ALTERNATIVES TO LONG-TERM HOSPITAL CARE
FOR ELDERLY PEOPLE IN LONDON

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SUMMARY

1. Aims

The purpose of the project was to investigate the extent to which limitations on the availability of community-based substitutes for long-term inpatient care necessitate higher than average spending on health services in order to maintain an equitable level of provision for elderly people living in London. It has also considered what long-run options exist for compensating for the lack of residential sector facilities in London.

2. Methods

The project has investigated the opportunities for substitution between hospital and community services by two means. The balance between services across 178 district health authorities in 1992/93 (the latest year for which data were available) has been examined using information from a wide range of sources, including the 1991 Census and related data sets, as well as Department of Health statistics. The views of participants about the ability of residential and domiciliary services to substitute for inpatient services, and problems in making the transition from one to the other, were sought from interviews with six health authority purchasers responsible for purchasing services for long-term care of elderly people in six DHAs, including three in London and three elsewhere, and contact with directors of three independent residential and nursing home chains.

3. Background

Levels of service provided to people over 75 in London show that there is a slightly above average provision of NHS beds and domiciliary services such as district nurses and home helps, but this is offset by much lower than average services in the residential sector. This is due mainly to the lack of independent sector residential and nursing homes. This situation has come about recently with the decline of NHS beds and local authority residential care generally, while compensating growth in the independent sector has taken place mainly outside London.

4. The Shortfall in London's Services

Average rates of provision per capita (aged 75+) outside London were applied to London itself, after making allowance for needs factors including limiting long-standing illness, living alone, very elderly (75+), and SMR (65+). The cost implications were computed at current prices (or unit costs). The over-provision of NHS and local authority services is offset by the shortfall in independent sector provision. There would need to be an additional recurrent expenditure in the public sector of £290m to sustain London's services for elderly people at the same level as the average for the rest of England.

5. Substitution: The Balance of Services

Limited evidence for both substitution and complementarity effects was found from analyses

comparing the balance of services in different areas and changes in the balance of services through time. The implication is that these services are not in practice substituted or, more likely, variations between DHAs in the balance of services do not reflect an efficient and equitable response to variations in local needs and prices. We are thus unable to say to what extent the higher expenditure on inpatient services for people over 75 in London is directly caused by the shortage of residential services. However, it is implausible that this higher level of expenditure could possibly substitute for the shortage of nursing and residential homes.

6. Substitution: Views of Purchasers and Providers

The potential for substitution between long-stay NHS beds and services being provided by the independent sector was acknowledged. Two purchasers considered that the reduction in the relative level of hospital utilisation by elderly patients in their areas had indeed been accompanied by growth in levels of independent nursing and residential care provision. However, the main proactive work by the authorities to encourage substitution had been used for specific initiatives, particularly for elderly people with mental infirmity. Few explicit arrangements had been made in geriatric care. In dealing with the independent sector, respondents preferred the flexibility offered by spot contracting, although this implied less commitment to the long-term use of independent provision. In practice they were more concerned to emphasise rehabilitation, and to improve day care and domiciliary provision to enable elderly people to remain at home or return home after rehabilitation, although it was admitted that the development of such community-based services was patchy.

The independent sector providers considered that the major factor responsible for the low levels of provision in London was the scarcity of land and relatively high land prices. Existing properties were not suitable for conversion to the standards required, and payment of VAT on conversions was an immediate disincentive. The recruitment of staff was particularly difficult in Inner London. Although levels of reimbursement to homes in London compared with elsewhere have improved following the 1993 community care changes, greater incentives from health and local authorities for developments by the independent sector were desired by independent providers.

7. Conclusion: What are the Alternatives to Residential Care?

Three options are examined. First, development of the independent sector. There were few encouraging signs that this is happening on a sufficient scale. It would take 30 years at present rates for provision in London to reach that currently provided in the rest of England. Second, develop alternatives in the community. Purchasers to whom we spoke saw great opportunity here, with community nursing an undeveloped area. But so far not much has happened.

The third option is, de facto, what is happening. This is the movement out of London of large numbers of elderly people in search of support, particularly residential care. London is unique in this, and the rate is accelerating. While it may represent an efficient response to the problem of high costs and supply constraints within London, it is by no means clear that this is in the best interests of elderly people. There are some signs of growth in a residue of very needy people in London who appear to be

getting inadequate support of any kind.

1. AIMS

Formally, the aim of this study was to investigate the extent to which limitations on the availability of community-based substitutes for long-term care necessitate higher than average spending on health services in order to maintain an equitable level of provision for elderly people living in London. The project aimed:

a. To quantify the extent to which, after allowing for differences of need, the level of use (measured by admissions, bed-days, and turnover) of hospital services is affected by the local supply of community based care, especially residential and nursing facilities for elderly people with long-term health care needs.

b. To estimate, given the substitution rates, the increased cost of hospital care arising from the current availability and cost of substitute community services, at assumed levels of demand.

c. To examine what options exist in the long run for improving the supply of substitute community services in London, the possible price and outcome consequences of this; and consider where the most efficient balance between the sectors is likely to leave the demand for hospital services in London and the overall cost for this group of patients.

2. METHODS

In principle, there are two approaches to the problem of understanding substitutability. The direct approach is to assess, generally through the views of patients and the judgement of professionals, what alternative forms of intervention are potentially available to individuals which are capable of providing desired outcomes, and from this and information about relative costs what would be the most cost-effective balance between different forms of care.

The indirect approach is to examine, preferably with the aid of econometric modelling, the level and balance in the actual supply of provision of the various types, in different localities or at different times which vary in understood and measurable ways, in particular in terms of the price of these services and the pattern of needs among the current users of each type of service. Substitution is demonstrated if it can be shown that, allowing for variations in need, the balance in consumption of services is related to their relative prices. Where prices cannot be directly observed, substitution may be inferred if there is a negative correlation between the levels of services, under an assumption of equity, that purchasers will be acting to ensure similar overall value of outcome in all localities.

The present project combined both approaches. Discussions with health purchasers and independent sector providers were undertaken alongside statistical analyses involving secondary analysis of data from a range of national data sources.

2.1. Data Sets

Quantitative data acquired for the study included:

1. The 1991 Census of Population and related datasets, including extracts from the Local Base Statistics, the 2 per cent Sample of Anonymised Records for individuals, the OPCS Longitudinal Study (recently updated to 1991) and the University of York Resource Allocation Study dataset, and in addition the OPCS General Household Surveys of 1985 and 1991. These data sources were used to examine issues of need in relation to service provision.

2. Information on service provision for the 178 district health authorities in England in 1992/93, in order to undertake analyses of variations between areas. This included information on geriatric hospital provision, nursing homes, local authority and independent sector homes, district nursing and home helps. Note that for convenience we term nursing homes and residential care homes collectively as the "residential sector".

3. Information on similar service provision for district health authorities in 1985/86, in order to undertake comparisons over time.

Full details of these datasets and additional sources of information, for example unit costs of provision, are given in appendix 1. The method of combining information from local authorities with that of district health authorities, and of data on district health authorities, is also given in appendix 1 together with the definition of Inner and Outer London used for this analysis. Definitions of the variables used in the analyses presented in this report are shown in tables 7 and 13. Note that although the University of York Resource Allocation Study dataset was acquired to provide information on the accessibility of hospital provision, it was not used in the analyses reported here. Other variables used in the University of York study were calculated from their original sources.

The measures of hospital provision examined in this study included both the number of occupied beds by patients aged 75 and over, obtained from the health service indicators datasets, and the number of available beds in wards for elderly general patients (termed available geriatric beds), obtained from the Department of Health publication *Bed Availability for England: Financial Year 1992-93* (Department of Health, 1993a). The number of occupied beds is a more satisfactory measure of total resource use by old people, because it includes patients in acute and geriatric medicine specialties, but it was not available in 1985/86. For the analyses of longer-term changes, the number of available geriatric beds was used[3].

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[3] In addition to the number of occupied beds and available geriatric beds, a measure of the number of long-term elderly patients, estimated from the patients 75+ in hospital more than 6 months:resident population 75+ in the 1992/93 Health Services Indicators dataset, was also examined but there appear to be reliability problems with this measure and it was not used in the analyses.

Note that the conventional 5 per cent level is used as the minimum level for reporting statistical significance throughout analyses (unless otherwise indicated). The figures presented in the tables have been rounded separately, and thus totals do not always correspond to the sum of their tabulated components.

2.2. Interviews with NHS Purchasers

The interviews with NHS purchasers were designed to examine current assumptions about the potential for substitution, the effect of supply limitations and the implications for joint planning. The health authorities selected for the exercise were chosen principally to provide a comparison between the experience of health authorities in London, and that of health authorities in other metropolitan areas which had reduced their use of geriatric services and which had sufficient nursing and residential care for potentially substituting for hospital care. The selection of health authorities to approach was based on four criteria: the balance between health and other forms of provision in 1992/93; trends in the balance of health and other forms of provision; the stability of health authority boundaries from 1992/93 to the present[4]; and interest in the problem among potential interviewees. All but one of the health authorities approached agreed to participate. One health authority outside London was unable to participate due to the lack of a suitable person with knowledge of the position in the period of interest, and a neighbouring health authority was approached instead, and agreed to participate.

The group of six health authorities included in the interviews contained three in London, two inner city metropolitan authorities and one in a county. Two of the London health authorities had low levels of independent nursing and residential care provision relative to the population aged 75 and over, and the third had higher levels of independent provision, combined with a reduction in the relative level of hospital utilisation by elderly patients. Two of the three London health authorities at the time of interview included former health authorities in both Inner and Outer London, and the third was composed of former health authorities which were all in Inner London. The two metropolitan authorities had experienced considerable growth in levels of independent sector nursing and residential provision during the period 1990/91 to 1992/93, in one case accompanied by a substantial reduction in the level of hospital utilisation. The health authority in a county was similar to London in that it had low levels of independent sector nursing and residential care provision, and had relatively high levels of hospital utilisation and low levels of local authority residential provision.

With the exception of the county, the interviews with staff in the selected health authorities took the form of tape-recorded discussions, based on a standard list of topics. The discussions were conducted with between one and three members of staff responsible for commissioning and purchasing services, for community care development and for public health matters. For the county, a more wide-ranging discussion was held with a member of the department of public health.

