What Types of Home are Closing? The Characteristics of Homes That Closed Between 1996–2001

Robin Darton

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Abstract

Closures of care homes have received considerable public attention. Fee levels and the cost of upgrading homes to meet the national minimum standards have been identified as the main factors influencing closures. This paper compares private residential homes, dual registered homes and nursing homes for older people that had closed between 1996 and 2001 with homes that remained open. Homes that closed tended to be smaller; to have had lower occupancy levels in 1996; to be the only home run by the organisation; to occupy converted buildings; to occupy multi-storied buildings and if so, to have no lift; to have more shared bedrooms; and to have en-suite facilities in none or only some of the bedrooms. These factors were inter-related and the effect of these variables in combination was examined using multivariate (logistic regression) analysis. Among the homes that remained open, only 34 per cent provided at least 80 per cent of places in single rooms, which was to have become the national minimum standard for existing homes until the standards were amended in March 2003. A separate analysis of data on social climate found that homes with a more positive social environment were those most likely to have closed. The findings support the view that there is likely to be an increase in the importance of homes run by corporate providers relative to homes run as single, owner-managed homes, with a consequent reduction in choice for potential residents. At the same time, projections of future demand in a range of countries indicate that a considerable increase in provision will be required to meet the expected growth in the population of dependent older people, while developments in alternative forms of accommodation are unlikely to meet the growth in demand in the foreseeable future.

***Keywords*:** care homes, home closures, national minimum standards, older people

Introduction

In the UK, care home closures have received considerable public attention (House of Commons, 2000; Bunce, 2001; Mitchell, 2001; Pollock, 2001; Steele, 2001). Between 1998 and 2001, registered beds in nursing and mental nursing homes decreased by 9.5 per cent (Department of Health, 2002a), and places for older people and mentally infirm older people in residential homes decreased by 3.2 per cent (Department of Health, 2001c). Two main factors contributing to closures have been identified: inadequate local authority fees for publicly-funded residents, and the anticipated costs of upgrading homes to meet national minimum standards (Laing & Buisson, 2002; Netten et al., 2002b; Williams et al., 2002).

Similar concerns have been raised internationally. In 1998, the US Medicare system was changed in order to control expenditure, resulting in widespread concern about profitability among nursing home providers (Dalton and Howard, 2002). Public attention was raised by a few bankruptcies among nursing home chains (Dalton and Howard, 2002), and more than 10 per cent of nursing home facilities were reported to be bankrupt in 2000 (Wood, 2002).

Angelelli et al. (2003) identified low occupancy and a high proportion of Medicaid residents as being associated with both voluntary and involuntary terminations. Smaller facilities were also more likely to have closed voluntarily. Morgan et al. (2002) suggest that smaller assisted living facilities are less likely to meet standards. They also note that existing quality measures tend to omit the interpersonal dimension of quality.

In the UK, the Care Standards Act 2000 established the National Care Standards Commission to take responsibility for registering and inspecting residential and nursing homes ('care homes'), and to apply national minimum standards to all homes from April 2002. The proposed standards were published in September 1999 (Department of Health, 1999b). Opposition from providers focused on the requirement to have fixed staffing ratios and on the proposed physical standards, particularly for bedrooms (Laing & Buisson, 2001b), and the national minimum standards were published in March 2001 with a number of amendments (Department of Health, 2001b). Following concerns that the new standards could lead to good quality homes closing, the government issued guidance in January 2002 to indicate that the needs of residents may be met without making the changes specified by the standards (Department of Health, 2002d). However, continued concern about the ability of existing homes to meet the standards led the government to issue an amended set of standards in March 2003 (Department of Health, 2003). These were to be treated as good practice for all homes, but would not be a requirement for homes that existed prior to April 2002. All new homes, extensions and first time registrations have been required to provide all places in single rooms from April 2002. Existing homes are required to maintain the proportion of single rooms at the level that prevailed in August 2002, and shared rooms are limited to double rooms.

The national minimum standards for single and shared rooms in existing homes were originally set for designing new residential homes for elderly people in the 1973 Building Note (Department of Health and Social Security, 1973), which specified a maximum of 20 per cent of places in double rooms. This superseded the 1962 Building Note, which indicated that at least 40 to 50 per cent of beds should be in single rooms, 30 to 40 per cent should be in double rooms, and that no more than 10 to 20 per cent should be in four-bedded rooms (Ministry of Health, 1962). Prior to the new common standards there were no equivalent

specific recommendations for nursing homes, although most health authorities advised that most beds should be in single rooms (Laing & Buisson, 1997).

