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THE EFFECTIVENESS OF OLD AGE PSYCHIATRY SERVICES

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ABSTRACT

The objective of this study was to review outcomes of acute service delivery in old age psychiatry. Sources of data included Medline, PsycINFO and Cochrane Collaboration databases of English language papers to 1998 on service delivery evaluation in 'old age psychiatry', 'psychogeriatrics' and 'geriatric psychiatry', supplemented by a manual search of references from relevant literature. All controlled trials, audits, and surveys of the outcomes of service delivery in old age psychiatry located in acute hospitals and community settings were included. Service delivery by medical, adult psychiatry and consultation/liaison services were included. With the exception of outreach services to nursing homes, long term institutional care was excluded. All data were extracted by the author. Data quality was assessed by applying an evidence hierarchy. Evaluation strategies were qualitatively reviewed. Controlled trials, audits and surveys were each found to provide important data in the evaluation of service delivery. There is better quality evidence to support the effectiveness of components of old age psychiatry services than other service types. The majority of studies indicate that old age psychiatry services have positive acute treatment outcomes, particularly with depression. There is insufficient evidence to determine which processes of care are associated with better outcomes. Pluralistic evaluations indicate that carers often have unmet needs and are not as positive about outcomes. There have been no controlled comparisons of service delivery provided by other services. In conclusion, controlled trials and audits indicate that old age psychiatry services are effective. Further pluralistic evaluations and comparisons with other services are required. Copyright © 2000 John Wiley & Sons, Ltd.

KEY WORDS—geriatric psychiatry; service delivery; effectiveness; evidence-based medicine

INTRODUCTION

The inherent difficulties in evaluating the system performance of old age psychiatry services have been well documented (Harrison and Sheldon, 1994). Yet, as forthrightly stated by Martin Cole, 'futile suffering and wasted resources can be minimised only by service delivery research which determines the most effective and most efficient mix of psychogeriatric services for particular groups of elderly psychiatric patients' (Cole, 1988). In 1990, the worldwide lack of formal evaluation of psychiatric services for older people was identified as a hindrance to service development (Draper, 1990). It was noted that economic considerations would demand that services be cost effective, be able to demonstrate improved patient outcomes and be acceptable to consumers.

The most widely accepted model for old age psychiatry service delivery has requirements that include being multidisciplinary, comprehensive, integrated, accessible, available, responsive, able to liaise with other services and general practitioners (GPs), and having a defined catchment area (Jolley and Arie, 1978). The model was not based on formal evaluation, but *a priori* beliefs from the experiences of geriatric medicine, pragmatism, advocacy and available resources in the UK (Banerjee, 1998). Despite this, a technical consensus statement on the organisation of care in the psychiatry of the elderly, jointly produced by the Geriatric Psychiatry Section of the World Psychiatric Association and WHO, with the collaboration of the International Psychogeriatric Association, supported this type of model (Graham *et al.*, 1998).

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Over the last decade, the paradigm of 'evidence-based medicine' (EBM), that employs the use of contemporaneous, appraised, research findings as the basis for clinical decisions, has had an impact (Schmidt *et al*., 1996; Evidence-Based Medicine Working Group, 1992). Although its application to psychiatry is controversial, such an approach was used by the American Psychiatric Association in the development of DSM-IV (Schmidt *et al*., 1996). It is claimed that the best evidence of effectiveness of old age psychiatry services comes from well-designed randomised controlled trials (RCTs) (Cole. 1998).

However, concern has been expressed that where evidence is scant EBM may facilitate cost-cutting exercises (Schmidt *et al*., 1996). It has also been acknowledged that there are many areas of clinical practice that can never be adequately tested for ethical reasons (Evidence-Based Medicine Working Group, 1992). Due to these influences, there has been an upsurge of service delivery evaluation in old age psychiatry in recent years.

The aim of this paper is to review the evaluation of the outcomes of acute service delivery to older people with mental disorders. The following questions will be addressed. What is the quality of evidence that acute service delivery to older people is effective in psychiatric inpatient, medical inpatient and community settings? What is the comparative effectiveness of acute service delivery to older people by old age psychiatry services and adult mental health services?

A search to 1998 was undertaken of Medline, PsycINFO and Cochrane Collaboration databases of English language papers on service delivery evaluation in 'old age psychiatry', 'psychogeriatrics' and 'geriatric psychiatry'. This was supplemented by a manual search of references from relevant literature. Apart from the provision of outreach services to nursing homes, long term institutional care was excluded. Data quality was assessed by an evidence hierarchy that has four levels of evidence (National Health and Medical Research Council, 1995) (see Table 1).

OLD AGE PSYCHIATRY SERVICE PROVISION

Few countries have well developed old age psychiatry services, with a recent survey finding that only three (Netherlands, UK and Switzerland) were consistently rated as having a 'full range of long-term, hospital-based, and community-based geriatric programs (that) exist in many parts of the nation' (Reifler and Cohen, 1998). Consequently, many countries have approached the matrix of mental health care for older people using a range of different health professionals and services (Banerjee, 1998).

