UKPDS OM version 2: a Type 2 Diabetes Outcomes Model

The UK Prospective Diabetes Study (UKPDS) outcome model uses 89,760 patient-years of data to estimate life expectancy and cumulative costs of complications in people with Type 2 Diabetes.

Type 2 diabetes is estimated to affect 9% of adults, and it costs $465 billion each year. With these figures predicted to rise by 50% over the next 20 years, providing Type 2 Diabetes care represents a major economic challenge for the healthcare industry.

Because of the extended timeframe over which the multiple outcomes associated with Type 2 Diabetes unfold, stakeholders frequently make use of health economic models to support evidence-based decision making related to funding allocation.

The Oxford UKPDS Outcomes Model is a computerised simulation tool designed to estimate life expectancy, quality adjusted life expectancy and the cumulative costs of complications in people with Type 2 Diabetes.

The newly released version 2 makes use of data from all 5,102 UKPDS patients who entered the trial, as well as the 4,031 survivors who entered the 10 year post-trial monitoring period. This equates to 89,760 patient-years of data, which is double the number of events in version 1.

Key new features in version 2 include:
- Additional risk factors: Albuminuria, Heart rate, WBC, Haemoglobin and eGFR
- Additional clinical events: Diabetic ulcer and CVD death
- New equations predict second events for MI, Stroke and amputation
- Supports up to 3 groups of patients in a single run and provides a summary for each group as well as group differences
- Cost / utility values can now be varied by age and sex
- Addition of therapy costs and pre and post complication costs
- Calculation of Monte Carlo Error allows simulation fine-tuning
- Can queue workbooks to run multiple unattended simulations, while parallel processing can take full advantage of up to 10 computer cores

The UKPDS Outcomes Model has already been adopted by a range of companies, government bodies and Universities, including the UK’s National Institute of Health and Care Excellence (NICE) and four out of five largest diabetes drug manufacturers.

Professor Alastair Gray
Professor of Health Economics and Director
HERC, University of Oxford
alastair.gray@dph.ox.ac.uk

Professor Rury Holman
Diabetes Trial Unit Director
Professor of Diabetic Medicine
University of Oxford
rury.holman@dtu.ox.ac.uk