The government has also allocated additional funds to enable local authorities to enter into long-term agreements with independent sector providers and, where necessary, to increase fees, in order to develop and improve services and to help stabilise the care home sector (Department of Health, 2001a, 2002b). In particular, funds have been allocated to overcome the problem of delayed hospital discharge (Cm 5503, 2002).

It is inevitable that some homes will close, whatever regulatory regime exists. Although commentaries on closures have focused on the likely effect of the new standards on the costs of running a home, other factors also contribute to closures. For example, changes in the demand for publicly-funded places, problems in recruiting staff, high property prices, and difficulties in negotiating contracts with local authorities (Netten et al., 2002b; Williams et al., 2002).

This paper compares the characteristics of homes that had closed between 1996 and 2001 with those of homes that remained open, using a follow-up to a 1996 national survey (Netten et al., 2001). The paper is concerned with recent issues relating to closures, and focuses on private residential homes, dual registered homes and nursing homes. The number of local authority residential homes has declined since the mid-1980s (Department of Health, 1994), as a result of transfers to the voluntary sector and increasing use of home care and independent sector provision, and have been excluded. The number of voluntary residential homes has declined since 1996 (Department of Health, 2001c), but at a slower rate than private homes. However, very few voluntary homes in the 1996 survey had closed by 2001 and these have also been excluded. Although homes are now termed ‘care homes’, the previous terminology has been retained since 1996 data have been used.

Methods

The 1996 survey covered local authority residential homes and independent (private and voluntary) residential, nursing and dual registered homes, except homes with fewer than four places. A two-stage sampling procedure was employed: 21 local authorities were selected using a stratified sampling procedure; then 822 homes were selected with probability proportional to size. Similar numbers of each type of home were selected, resulting in relative oversampling of local authority and voluntary residential homes. Information was obtained for 673 homes (82 per cent), although one home had a majority of residents aged under 65. In March 2001 the current status of each home was obtained from the relevant local authority or health authority registration and inspection unit, using a postal questionnaire.

Since this paper is concerned with the characteristics of the respondent homes that closed, the majority of the analyses have been conducted without weighting the data to adjust for the different probabilities of selection of homes or varying response rates (Netten et al., 2001). However, weighted data have been used in the analysis of the impact of home closures on the number of places.

In the statistical tests presented, chi-squared tests with one degree of freedom were computed with a correction for continuity. In tests of differences between means (*t* tests), a preliminary Levene test of the hypothesis of equal variances was undertaken. Where equal variances could not be assumed, the approximate number of degrees of freedom for the *t* test was

calculated using Satterthwaite's method. (See Snedecor and Cochran, 1980.) The combined effect of factors associated with home closures was examined using logistic regression analysis, first by including all the independent variables, and then by using backwards stepwise logistic regression analysis, with the change in the likelihood ratio as the criterion for identifying non-statistically significant variables, to identify a more parsimonious equation. The statistical analysis was undertaken using SPSS for Windows, Release 11.5.0 (SPSS, 2002).

Findings

Response

For the 21 local authorities in the 1996 survey, there were 47 registration and inspection units in 2001, although one London borough had no nursing homes. Responses were obtained from 40 of the 46 relevant units, relating to 624 of the 672 homes catering for older people (93 per cent), in 20 of the 21 local authorities. Four local authority units, one health authority unit and one joint inspection unit did not respond. However, three of the four local authority units were in local authorities with more than one registration and inspection unit. As a result, 18 of the 20 local authorities had closure information for residential, dual registered and nursing homes, one had information for residential and dual registered homes, and one had information for dual registered and nursing homes.

Between 12 and 15 per cent of private residential homes, dual registered homes and nursing homes had closed (table 1). The difference between the proportions was not statistically significant ($X^2 = 0.31$, 2 df, $p = 0.856$), and subsequent tables are based on all three types of home combined. Among local authority homes and voluntary residential homes, 15 per cent and 4 per cent were reported to have closed, respectively.

