Despite significant gains in disease control over the last 6 years, nearly half of patients with diabetes failed to reach national treatment goals in 2006. An analysis of 22.7 million HbA1c’s performed on 4.8 million diabetics revealed that as of December 2006, 55% had reached the ADA target of HbA1c < 7%. This compares with 37.8% in 2001.

The analysis revealed that despite overall gains, the decline in HbA1c has slowed since 2003, leaving 45% of diabetics short of ADA targets in 2006. “For this 45%, new approaches to control their diabetes are needed, together with intensive education” said Richard W. Furlanetto at the ADA.

Roughly 28% of patients with T1DM reached an HbA1c < 7% in 2001, compared with 35% in 2006. In contrast, 45% and 57% of patients with T2DM reached the target HbA1c over the same time period.

In patients with T2DM, the overall mean HbA1c declined from 7.6% in 2001 to 7.3% in 2003, but then slowed significantly and stabilised at 7.2% in 2006, according to the analysis of data from the Quest Diagnostics Informatics Data Warehouse.

The authors suggest that this HbA1c plateau mirrors the clinical progression of the disease as well as treatment patterns. Longitudinal analysis indicates that HbA1c for individual patients decreased in the first 1-2 years, and then trended slowly upward. This could be a result of aggressive therapy and strict compliance in the early years, followed by worsening of the disease, which limits therapy, and less diligent treatment compliance, Furlanetto said.

One of the striking findings in the study was that HbA1c shows significant seasonal fluctuations, with levels peaking in the winter January and March and falling between July and October. The magnitude of the variation depended on patient age, diabetes type, and winter HbA1c. The variations were most apparent in those aged 80 years and older and those with the highest HbA1c (9% or more). HbA1c measurements taken in late spring and late fall may be more representative of the annual mean HbA1c, Furlanetto suggested.

While the number of tests reported in the study is more than 50 times that of other published reports on diabetes health, reporters questioned how applicable the findings are to the average patient, given that the sample represents a fraction of the roughly 21 million Americans with diabetes.

Furlanetto acknowledged that the study was limited by its reliance on ICD-9 billing codes, but countered that the size of the database was substantial; that it covered all 50 states, the District of Columbia, and Puerto Rico; and that it may actually under represent the number of patients under the care of endocrinologists.

Session moderator Martha M. Funnell, said one of the strengths of the study was its size. “I realise it’s not 100 percent of people with diabetes, but it’s a very, robust representation”. Additionally, the patient population was a random sample, and the study under-represented endocrinologists, who would presumably provide better diabetes management, she added.
**ADA 2007: Insulin re-education boosts glycaemic control**

Re-educating patients about insulin injection technique can lead to significant improvements in glycaemic control, a study has confirmed.

Noting that instruction about insulin use is often only given when the treatment is initiated, researchers from the Dokkyo Medical University School of Medicine, in Tochigi, Japan, evaluated the knowledge of 87 insulin-treated patients with diabetes (11 with type 1 diabetes and 76 with type 2 diabetes; 43 men and 44 women). All had been taking insulin for > 3 years (mean duration of insulin use 6.8 yr., mean duration of diabetes 15.8 yr.)

The patients answered 15 questions about the kind of insulin they used, the timing, dose preparation, the needle, bubble escape, disinfection / sterilisation, storage, the injection site and injection time.

The patients were scored, based on their responses, and were then given the correct answers. They were then given a short re-education lecture and a 10-minute session of individual advice from their physician.

Four months after the re-education, mean HbA1c levels had fallen significantly, from 6.94% to 6.28%. Mean glycoalbumin levels also fell significantly, from 22.76% to 19.73%.

In the 28 patients who had a good understanding about insulin, based on their initial knowledge scores, mean HbA1c levels decreased non-significantly from 6.78% to 6.39%. Significant decreases were, however, achieved in the 38 patients with an average understanding at baseline (mean HbA1c fell from 6.78% to 6.39%) and in the 21 patients with a poor understanding at baseline (mean HbA1c fell from 7.03% to 6.26%).

Presenting the data at the ADA conference, Dr Mihoko Matsumura said “re-education in insulin injection technique led to an improvement in glycaemic control, especially in patients with poor understanding.”