This is exemplified in many rural areas where there has been little service development. The lack of mental health resources for older people in many parts of rural Australia has resulted in Aged Care Assessment Teams having to take much of this responsibility, despite a lack of training and resources (Brodaty *et al*., 1997). In the US, a comparison of two models of outreach service, showed the importance of individualising programs to local needs as determined by the geographical features of the catchment area (Abraham *et al*., 1993).

Older people may have difficulty in accessing adult mental health services, though recent data from the US has shown that the proportion of office visits to psychiatrists by patients aged 65

Table 1. Evidence hierarchy (National Health and Medical Research Council, 1995)

I.	Evidence obtained from a systematic review of all relevant randomised controlled trials.
II.	Evidence obtained from at least one properly designed randomised controlled trial.
III-1.	Evidence obtained from well-designed controlled trials without randomisation.
III-2.	Evidence obtained from well-designed cohort or case-control analytic studies, preferably from more than one centre or research group.
III-3.	Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments could also be regarded as this type of evidence.
IV.	Opinions of respected authorities based on clinical experience, descriptive studies or reports of expert committees.

Source: National Health and Medical Research Council. 1995. *Guidelines for the Development and Implementation of Clinical Practice Guidelines*. Australian Government Publishing Service: Canberra. Commonwealth of Australia copyright reproduced by permission.

years and over increased from 6.5% to 10.6% between 1985 and 1995 (German *et al*., 1985; Olfson *et al*., 1999). Unfortunately, there is little data that allows valid comparisons of the effectiveness of old age psychiatry with other types of service provision. A survey in the UK found that services having 'specialised' pscyhogeriatricians, as opposed to 'non-specialised' general psychiatrists, had higher numbers of non-medical staff, more acute and long stay beds and a greater academic presence (Wattis, 1989). While there has been little evaluation of the overall model of service delivery, a body of literature has developed over the last decade on the evaluation of service delivery to older people in different settings and by a range of services.

Service delivery in acute psychiatric inpatient wards

Adult psychiatry wards. Outcomes of admissions to general hospital psychiatric units by the elderly have been positive in 75–81% of cases in prospective (Conwell *et al*., 1989) and retrospective audits (Draper, 1994). Admission policies may have influenced these findings, as the majority of patients in each sample had major depression, with a small minority having dementia complicated by behavioural disturbances. The treatment of a mix of older and younger patients may be a challenge once the proportion of bed days occupied by the elderly is over 40% (Draper, 1994). The introduction of a psychogeriatric clinical nurse specialist into general psychiatry units has been effective at reducing LOS and costs, while improving nurses' job satisfaction and patient outcomes (Mathew *et al*., 1994).

A retrospective comparison of an acute psychogeriatric unit (PGU) with a general hospital psychiatry unit in Israel found no significant differences on the outcome measures of LOS, functional status, mortality and placement (Heinik *et al*., 1995). The two main differences between the two units were the higher admission rates and closer links with geriatric medicine noted in the PGU. However, no outcome data were available.

Acute psychogeriatric inpatient units (PGUs). Most evaluations have been criterion-based audits with a mix of prospective and retrospective data collection (see Table 2). As one would expect, community treated patients have been found to have less functional disability, less severe depression, less cognitive impairment, and fewer medical problems than inpatients (Pasternak *et al*., 1998). Two prospective audits from Australia have reported that 82–86% of patients were rated as improved at discharge (Moss *et al*., 1995; Draper and Luscombe, 1999), with the latter PGU showing a mean 79% improvement of the Global Assessment of Function Scale scores between admission and discharge (Draper and Luscombe, 1998).

Two studies from the UK have provided more detailed outcome data of PGUs through pluralistic evaluations involving patients, carers, staff and GPs (Wattis *et al*., 1994; Riordan and Mockler, 1996). Wattis *et al*. (1994) used outcome measures that included objective and subjective measures of symptom resolution, carer stress, carer and patient measures of satisfaction and problem resolution. A reasonable level of satisfaction with the outcome was reported, though the correlations between different perceptions for individual patients was not high (Wattis *et al*., 1994). In the second study, an audit of care programs that involved staff, patients and carers perceptions of outcome found positive symptom change and problem resolution, although staff rated their effectiveness significantly more highly than did patients and carers (Riordan and Mockler, 1996). Particular difficulties were noted in the identification of carers' needs. This was also found in a survey of carer satisfaction of quality of care delivered to dementia inpatients, where 59% of carers were dissatisfied about some aspects of the admission. Communication issues were frequently identified (Simpson *et al*., 1995).

