

## Paediatrics

### **The importance of physician continuity in ensuring a smooth transition from paediatric to adult diabetes care**



Krystyna Matyka, Senior Lecturer in Paediatrics, University of Warwick Medical School

The National Service Framework for diabetes states that “all young people will experience a smooth transition of care... organised in partnership with each individual and at an age appropriate to and agreed with them” (Department of Health, 2001). Adolescence is a difficult time as the young person with diabetes struggles to “do” normal adolescent behaviour without a major life-threatening episode of diabetes decompensation. Many adolescents are not interested in, or ready for, managing diabetes on their own; nor are many of them interested in accessing healthcare services.

Further problems arise as paediatric and adult services are delivered very differently, with paediatric services more supportive and family orientated and adult services encouraging education and autonomy. It is unlikely that there will be one straightforward, robust method of transition, as local issues may create problems. How do you move people to an adult service if you work in a children's hospital that feeds into three or four adult “units”? It is no surprise, then, that the issue of transition of care from paediatric to adult services is extremely challenging. Ultimately, does it matter if you get it wrong?

Nakhla et al (2009; summarised alongside) suggest that getting it right does have benefits. This retrospective cohort study tracked just over 1500 young people with type 1 diabetes up to the age of 20 years over a 4-year period. Participants were identified via the Ontario Diabetes Database. Hospital admission data were collected from the Canadian Institute for Health Information Hospital Discharge Abstract Database. A survey of method of transition at all paediatric diabetes centres in Ontario was conducted at a diabetes network meeting.

**“Does the finding that there is a benefit in maintaining the continuity of a physician mean that it is the continuity that is important, or could it be the different clinical ‘style’ of paediatricians compared with adult physicians?”**

The authors examined diabetes-related hospital admissions in people who could have experienced one of the following five outcomes of transition: transfer to a new physician and new team, transfer to a new physician but same team, no change in physician or team, transfers to new team but same physician or transfer to a new physician who had no team.

Total diabetes-related hospital admissions increased in the 2 years after transition from 7.6 to 9.5 cases per 100 person-years and the rate of hospitalisation for acute hyperglycaemia increased from 7.2 to 9.1 cases per 100 person-years. Controlling for other factors, those who were transferred to a new team but the same physician were 77% less likely to be hospitalised after transition (relative risk, 0.23; 95% confidence interval, 0.05–0.79). Further analysis to examine the effect of physician versus team showed that people transferred to a new physician had a four-fold increased risk of experiencing a diabetes-related hospital admission. Although Canadians have universal access to health

care there were some income-related gradients in hospital admissions.

So what do we learn from this? Well, we have to get it right. Quite how this is achieved is not obvious: does the finding that there is a benefit in maintaining the continuity of a physician mean that it is the continuity that is important, or could it be the different clinical “style” of paediatricians compared with adult physicians? Should we have clinics for people with type 1 diabetes that have no age restrictions but that involve a variety of healthcare professionals, both adult and paediatric? Do adult physicians need training in how to act like paediatricians or vice versa? What is clear is that research in this area is difficult and, by definition, long-term, but it is also clear that it is likely to be of great value.

Department of Health (2001) *National Service Framework for Diabetes: Standards*. DH, London

### PEDIATRICS

### **Physician continuity important in lowering hospitalisations in young people**

Readability	✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

**1** This study investigated the impact of transition of youths with diabetes to adult care on diabetes-related hospitalisations and retinopathy screening.

**2** Rates of diabetes-related hospital admissions before and after transition to adult care were compared and the effect of different methods of transfer of care were assessed.

**3** Data for 1507 young adults (diabetes duration ≥5 years at baseline) were retrospectively analysed and tracked until they were 20 years of age.

**4** In the 2 years after transition to adult care the rate of diabetes-related hospitalisation increased from 7.6 to 9.5 cases per 100 person-years ( $P=0.03$ ).

**5** After controlling for confounding factors, young adults were 77% less likely to be hospitalised after the transition period if their physician had not changed compared with those who had been transferred to a new physician (relative risk, 0.23; 95% confidence interval, 0.05–0.79).

**6** Retinopathy screening rates remained stable throughout the transition period (72% vs 70%;  $P=0.06$ ).

**7** The authors concluded that there is an increased risk of diabetes-related hospitalisation during the transition from paediatric to adult diabetes care, although continuing with the same physician may help to reduce the rate.

Nakhla M, Daneman D, To T et al (2009) Transition to adult care for youths with diabetes mellitus: findings from a Universal Health Care System. *Pediatrics* **124**: e1134–41

DIABETES CARE

**Healthy eating beliefs in young people**

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓✓
WOW! factor	✓✓✓✓

**1** Dietary behaviours and perceptions of healthy eating were assessed in young people (aged 8–21 years, type 1 diabetes duration ≥6 months) and their parents.

