Clinical *DIGEST 1*

Diabetes journals

BP improvements independent of national guidelines

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

1 The Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure (JNC) issued guidelines VI and VII in November 2005 and May 2003, respectively.

2 JNC VI set US blood pressure targets for people with diabetes of <130/185 mmHg and JNC VII subsequently lowered these to 130/180 mmHg.

3 This study looked at data taken from 19616 blood pressure records from people with diabetes and 152672 from people without diabetes.

4 Over time, the percentage of individuals achieving recommended blood pressure targets increased across both groups.

5 The differences in blood pressure between people with diabetes and those without the condition increased from 0–3% from 1995–2001 to 5–6% after 2001.

6 The gap in levels of hypertension between people with and without diabetes increased from 16% in 1995 to 20% in 2005.

7 Annual improvements in hypertension were between 1.5% and 2.6% in all groups. More specifically, 3 years after JNC VI, hypertension control in those with diabetes was significantly tighter as 3.8% more participants met these targets ($P=0.001$).

8 The authors concluded that as hypertension control among people with diabetes improved through time at a similar rate to those without diabetes, the JCN VI and VI guidelines, which were specifically for diabetes, had no impact on degree of control.

Wang YR (2007) Lack of effect of guideline changes on hypertension control for patients with diabetes in the U.S., 1995-2005 *Diabetes Care* **30**: 49–52

Do guidelines impact upon clinical results?

Jiten Vora, Consultant Physician, Royal Liverpool University Hospital

This US study evaluated the effect of the new Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure (JNC) guidelines on hypertension control for patients with diabetes in the US. The data from people with diabetes were compared with those from a control group who did not have diabetes. The JNC VI and VII guidelines, published in 1997 and 2003, respectively, set more aggressive goals for blood pressure treatment for people with diabetes. The data were obtained from the National Diabetes and Therapeutic Index nationally representative survey of outpatient visits in the US. The data were used to compare the difference in hypertension control (where blood pressure <140/85 mmHg) between those with diabetes and those without. This was between 1995 and 2005. The results demonstrate an improvement in hypertension control for both groups during the study period. Compared with the control group, there was no change in hypertension control in those with diabetes before 2001 and an approximate 4% increase thereafter. The application of new JNC guidelines did not result in substantially better hypertension control in people with diabetes.

Such data, together with the lack of application of certain guidelines in, for example, the QOF, does question the need for these guidelines.

Metabolic risk factors linked to activity levels

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

1 This study involved a cross-section of 258 healthy men and women at high risk of developing type 2 diabetes, as identified in the PROActive Study. Of the participants, 32% were classified as normal weight, 40% as overweight and 27% were obese.

2 By objectively measuring physical activity energy expenditure, the authors sought to quantify a hypothesised association between fitness and activity levels and metabolic risk factors (waist circumference, BP, fasting insulin, fasting glucose, triglycerides and inverted HDL-cholesterol).

3 Aerobic fitness was assessed by measuring the oxygen uptake at maximal heart rate and physical activity was assessed via total body movements per day and time spent at each activity level (sedentary, light-intensity and moderate and vigorous intensity).

4 The results showed that men spent significantly more time being sedentary than women ($P=0.03$) but also spent more time undergoing moderate or vigorous intensity activity ($P=0.002$). Only 33.8% recorded over half an hour of moderate-to-vigorous activity per day.

5 The score of total body movements was independently associated with fasting insulin ($P=0.005$), triglycerides ($P=0.04$) and HDL-cholesterol ($P=0.03$).

6 Out of the six risk factor variables measured, fitness levels were only associated with lower levels of fasting insulin ($P=0.003$).

7 These data demonstrate an association between intermediary phenotypic risk factors for CVD and metabolic disease that is independent of obesity and fitness levels.

Ekelund U, Griffin SJ, Wareham NJ (2007) Physical activity and metabolic risk in individuals with a family history of type 2 diabetes. *Diabetes Care* **30**: 337–42

'Among people who did not have a history of diabetes, mortality was significantly higher in those who were admitted with hyperglycaemia.'

