Does "benchmarking" improve quality of care in type 2 diabetes?

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We all know that the management of type 2 diabetes is complicated. Our goal is to control not only glycaemia but also other modifiable risk factors for microvascular and macrovascular disease, as well as to prevent and manage the related complications. The treatments we recommend have to be both multifactorial in approach and tailored to the needs of the individual person with diabetes. We know that there is benefit in controlling raised HbA_{1c} and blood pressure (BP) and in treating people with type 2 diabetes with statins as these are recommended in national and international diabetes guidelines (International Diabetes Federation, 2012). However, recent data from the 2011/12 National Diabetes Audit (Health and Social Care Information Centre Board, 2013) show that, in England and Wales, only 20.8% of the 2.4 million people audited have a HbA_{1c} of <58 mmol/mol (7.5%), a cholesterol of <5 mmol/L and a BP of <140/80 mmHg.

New strategies to help individuals and physicians to meet key goals and improve clinical outcomes are needed. One of these new strategies, which is investigated in the study by Hermans et al summarised alongside, is "benchmarking". In the clinical setting, benchmarking typically includes feedback on the performance of a patient or physician, which is ranked against that of a peer group. The study was designed to prospectively assess in a randomised controlled trial the effect of benchmarking on the quality of primary care for individuals with type 2 diabetes and its impact on achieving pre-set targets.

Primary care physicians treating people with type 2 diabetes in over 400 centres in six European countries were randomly assigned to give standard care (the control group) or standard care with feedback benchmarked against other centres in each country (the benchmarking group). From the 4027 participants enrolled in the study, 3487 completed 12 months of follow up. In both groups, laboratory tests were performed every 4 months. The primary end point was the percentage of individuals achieving pre-set targets at the 1-year follow-up. The targets were the following: HbA_{1c} ≤53 mmol/mol (7%); LDL-cholesterol (LDL-C) <100 mg/dL (2.5 mmol/L); and systolic BP <130 mmHg.

The percentage of participants achieving all three pre-set targets at 12 months was 12.5% in the benchmarking group and 8.1% in the control group, which was a statistically significant difference (P<0.001). The absolute percentage increase of patients meeting all three targets was three times higher in the benchmarking group (7.3%) than the control group (2.4%). After 12 months, the observed increases in target achievement for systolic BP and LDL-C were significantly different between the control and benchmarking groups, whereas the percentage of participants reaching the HbA_{1c} target was not significantly different between the two groups. The authors suggest that the improvements in the benchmarking group could be due to the clinicians overcoming clinical inertia in response to feedback, and that this feedback could represent an intellectual, emotional and competitive stimulus for changes in the management of the condition.

In England, through the National Diabetes Audit we are developing the facility to benchmark the performance of individual practices in the achievement of pre-set, NICE guideline-based goals for HbA_{1c}, cholesterol and BP against similar practices across England. This will facilitate the conclusions of this paper: that benchmarking is an effective tool for increasing the achievement of critical diabetes quality indicators and for potentially reducing cardiovascular residual risk profiles of individuals. ■

Health and Social Care Information Centre Board (2013) *National Diabetes Audit 2011–2012: Report 1*. Health and Social Care Information Centre, Leeds

International Diabetes Federation (2012) *Global guideline for type 2 diabetes*. IDF, Brussels, Belgium. Available at: http://bit.ly/OluZVw (accessed 12.03.14)

Diabetes Care

Care benchmarking improves T2D management

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓✓
WOW! Factor	✓✓✓✓

1 The study's aim was to measure the effectiveness of "benchmarking" on the quality of care for individuals with T2D. Benchmarking is the clinical setting that typically includes giving feedback on the performance of a patient or physician, which is then ranked against that of a peer group.

2 Six European countries took part and, in total, 477 centres were randomly assigned to give standard care (control group) or standard care with feedback benchmarked against other centres in the same country (benchmarking group).

3 The three preset clinical targets that were used for benchmarking were the following: ≤53 mmol/mol (7%) for HbA_{1c}; ≤100 mg/dL (2.5 mmol/L) for LDL-cholesterol (LDL-C); and <130 mmHg for systolic blood pressure (BP).

4 The primary end-point was the proportion of people who achieved the preset clinical targets after 12 months of follow-up.

5 In total, 12.5% of the benchmarking group and 8.1% of the control group achieved all three targets after 12 months of care (P<0.001).

6 A significantly higher proportion of people in the benchmarking group achieved the preset targets for systolic BP and LDL-C than in the standard care group. There was no significant difference in the proportion of individuals achieving the HbA_{1c} target between the two groups.

7 Benchmarking is an effective tool to increase the achievement of individuals to achieve preset targets.

Hermans MP, Elisaf M, Michel G et al (2013) Benchmarking is associated with improved quality of care in type 2 diabetes: the OPTIMISE randomized, controlled trial. *Diabetes Care* **36**: 3388–95

"Benchmarking is an effective tool to increase the achievement of individuals to achieve preset targets of HbA_{1c}, cholesterol and blood pressure."

