

CURRENT CASE MANAGEMENT MODELS

Depicting Current Case Management Models

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Abstract

Case management is one of the principal components of service delivery in mental health services. Over time, it has evolved into new models, and various meta-analytic studies have been carried out to establish its effects. Those studies have yielded non-homogeneous results, which might be related in part to the progress of case management models. Therefore, there is a need to understand the relationship between CM models and CM effects. This paper deals with this issue by reviewing and updating the literature regarding case management models and effects in order to help understand its current role and suggest how CM could be reorganized. Assertive community treatment and any other case management model seem to have fused and turned into two models that differ mainly with regard to the intensity of care provided to patients. The results of the meta-analyses on the efficacy/effectiveness of case management are not homogeneous across all studies, which seems to be related to the case management model used and the strictness of the methodology followed. When the model of case management used is congruent with clinical practice, the results favor case management over standard care and show that intensive and non-intensive case management may be provided depending on the previous use of hospital resources. Our paper suggests that case management models could be reconfigured by offering an intensity of care based on patients' needs.

Keywords: community treatment, case management, assertive community treatment, intensive case management, severe mental illness.

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Case Management (CM) is widely considered to be a major component of the services provided to patients with severe mental illness (SMI) (Rubin, 1992). Namely, CM has been defined as a way of coordinating, integrating and allocating individualized care within limited resources by means of continuous contact with one or more key professionals (Thornicroft, 1991).

The origins of CM are related to the deinstitutionalization movement that supported the care of patients with SMI in the community instead of in psychiatric hospitals. Therefore, patients with SMI started receiving outpatient care from community mental health centers or day hospitals in the community and the interventions provided there increased in order to fulfill patients' needs. Even so, a considerable number of these patients experienced problems in accessing the services required because those services were multiple, complex (Mueser, Bond, Drake and Resnick, 1998) and fragmented (Intagliata, 1982). These facts led to an increase in hospital admissions (Rössler, Löffler, Fätkenheuer and Reicher-Rössler, 1992), loss of patient contact with community services and, subsequently, the failure of community services to fulfill patients' needs (Audit Commission, 1986; Melzer, Hale, Malik, Hogman and Wood, 1991). CM emerged to deal with the above-mentioned problems.

Characteristics of Case Management

The different models of CM share a set of principles that derive mainly from social work (Thornicroft, 1991) and support a type of intervention aimed at enhancing patient adaptation in the community and at improving their functional ability. The principles most commonly reported as the basis of CM were described by Thornicroft (1991) and include: 1) Continuity, 2) Accessibility, 3) Staff-patient relationship, 4) Tailoring support to need, 4) Facilitating independence, 5) Patient advocacy and 6) Advocacy for services.

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The above principles are put into practice by way of tasks that have been discussed to varying degrees by a range of authors (Chamberlain and Rapp, 1991; Charnley and Davies, 1987; Dincin, 1990; Draine, 1997; Drake et al., 1998; Modrcin, Raw and Chamberlain, 1985; Renshaw, 1987; Rothman, 1991; Stein and Diamond, 1985). These tasks may range from the detection/identification of patients to the coordination of service provision or the direct provision of clinical care. Table 1 shows an overview of tasks that have mainly been linked to CM.

INSERT TABLE 1 AROUND HERE

Although the origins, definition, principles and tasks of CM seem to be well-established, CM has had to adapt over time, thus evolving from more traditional models to new ones (Bachrach, 1980; Hargreaves et al., 1984; Lamb, 1980; Marshall, Lockwood and Green, 1998; Marshall and Lockwood, 1998; Mueser et al., 1998; Solomon, 1992; Thornicroft, 1991). Moreover, the efficacy of CM has primarily been understood through two Cochrane reviews (Marshall et al., 1998; Marshall and Lockwood, 1998); however, in actual fact, eight meta-analytic reviews have been conducted on the topic. Those reviews have yielded non-homogeneous results, which might be related in part to the progress of case management models. Thus, there is a need to understand the relationship between the evolution of CM models and the study of CM effects as well as establish other factors that may have played a role in the latter. This paper deals with these issues by looking at CM models and discussing the reviews of CM effects. It aims to suggest how CM models could be organized to help fulfill patients' needs while improving clinical decision making and optimizing use of resources.

