

Review

The economic consequences of deinstitutionalisation of mental health services: lessons from a systematic review of European experience

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What is known about this topic

- Many countries have closed psychiatric hospitals in favour of various community-based arrangements.
- These closures have raised many practical and policy challenges, not least because huge resources are tied up in these hospitals.
- Understanding the economic consequences of deinstitutionalisation is fundamentally important.

What this paper adds

- The evidence base on the economics of deinstitutionalisation is modest and uneven across countries.
- There are strong economic arguments for closing psychiatric hospitals in favour of community-based arrangements, but rebalancing care will not generate great savings.
- There are also many challenges. Decision-makers should plan a dynamic community-based system to match the needs of people moving from institutions, and must take the long view.

Abstract

Many European mental health systems are undergoing change as community-centred care replaces large-scale institutions. We review empirical evidence from three countries (UK, Germany, Italy) that have made good progress with this rebalancing of care. We focus particularly on the economic consequences of deinstitutionalisation. A systematic literature review was conducted using a broad search strategy in accordance with established guidelines. We searched the International Bibliography of the Social Sciences, Health Management Information Consortium, British Nursing Index and PUBMED/Medline to 2008. The on-line search was supplemented by advice and assistance from contacts with government departments, European Commission, professional networks and known local experts. Community-based models of care are not inherently more costly than institutions, once account is taken of individuals' needs and the quality of care. New community-based care arrangements *could* be more expensive than long-stay hospital care but may still be seen as more cost-effective because, when properly set up and managed, they deliver better outcomes. Understanding the economic consequences of deinstitutionalisation is fundamental to success. Local stakeholders and budget controllers need to be aware of the underlying policy and operational plan. Joint planning and commissioning or devolving certain powers and responsibilities to care managers may aid development of effective and cost-effective care. People's needs, preferences and circumstances vary, and so their service requirements and support costs also vary, opening up the possibility for purposive targeting of services on needs to improve the ability of a care system to improve well-being from constrained resources. As the institutional/community balance shifts, strategic planning should also ensure that the new care arrangements address the specific contexts of different patient groups. Decision-makers have to plan a dynamic community-based system to match the needs of people moving from institutions, and must take the long view.

Keywords: community care, costs, deinstitutionalisation, economics, mental health

Introduction

In most European countries and for many decades, large institutions have been the dominant form of provision for people with severe and chronic mental health needs. Numerous factors played a part in the original decisions to choose the institutional care model. It was believed that grouping people together in large numbers with qualified staff was the most effective way to provide treatment and support. Logistically, it helped to have the scarce number of skilled professionals concentrating their work in one location. Institutional care was also the preferred choice of many families who found it difficult to live with their 'disturbed' relatives, and of the wider society. In some countries, institutions became useful as political instruments of social control and oppression. Economic considerations undoubtedly played a role: if nothing else, large numbers of people living in one place allowed providers to achieve economies of scale.

Of course, over the past 50 years or so, very different views have developed about the suitability of institutions to provide care for people with mental health problems. Among the influences on those views identified by Mansell *et al.* (2007) were occasional but often high-profile public scandals in institutions; research studies that similarly demonstrated how institutional care is often unacceptably poor in quality and breaches internationally accepted human rights standards; changing ideologies, particularly the rise of normalisation; and growing demands for choice and control by and for disabled people. Mansell *et al.* (2007) also point to the United Nation's 1991 *Principles for the Protection of Persons with Mental Illness and the Improvement of Mental Health Care*, which recognised that wherever possible individuals should be supported to live in the community, and the European Parliament's 1996 *Resolution on the Rights of Disabled People* which advocates social inclusion and non-discrimination of people with disabilities and calls for disability rights to be treated as a civil rights issue. *The Charter of Fundamental Rights of the European Union* (2000) also calls on the European Union to respect the right of individuals with disabilities to benefit from measures designed to ensure their independence, integration and participation in the community.

Despite the development of these more positive views, community-based models of care still face a number of battles; in particular, they are by definition based around small settings that do not have the benefits of economies of scale. In principle, they are more likely to be committed to approaches that promote individualisation and opportunity over regimentation and constraint – approaches that look inherently more expensive. They are generally not content to be replicating the quality of life experienced in the institution but

to pursue better outcomes for those they support, and thus it may be *felt* by some policy-makers or commentators that they must inevitably be more costly. New services are often relatively expensive anyway, because capital investments have to be made and new staff need to be recruited and trained. By contrast, many existing institutions have a stable workforce and small training and capital maintenance budgets (although many buildings have been allowed to deteriorate). In other words, a policy of deinstitutionalisation raises a host of economic questions.

The purpose of this paper is to review economic evidence on the consequences of deinstitutionalisation in three European countries that have moved a long way towards replacing 'asylums' with community-based models of care. From this evidence base we outline a number of suggestions to aid successful transition from an institutional-based to a community-based care system, focussing on the likely costs to the public sector. Given the highly context-specific nature of both institutional models and community-based services, it makes sense to focus on country-specific evidence.

