Clinical Nurse Specialist