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Although the principles and tasks already mentioned seem to prevail as the foundation of CM, the scope of activities of case managers has widened, including, for example, other populations besides SMI (MacFarlane, 2006; Rapp, 2007). The increase in the case managers' scope of activities is revealed through various CM models. A conventional way of categorizing CM models involves differentiating between direct care and service broker according to the frequency of patient contact and intervention intensity (Bachrach, 1980; Hargreaves et al., 1984; Lamb, 1980). CM models has become progressively more complex and comprehensive. For instance, Thornicroft (1991) describes CM models according to their position in 12 axes. It may be one of the most useful categorizations of CM since it may reflect its complexity in practice. Solomon (1992) and Mueser et al. (1998), suggest a different way of categorizing CM models. According to Solomon (1992), there are four types of CM: 1) Assertive Community Treatment (ACT), 2) Strength CM, 3) Rehabilitation and 4) Generalist. Meanwhile, Mueser et al. (1998) describe the following six models: 1) Broker CM, 2) Clinical Case Management (CCM), 3) Strength CM, 4) Rehabilitation, 5) ACT and 6) Intensive Case Management (ICM). There has also traditionally been a broader categorization that differentiates between ACT and any other CM model (Marshall et al., 1998; Marshall and Lockwood, 1998). In this categorization, ACT has distinguished elements when compared to any other model of CM. Specifically, it includes lower caseloads, a team approach rather than an individual approach, assertive outreach and direct provision of care.

With regard to new categorizations, Burns et al. (2007) differentiates between ICM and non ICM models. The term ICM is applied to different conceptual models (Intagliata, 1982; McGrew and Bond, 1995; Stein and Test, 1980; Witheridge, Dincin and Appelby, 1982; Witheridge, 1991), which shows a convergence of ACT with any other CM model.

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ICM pertains to the local service organization and it is considered to be a way of organizing teams (Johnson, 2008). ICM addresses the social and health needs of people with SMI at high risk of rehospitalization and is an intensive and long-term approach. Case managers have caseloads of about 20 patients or less, direct contact with patients (Burns et al., 2007) and are clinicians in charge of providing comprehensive treatment, rehabilitation and support services (Scott and Dixon, 1995) together with their CM responsibilities (Marshall, 2008). ICM models aim to maintain patient contact with services, decrease hospital admissions and enhance results (Dieterich, Irving, Park and Marshall, 2010). Non ICM models include most of the features of ICM models but a caseload size of over 20 patients.

It is worth highlighting the Flexible Assertive Community Treatment model or FACT (van Veldhuizen, 2007), which is a rehabilitation-based CCM. FACT is an adaptation of the American ACT model (Stein and Test, 1980) to the Dutch community-based mental health services (Drukker et al., 2008). FACT is composed of a multidisciplinary team that can operate individually or by means of a team approach, depending on patient's needs. That is, patients who are more stable receive individual CM coordinated by the multidisciplinary team, while less stable patients receive shared CM and assertive outreach from the same multidisciplinary team which is integrated by case managers (i.e. psychiatric nurses, psychiatric community nurses, social workers and substance abuse counselors), psychiatrists, psychologists and individual placement and support workers. These teams coordinate care, and provide evidence-based medical interventions and recovery-based rehabilitation for people suffering from SMI.

The Effects of CM through Meta-Analytic Analyses

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When considering the efficacy/effectiveness of CM, two relevant Cochrane reviews (Marshall, 1998a; Marshall, 1998b) have had a clear impact. This may be related to the fact that they used a meta-analytical approach, which has been considered to provide a more objective assessment of evidence than literature reviews, a more accurate estimate of treatment effect, and may help to better explain inconsistencies between outcomes of individual studies (Egger, Smith and Phillips, 1997). Together with the above-mentioned Cochrane reviews, there are other reviews that use the same approach in an effort to establish CM efficacy/effectiveness and, moreover, the Cochrane group has updated its two meta-analytic reviews (Dieterich et al., 2010). Below, there is a description of the main characteristics and results of the meta-analytic reviews conducted to establish the efficacy of CM from 1995 to 2010 (see Table 2).

