



**T e c h n o l o g y
A s s e s s m e n t
P r o g r a m**

Office of Patient Care Services

UPDATED INFORMATION FOR VA TECHNOLOGY ASSESSMENT PROGRAM (VATAP) REPORTS

In June 2000, VATAP was relocated within the Veterans Health Administration from the Office of Research & Development to the Office of Patient Care Services. The following report was produced prior to the relocation of VATAP.

Current VATAP contact information is as follows:

VA Technology Assessment Program (11T)

VA Boston Healthcare System

150 South Huntington Avenue

Boston, MA 02130

Tel: 617.278.4469 Fax: 617.264.6587

vatap@med.va.gov

<http://www.va.gov/vatap> <http://vawww.va.gov/vatap>

Executive Summary

- TAP produced this overview of the case management literature in response to a request from the Network Director, VISN 1. The review will be used to prepare for a VISN case management conference. The conference was scheduled within a month of the request for this review.
- Within VA, “case management” is also known as “care management.”
- The case management literature identified through electronic database searches represents a large volume and scope of studies. It contains existing systematic reviews of randomized controlled trials and newer, subsequently published randomized controlled trials.
- One of the qualitative systematic reviews was produced within VA HSR&D. It addresses case management in primary care and provides core evidence, updated by newer randomized trial publications, for this short report.
- The authors of this VA-produced review concluded: *“While case management programs offer theoretical benefits, few examples of successful programs were found. Positive effect was related to disease condition and specialty training of study personnel. Patient-centered outcomes are often improved upon but at unknown cost. Further multisite clinical trials are needed to define case management’s role in our future health care system.”*
- The more recently published randomized controlled trials that were not available to the previous VA systematic review do not substantially alter the VA reviewers’ conclusion. Further, several trials attributing positive impacts to case management were conducted in other countries (Italy, Australia, and UK), where cultural and health system differences from both VA and US standards may confound the results and limit generalizability.
- The recent randomized controlled trials, some with parallel cost or cost-effectiveness analyses, provide reasonable evidence that case management programs can benefit selected groups of patients. These groups, as noted in the previous VA review, can be classified by disease or by more heterogenous categories, such as geriatric patients or those in the post-hospitalization period. However, potential benefits should be interpreted and extrapolated with caution, given the variability in case management models and program specifics reported in the literature.
- All retrieved cost or cost-effectiveness analyses related to case management for severe mental illness. Two of the three published analyses compared intensive (small caseload) to standard (larger case load) case management. The results of these analyses are mixed: case management programs can be more expensive for uncertain benefit, or can result in cost-effectiveness ratios that would, in turn, require comparison to analogous ratios for other programs to assist policy makers in resource allocation.
- Two case management trials have been published by VA investigators working with VA case management programs and within VA facilities:
 - A trial with homeless addicted veterans found that both case managed and control groups improved although the intervention group did have a statistical advantage.
 - A trial of intensive psychiatric community care found site-specific (general acute care medical centers versus long-stay psychiatric hospitals) cost effectiveness for this type of case management program.

- Differences in case management models and program specifics make interpretation of the literature a complex undertaking. These differences also limit direct comparability among programs used as interventions in published trials. In this context, further in-depth review of the case management literature would be considerably facilitated by definition of the types of programs, specific patient populations, care settings, and outcomes of greatest interest to VISN 1.

Background

The Network Director of VISN 1 requested a Technology Assessment Program (TAP) review of the case management literature. Specifically, she requested that TAP identify case management strategies that had been demonstrated to have impact, along with those that did not. The review would be used to assist VISN 1 in preparing for a case management conference. The conference was scheduled within a month of the request for this review.