A list of topics is contained in appendix 2. For each discussion, section D of the list of topics was amended slightly to be specific to the particular health authority. The topics selected for coverage

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[4] Though in fact all of the six authorities approached had been involved in some reorganisation.

were based mainly on topics identified within the research, but some questions are adopted from the interview schedule for local authority directors and chairs of social services used in the second phase of the Mixed Economy of Care study (Nuffield Institute for Health and Personal Social Services Research Unit, 1994), with kind permission.

2.3. Interviews with Independent Sector Providers

Six major independent sector providers were asked whether they would be prepared to assist in the research by providing their views of the opportunities for future developments of independent provision in London. The providers were selected from the list of major for-profit providers in Laing and Buisson (1993), being the largest organisations, in terms of beds owned or managed, which had homes in the London area. Of the six providers approached, three responded, one by letter and two by telephone.

3. BACKGROUND

Very elderly people, those over 75, are heavy users of NHS inpatient services and nowhere more so than in London, where 22 per cent are admitted annually, compared with an average outside London of 17 per cent (table 2). The usual explanation is that this is the result of an historically generous supply of hospital services in the capital. However, in the wake of the Tomlinson Report (1992) commentators have questioned whether the difference may be for some other reason. The concern centres on the availability of alternative sources of support particularly for those with chronic ill-health and disability, both in residential and nursing homes and in the community. Table 1 shows that NHS and local authority provision is as high in London as elsewhere, if somewhat concentrated in Inner London, but that the levels of provision in the independent sector are much lower. For services in the home, community nursing and home care, again provision in London is relatively high. But as Snow (1993) points out, almost certainly there is a shortage of informal support for people needing care at home. We shall return to this point later.

So Tomlinson's conclusion that the reliance by elderly people on beds in the acute sector, and the low level of alternative provision, was evidence that spending priorities had been misplaced in London, is something of a simplification. The shortage of alternatives lies outside the statutory sector.

The situation in London has been complicated by a number of recent trends. Between 1985 and 1993, local authority owned residential provision declined generally; but nowhere as fast as in London where there was a fall of 42 per cent in the number of available places, compared with 33 per cent elsewhere in England (table 1). In part this was the result of pressure put on London authorities during the 1980's to constrain spending. Nationally, this fall was far more than compensated by rapid growth in the number of independent sector home places (Department of Health, no date, figure 2). But in London itself his growth has been slight, leaving a net loss of 500 residential care places for elderly people between these years. This failure of the independent sector to develop fast enough has become increasingly salient with the introduction of community care policies. For example, in reviewing

progress towards "Caring for People", North West Thames RHA (1992) observed: "The most obvious change is in the number of continuing care beds particularly for elderly people, and a growing reliance on independent sector residential care and nursing homes. The decline in the number of continuing care beds in some areas is said to be resulting in increasing bed-blocking in acute wards and hampering efforts to reduce waiting lists. Comparative underfunding of voluntary and private sector residential care ... is causing concern about their viability in some areas".

4. THE SHORTFALL IN LONDON'S SERVICES

In order to quantify London's position further, let us ask what would be the cost consequences of altering the levels of provision of all hospital and residential services for the elderly in London to the average levels existing in the rest of England, after allowing for differences in levels of need. This analysis was undertaken both for the number of occupied beds by patients aged 75 and over and for the number of available beds for patients in wards for elderly general patients (termed available geriatric beds). For this analysis, prediction equations for each service (occupied beds, available geriatric beds, nursing home beds, residential home places, district nurses and home helps) were estimated for district health authorities outside London using need variables examined for geriatric medicine in the University of York Resource Allocation Study (Carr-Hill et al., 1994) and some additional need variables representing elderly people with limiting long-term illness and/or living alone, drawn from the 1991 Census of Population Local Base Statistics. In the initial equations, the predictands were estimated as rates per thousand elderly population, but for the final prediction equations the total level of provision was re-estimated after multiplying through by the population, that is, by estimating regressions with no intercept.

Carr-Hill et al. (1994) report that their best equation for predicting utilisation of geriatric provision included the following three variables: the proportion of residents in households with head in manual social classes; the proportion of families which are not lone parent families; and the proportion of residents in households with the head born in the New Commonwealth. A similar analysis of the relative number of available beds at the district health authority level produced a corresponding equation[5], although the regression coefficient for the proportion of families which were not lone parent families only exceeded the 10 per cent level of statistical significance, not the 5 per cent level. In addition, the role of the proportion of households with the head born in the New Commonwealth may only be to identify London authorities, since its regression coefficient was not statistically significant in a corresponding analysis of district health authorities outside London. For district health authorities outside London, the best equation included variables directly related to elderly persons' needs, and was

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[5] The regression equation for the number of available geriatric beds per thousand population 75+, for 176 district health authorities in 1992/93, was as follows:

   21.2815[**]
   +15.1548[***] x proportion in manual social classes
   -18.1666[*] x proportion not in lone parent families
   +15.2015[***] x proportion with head born in New Commonwealth

* $0.10 > p \geq 0.05$, ** $0.05 > p \geq 0.01$, *** $0.01 > p$; $R^2 = 0.23$.

selected in preference. For the final equations a composite variable representing persons aged 75 and over with limiting long-term illness who were living alone was created, and equations based on this variable and the standardised mortality ratio were estimated. However, the provision of nursing home beds and residential home places was not related to levels of need in the hypothesised direction and the prediction equation was based on population alone.

The final prediction equations for each of the six services are shown in table 3. These equations were estimated after excluding cases with extreme values or missing data and, in the case of the number of available beds, two health authorities which had no available beds specifically for elderly patients in 1992/93, and include predictor variables with regression coefficients which reached the 5 per cent level of statistical significance. A small number of cases with extreme values were excluded a priori, and the remainder were health authorities whose inclusion influenced the coefficients of the estimated equations in the preliminary regression analyses (principally those with standardised residuals with absolute values greater than 3). For residential and nursing homes, the ratios of places to population for individual health authorities were positively skewed. In addition, a small number of cases had very low ratios of places to population. The cases with very low ratios of places to population were excluded from the calculation of the prediction equation, together with those with ratios exceeding 3 standard deviations above the mean.

Table 4 shows the predicted level of provision for London health authorities obtained by entering the values of the need variables for each London health authority into the prediction equations, as appropriate, and summing the predicted levels of provision for Inner London, Outer London, and Inner and Outer London combined. For residential homes the prediction equation estimated the total level of provision by all three sectors, and the expected level of local authority and of private and voluntary provision was then estimated according to the relative proportions of places in district health authorities outside London. The unit cost of provision for each service was obtained from Netten (1994) and Netten and Dennett (1995), and adjusted to 1992/93 prices using the appropriate price indices. The additional costs of provision in London for hospital services, district nurses and home helps were estimated from the multipliers given by Netten (1994), which were based on work by Akehurst et al. (1991) and Bebbington and Kelly (1991): 1.22 for hospital services and district nurses and 1.19 for home helps. The additional costs of provision in London for private nursing homes and private residential homes were estimated from the figures on nursing home and residential home fees for single and shared rooms given in Laing and Buisson (1993); and the additional costs of local authority residential care in London were estimated from the costs per place reported by Bebbington and Kelly (1991) and the number of homes in Inner London, Outer London, metropolitan districts and shire counties (Department of Health, 1994b). No information for the fees of voluntary residential or nursing homes was available and so the costs for private homes were applied to the total number of independent homes in each case. The unit costs presented by Netten (1994) and Netten and Dennett (1995) relate to England as a whole, and thus unit costs for non-London authorities were estimated by using the relative level of total provision in London and elsewhere for each service, so that a weighted average of the estimated unit cost for London and elsewhere would correspond to the figure for England. The estimated unit costs are shown in table 4.

In order to calculate the estimated cost of the difference between actual provision and the predicted level of provision for each service, occupancy levels for hospitals were obtained from Netten (1994), occupancy levels for nursing homes were obtained from Department of Health (1995) and occupancy levels for residential homes were obtained from Department of Health (1994b). The proportion of residents of independent residential and nursing homes receiving public financial support in 1993 was obtained from Laing and Buisson (1994). The cost excess or shortfall was then calculated as the product of the difference between provision and the predicted level of provision, the unit cost, the occupancy level and the proportion publicly supported, adjusted to an annual figure. The total cost excess or shortfall of community-based care and the total cost excess or shortfall of hospital and community-based care are shown in table 5. For London as a whole the estimated cost shortfall is just under 290 million per year, either for occupied beds or available beds. Table 6 shows the adjusted cost shortfall after constraining the total to the cost of current provision, calculated using the assumptions given in table 4. For London as a whole, the constrained figure is 238 million per year for both occupied and available beds, which represents an increase of about 25 per cent on the cost of current provision. For the rest of England, the corresponding reductions are approximately 0.04 per cent. Relative to the population of people aged 75 and over, the increase for London is about 500 per person, and the decrease for the rest of England is about 80 per person, for both occupied beds and available beds.

5. SUBSTITUTION: THE BALANCE OF SERVICES

5.1. Models of Substitution

We now shall investigate the question of how much extra NHS provision in London is 'caused' by the shortfall in the residential sector, and by implication whether the shortfall in London would really be so great if a more optimal balance could be achieved between sectors. To do this we need to quantify the substitutability between long stay hospital beds and beds in the residential sector.

Services may substitute for one another, but they rarely do so on a one-for-one basis. For example, each extra bed of nursing home care may reduce the need for inpatient care but not by as much as one bed, since inpatient care will still be needed. Or combinations of hospital and domiciliary care might be used in place of a permanent nursing home place. Moreover, substitution rates vary according to individual circumstances: services that can substitute for people with certain needs may not do so for others. The problem for us is to quantify the extent to which substitution takes place: to produce statements of the type "all else being equal, it appears that for each long-term hospital bed lost, there needs to be a compensating increase of X service units in the residential sector, if outputs are to remain of equal value". We should perhaps be talking about service packages - not only residential care but the extra primary care services that will be needed: in this case these are complementary services. It may well be that the level of substitution varies according to level of provision, in which case it is necessary to consider marginal substitution rates. For example there may be a minimum level of hospital beds, below which no increase in residential sector can possibly compensate.