**2** Young people and their parents participated in separate focus groups and a trained facilitator led the discussions. Each focus group was recorded. The recordings were transcribed and coded into themes.

**3** All participants believed fruit and vegetables were healthy foods and that fast foods were unhealthy, although some families ate prepackaged food because the printed nutrition information made it easier to calculate insulin doses.

**4** Most parents were concerned that fast food and “junk food” caused postprandial peaks in blood glucose levels and some parents even limited fruit consumption because of its high carbohydrate content.

**5** Most youths believed that “refined” grains indicated healthy grains.

**6** Basal–bolus insulin regimens were associated with greater meal-time flexibility than premixed regimens, although some parents believed the greater flexibility to allow less healthy eating behaviours, such as snacking.

**7** Some parents reported their child preferring to eat low carbohydrate food so they did not need to inject insulin. This may have led to a higher vegetable consumption and an overall healthier diet.

**8** An emphasis on carbohydrate quantity, rather than quality, may have distorted beliefs and behaviours regarding healthy food consumption.

Mehta SN, Haynie DL, Higgins LA et al (2009) Emphasis on carbohydrates may negatively influence dietary patterns in youth with type 1 diabetes. *Diabetes Care* **32**: 2174–6

DIABETES CARE

**Blood pressure associated with microalbuminuria in offspring with T1D**

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓

**1** The authors aimed to assess an association between ambulatory blood pressure (ABP) and albumin excretion rates of parents and their offspring with type 1 diabetes (T1D).

**2** ABP was monitored over a 24-hour period in 509 young offspring with T1D, 311 fathers and 444 mothers.

**3** All of the fathers' ABP parameters were independently related to their offspring's ABP ( $P<0.01$ ).

**4** High maternal ABP was associated with microalbuminuria in offspring ( $P<0.05$ ).

**5** Maternal ABP was closely related to offspring's microalbuminuria, which suggests a genetic or intrauterine influence.

Marcovecchio ML, Tossavainen PH, Acerini CL et al (2010) Maternal but not paternal association of ambulatory blood pressure with albumin excretion in young offspring with type 1 diabetes. *Diabetes Care* **33**: 366–71

PEDIATRICS

**Poor adherence in adolescents confers poorer HbA<sub>1c</sub>**

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

**1** This meta-analysis looked at the link between adherence and glycaemic control in 21 studies comprising 2492 adolescents with type 1 diabetes (<19 years of age).

**2** The authors of the study aimed to determine the strength of the association between adherence and glycaemic control.

**3** A literature search identified 26 suitable studies, 21 of which had sufficient statistical data.

**4** The mean effect size was  $-0.28$  (95% confidence interval,  $-0.32$  to  $-0.24$ ).

**5** Studies published before the results of the DCCT (Diabetes Control and Complications Trial) had a mean effect size of  $-0.32$  compared with  $-0.25$  in post-DCCT studies.

**6** The weaker association after the publication of DCCT results suggests that the approach to intensive diabetes management is not aligned with the capabilities of adolescents and their families.

Hood KK, Peterson CM, Rohan JM, Drotar D (2009) Association between adherence and glycaemic control in pediatric type 1 diabetes: a meta-analysis. *Pediatrics* **124**: e1171–9

DIABETES CARE

**Sensor-augmented CSII improves HbA<sub>1c</sub>**

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

**1** People with type 1 diabetes were assigned to 6 months of either continuous subcutaneous insulin infusion (CSII) plus conventional self-monitoring or a Paradigm® REAL-Time System (PRT; Medtronic Diabetes, Northridge, CA) with integrated continuous glucose monitoring.

**2** HbA<sub>1c</sub> was analysed for 115 people and improved from baseline until

study end in both CSII ( $-0.57\pm0.94\%$  [ $-6.2\pm10$  mmol/mol]) and PRT ( $-0.81\pm1.09\%$  [ $-8.9\pm21$  mmol/mol]); both  $P<0.001$ ).

**3** In an analysis of participants wearing the sensor for more than 70% of the time, there was a significant difference in HbA<sub>1c</sub> level between the two groups ( $P=0.004$ ).

**4** Sensor augmented pump therapy used for more than 70% of the time improved HbA<sub>1c</sub> significantly more than CSII alone.

Raccach D, Sulmont V, Reznik Y et al (2009) Incremental value of continuous glucose monitoring when starting pump therapy in patients with poorly controlled type 1 diabetes: the RealTrend study. *Diabetes Care* **32**: 2245–50

“An emphasis on carbohydrate quantity rather than quality may have distorted beliefs and behaviours regarding healthy food consumption.”