Case (or care) management has been defined as:

- *“that aspect of primary care that coordinates care across all settings. It is patient-centered rather than disease-specific. The VA care manager coordinates care for all diseases and episodes of illness for a particular patient by integrating an assessment of living conditions, family dynamics, and cultural background into the patient’s plan of care.”* (VA Directive, 1997);
- Outreach, identification, assessment and service planning, service linkage and monitoring, and advocacy. (Ferguson and Weinberger, 1998);
- Specialized treatment programs that target high-risk and high-use patients; such programs provide comprehensive planning and management through continuous monitoring and assessment, patient education and behavior modification, specialized treatment plans coordinated by disease experts, and preserved continuity of care across diverse settings. (Gorey, 1998);
- Brokerage or coordination of service delivery to clients (e.g. the frail elderly, chronically ill,

developmentally disabled, or mentally ill) (Cnaan, 1994);

- The two central functions of case management are: providing individualized advice, counseling, and therapy to clients in the community; and linking clients to needed services and supports in community agencies and informal helping networks. (Cnaan, 1994);
- *“...Advocacy, education, identification of service resources and service facilitation...”* (Commission for Case Manager Certification, reported by Patterson, 1999);
- Case managers help patients move across institutional or organizational systems, and across provider disciplines. (Patterson, 1999).

While much of the literature reviewed in the course of preparing this report supports these definitions, many articles also cite a lack of common definition across programs and a corresponding lack of consensus on program structure and effectiveness. Citing the variability in case management program characteristics and desired outcomes, Patterson (1999) notes: “to evaluate case management effectiveness it is critical to define program purposes, role characteristics, and interagency communication so that programs are compared to like programs.” Further confusion may ensue when published descriptions are inadequate to determine the model of case management that was tested in a study. The UK 700 Group (1999), in its rationale for a trial of intensive case management for patients with psychoses, notes that this is frequently the case.

Assessment Methods

TAP searched MEDLINE® and HealthSTAR® databases on April 18, 2000, and again on July 7, 2000. The abstracts attached to the citations were screened to identify systematic reviews or primary research documenting the presence, direction, or magnitude of case management outcomes in VA patients, or in patients likely to share important characteristics such as age and disease status with VA patients. Given the tight schedule between the request for this review and the conference for which it would be used, a two-stage response process was

planned: this short report, and then a further, more comprehensive review, should it be needed.

For this preliminary overview, the following rationale was used to generate inclusion criteria:

- Since a randomized controlled trial (RCT) would be needed to demonstrate a causal relationship between case management and any impacts or outcomes, that study design was required for inclusion.
- Studies in adult patient populations in the United States that were potentially relevant to the veteran population. Studies in patient populations that do not share important demographic and disease prevalence characteristics with the majority of veteran users of the VA health care system were judged to provide results of limited interest to VA policy makers, as were those conducted in non-US health care systems or cultures.
- Further, since existing reviews certified for quality by TAP would allow synthesized and well-organized information to be provided to the VISN Director within her relatively tight time frame, systematic reviews (of randomized controlled studies, if available) would provide core information to the Network Director. These reviews were evaluated for quality using the definitions and standards published for systematic reviews (Mulrow, 1997). If a review can be classified as “systematic,” then TAP considered that its methods sufficiently limit bias to allow its conclusions to be passed on to the VISN Director.

Mulrow (1997) lists the defining characteristics of systematic reviews:

- A comprehensive search for relevant studies;
- An explicit research question;
- Criteria for inclusion and exclusion of published study reports;
- Included studies are appraised and synthesized by a predetermined method.

To summarize these characteristics, the systematic review uses explicit, reproducible methods to minimize potential biases. The systematic review approaches the process of literature review as a scientific endeavor. In contrast, a traditional narrative review relies on implicit methods and may be susceptible to bias in the selection, analysis, and synthesis of studies.

Results: Systematic Reviews

TAP electronic database searches identified 378 citations. Thirteen of these (3.44%) were review articles. While they varied in quality and relevance to VA, three of the published reviews met criteria for systematic reviews (Ferguson and Weinberger, 1998; Gorey, 1998; and Cook, 1998). The remaining ten were narrative reviews.

An overview of the distribution and scope of published articles identified in the searches conducted for this short preliminary report is provided in Table 1. Table 1 focuses on randomized controlled trials, systematic reviews, and within-VA studies as most relevant to the purposes of this report. This table includes all identified citations of these types, not only those meeting inclusion criteria for this short report.