Conventional econometric models of substitution are based on the production function, which allows statements of the above form to follow directly. There is however a problem with this approach in that output in terms of utility to the purchaser is not directly measurable. A common alternative is to base the measurement of substitution on the cost function, on the assumption that the observed behaviour of purchasers represents a rational attempt to maximise their utility within an overall budget ceiling, according to the relative price of services in their area[6]. McAvinchey and Yannopoulos (1993) illustrate this approach to analysis of trends in expenditures on public and private acute care. However in a market as complicated as that for health care, determining price can be almost as difficult as determining outcome. McAvinchey and Yannopoulos (1993) for example treat the price of NHS services to the patient as being a function of access parameters (waiting time etc). Most studies of substitution in health care take a more empirical approach, merely inferring substitution from an inverse correlation between the service volumes in different areas after allowing for differences in need, assuming that this represents a response to relative prices locally in a situation where there is a resource equalisation mechanism to ensure that overall resources are balanced in a way that would provide purchasers to act to create similar outputs given their overall need levels. A typical example is Groenewegen's (1991) regional analysis of the balance between primary and specialist care in Denmark.

Our approach can be further simplified in that the hypothesis we are investigating carries the implicit assumption that levels of provision in the residential sector are somehow exogenously determined, and the level of inpatient services represents an effort by health purchasers to ensure that overall output levels are equalised given this situation. It is noteworthy, for example, that the development of the independent sector appears to be seen by both purchasers and providers as essentially supply rather than demand constrained, being determined by historical provision levels and the costs of capital and labour.

We may characterise this situation in the following way. Suppose each health authority ($i = 1,..,I$) has N_i elderly residents who are considered to need long-term care. In practice this number is not known, but may be assumed to be proportional to numbers in the area with certain characteristics, say $\underline{\alpha}'.\underline{n}_i$ of these people. However these services are not necessarily equivalent. Residential care may be substituted by a combination of `β' of a hospital place plus care in the home. Suppose that the health authority is faced with a fixed level of available residential care $n_{i,r}$. Then the demand for hospital places is given by

If it is assumed that each authority acts to clear this demand, then $n_{i,h}$ is the actual level of hospital provision and an LS estimate of β can be obtained by regression across authorities:

If these assumptions obtain, and we further assume that each health purchaser is charged with obtaining a similar level of output in relation to needs, then it is possible to determine:

 Relative efficiency:

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[6] Based on Sluksky's equation: see for example Henderson and Quandt (1980, pp 25-32).

An authority scoring positively on this function will have provided more than hospital places than would be expected from its demand, and so is operating below average efficiency, and vice-versa.

☐   The effect of the local supply of residential care on hospital demand: this is decreased by compared with the average level of residential care for an authority with this population.

It is easy to see that this model could be readily extended. The model, for reasons that we have explained, ignores the simultaneity of response in all sectors to demand, which usually requires multi-stage modelling. The model carries an assumption of a constant substitution rate at all levels of service, which could be easily modified by a more general functional form. The model also carries the assumption that all areas operate autonomously. For health purchasers, this is only now becoming true as the public funding of residential and hospital care is firmly linked to local need. Private purchasers will of course have no such constraints.

5.2. A Cross-Sectional Analysis of Substitution

Tables 8 to 12 present the results of analyses of the above model of substitution, including community-based substitutes. These analyses are a slight extension of the above model in that more than one type of residential substitute for hospital care is considered, and in some versions of this model we have also included district nurses and home helps. Results are shown for analyses for the two predictands: the number of occupied beds per day; and the number of available beds for patients in wards for elderly general patients. Analyses of both the total levels of provision and the relative levels of provision are shown in the tables. Two sets of equations are presented for each predictand in the cross-sectional analyses, one set based on district health authorities outside London and the other including London health authorities. In addition, the number of patients 75+ in hospital, for more than six months, estimated from the patients 75+ in hospital >6 months:resident population 75+ in the 1992/93 Health Service Indicators dataset was also examined as a possible predictand variable.

For each predictand in the cross-sectional analyses, the two sets of equations 1(a) and 1(b), and 2(a) and 2(b), present the results of including the original group of predictor variables used in the previous analyses, together with the best need-raising factor, and then district nurses and home helps. The standardised estimated number of deaths, based on the SMR, did not achieve statistical significance in the preliminary analyses of total levels of provision. Equations 1(a) and 1(b) present the results of the analyses excluding London health authorities and equations 2(a) and 2(b) present the results of the analyses including London health authorities: for each predictand the two sets of equations are based on the same district health authorities outside London, with the same cases with large residuals excluded in each case[7].

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[7] For the cross-sectional analyses for England, the equations presented in the accompanying tables are based on 174 of the 178 district health authorities existing in the 1992/93 financial year for the number of occupied beds, and 172 district health authorities for the number of available beds. Three health authorities were excluded from the analyses due to their having extreme values on one or more of the variables (Hartlepool, Wandsworth and East Birmingham) and one health authority was

In the analysis of occupied beds, after adjusting for levels of need, the provision of private residential care was significantly negatively related to hospital provision, as may be expected from the correlation matrix for rates of provision, that is, after allowing for the effects of scale. However, the coefficient for the provision of private residential care was under -0.05, representing a substitution rate of less than 5 per cent. For private nursing home care, the regression coefficients were small and positive, and did not reach the 5 per cent level of statistical significance. The provision of local authority care was positively related to hospital provision, but did not reach the 5 per cent level of statistical significance, and for voluntary residential care the coefficient was small and negative for health authorities outside London, and small and positive when London health authorities were included. Introducing the provision of district nursing and home helps into the equations resulted in a statistically significant negative regression coefficient for district nursing provision for health authorities outside London and a nearly statistically significant regression coefficient for all health authorities (p = 5.12%). The corresponding analyses of relative levels of provision produced similar results before the introduction of district nursing and home helps, but the regression coefficients for district nursing provision were very small. The specification of the equations for the analyses of relative levels of provision is equivalent to the specification of the equations for the analyses of total levels of provision after removing the constant term. The constant term in the equations for the total level of provision did not reach statistical significance, and re-estimating the equations without a constant term produced similar results to those with a constant term. In the analyses of the relative levels of provision of occupied beds, the coefficient for home help provision reached the 5 per cent level of statistical significance for health authorities outside London, but not for all health authorities.

In the analyses of available beds, none of the coefficients for residential and nursing home provision reached the 5 per cent level of statistical significance, after adjusting for levels of need. Introducing the provision of district nursing and home helps into the equations resulted in a statistically significant positive regression coefficient for district nursing and, for all health authorities, a statistically significant positive regression coefficient for home helps. However, in the analyses of relative levels of provision the regression coefficients for district nursing provision were very small, as in the case of occupied beds. In the analysis of available beds, the regression coefficients for population increased and the regression coefficients for the composite need variable decreased, following the introduction of the provision of district nursing and home helps. A less pronounced effect also occurred in the analysis of occupied beds. This instability is partly a reflection of the high correlation between the two variables (r = 0.943), although reductions in the sizes of the regression coefficients for the composite need variable also occurred in the analyses of relative levels of provision, for both occupied and available beds.

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excluded due to missing data on district nurses (West Surrey and North East Hants); two health authorities were excluded from the analyses of the number of available beds because they had no available beds specifically for elderly patients in 1992/93 (Coventry and Wolverhampton). In addition, four cases with large residuals (standardised residuals with absolute values greater than 3) were excluded from the analyses of the total number of occupied beds, and two from the analyses of the total number of available beds. For the analyses of the relative levels of provision, nine cases with large residuals were excluded from the analyses of the relative number of occupied beds, including the four cases excluded from the analyses of the total number of occupied beds, and one case with a large residual was excluded from the analyses of the relative number of available beds. The two cases excluded from the analyses of the total number of available beds were not excluded from the analyses of the relative number of available beds.

In addition to the analyses presented in the tables, the effects of including additional need-related variables in the equations for relative levels of provision were examined. Since these variables were expressed as proportions, unrelated to the elderly population, they were not suitable for incorporation in the analyses of total provision. The best additional predictor was the proportion of households with their head in one of the manual social classes. Introduction of this variable slightly improved the fit of the equations, increasing the percentage of variance explained by about 2 per cent, but reduced the size of the regression coefficient for the composite need variable by approximately 50 per cent so that it was no longer statistically significant.

Using a measure of the number of long-stay elderly patients, estimated from the patients 75+ in hospital >6 months:resident population 75+ in the 1992/93 Health Service Indicators dataset, produced equations with very low explanatory power ($R^2 < 0.1$). This variable was positively skewed and, generally, London authorities had low numbers of such patients.

5.3. Substitution Measured from Trends through Time

Table 1 shows that since 1985/86 there has been a steady decline in NHS beds and local authority homes generally, greater in London than elsewhere. On the other hand the compensating growth in the independent sector has taken place almost entirely outside London. These trends have combined to weaken London's position as a provider of services for old people. This failure of the independent sector to develop has become increasingly salient with the introduction of community care policies.

Analyses of changes in the number of available beds between 1985 and 1993 in relation to changes in levels of community-based substitutes (nursing homes and residential homes) and in population were undertaken. For these longitudinal analyses, the equation presented in table 14 is based on 171 of the 178 district health authorities existing in the 1992/93 financial year[8]. Changes in the number of available beds were significantly positively related to changes in local authority residential provision and significantly negatively related to changes in nursing home provision. A similar analysis over the period 1990/91 to 1992/93 did not produce statistically significant relationships between changes in hospital provision and changes in residential and nursing home provision.

Evidence was sought for substitution in the <u>change</u> in the balance of services in each DHA between 1985/86 and 1992/93: in particular whether those authorities where use of private homes expanded most were those where NHS facilities were reduced. There is no evidence from the available data that this is what, in general, has happened.

