image” described by Cohen of “an extremely elderly and terminally ill patient consuming large amounts of resources shortly before he or she dies” through the use of expensive technology and treatments, multiple admissions, and long lengths of stay.⁹ Our sample of patients who died in hospital showed no increase in median total bed days or number of admissions after the age of 45 years, and in fact the group most likely to have had multiple admissions was children. While as a whole the older age groups account for a larger total number of admissions and bed days in the three years before death, this is due to the fact that as age increases, a higher proportion of people are in the final stages of their lives.

Limitations

Our study included only people who died in hospital. At all ages, 50-55% of deaths each year occur in NHS hospitals.¹⁰

Secondly, the use of hospital bed days as a proxy for use of hospital costs assumes that patients of all ages and diagnoses consume the same amount of resources per bed day. This is obviously not the case: while fixed costs such as food, maintenance, and nursing salaries should be standard, different treatments and regimens of care will have different costs. The care of older people is unlikely to be more expensive: despite their greater likelihood of comorbidity and the need for a longer recuperation period (reflected in bed days), they are much less likely to receive intensive care or undergo surgery or complex interventions.

Conclusions

The average number of bed days spent in hospital in the period before death shows no discernable increase with increasing age. These findings concur with previous studies that have shown that the highest proportion of costs for acute care are incurred in the final years of life, no matter at what age this happens to be, and that total costs of acute care are greater in elderly people simply because this age group makes up a larger proportion of dying people.¹¹⁻¹³ Such findings have important implications for understanding the use of acute hospital resources and for distinguishing the costs of dying from the costs of ageing.

Hospital episodes statistics (HES) data were made available by the Department of Health.

Contributors: See bmj.com

Funding: The Medical Research Council (UK). MS is funded by the South West Public Health Observatory. HES analyses conducted within the Department of Social Medicine are supported by the South West Public Health Observatory.

Competing interests: None declared.

What is already known on this topic

Population ageing brings with it the possibility of increased burden on acute hospital services because of the increase in many common diseases with age

Although average costs for acute care increase with age, these costs are related to life remaining rather than life lived

What this study adds

Among patients who died in NHS hospitals, use of acute services did not increase with age in the three years before death

The number of admissions over this period decreased with age, and average length of stay was stable above age 45 years

The older sector of the population accounts for a high proportion of acute health care resources because they are nearing the end of their lives, not because care is individually more expensive

Ethical approval: None required.

- 1 Brameld KJ, Holman CDJ, Bass AJ, Codde JP, Rouse IL. Hospitalisation of the elderly during the last year of life: an application of record linkage in Western Australia 1985-1994. *J Epidemiol Community Health* 1998;52:740-4.
- 2 Guralnik JM, Land KC, Blazer D, Fillenbaum GG, Branch LG. Educational status and active life expectancy among older blacks and whites. *N Engl J Med* 1993;329:110-6.
- 3 Fries JF. Aging, natural death, and the compression of morbidity. *N Engl J Med* 1980;303:130-5.
- 4 Manton KG, Corder L, Stallard E. Chronic disability trends in elderly United States populations: 1982-1994. *Proc Natl Acad Sci USA* 1997;94:2593-8.
- 5 Maynard A, Sheldon T, Loudon I, Webster C, Rao JN, Frankel S, et al. Limits to demand for health care. *BMJ* 2001;322:734.
- 6 Wanless D. *Securing our future health: taking a long-term view. Interim report.* London: HM Treasury, 2001.
- 7 Henderson J, Goldacre MJ, Griffith M. Hospital care for the elderly in the final year of life: a population based study. *BMJ* 1990;301:17-9.
- 8 Himsforth RL, Goldacre MJ. Does time spent in hospital in the final 15 years of life increase with age at death? A population based study. *BMJ* 1999;319:1338-9.
- 9 Cohen GD. Health care at an advanced age. Myths and misconceptions. *Ann Intern Med* 1994;121:146-7.
- 10 Office for National Statistics. *Mortality statistics: general.* London: ONS, 2000. (Series DH1 No 33.)
- 11 McGrail K, Green B, Barer ML, Evans RG, Hertzman C, Normand C. Age, costs of acute and long-term care and proximity to death: evidence for 1987-88 and 1994-95 in British Columbia. *Age Ageing* 2000;29:249-53.
- 12 Zweifel P, Felder S, Meiers M. Ageing of population and health care expenditure: a red herring? *Health Econ* 1999;8:485-96.
- 13 Busse R, Krauth C, Schwartz FW. Use of acute hospital beds does not increase as the population ages: results from a seven year cohort study in Germany. *J Epidemiol Community Health* 2002;56:289-93. (Accepted 18 March 2004)

doi 10.1136/bmj.38072.481933.EE

A rapid grasp of the fundamentals

My 5 year old son understands that I am a “research” doctor, not a “real” doctor, but he still struggles to work out what exactly it is that I do. While I was trying to explain a clinical trial, he interrupted me to say, “When I get older, I am going to invent a new medicine; it will be the same as the old medicine, but will have a different name.”

With such an early and sophisticated understanding of pharmaceutical research and development, it seems unlikely, I guess, that he will follow me into academic medicine.

Andrew Vickers *Memorial Sloan-Kettering Cancer Center, New York, USA*