Methods

As part of a wider project, we were asked by the European Commission to draw lessons from three countries (England, Germany, Italy) that had – with varying success – shifted most of their long-term care and support for people with mental health needs from institutional settings to the community.

We started our work with a systematic literature review (using mainly electronic searching but supplemented with some hand searching of key journals) on experience in these countries in policy and practice in moving away from a range of institutional settings to independent living in the community. Our search strategy was deliberately broad as we did not expect the evidence to be especially well or precisely identified by key words or abstracts. The search strategy was developed in accordance with guidelines set out by the NHS Centre for Reviews and Dissemination (2001). We searched the International Bibliography of the Social Sciences from 1961, the Health Management Information Consortium from 1983, the British Nursing Index from 1985 and PUBMED/Medline from 1948. All searches ran until 2008. We did not set any restrictions on time period for the extraction of evidence. Relevant papers were identified initially on the basis of a screening of their titles and abstracts, with full papers then obtained for those titles and abstracts meeting our inclusion criteria. Our purpose was to review findings and not methods and while we have tried to be alert to methodological weaknesses we do not comment much on these in this paper.

In addition, we consulted experts in each country and elsewhere, asking for help in locating evidence, especially evidence that might be missed by electronic literature searches, and to help our complementary search of grey literature and websites. We were interested in evidence in all three languages. Full details available from the authors.

The literature review informed much of the discussion below. Two other strands to the research provided the backdrop to this examination of the economic evidence (Mansell *et al.* 2007). Colleagues worked with research partners in Belgium, Germany, Spain, and the Czech Republic to gather data on bed numbers from 28 European countries. For each country, contact was made with the relevant government departments to identify possible sources of data, using both the advice and assistance of the European Commission and existing professional networks. A policy review was also undertaken, concentrated on England, Germany and Italy, to describe the historical development of community care policy and implementation.

The production of welfare framework

In seeking to extract from the literature review evidence on the economic consequences of deinstitutionalisation it was helpful to locate the evidence and its policy implications within a suitable conceptual framework. The production of welfare framework in Figure 1 (Davies & Knapp 1981, Knapp 1984) is a simplification of the myriad links between budgets, the staff and other resources employed (and the costs of using them) the services that

are thereby produced, and the health, behavioural and quality of life outcomes that (hopefully) will result for the people who use these services, their families and relevant others. The framework thus helps in the interpretation of evidence and the identification of issues faced by decision-makers.

The framework shows the connections between:

- Needs of individuals for care and support, defined by reference to national and local policies, agreed service objectives and the views of service users and relevant others;
- Resource inputs used in promoting better health, improved quality of life and so on – these are mainly staff, physical capital, medications and other consumables;
- Costs of these resource inputs expressed in monetary terms;
- Service volumes and qualities that are achieved ('produced') by combining the resource inputs – these can be called outputs (sometimes called *intermediate outputs*);
- Outcomes (sometimes called *final outcomes*) from prevention, treatment, care and rehabilitation, principally for individual service users and gauged in terms of symptom alleviation, changes in behavioural patterns, better personal and social functioning, improved quality of life (including for families), and perhaps some wider social consequences;
- Non-resource inputs, which do not have a readily identified cost (they are not directly marketed) but which exert influences on outcomes and also mediate the influences of the resource inputs. Examples would be the social milieu of a care setting, service

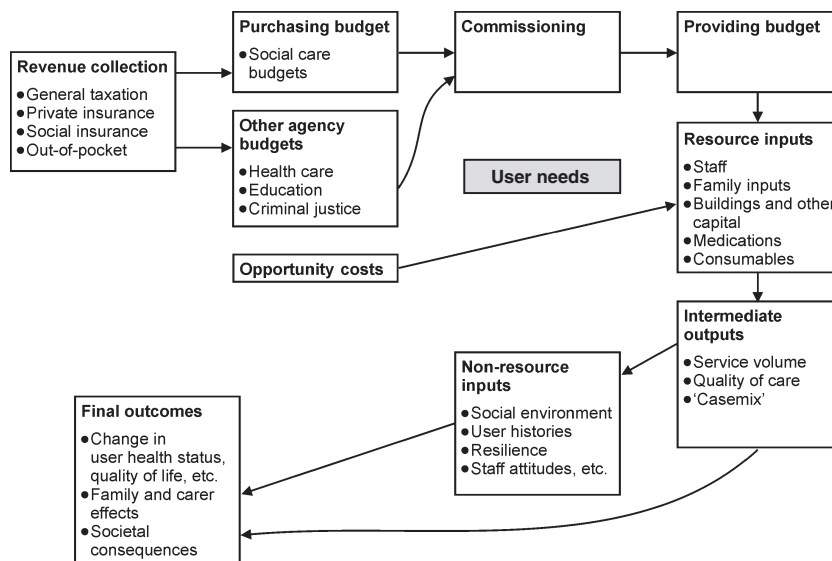


Figure 1 The 'production of welfare' framework.

users' personal histories (especially previous treatment/care experiences) and staff attitudes;

- *Commissioning* or funding links between costs (or budgets) and the (service) outputs; and
- *Revenue collection*, defined, for example, by the World Health Organisation (2000) as 'the process by which the health system receives money from households and organisations or companies, as well as from donors'.