Table 1: Type of home for homes in 1996 survey, by status in 2001

	Not closed		*Closed*		*All homes*
	No.	*%*	*No.*	*%*	*No.*
Number of homes	548	88	76	12	624
Type of home					
Local authority home	124	85	22	15	146
Voluntary residential home	106	96	4	4	110
Private residential home	120	86	20	14	140
Dual registered home	64	85	11	15	75
Nursing home	134	88	19	12	153

Comparison of Homes that Closed with Those that Remained Open

Registration and inspection unit region

Closure rates in the London, South East and South West regions (16 per cent, 18 per cent and 15 per cent, respectively) were higher than the national average (14 per cent). However, the highest proportion of closures, 19 per cent, was in the Trent region. Among private residential homes, 80 per cent that closed were in the London, South East and South West regions. In contrast, similar numbers of nursing homes and dual registered homes closed in the northern part as in the southern part of the country.

Year of closure

The closures of dual registered homes and nursing homes were distributed throughout the period between the 1996 survey and the 2001 follow-up. For private residential homes, the majority of closures for which the date was recorded occurred in 1998 and 2000 (12 of 15 cases).

Reason for closure

The main reason for closure was recorded using the same categories as in a national survey of registration and inspection units (Netten et al., 2002b): business failure, including financing, occupancy or staff recruitment problems; enforcement action or cancellation of registration; or other reasons, for example retirement. As in the national survey, respondents were not always able to state the reason for closure, particularly for residential homes. Where the reason was recorded, business reasons predominated for dual registered and nursing homes (19 of 27 cases), whereas other reasons predominated for private residential homes (seven of nine cases).

Ownership

Table 2 shows that the probability of closure was not related monotonically to length of ownership (Mann-Whitney test: $z = -1.42$, p (asymptotic) = 0.155). Instead, homes that closed were more likely to have been owned for a long time (ten years or more) or for a very short time (under one year). In addition, single homes were more likely to have closed than those owned as part of a chain (Mann-Whitney test: $z = -2.29$, p (asymptotic) = 0.022).

Table 2: Length of ownership and size of organisation for homes in 1996 survey, by status in 2001

	Not closed		*Closed*		*All homes*
	No.	*%*	*No.*	*%*	*No.*
Number of homes	318	86	50	14	368
Length of ownership					
Under 1 year	23	82	5	18	28
1–5 years	86	91	8	9	94
5–10 years	110	87	16	13	126
10 years and over	99	83	21	18	120
Number of homes owned by organisation					
1	170	83	35	17	205
2	38	88	5	12	43
3–10	57	89	7	11	64
More than 10	50	94	3	6	53

Size of home and occupancy

Table 3 shows that homes that closed were smaller, on average, than those that had not closed (t = 4.74, 122 df (approximate), $p < 0.001$). This is consistent with the finding that single homes, which tend to be smaller than homes owned as part of a chain, were more likely to have closed. Homes that closed also had a lower level of occupancy at the time of the 1996 survey (t = 4.48, 56 df (approximate), $p < 0.001$).

Table 3: Size and occupancy of homes in 1996 survey, by status in 2001

	Not closed	*Closed*	*All homes*
Number of homes	318	50	368
Number of places			
Mean	39	28	38
Standard deviation	24.7	12.4	23.7
Median	34	28	33
1st quartile	23.0	19.0	22.0
3rd quartile	48.3	38.0	45.0
Occupancy (% of places)			
Mean	87	74	86
Standard deviation	13.9	21.1	15.8
Median	93	75	91
1st quartile	81.2	58.3	78.6
3rd quartile	97.1	90.5	96.7

Homes with lower levels of occupancy in 1996 tended to close earlier in the period. Among the homes for which the date of closure was reported, 46 per cent of those with under 85 per cent occupancy had closed by the end of 1998, compared with 33 per cent of those with higher occupancy levels.

Original function and design of the building

Table 4 shows that 18 per cent of homes that had been converted from other uses had closed, compared with 2 per cent that were purpose built (X^2 = 13.42, 1 df, $p < 0.001$), and that homes that closed were almost entirely multi-storied buildings. Of the 14 such buildings without a lift, five (36 per cent) were reported to have closed.

Bedroom sizes and facilities

Homes that closed were more likely to have shared bedrooms. In homes that had not closed, 67 per cent of beds were in single bedrooms at the time of the 1996 survey, compared with 56 per cent in homes that had closed (t = 3.15, 365 df, p = 0.002). Conversely, in homes that had not closed, 31 per cent of beds were in double rooms, compared with 40 per cent in homes that had closed.