The investigation of factors contributing to LOS in PGUs allows for more accurate identification of issues that can be addressed to improve the efficiency of bed utilisation (Draper and Luscombe, 1998). Evaluations have yielded contradictory findings. Diagnosis has not been found to be a reliable predictor of LOS, with some studies showing little effect (Cohen and Casimir, 1989; Moss *et al*., 1995), and others finding major depression to be a significant predictor (Draper and Luscombe, 1998). At a symptom level, depressed mood, suicidal ideation, severity of psychiatric symptoms and substance abuse complications have been associated with increased LOS (Cohen and Casimir, 1989; Lyons *et al*., 1995). Concomitant physical illness has been associated with increased LOS (Cohen and Casimir, 1989; Lyons *et al*., 1995), but this has not been found in all studies (Draper and Luscombe, 1998). Two social variables have been associated with increased LOS; placement into residential care

Table 2. Audits and uncontrolled trials of treatment outcomes in acute psychogeriatric units (PGUs) (1989–1998)

	Zubenko *et al.* (1992) USA	Wattis *et al.* (1994) UK	Zubenko *et al.* (1994) USA	Moss *et al.* (1995) Australia
Sample	120 consecutive admissions with Alzheimer's disease (AD) and behavioural complications, mean age 80 years.	61 elderly admissions, 42 functional disorders, 19 organic disorders.	205 consecutive admissions with major depression, mean age 71 years.	110 consecutive admissions, mean age 74 years, 42% organic disorders, 32% mood disorders.
Setting	University affiliated geriatric psychiatry research unit.	University affiliated acute PGU.	University affiliated geriatric psychiatry research unit.	University affiliated acute PGU.
Method	Prospective, uncontrolled, independent non-blind ratings.	Prospective, uncontrolled, non-blind ratings, pluralistic.	Prospective, uncontrolled, independent non-blind ratings.	Prospective, uncontrolled, non-blind ratings.
Outcome measures	1. Brief Psychiatric Rating Scale (BPRS). 2. Hamilton Rating Scale for Depression (HRSD). 3. Global Assessment Scale (GAS). 4. Mini Mental State Examination (MMSE).	1. Montgomery Asberg Depression Rating Scale (MADRS). 2. Hospital Anxiety Depression Scale (HAD). 3. Relatives Stress Scale (RSS). 4. Behaviour and Mood Disturbance Scale (BMDS). 5. Crichton Royal Behavioural Rating Scale (CRBRS).	1. HRSD. 2. MMSE.	Global clinical outcome.
Outcomes	Significant improvements on MMSE in AD with delirium; MMSE, HRSD, BPRS & GAS in AD with depression; MMSE, HRSD, BPRS & GAS in AD with psychosis; HRSD, BPRS & GAS in uncomplicated AD	Depressed patients significantly improved on MADRS & HAD. Demented patients showed no improvements on CRBRS & BMDS. Carers did not improve on RSS. Poor correlation between carer/patient and service provider perceptions of outcome.	Overall 50% reduction on HRSD. 46% admissions had full response by discharge.	86% 'greatly' or 'somewhat' improved, mood disorders had best prognosis.

Riordan and Mockler (1996) UK	Heeren *et al.* (1997) Netherlands	Djernes *et al.* (1998) Denmark	Draper and Luscombe (1998) Australia
60 consecutive admissions aged 65+, 45% dementia, 30% depression.	225 admissions aged 60+ with DSM-III-R depression.	148 admissions aged 75+, 54% major depression, 41% organic disorders.	88 consecutive admissions, median age 80 years, 52% major depression, 30% organic disorders.
Acute PGU in psychiatric hospital.	3 acute PGUs in psychiatric hospitals.	University affiliated acute PGU.	University affiliated acute PGU.
Prospective audit, non-blind ratings, uncontrolled, pluralistic.	Prospective audit, non-blind ratings, uncontrolled.	Prospective, standardised blind ratings, uncontrolled.	Prospective audit, non-blind ratings, uncontrolled.
1. MMSE. 2. CRBRS. 3. GDS. 4. General Health Questionnaire (GHQ).	1. MADRS. 2. MMSE.	1. Multidimensional Dementia Evaluation Scale (MDES). 2. GDS. 3. MMSE. 4. Katz ADL. 5. Functional Ambulation Classification.	1. Global Assessment of Function Scale (GAF). 6. Global clinical outcome.
Depressed patients improved on GDS. MMSE & CRBS were not significantly changed in dementia patients, GHQ improved in all diagnoses. Service providers rated effectiveness of service more positively than carers and patients.	40% fully recovered, 53% partially recovered.	Patients with depression and delirium improved on all outcome measures. Patients with dementia improved on psychopathology measures only.	82% 'fully' or 'partially' recovered. GAF improved by 79% overall.

(Cohen and Casimir, 1989; Moss *et al*., 1995) and carer stress (Draper and Luscombe, 1998). Apart from the use of clinical pathways (Bultema *et al*., 1996), other approaches to reduce LOS have not been evaluated in PGUs.