Table 1. Overview of the literature: Distribution of citations retrieved from searches (RCTs, systematic reviews, and within-VA studies)

NB. Not all studies in this table met inclusion criteria for detailed analysis or abstraction in Table 4 (Appendix).

Patient/Client population	RCTs	Reviews
Severe Mental Illness		
Deprived inner city London (UK)	1 trial, 3 publications + CEA	
Other RCTs for serious mental disorders	3	
Severely disabled mental health patients in Australia	1 + CEA	
Severe psychosis	1	
Studies using veteran patients and/or VHA facilities		
*Veteran high-users of inpatient VA psychiatric services	1	
*Homeless addicted veterans	1	
Older people		
Medicare (USA) Alzheimer's Disease demonstration project	1	
Elders at risk for readmission to Philadelphia academic medical centers	1	
Elderly functionally disabled enrollees in HMO	1	
Elderly persons in urban public housing (Baltimore)	1	
Community-dwelling frail older people (Canada and Italy)	2	
Other populations, settings (including mental illness not primarily classified as "severe")		
Chronic renal insufficiency	1	
Chronic schizophrenia (Hong Kong)	1 CEA (corresponding RCT not separately referenced)	
Chronic public inebriates	1	
Schizophrenia and bipolar disorder clients in community	1	
Depression	1	
Low-income African-American infants	1	
Cocaine-dependent mothers	1	
Reviews = 13		
Dual diagnosis (substance abuse and mental illness)		1 narrative
Severe mental disability		3 narrative, 1 systematic
Traumatic-brain-injured adults		1 systematic

Patient/Client population	RCTs	Reviews
Reviews (cont) = 13		
Chronic mental illness		1 narrative
**Case management in primary care		1 systematic
General case management		1 narrative
Severe, persistent mental illness		1 systematic with meta-analysis
Psychiatric rehabilitation		1 narrative
General case management		1 systematic
Refractory schizophrenia		1 narrative

Abbreviations: RCT randomized controlled trial
 CEA cost-effectiveness analysis
 * study conducted within VA
 ** review by VA authors

One of the systematic reviews (Ferguson and Weinberger, 1998) addresses issues relevant to a wide range of patients in VA and elsewhere, and also reflects VA’s emphasis on primary care. This review was also produced within VA HSR&D. Ferguson and Weinberger (1998), therefore, will supply the core evidence for this preliminary overview. Findings from this review are detailed in Table 2.

To paraphrase and simplify the summary of findings by Ferguson and Weinberger: Nine studies met inclusion criteria. Of these nine, seven examined case management’s impact on health care resource use. Two of the studies examining resource use found that case management decreased resource use. The programs used in these studies targeted patients with specified conditions and, in most cases, care was supervised by a medical subspecialist. Most of the programs targeting general disease conditions or supervised by generalists failed to find a positive effect on resource use.

Ferguson and Weinberger found that case management seems to have a positive impact on

patient-centered outcomes, such as quality of life. All six studies examining these outcomes found positive effects for case management.

Studies examining clinical parameters, such as smoking cessation in post-myocardial infarction patients or blood glucose control in diabetics, found a positive impact. All three studies that examined costs per se (as distinct from resource use or surrogate measures for costs) reported non-significant cost savings.

Finally, Ferguson and Weinberger note that while case management programs offer theoretical benefits, few examples of successful programs were reported in studies that met their selection criteria. These VA authors found positive effects of case management to be related to disease condition and specialty training of program personnel. Patient-centered outcomes were improved, but at unknown cost. Ferguson and Weinberger conclude: *“Further multi-site clinical trials are needed to define case management’s role in our future health care system.”*

