



—BELMATT—  
HEALTHCARE TRAINING

# DIABETES IN CHILDREN

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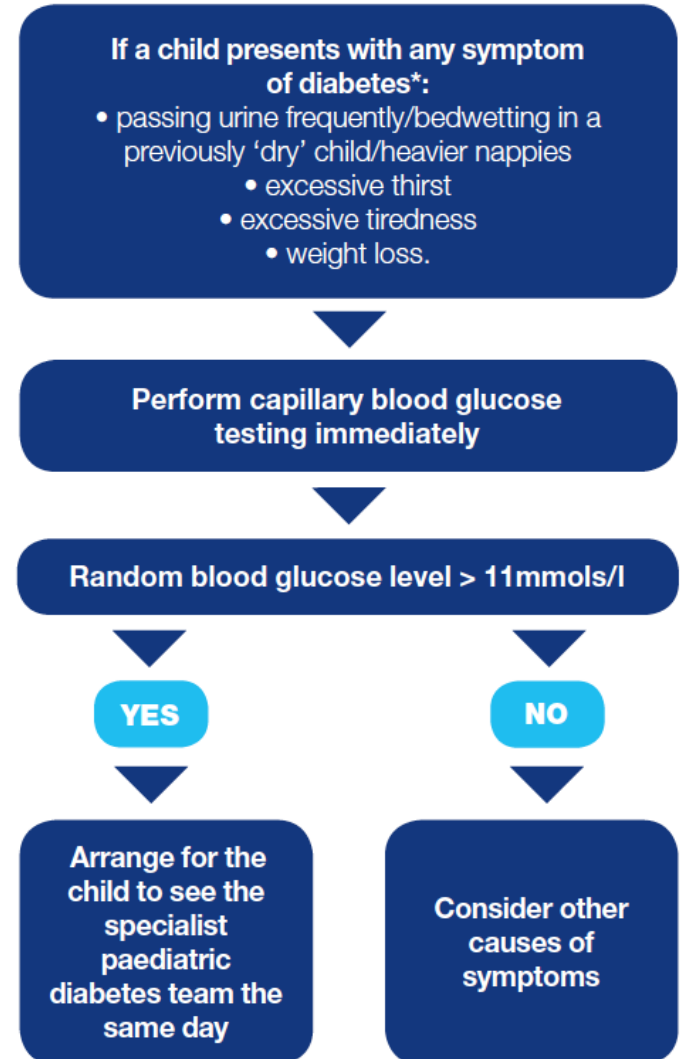
- Type 1 diabetes ..most common...95%..170 in Hillingdon
- Type 2 on the rise with obesity and genetic risk...5% and increasing....10 in Hillingdon

# Diagnosis - WHO criteria

Urine glucose testing should only be performed if a child can void immediately

Waiting for a fasting blood glucose level is not appropriate

HbA1c test should not be used to diagnose Type 1 D in children.



\*Less common symptoms may also indicate diabetes:

- constipation
- oral/vulval thrush

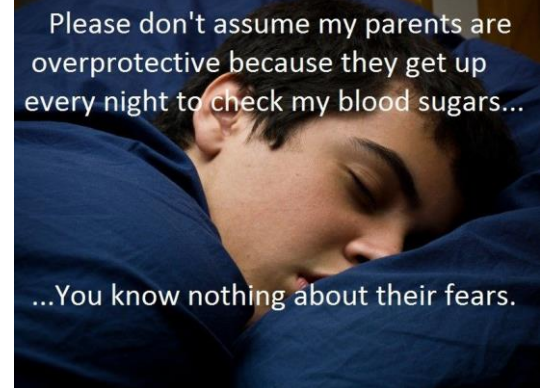
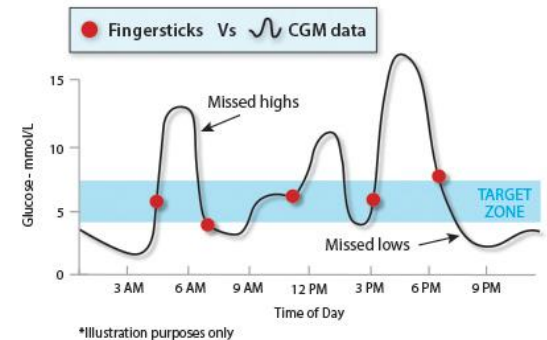
# Hospital stay — onwards