Key questions on costs, needs and outcomes

The 'production of welfare' framework simply emphasises that the success of a care system in meeting needs by improving health and quality of life depends on the mix, volume and deployment of resource inputs and the services they deliver, which in turn are dependent on the finances made available through various funding or commissioning channels. It suggests a number of questions for policy-makers on the relative costs of institutions and community-based care systems. Four essential questions are set out in Box 1.

Question A is the most obvious (economic) policy driver. Question C, however, is a more appropriate phrasing, taking into account issues raised by Question B. Settings and services differ in important ways and people are obviously not randomly allocated to services. Instead, a good care system would aim to offer the services most suitable to meeting their needs and responding to their preferences. Similarly, staff are not randomly employed: they are (in an ideal world, at least) chosen so that their skills match the needs of the service contexts. Hospitals or other institutions that are closing do not randomly discharge people to community settings: they choose and place people carefully, or at least they should do (Renshaw *et al.* 1988, Jones 1993). Question D goes further and introduces the issue of outcomes. Some deinstitutionalisation policies appear to be based more on costs than outcomes, while others give more emphasis to outcomes. The right way to proceed, of course, is to

Box 1 Four core research questions

Question A: Is the cost of care in the community today less than the cost of institutional care?

Question B: Are the costs of community and institutional care higher for people with more clinical, social or behavioural problems, that is, those with greater needs?

Question C: On a like-with-like basis – adjusting for users' needs – is the cost of care in the community lower than the cost of institutional care?

Question D: If community care is more costly than institutional care, is it nevertheless more cost-effective because better outcomes are achieved for users and families for which it is considered 'worth' paying extra?

ensure that both sides of the 'production of welfare' relationship are taken into account.

As well as the four core empirical questions in Box 1, three more questions need to be answered as the process of change occurs. Given that it can take many years to close a large institution such as a psychiatric hospital, Box 2 outlines three 'dynamic' questions that need to be addressed today to ensure policy implementation is also focussed on the future.

Results

The available evidence to answer these questions on costs, needs and outcomes can be arranged into a number of categories to structure this section:

- Studies that compare hospital and community settings at a particular point in time, using *cross-sectional designs*;
- Studies of *hospital closure* that have followed people from their residence in a psychiatric hospital to their new lives in the community;
- Studies of *differences between types of provider*, particularly state versus non-state services;
- Studies of *service models that seek to divert* people away from hospital admission by providing more intensive or better targeted support in their own homes;
- Studies of *cost variations*.

Cross-sectional comparisons

The most comprehensive cross-sectional studies in this area were carried out in eight areas of England and Wales in the mid-1990s, and across Italy in the last few years. (The latter – the PROGRES study – is discussed in a later subsection.) The English and Welsh study surveyed almost 400 community accommodation facilities and psychiatric inpatient wards which together supported almost 2000 people (Lelliott *et al.* 1996, Chisholm *et al.* 1997a, Knapp *et al.* 1997). It provides direct answers to Questions A and B.

A simple comparison of the costs of current hospital care and current community care showed the former to be significantly greater than the costs of the latter (Chisholm *et al.* 1997a). The relatively high costs of psychiatric inpatient care helps to explain some of the historical and current interest in England and other countries in reducing hospital-based services in favour of alternatives in the community (Goodwin 1997, Rivett 1998). In countries where institutional care is provided at very low cost (and therefore probably also of very low quality), this cost difference might not be found.

Caution is needed. As noted earlier, it is important to compare like with like; if the costs cover a similar scope,

are the patient groups similar? Thus, to address Question B, a series of multiple regression analyses were estimated (Chisholm *et al.* 1997b). *Inter alia*, these equations tested whether the cost of an individual's care (residential care costs, non-residential services used and the resident's living expenses) is associated with:

- demographic and situational characteristics (age, gender, ethnic group, marital status);
- living situation prior to admission;
- previous psychiatric service history, especially inpatient admissions;
- symptoms, daily living skills, social interaction and other needs-related characteristics; and
- whether compulsorily treated.

Between 11% and 45% of the observed variance in inter-individual costs could be explained statistically by variations in resident characteristics. There were numerous significant positive associations between measures of mental health symptoms and cost (higher levels of need were found to be associated with higher levels of inputs). However, there were also some significant negative associations, for example more aggressive behaviour and poorer daily living skills were associated with lower costs, which would not be expected of a care system that sought to match resources to needs. Some of these 'unexpected' correlations may be caused by collinearity between variables or the large number of tests conducted.

With the data from this eight-area study in England and Wales it was not possible to address Question C fully. The study did not include every hospital inpatient, but only those who were considered by local staff to be inappropriately placed or who had been continuously resident for 6 months. Nevertheless, the findings suggested that, on a like-with-like basis, the cost of community-based care was lower than the cost of hospital care for those covered by the survey, irrespective of severity of symptoms and needs, and even for those receiving 24-hour nursing cover. It should be noted that at least two other studies – one in Germany and both described in more detail below (Häfner & an der Heiden 1989, Beecham *et al.* 1997) – have shown that for people with *more severe* mental health problems, the cost of care in the community is greater than hospital care.