In view of the generally low levels of substitution coefficients in these equations, this analysis was not pursued further. The implication is that these services are not in practice substituted or, more

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[8] The district health authorities existing in 1985 were amalgamated to correspond to those existing in 1992/93, but Parkside Health Authority and Bloomsbury and Islington Health Authority were excluded because each received part of the former Bloomsbury Health Authority. Coventry and Wolverhampton were excluded because they had no available beds specifically for elderly patients in 1992/93. Excluding the four additional cases did not alter the form of the equation. A further three cases were

likely, variations between DHAs in the balance of services do not reflect an efficient and equitable response to variations in local needs and prices. We are thus unable to say to what extent the higher expenditure on inpatient services for people over 75 in London is directly caused by the shortage of residential services. However, it is implausible that this higher level of expenditure could possibly be providing a full substitute for the shortage of nursing and residential homes.

6. SUBSTITUTION: VIEWS OF PURCHASERS AND PROVIDERS

6.1. NHS Purchasers

The substitution of nursing and residential care for long-term hospital provision has been used more extensively for specific client groups, such as elderly people with mental infirmity, than for geriatric care. Several of the health authorities had made arrangements for purchasing care for elderly people with mental infirmity in nursing homes, sometimes by joint commissioning, and these arrangements could give additional benefits, for example in the provision of additional respite care. For geriatric services there had been fewer transfers of provision, although the two metropolitan authorities had made specific arrangements to fund patients requiring continuing care in nursing homes. In one metropolitan area, two new nursing homes had been built on the peripheries of two hospitals and grant aided to meet the needs of the patients, and in the other metropolitan area the health authority had contracted with independent nursing homes for the provision of continuing care for hospital patients, although the places in nursing homes only accounted for about 20 per cent of the reduction in the number of continuing care beds. In the second case, the transfer of patients to nursing homes was undertaken to enable the closure of one hospital, but a larger number of ward closures was taking place, partly due to problems in recruiting staff.

Block contracting was seen as committing the health authority to a few providers, whereas the health authority would prefer greater flexibility in the choice of providers, partly because block contracts did not ensure that purchasers would be able to obtain high quality services. In addition, block contracting could be seen by providers as favouring certain homes. However, one of the potential advantages of block contracting was the continuing involvement of hospital clinicians, whereas this would be more difficult to maintain for a more dispersed group of elderly people.

In general, for geriatric services the opportunities for substitution were seen as consequences of existing levels of provision of nursing and residential care. Although respondents were aware of the potential of different contracting methods to influence investment by independent sector providers in new developments, by indicating a commitment to their long-term use, the advantages of the flexibility offered by spot contracting for individual elderly people were seen as more important. In addition, existing levels of independent sector provision in the metropolitan authorities and some parts of London, and recent growth in independent sector provision in other parts of London, combined with low occupancy levels in some areas following the community care arrangements introduced in 1993 by the National Health Service and Community Care Act 1990, reduced the apparent need to stimulate the

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excluded because of large residuals.

independent sector. However, it was recognised that the types of provision offered by the independent sector were not necessarily very satisfactory, either in small converted premises or in large-scale modern buildings which might be replacing one institution with another, albeit with improved physical facilities.

Instead of formal arrangements by the health authority, the interviewees indicated that individual arrangements were made between elderly people and homes, and financed by local authorities where necessary, under the 1993 community care changes. Local authorities were not seen as unwilling to fund nursing home places for elderly people who needed nursing home care. Elderly people were generally thought to prefer homes in the vicinity of their former homes, but there was little information about the preferences of elderly people who were forced to move to areas with greater levels of provision, although in some cases this would be to be nearer their relatives who might have moved out of London previously.

The health authorities were concerned to give greater emphasis to rehabilitation, and to reduce their provision of continuing care, although this did not mean reducing expenditure on elderly patients. Continuing care in nursing and residential care was seen as part of the range of provision for elderly people, and improvements in day care and domiciliary provision which enabled more elderly people to remain at home or return home after rehabilitation were particularly important. However, the provision of day care and day hospital care was uneven and access could depend on where people lived. Similarly, the development of domiciliary care was uneven, even within health authorities, particularly where several local authorities were involved. In addition, the discharge of elderly patients to their own home was more difficult in areas with poor housing, particularly poorly-maintained owner-occupied housing. The provision of night cover and weekend cover was often difficult to arrange and expensive, and encouraging clinicians to take an active role in domiciliary care was often difficult. One local authority forming part of a health authority in London preferred to provide lower levels of care to a larger number of people rather than provide expensive night care to a smaller number of people. In addition, developments of more intensive community services had to be large enough to be worthwhile, and diverting funding for such services was seen as difficult to achieve in the short term. For local authorities the transitional arrangements to cope with the changes introduced by the National Health Service and Community Care Act 1990 were felt to be insufficient to allow such developments, while for inner city health authorities with teaching hospitals, pressures on funding were likely to affect developments in NHS community care provision.

6.2. Independent Sector Providers

All three respondents indicated that the major factor responsible for the relative underprovision of residential and nursing home care in London was the problem of the scarcity of land and relatively high land prices. Secondly, the recruitment of staff in London was adversely affected by the need to pay higher wages and salaries than elsewhere, and the lack of full compensation for London cost levels in the reimbursement rates paid for residents and patients.

Although some respondents would be prepared to consider the conversion of properties, there were a number of factors which militated against conversions. First, the conversion of older buildings

into modern homes with extensive en suite facilities was judged to be impractical, unless, for example, a simple building, such as a former office building, with the necessary services connected, was available. Second, the imposition of VAT on conversions by private sector organisations but not on new buildings was an immediate disincentive. Third, the main value of a site was the land value rather than the value of an existing building, and it was judged cheaper to demolish an existing building than attempt a conversion. As a result of the high cost of land in London, it was necessary for providers to consider building homes on more than one floor.

Staff recruitment was the second factor inhibiting the development of independent sector provision. The respondents indicated that staff recruitment was particularly difficult in Inner London, and that high house prices affected staff recruitment in Outer London. One of the respondents indicated that their firm was in the process of developing staff accommodation, both in London and elsewhere, to ease the problem. The development of independent sector provision was seen as being at the mercy of economic factors, in that the recent recession had temporarily reduced difficulties in recruiting staff. Although one respondent felt that economic changes were resulting in smaller differences between London and elsewhere, another respondent suggested that greater problems were developing. In assessing problems of recruitment, the distinction between qualified staff and unqualified staff was mentioned by one of the respondents. Salaries for qualified staff were competitive with NHS salaries and, in addition, the professional aspects of the work were important for job satisfaction. For unqualified staff, recruited locally and responsive to local pay rates, factors such as flexible working were judged to be important.

The respondents also reported a number of other factors of importance in the development of independent sector provision, for example problems of the inappropriate placement of medically ill or frail residents following the reduction of other forms of provision, and the growth in the proportion of residents with dementia.

London authorities were viewed as being more innovative and flexible in the arrangements made with independent providers, particularly in levels of reimbursement to homes following the 1993 community care changes, but the cost of entry to the market was high, given the perceived lack of security of demand by public sector purchasers for independent provision. In particular, one provider indicated that a strategy for health and social care provision in London was needed, and that the reluctance of local authorities to agree to block contracting arrangements reduced the opportunities for development, although some health authorities have made such arrangements. In addition, some local authorities were still unwilling to countenance developments by the independent sector.

7. CONCLUSION: WHAT ARE THE ALTERNATIVES TO RESIDENTIAL CARE

The results of the previous sections show that despite the widespread assumption that substitution is practicable, the coefficient of substitution (however estimated) is so low that it would appear that this assumption has been playing little or no part in health care planning for chronically sick elderly people, at least up to 1992/93.

In a sense we have been asking the wrong question. As it is not plausible that the slightly higher levels of NHS services in London could possibly substitute for the shortfall in the residential sector, the more immediate question is what can be done about this shortfall? We can consider three possibilities.

7.1. Encourage the Independent Sector to Expand

There is little evidence that the situation is likely to change in the near future. We have reported some interesting joint enterprises with the independent sector, particularly for the elderly mentally infirm. But the major independent sector providers who will need to be attracted still see little incentive to compensate for the massive startup and higher running costs of bringing in more services on the scale required to match provision elsewhere in the country. Between 1985 and 1993, 7000 new places in private nursing homes and residential care were created in London, an average of just below 1000 per year. At this rate of expansion it would take more than 30 years just to catch up with the current level of residential care (all forms, per capita aged 75+) elsewhere in the country. And that is assuming there is no further reduction in the level of local authority provision or increase in numbers of very elderly people in London.

One factor that might influence the desire to support local initiatives, is the transfer since April 1993 of the responsibility for funding residential care under social security arrangements, to local authorities. The responsibility that the local authority now has for contracting, placement, and quality assurance measures in the homes where it supports residents might, it can be imagined, lead to a preference to use homes close at hand that can be readily monitored. However, even under social security funding, the great majority of people did not move very far. Darton (1995) found that 80 per cent of the residents of private/voluntary nursing and residential homes funded by social security in three local authorities had their previous private address in the same authority. In a well known retirement area, an earlier figure had been 88 per cent (Darton, 1990).

But demand may not be the key. We have observed that although there is still resistance to using the independent sector in a few areas (notably East London), NHS purchasers acknowledge the potential for substitution but are acting as though they assume the market for independent nursing and residential care is predominantly supply driven. In a sense the providers too were confirming this, by emphasising limitations on the availability of land and labour in London, rather than the willingness of purchasers to pay higher prices. It is perhaps this, rather than lack of enterprise, which is the reason why health services purchasers in London have low expectations, and are not showing more enterprise or energy in creating incentives for extra growth in the independent sector.

7.2. Develop Alternatives in the Community

The health purchasers to whom we spoke were placing far more hope in the development of home nursing schemes to make up the shortfall caused by the reduction in hospital provision. This might involve innovative ways of combining shorter periods of inpatient care with day care and care at

home (what has been termed the "quicker and sicker" approach). What this relies on above all else is the development of community nursing and personal care services in the community.

The home care service in London has been gearing itself to a change of role for some years. On the community health side, there is a different picture. Table 2 suggests that there was some increase in numbers of elderly people in London receiving a district nurse or health visitor between 1985 and 1991. Unfortunately the small numbers in the General Household Survey mean that this difference is not statistically significant, and the statistics on district nurse provision were not published on a basis that could be calculated for London around 1985. But we doubt that there was much increase. At a national level, numbers of district nurses actually fell (table 1), and in London itself there were fewer district nurses in 1991 than there had been in 1975[9]. There is little sign from this that community nursing is being more intensively provided.