DIABETES CARE

Hyperglycaemia at admission linked to increased mortality risk in people without diabetes

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

1 In the past, studies have shown a link between hyperglycaemia at time of hospital admission for MI and mortality and congestive heart failure.

2 This study adjusted for the risk scores and treatment of participants to see whether admission hyperglycaemia predicts risk of mortality.

3 Admission hyperglycaemia in individuals without a history of diabetes was defined in this study as a blood glucose level above 7.7 mmol/l.

4 The participants included 320 people diagnosed with STEMI and 404 with NSTEMI.

5 After 1 year, among people who did not have a history of diabetes, mortality was significantly higher in those who were admitted with hyperglycaemia (18.8 % versus 6.1 %; $P<0.01$).

6 One-year mortality in people without diabetes who were admitted with hyperglycaemia was similar to the comparison group of people with diabetes (18.8 % versus 16.6 %; P=NS).

7 After adjusting for different levels of patient risk (assessed using the global registry of acute coronary events [GRACE] scoring) and medical treatment, the group admitted with hyperglycaemia were still at a greater risk of death.

Schiele F, Descotes-Genon V, Seronde MF et al (2006) Predictive value of admission hyperglycaemia on mortality in patients with acute myocardial infarction. *Diabetes Care* **23**: 1370–6

DIABETES CARE

CVD risk not associated with IFG or IGT

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

1 CVD risk factors, sub-clinical manifestations of CVD, CHD and all-cause mortality were looked at in this study involving people without diabetes and with no history of CVD.

2 Involved in the study were 6888 participants aged 52–75 years who were followed over a median of 6.3 years.

3 No evidence of either IFG or IGT was found in 44 % of individuals; isolated IFG was detected in 25 %; isolated IGT was detected in 14 %; and 17 % had both IFG and IGT.

4 Rates of all-cause mortality, subclinical CVD and incident CHD were similar in those with IFG or IGT.

Pankow JS, Kwan DK, Duncan BB (2007) Cardiometabolic risk in impaired fasting glucose and impaired glucose tolerance: the Atherosclerosis Risk in Communities Study. *Diabetes Care* **30**: 325–31

DIABETOLOGIA

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

Reliable risk estimates for stroke in type 2 calculated

1 By looking at data collected from 14 799 people with type 2 diabetes and a comparison group of 202 733 people without diabetes, the authors hoped to calculate reliable risk estimates for strokes across a wide age range.

2 Individuals were identified from the General Practice Research Database. To qualify for inclusion they had to be aged 35–89 years.

3 Frequency of stroke was calculated from data gathered between January 1992 and October 1999. In the diabetes group, the absolute rate of stroke was 11.91 per 1000 person-years. The same rate in the comparison group was 5.55 per 1000 person-years.

4 Compared with people in the control group, people with type 2 diabetes had an age-adjusted hazard ratio for stroke of 2.19. As age advanced, this risk diminished in comparison to controls and was higher in women.

Mulnier HE, Seaman HE, Raleigh VS et al (2006) Risk of stroke in people with type 2 diabetes in the UK: a study using the General Practice Research Database. *Diabetologia* **49**: 2859–65

DIABETES

Borderline diabetes increases risk of dementia and Alzheimer's disease

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

1 Recruited to this study into the association between borderline diabetes and the risk of dementia and Alzheimer's disease were 1173 individuals under the age of 76 years classified as unaffected by diabetes or any kind of dementia.

2 Borderline type 2 diabetes was described as a random blood glucose level of 7.8–11 mmol/l. Borderline diabetes was associated with a hazard ratio of 1.67 for dementia and 1.77 for Alzheimer's disease.

3 A significant interaction between borderline diabetes and severe systolic hypertension was found to contribute to the risk of Alzheimer's (P=0.04).

Xu W, Qiu C, Winblad B, Fratiglioni L (2007) The effect of borderline diabetes on the risk of dementia and Alzheimer's disease. *Diabetes* **56**: 211–6