Table 2: Ferguson and Weinberger (1998) statistically significant findings

Target group	Intervention	Outcome measure(s) with significant differences in favor of intervention
Asthma	<ul style="list-style-type: none"> • Specialty MD + nurse • Patient education, improved access, single site 	<ul style="list-style-type: none"> • Resource use
Congestive heart failure	<ul style="list-style-type: none"> • Nurse -directed patient education • Dietary instruction by dietician • Medication review by specialist • Intense outpatient FU by team • Single site 	<ul style="list-style-type: none"> • Mortality • Re-admissions • QOL • Resource use
Diabetes	<ul style="list-style-type: none"> • Nurse-directed patient education • Monitoring of symptoms and improved access • Telephone FU, single site 	<ul style="list-style-type: none"> • Glycemic control • Health-related QOL • Number of symptoms • Patient satisfaction
Post-MI	<ul style="list-style-type: none"> • Nurse-managed risk factor reduction as inpatient • Telephone FU • 5 sites 	<ul style="list-style-type: none"> • Smoking cessation • LDL • Functional capacity
Post-hospital	<ul style="list-style-type: none"> • Nurse- directed needs assessment • Medication review • Telephone and primary clinic FU • Improved access • Single site 	<ul style="list-style-type: none"> • Resource use
Post-hospital	<ul style="list-style-type: none"> • Nurse/primary MD team • Telephone FU • Improved access • 9 sites 	<ul style="list-style-type: none"> • Resource use

Abbreviations: MI Myocardial infarction
 QOL Quality of life
 LDL Low-density lipoproteins
 FU Follow-up

Additional Systematic Reviews

In a systematic review with meta-analysis of 24 studies examining the effect of intensive case management (such as PACT or other small caseload models) for people with severe, persistent mental illness, Gorey (1998) found that, overall, case management interventions were effective. 75% of clients who participated in case management programs did better than those who did not. Prevention of hospitalization was approximately 30% greater among clients receiving intensive case management than among those receiving less intensive service. While various case management programs did not differ significantly on effectiveness, Gorey concludes that the differential effectiveness of specific programs remains an important question.

Marshall (1996; revised 1997) conducted a systematic review within the international Cochrane Collaboration. The review was concerned with case management for people with severe mental disorders. Only randomized controlled trials were included, and trial results were quantitatively combined in a meta-analysis. The results were:

- Case management increased the numbers remaining in contact with services (odds ratio, 0.70);
- Case management approximately doubled the numbers admitted to psychiatric hospitals (odds ratio, 1.84);

- Except for one positive finding on compliance, case management showed no significant advantages over standard care on any psychiatric or social variable;
- Cost data did not favor case management but insufficient information was available to permit definitive conclusions.

Cook (1998) performed a meta-analysis of controlled (but not necessarily randomized) studies of inpatient case management that were published between 1988 and 1995. Cook calculated a combined, weighted mean effect of case management on length of stay of 0.29 (interpreted as a small positive effect).

However, Cook further noted that heterogeneous case management models, study designs, and patient populations across studies made the weighted mean effect problematic to interpret. Such differences across studies also indicate the questionable validity of combining their results quantitatively and raise confounding variables as potential explanations for results. Accordingly, TAP questioned the generalizability of the meta-analytic component of this review.

Results: Recent Randomized Controlled Trials

TAP searches identified twenty randomized controlled trials. Fourteen of these were published after Ferguson and Weinberger finalized their searches. Most of the more recent published articles would have met selection criteria for the Ferguson and Weinberger review, and some of them yielded more than one published report. The eight studies among these that met inclusion criteria for this report are detailed in Table 4 (Appendix) and their statistically significant results are summarized in Table 3.

Table 5 (Appendix) details the available cost and cost-effectiveness analyses, all for case management of patients with severe mental illness. While all of these analyses were performed in non-US health care systems and thus do not fully meet inclusion criteria for his report, their results were assumed to be of particular interest to policy makers, warranting inclusion as part of the Appendix.

Tables 3 and 4 illustrate that the more recently published randomized controlled trials that were not available to Ferguson and Weinberger and that also meet selection criteria for this short report do not substantially alter the conclusion drawn by these VA authors.