Although the national minimum standards for shared rooms have been amended, the standards indicated in the 1962 and 1973 building notes provide a convenient means of classifying homes. Table 4 shows that homes that closed were more likely to fall below both standards (20 per cent) than to exceed at least the 1962 standard (10 per cent) (X^2 = 6.31, 1 df, p = 0.012). Homes that met the 1973 standard were slightly more likely to have closed (11 per cent) than homes that met the 1962 standard (9 per cent).

In terms of the time of home closure, there was little difference between homes that conformed to the standards for bedroom sizes and those that did not. Indeed, among the homes for which the date of closure was reported, 32 per cent of homes that did not conform to the 1962 standard closed in 2000 or 2001, compared with 37 per cent that did conform to the standard.

Only 34 per cent of the homes that remained open met the 1973 standard. However, larger homes, which were more likely to meet the standard, were over-represented in the sample. After reweighting the data, 30 per cent of homes that remained open met the 1973 standard.

Table 4 also shows that none of the homes with en-suite facilities in all residents' bedrooms had closed (Mann-Whitney test: z = –3.47, p (asymptotic) = 0.001 for en-suite toilets). However, only 4 per cent of the homes in the 1996 survey had an en-suite shower or bath in all bedrooms. For en-suite toilets, the figure was 13 per cent.

A combined measure of the physical standards of the home, based on meeting the 1962 recommendations for bedroom sizes and having the accommodation on a single storey or having a lift, is also shown in table 4. The 1962 standard discriminated more clearly between homes that closed and homes that remained open than the 1973 standard. Among the homes that closed, 20 per cent did not meet the criterion specified by the combined measure, compared with 9 per cent that met the criterion (X^2 = 7.66, 1 df, p = 0.006).

Table 4: Design of building and facilities provided by homes in 1996 survey, by status in 2001

	Not closed		*Closed*		*All homes*
	No.	*%*	*No.*	*%*	*No.*
Number of homes	318	86	50	14	368
Original function of building					
Purpose-built home	94	98	2	2	96
Not purpose built	223	82	48	18	271
Lift and number of storeys					
No lift, 1 storey	28	97	1	3	29
Lift available	281	86	44	14	325
No lift, more than 1 storey	9	64	5	36	14
Bedrooms and building note standards					
Met 1973 BNS	109	89	13	11	122
Met 1962 BNS only	99	91	10	9	109
Below both BNS	109	80	27	20	136
En-suite shower or bath					
All bedrooms	14	100	0	0	14
Some bedrooms	135	87	21	13	156
No bedrooms	169	85	29	15	198
En-suite toilets					
All bedrooms	48	100	0	0	48
Some bedrooms	179	87	26	13	205
No bedrooms	91	79	24	21	115
Physical standards					
Met 1962 BNS, 1 storey or lift	202	91	21	9	223
Below BNS or no lift, >1 storey	115	80	29	20	144

The impact of converting bedrooms to increase the provision of single rooms

The conversion of larger rooms into single or double rooms would need to be achieved without sacrificing financial viability. Since a sustainable long-term occupancy rate is believed to be about 90 per cent (Laing, 2002), a reduction of 10 per cent in the number of places was assumed to be feasible. Among the homes that remained open, 56 per cent either provided at least 80 per cent of places in single rooms, or would have been able to achieve this standard with no more than a 10 per cent reduction in the number of places. The 1996 survey suggested that homes would require at least 70 per cent of places to break even, although this was based on responses from only 16 per cent of homes. If homes were able to achieve a reduction to this level, 90 per cent of homes could meet the standard. However, these figures slightly underestimate the likely effect on the overall number of places since larger homes, which were more likely to meet the standard, were over-represented in the sample.

Activities and services

Homes that provided an organised activity programme for residents tended to be less likely to have closed (13 per cent) than homes that organised no such programme (18 per cent). However, only 8 per cent of homes did not provide such a programme.

With the exception of day care and bathing services, which were provided by 33 per cent and 15 per cent of homes, respectively, few services were provided for non-residents. Among homes that provided any of 18 different services for non-residents, 13 per cent had closed, compared with 14 per cent that provided none of the services ($X^2 = 0.13$, 1 df, $p = 0.908$).

Resident financial characteristics

Overall, nearly 70 per cent of residents in the 1996 survey were permanent and publicly funded (Netten et al., 2001), but the proportion of privately-funded residents ranged from zero to 100 per cent. Homes that closed had slightly lower proportions of privately-funded residents (22 per cent) than homes that remained open (25 per cent), but the difference was not statistically significant ($t = 0.86$, 327 df, $p = 0.389$).