Several of our respondents, both in London and elsewhere, saw community nursing as an area that is under-developed. Whether it will be possible to develop it quickly, particularly in London, is questionable. There are well known problems with the recruitment and retention of nursing staff in London which places obstacles in the short term to the expansion of community nursing.

7.3. Move Old People Out

What actually has been happening is that old people have been moving out of London in search of support. We are not talking here about retirement migration, which affects younger, healthier people, but rather the movement of very old and frail people in search of support. This is a surprisingly large and not very well reported phenomenon. But migration rates do not decline with age. However, what distinguishes the very oldest people who move between counties is that, unlike all age groups below 75, unhealthy people (those with limiting longstanding illness or with high mortality rates) are more likely to move than the healthy (Bebbington and Nicholaas, 1995). This is by no means a new phenomenon: studies of the OPCS Longitudinal Study by Harrop and Grundy (1991) and Grundy (1993) report the extent of moves into supported environments by elderly people living in their own homes in 1971.

What is unique about London is that it is exclusively an exporter of ill, elderly people; and it exports on a far greater rate than any other conurbation, as data provided by the OPCS Longitudinal Study shows (table 15). Using the 1991 Census Sample of Anonymised Records, we estimate that around 3700 ill people aged 75+ move out of London each year. This represents about 1.6 per cent of all people aged 75 with limiting longstanding illness living in London. (Elsewhere the migration rate between regions of ill people in this age group is 0.6 per cent.) Of these movers, almost one half are going to residential care (table 16). One in five of all old people in London who move to the residential sector, do so outside London.

Whether they move inside London or beyond, ill elderly Londoners have to move further to find care, whether in a private household or the residential sector. Table 16 shows this is getting on for twice

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[9] There were 1288 whole-time equivalent home nurses in London in 1975 (SRN and SEN with district training: DHSS return SBH2C).

as far.

What we have not considered so far is to what extent this outmigration represents a rational response to London's problems. Given high costs and low supply in the city, is it not perhaps most sensible to move people out into the surrounding country. For people who in any case have very limited mobility and so inability to keep in touch with their old community, does it matter where they live? Perhaps a pleasant view or a favourable climate is in any case preferable? If this is so then the shortfall in the residential sector is hardly of concern: the question might rather be why there is any residential care at all in London.

It is undoubtedly true that some old people who migrate in search of support are not unhappy to leave London. Certainly, it would be unwise to assume (vide section 4) that London has an immediate expenditure need of ⏢290m in order to match its facilities to those available outside. That it does matter to old people where they live was, however, one of the early lessons of the residential care programme following the 1948 National Assistance Act, and anecdotally it remains true that residential homes in rural and isolated areas are the hardest to fill. There has been very little outcome related research on this topic and hence it is difficult to be able to say where to draw the correct balance between the high cost of providing local facilities in London versus the loss of welfare implicit in a policy that requires many people to move out.

There are, however, a number of warning signs about London's position. For one thing, it is odd that it is so different from other conurbations in relation to provision in the residential sector, in the one-way traffic of ill elderly migrants, and the distance they have to move. Moreover, all our evidence suggests that both in differences in levels of provision and in migration rates, the difference between London and elsewhere has been increasing.

There is another way in which the low levels of residential sector provision are making themselves felt. Table 17 looks at the numbers of people in the 1991 General Household Survey who were aged 75+, living in private households, with considerable disablement (great difficulty or unable to do an activity which is necessary every day) and were living alone. This is a group who are close to the margin of need for residential care. Numbers are small, but table 17 shows that 15, that is around 1 in 10 people of aged 75+ living in London, were like this, double the proportion elsewhere. Certainly the proportion is significantly higher in London. Analysis of GHS in 1980 and 1985 had found no such differential (Bebbington and Davies, 1993). Recent experiments (Challis et al., 1995) have shown that it is quite possible to maintain someone in such a condition satisfactorily in their own home. But it requires considerable inputs, and 5 of these 15 were receiving neither home care nor a district nurse. The possibility exists that the consequence of a low level of residential care in London is not only to cause some elderly disabled people to have to leave London in search of help, but is also leaving a residue of people who needs are not being met.

8. ACKNOWLEDGEMENTS

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[10] The Sample of Anonymised Records is Crown Copyright and made available courtesy of ESRC/JISC/DENI and CMU.

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Table 1: Service Levels for Elderly People in London and England, 1985 and 1993

	Inner London		Outer London		Rest of England		England	
	1985	1993	1985	1993	1985	1993	1985	1993
1. Persons aged 75+ (000s)[2]	163.6	151.6	284.4	294.9	2603.9	2964.0	3051.9	3410.5
2. Available beds on wards for elderly patients	18.5	15.4	15.6	11.5	18.3	11.6	18.1	11.7
3. Occupied beds by patients 75+	-	18.3	-	15.1	-	15.7	-	15.8
4. Beds for the elderly in registered nursing homes	6.5	13.6	7.9	18.7	11.8	46.5	11.1	42.5
5. Places in local authority residential homes	44.6	28.2	32.9	18.5	37.5	22.2	37.4	22.1
6. Places in registered voluntary homes	15.3	14.7	15.8	14.4	9.4	10.3	10.3	10.9
7. Places in registered private homes	6.1	7.5	13.0	21.4	28.8	51.9	26.1	47.3
8. Whole time equivalent district nurses	-	5.4[3]	-	4.6[3]	-	4.6[3]	5.0	4.6[3]
9. Whole time equivalent home helps	25.6	23.9	16.1	16.6	16.1	15.4	16.6	15.9

Notes:
1 Sources: OPCS (1986), tables 2 and 4; OPCS (1994), table 1; Department of Health (1993a), table 4; Health Service Indicators 1992/93, DP49, DP51, HA59 (National Health Service Executive, 1994); DHSS (1986); Department of Health (1994a), table 6; DHSS (nd(b)), tables 2, 4 and 5; Department of Health (1994b), table 2; DHSS (1987), table 6.7; Health Service Indicators 1990/91, DN23, DP50 (National Health Service Management Executive, 1992); DHSS (nd(a)), table 1; Department of Health (1993b), table 1.
2 Population based on local government boundaries, mid 1985 and mid 1992.

3 Rows 2-9 are rates per 1000 resident population aged 75+. Rates for rows 2-4 and 8 are based on corresponding health authority populations. Numerators for rows 2-4 are as at 31 December 1985 (rows 2 and 4) and 31 March 1993, numerators for rows 5-7 are as at 31 March 1985 and 31 March 1993, numerators for row 8 are as at 30 September 1984 and 30 September 1990, and numerators for row 9 are as at 30 September 1984 and 30 September 1992. Denominators for rows 2-7 and 9 are as at mid 1985 (rows 2 and 4-7) and mid 1992, and denominators for row 8 are as at mid 1985 and mid 1990.

Table 2: Service Use by People Aged 75+ in London and England, 1985 and 1991

	London		Rest of England		England	
	1985 %	1991 %	1985 %	1991 %	1985 %	1991 %
1.Been an inpatient in the last year	18.0	21.7	14.2	17.1	14.6	17.6
2.Used a district nurse/HV in the last month	8.7	11.3	9.0	10.6	9.0	10.7
3.Used an LA home help in the last month	20.0	21.1	17.9	16.1	17.9	16.7
Number in sample	150	161	1217	1296	1367	1457

Note:
1 Source: Reanalysis of 1985 and 1991 General Household Survey (Elderly Section).

Table 3: Prediction Equations for Levels of Provision

Predictor variables		Occupied beds by patients 75+ (1992/93)	Available geriatric beds (1992/93)	Nursing home beds (1992/93)	Residential home beds (1992/93)	Wte district nurses (1990/91)	Wte home helps (1990/91)
Name	Description						
DP50A633	Estimated population aged 75+ at 30/6/92 (000s)	-3.1031*		46.4748	84.8452	-7.2380**	-34.2873**
LLIA75PL	Persons 75+, with limiting long-term illness, living alone	0.0846**	0.0563**				0.0978**
ML61A63T	Standardised estimated annual deaths, 75+					11.5016**	29.1353**
F		1860.092	3446.844			2086.728	896.987
p value		0.0000	0.0000			0.0000	0.0000
R^2		0.964	0.961			0.968	0.950
Adjusted R^2		0.964	0.961			0.968	0.949
n		140	141	145	147	139	144
Source run		109	109	111	111	109	109

Notes:
1 Full descriptions of the predictor variables and the predictands are given in table 7.
2 $* \ 0.05 > p \geq 0.01$, $** \ 0.01 > p$.