- Carb counting D1
- Basal Bolus regime
- Pump D1 < 6 yrs old
- 3- 5 days admission
- School care plan
- Home visit
- GP - prescriptions
- 3 monthly visits
- 24/7 support line



# ...think like a pancreas for life !

- 250 BG strips/ month
- Glucagon
- Bld ketone strips
- enough? ..run out
- confused with T2 freq
- parental depression
- hypo fears
- 6-12mo self management
- Cost of diabetes!!



- ↑ Rising quickly
- ↗ Rising
- Changing slowly
- ↘ Falling
- ↓ Falling quickly

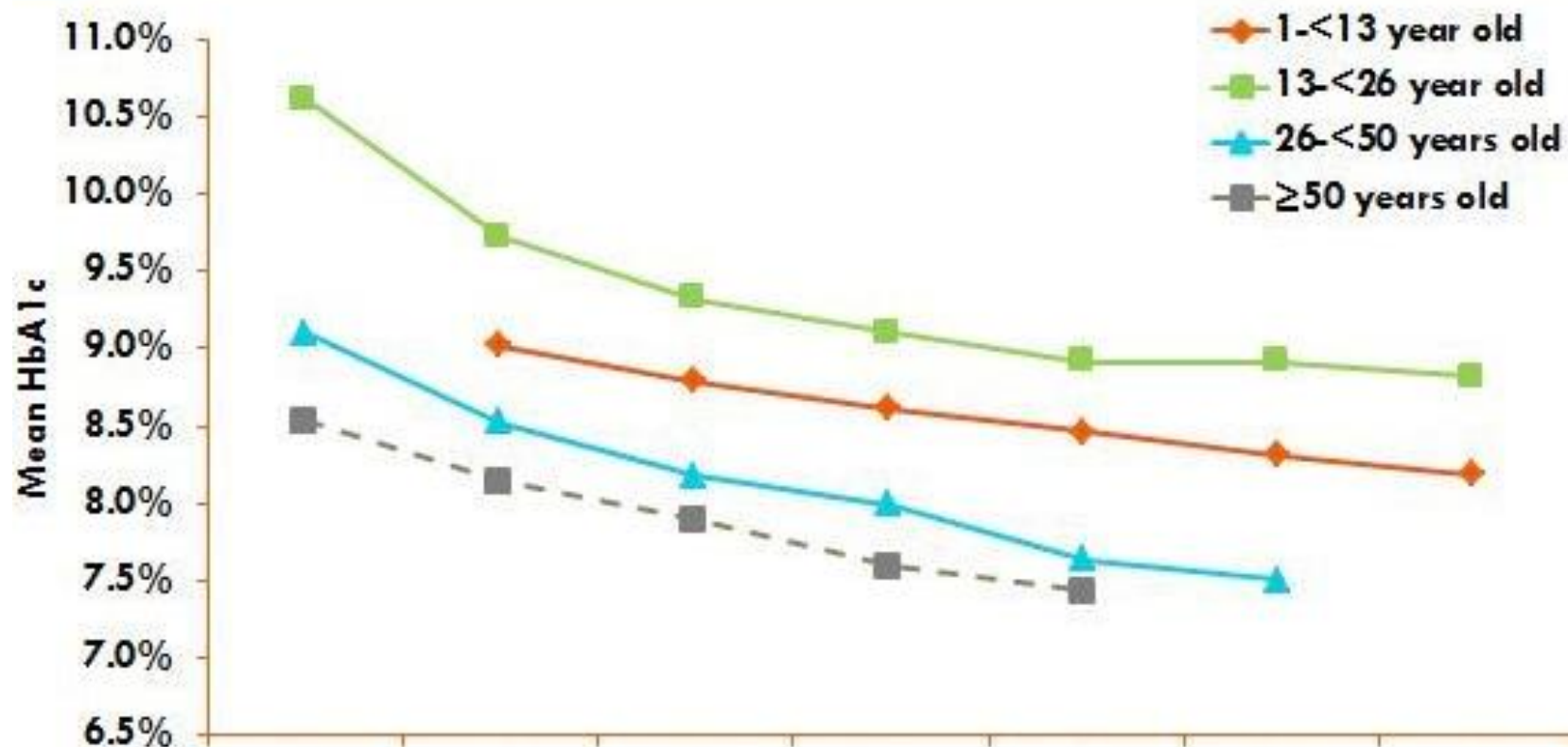


## Future

- Median HBA1c 69 mmol/mol  
Hillingdon
- National 64 mmol/mol
- Decreasing
- New technology
- Flash GMS
- Continuous GMS