Staffing levels and qualifications

Staff salaries and wages form the principal item in the running expenses of a home (Laing & Buisson, 2001a), and the introduction of the National Minimum Wage and the Working Time Directive and pay awards to nurses have increased costs (Laing & Buisson, 2001b). However, homes that closed tended to have slightly lower ratios of staff to places in 1996 (26 hours per place per week), than homes that remained open (27 hours per place per week). Homes that had staff with nursing or social work qualifications were slightly more likely to have closed than homes that did not (15 per cent compared with 11 per cent for nursing qualifications, and 18 per cent compared with 14 per cent for social work qualifications), whereas homes that had staff with other qualifications, such as NVQs (National Vocational Qualifications), were slightly less likely to have closed than homes without such staff (13 per cent compared with 15 per cent). However, the differences between the proportions of homes with qualified staff among those that had closed and those that remained open were small. Very few homes had staff undergoing social work training (3 per cent). More homes had staff undergoing nursing training (17 per cent) or training for other qualifications (73 per cent), but this was not related to whether homes had closed or not.

Area factors

In addition to the characteristics of individual homes, the associations between home closures and the supply of residential and nursing homes, house prices and wage rates were examined at the local authority level, based on data for 20 local authorities.

The supply of residential and nursing homes places for 1998 was obtained from Department of Health statistics (Department of Health, 1998, 1999a). Information for nursing homes was based on health authority boundaries and was allocated to local authorities in proportion to the mid-1997 resident population estimates (Office for National Statistics, 1998), where the boundaries differed. The correlation between the proportion of closures and the estimated level of supply was small ($r = 0.10$, $p = 0.676$).

In areas where house prices are relatively high, owners of homes have a greater incentive to sell their home for redevelopment. Average house prices for October–December 1999 and October–December 2000 were obtained from statistics published by HM Land Registry (2000). Although the correlation between the proportion of closures and average house prices for each year was positive, neither was statistically significant (r = 0.254, p = 0.280; r = 0.271, p = 0.249).

Owners of homes may also be more likely to close their home in areas with relatively high wages. Average gross weekly earnings for full-time employees for 1999 were obtained from New Earnings Survey data (Office for National Statistics, 1999). The correlation between the proportion of closures and wage rates was positive, but was not statistically significant (r = 0.37, p = 0.107).

Logistic Regression Analysis

The factors associated with home closures were inter-related. For example, purpose-built homes were larger, on average, they were more likely to be owned as part of a chain, they had higher occupancy levels and they had higher standards of provision. Logistic regression analysis was used to examine the relative effect of the factors in combination. However, the use of the 0.05 level of statistical significance as a screening criterion for the selection of candidate variables is likely to fail to identify important variables, and a more conservative level of 0.25 has been recommended (Hosmer and Lemeshow, 1989). The following variables were associated with home closures with p-values in the range 0.25–0.05: length of ownership; the provision of laundry services; the provision of meals on wheels; and the supply of residential and nursing places. These factors were also included in the logistic regression analysis. None of the homes that closed had en-suite toilets in all bedrooms. In such cases, the absence of the corresponding 'cells' of information creates numerical problems in the computations (Hosmer and Lemeshow, 1989). This was overcome by comparing homes with en-suite toilets in some or all bedrooms with homes with no en-suite toilets (X^2 = 7.56, 1 df, p = 0.006).

The (binary) dependent variable identified whether the home remained open (coded '0') or had closed (coded '1') by 2001. Including all the independent variables resulted in an equation with home size and occupancy reaching the 0.05 level of statistical significance. A backwards stepwise logistic regression analysis, using the change in the likelihood ratio as the criterion for identifying non-statistically significant variables, was used to identify whether any of the other independent variables reached statistical significance in a more parsimonious equation. In addition to home size and occupancy, the variable identifying purpose-built homes reached the 0.05 level of statistical significance. Since purpose-built homes had higher standards of provision, the effect of substituting one of the measures of physical standards was examined. Substituting the proportion of single bedrooms, or whether the home met the standards for bedroom provision specified in the 1962 Building Note, or the combined measure of the physical standards of the home yielded similar equations.