INSERT TABLE 2 AROUND HERE

To our knowledge, the first meta-analytic review regarding the effects of CM was conducted by Bond in 1995 (Bond, McGrew and Fekete, 1995). This review involved the effectiveness of ACT and included 9 studies with pre-post, quasi-experimental and experimental designs. The results of this review showed that 84% of patients who received ACT kept in contact with services in comparison to only 54% of patients who received standard care. Moreover, data showed that ACT significantly reduced inpatient days after one year. There was only limited evidence regarding the effectiveness of ACT in quality of life and general functioning. Three years later, Gorey et al. (1998) conducted another review of this type and included, as Bond et al. (1995), pre-post, quasi-experimental and experimental studies. This review involved 24 studies, which doubles the number of studies included in the previous review (Bond et al., 1995). This may be related not only to the increase in CM studies, but also to the fact that the scope of this review was broader and included ACT and other models of CM (i.e. strength,

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rehabilitation and generalist). The results of this review showed that 75% of patients in CM were doing better than patients without CM, and that the more intense the CM, the greater the preventive fraction patients displayed. The two reviews previously described, along with that of Ziguras and Stuart (2000), are the only ones that include other studies besides those with experimental designs (i.e. randomized, controlled trials). The inclusion of only this type of studies seems to improve the reliability of the meta-analysis results since it may help to differentiate between changes arising from CM and changes arising from other factors not related to CM (Ziguras and Stuart, 2000). The aforementioned Cochrane reviews were also published in 1998 (Marshall et al., 1998; Marshall and Lockwood, 1998). The first (Marshall et al., 1998) aimed to establish the efficacy of CM, not including ACT, compared to standard care. It involved 8 randomized controlled trials and the outcomes regarding use of services and clinical and psychosocial functioning. Compared to standard care, CM increased contact with services, but also psychiatric hospital admissions. In addition, CM was not associated to improvements in patients' clinical and psychosocial functioning. The second review conducted by the Cochrane group (Marshall and Lockwood, 1998) aimed to establish the efficacy of ACT in comparison to standard care, hospital-based rehabilitation and any other CM model. It included 20 randomized controlled trials and involved the same type of outcomes as the first Cochrane review (Marshall et al., 1998) together with costs. When ACT was compared to standard care, the former seemed to be related to a greater probability of maintaining contact with services, a lower probability of hospital admissions, less time in the hospital, better accommodation, a better job, greater satisfaction and a reduction in hospital resource costs. No ACT effect was observed in psychiatric symptoms or social functioning. When ACT was compared to hospital-based rehabilitation, ACT did not show any advantage with regard to retention, but seemed to decrease hospital admission

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and length of hospitalization, and to increase the probability of living independently. When ACT was compared to any other model of CM, there were no differences regarding retention and ACT seemed to decrease hospital stay and hospital resource costs. In 1999, another meta-analytic review was conducted (Herdelin and Scott, 1999) and, as in the review conducted by Marshall et al. (1998), it aimed to establish the efficacy of ACT versus standard care. The study included 19 randomized controlled trials and showed ACT efficacy in decreasing hospital admissions, length of hospital stay, psychiatric symptoms and costs, and in increasing social functioning and patient satisfaction. According to the authors (Herdelin and Scott, 1999), the results should be accepted with caution, except in the case of patient satisfaction, because the relationship between outcomes and treatment was not completely clear as shown by the analyses of attrition effects and treatment variance. Subsequently, Ziguras and Stuart (2000) conducted another meta-analytic review. This review was a replication of the meta-analyses conducted by Marshall et al. (1998) and Marshall and Lockwood (1998), but with an expansion in its inclusion criteria. Thus, Ziguras and Stuart (2000) included 44 studies, which was a significant increase in the number of studies included in the reviews conducted by Marshall et al. (1998) and Marshall and Lockwood (1998). This review showed that CCM and ACT were better than standard care in terms of family burden, family satisfaction and costs of care. When compared to standard care, ACT seemed to reduce the total number of hospital admissions and the proportion of patients hospitalized, while CCM seemed to increase both outcomes. Even so, the length of hospital admission was shorter in CCM than in standard care. Both ACT and CCM reduced the number of hospital days, but ACT was significantly superior. No differences were observed between ACT and CCM in symptoms, patient contact with services, drop-out rates, social functioning and patient satisfaction. The most recent meta-analytic reviews carried out to