Several evaluations of PGUs have commented on the high level of medical problems. In one study, 47% of patients had physical illnesses diagnosed for the first time (Harrison *et al*., 1988), while another found that 17% had medical problems that precipitated or exacerbated the presenting symptoms (Rockwood *et al*., 1991) and a third noted a high incidence of abnormal laboratory investigations (Spar *et al*., 1980). Medical factors have been found to be active on approximately 40% of bed days (Draper and Luscombe, 1998). Due to this morbidity, specialist medical consultations are required in 42–76% of admissions and about 6% require transfer to medical wards (Harrison *et al*., 1988; Draper and Luscombe, 1998; Rands, 1992; Draper and Luscombe, 1999). Better psychiatric outcomes have been associated with having significantly fewer organ systems affected by chronic physical illness (Zubenko *et al*., 1994; Draper and Luscombe, 1999). To deal with the combination of psychological distress, behavioural disturbance and physical dependency so frequently found in older patients, the staff of PGUs require a special blend of skills. There is also a need for ready access to diagnostic and geriatric medical services.

Outcomes of depression and dementia have received some attention in naturalistic studies. In the treatment of depression, significant improvements on the Montgomery Asberg Depression Rating Scale (Wattis *et al*., 1994) and the Geriatric Depression Scale (Riordan and Mockler, 1996), and ratings of psychopathology, behaviour, depression symptoms, intellectual functioning, activities of daily living, and gait have been reported (Djernes *et al*., 1998). Overall, from 38 to 69% of depressed patients have been reported to be fully recovered at discharge, with 51–96% having at least partial recovery (Cole, 1983; Baldwin and Jolley, 1986; Rubin *et al*., 1991; Zubenko *et al*., 1994; Heeren *et al*., 1997). Better response has been reported with the use of electroconvulsive therapy in some studies (Zubenko *et al*., 1994; Draper and Luscombe, 1998).

Short term hospitalisation for the treatment of behavioural complications of dementia has been found to be effective in reducing psychiatric symptoms and behavioural disturbances, allowing 50% to return to their homes (Zubenko *et al*., 1992). Other studies have shown less effect with improvements in psychopathology but not behaviour (Wattis *et al*., 1994; Riordan and Mockler, 1996; Djernes *et al*., 1998).

It is difficult to generalise from these reports due to the absence of controlled comparisons. While successful outcomes for older people have been reported from adult psychiatry wards with attendant old age psychiatrists and clinical nurse specialists, these may not be representative of wards without access to these staff. PGU admissions often have a complex mix of psychiatric, medical and social problems requiring an array of services. Yet, reported outcomes are generally positive, particularly for depression. Pluralistic evaluations indicate that carers often have unmet needs and are not as positive about outcomes.

On the evidence hierarchy, the quality of evidence for the effectiveness of PGUs is level III (evidence obtained from well-designed cohort studies), while for adult psychiatry wards it is level IV.

Service delivery in medical wards

Medical services. Cole (1993) examined the impact of geriatric medical services on the mental state of older people by reviewing ten controlled trials published between 1980 and 1990 and concluded that there was little evidence that they had an important measurable impact upon cognitive function and depression. Over the last decade, some evidence has emerged that suggests effectiveness in improving cognition but not depression.

In comparison to psychogeriatricians, geriatricians have been found to both under-diagnose and misdiagnose depression in old age and are likely to prescribe inappropriate antidepressants, use subtherapeutic dosages and discontinue treatment too soon after recovery (Jackson and Baldwin, 1993; Koenig *et al*., 1992, 1997; Ryan *et al*., 1995; Orrell *et al*., 1995). In a large retrospective medical chart audit in the US, the quality of care for depressed elderly inpatients has been found to be better on a range of criteria in psychiatric wards compared with general medical wards (Norquist *et al*., 1995). The psychiatric ward patients had better overall psychological assessments, received more psychological services, and their clinical status at discharge was better. However, there were more

general medical complications on the psychiatric wards.

Some retrospective audits have suggested a positive impact of medical services. Outcomes in a psychogeriatric ward run by a geriatrician, with consultations from a psychiatrist, were described as 'improved' in 47% of cases, though 94% of cases had organic mental disturbances (Prinsley, 1973). A Dutch geriatric assessment team, that included a psychologist, was found to reduce the impact of behavioural problems upon the carer (Gerritsen *et al*., 1995). Surprisingly, no cases of depression were detected by the team.

A recent randomized trial of geriatric liaison intervention by a multidisciplinary team led by a geriatrician, who was also trained in old age psychiatry, focused on the detection of depression and cognitive dysfunction (Slaets *et al*., 1997). The intervention resulted in improved physical functioning, shorter length of stay (LOS) and fewer nursing home transfers. However, no mental health outcomes were reported, apart from anecdotal reports of untreated cases of major depression in the usual care group. Thus it is unclear whether the intervention was specifically beneficial for depression or cognition.

The prevention and treatment of delirium in the elderly is one area that medical services have targeted with RCTs over the last decade. While there have been some notable successes with reduction in incidence and duration of delirium (Gustafson *et al*., 1991; Inouye *et al*., 1999), other studies have demonstrated only limited effect (Williams *et al*., 1985; Cole *et al*., 1994).