Box 2 Dynamic research questions

Question E: How does the cost of care in the community for people currently in institutional care compare with the cost of care for people currently in the community?

Question F: How does the expected cost of care in the community for people currently in institutional care compare with the cost of their current hospital care?

Question G: As the balance of provision shifts from institutional to community care, what happens to average cost in each setting?

In the English and Welsh eight-area study, the cost projections at the higher end of the dependency/severity range were linear extrapolations using the estimated regression equations and have at least two limitations (Chisholm *et al.* 1997a, Knapp *et al.* 1997). First, associations beyond the observed population range may be nonlinear, pushing up the community cost of people who were at the time living in hospital or pull down the hospital costs of community residents. Second, there are quite high proportions of unexplained variance in some of the regression equations. One other qualification is that although quality of care was assessed (and indicators were included when addressing Question C), the cross-sectional design did not allow outcomes to be examined, since these require assessment of changes over time in individual health and well-being.

Häfner & an der Heiden (1989) compared the mean costs of comprehensive community care for a cohort of 148 people initially admitted to hospital with a diagnosis of schizophrenia in Mannheim over 1 year (1977–1978) with the typical costs per hypothetical individual for continued hospital care over the same period. Overall community care cost less than half the cost of hospital, although no data were reported on statistical significance. When they looked at the pattern of individual care costs in the community, there was a steeply rising trend:

which finally exceeded the threshold value represented by the costs of continued in-patient care. In eight cases (6% of the cohort) the cost of complementary [community] care was higher than that of traditional hospital care ... Community mental health care, as compared with continued hospital care, becomes considerably cheaper if severely ill and disabled patients needing particularly intensive care are not discharged from hospital.

Given their high level of needs, the authors suggested that it would be appropriate for these patients to remain in hospital where 24-hour medical and nursing care are available, as well as good accommodation, occupation and leisure time and rehabilitation activities. However, community-based alternatives for people with very high needs have been developed since this study was conducted (for a UK example, see Trieman & Leff 1996).

Hospital closure

A few longitudinal studies have looked at the service user outcomes and resource consequences of shifting long-term care to the community (Knapp *et al.* 1992, Donnelly *et al.* 1994, Leff 1997). These studies in England and Northern Ireland found community-based care can be provided at lower or similar costs but generate the same or better outcomes for most people who have left long-stay hospitals. This result applies particularly to people with less severe symptoms or fewer

dependencies (Knapp *et al.* 1995). However, there were a number of long-stay inpatients with very challenging needs who were more costly to accommodate in community settings (or at least those community settings then in use) than in hospital. Success for these people depended on having sufficient staffing intensity (Hallam & Trieman 2001, McCrone *et al.* 2006).

The most comprehensive evaluation of community-based care for former long-stay inpatients looked at the closure of two North London hospitals. The outcome findings suggested that former inpatients were enjoying a quality of life at least as good as in hospital 1 and 5 years after discharge. The study followed the closure and transfer programme set by the hospitals, making a randomised controlled trial impossible. Initially the study matched those moving with people who remained in hospital, but as more people moved to community locations the study employed a mirror-image design (Leff *et al.* 1996, Leff 1997). There were no problems with higher-than-normal mortality, or with homelessness and crime. Accommodation stability was impressive, and care environments (as rated by researchers and residents) were much better than in hospital. Social networks were stable although most were not socially integrated into local communities. Short-term hospital readmissions, however, were common (38% of individuals had at least one readmission over a 5-year period). Careful examination of clinical outcomes revealed striking stability over time in both psychiatric symptoms and social behaviour. Patients strongly preferred community living to hospital.

The associated economic evaluation found that many services were used in the community indicating that a narrow health service perspective is insufficient for this topic, and more importantly, that deinstitutionalisation has consequences for many services providers (see Table 1) (Beecham *et al.* 1997). Until the last annual cohort left the hospital, 8 years after the reprovision programme began, the full costs of community care were similar to the costs of hospital care, and community care was beneficial to the former long-stay patients. Higher cost community care packages appeared to be associated with better individual outcomes. Once the final cohort ($n = 128$) left the hospital, average community care costs across all 751 former hospital residents rose to around 112% of hospital costs ($P < 0.01$). These were the most challenging people to support in the community.

These findings are consistent with what some others have argued on the basis of observation. As De Girolamo & Cozza (2000) concluded in their discussion of the Italian experience:

Political and administrative commitment is necessary [when shifting the balance of care]. Community care is not,

Table 1 Services used in the year after people left two London hospitals in late 1980s and early 1990s

Community-based services	% using each service ($n = 533$)
Accommodation and living expenses	100.0
Hospital services	
Hospital inpatient services	14.8
Hospital outpatient services	25.9
Hospital day-patient services	22.9
Day activities	
LA social services day care	17.4
Voluntary organisation day care	15.2
Voluntary organisation Social clubs	6.6
Education classes	4.5
Community mental health services	
Community psychiatry services	57.8
Psychology services	14.4
Drugs (depot injection)	14.3
Occupational therapy	8.6
Community health services	
Chiropody	41.3
Nursing services	29.1
Physiotherapy	2.4
Primary care physician	74.5
Dentist	25.3
Optician	19.9
Community pharmacist	5.8
Social care and other services	
Field social work	23.6
Police and probation services	5.8
Client's travel	29.3
Volunteer inputs	1.7
Case review	9.9
Other services*	18.6

*Includes a number of services each used by only a few study members. Examples are finance officer, aids and adaptations, audiology, aromatherapy, employment officer, home help, job club and reminiscence group.

and will never be, a cheap solution (although mental hospitals with minimally acceptable standards of care are expensive). Indeed, if community care is to be effective, investments have to be made in buildings, staff, their training, and the provision of backup facilities.

