The Implications of Demographic Changes on Resource Allocation

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Much publicity is given to the provision of a health service relevant to the ageing population. Terms, such as the ‘rising tide’, express the concern that many feel about the problems of coping with an increase in very old people with complex or chronic disabilities. In spite of this, the DHSS has suggested to the chairmen of Regional Health Authorities that the recommended norm for the number of geriatric beds be decreased from the long-accepted 10 beds to 8.5 beds per 1,000 population 65 years and over. One of the arguments for this seems to be that the projected population[1,2] of those aged 65 years and over will not change significantly over the next 20 years (Table 1). Within this group there are, however, very large disproportionate increases of those 75–84 and those 85 years and over. It could be argued that, since there is no change in the total number of elderly people, there will be no alteration in bed requirements. In view of this we felt that it was important to examine how the projected age-sex demographic changes are likely to influence geriatric unit management during the next few years.

Method

We visited 36 (13 per cent) of the 268 geriatric units in Great Britain, selected to represent different styles of practice (e.g. mixed flow, progressive care and age related patterns), in industrial, urban, rural, retirement and academic settings throughout the country. Information was obtained from the case notes of a one-in-five sample of patients in these units (2,152 patients altogether) concerning their length of stay for the present admission as well as noting the age and sex of the patient.

Results

Table 2 shows that the age structure of patients in these units, as a proportion of those 65 years and over, did not follow their distribution in the general population. Figures for the population structure were not available for the study areas and it has been assumed that they follow the national pattern. Although men over 85 years are only 4 per cent of the male population aged 65 years and over, they occupied 19 per cent of male geriatric beds. Similarly, females over the age of 85 years, being 9 per cent of the elderly female population, occupied 33 per cent of female geriatric beds. In addition, although the number of bed days per patient does not change much for the male groups, there is an increase with advancing age for females. This is further seen in that whereas 50 per cent of all the beds occupied by patients 65–74 years were used by males, this fell to 19 per cent occupied by males in the 85 years and over age group. The proportion of the bed-days occupied in each age group was lower for the males than the actual proportion of beds they occupied (Table

Table 1. Projected population changes 1981–2006.

|                | 1981  | 1986  | Year  | 1996  | 2006  |
|----------------|-------|-------|-------|-------|-------|
|                |       |       |       |       |       |
| **Males**      |       |       |       |       |       |
| 65–74          | 2160  | 2075  | -3.9% | 2082  | 2000  |
| 75–84          | 866   | 951   | +9.8% | 941   | 956   |
| >85            | 129   | 140   | +8.5% | 177   | 180   |
| **Total**      | 3155  | 3166  | +0.3% | 3200  | 3136  |
| **Females**    |       |       |       |       |       |
| 65–74          | 2775  | 2717  | -2.1% | 2628  | 2392  |
| 75–84          | 1634  | 1785  | +9.2% | 1759  | 1725  |
| >85            | 422   | 460   | +9.0% | 548   | 559   |
| **Total**      | 4831  | 4962  | +2.7% | 4926  | 4676  |
| **All**        | 7986  | 8128  | +1.8% | 8126  | 7812  |

Journal of the Royal College of Physicians of London Vol. 19 No. 2 April 1985 109
Table 2. Age and sex distribution of patients over the age of 65 years in 36 geriatric units.

|                | 65-74 | 75-84 | >85 | All  |
|----------------|-------|-------|-----|------|
| Males (646)—   |       |       |     |      |
| in hospital group | 31%   | 50%   | 19% | 100% |
| in the population | 68%   | 27%   | 4%  | 100% |
| Bed-days occupied by males | 35% | 47% | 18% | 100% |
| Mean days/patient in hospital | 306.7 | 257.5 | 260.8 | 285.2 |
| Females (1,391)— |       |       |     |      |
| in hospital group | 14%   | 53%   | 33% | 100% |
| in the population | 57%   | 34%   | 9%  | 100% |
| Bed-days occupied by females | 12% | 47% | 40% | 100% |
| Mean days/patient in hospital | 361.5 | 376.8 | 511.1 | 426.3 |
| Males/females in each age group in hospital | 50% | 30% | 19% | 31% |
| Bed-days in each age group occupied by males | 46% | 23% | 11% | 24% |

2), further indicating the excessive length of stay of the females. This will be relevant in the presence of differential expected demographic changes for males and females.

One further point was that 5 per cent of the geriatric unit beds were occupied by patients under the age of 65 years—with an average length of stay of 686 days.

The effect of these demographic changes on future bed requirements may be demonstrated by calculating, from present occupancy and the projected population changes, the number of bed-days for each age-sex group over the next 20 years (Table 3). The decrease in the number of bed-days occupied by people of 65 to 74 years of age is more than compensated for by a striking increase in the bed-days required by those 75 years and over. Based on these figures 13-14 per cent more bed-days will be required over the next 15-20 years to maintain present standards.

Table 4 shows that where the type of ward could be identified in the 36 hospitals, the length of stay was about one month in acute wards, three months in rehabilitation wards and two years in long-stay wards.

The age and sex distribution differs for each type of ward. Projecting these figures (Table 5), males will require more acute and rehabilitation facilities, while females will need more long-stay facilities. Overall, the increase required will be 9 per cent for acute, 12 per cent for rehabilitation and 15 per cent for long-stay facilities in the next 15 years.

Discussion

The future demographic trends show no change in the total number of elderly people in the population over the next 20 years. However, within these figures the 65-74 age group will decrease in numbers but this decrease will be balanced by an increase in the 75 years and over population. If the elderly were a homogeneous group this would not influence future planning in the Health Service. However, those over 85 years are more likely to be in hospital than those of 65-69 years[3] and the age-specific admission rate increases with age[4].