Table 4: Actual and Predicted Levels of Provision by Type of Area and Associated Costs per Year at 1992/93 Prices

Service	Unit	Type of area	Level of provision	Predicted level of provision	Level of provision - predicted level[1]	Cost[2] (£)	Cost unit	Occupancy[3]	Proportion publicly supported[4]	Cost excess (+)/ shortfall (-) per year (£000)
Occupied beds by patients 75+	Beds/day	Inner London	2763	2794	-31	132.76	Inpatient day	1.00	1.00	-1502
		Outer London	4674	4619	55	132.76	Inpatient day	1.00	1.00	2677
		London	7437	7413	24	132.76	Inpatient day	1.00	1.00	1175
		Rest of England	46332	42775	3557	108.82	Inpatient day	1.00	1.00	141284
Available geriatric beds	Beds/day	Inner London	2320	2171	149	132.76	Inpatient day	0.90	1.00	6489
		Outer London	3560	3713	-153	132.76	Inpatient day	0.90	1.00	-6678
		London	5880	5884	-4	132.76	Inpatient day	0.90	1.00	-189
		Rest of England	34057	34555	-498	108.82	Inpatient day	0.90	1.00	-17792
Independent nursing homes	Beds	Inner London	2059	7023	-4964	423.54	Inpatient day	0.87	0.75	-71334
		Outer London	5787	14380	-8593	423.54	Inpatient day	0.87	0.75	-123485
		London	7846	21403	-13557	423.54	Inpatient day	0.87	0.75	-194818
		Rest of England	137054	136986	68	332.24	Inpatient day	0.87	0.75	761
Local authority residential homes	Places	Inner London	4329	3363	966	396.23	Resident week	0.86	1.00	17111
		Outer London	5731	6887	-1156	396.23	Resident week	0.86	1.00	-20480
		London	10060	10250	-190	396.23	Resident week	0.86	1.00	-3369
		Rest of England	65311	65606	-295	302.83	Resident week	0.86	1.00	-3988

	Resident week Resident week Resident week Resident week								

Table 4: Actual and Predicted Levels of Provision by Type of Area and Associated Costs per Year at 1992/93 Prices (cont'd)

Service	Unit	Type of area	Level of provision	Predicted level of provision	Level of provision - predicted level[1]	Cost[2] (£)	Cost unit	Occupancy[3]	Proportion publicly supported[4]	Cost excess (+)/ shortfall (-) per year (£000)
Independent residential homes	Places	Inner London	3353	9458	-6105	325.95	Resident week	0.86	0.64	-56949
		Outer London	11411	19365	-7954	325.95	Resident week	0.86	0.64	-74203
		London	14764	28823	-14059	325.95	Resident week	0.86	0.64	-131152
		Rest of England	183651	184479	-828	234.12	Resident week	0.86	0.64	-5549
District nurses	Wte	Inner London	1042	680	361	28838.74	Wte/year	-	1.00	10417
		Outer London	1492	1163	329	28838.74	Wte/year	-	1.00	9482
		London	2534	1844	690	28838.74	Wte/year	-	1.00	19900
		Rest of England	14944	12605	2339	22910.89	Wte/year	-	1.00	53585
Home helps	Wte	Inner London	4640	3084	1556	12579.67	Wte/year	-	1.00	19575
		Outer London	4721	4460	261	12579.67	Wte/year	-	1.00	3289
		London	9361	7543	1818	12579.67	Wte/year	-	1.00	22864
		Rest of England	46377	44924	1453	10221.69	Wte/year	-	1.00	14850

Notes:

1   Source run: 148.

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2   Sources: Netten (1994); Netten and Dennett (1995). Deflated to 1992/93 prices by HCHS pay and prices index (available geriatric beds, independent nursing homes), HCHS annual percentage pay increase (district nurses), PSS pay and prices index (local authority residential homes, independent residential homes), and PSS annual percentage pay increase (home helps). Additional sources for adjustments for London and the rest of England: Health Service Indicators 1992/93, DP49, DP51, HA59 (National Health Service Executive, 1994); Laing and Buisson (1993), chapter 5; Bebbington and Kelly (1991), table 8; Department of Health (1994b), table 2; Health Service Indicators 1990/91, DN23, DP50 (National Health Service Management Executive, 1992); Department of Health (1991), table 1.

3   Sources (occupancy $\neq$ 1.00): Department of Health (1994b), tables 2 and 3; Department of Health (1995), table 6.

4   Source (proportion $\neq$ 1.00): Laing and Buisson (1994).

Table 5: Costs per Year of Excess or Shortfall of Occupied Beds by Patients Aged 75+ and Available Geriatric Beds, and Community Alternatives, at 1992/93 Prices

Type of area	Occupied beds by patients 75+ (000)	Available geriatric beds (000)	Nursing homes, residential homes & domiciliary care (000)	Overall costs excess (+)/shortfall (-) per year for occupied beds (000)	Overall costs excess (+)/shortfall (-) per year for available beds (000)
Inner London	-1502	6489	-81180	-82682	-74691
Outer London	2677	-6678	-205397	-202720	-212075
London	1175	-189	-286575	-285400	-286764
Rest of England	141284	-17792	59659	200943	41867

Table 6: Costs per Year of Current Provision and of Additional Provision in London, Adjusted to Maintain Overall Costs at Current Levels, at 1992/93 Prices

Hospital service and type of area	Cost of current provision[2] (£000)	Cost of additional provision[3] (£000)	Cost of current + additional provision (£000)	Adjusted cost of current + additional provision[4] (£000)	Excess (+)/shortfall (-) of adjusted cost relative to current provision (£000)	Change in adjusted cost relative to current provision (%)	Excess/shortfall[ll] of adjusted cost: population 75+ (£)
Occupied beds by patients 75+							
London	979938	285400	1265338	1217709	237771	+24	+516
Rest of England	6316766	0	6316766	6078995	-237771	-0.038	-81
England	7296703	285400	7582103	7296703	0	0	-
Available geriatric beds							
London	876002	286764	1162766	1114136	238134	+27	+517
Rest of England	5693950	0	5693950	5455816	-238134	-0.042	-81
England	6569952	286764	6856716	6569952	0	0	-

Notes:

1　Source run: 149.

2　Cost calculated using same unit costs as in table of costs of actual and predicted levels of provision.

3　Overall costs shortfall for occupied beds and available geriatric beds respectively.

4　(Cost of current + additional provision) x ratio of cost of current provision to cost of current + additional provision for England.

Table 7: Variables Examined in Regression Equations for Cross-Sectional Analysis[1]

Predictands

Name	Source(s)[2]	Description
HA593	HSI 92/93	Occupied bed days:resident population 75+ - 1992/93
HA59D3V2	HSI 92/93	Estimated occupied beds per day: (HA593*DP50A633*1000)/365
AVGBED93	KH03 92/93	Available geriatric beds per day - financial year 1992-93
AVGBD93R	KH03 92/93 HSI 92/93	Available geriatric beds:resident population 75+: AVGBED93/DP50A633

Predictor Variables

Name	Source(s)[2]	Description
DP50A631[3]	HSI 90/91	Total estimated resident population (in thousands) of the district aged 75+ at 30 June 1990
DP49A653[3]	HSI 92/93	Total estimated male resident population (in thousands) of the district aged 75-84 at 30 June 1992
DP49A643[3]	HSI 92/93	Total estimated male resident population (in thousands) of the district aged 85+ at 30 June 1992
DP51A653[3]	HSI 92/93	Total estimated female resident population (in thousands) of the district aged 75-84 at 30 June 1992
DP51A643[3]	HSI 92/93	Total estimated female resident population (in thousands) of the district aged 85+ at 30 June 1992
DP50A633	HSI 92/93	Total estimated resident population (in thousands) of the district aged 75+ at 30 June 1992: DP49A653+DP49A643+DP51A653+DP51A643
ML61A133	HSI 92/93	Annual standardised mortality ratio, persons aged 65+
ML61A63T	HSI 92/93	Standardised estimated annual number of deaths among persons aged 75+: (ML61A133*DP50A633)/100
LLIA75PL	1991 LBS	Persons with limiting long-term illness, living alone, aged 75+ LBS47042+LBS47084+LBS47056+LBS47098
LLIA75PR	1991 LBS HSI 92/93	Persons with limiting long-term illness, living alone, aged 75+:

		resident population 75+: LLIA75PL/DP50A633

Predictor Variables (cont'd)

Name	Source(s)[2]	Description
V93006	KO36 1993	Total registered beds for elderly long stay in private hospitals, homes and clinics - position at 31 March 1993
V93006R	KO36 1993 HSI 92/93	Total registered beds for elderly long stay:resident population 75+: V93006/DP50A633
V38820	RA/93/2	Number of places in local authority homes for elderly people - year ending 31 March 1993
V38821	RA/93/2	Number of places in voluntary homes for elderly people - year ending 31 March 1993
V38822	RA/93/2	Number of places in private homes for elderly people - year ending 31 March 1993
RA93PL	RA/93/2	Number of places in local authority, voluntary and private homes for elderly people - year ending 31 March 1993: V38820+V38821+V38822
V38820R	RA/93/2 HSI 92/93	Number of places in local authority homes for elderly people: resident population 75+: V38820/DP50A633
V38821R	RA/93/2 HSI 92/93	Number of places in voluntary homes for elderly people:resident population 75+: V38821/DP50A633
V38822R	RA/93/2 HSI 92/93	Number of places in private homes for elderly people:resident population 75+: V38822/DP50A633
DN23A631	HSI 90/91	Number of whole-time equivalent district nurses:100000 resident population 75+ - 1990/91
DN23A63T	HSI 90/91	Estimated number of whole-time equivalent district nurses - 1990/91: (DN23A631*DP50A631)/100
V23534	S/F 90/1	Number of whole-time equivalent home helps at 30 September 1990
V23534R	S/F 90/1 HSI 92/93	Number of whole-time equivalent home helps:1000 resident population 75+: V23534/DP50A633

Notes:
1 This table includes variables used in the predictions of levels of provision (see table 3).

2 Full details of sources are given in appendix 1.
3 Components of variables examined in the regression equations.
4 Variables from the 1991 Census of Population Local Base Statistics are identified by variable names of the form LBSttccc, where tt is the table number and ccc is the cell number.

Table 8: Correlation Matrix for Variables Examined in Regression Analyses of Rates of Service Provision

Predictands: HA593 (HSI 92/93: Occup Bed Days:Res Popn 75+); AVGBD93R (KHO3 92/93: Avl Geriat Beds:Res Popn 75+)

	HA593	AVGBD93R	LLIA75PR	ML61A133	V93006R	V38820R	V38821R	V38822R	DN23A631	V23534R
HA593	1.000									
AVGBD93R	0.356	1.000								
LLIA75PR	0.456	0.512	1.000							
ML61A133	0.296	0.414	0.753	1.000						
V93006R	-0.104	-0.140	-0.173	0.216	1.000					
V38820R	0.175	0.306	0.419	0.391	-0.026	1.000				
V38821R	-0.021	-0.054	-0.035	-0.024	0.067	-0.464	1.000			
V38822R	-0.388	-0.221	-0.409	-0.039	0.353	-0.056	-0.068	1.000		
DN23A631	0.151	0.193	0.390	0.406	0.116	0.214	0.143	-0.094	1.000	
V23534R	0.389	0.477	0.80 [2]	0.611	-0.064	0.415	0.009	-0.305	0.345	1.000

Notes:
1 Source run: 142.
2 Number of cases: 172-175 (total 178).