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**Despite Advice, Parents Often Try to Fatten Their ‘Skinny’ Children**

Even after a brief intervention aimed at educating parents about healthy body weight, many parents were still unable to recognise their children as being at risk for overweight or obesity, said Eliana M. Perrin of the University of North Carolina. Perrin presented her group’s research at the meeting of the Paediatric Academic Societies.

“At these young ages, children are supposed to be skinny, which is why we have so many parents coming to us with kids in this age range saying, ‘Doctor, I’m doing everything I can to pack some meat on her bones and it’s just not working,’” Perrin said.

“Well, we don’t want them to try so hard. It’s normal, it’s physiologic, and it’s healthy at this age. Parents don’t know this. They get confused with the adult standards of body mass index, where 20-25 kg/m² is considered OK. In children, the standards are very different, and this is why we feel our communication efforts really need to be strengthened,” she said.

Several earlier studies have shown that parents fail to recognise when their children are overweight and that parents do not perceive the associated health risks of overweight. Studies also have shown that paediatric providers consistently under-diagnose weight problems and infrequently use U.S. Centers for Disease Control and Prevention–recommended age- and gender-specific body mass index charts designed to help screen for unhealthy weights.

Perrin and her colleagues had the residents in their university-based continuity clinic do brief counselling based on colour-coded charting and communication of weight status to parents of young kids. They then did a pre-assessment and 1-month post-assessment of weight status communication.

Of the 49% (22/45) of parents of at-risk and overweight children who had originally under-classified their children’s weight as “healthy,” who completed the intervention and returned for a second visit 1 month later, only 45% of them assessed their child’s weight more accurately the second time. This decreased the underclassification rate from 49% to 36%, not a statistically meaningful difference. “We found that parents had poor accuracy in judging their children’s weight status at baseline and, despite our intervention, we were only able to achieve trends in parental accuracy of weight status assessment, although this was likely due to the small sample size,” she reported.
Waist Circumference Is an Effective Health Predictor in Men

A tape measure may be one of the most useful tools to predict whether male patients have diabetes, hypertension, dyslipidaemia, coronary artery disease, a large prostate, a high prostate-specific-antigen level, erectile dysfunction, and ejaculatory dysfunction.

In a study of 88 men aged 50-75 years with moderate to severe lower urinary tract symptoms, waist circumference was powerfully correlated with numerous components of the metabolic syndrome and male pelvic health, making it a “home run in terms of prediction,” said Steven Kaplan, professor of urology at Cornell University, New York.

“The results are simply remarkable,” said Kaplan at the annual meeting of the American Urological Association, where he presented his study. Men with moderate to severe lower urinary tract symptoms (International Prostate Symptom Scores of 8 or greater) but no prior treatment were divided into three groups based on their waist sizes: 30-36 inches; 36-40 inches; or greater than 40 inches. Their waists were measured at the level of the uppermost border of the iliac crest.

This simple measurement was highly correlated with every parameter included in the study, including prostate volume, PSA, prostate symptom score, erectile dysfunction, ejaculatory dysfunction, and incidence of hypertension, coronary artery disease, and diabetes mellitus.

For example, mean prostate volumes in cubic centimetres, as measured by rectal ultrasound, were 28.53, 31.67, and 36.78, respectively, for the three waist-circumference categories.

- Incidence of diabetes was 11.2%, 22.3%, and 34.5%, respectively.
- Percentages of patients with hypertension were 12.6%, 24.7%, and 37.8%.
- Erectile dysfunction was seen in 34.6%, 49.5%, and 78.6%, respectively, of men in the three waist-circumference groups.

Kaplan said waist circumference may be a more accurate predictor of metabolic problems than BMI, because it takes into account very muscular individuals.

Physicians may want to begin thinking about belly fat as “almost a separate organ ... a new gland, if you will,” he said. High aromatase levels within visceral fat may interfere not only with metabolism, but also with testosterone homeostasis.

“Theoretically, by altering that metabolism, perhaps you fuel prostate growth,” said Kaplan.

A second study presented by Kaplan at the meeting found a high correlation between obesity and prostate volume ($P < 0.0001$) in the 9,000-subject Reduction by Dutasteride of Prostate Cancer Events (REDUCE) trial. The same study found high correlation between prostate volume and glucose, insulin resistance, high HDL cholesterol, total cholesterol, and hypertension.

Urologists and primary care physicians alike may need to pay heed to increasing evidence from these and other studies that male pelvic health and the metabolic syndrome are highly linked.

