The mammalian brain has more neurons and synapses than it knows what to do with, and needs a good vacuum cleaner, according to Science (2011; doi:10.1126/science.1202529). Early development involves loss of neurons and synapse pruning, and now scientists have discovered which cells do the pruning. These heroes are microglia; being mobile and phagocytic, they are responsible for hoovering up the excess synaptic material. Mice with disabled microglia have too many synapses, show changes in synaptic plasticity, and have an altered susceptibility to seizures.

Men are more likely than women to die of heart disease, and evidence suggests that testosterone may be protective or may have no effect on the picture. A study involving 140 men aged 40-70 who underwent coronary angiography reports that those with a 70% occlusion of at least one major coronary artery had significantly higher levels of oestriodol and free oestrogen than controls with ≤50% occlusion. The prevalence of heart disease was significantly higher in the third than the first tercile of the oestradiol range (Clinical Endocrinology 2011;75:177-83, doi:10.1111/j.1365-2265.2011.04017.x).

“Meal replacement products” can be useful as part of very low calorie diets but only if their use is supervised by appropriate clinicians. Reviewing the subject in the Bulletin of the Royal College of Pathologists, a team from Australia says that the deaths of several young women in the UK could have been avoided had they used meal replacement products safely and in accordance with the 2010 European Food Standard Authority’s guidelines (2011;155:1724, www.rcpath.org). At the very least, while on a very low calorie diet, regular visits are needed to record weight loss, assess compliance (fatigue is an issue), and to monitor blood pressure and glycaemic control.

Antiretroviral therapy (ART) has brought hope and life to those who would have almost certainly died from AIDS in the past, but its success depends on strict adherence. The way that pharmacists talk to patients receiving the drugs was explored in a South African study (AIDS Care 2011;23:807-13, doi:10.1080/09540121.2010.534640). Analysis of 26 video interactions identified three themes: the need to take ART “for the rest of your life,” that ART would be “saving your life,” and ART as “making you better.” Explicit references to death were infrequent.

The funeral industry is the second biggest source of pollution after fossil fuel fired power stations, but an alternative to cremation could reduce the UK’s carbon footprint. “Resomation” involves alkaline hydrolysis—heating and treating the body so it decomposes quickly, leaving just bone ash and a small amount of liquid. The firm behind resomation won’t make the process commercially available until it has been regulated, and an act of Parliament is required for regulation, preceded by a research project. Budget cuts have postponed the research (Pharos International, Summer 2011;16).

New evidence that telomeres are affected by stress—and, by extension, that stress reduces the protection that telomeres afford against developing cancer—was presented at the recent meeting of the American Association for Cancer Research (Cancer 2011;117:2585, doi:10.1002/cncr.26259). Telomeres sit at the end of chromosomes and can protect against mutations. A conference spokesman said “maybe cancer will start to look more like cardiovascular disease, for which chronic psychological distress is one of six major risk factors.”

The incidence of myelodysplastic syndromes is almost certainly a lot higher than currently recognised by standard reporting systems and cancer registries. Four different algorithms designed by a US team to capture diagnoses were applied to the 2000-08 Surveillance Epidemiology and End Results (SEER) Medicare database. Each algorithm had moderate sensitivities and high specificities. The best algorithm estimated the annual incidence of myelodysplastic syndromes at 75 per 100 000 people aged 65 or older. The incidence quoted by SEER for the same sample was 20 per 100 000 (Blood 2011;117:26:7121-5, doi:10.1182/blood-2011-02-337964).

Deep public tube wells for drinking water were introduced to reduce exposure to groundwater arsenic in rural Bangladesh, but seem to have an additional benefit: lowering the incidence of diarrhoea in young children. A field survey looked at 179 households that used a deep tube well to retrieve drinking water and 364 that used a shallow tube well, and found that use of the deeper public wells reduced the risk of childhood diarrhoea by 46% (Bulletin of the World Health Organization 2011;89:521-7, doi:10.2471/BLT.10.085530).