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establish the efficacy of CM were conducted by Burns et al. (2007) and Dieterich et al. (2010). The first review (Burns et al., 2007) aimed to establish the efficacy of ICM compared to standard care. It involved 29 randomized controlled trials and used hospital days as the only outcome. The results showed that ICM worked best for patients who already used a number of hospital resources, and that fidelity to ACT increased the probability of reducing hospital care in ICM. The second review (Dieterich et al., 2010) is the updated version of the two Cochrane reviews already described (Marshall et al., 1998; Marshall and Lockwood, 1998). It aimed to establish the efficacy of ICM compared to standard care and also to non ICM and involved 38 randomized controlled trials. When comparing ICM to standard care, ICM showed efficacy in length of hospitalization, maintaining contact with services, overall functioning, accommodation, living independently and satisfaction. There were no differences between ICM and standard care with regard to mortality rates, contact with the legal system, employment status or quality of life. When comparing ICM to non ICM, ICM was better only with regard to drop-out rates at follow-up. There were no differences between ICM and non ICM in terms of length of hospitalization, service use, mortality, social functioning, mental state, behavior, quality of life, satisfaction or costs. The analyses were also carried out taking into account fidelity to ACT and use of hospital resources at baseline. Fidelity to ACT and a high use of hospital resources at baseline were independently linked to a higher reduction of hospital time in ICM. When both variables were combined, only high use of hospital resources at baseline was significantly associated to a higher reduction of hospital time in ICM.

Discussion

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We analyzed CM models and its effects in order to study its evolution. CM goes beyond the initial definition of CM as a broker service (Moore, 1990) in the sense that it aims to coordinate and monitor the provision of social, medical, educational and other services for patients with SMI, but also to provide direct services to this population.

Although the definition and main objectives of CM seem to be well-established, new CM models have been developed. The most traditional categorization of CM models is that which differentiates between ACT and any other model of CM (Marshall et al., 1998). However, the current differences in clinical practice between ACT and CM are not so clear since they both seem to have turned into two models (Dieterich et al., 2010). These new models are known as ICM and non ICM (Burns et al., 2007; Dieterich et al., 2010). Their conceptual roots combine the same CM and ACT principles (Intagliata, 1982; McGrew and Bond, 1995; Stein and Test, 1980; Witheridge et al., 1982; Witheridge, 1991), but they differ mainly in terms of intensity of care. ICM models have caseloads of up to 20 patients, while non ICM models have over 20. It is worth highlighting FACT, which is an adaptation of the ACT model (Stein and Test, 1980) to the community-based mental health system of the Netherlands where it is considered to be the basic structure for the care of patients with SMI (Van Veldhuizen, 2007). Again, FACT represents the convergence of ACT and CM since the main features of both are included in the same model of care, which prioritizes features of the former or the latter depending on patients' needs. Taking into account all that mentioned above, it seems that ACT and CM models are presently considered to be complementary rather than different models.

We identified eight meta-analytic reviews with regard to CM efficacy. The results are not homogeneous across the different reviews. Two of them show positive results in favor of CM regarding all outcomes included (Gorey et al., 1998; Burns et al., 2007), while four of them show that CM is more effective than or as effective as standard care (Bond et al.,

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1995; Dieterich et al., 2010; Herdelin and Scott, 1999; Marshall et al., 1998; Ziguras and Stuart, 2000). Moreover, one review yielded negative results regarding CM efficacy (Marshall et al., 1998). This lack of homogeneity regarding CM efficacy might be related to the use of different categorizations of CM models and the strictness of the methodology of the reviews. With regard to the categorizations of CM models, one should note that three different categorizations are used in the reviews as shown in Table 3: 1) CM as a general model regardless of specific models (Gorey et al., 1998); 2) CM and ACT as different models (Bond et al., 1995; Herdelin and Scott, 1999; Marshall et al., 1998; Marshall and Lockwood, 1998; Ziguras and Stuart, 2000); and 3) ICM and non ICM as two models integrating ACT and any other model of CM and differing in intensity of care (Burns et al., 2007; Dieterich et al., 2010). Table 3 also shows that these categorizations lead to six different comparisons of CM models in the reviews: 1) CM in general terms versus standard care (Gorey et al., 1998); 2) CM (not including ACT) versus standard care (Marshall et al., 1998; Ziguras and Stuart, 2000); 3) ACT versus standard care (Bond et al., 1995; Herdelin and Scott, 1999; Marshall and Lockwood, 1998; Ziguras and Stuart, 2000); 4) CM (not including ACT) versus ACT (Marshall and Lockwood, 1998; Ziguras, 2000 and Stuart, 2000); 5) ICM versus standard treatment (Burns et al., 2007; Dieterich et al., 2010); and 6) ICM versus non ICM (Burns et al., 2007; Dieterich et al., 2010). Therefore, the results of the different meta-analyses could not be directly compared. Another possible reason for lack of homogeneity between studies even within the same comparison of CM model might be the strictness of the methodology of the reviews. For example, the strictness of the methodology used has been explained (Ziguras et al., 2002) as the main reason for the inconsistencies between the results of Marshall et al. (1998) and Marshall and Lockwood (1998), and Ziguras and Stuart (2000) when comparing the effects of CM or ACT versus standard care. Unlike Marshall et al. (1998) and Marshall