Consultation/liaison (CL) old age psychiatry services. Three models of CL service for the elderly have been proposed—general CL services (with additional training) taking responsibility for the elderly (Lipowski, 1983), CL service provision by old age psychiatry services (Pauser *et al*., 1987; Scott *et al*., 1988; De Leo *et al*., 1989), and a collaboration between CL and old age psychiatry (Small and Fawzy, 1988). There have been no studies that have compared the effectiveness of the models.

Three comparisons of liaison and consultation styles of service provision in the elderly have found the liaison approach to have some advantages (Scott *et al*., 1988; De Leo *et al*., 1989; Swanwick *et al*., 1994). Liaison service styles were associated with higher referral rates (Scott *et al*., 1988; De Leo *et al*., 1989), more depression referrals (Scott *et al*., 1988), a higher degree of diagnostic accuracy by referring doctors (Swanwick *et al*., 1994), more reviews by the psychiatric consultant (De Leo *et al*., 1989) and increased compliance with psychotropic recommendations (De Leo *et al*., 1989).

There have been few controlled trials of CL services for the elderly (for details, see Table 3). The overall results in terms of psychiatric outcome have been modest, with two studies demonstrating only non-significant trends towards improvement on measures of depression and cognitive function (Cole *et al*., 1991; Strain *et al*., 1991). A third study, an RCT of the treatment of depression with fluoxetine in physically ill elderly medical inpatients, while not strictly a CL intervention, also found a non-significant trend towards improvement in the treatment group (Evans *et al*., 1997). However, the multisite controlled study of psychiatric CL intervention with elderly hip fracture patients produced a significant reduction in length of stay and hospital costs (Strain *et al*., 1991).

Few services audits have included outcome data. An Italian study described the effects of establishing a formal psychogeriatric unit upon psychiatric consultations in a geriatric hospital (De Leo *et al*., 1989). Consultation rates, frequency of contact with each consultation, use of psychological interventions and implementation of psychiatric prescriptions by referring agents all increased, while length of stay was reduced after the unit's establishment. The presence of a formal old age psychiatry CL service may also increase the recognition of depression by referring agents (Scott *et al*., 1988). Three-month follow-up of a CL intervention showed an increased utilisation of community services and community nursing, while 54% had further psychiatric contact and 14% a psychiatric admission (Loane and Jefferys, 1998).

Apart from the prevention and treatment of delirium, medical service studies have not specifically addressed the question of effectiveness of mental health service delivery. There is some evidence that improvements in behaviour and other disturbances related to dementia and delirium may occur, but there is little evidence of effectiveness in the detection and treatment of depression. CL services to the elderly have been more adequately evaluated on a broader range of issues with modest evidence of effectiveness from controlled trials and audits, though most of the outcome measures have

Table 3. Randomised trials of consultation liaison interventions in the elderly

	Strain *et al.* (1991) USA	Cole *et al.* (1991) Canada	Slaets *et al.* (1997) Netherlands	Evans *et al.* (1997) United Kingdom
Sample	452 patients aged 65+ with hip fractures.	80 patients aged 65+ referred to multidisciplinary geriatric team.	237 patients aged 75+ admitted to two general medical units.	82 patients aged 65+ with GMS-AGECAT depression.
Setting	Two university affiliated hospitals.	University affiliated hospital.	University affiliated hospital.	University affiliated hospital.
Method	Psychiatric liaison screening vs traditional psychiatric consultation.	Geriatric psychiatry consultation vs no consultation.	Psychogeriatric intervention vs usual care.	Fluoxetine vs placebo.
Outcome measures	1. Length of stay. 2. Costs. 3. Placement post-discharge.	1. Short Portable Mental Status Questionnaire (SPMSQ). 2. Geriatric Depression Scale (GDS). 3. Anxiety Status Inventory (ASI). 4. Crichton Geriatric Behavioral Rating Scale (CGBBRS).	1. Physical functioning. 2. Length of stay. 3. Nursing home placement within 12 months.	1. Depressive symptoms on Hamilton Depression Rating Scale. 2. AGECAT diagnosis.
Outcomes	Psychiatric liaison screening had: 1. reduced length of stay 2. reduced hospital costs; 3. no difference in discharge placement; 4. increased psychiatric consultation.	Geriatric psychiatry consultation had small positive effect on psychiatric symptoms and functional status, but no statistically significant differences with controls on SPMSQ, GDS, ASI, and CGBRS.	Psychogeriatric intervention had: 1. better physical function at discharge 2. shorter length of stay; 3. fewer nursing home placements; 4. fewer hospital readmissions.	1. At 8 weeks, fluoxetine increased chances of recovery by factor of 1.8. 2. No significant differences between fluoxetine & placebo response largely due to high drop outs (49%).

not involved psychiatric symptomatology. Further studies are required to determine the optimal model of service provision.

On the evidence hierarchy, the quality of evidence for the effectiveness of interventions by medical services is level II for delirium, level IV for other mental disorders. For psychiatric services, the overall quality of evidence for the effectiveness of interventions by medical services is level III. There is no evidence of a difference in outcome between CL services and old age psychiatry services.