Table 3: Statistically significant results from TAP-identified RCTs published since 1998 (after Ferguson and Weinberger searches) that met inclusion criteria for this report

Setting	Outcomes in favor of intervention
Elderly people in urban public housing (Baltimore, USA)	<ul style="list-style-type: none"> Psychiatric cases had lower depression and psychiatric rating scores
Chronic public inebriates (Seattle, USA)	<ul style="list-style-type: none"> Total income from public sources Housing outcomes
Inner city patients with chronic renal insufficiency (USA)	No effect on outcomes
VA patients on psychiatric inpatient units (USA)	Acute care hospitals: <ul style="list-style-type: none"> Long-term clinical improvement When fully implemented, is cost-neutral Long-stay psychiatric hospitals (older, less functional patients): <ul style="list-style-type: none"> Cost-saving without clinical improvement
Medicare Alzheimer's Disease patients (USA)	<ul style="list-style-type: none"> Likelihood of home care, adult day care use
Elderly, functionally disabled Kaiser Permanente enrollees (Ohio, USA)	Costs for care in last month of life higher than in control group, but latter also K-P enrollees
Homeless addicted veterans (USA)	<ul style="list-style-type: none"> Medical Alcohol Employment Housing Control group also improved (access to services without case management intervention)

Abbreviations: CER cost-effectiveness ratio
 QOL quality of life
 K-P Kaiser-Permanente

See Appendix for Table 4.

Summary and Discussion

The authors of the VA-produced systematic review that provided the core evidence for this report concluded: *“While case management programs offer theoretical benefits, few examples of successful programs were found. Positive effect was related to disease condition and specialty training of study personnel. Patient-centered outcomes are often improved upon but at unknown cost. Further multisite clinical trials are needed to define case management’s role in our future health care system.”* Randomized controlled trials published since this review do not substantially alter its conclusion. In addition, several of the newer trials were conducted in other countries (Italy, Australia, UK), where cultural and health system differences from both VA and the rest of the US system may confound results or limit generalizability.

Differences in case management models and program specifics make the literature complex to interpret, and limit direct comparability among programs used as interventions in published trials. In this context, further, in-depth review of the case management literature would be considerably facilitated by definition of the types of programs, specific patient

populations, care settings, and outcomes of greatest interest to VISN 1.

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Asterisked references met inclusion criteria for this report and are abstracted in Table 4 (Appendix). Others are counted in Table 1.

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Valerie A. Lawrence, M.D.
Physician Advisor, MDRC TA Program
Audie L. Murphy Division, South Texas Veterans
Health Care System
Associate Professor, Dept of Medicine
University of Texas Health Science Center
Audie L. Murphy VA Medical Center
San Antonio, Texas

Donna C. Vogel, MSN, CCM
Program Director, Continuing Care & Case
Management
VA Connecticut Healthcare System
West Haven, Connecticut

To contact the VA Technology Assessment Program

phone: 617-278-4469 Fax: 617-278-4438
e-mail: MDRC.boston@med.va.gov

Technology Assessment Program (152M)
VA Boston Healthcare System
150 South Huntington Ave
Boston, MA 02130

Appendix

Table 4: Randomized controlled trials published after 1998

Citation	Patient population or Clinical setting	Method	Statistically significant results	Results at a glance, authors' conclusions (<i>italics</i>)
Rabins, 2000	Elderly people in urban public housing, Baltimore	N = 881 PATCH intervention model VS usual care	<ul style="list-style-type: none"> Intervention remained significant in improving depression and psychiatric rating scores after controlling for subjects receiving mental health treatment at baseline 	<ul style="list-style-type: none"> At 26 months of FU, psychiatric cases at intervention sites had lower depression and psychiatric scores No significant differences in undesirable housing moves PATCH intervention was more effective than usual care in reducing psychiatric symptoms in persons with psychiatric disorders and in those with elevated levels of psychiatric symptoms
Long and Marshall, 1999	Elderly functionally disabled enrollees in managed care organization during last month of life; Substudy of larger RCT	N = 317 enrollees in Kaiser Permanente Medical Care Program, Ohio, > 75 years, or severe functional disability, or had excessive hospital or ED use; Case management vs regular care. 77 (33 managed care group, 43 controls) of these subjects died during the 2-year study period and became part of the substudy	<p><u>Case managed group characteristics:</u> More living with others; Fewer qualified for admission into study because of functional disability or excessive hospital or ED use <u>Dependent variable analyses:</u> NS differences between intervention and control groups <u>Mean total cost of care in last month of life:</u> \$4556 for case managed group \$2847 for control (significant at p = .0680) <u>Case managed group:</u> Twice as likely to have at least one hospitalization in last month of life; 39% more likely to have at least one outpatient visit; <u>Mean cost for care in last month of life</u> was 40% of that reported by Medicare for 1988 (managed care may already have reduced costs to point where additional interventions don't make further reductions)</p>	<ul style="list-style-type: none"> Cost of care in last month of life reductions attributable to CM were not demonstrated. Results provide further evidence that organizations planning to introduce case management as a cost-saving tool must be sensitive to varying dynamics of the different case management models and implement a mode that is consistent with this desired outcome

