

## Coding programs

Once dietary intake information has been collected a wide range of computer systems (of varying quality) are now available to help with nutritional analysis. Using analysis software, reported intakes need to be matched to an appropriate set of nutrient data (e.g. that provided by McCance and Widdowson's *The Composition of Foods* or the USDA database) and weights of food items. In some instances analysis programs have been specifically developed for use in large cohort studies. Examples include DINER (Data Into Nutrients for Epidemiological Research) and CAFE (Compositional Analyses from Frequency Estimates) designed for use in the EPIC-Norfolk study into diet and cancer (Welch et al, 2001; Welch et al, 2005) and DIDO (Diet in, Data out) updated in 2006 as DINO (Diet in Nutrients out) at MRC Human Nutrition Research, Cambridge, developed for the MRC National Survey of Health and Development (1946 British Birth Cohort). Universities or research centres tend to develop their own software and databases which may contain specific information on particular nutrients or food constituents; in the UK there is no central coordination of these. Ideally, analysis programs should be flexible, and easily updateable to keep abreast of the changing food supply. It is estimated that about 10,000 foods are modified, appear or are discontinued each year in the UK (Welch et al, 2001). For example, a leading retailer in the UK launched the first supermarket own-brand milk with a 1% fat content in April 2008 when previously consumers have traditionally only been able to choose from 3 milk types with varying fat contents.

A large number of programs are also commercially available. They vary greatly in their design and their target audience e.g. health professionals, catering establishments, sports industries, nutritionists and dieticians or for personal use. Table 1 highlights some of the key features of a selection of nutrition analysis software programs currently available. The choice of coding program will depend on the population being studied and should therefore incorporate appropriate foods and portion sizes within its nutritional database. For example, if the nutritional intake of infants and young children is being examined foods normally consumed by these age groups should be available within the program.

Table 1. Guide to nutrition analysis software

Product	Company	Nutrient Database	Targeted audience	Addition of new foods/data	Recipe calculation	Price	Notes
CompEat	Nutrition Systems <a href="http://www.compeat.co.uk">www.compeat.co.uk</a>	McCance and Widdowson's 6th edition; USDA database	Nutritionists, dieticians, health professionals, sports professionals, personal trainers and private individuals.	✓	✓	£675	Other databases available: Abbot Nutrition Gluten Free Nutricia Dietary Care  New foods can be added to the database once a client database has been created
Dietplan6	Forestfield Software Ltd <a href="http://www.foresoft.co.uk">www.foresoft.co.uk</a>	McCance and Widdowson's 6th edition	Nutritionists and dieticians	✓	✓	£600	A large number of other databases can be imported: Abbott Nutrition, Australia and New Zealand NUTTAB 2006, Better Hospital Food recipes, Nestlé Nutrition, Nutricia Dietary Care, Phyto-oestrogen values for UK foods, South Asian cooked foods, USDA
Microdiet	Downlee Systems Limited <a href="http://www.microdiet.co.uk">www.microdiet.co.uk</a>	McCance and Widdowson's 4 <sup>th</sup> , 5 <sup>th</sup> and 6 <sup>th</sup> editions	Used by dieticians, nutritionists, health and sports professionals to help them in their task of analysing the diets of patients or clients.	✓	✓	N/A	Up to 150 nutrient values are available for each food. American and Italian data sets are also supplied with the software.
Nutmeg Menu	Nutmeg UK Ltd <a href="http://www.nutmeg-">www.nutmeg-</a>	McCance and Widdowson's 6th	Designed for caterers responsible	✓	✓	£500*	Key features include; a database of up to 1600

Planner	<a href="http://uk.com">uk.com</a>	edition; USDA database	for delivering healthy menu options to vulnerable groups such as older people in residential homes and children at school, in nurseries and in care.				recipes; nutrient information for up to 14 nutrients; a costing functions option which creates an automatic shopping list showing quantity and cost of ingredients needed for a menu.
Saffron Nutrition	Fretwell-Downing Hospitality <a href="http://www.fdhospitality.com">www.fdhospitality.com</a>	McCance and Widdowson's 6th edition	Dieticians, nutritionists and academics.	✓	✓	N/A	Widely used in schools and care homes the system analyses food/items, recipes and menus providing a breakdown of up to 70 nutrients. Regularly updated with supplier data of products and nutrient content.
WinDiets Research	WinDiets <a href="http://www.windiets.co.uk">www.windiets.co.uk</a>	McCance and Widdowson's 6th edition; USDA database	A wide target audience owing to the different versions available	✓	✓	From £25 to £600	WinDiets provide a suite of nutritional analysis programs designed for <a href="#">Personal</a> , <a href="#">Professional</a> , or <a href="#">Research</a> use. The <a href="#">Standard</a> version is aimed at the schools and colleges as well as the public.
WISP	Tinuviel <a href="http://www.tinuvielsoftware.com">www.tinuvielsoftware.com</a>	McCance and Widdowson's 6th edition; USDA database	Academic settings and industry.	✓	✓	From £685	A large number of other databases are available. WISP allows up to 100,000 recipes to be stored which can then be analysed taking into account both water and vitamin losses on cooking. The database holds nutrient information on up to 125 nutrients.

							7-d physical activity diaries can also be analysed. WISP includes energy expenditure values for about 300 activities. Data for up to 8,000 ingredients and 13 additional nutrients can be added.

\* There is also an annual license renewal fee of £250