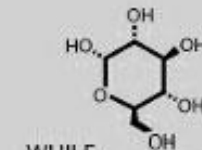
## Association between Frequency of SMBG per Day and HbA1c



# Fructose vs Sucrose



120 cal Glucose = 1cal converted to fat  
120 cal Fructose = 40cal converted to fat

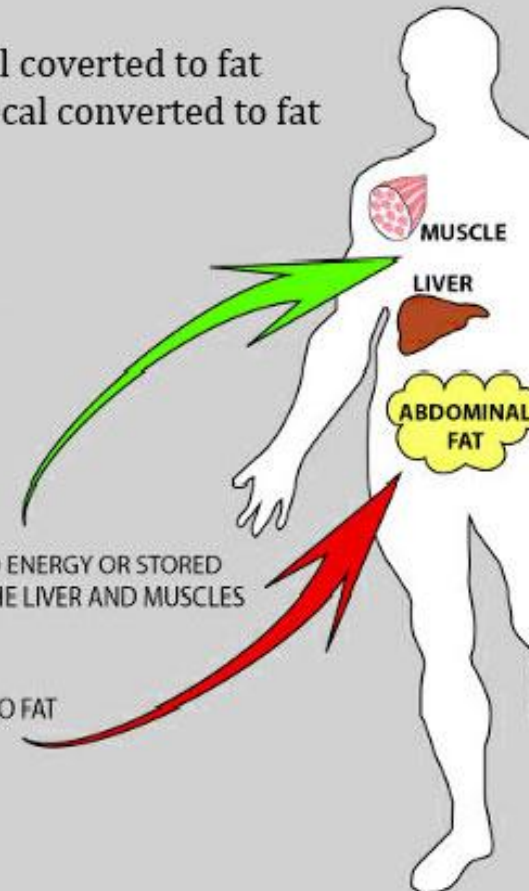
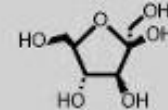