The longest study was the 12-year follow-up of people who moved from long-stay hospital residence to a community setting under the auspices of the Care in the Community demonstration programme, launched in England in the 1980s (Renshaw *et al.* 1988, Cambridge *et al.* 2003, Carpenter *et al.* 2004). Twelve years after people left hospital, 128 of the original study group of 130 were traced and interviewed: 39% were living in residential or nursing homes, 17% in less intensively staffed group homes or small hostels, 34% in settings with minimum formal support, and the remaining 9% were permanently resident in psychiatric wards (Beecham *et al.* 2004).

Over the period, a number of personal abilities had declined (mobility, ability to wash, bathe and dress, general appearance), and levels of co-operative behaviour had decreased. There were marginally significant increases in the reported incidence of odd gestures and mannerisms, obsessive behaviour, depression and suicidal preoccupation, and in the proportion of residents showing some confusion. Some of these changes would be expected as the average age of residents was now 62 (range 35–93 years). Nevertheless, the majority were functioning quite well and had relatively few symptoms and behavioural problems. Very few wished to return to hospital. Conversation and social interaction had improved and the average size of social networks (23 contacts) compared favourably to that reported in other studies. These networks comprised mainly staff and other service users; despite having lived in the community for over a decade, people were still interacting in a ‘community within a community’.

Many organisations were involved in supporting service users in the community (Beecham *et al.* 2004). However, there was little evidence to suggest that organisations were working together to create support packages that crossed traditional agency boundaries. For example, people with mental health problems living in local authority-managed accommodation rarely used services provided by the health service, while those in health service accommodation rarely used local authority social care services. The average weekly total community care cost per resident remained lower than the long-stay hospital costs by around 15% ($P < 0.002$). However, the range was considerably wider, suggesting a greater diversity of support arrangements. After standardising for users’ skills and behaviour problems, costs in supported accommodation were significantly lower than expected and costs for people living permanently in hospital were somewhat higher than expected. Notably, the current support costs could not be predicted from the characteristics of users as measured in hospital 12 years earlier. There was some evidence that the more a person’s behaviour had deteriorated over the 12-year period the more costly was their package of care.

Differences between provider sectors

Further analyses of data from the North London study used regression modelling to look at quality of care, outcome and costs in hospital and 12 months after discharge by the provider sector (Knapp *et al.* 1999). These analyses were restricted to the 429 people living in specialist mental health community-based accommodation. The different sectors were not accommodating people with identical needs or dependency profiles, but these differences did not appear to account for inter-sectoral

variations in costs. Even after adjusting for the effects of resident characteristics, the costs of community care were statistically significantly lower in the for-profit sector than elsewhere, and higher in the NHS and Consortium (NHS and voluntary sector in partnership) sectors. Costs in the for-profit sector were almost half the costs in all other sectors, partly because the residential accommodation itself was less costly and partly because people in for-profit facilities used fewer services outside their place of residence.

But it is possibly a third reason for the lower costs in the for-profit sector which is most relevant. In the smaller homes run by owner-managers the fees paid by public sector purchasers may not have covered the full costs of residence. Certainly these fee levels were seen as a constraint by many proprietors and some reported operating at a loss. The lower costs in the for-profit sector may have been achieved at the expense of lower quality care, for there was strong evidence of fewer opportunities for residents and more environmental restrictions. The NHS and Consortium facilities performed significantly better than other provider sectors by these criteria, although these were easily the most expensive facilities.

Two other UK studies examined this issue. Multiple regressions analyses exploring cost variation in support costs for the 12-year follow-up of the Care in the Community demonstration programme sample ($n = 75$) found no differences in costs between managing agencies after adjustment for individual characteristics (Beecham *et al.* 2004). The large cross-sectional study of residential facilities in England and Wales found important within-country differences which suggest some challenges in generalising from these single-country inter-sectoral findings. In London, voluntary sector (non-profit) facilities appeared to be more cost-effective, whereas outside London both the voluntary and for-profit sectors had cost advantages over local authority provision (Knapp *et al.* 1998a).

Community ‘diversion’

Although the focus in this paper is on the replacement of institutions by community-based care, we should not overlook the role of community models of care that can ‘divert’ people away from psychiatric hospital inpatient admission. In this context, the review by Roberts *et al.* (2005) is a useful summary of methods and findings on economic evaluations of community mental healthcare stretching back to the 1970s.