This study shows that, with present patterns of care, the 36 units visited will require 14 per cent more beds in 15 years’ time—with a greater increase in the bed requirements for the females than the males. This is very
similar to the figure estimated by Clarke for Leicestershire[5]. However, these figures assume that there will be no change in patterns of care. The political solution[6] is that more patients will be treated in the ‘community’. The attraction of this policy is that transferring long-stay patients to the community may compensate for the demographic changes, as one long-stay bed is the equivalent of treating 24 acute patients or 8 rehabilitation patients (Table 4). Unfortunately, the evidence is that Social Service residential places[7], meals-on-wheels[8] and home help[9] services are already falling far behind the demographic trends. There is already concern[10] that many elderly people do not receive satisfactory support in the community. Residential homes are now caring for heavily dependent individuals and require a considerable increase in resources to maintain present service levels[11]. It is, therefore, unlikely that there will be a significant shift from the hospital long-stay services to Social Service care.

Private rest and nursing homes are contributing to long-term support, though there is concern[12,13] about the control of standards of care and the tendency to accept the less disabled at the expense of those most in need. How significant a role these homes will continue to play will depend largely on political encouragement and Social Security funding. Even if they are to play a significant role the figures from this study show that, to cope with the present long-stay bed requirements, the equivalent of 15 per cent of the long-stay beds in geriatric units will have to be available in the ‘community’. As the increased need for rehabilitation and acute services can only be met by a further decrease in long-stay beds, this figure will have to be much larger than 15 per cent.

There is certainly evidence that an increased turnover can be achieved by more efficient use of beds[14] and by better discharge planning[15,16]. This, of course, depends on patients being reasonably fit for discharge. Unfortunately, the major cause of long-stay care is dementia; social and physical disability play a relatively small role[17,18]. A poor mental state is badly tolerated by families[19] and extremely difficult to cope with in the community.

Support of heavily disabled individuals in their own homes depends on very large increases in district nursing and Social Service resources. As Opi[t20] has shown, the cost of community support of the heavily disabled person is probably as expensive as institutional care, while the quality of care decreases as the amount of support required increases.

These problems of demographic change are not only applicable to geriatric and psychogeriatric units. The length of stay in medical, surgical and orthopaedic units is also increased in the elderly[21-23]. In 1977 one-fifth of medical and surgical beds were occupied by people 75 years and over[24]. In addition, blockage at any point in the hospital system inevitably results in pressure on other services and this applies especially to geriatric units, which have a high transfer rate from other departments.

Figures presented here indicate that, taking demographic changes into account, a norm of 8.5 geriatric beds per 1,000 population of 65 years and over will be the equivalent of 7.3 beds by 1996. We suggest that the planning of future services must take into account the differential requirements of the age-sex distribution of the elderly population for different periods throughout the next 20 years.

Acknowledgements

We wish to thank the King Edward’s Hospital Fund for London for their generous financial support and our colleagues in the geriatric units visited for their time and help.

References

1. OPCS (1983) Census 1981. National Report, Part 1, London: HMSO.
2. OPCS (1975) Population Projections No. 5. London: HMSO.
3. Downie, B. N. (1972) The elderly in Scottish Hospitals 1961–1966. Scottish Health Services Studies No. 21. Scottish Home and Health Department.
4. Evans, G. J., Hodkinson, H. M. and Mezey, A. G. (1971) Lancet, 2, 539.
5. Clarke, M. (1984) Journal of the Royal College of Physicians of London, 18, 128.
6. Department of Health and Social Security (1981) Care in the Community. London: DHSS.
7. Grundy, E. and Arie, T. (1982) British Medical Journal, 284, 799.
8. Department of Health and Social Security (1979, 1981) Personal Social Services Local Authority Statistics: Meals Services. A/F79/2, A/F81/2, London: DHSS.
9. Department of Health and Social Security (1979, 1981) Personal Social Services Local Authority Statistics. Staff of Local Authority Social Service Departments. S/F79/1, S/F81/1. London: DHSS.
10. Hunt, A. (1979) Health Trends, 11, 21.
11. Clarke, M., Hughes, A. O., Dodd, K. J. et al. (1979) Health Trends, 11, 17.
12. Goldberg, C. (1984) British Medical Journal, 288, 1473.
13. Andrews, K. (1984) ibid., p. 1518.
14. O’Brien, T. D., Joshi, D. M. and Warren, E. W. (1973) British Medical Journal, 4, 277.
15. Cable, E. P. and Meyers, S. P. Jr. (1983) Archives of Physical Medicine and Rehabilitation, 64, 57.
16. Shragar, J., Halman, M. and Myers, D. (1978) Social Work Health Care, 4, 65.
17. Rainey, C. G. E., Russell, W. F. and Silver, C. P. (1975) Age and Ageing, 4, 247.
18. Rosin, A. J. (1970) Gerontologia Clinica, 12, 40.
19. Sanford, J. R. A. (1975) British Medical Journal, 3, 471.
20. Opit, L. J. (1977) British Medical Journal, 1, 30.
21. Seymour, D. G. and Pringle, R. (1982) British Medical Journal, 284, 1921.
22. Rubin, S. G. and Davies, G. H. (1975) Age and Ageing, 4, 142.
23. Medical Manpower Steering Group (1980) Developments in health services for the elderly—implications for medical manpower. London: HMSO.
24. Office of Population Censuses and Surveys for Government Actuary’s Department (1977) Hospital In-Patient Enquiry, London: DHSS.