LDL cholesterol (available from 1976) between 1976 and 1994. With the availability of data from the National Health and Nutrition Examination Survey, 1999–2000, Carroll *et al.* analyzed trends among US adults in total cholesterol (between 1960 and 2002) and HDL cholesterol, LDL cholesterol and serum triglyceride (between 1976 and 2002), focusing on changes between 1988–1994 and 1999–2002.

Between 6,098 and 15,719 adults participated in five distinct, cross-sectional surveys carried out during 1960–1962, 1971–1974, 1976–1980, 1988–1994 and 1999–2002. From 1988–1994 and 1999–2002, total cholesterol levels of adults aged ≥20 years decreased from 5.34 mM to 5.26 mM ($P = 0.009$) and LDL-cholesterol levels decreased from 3.34 mM to 3.19 mM ($P < 0.001$). The decline in total cholesterol in adults between 1960 and 1994 and mean LDL cholesterol between 1976 and 1994 has continued during 1999–2002 in men 60–74 years and women 50–74 years of age. The percentage of adults with total cholesterol ≥6.22 mM dropped from 20% to 17%, achieving the national target of ≤17%. There was no change in HDL levels and a nonsignificant increase in serum triglyceride was noted.

A significant increase in the use of cholesterol-lowering medication, particularly by the oldest age group, was suggested as a likely contributor to the reduction in cholesterol levels.

Rebecca Doherty

Original article Carroll MD *et al.* (2005) Trends in serum lipids and lipoproteins of adults, 1960–2002. *JAMA* **294:** 1773–1781

Exenatide and insulin glargine are equally effective in patients with suboptimally controlled type 2 diabetes

In an open-label phase III trial, Heine *et al*. have compared the effects of exenatide and insulin glargine in patients with type 2 diabetes whose blood glucose levels were inadequately controlled with combination metformin and sulfonylurea therapy.

Patients were randomized to receive exenatide ($n = 282$) or insulin glargine ($n = 267$). Inclusion criteria included an age of between 30 and 75 years, treatment with maximum effective doses of metformin and sulfonylurea for at least 3 months before screening, hemoglobin A_{1c} levels in the range of 7–10% at screening, BMI between 25 kg/m^2 and 45 kg/m^2, and a history of stable body weight.

At week 26, hemoglobin A_{1c} levels were reduced from baseline by 1.11% in both treatment groups, with a difference of 0.017 percentage points. Fasting plasma glucose levels were reduced in both treatment groups, but the reduction was significantly greater for patients who received insulin glargine. Exenatide reduced postprandial glucose excursions more effectively than did insulin glargine. Patients in the exenatide group experienced a reduction in mean body weight of 2.3 kg, whereas mean body weight increased by 1.8 kg in patients in the insulin glargine group. Overall rates of hypoglycemia were similar within both treatment groups. Gastrointestinal adverse events occurred more frequently in the exenatide group.

The authors conclude that exenatide and insulin glargine achieved similar improvements in glycemic control in patients with type 2 diabetes whose blood glucose levels were inadequately controlled with metformin and sulfonylurea therapy.

Marie Lofthouse

Original article Heine RJ *et al.* (2005) Exenatide versus insulin glargine in patients with suboptimally controlled type 2 diabetes. *Ann Intern Med* **143:** 559–569

PTHrP modifies the efficacy of administered PTH 1–34: implications for osteoporosis treatment

Most therapies for osteoporosis slow the resorption of bone. Only one bone-forming agent, PTH 1–34 (which comprises the first 34 residues of recombinant human parathyroid hormone [PTH]), is currently available for clinical use. PTH-related protein (PTHrP) has sequence similarities with PTH 1–34 and binds to the same receptor, which can mediate the effect of both proteins. In this preclinical study, Miao *et al.* investigated the effect of endogenous PTHrP on the therapeutic efficacy of PTH 1–34, to explore the molecular mechanisms that mediate the anabolic effects of PTH and why individuals vary in their response to it.

Mice were bred with only one copy of the gene encoding PTHrP, rather than the usual two. The mice showed physical changes