“Perhaps one component of the metabolic syndrome should be male pelvic dysfunction,” which includes voiding dysfunction, erectile dysfunction, and ejaculatory dysfunction, he said. (The American Heart Association defines the metabolic syndrome as abdominal obesity, atherogenic dyslipidaemia, elevated blood pressure, insulin resistance or impaired glucose tolerance, a prothrombotic state, and a proinflammatory state.)

Urologists seeing patients for erectile dysfunction or urinary complaints should be aware that a man presenting with these symptoms needs to be evaluated for coronary disease and diabetes.

Conversely, when a primary care physician sees a man with hypertension or diabetes, he should or she should always think this patient probably has some degree of pelvic dysfunction.
A little goes an awfully long way toward better health in weight loss, two speakers said at the annual meeting of the American Academy of Clinical Endocrinologists. Small reductions in weight seem to produce large improvements in cardiovascular risk factors, even in patients who already have diabetes, they said.

“Losing small amounts of weight gives disproportionate health benefit,” said Louis J. Aronne, of the comprehensive weight control program at New York Weill Cornell Medical Center.

Michael D. Jensen, a professor of medicine at the Mayo Clinic, Rochester, discussed a study he conducted in which patients who lost about 25 pounds through diet and exercise also showed dramatic improvements in insulin sensitivity and cardiovascular disease markers.

Jensen took 39 subjects who had a mean BMI (kg/m²) of 32, with an upper-body distribution of fat, and assigned 20 of them to take pioglitazone for 20 weeks and 19 of them to a program of diet and exercise for 20 weeks (Diabetes Care 2003;26:3184-6).

Upper-body obesity was selected for in the study because upper-body obesity – much more than lower-body obesity – is associated with elevated free fatty acid levels, which in turn are associated with vascular abnormalities, cardiovascular risk factors, and insulin-secretion and sensitivity problems. None of the subjects had diabetes.

At the end of 20 weeks, the mean BMI of the subjects assigned to diet and exercise dropped to 27, whereas the BMI for the pioglitazone patients rose slightly, to a mean of 34. Visceral fat volume was determined by analysing CT images, and that volume also declined significantly in the diet and exercise group. But most importantly, the mean fasting insulin level in the weight-loss group fell by more than one-third, and total cholesterol declined from a mean of 201 mg/dL to 159 mg/dL. In the pioglitazone group, total cholesterol remained unchanged, and there was also a decline in the fasting insulin level, although the pioglitazone group had a much higher baseline value.

Adipokines were also measured, as were C-reactive protein and other inflammatory markers. All of those measurements changed in a beneficial direction. The weight loss was equivalent to an average 25 pounds. And many patients probably could lose that amount of weight with a little prodding and assistance from a physician, Jensen said.

Many other studies have noted similar dramatic improvements in metabolic abnormalities with only modest weight loss.

In a trial of orlistat, the drug that prevents fat from being absorbed from the gut, slightly greater weight loss prevented diabetes dramatically, Aronne said. In the trial, the weight loss (2.8 kg) that was seen in the drug- and diet-treated patients reduced the onset of type 2 diabetes in obese adults with normal glucose tolerance by 37%, relative to placebo, Aronne said.

In those with IGT at the start of the trial, it reduced diabetes onset by 45% relative to placebo. The patients were followed for 4 years, during which time much of their weight loss was maintained.

Many overweight individuals need medical help to lose weight because the body naturally hoards fat and resists efforts to lose it, said Aronne, who discussed several studies of rimonabant, one of which he helped conduct.

In his study, rimonabant – a selective cannabinoid receptor blocker – produced a greater reduction in weight than did placebo when patients were treated for 1 year (a mean 6-kg vs. 2-kg loss). And that greater loss was associated with a mean 5% drop in triglyceride levels and a mean 6% greater improvement in HDL cholesterol. There was no significant drop in triglycerides for the placebo patients, but their HDL cholesterol levels rose by a mean of 2% (JAMA 2006;295:761-75).

In another trial, presented at the World Diabetes Congress in late 2006, treatment-naïve, type 2 diabetes patients lost an average 15 pounds in 6 months with rimonabant, and that improved their mean haemoglobin HbA1c by 0.8%. They also had reductions in triglycerides and blood pressure.