Fourteen per cent of homes had closed. In logistic regression analyses of datasets with unequal relative frequencies of the two outcomes, the estimated prediction probabilities are lower for the less frequent outcome (Cramer, 1999), and Cramer recommends using the overall proportion of successful outcomes as the cut-off point, rather than 50 per cent, for determining the proportion of correct predictions. Including all the independent variables in

the equation resulted in the status in 2001 of 74 per cent of homes being correctly classified, using a cut-off of 14 per cent, whichever one of the three measures of physical standards was included. However, the three-variable equation including whether homes were purpose built correctly classified 69 per cent of homes, whereas the equations including one of the physical standards of provision correctly classified 73–74 per cent of homes. Table 5 shows the equation including the combined measure of the physical standards of the home. The odds of closure relative to the odds of remaining open changed by a factor of 0.962 for each increase of one place, and by a factor of 0.953 for an increase in occupancy of one per cent. The adjusted odds of closure for homes that did not meet the standard for bedroom sizes or which had the accommodation on several storeys without a lift were twice those for homes that met the standard and either had the accommodation on a single storey or had a lift.

Table 5: Logistic regression equation comparing homes that had closed with those that remained open in 2001

	Estimated coefficient	*Standard error*	*p-value*	*Adjusted odds ratio*	*95% CI for odds ratio*	
					Lower	*Upper*
Independent variables						
Number of places	–0.038	0.012	0.001	0.962	0.940	0.985
Occupancy	–0.049	0.009	<0.001	0.953	0.936	0.970
Below BNS/no lift, >1 storey	0.724	0.334	0.030	2.062	1.072	3.966
Constant	3.018	0.887	0.001	20.458		

Goodness-of-fit statistics:
Model chi-square (change in –2 log likelihood) = 48.229 (3 df, $p < 0.001$)
Cox & Snell $R^2 = 0.123$
Nagelkerke $R^2 = 0.224$

Correct predictions (cut-off 13.7%):
Open homes in 2001 74.1%
Closed homes in 2001 70.0%
Overall 73.6%

Separate analysis by type of home

Dummy variables were introduced into the equation shown in table 5 to test for differences between types of home, but their coefficients were not statistically significant (dual registered homes: $p = 0.221$; nursing homes: $p = 0.152$). However, separate analyses indicated that the factors associated with closure varied by type of home. For private residential homes, there was no difference between the mean size of homes that closed (23 places) and homes that remained open (24 places), but dual registered homes and nursing homes that closed were smaller than homes that remained open. For dual registered homes the mean sizes were 31 and 47 places respectively ($t = 6.08$, 41 df (approximate), $p < 0.001$), and for nursing homes the mean sizes were 32 and 49 places respectively (t = 2.36, 151 df, $p = 0.020$). For each type of home, homes that closed had lower occupancy levels at the time of the 1996 survey, but this factor was only statistically significantly associated with closure for private residential homes ($t = 3.29$, 22 df (approximate), $p = 0.003$) and nursing homes ($t = 2.81$, 20 df (approximate), $p = 0.011$). The coefficient for the measure of physical standards was not

significant at the 0.05 level in any of the separate analyses, but for private residential homes it was significant at the 0.10 level ($p = 0.088$).

Discussion

This paper compares the characteristics of private residential homes, dual registered homes and nursing homes that had closed between 1996 and 2001 with those of homes that remained open. Similar proportions of each type of home had closed during the period: 14 per cent overall. In contrast, few voluntary sector homes had closed, and these were not included in the analysis. In the US, Angelelli et al. (2003) also report that voluntary (non-profit) homes were less likely to close. Although a similar proportion of local authority homes were reported as having closed (15 per cent), some of these closures are likely to have been changes in ownership, and so these homes were also not included in the analysis.

Although the number of homes in the sample that closed (50) was relatively small, regional rates of closure and reasons for closure were generally consistent with those of a national survey of registration and inspection units (Netten et al., 2002b). On average, homes that closed were distinguishable from those that remained open on several factors. However, once the inter-relationships between these factors were taken into account, home size and occupancy were significantly associated with the probability of a home closing. An equation containing significant factors only retained the home size and occupancy variables, together with a measure of physical standards. There were some differences between the different types of home. However, a larger sample would be needed for a separate study for each type of home.