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and Lockwood (1998), Ziguras and Stuart (2000) included non-experimental designs in their review and skewed and non-normally distributed data. This may also be related to the negative efficacy results shown by Marshall et al. (1998). The strictness of the methodology used may also help to understand the inconsistency of the results regarding the efficacy of ACT compared to standard care if only high-quality reviews (i.e. based on a systematic literature review and only experimental designs) are considered. Specifically, the results shown by Herdelin and Scott (1999) are less promising than those observed in the review by Marshall and Lockwood (1998). This could be related to the fact that the former study (Herdelin and Scott, 1999) used broader patient inclusion criteria (i.e. patients with more than one diagnosis of SMI) and outpatient and inpatient care were both considered to be standard care together.

INSERT ABOUT HERE TABLE 3

When the ICM and non ICM are considered, the results shows that ICM is better than standard care regarding service use, clinical variables and psychosocial variables, although it seems to be comparable to non ICM in most of these variables (Dieterich et al., 2010). Moreover, previous use of hospital resources and fidelity to ACT model seem to be independently associated to CM efficacy. The higher the patient use of hospital resources at baseline or the closer ICM is to the ACT model, the greater the reduction of patient stay in hospital (Burns et al., 2007; Dieterich et al., 2010). Considering the above-mentioned results, further research should help to clarify the efficacy of ICM vs. non ICM and evaluate the effects of non ICM compared to standard care. Also, further research should include the effects of specific variables on CM efficacy, such as previous patient use of hospital resources, fidelity to ACT or other relevant variables. For example, recently it has been argued that high fidelity to ACT model might be related to positive outcomes, a decrease in economic costs and, consequently, an increase in the economic

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resources available for the development of other interventions for SMI patients (Randall, Wakefield and Richards, 2010). It has also been shown that case managers could prompt or strengthen the effects of perceived self-stigma on patients with SMI (Konradt and Early, 2010) and that their expectations are associated to positive patient progress on employment (O'Connell and Stein, 2011).

In sum, CM and ACT are complementary rather than different models of CM in clinical practice . They have converged into two models of care for patients with SMI that differ with regard to intensity (i.e. ICM and non ICM). A most recent model is the FACT which integrates CM and ACT and its intensity depends on patients' needs. Efficacy results suggest that CM could be reconfigured by offering intensity of care according to patient characteristics. In other words, CM could be organized to tailor to patients' needs, which might help to improve patients' conditions but also enhance clinical decision-making and management of care by optimizing the use of resources.

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Table 1. Summary of Case Management Tasks

Case management tasks
Detection of patients
Establishment and maintenance of a therapeutic alliance
Advocacy
Needs assessment
Design of an individualized care plan
Continuous monitoring of the care plan
Monitoring of client's mental functioning
Compliance with medication and side effects
Supportive counseling
Coordination of service delivery: referral and linking to services
Monitoring and evaluating the effectiveness of service provision
Modifying provision of services

This summary is based on the works of Chamberlain and Rapp (1991); Charnley and Davies (1987); Dincin et al.(1990); Draine (1997); Drake et al. (1998); Modrcin et al. (1985); Renshaw (1987); Rothman (1991, and Stein and Diamond (1985).

Table 2. Review of the Meta-analytical Studies on CM

Author	Year	CM model	Period of review	Type of study included	Inclusion criteria	No. of studies included	Sample characteristics	Types of variables included
Bond et al.	1995	ACT	1978-1989*	Pre-post design Quasi-experimental Experimental	ACT Programs developed by Thresholds Bridge and adopted in programs elsewhere	9	N = 550 100% SMI	Clinical Psychosocial Use of services
Gorey et al.	1998	ACT Rehabilitation Strength Generalist	1980-1996	Pre-experimental Quasi-experimental Experimental	CM practice Patients with SMI	24	N = 70 (median) 100% SMI	Clinical Costs Psychosocial Use of services
Marshall et al.	1998a	CM vs. SC	1966-1997	Experimental	18-65 years old Diagnosis of SMI - Schizophrenia - Bipolar mania - Depression with psychotic characteristics	8	N = 644 45% schizophrenia Mean age: 55 years old F (%): 52	Clinical Psychosocial Use of services
Marshall and	1998b	ACT vs. SC ACT vs.	1974-1987	Experimental	18-65 years old Diagnosis of SMI	20	N = 1165 34% schizophrenia	Clinical Costs