Table 9: Regression Equations for Cross-Sectional Analysis

Predictand: HA59D3V2 (HSI 92/93: Occ Beds/Day Est V2 (Pats 75+))

Predictor variables	Equation 1(a)		Equation 1(b)		Equation 2(a)		Equation 2(b)	
	b	t value	b	t value	b	t value	b	t value
Constant	1.0280	0.076	-7.0790	-0.482	-5.0309	-0.387	-14.8735	-1.079
DP50A633	1.9329	0.756	3.4895	1.163	2.0631	0.827	2.7174	0.938
LLIA75PL	0.0713	6.061	0.0635	3.798	0.0659	5.669	0.0654	3.992
V93006	0.0134	1.022	0.0143	1.045	0.0145	1.191	0.0186	1.484
V38820	0.0018	0.049	0.0210	0.536	0.0238	0.674	0.0454	1.249
V38821	-0.0208	-0.466	0.0088	0.184	0.0190	0.483	0.0467	1.144
V38822	-0.0458	-3.434	-0.0481	-3.623	-0.0419	-3.311	-0.0446	-3.532
DN23A63T	-		-0.2360	-1.968	-		-0.2571	-2.273
V23534	-		0.0670	0.967	-		0.0286	0.454
F	113.528		87.134		117.006		90.110	
p value	0.0000		0.0000		0.0000		0.0000	
R^2	0.834		0.839		0.812		0.817	
Adjusted R^2	0.826		0.829		0.805		0.808	
n	143		143		170		170	

Source run	152	152	150	150

Table 10: Regression Equations for Cross-Sectional Analysis

Predictand: AVGBED93 (KH03 92/93: Available Geriatric Beds/Day)

Predictor variables	Equation 1(a)		Equation 1(b)		Equation 2(a)		Equation 2(b)	
	b	t value	b	t value	b	t value	b	t value
Constant	18.1965	1.647	32.1670	2.740	20.6776	1.848	33.1395	2.863
DP50A633	3.9962	1.904	5.6344	2.272	2.8309	1.305	5.2426	2.081
LLIA75PL	0.0337	3.559	0.0176	1.301	0.0363	3.655	0.0136	0.974
V93006	0.0015	0.137	-0.0088	-0.774	-0.0008	-0.075	-0.0110	-1.002
V38820	-0.0078	-0.249	-0.0396	-1.224	-0.0007	-0.023	-0.0270	-0.846
V38821	0.0260	0.699	-0.0156	-0.398	0.0456	1.316	0.0150	0.422
V38822	-0.0082	-0.733	-0.0050	-0.453	-0.0038	-0.333	0.0002	0.018
DN23A63T	-		0.2393	2.447	-		0.2247	2.299
V23534	-		0.0785	1.449	-		0.1056	2.008
F	87.337		69.993		76.005		61.378	
p value	0.0000		0.0000		0.0000		0.0000	
R^2	0.794		0.807		0.737		0.753	
Adjusted R^2	0.785		0.795		0.727		0.741	
n	143		143		170		170	
Source	153		153		151		151	

run

Table 11: Regression Equations for Cross-Sectional Analysis

Predictand: HA593 (HSI 92/93: Occup Bed Days:Res Popn 75+)

Predictor variables	Equation 1(a)		Equation 1(b)		Equation 2(a)		Equation 2(b)	
	b	t value	b	t value	b	t value	b	t value
Constant	1.3250	1.783	2.3507	2.663	1.7644	2.378	2.0650	2.341
LLIA75PR	0.0197	6.180	0.0119	2.517	0.0169	5.179	0.0140	2.884
V93006R	0.0036	0.993	0.0015	0.402	0.0046	1.303	0.0039	1.078
V38820R	0.0103	0.858	0.0040	0.325	0.0117	1.011	0.0090	0.758
V38821R	0.0124	1.044	0.0063	0.513	0.0138	1.270	0.0110	0.981
V38822R	-0.0133	-3.522	-0.0136	-3.636	-0.0123	-3.350	-0.0123	-3.340
DN23A631	-		0.0004	0.817	-		0.0005	0.940
V23534R	-		0.0452	2.036	-		0.0106	0.545
F p value R^2 Adjusted R^2 n	18.702 0.0000 0.415 0.392 138		14.357 0.0000 0.436 0.406 138		16.477 0.0000 0.341 0.321 165		11.875 0.0000 0.346 0.317 165	
Source run	163		163		158		158	

Table 12: Regression Equations for Cross-Sectional Analysis

Predictand: AVGBD93R (KH03 92/93: Avl Geriat Beds:Res Popn 75+)

Predictor variables	Equation 1(a)		Equation 1(b)		Equation 2(a)		Equation 2(b)	
	b	t value	b	t value	b	t value	b	t value
Constant	1.9225	0.881	4.0080	1.496	0.2008	0.090	2.6391	0.986
LLIA75PR	0.0464	4.891	0.0327	2.285	0.0529	5.362	0.0361	2.477
V93006R	-0.0046	-0.418	-0.0083	-0.722	-0.0106	-0.973	-0.0125	-1.123
V38820R	0.0482	1.330	0.0382	1.014	0.0576	1.623	0.0462	1.262
V38821R	-0.0063	-0.176	-0.0141	-0.375	0.0144	0.432	0.0065	0.188
V38822R	-0.0081	-0.718	-0.0089	-0.788	-0.0048	-0.422	-0.0046	-0.406
DN23A631	-		-0.0002	-0.100	-		-0.0001	-0.068
V23534R	-		0.0892	1.355	-		0.0966	1.655
F	9.882		7.313		13.264		9.909	
p value	0.0000		0.0000		0.000		0.0000	
R^2	0.264		0.273		0.287		0.299	
Adjusted R^2	0.237		0.236		0.265		0.268	
n	144		144		171		171	
Source run	160		160		164		164	

Table 13: Variables Examined in Regression Equations for Longitudinal Analysis

Predictand

Name	Sources[1]	Description
AVGBDCH2	SH3 1985 KH03 92/93	Available geriatric beds per day, change 1985-1992/93

Predictor Variables

Name	Sources[1]	Description
EPOPCH2	PP1 85/2 HSI 92/93	Total estimated resident population (in thousands) aged 75+ at 30 June, change 1984-92
NURBDCH2	SBH 212 1985 KO36 1993	Total registered beds for elderly long stay in private hospitals, homes and clinics, change 1985-93
LARPLCH2	RA/85/2 RA/93/2	Number of places in local authority homes for elderly people[3], change 1985-93
VLRPLCH2	RA/85/2 RA/93/2	Number of places in voluntary homes for elderly people[3], change 1985-93
PRRPLCH2	RA/85/2 RA/93/2	Number of places in private homes for elderly people[3], change 1985-93

Notes:
1 Full details of sources are given in appendix 1.
2 Change measured as later number minus earlier number.
3 Homes for elderly people and homes for mixed client groups in 1985.

Table 14: Regression Equation for Longitudinal Analysis

Predictand: AVGBDCH2 (SH3 & KH03: Avl Ger Beds/Day Ch 1985-93)

Predictor variables		Equation	
Name	Description	b	t value
Constant		-30.0117	-2.891
EPOPCH2	Resident population 75+ (000s), change 1984-92	2.8309	0.813
NURBDCH2	Nursing home beds for elderly, change 1985-93	-0.0516	-4.083
LARPLCH2	Local authority home places for elderly, change 1985-93	0.1118	2.918
VLRPLCH2	Voluntary home places for elderly, change 1985-93	0.0440	0.932
PRRPLCH2	Private home places for elderly, change 1985-93	0.0038	0.191
F		9.023	
p value		0.0000	
R^2		0.215	
Adjusted R^2		0.191	
n		171	
Source run		128	

Table 15: Moves between Counties of Males Aged 75+ with Limiting Long-term Illness in 1991, in the Period 1981-91

County	Number in 1991	Proportion of those living here in 1991 who had moved in (%)	Proportion of those living here in 1981 who had moved out (%)
London	1473	2.6	17.2
Greater Manchester	703	4.3	6.9
Merseyside	401	4.8	7.5
Tyne and Wear	281	6.4	6.7
West Midlands	581	4.3	9.0
South Yorkshire	360	3.6	5.7
West Yorkshire	496	5.8	5.8
All other English counties (average)	7526	13.9	10.2
All Welsh counties (average)	772	9.5	6.9

Note:
1 Source: OPCS Longitudinal Study.

Table 16: Destination and Distance Moved of Migrants Aged 75+ with Limiting Long-term Illness in 1991, in the Previous Year

Destination	Area of origin			
	London		Elsewhere[2]	
	Number	%	Number	%
Own home (as head of household or partner of HOH)	25	34	70	29
Move in with others (mainly siblings or children)	12	16	66	27
Housing association (sheltered housing)	4	5	15	6
Health related establishments (including residential care)	33	45	92	38
Total	74	100	243	100
Average distance moved	Kms	Number	Kms	Number
To private household	37	225	22	1807
To health related establishment	15	175	9	1870

Notes:
1 Source: 1991 Census of Population Sample of Anonymised Records (2% sample). Figures may be multiplied by 50 to give population estimates (omitting Census non-respondents). Migrants in the upper table are migrants between regions (with London regarded as a separate region) in the year preceding the Census, excluding international migrations. Migrants in the lower table are all movers, except international migrations.
2 Rest of England and Wales.

Table 17: Levels of Need among People Aged 75+ Living in the Community

Need	Area of origin			
	London		Elsewhere[2]	
	Number	%	Number	%
Very disabled, lives alone	15	9.3	68	5.2
Other	146	90.7	1229	94.8
Total aged 75+	161	100.0	1297	100.0

Notes:
1 Source: Reanalysis of 1991 General Household Survey. Very disabled means includes people who find one or more of the following very difficult or impossible: getting up and down stairs and steps; getting around the house (except stairs); getting in and out of bed; wash face and hands; feed including cutting up food; use the toilet.
2 Rest of England and Wales.
3 Pearson χ^2 = 4.43 on 1 d.f. (p = 3.5%).