WHILE  
**GLUCOSE**

IS PROCESSED INTO ENERGY OR STORED  
AS GLYCOGEN IN THE LIVER AND MUSCLES

**FRUCTOSE**

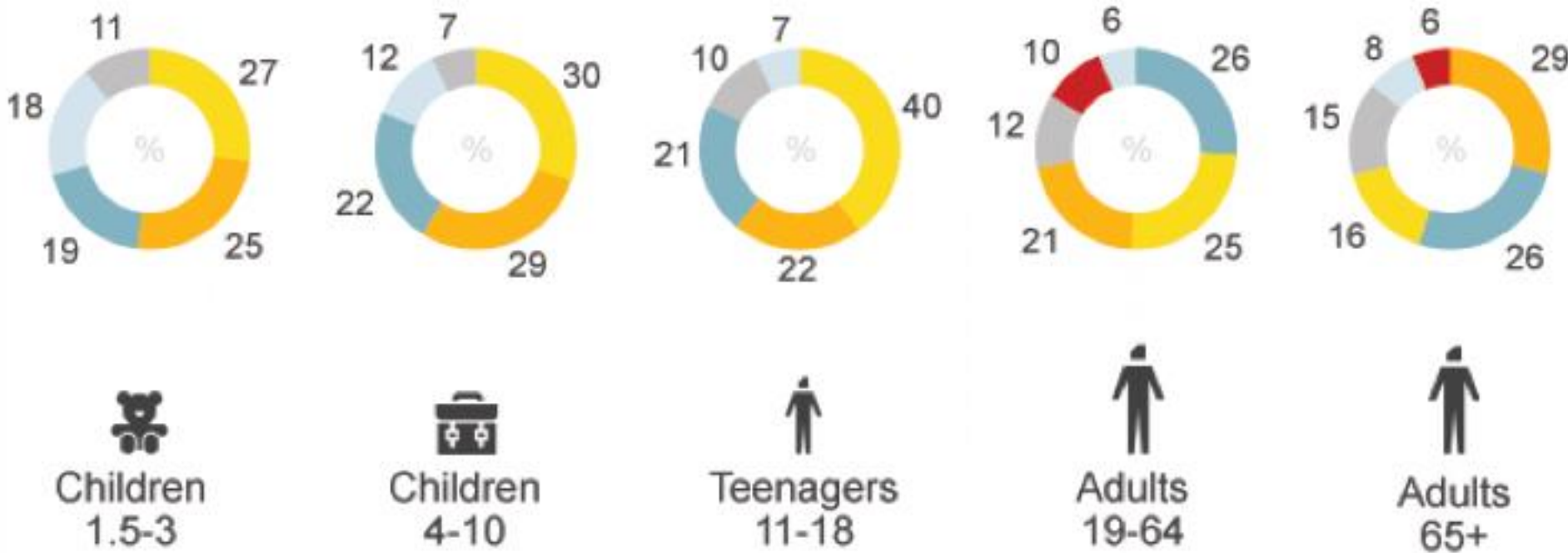
IS METABOLIZED INTO FAT





Where different age groups get their added sugar from

- Soft drinks
- Cereals, cakes, biscuits
- Sugar, sweets, jams
- Milk products
- Alcohol
- Other



Source: National Diet & Nutrition Survey, rolling programme 2008-12

self referral

google 'mend hillington'

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### How MEND delivered?

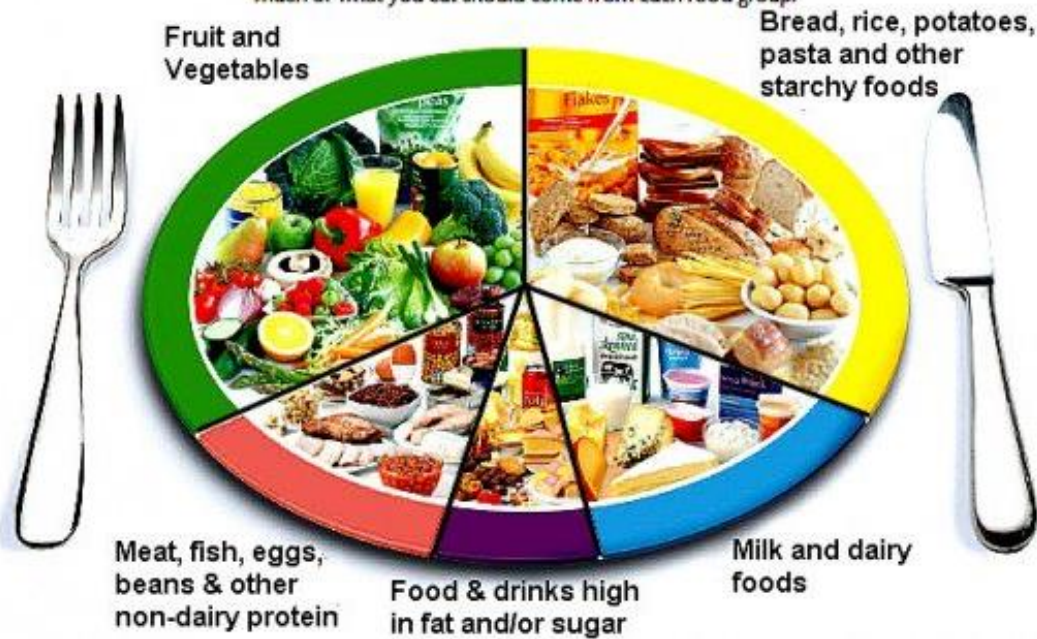
hour group sessions over 10 weeks  
action and farewell  
pre-assessment and post assessment  
community for Hillington to become  
health project including **quality of life**  
(ment)  
sessions  
nutrition sessions  
exercise sessions

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- Mind, Exercise, Nutrition...Do it! (MEND)
- MEND is an obesity prevention and treatment programme for children and young people.
- Parents and carers join their children in learning to choose healthier foods
- spend more time being active

# The eatwell plate

Use the eatwell plate to help you get the balance right. It shows how much of what you eat should come from each food group.