The *assertive outreach* approach first developed in Wisconsin USA has been widely copied and/or adapted in many countries, and also quite widely evaluated. A London modification of the model – the Maudsley’s Daily Living Programme (DLP) – looked at seriously mentally

ill people facing crisis admission to hospital. A randomised controlled trial found that the DLP ($n = 92$) produced better outcomes, higher user and family satisfaction, and lower costs than standard care ($n = 97$) in the short term (20 months; $P < 0.001$) (Knapp *et al.* 1994, Marks *et al.* 1994). After 4 years but using a smaller sample of just 33 individuals in DLP and control groups, there were no differences in clinical or other outcomes, or in costs; sample size was a limitation (Audini *et al.* 1994, Knapp *et al.* 1998b). Nevertheless, over the full 4-year period the DLP was more cost-effective than standard hospital-based care (inpatient followed by outpatient supervision). Other studies confirm the cost-effectiveness of community-based crisis interventions, which may be seen to have assertive outreach-like characteristics (Ford *et al.* 2001, Roberts *et al.* 2005). The overall weight of evidence is that forms of assertive outreach that adhere closely to the original Wisconsin model are more cost-effective than conventional hospital-based services or other community arrangements (Latimer 1999, National Collaborating Centre 2002, Roberts *et al.* 2005).

One study comparing 82 service users randomised to receiving a variant of *case management* (intensive case management vs. generic community psychiatric nursing) was not shown to improve outcomes, but did show lower support costs over 6 months ($P < 0.001$); cost differences persisted but were not significantly different by 18 months (McCrone *et al.* 1994, Muijen *et al.* 1994). However, the UK700 study – a large randomised controlled trial of 708 people with severe mental health problems (667 treatment completers) – showed no statistically significant difference in costs between the two approaches (average costs £24 553 for intensive case management vs £22 704 for standard case management, $P = 0.29$). The authors concluded that reduced caseloads have no clear beneficial effect beyond that achieved with standard case management, however, sample attrition meant the number of enrollees fell below the 350 per group estimated to be needed for the economic analysis to detect a 5% difference in costs with 80% power (Byford *et al.* 2000). There were significant quality of life improvements over a 2-year period, but no differences between intensive and standard case management (Huxley *et al.* 2001).

Another London-based study compared care programmes (a variant of care management) by randomly allocating 155 individuals to either community-based or hospital-based teams following discharge from inpatient care. The study reported higher costs for the latter without any difference in outcomes (Tyrer *et al.* 1998). However, this was largely due to the high use of placements in for-profit hospitals in one locality where there was a lack of publicly provided psychiatric beds. Other studies of community mental health teams give equivocal

results. A cluster randomised trial in Manchester involving 99 service users reported higher costs from both the health and societal perspectives for those supported by community mental health teams compared with those supported by traditional hospital-based teams. This cost difference was not significant due to the high variability of individual data. Those receiving community mental health team support were, however, more satisfied with care received ($P < 0.05$) (Gater *et al.* 1997). In contrast, another randomised controlled trial of 172 individuals in London indicated at least 50% lower costs ($P < 0.05$) for those receiving home based psychiatric care; no differences in outcomes were reported (Burns *et al.* 1993).

Cost variations

The (*Progetto Residenze*) PROGRES study of psychiatric residential care in Italy has generated a wealth of helpful, more recent data on the characteristics of community-based residential facilities, the people who live and work there, and the associated costs. Analysis of data from a national survey of all non-hospital residential facilities showed marked variation in per resident cost across the sample of 265 facilities (Amaddeo *et al.* 2007). A number of factors were found to be associated with cost differences, including type of facility, location, size (number of beds) and – at the individual level – age and psychiatric diagnosis. There were also marked variations in the costs of services used by residents that were provided from outside the facility budget. Again they followed a pattern of variability, linked for example to resident age, diagnosis, level of functioning and whether the resident had previous experience of an acute psychiatric admission.

Using the same PROGRES dataset, De Girolamo *et al.* (2002) described the differences in the level and pattern of provision across the country, typically finding them to be lower than in the similar study in England a decade earlier (Lelliott *et al.* 1996). Multiple logistic regression models indicated that level of provision was inversely correlated with local availability of outpatient and day care services, but the direction of causality was not clear. It was also noted that the large number of researchers collecting data across the country may have led to data inconsistencies. In a further analysis of all residents of 265 randomly sampled residential facilities (20% of the total) only 7% of residents were predicted by residential care staff to be discharged in the near future to independent accommodation or to live with their families (De Girolamo *et al.* 2005). Residential facilities were seen as the replacement for the psychiatric hospitals closed under Law 180, and the question must be asked as to whether long-term residence in such a facility is the most appropriate response to an individual's needs. It appears that many people with mental health

needs do require 24-hour support/supervision for long periods of their lives.

In another Italian study of the factors associated with variations in the service costs of supporting 339 people with mental health needs in contact with South Verona community mental health services, significant links were found between costs, previous psychiatric hospital admission, intensity and duration of previous contacts with the mental health system, being unemployed, diagnosis and a measure of functioning (Bonizzato *et al.* 2000). Regression analysis weighted to ensure that study completers were representative of the eligible population of 543 service users 'explained' about 66% of the observed cost variation.