Diabetes Metab Res Rev

Efficacy and safety of dapagliflozin meta-analysis

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! Factor	✓✓✓✓

1 A systematic review and meta-analysis were conducted to assess the efficacy and safety of dapagliflozin, a sodium-glucose cotransporter 2 (SGLT-2) for the treatment of T2D in adults.

2 Searches of the Cochrane, EMBASE and MEDLINE databases were carried out up until August 2012 for randomised controlled trials of ≥12 weeks duration that treated individuals with either dapagliflozin or a placebo or another drug. From 308 results, 10 articles were eligible for inclusion in the meta-analysis.

3 The effect of dapagliflozin on HbA_{1c} was the primary measurable outcome, and the safety events investigated were hypoglycaemia, urinary tract infections (UTIs) and genital tract infections (GTIs).

4 Taking into consideration all the studies, dapagliflozin significantly lowered HbA_{1c} in all studies (I^2=41%), and the mean reduction in HbA_{1c} that was achieved by the dapagliflozin group ranged from 0.39% to 2.05%.

5 Dapagliflozin was also associated with a significant reduction in fasting plasma glucose and body weight. However, it was also associated with an increased significant risk of UTIs and GTIs.

6 Potential study limitations by the authors included that all of the trials were funded by industry, which may create bias towards more favourable outcomes.

7 These data indicate that dapagliflozin has a beneficial effect on glucose levels, but it may cause mild to moderate adverse events, which need further investigation.

Zhang M, Zhang L, Wu B et al (2013) Dapagliflozin treatment for type 2 diabetes. *Diabetes Metab Res Rev* 2 Oct [Epub ahead of print]

Diabetologia

"UKPDS Outcome Model 2" developed

Readability	✓✓
Applicability to practice	✓✓✓✓
WOW! Factor	✓✓✓

1 The authors built an enhanced version of the United Kingdom Prospective Diabetes Study (UKPDS) Outcomes Model 1 (UKPDS-OM1) named UKPDS-OM2. It will predict health outcomes of people with T2D, such as life expectancy, and it has a target population of 30-year old adults.

2 Data from 5102 UKPDS participants from the 20-year trial and 4031 survivors of the 10-year post-trial study were used to develop the updated model. The model equations were based on 17.6 years of follow-up and up to 86 760 patient-years of data.

3 Compared to the UKPDS-OM1, the new model captures the risks of additional second events as the participants that were included were older and had a longer duration of diabetes. It can be used in cost-effectiveness analysis and the evaluation of strategies for the management of diabetes.

Hayes AJ, Leal J, Gray AM et al (2013) UKPDS Outcomes Model 2: a new version of a model to simulate lifetime health outcomes of patients with type 2 diabetes mellitus using data from the 30 year United Kingdom Prospective Diabetes Study: UKPDS 82. *Diabetologia* **56**: 1925–33

Diabetes Metab Res Rev

Sulphonylurea and hypoglycaemia risk meta-analysis

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! Factor	✓✓✓✓

1 In total, 25 articles were eligible for a meta-analysis that investigated the association of incretin-based drugs and sulphonylureas (SUs) to the prevalence of hypoglycaemia. Study duration was for a minimum of ≥12 weeks and articles had to be published in English.

2 Hypoglycaemia defined as blood glucose at ≤3.1 mmol/L or ≤2.8 mmol/L was experienced by 10.1% (I^2=93%) and 5.9% (I^2=79%) of individuals being treated with an SU, respectively.

3 The SU gliclazide was associated with the lowest risk of hypoglycaemia when compared to glimepiride and glipizide in this meta-analysis.

4 One limitation is that participants did not test their blood glucose levels at set times or every time they experienced hypoglycaemia; therefore, the frequency of hypoglycaemic events might be underestimated.

Schopman JE, Simon AC, Hoefnagel SJ et al (2014) The incidence of mild and severe hypoglycaemia in patients with type 2 diabetes mellitus treated with sulfonylureas. *Diabetes Metab Res Rev* **30**: 11–22

Curr Med Res Opin

Combined therapy of insulin and incretin agents

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓✓
WOW! Factor	✓✓✓✓

1 This systematic review looked at published and unpublished randomised controlled trials (RCTs) on combined insulin and incretin agents as a second-line treatment after metformin for T2D therapy. Fifteen placebo-controlled RCTs were identified.

2 Adding a dipeptidyl peptidase-4 inhibitor (DPP-4i) to insulin led to a modest lowering of HbA_{1c}, with no change to weight.

3 Adding a glucagon-like peptide-1 (GLP-1) receptor agonist to insulin was associated with significant lowering of HbA_{1c} and body weight.

4 Adding an incretin agent to insulin should be considered if the individual is not responding to insulin alone.

Goldenberg R (2013) Insulin plus incretin agent combination therapy in type 2 diabetes. *Curr Med Res Opin* 13 Nov [Epub ahead of print]