Citation	Patient population or Clinical setting	Method	Statistically significant Results	Results at a glance, authors' conclusions (italics)
Naylor, 1999	Patients > 65 years who had specified medical or surgical admission to two urban, academic medical centers in Philadelphia, and at risk for re-admission	N = 363 Comprehensive discharge planning with home FU by APNs vs routine discharge planning for adult patients at study hospitals	<u>Intervention:</u> Fewer patients had one or multiple readmissions, and, if readmitted, had longer time to readmission and shorter stay Medicare reimbursement: 0.6 million \$ for intervention vs 1.2 million \$ for control	<ul style="list-style-type: none"> APN discharge planning and home FU group had longer time to readmission, shorter readmission stays, fewer multiple readmissions, lower health services costs. APN discharge planning and home care for at-risk hospitalized elders reduced readmission, lengthened time from discharge to readmission and decreased costs of providing health care.
Newcomer, 1999	Medicare Alzheimer's Disease demonstration program	N = 5209; Case management and community service reimbursement vs continued usual care	<u>Intervention:</u> Strong, consistent positive effect on likelihood of using home care and adult day care Caregiver training and support group participation had similar but less pervasive effect Reimbursement by Medicare waiver insufficient to increase average level of use over that in control group.	<ul style="list-style-type: none"> Demonstration program intervention had a strong, consistent positive effect on likelihood of using home care and adult day care. Reimbursement levels within demonstration may have enabled some individuals to purchase some services, but they were not sufficient to increase average intervention group service use over those in control group. No consistent differences between demonstration models were found in service use likelihood or average use among users.
Conrad, 1998	Homeless addicted veterans	358 homeless addicted male veterans; case management vs customary 21-day hospital program with referral to community services	<u>Intervention group:</u> Mean months in transitional residential care with ongoing and FU CM (total 1 year of treatment); Significant improvement on medical, alcohol, employment, and housing measures <u>Time trends:</u> Group differences tended to occur during treatment year and to diminish during FU year Significant improvements also seen in control group	<ul style="list-style-type: none"> Within groups, significant improvements occurred with time on all major outcome measures. Veterans had access to and used significant amounts of services even without the case management intervention, which partially may account for improvements in control group and may have muted differences between groups.
Cox, 1998	Chronic public inebriates	N = 298 homeless high frequency users of detox services ICM vs standard management for this population in Seattle	ICM favored: Total income from public sources, nights spent in "own place" out of previous 60 nights, and days drinking out of previous 30 days	<ul style="list-style-type: none"> Some outcome measures favored ICM Case Management has beneficial effect to clients receiving it