The English studies described earlier each looked at the extent of cost variation between individual service users and examined what personal characteristics were associated with that variation (previously reviewed by Knapp 1998). One German study explored the factors associated with admission costs in different types of psychiatric hospitals (Scheytt *et al.* 1996). A second more recent article compared three statistical techniques for analysing variations in the annual costs of schizophrenia treatment (psychiatric service use only) for 245 service users in Leipzig, finding with each method positive influences of psychiatric symptoms and met psychiatric service needs (Kilian *et al.* 2002). The authors note that the sample size was probably too small to assess whether differences between the findings from the three techniques were significantly different. However, the marked inter-individual cost differences found in all these analyses make it imperative that decision-makers, whether working at strategic level or locally in the organisation of services, take full and appropriate account of the needs and personal circumstances of individuals.

Dynamics

The four questions in Box 1 and the circumstances they describe are essentially static. In considering dynamic experiences, a number of elements need to be considered, particularly what happens to costs *during* the process of closing an institution and as community-based services develop. These dynamic experiences can lead to adjustments or reactions that can erect barriers in the way of more effective and cost-effective systems of care (Knapp 1990). By definition, these are barriers that do not exist at the start of the process, but emerge as it gets underway. Three such questions were set out in Box 2.

Is there evidence to answer Questions E–G on the 'dynamics' of deinstitutionalisation? We could not find economic evidence from either Germany or Italy, but the previously cited English and Welsh study from the mid-1990s of almost 400 community accommodation

facilities and psychiatric inpatient settings provides some answers (Lelliott *et al.* 1996, Knapp *et al.* 1997). In five of the eight areas it would cost more to provide community care for people moving from hospital than it was currently costing to support the community care sample. Consequently, a decision-maker seeking to resettle what might be seen as the 'typical' hospital inpatient (that is, a person in the hospital population with the 'average' (mean) level of disability or dependency) will have to find funding at a significantly higher level than currently spent on community care. This answer to Question E, in these five localities at least, means that the savings of a hospital closure programme would be exaggerated by currently observed average community costs. There is consequently a danger that new community placements would be *under-funded* because community provision to date has been offered to people with fewer needs for support. In the other three localities of this cross-sectional study, moving people from hospital to community residential accommodation would not have represented a significant change in the costs of their care.

The findings from this study also provide an answer to Question F. In all eight localities the predicted cost of care in the community for people currently in hospital was found to be significantly lower than the cost of their current hospital care (Knapp *et al.* 1997). The average weekly difference in cost between the two settings was £518 in London and £403 outside London, mainly attributable to intrinsic cost differences between hospital and community care. Considerable savings could therefore be reaped by shifting the balance from hospital to community care for those people covered by this study.

It was not possible to address Question G directly with this study, as it only collected cross-sectional data. However, early successes in moving people from hospital to community (which can be achieved by moving the least 'disabled', most 'independent' people first) will offer encouraging evidence of success that will be harder to replicate as people with higher needs move. Moreover, because average costs are likely to change as the closure process gets underway, decision-makers might be alarmed by the escalating costs in both hospital and the community, which could be a barrier if they are not aware of the broader picture. This reinforces the need for a well-developed plan for both the institution *and* community services that extends forward in time, at least to the point of closing the institution. It also suggests caution in transferring funds from an institution to the community. If an institutional closure plan means moving the most 'able' residents first, it would be wrong to transfer the average amount from the institutional budget to community services, because this would strip the institution of necessary resources.

Generally, these complicated dynamics emphasise the need for long-term plans. These plans should include an accurate and realistic needs assessment for the whole institutional population (ideally assessing needs as they will likely manifest themselves in the community, rather than needs as displayed in the hospital) and the associated cost implications of community-based services responding to those needs.

Discussion

To inform policy in Europe on closing institutions and providing community-based support for people with mental health problems, our research started with a wide-ranging systematic review of the literature for UK, Germany and Italy, countries that have had many years' experience of deinstitutionalisation. The evidence was then organised using a 'production of welfare' model of the links between the component parts of care systems. We found more plentiful empirical data for England than for Germany or Italy. This may partly be a question of timing. There was very little economics research on mental health needs, their treatment or policies before the late 1980s, yet many of the psychiatric hospitals in Italy had already closed by that date. At this time, there were few European economists interested in mental health, and especially few in Germany or Italy. However, from our own close collaboration with researchers and policy analysts in Italy and Germany we have no reason to believe that the broad conclusions drawn mainly from UK evidence (indeed mainly from English evidence) are not relevant in those countries.

Of course, carrying out a good cost-effectiveness analysis or other economic evaluation can be expensive and time-consuming, and since the early studies of the 1970s and 1980s increasingly sophisticated methods have been employed. [For example, there is now much wider use of quality-adjusted life years (QALYs) as a generic indicator of outcome that allows comparison across diagnostic areas. QALYs have not been employed in studies of hospital closure, and are not currently straightforward enough to measure or interpret the results from studies of people with severe mental health problems; see Knapp & Mangalore (2007); Brazier (2008).] However, much can be gleaned to inform national policy or local plans from previously completed analyses if findings are carefully interpreted in the local system context. Links between costs, needs and outcomes are inherently complex, but they sit at the heart of the evidence base on which to build a strong economic case for making the transition from institutions to services in the community.