Dietitian ?

# Advice

Drink water, sugar-free beverages, or milk

Use cooking spray instead of deep or shallow frying in oil

Restrict snacks to fruits, vegetables or grains

Serve appropriate portions

Review school lunch menu with the child to pick healthy options

Schedule at least 20 minutes to eat meals together. Eating slowly helps to avoid overeating

Turn off the television while eating

Eat regular meals; skipping meals can lead to overeating

Remove snack foods, crisps, biscuits, and desserts from the house

# Once, kids played like their lives depended on it. If only kids still did.

Chunky. Hefty. Big-boned. For parents of overweight children, it's all too easy to minimize reality. But the consequences of a heavy childhood may actually result in a generation of children with shorter life spans than their parents.

Encourage physical activity and better nutrition. Do whatever it takes to get your kids as active as kids once were. Activity and weight-bearing exercise will help your child live stronger, and live longer.

**Parents,**

**Do your duty.**

**Be responsible**

**Feed your kids right.**

**Get them moving.**

**Children shouldn't be fat!**





# Physical activity

Limit television and video games to less than 2 hours per day

Engage in active family activities (eg, biking, walking after dinner, and swimming)

Dance to your favourite music - Wii fit / dance

Engage in team sports

Take classes (eg, dance, martial arts, or swimming)

Be consistent and set clear guidelines about food and avoid using food as a reward

Establish daily family meal, family snack times, and physically active family time

Walk instead of drive, take the stairs

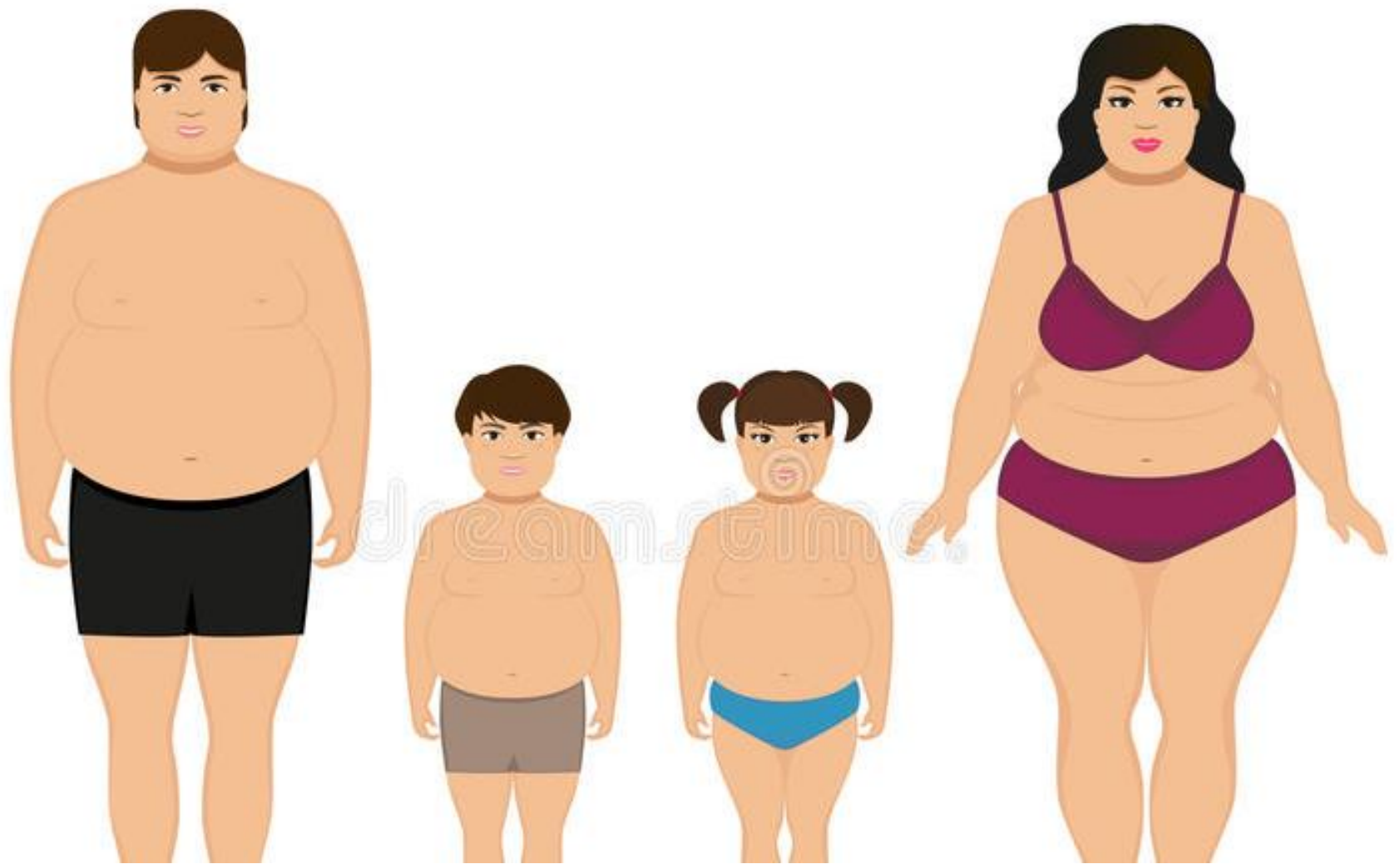
Be a role model in diet and physical activity