Service delivery in community settings

Old age psychiatry day hospitals. There has been debate about the effectiveness of day hospitals in old age psychiatry, particularly in acute care (Howard, 1994; Fasey, 1994). It has been suggested that day hospitals may reduce the need for PGU admissions, but the evidence is flimsy and uncontrolled (Corcoran *et al*., 1994; Howard, 1994; Fasey, 1994). A retrospective chart review of day treatment, over an approximate three month period, found that 57% of patients experienced clinical improvement (Plotkin and Wells, 1993). Patients with mood disorders, better initial functional status, greater initial social support, fewer stressful events during treatment and longer duration of treatment had better outcomes. The outcome of depression following consultation by a psychiatrist in a geriatric medical day hospital showed that 64% were well at 6 months and 50% at 12 months (Agbayewa, 1990). Other studies have shown an effect on the reduction of carer stress (Rolleston and Ball, 1994; Rosenvinge *et al*., 1994).

From the available evidence, the role of day hospitals in acute care remains unresolved. The quality of evidence is level IV.

Community old age psychiatry services. There have been five RCTs of treatments provided by old age psychiatry services (see Table 4). In the treatment of depression, one RCT examined the efficacy of intervention by a community psychogeriatric team in the frail elderly living at home. It found that significantly more of the intervention group (58%) had recovered after six months as compared to the general practitioner (GP) managed control group (25%) (Banerjee *et al*., 1996). These results were not simply due to the use of antidepressant medication. Interventions reflected normal clinical practice and involved a multidisciplinary team co-ordinated by a psychiatrist formulating a tailored management plan.

A second RCT assessed the efficacy of psychiatric community nurse management of depression in community dwelling older people and demonstrated that as little as seven hours face-to-face time over a three-month period was sufficient to improve subjects' depression scores compared to GP-managed controls (Blanchard *et al*., 1995). This occurred even when there was failure in the implementation of recommended interventions, such as day centre attendance and antidepressant medications. In contrast, a RCT of treatment of depression in elderly GP clinic attenders by a multidisciplinary community old age psychiatry team found no significant difference at nine month outcome with GP-managed patients (Jenkins and MacDonald, 1994). A small sample size contributed to the lack of effect, as there was a trend toward greater improvement in the intervention group.

There has been one RCT by a multidisciplinary old age psychiatry team of the community treatment of behavioural disturbances associated with dementia (Hinchliffe *et al*., 1995). Improved patient behaviour and reduced carer stress were achieved with individualised care packages during a 16 week trial, particularly if the intervention was implemented without delay.

Audits of the outcome of interventions by community old age psychiatry teams have been generally positive. In Canada, a six month follow-up of a community program found that 82% of consultees were satisfied with the consultation and that 25% of patients had improved mental functioning and 55% had maintained their level of functioning (Wasylenki *et al*., 1984). A two year follow-up of another Canadian psychogeriatric outreach service compared those who were admitted with patients managed in the community. It found that while there was less institutionalisation of the community cases, older people with affective disorders managed in the community had a worse outcome than those who had been hospitalised (Houston, 1983). These findings should be interpreted with caution, as this was not a controlled trial. A more recent Canadian review of four years of experience with an old age psychiatry outreach program based on a community development model that emphasised caregiver education, found that 90% of referred cases were able to be managed

Table 4. Randomised trials of community-based interventions for mental disorders in the elderly

	Jenkins and MacDonald (1994) UK	Cole *et al.* (1995) Canada	Blanchard *et al.* (1995) UK	Hinchliffe *et al.* (1995) UK	Banerjee *et al.* (1996) UK
Sample	65 patients aged 64+ with CARE depression scores > 9.	32 cognitively intact patients aged 64+ with SCL-90 depression scale scores > 15.	96 community living subjects aged 65+ Short-CARE depression score > 5.	40 dementia patients aged 65+ living in the community with carers whose GHQ scores were > 4.	69 people aged 64+ who received home care and were depressed on GMS/AGECAT.
Setting	5 group general practices in catchment area of old age psychiatry service.	GP referrals to university affiliated psychiatry outpatient clinic.	Cohort identified in household enumeration.	Cohort drawn from day centres, GPs, hospital discharges and self-referred.	Cohort identified by depression screening of home care recipients in an inner city borough.
Method	Multi-disciplinary community old age psychiatry team vs routine GP care.	Initial assessment at home, then ongoing outpatient clinic treatment vs initial assessment and ongoing treatment in outpatient clinic.	Community nurse management of multi-disciplinary old age psychiatry team plan vs routine GP care.	Multi-disciplinary community old age psychiatry team vs routine GP care.	Multi-disciplinary community old age psychiatry team vs routine GP care.
Outcome measures	CARE depression scale.	1. SCL-90 depression scale. 2. OARS ADL and Social Resources (SR) Scales. 3. SPMSQ. 4. Evaluation of Change Scales (ECS).	Depression score on Short-CARE (DPDS).	1. General Health Questionnaire (GHQ) (carers). 2. Geriatric Mental State (GMS). 3. Present Behavioural Examination (PBE).	1. GMS/AGECAT depression category. 2. Montgomery Asberg depression rating scale (MADRS).
Outcomes	Both groups improved at 9 months. Treatment group non-significantly greater improvement than controls.	Both groups improved on SCL-90 depression scale, SR Scale, ECS & SPMSQ at 3 months. No significant differences between groups.	At 3 months, nurse intervention greater improvement than GP intervention, especially in patients with chronic depression.	At 16 weeks, intervention group had significantly reduced carer stress on GHQ and improved patient behaviour on PBE.	At 6 months, significantly more of the intervention group recovered (58% vs 25%).