CURRENT CASE MANAGEMENT MODELS

Lockwood		HBR ACT vs. CM			- Schizophrenia - Bipolar mania - Depression with psychotic characteristics		Mean age: 37 F (%): 34	Psychosocial Use of services
Herdelin and Scott	1999	ACT vs. SC	1973-1997	Experimental	Randomized controlled trials More than one diagnosis of SMI Comparison of ACT vs. outpatient care Works published in peer review journals	19	N _{range} = 35 to 873 Ages 18-65 Both genders Racial & ethnic diversity All psychiatric diagnoses except organic brain dysfunction, mental retardation and primary diagnosis of substance abuse	Clinical Costs Psychosocial Use of services
Ziguras and Stuart	2000	CCM vs. SC ACT vs. SC CCM vs. ACT	1980-1998	Experimental Quasi-experimental	Adults Diagnosis of SMI: - Psychosis - Affective disorders - Anxiety disorders	44	CM vs. SC (<i>n_{study}</i> =35) N = 6365 61.6% schizophrenia Mean age: 37 F (%): 44	Clinical Costs Psychosocial Use of services
Burns et al.	2007	ICM vs. SC	Till 2007	Experimental	Diagnosis of SMI: - Schizophrenia - Schizophrenia-like disorder - Bipolar disorder - Depression with psychotic features Community care setting	29	N = 5809 66% schizophrenia or schizophrenia-like disorder Mean age: 37.9 years F(%): 37	Use of services
Dieterich et al.	2010	ICM vs. SC ICM vs. non ICM	Till 2009	Experimental	18-65 years old Diagnosis of SMI of the NIMH or Diagnosis of SMI - Schizophrenia	38	N = 7328 100% SMI Mean age: 38 years F (%): 30	Clinical Costs Psychosocial Use of services

CURRENT CASE MANAGEMENT MODELS

- Bipolar mania
- Depression with psychiatric characteristics
- Personality disorders

Community care setting

*Nonsystematic literature review

ACT = Assertive Community Treatment; CM = Case Management; SC = Standard Care; SMI = Severe Mental Illness; F = female; HBR = Hospital based Rehabilitation; CCM = Clinical Case Management; ICM = Intensive Case Management; NIMH = National Institute of Mental Health;

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CURRENT CASE MANAGEMENT MODELS

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Dieterich et al.	2010	ICM vs. SC ICM vs. non ICM	Till 2009	Experimental	18-65 years old Diagnosis of SMI of the NIMH or Diagnosis of SMI - Schizophrenia - Bipolar mania - Depression with psychotic characteristics	38	N = 7328 100% SMI Mean age: 38 years F (%): 30	Clinical Costs Psychosocial Use of services

CURRENT CASE MANAGEMENT MODELS

- Personality disorders
 - Community care setting
-

*Non systematic literature review

ACT = Assertive Community Treatment; CM = Case Management; SC = Standard Care; SMI = Severe Mental Illness; F = female; HBR = Hospital based Rehabilitation; CCM = Clinical Case Management; ICM = Intensive Case Management; NIMH = National Institute of Mental Health;

CURRENT CASE MANAGEMENT MODELS

Table 3. Case Management model categorizations in the meta-analytic studies and the Case Management model comparisons derived

Model categorization	Model comparison	Author
CM including ACT	CM vs. standard care	Gorey et al. (1998)
CM & ACT	CM vs. standard care	Marshall et al. (1998); Ziguras & Stuart (2000)
	ACT vs. standard care	Bond et al. (1995); Herdelin & Scott (1999); Marshall and Lockwood (1998); Ziguras & Stuart (2000)
	CM vs. ACT	Marshall and Lockwood (1998); Ziguras & Stuart (2000)
ICM & non ICM	ICM vs. standard care	Burns et al. (2007); Dieterich et al. (2010)
	ICM vs. non ICM	Burns et al. (2007); Dieterich et al. (2010)

CM = Case Management; ACT = Assertive Community Treatment; ICM = Intensive Case Management