The importance & challenges of transition

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Learning outcomes

• Definition of transition
• Why it matters
• Why it’s so difficult
• Some practical tips
Definition

The period of time during which there is planned, purposeful and supported change in a young adult’s diabetes management from child orientated to adult orientated services, mirroring increasing independence and responsibility in other aspects of their life.”

Adolescence……developmental epoch which children become adults intellectually, physically, hormonally and socially
Hazard ratios of death with diabetes versus without diabetes

<table>
<thead>
<tr>
<th></th>
<th>20-39 yrs</th>
<th>40-59 yrs</th>
<th>60-79 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>2.54</td>
<td>2.17</td>
<td>1.91</td>
</tr>
<tr>
<td>female</td>
<td>3.76</td>
<td>2.54</td>
<td>2.53</td>
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</tbody>
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Age of diagnosis matters:

• If $\Delta \leq 10$ yrs old decrease in life expectancy by 16 yrs

• If $\Delta \geq 16$ yrs old decrease in life expectancy by 10 yrs
14th annual National Paediatric audit 2016/17

• Inequalities in treatment widening at both ends of the deprivation scale

• Poorer outcomes associated with: white ethnicity, adolescence, female sex, living in deprived area

• Rising rates of type 2 diabetes with greater incidence of micro & macrovascular disease than type 1 –
  46% hypertension
  20% albuminuria
  5% abnormal eye screening
  33% raised lipids

715 individuals 206/17 compared with 77 2015/16
DUK estimate 7,000 under the age of 25yrs
HORMONES/HEREDITIVITY

SEARCH FOR “SELF” / INCREASING AUTONOMY

ENVIRONMENT

PARENTS & CAREERS

SOCIAL/PEER PRESSURE

DRUGS / ETOH
TOP WORRIES

Exams

“Belonging”

Body image

Overscheduling

Family conflict

Relationships

The future

and diabetes

The difference between a mountain and a molehill is your perspective.

Al Neuharth
Why it is so hard
Or…….

Good excuses for teenagers to give

Neurobehavioral, morphological, neurochemical & pharmacological evidence of brain maturation
Executive prefrontal cortex functions

- Ability to balance short term rewards with long term goals
- Shifting/adjusting behaviour when situations change
- Inhibiting inappropriate behaviour /initiating appropriate behaviour
- Impulse control & delaying gratification
- Modulation of intense emotion
- Foreseeing & weighing possible consequences of behaviour
- Simultaneously considering multiple streams of info that’s complex & challenging
- Forming strategies & planning
- Organizing thoughts & problem solving
- Considering the future & making predictions
- Focusing attention
THE LIMBIC SYSTEM

Involved in expression & motivation related to survival:

- Fear, anger, flight / flight response
- Eating, sex
- Memory retrieval of events that have provoked a strong emotional response

Adolescence are more likely to rely on their emotions to make decisions
Pre frontal cortex vs limbic
Smoking kills

Smoking clogs the arteries and causes heart attacks and strokes

STOP CLIMATE CHANGE BEFORE IT CHANGES YOU.
From here to maturity!

Adolescent brain has greater capacity to:

• Learn and create (neuroplasticity)
• More prone to risk taking / impulsive behavior
• More prone to damage from drugs
• Higher risk of addiction
• Higher risk of mental illness

Laying down of myelin - necessary for proper nerve insulation & effective neurocybernetics

Excess grey matter is “pruned out”
5-year-old brain  Preteen brain  Teen brain  20-year-old brain

Dorsal lateral prefrontal cortex ("executive functions")

Front  Top view  Back

Red/yellow: Parts of brain less fully mature

Blue/purple: Parts of brain more fully matured

Sources: National Institute of Mental Health; Paul Thompson, Ph.D., UCLA Laboratory of Neuro Imaging

Thomas McKay | The Denver Post
Vital ingredients for myelinogenesis
Yin & Yang of nerve dialogue

• Glutamatergic neurotransmission predominates – major excitatory neurotransmitter

• GABA (gamma aminobutyric acid) neurotransmission is still under construction - major inhibitory neurotransmitter
Other important neurotransmitter changes in adolescence

<table>
<thead>
<tr>
<th>DOPAMINE ↓</th>
<th>SEROTONIN ↓</th>
<th>MELATONIN ↑</th>
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</table>
| Movement control  
Emotional response  
Ability to experience pain / pleasure | Mood alteration  
Anxiety  
Impulse control  
Arousal | Circadian rhythms  
Sleep-wake cycle |
| Mood swings  
Difficulty regulating emotion | Decreased impulse control | Increased need for sleep |

+ oestrogen  
progesterone  
testosterone
What works?

• Cultural **continuity**
  Minimising the differences between paed & adult culture

• Disease management **continuity**
  A common purpose & plan shared between team members

• Information **continuity**
  Approaches to info giving & materials consistent between paed / adult teams

• Developmental **continuity**
  Proactively encouraging the young person to grow into a more independent adult

• **Flexible continuity**
  Support responsive to individual needs

Allen D et al 2010
"I lift, you grab. ... Was that concept just a little too complex, Carl?"
Hints for the High HbA1c Transition & Young Person Patients

• If the pt is on once daily lantus with suboptimal control consider swop to Tresiba

• Is the pt on lantus twice a day, if so consider change to bd levimir twelve hours apart or to once daily Tresiba

• If the pt does a lot of exercise and is on lantus or Tresiba consider swop to bd levimir twelve hours apart

• Does the pt wait 10 minutes between injecting the rapid acting insulin and eating? If not, ask whether this habit can be changed or suggest swopping to fiasp unless pt has very high fat / protein meals

• Ensure injection sites are rotated – have a look yourself don’t just ask

• Ensure fresh needle is used for every injection
Hints for the High HbA1c Transition & Young Person Patients:

• Never correct for hyperglycaemia after consuming alcohol & explain risk of severe hypos (often delayed) after XS ETOH

• Remind female with type 1 diabetes that they are as fertile as people without diabetes so need to use robust contraception. Mention need for high dose folic acid and “as near perfect as possible” HbA1c control at time of conception.

• Risk of passing on type 1 to your children if you are male is 1 in 17, if female and you have your child before you are 25 the risk in 1 in 25, if you’re > 25 when you have the child is 1 in 100

• Explore attitudes to use of “libre” devise & pump therapy

• If aged > 17 yrs explain DAFNE course and offer DAFNE dates

• Ask re plans for driving – offer DVLA info if appropriate

• Ask on a scale of 1-10 how unhappy / happy the pt is, sign post to CAMS / Low level Ψ intervention if <6. If <4 address more fully.
“Parent-ectomy”

PARENT/PAEDIATRICIAN

DIABETOLOGIST
Thank You for listening!