The majority of the closures occurred before the announcement of the new standards in 1999. In terms of the time of closure, there was little difference between homes that conformed to the standards for bedroom sizes and those that did not. However, it is unlikely that the announcement of the introduction of the new standards would have had time to have much influence on the future plans of home owners. Standards of physical provision have shown steady improvement, in response to market forces, demands from local authority purchasers and the requirements of inspecting authorities (Laing & Buisson, 2001b). Although homes that existed before April 2002 will no longer have to meet the national minimum standards for bedroom sizes, it is quite likely that market pressures will force them to upgrade their facilities to compete with homes that do meet the standards, or to close. The amended standards (Department of Health, 2003) indicate that care homes should specify the details of the physical environment provided by the home so that people choosing a care home can make an informed choice. However, failure to upgrade facilities will lead to a two-tier system of homes that do and do not conform to the standards. Local authorities are being allocated extra funding which can be used to purchase care in care homes, and it is unclear whether there will be a sufficiently large market for homes that do not conform to the standards.

Although aspects of the physical environment will have an important influence on quality of life, for example privacy, the social climate or atmosphere of the home will be central to quality of life (Timko and Moos, 1991). Relatives of residents have cited the atmosphere as the most important factor in selecting a home (Netten et al, 2002a). In a separate analysis of social climate, using the Sheltered Care Environment Scale (Moos and Lemke, 1994, 1996), homes identified as having a more positive social environment were those occupying smaller, converted premises and having lower occupancy levels (Darton et al., 2003), exactly the types of home most likely to have closed.

An unintended consequence of the national minimum standards was expected to be an increase in the importance of homes run by corporate providers, relative to single, owner-managed homes (Laing & Buisson, 2001b; Holden, 2002), and the results of this study support this. In addition, Holden argues that funding and labour market policy will also encourage greater concentration of ownership. Apart from affecting the overall level of supply of places, this would reduce the choice available to prospective residents. Although policy documents emphasise 'homely' or 'domestic' environments (Cm 849, 1989; Centre for Policy on Ageing, 1996; Department of Health, 2001b), there has been a long-term trend towards larger homes, particularly in the nursing home sector (Laing & Buisson, 2003).

Government policies have been directed at enabling more people to live in their own homes, with support to maintain their independence (Cm 849, 1989; Cm 4169, 1998). However, projections of future demand indicate that a considerable increase in provision will be required in the future (Wittenberg et al., 2001). Although this may be moderated by improvements in health and the development of more home-based care and other alternative forms of accommodation with care, a decline in care home provision will increase the pressure to find alternatives. Similar projections have been made for a range of European countries (Comas-Herrera and Wittenberg, 2003), and indicate that the numbers of older people requiring long-term care will rise significantly unless prevalence rates of dependency decline. For the period January 2002 to April 2003, Laing and Buisson (2003) estimate that care home de-registrations had passed the peak reached in 2000. However, relatively few new registrations have led to a continuing decline in net capacity.

Some local authorities are considering very or extra care sheltered housing as an alternative to residential care, and the government has announced plans for a 50 per cent increase in this form of provision (Department of Health, 2002b). A new system of financial support for housing-related services, 'Supporting People', was introduced in April 2003 to replace the fragmented system of funding arrangements and to overcome legal restrictions on the use of housing benefit for care services (Department of Social Security, 1998; Department of the Environment, Transport and the Regions, 2001). Although the Supporting People grant would not generally be payable for care homes, it would be available if they were replaced by alternatives designed to promote greater independence (Department of Health, 2002e). However, extra care sheltered housing accounts for a small proportion of all sheltered housing provision (Tinker et al., 1999), and the increase in provision was quantified as an additional 6,900 places (Department of Health, 2002c). The development of extra care sheltered housing will emphasise differences in standards between care homes and other forms of accommodation with care, and is likely to increase pressures on care homes to improve physical standards.

Internationally, the development of accommodation with care has occurred in a variety of ways, with greater emphasis in many European countries on housing-based solutions (Winters, 2001). However, Bonoli et al. (2000) suggest that rising demand combined with financial constraints will increase the role of the private sector, and it is possible that similar issues will arise to those observed in the UK and the US.

Residents may live in care homes for a substantial length of time (Netten et al., 2001), and more understanding of their requirements and of potential future residents' expectations is needed. Equally, the effects of the introduction of the national minimum standards on the structure of the care homes market need to be monitored. Although alternative forms of

accommodation are being developed, present rates of growth do not indicate that these will meet the increase in demand for accommodation with care for the foreseeable future.

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