at a similar or lower level of care (Stolee *et al*., 1996). The problem with the consultative style of service was again raised by a Canadian study that reported only 31% of referring physicians had followed the consultant's advice (Teitelbaum *et al*., 1996).

A two year follow-up of a crisis intervention service in the UK found that the rate of psychiatric hospitalisation and mortality compared favourably with previously published outcomes of hospital-based services (Ratna, 1982). An audit of dementia carers six months after referral found that 56% had unmet needs and 43% considered services to be of poor or moderate quality (Melzer *et al*., 1996). There was a lack of correlation between the service provider assessment of carer stress and their scores on the General Health Questionnaire.

The processes of community teams should also be evaluated (Dening, 1992). The location of assessment is one example. As older people may be reluctant to attend outpatient clinics, home based assessments may increase the proportion of patients and carers seen without increasing the time required, as well as possibly being less costly (Benbow, 1990; Shah, 1994). A community old age psychiatry service to a public housing complex proved to be successful in averting the risk of eviction by providing continuing care to residents, two-thirds of whom were unwilling to attend clinics (Roca *et al*., 1990). Although pre-admission home assessment is often recommended, it hasn't been well evaluated. One retrospective Irish study reported on 205 first admissions, of whom 99% were assessed at home. It found that pre-admission home assessment was feasible, being assisted by defined admission criteria that clarified reasons for admission, ensuring appropriate use of beds (Freyne and Wrigley, 1997).

To a certain degree, the question of the role of home assessment in the UK is confounded by the domiciliary visit system, where visits are conducted at the request of the GP and consultants are able to charge a fee. It has been seen as a way of bypassing waiting lists and as an additional source of income (Baldwin, 1998). A prospective study of domiciliary visits in the UK found that 81% of GPs were satisfied with the outcome. However, GPs' expectations were not well matched by the services offered for inpatient admission, community psychiatric nurse input and outpatient follow-up (Orrell *et al*., 1998a). Reasons for admission were complex, but levels of depressive symptoms, suicide risk and not coping all played a role (Orrell *et al*., 1998b).

The extent to which initial home assessments are required is unclear. In a study comparing home assessment with clinic-based assessments in a RCT of the treatment of depression, no significant differences in outcome were found (Cole *et al*., 1995). Furthermore, a RCT comparing outpatient geriatric assessment with traditional community care found that geriatric assessment clinics identified a greater number of patients with depression and cognitive impairment. At one year follow-up, the geriatric assessment patients were less anxious and the carers less distressed (Silverman *et al*., 1995).

The processes of care from different types of healthcare professionals have also been examined. Initial assessments can be effectively undertaken by non-medical staff without reducing diagnostic accuracy (Collighan *et al*., 1983; Seymour *et al*., 1994). However, some have expressed concern that this approach 'downgrades patients as deserving less from a specialist service than any other group of patients would expect' and may be used when psychiatrists are a limited resource (Jolley, 1993; Ginsburg *et al*., 1998). Referring GPs have been shown to discriminate the roles of medical and non-medical staff by referring patients with treatment resistant problems to medical staff and patients requiring specific therapies to nursing staff (Ball *et al*., 1996). The multidisciplinary approach has also been shown to increase the frequency of continuing care by the service as compared to that provided by a consultant psychogeriatrician domiciliary service (Coles *et al*., 1991).

While there are descriptive accounts of intensive home nursing as an alternative to inpatient care (Williams *et al*., 1997), models of community psychiatric nursing vary considerably and are often based on historical resource allocation without evidence of what is most appropriate or effective (Junaid and Bruce, 1994). One attempt to address this used cluster analysis to identify three groups of rural elders based on their psychogeriatric nursing status and health services utilization (Neese and Abraham, 1997).

In summary, the majority of RCTs and audits of acute treatment outcomes indicate that community old age psychiatry services are effective. On the evidence hierarchy, the quality of available evidence is level II. The effectiveness of community adult psychiatry services in the acute treatment of the elderly has not been adequately examined.

There is insufficient evidence to determine which processes of care are associated with better outcomes. While the importance of multidisciplinary teams is not in question, there has been little evaluation of the roles of specific disciplines. As with PGUs, carers may not perceive that their needs have been adequately met.