The age at which the child becomes obese is related to how likely the child is to be obese in adulthood

- Children who are obese from 6–11 years old:  
50% of girls and 30% of boys will be obese as adults, compared with 18% of age-matched peers
- Obesity during adolescence:  
More than 60% will maintain obesity into adulthood
- Obese adults who became obese during childhood:  
More likely than those who become obese during adulthood to have severe obesity (BMI > 40 kg/m<sup>2</sup>)

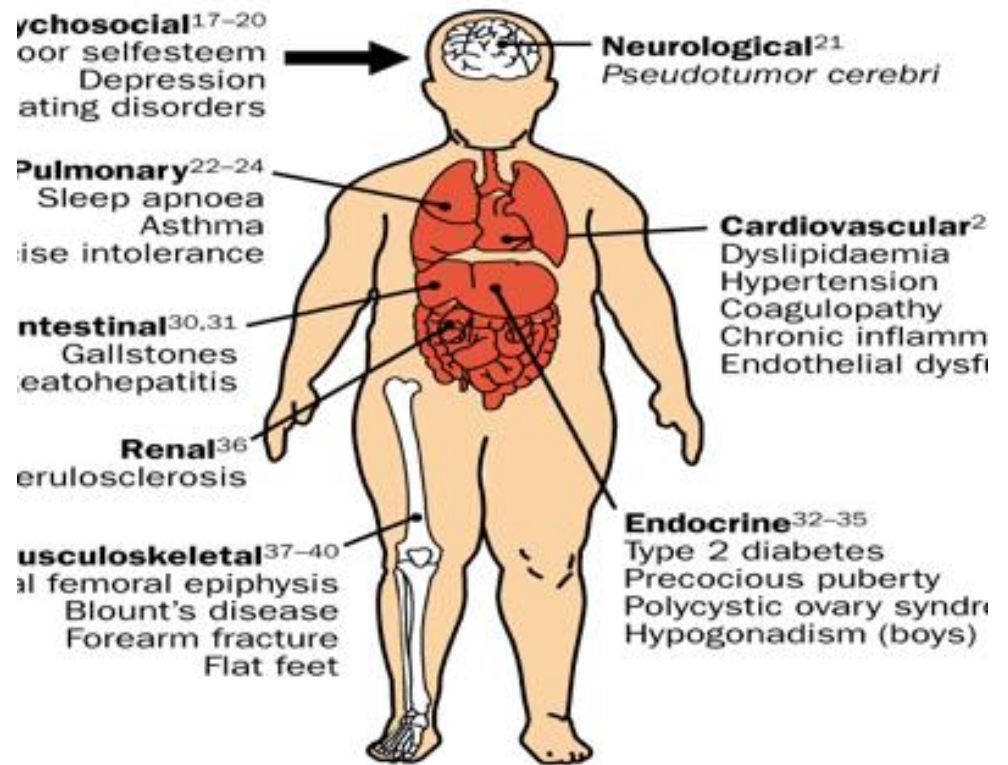
Overweight and normal-weight children with one obese parent are at twice the risk of adult obesity compared with children without an overweight parent