APPENDIX 1: SOURCES OF DATA

A number of datasets of district health authority-based information were acquired specifically for the study, as follows:

1. 1991 Census of Population Local Base Statistics for England and Wales (Manchester Computer Centre, 1992).
2. 1990/91 Health Service Indicators for England (National Health Service Management Executive, 1992).
3. 1991/92 Health Service Indicators for England (National Health Service Management Executive, 1993).
4. 1992/93 Health Service Indicators for England (National Health Service Executive, 1994).
5. Private hospitals and nursing homes at 31 March 1991, recorded on form KO36 (Department of Health, 1992).
6. Private hospitals and nursing homes at 31 March 1992, recorded on form KO36 (Department of Health, 1993c).
7. Private hospitals and nursing homes at 31 March 1993, recorded on form KO36 (Department of Health, 1994a).

In addition, a number of datasets were drawn on to provide specific items of information, as follows:

1. Number of whole-time equivalent home helps at 30 September 1990, tabulated in Department of Health statistics S/F 90/1 (Department of Health, 1991).
2. Number of places in residential homes for elderly people and for mixed client groups at 31 March 1985, tabulated in DHSS statistics RA/85/2 (Department of Health and Social Security, nd(b)).
3. Number of places and residents in residential homes for elderly people and number of elderly residents in residential homes at 31 March 1991, tabulated in Department of Health statistics RA/91/2 (Department of Health, nd).
4. Number of places and residents in residential homes for elderly people and number of elderly residents in residential homes at 31 March 1992, tabulated in Department of Health statistics RA/92/2 (Department of Health, 1993d).
5. Number of places and residents in residential homes for elderly people and number of elderly residents in residential homes at 31 March 1993, tabulated in Department of Health statistics RA/93/2 (Department of Health, 1994b).
6. Total number of beds and total number of beds for elderly long-stay patients in private hospitals and nursing homes at 31 December 1985, recorded on form SBH 212 (Department of Health and Social Security, 1986).
7. Total number of beds and total number of beds for elderly long-stay patients in private hospitals and nursing homes at 31 December 1986, recorded on form SBH 212 (Department of Health and Social Security, 1988).
8. Average of daily number of available beds for patients in wards for elderly general patients, 1982 to 1992-93, recorded on form SH3 before 1987/88 and form KH03 from 1987/88 (Department of Health, 1993a).
9. Estimated mid 1985 resident population aged 75 and over for health authority areas, tabulated in OPCS Monitor PP1 85/2 (Office of Population Censuses and Surveys, 1985).

Where district health authority and local authority boundaries differed, local authority-based information on residential care homes and home helps was allocated to district health authorities in proportion to the total resident population using the 1991 Census. Information on service provision by district health authority in 1985/86 was taken from similar sources. Where necessary, amalgamations of 1985 authorities were made to the 178 district health authorities existing in 1992/93[11]. Some other data for 1990/91 and 1991/92 were also obtained for the purpose of examining short-term changes, but are not reported here.

Information on the unit costs of provision and price indices was obtained from the publications by Netten (1994) and Netten and Dennett (1995), and information on levels of fees charged by private residential care and nursing homes was obtained from Laing and Buisson (1993). Analyses of migration were undertaken using the OPCS Longitudinal Study (Social Statistics Research Unit, 1990) and the 2 per cent Sample of Anonymised Records for individuals from the 1991 Census of Population (Census Microdata Unit, 1993). In addition, the dataset prepared for the University of York Resource Allocation Study (Carr-Hill et al., 1994) was acquired, although it was not possible to make use of this dataset for the study.

The analyses for the study were based on the 178 district health authorities for which the 1992/93 Health Service Indicators were produced. As a result of administrative changes, data for previous years were based on different groups of district health authorities. However, with the exception of the formation of Parkside Health Authority and Bloomsbury and Islington Health Authority, each of which received part of the former Bloomsbury Health Authority (Office of Population Censuses and Surveys, 1994), the administrative changes only involved simple amalgamations of two or three district health authorities to form one new district health authority. Data for previous years were combined to reproduce the 178 district health authorities, using information on the amalgamation of district health authorities contained in issues of *The Hospitals and Health Services Year Book* (now *The Health Services Year Book* (The Institute of Health Services Management, 1994)) and in the Office of Population Censuses and Surveys publication *Key Population and Vital Statistics* (OPCS, 1994). For the majority of the analyses undertaken the division of the former Bloomsbury Health Authority was unimportant. In terms of population, the greater part of Bloomsbury Health Authority was incorporated in Bloomsbury and Islington, and therefore data for Bloomsbury were allocated to Bloomsbury and Islington. If required, a reallocation of the information for Bloomsbury Health Authority to Parkside and to Bloomsbury and Islington according to relative population could be undertaken.

District health authorities were classified as being in Inner or Outer London according to the classification of the corresponding local authority or local authorities used in the personal social services statistics prepared by the Department of Health (Department of Health, 1994b). Eleven district health authorities were classified as being in Inner London and 17 as being in Outer London, as follows:

Inner London	**Outer London**
E14 Riverside	E07 Barnet
E17 Parkside	E08 Harrow
F07 Hampstead	E09 Hillingdon
F10 City & Hackney	E10 Hounslow & Spelthorne
F12 Tower Hamlets	E11 Ealing
F22 Bloomsbury & Islington	F06 Barking, Havering & Brentwood

[11] Although the administrative changes mainly involve simple amalgamations, Bloomsbury Health Authority was divided between Parkside Health Authority and Bloomsbury and Islington Health Authority. This causes problems in certain analyses which are referred to below.

G11 Greenwich   F11 Newham
G13 West Lambeth   F13 Enfield
G14 Camberwell   F14 Haringey
G15 Lewisham & North Southwark   F15 Redbridge
H12 Wandsworth   F16 Waltham Forest
                                         G10 Bexley
                                         G12 Bromley
                                         H09 Croydon
                                         H10 Kingston & Esher
                                         H11 Richmond, Twickenham & Roehampton
                                         H13 Merton & Sutton

The codes shown in the above list are the standard health authority codes (National Health Service Executive, 1994). Two health authorities in 1992/93, Parkside and Richmond, Twickenham and Roehampton, included parts of Inner and Outer London boroughs. Although approximately 60 per cent of the population of Parkside was in Brent, in Outer London, at the time of the 1991 Census of Population, its geographical location indicated that it should be classified in Inner London. Approximately 70 per cent of Richmond, Twickenham and Roehampton was in Richmond upon Thames, and so it was classified in Outer London.

The analyses for the study were conducted using the SPSS package (SPSS Inc., 1990). The separate SPSS system files created for the information on private hospitals and nursing homes were already available for analysis using the SPSS package, and the data on Census local base statistics and other services stored in the PSSRU Local Authorities Statistics Database were extracted from the database and combined. The files created for the analyses contain subsets of the original datasets, but complete datasets for the 1991 Local Base Statistics, the health service indicators for 1990/91, 1991/92 and 1992/93, staff of local authority social services departments and residential accommodation are available within the PSSRU Local Authorities Statistics Database, and can be extracted for further analysis, while datasets for private hospitals and nursing homes for 1991, 1992 and 1993 are available in SPSS system files.

APPENDIX 2: INTERVIEW SCHEDULE FOR DISCUSSIONS WITH NHS CARE PURCHASERS

ALTERNATIVES TO LONG-TERM HOSPITAL CARE FOR ELDERLY PEOPLE IN LONDON

Interview with (Name), (Name) Health Authority, (Date)

A. Introduction

Reasons for study

Analysis based on 1992-93 data

Expectations about future developments

B. Administrative arrangements

Description of health authority, dates of changes, and responsibilities

Description of trusts, their location and their responsibilities

Description of FHSAs and their geographical relationship with HA constituents

Joint commissioning arrangements in 1992-93, and subsequently

C. Health provision

Acute hospital provision for elderly people and its geographical location

Long-stay hospital provision for elderly people and its geographical location

Changes in acute and long-stay provision, by geographical location

Problems arising from level of provision, and how solve these

D. Alternatives to long-stay hospital provision

Independent nursing home provision, balance between voluntary and private, and balance between corporate and singly-owned homes

Independent residential provision, balance between voluntary and private, and balance between corporate and singly-owned homes

Local authority residential provision

Local authority domiciliary provision, and provision of intensive home care

Other alternatives, eg extra care sheltered housing

Geographical variations in alternatives

E. Use of alternatives to long-stay hospital provision

      Use of alternatives within HA, and relocation within HA to areas with more provision

      Use of alternatives outside HA, and, if so, where

      Number of patients being placed in alternative forms of care, within and outside HA

      Effect of shortage of substitutes on use of long-stay and acute hospital provision, and any identified costs

F. Factors influencing use of alternatives

      General strategy towards purchasing alternative forms of care, and types considered suitable

      Influence of local policies on purchasing alternative forms of care

      Influence of variations in provision of alternatives on placements

      Geographical range considered in use of alternatives outside HA

      Influence of differential charges by residential and nursing homes, and levels of current and 1992-93 charges

      Influence of quality of homes on placements, and how and by whom quality assessed

      Local authority support for former hospital patients, and willingness to use costlier nursing homes

      Role of joint planning in developing arrangements for using alternatives

G. Factors affecting supply

      Distinction between corporate and single-ownership

      Property costs and availability, and variations within health authority

      Labour costs and availability, and alternative employment including in health service

      Target clientele of homes, and differences between residential and nursing and between voluntary and private

      Transfer of local authority homes, and effect on target clientele of homes

      Local authority registration policies, in terms of location and quality of provision

      Health authority registration policies, in terms of location and quality of provision

H. Developments in the supply of alternatives

Potential for increases in provision of private and voluntary residential and nursing homes

Potential for increases in other forms of alternative provision

Changes in potential for increased provision during last two years

Further developments anticipated over next two years

I. Stimulation of supply

Current attitude of health authority to promoting development of alternatives by independent sector

Role of health authority and clinicians in encouraging supply, or merely reactive

Pressures and incentives for health authority to promote development of alternatives, and changes over last two years

Use of contracting mechanisms, eg spot vs block contracts

Response from private and voluntary provider agencies to different contracting arrangements

Barriers to further development of alternatives, and changes over last two years, for example in labour market

J. Closure

Expectations and ambitions for development of alternatives in health authority over next two years

Impact of further development of alternatives on health authority

Other issues