The evidence reviewed here suggests a number of evidence-based pointers to success.

In a good care system, the costs of supporting dependent people are usually high *wherever* those people live. Policy-makers must not expect costs to be low in community settings, even if the institutional services they are intended to replace appear to be relatively inexpensive. Potential economies of scale in large-scale institutions are complicated by the question of service quality; low-cost institutional services are almost always delivering low-quality care.

Moving people from single-budget institutions which are almost run from a single budget to community contexts with multiple budgets will have a range of consequences. In response to the multiple needs of people previously living in institutions, costs in the community range widely – over many service areas and policy domains. Families can also carry quite a high cost responsibility.

This multiplicity of service provision and budget flows needs to be recognised, better still charted and taken fully into account. For example, if cost-effectiveness is achieved for the health service, are there nevertheless higher costs falling to another agency? Problematically, this and indeed other inter-connections or disjunctions (actual or potential) between services and agencies could put up substantial barriers to effective and cost-effective care. Joint planning and joint commissioning are among the approaches that can be used to bring together two or more budget-holding agencies to improve service coordination and its impacts. Devolving certain powers and responsibilities to case/care managers, or even to individual service users via self-directed care arrangements, might also help overcome these difficulties. In planning to transfer people to the community, it is vitally important to ensure that all local stakeholders are aware of the policy or plan, and preferable that they fully agree with it! In some European countries where psychiatric institutions may be significant contributors to the local economies of isolated communities (such as in Romania or Bulgaria), this may mean directing some efforts towards identifying alternative economic uses for institutions and creating new employment opportunities for former staff, otherwise the local economy could be devastated.

Costs are incurred to provide services, in response to needs, and in order to achieve outcomes. It therefore makes little sense to compare costs between two service systems without also looking at the needs of the individuals and the outcomes they experience. Comparisons made on the basis of comparable needs of residents and comparable quality of care show there is no evidence that community-based models of care are inherently more costly than institutions. Moreover, the evidence suggests that community-based systems of independent

and supported living, when properly set up and managed, deliver better outcomes than institutions.

People's needs, preferences and circumstances vary, and so their service requirements will also vary. Consequently, costs are unlikely to be the same across a group of people. This has at least two crucial implications. First, from a methodological point of view, comparing costs between two settings or service arrangements should be undertaken carefully unless it is known that the people supported in those different settings are identical in all relevant (cost-raising) respects, or that statistical adjustments are made to achieve equivalence. Not to do so risks the dangerous under-funding of provision. Second, this inherent variation also opens up the opportunity for purposive targeting of services on needs in order to improve the overall ability of a care system to improve the well-being of individuals from fixed volumes of resources.

As well as varying across individuals, needs, preferences and circumstances will vary over time, especially in the initial few months after moving from an institution to a community placement. Certainly service systems need to be able to respond flexibly to changing needs, but a linked requirement is that they should be able to respond to changing preferences. Long-term residents of institutions will have little experience at the time they move to help them form preferences about their lives in the community.

Generally, the evidence suggests that spending more on the support of people with mental health needs will, *ceteris paribus*, lead to better outcomes, but the relationship is not simple and decision-makers may need to think carefully about which outcomes they wish to prioritise within the care system. Usually it is relevant to consider a range of outcome dimensions: not just symptoms or behaviour but also whether a changing care system improves an individual's ability to function (perhaps to resume work or to build social networks) and their broader quality of life. A new care arrangement (such as community-based care) could be more expensive than the arrangement it is replacing (such as long-stay hospital provision) but still be more cost-effective because it leads to better outcomes for service users and perhaps also for their families, and those improved outcomes are valued sufficiently highly to justify the higher expenditure. Moreover, it is important to understand *for whom* a particular service or intervention is likely to be cost-effective.

A related point is that inadequate expenditure on community-based care is quite likely to result in poor outcomes for the individuals and families concerned. One consequence often posited in these circumstances is re-institutionalisation (Priebe *et al.* 2008).

Our final point concerns the dynamics of change. Throughout this paper we have stressed that in considering costs, and in making cost comparisons, one should also take appropriate account of the needs of the people being supported. For example, if community services have only been available to people with less severe mental health needs, they will be less expensive than institutions. When services are developed in the community for people with more severe and complex needs, they are likely to be more expensive than the existing community services.

This being the case, it is important to consider the full range of individuals who need community services when planning the transition from institutional care. The spectrum of services may need to cater for people who will be able to live independently with very little support as well as those who will need constant help from staff to accomplish many activities of daily living, as well as for assessment and treatment for their psychiatric needs. New services can take a few years to set up, and some existing services are resistant to change. Thus, decision-makers have to plan a dynamic system of services in the community that will be able to match the needs of everyone who will move from institutional settings. Decision-makers need to take the long view.

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