# Role of Paediatrician in T2D

- Too late !
- Monitoring for complications
- Psychology
- Bariatric young adult surgery



# GP role - NICE

## BOYS UK Body mass index (BMI) 2-20 years RCPCH Department of Health

The BMI centile is a simple and reliable indicator of thinness and fatness in childhood. When severe over- or underweight is a concern, or where there is a need for monitoring over time, BMI can be calculated and plotted on this chart. It is important also to plot the height and weight separately on the main 2-18 chart. There is also a BMI centile look-up on the standard 2-18 chart for less complex cases.

BMI is calculated by dividing weight (in kg) by the square of height (in metres e.g. 1.22 m, not centimetres e.g. 122 cm).  
A simple way to do this on a calculator or mobile phone is:  
1. Enter the weight; 2. Divide by height; 3. Divide the result by height.  
The result can then be plotted on the chart below.

Please place sticker (if available) otherwise write in space provided

Name:

NHS/CH No:

Hospital No:

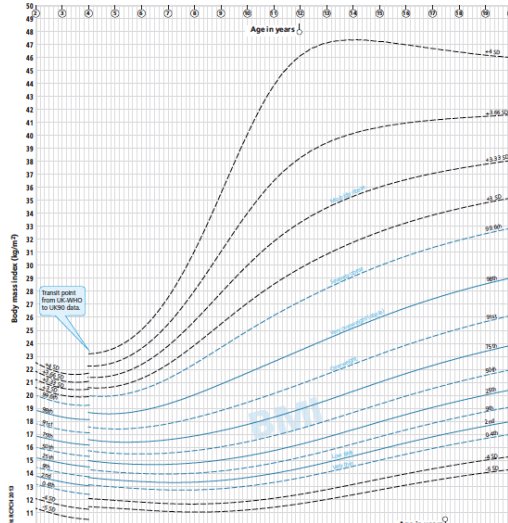
Date of Birth:

### Overweight and obesity

A BMI above the 91st centile suggests overweight. A child above the 98th centile is very overweight (clinically obese) while a BMI above the 99th centile is obese. In addition to the usual nine centile lines, the BMI chart displays at +2, +3, +3.66 and +4 SD, which can be used to monitor the children in overweight treatment programmes.

### Thinness

A BMI below the 2nd centile is unusual and may reflect undernutrition simply reflecting a small build. The chart also displays low lines at -4 and those who are severely underweight. Children whose BMI lies below centile are likely to have additional problems and if not already receive or dietetic attention should be referred.



- Early pick up from parent cohort
- Promote activity..1 hr mod
- Portion reduction
- Plot BMI ..RCPCH charts
- >91st = overweight
- >98th = obese
- Red flag 4T's & comorbidity
- Refer MEND
- TFT ,LFT, glum if needed,
- Very unlikely pathological striae

# When to refer

- Early-onset rapid weight gain
- Clinically severe obesity with comorbidities (BMI > 99.6th centile)
- Obesity in the context of short stature
- Acanthosis nigricans, type 2 diabetes, and metabolic sequelae
- Benign intracranial hypertension (eg, headaches)
- Obstructive sleep apnoea (eg, snoring, respiratory pauses, and daytime tiredness)
- Orthopaedic problems

- Very poor
- Rapid onset of complications in puberty and post puberty
- Research needed on new therapies
- Currently on Metformin licensed 12-16 yrs!

Outlook for  
type 2 D

- Hillingdon obesity strategy
- Sugar tax
- Lifestyle advice at every opportunity
- Social prescribing!!
- Set examples
- Awareness of Type 1: 4T posters in waiting room and BG meter and urine dip- same day
- repeat prescriptions T1D: support
- referral to MEND, MIND, early intervention



Take  
home &  
questions