Outreach services to nursing homes. Nursing home residents are increasingly being recognised as having considerable unmet needs (Reichman *et al*., 1998). Approximately two-thirds of residents have dementia, severe behavioural problems have been identified in 14–20% and psychosis in around 15% (Zimmer *et al*., 1984; Rosewarne *et al*., 1997). Over 20% have depressive disorders defined by psychiatric diagnostic criteria (Ames, 1993). Few have received formal diagnoses or specialist mental health interventions (Zimmer *et al*., 1984; Snowdon *et al*., 1995).

Psychogeriatric nursing consultations to nursing homes have been shown to decrease hospital admissions and improve community (Fuller nad Lillquist, 1995; Joseph *et al*., 1995), while monthly visits by a psychogeriatrician were reported to increase the nursing home staff's understanding and acceptance of emotional problems and increase the frequency of therapeutic programs offered (Tourigny-Rivard and Drury, 1987). Provision of psychiatric input on a regular basis has been shown to have a significant impact on the mental health care of residents by impacting upon diagnosis, management, identification of medication side effects and better staff tolerance of behaviours (Goldman and Klugman, 1990). The benefits of an outreach service have also been noted by GPs and residential care staff (Baillon *et al*., 1996). There is also evidence that brief admission to a PGU is beneficial for residents with severe behavioural disturbances (Kunik *et al*., 1996; Draper *et al*., 1998).

Two studies from Australia have evaluated outreach services to nursing homes. One uncontrolled study demonstrated significant improvement in the behavioural disturbances of nursing home and hostel residents treated by a community team, although outcomes for those with depression were not as good. Eighty-seven percent of referring agents and 80% of carers rated the service as being 'helpful' or 'very helpful' (Seidel *et al*., 1992). The second project evaluated seven pilot specialist multidisciplinary Psychogeriatric Care Units that were established to assist nursing homes to better meet the needs of older people with dementia and challenging behaviours. Some of the Psychogeriatric Care Units were linked with old age psychiatry services, others with aged care services. Significant improvements in behavioural disturbance were reported in 77% of referred residents and 74% were rated as having an improved quality of life, while 83% of nursing homes were satisfied by the interventions (National Psychogeriatric Unit Evaluation Study, Lindsay-Smith *et al*., unpublished).

However, outreach services may need to subscribe to preventive approaches as well. A RCT of a dementia care program, consisting of activities, guidelines for psychotropic medications and educational rounds, found that the prevalence of behaviour disorders, use of antipsychotic medication and restraints were all reduced (Rovner *et al*., 1996).

These studies suggest that old age psychiatry services are capable of providing effective outreach services to nursing homes and that there should be a strong educational component to service provision. The quality of available evidence for outreach services is level III-2, for preventive programs level II.

CONCLUSION

Over the last decade, there has been a marked increase in service evaluation of old age psychiatry services. Service delivery in different settings has been evaluated with varying levels of evidence quality (see Table 5). Most data have been generated from uncontrolled audits, which may reflect the dilemma of evaluation where simple measures lack meaning. However, the number of controlled trials which have shown the efficacy of aspects of service provision is increasing, thus forming a foundation of EBM in old age psychiatry. Recent trends towards pluralistic evaluation of service provision offer a complementary model of evaluation that should be pursued.

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Table 5. Quality of evidence for outcomes of old age psychiatry service delivery

	Acute psychiatric inpatients	Medical wards	Day hospitals	Community	Nursing home outreach
Outcomes	Adult psychiatry services: 1. Over 75% patients improved at discharge. Outcomes improved by having input from trained old age psychiatry staff. Old age psychiatry services: 1. Over 80% patients improved at discharge. 2. Effective treatment of depression (38–69% full recovery, 51–96% partial). 3. Less effective in the reduction of behavioural complications of dementia. 4. Carer satisfaction with service provision.	Medical services: 1. Reduction in incidence and duration of delirium. 2. No discernible impact on depression outcomes. CL and old age psychiatry services: 1. Liaison models better than consultation models. 2. Modest impact on depression outcomes. 3. Improved recognition of depression. 4. Reduced length of stay and costs.	Uncontrolled reports of good outcomes with mood disorders and reduction in carer stress.	Old age psychiatry services: 1. Effective multidisciplinary treatment of depression. 2. Effective multidisciplinary treatment of dementia behavioural problems and carer stress. 3. Initial home assessments may reduce admissions and missed appointments, but may not improve quality of information or treatment outcome. Adult psychiatry—no studies.	1. Reduction of behaviour problems. 2. Better staff tolerance of behaviour problems. 3. Reduction of hospital admissions. 4. Nursing home satisfaction with service provision. 5. Prevention programs may reduce usage of psychotropics and restraints.
Quality of evidence	Adult psychiatry services—level IV. Old age psychiatry services—level III-2.	Medical services—Level II for delirium, level IV other disorders. Psychiatric services (both CL and old age psychiatry)—level III all disorders.	Level IV.	Old age psychiatry—level II. Adult psychiatry—inadequate evaluation.	Acute treatment—level III-2. Prevention—level II

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