Citation	Patient population or Clinical setting	Method	Statistically significant Results	Results at a glance, authors' conclusions (<i>italics</i>)
Harris, 1998	Inner city patients with chronic renal insufficiency	N = 437 patients with CRI from urban academic GIM practice; ICM vs usual care	<p>NS: Renal function, health services use, use of renal-sparing or potentially nephrotoxic drugs, mortality in years 1 – 3 after enrollment</p> <p>ICM: More outpatient visits Annual direct costs of ICM: \$89,355 (\$484/patient)</p>	<ul style="list-style-type: none"> Differences ICM intervention vs control NS ICM had no effect on outcomes of care
Rosenheck & Neale, 1998	VA patients on psychiatric inpatient units (at 4 neuropsychiatric or 6 general medical-surgical hospitals) with primary psychiatric diagnosis other than substance abuse or organic brain disorder	N = 873 high users of inpatient services; IPCC vs standard DVA care	<p><u>Clinical:</u> Neuropsychiatric sites: all differences NS General med/surg sites: one clinically significant difference: IPCC patients had better community living skills</p> <p><u>Costs:</u> IPCC neuropsychiatric sites reduced total societal costs, but at general medical/surgical sites, costs were increased</p>	<ul style="list-style-type: none"> IPCC had clinically, but not statistically significant benefits at acute care hospitals (not at neuropsychiatric hospitals). At acute care hospitals, IPCC is associated with greater long-term clinical improvement and, when fully implemented, is cost neutral. At long-stay hospitals treating older, less functional patients, it is not associated with clinical or functional improvement but generates substantial cost savings.

Abbreviations:

CER cost-effectiveness ratio OOL quality of life

K-P Kaiser-Permanente

PATCH psychogeriatric assessment and treatment in city housing (indigenous housing staff as case finders and a mobile treatment team of psychiatric nurses)

Table 5: Recent Cost or cost-effectiveness analyses of case management for people with severe mental illness (studies not available to Ferguson and Weinberger, 1998)

Reference	Intervention and control	Results
Intensive versus standard case management		
UK 700 Group, 2000	Intensive (caseloads of 10-15) VS standard (caseloads of 30-35) case management at 4 inner city UK hospitals (London and Manchester)	<p>708 patients randomized, 41 excluded from economic analysis</p> <p>primary/secondary clinical outcomes:</p> <ul style="list-style-type: none"> No differences in any primary (days in hospital for psychiatric problems) or secondary (clinical status) outcome <p>Costs</p> <ul style="list-style-type: none"> Intensive case managers recorded more activities/patient and spent more than twice as much time/patient No significant differences in average overall costs of care/patient between groups Sensitivity analyses did not alter results of main analysis Changing the values for key cost drivers (in-patient psychiatric costs and staffed accommodation) to values for other locations also did not alter main analysis results <p>Conclusions/policy implications</p> <ul style="list-style-type: none"> <i>Intensive case management by mental health workers with a reduced case load has no clear beneficial effect on costs, clinical outcome, or cost-effectiveness in populations with severe psychoses.</i> <i>The policy of advocating intensive case management for all patients is not supported by these results and should be re-examined</i>
Johnston, 1998	Intensive (case loads of 8-10) VS Standard (case loads of 20-40) case management, suburban Sydney, Australia	<p>Clinical outcomes</p> <ul style="list-style-type: none"> Significantly more patients in the intensive group remained in treatment Clinically significant improvement in functioning from baseline to 12 months with intensive case management <p>Cost and cost-effectiveness</p> <ul style="list-style-type: none"> Mean cost per patient was \$7745 more in intensive group than in standard group over 12 months Cost effectiveness ratio indicated \$27,661 per year for one additional patient to achieve a clinically significant improvement in functioning <p>Conclusion: <i>intensive case management led to an increased rate of retention in treatment and a clinically significant improvement in functioning.</i></p> <p>Note: Isolated cost-effectiveness ratios are insufficient for resource allocation decisions. A cost-effectiveness ratio for one health care service requires comparison to a ratio for other services to contribute to allocation decisions.</p>
Case management versus "standard care"		
Chan, 2000	Case management by community psychiatric nurses VS traditional (Hong Kong) community psychiatric nursing care for patients with chronic schizophrenia Case loads not reported	<ul style="list-style-type: none"> Significant improvement in clinical indicators (tension, suspiciousness, hallucinatory behavior, thought disturbance) in intervention group No difference in readmission rates Significantly higher costs for intervention group (intervention patients received more home visits and made more outpatient visits) <p>Conclusion: <i>Case management costs more in Hong Kong (HK \$3600/patient over 5 months, And over the same period was associated with greater improvement in psychological condition, level of function, and patient satisfaction</i></p>

UK United Kingdom