Family Physician–Case Manager Collaboration and Needs of Patients With Dementia and Their Caregivers: A Systematic Mixed Studies Review

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ABSTRACT

PURPOSE Dementia case management (CM) in primary care is a complex intervention aimed at identifying the various needs of patients with dementia and their caregivers, as well as the organization and coordination of care. A key element of CM is the collaboration of family physicians with case managers. We conducted a systematic mixed-studies review to identify the needs of the patient-caregiver dyad and the effects of CM.

METHODS We searched MEDLINE, PsycINFO, and EMBASE up to October 2014, regardless of the study design. Our main outcomes were needs of patients and their caregivers and the effects of CM on these needs. We used narrative syntheses to develop a taxonomy of needs and to describe the effects of CM on those needs. We used meta-analysis to calculate the prevalence of needs and the standardized mean differences to evaluate the effects of CM on the needs identified.

RESULTS Fifty-four studies were included. We identified needs of the patient-caregiver dyad and needs of the patient and caregiver individually. CM addressed the majority of the identified needs. Still, some very common needs (eg, early diagnosis) are overlooked while other needs (eg, education on the disease) are well addressed. Fully establishing the value of CM is difficult given the small number of studies of CM in primary care.

CONCLUSIONS There is good evidence that case managers, in collaboration with family physicians, have a pivotal role in addressing the needs of the patient-caregiver dyad.

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INTRODUCTION

The proportion of people with dementia is growing dramatically. According to the US Alzheimer’s Association, by 2030, 50% of Americans aged 65 years and older will be diagnosed with dementia. In Canada in 2011, 747,000 Canadians lived with cognitive impairment. Today, the combined costs are $33 billion per year, and they are projected to increase to $872 billion by 2038. Worldwide, dementia is the main contributor to disability-adjusted life years (11.2%), representing a greater burden than cerebral vascular accident (9.5%), heart disease (5.0%), or cancer (2.4%).

People with dementia need help with challenging changes in behavior, memory, physical disability, and mood. The main source of help is family caregivers, who often suffer from the burdens of caregiving and from depression and health problems. It has been shown that early intervention makes the greatest difference in management of symptoms. The World Health Organization states that it would be challenging to intervene without effective involvement of primary care. Dementia case management (CM) interventions are becoming a central component of primary health care organizations in North America and Europe.

Conflicts of interest: authors report none.

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Case Management Society of America, case management is “a collaborative process of assessment, planning, facilitation, care coordination, evaluation, and advocacy for options and services to meet an individual’s and family’s comprehensive health needs through communication and available resources…”3 Case managers are health care professionals who provide follow-up, coordinate individual care, and liaise with other health care services. They work in collaboration with family physicians, specialists, or both.14-22

Over the last few years, several systematic reviews have found that the evidence of CM’s effects on service use and clinical outcomes is weak.23-28 None of them specifically focused on the needs of patients and caregivers, however.23-28 Patients with dementia and their caregivers who already receive professional care still report unmet needs.29 Moreover, they feel that their own opinion is not taken into account.30 In line with the patient-centered care paradigm,31,32 it is important to identify the needs felt by the patient and the caregiver33-35 and to determine the extent to which CM interventions respond to their needs.36

We conducted a systematic review to answer the following research question: Does the collaboration of family physicians with case managers respond to the needs of patients with dementia and their caregivers living in the community?

METHODS

We conducted a systematic mixed-studies review by including studies with diverse designs (quantitative, qualitative, and mixed methods).37 This type of review has been deemed appropriate for the study of complex interventions.38 It overcomes the issue of a partial picture that results from relying on a single type of research in isolation, assists in the critical analysis of interventions from the viewpoint of participants targeted,39 and enables a single review to answer a number of questions (eg, identifying needs and evaluating how well they have been met).40 It produces research more useful for decision makers and maximizes the use of review results (maximizes the conversion of knowledge to action) by enhancing their utility and impact.39

Inclusion Criteria

To be included in our review, studies had to meet the following criteria:
• They had to deal with community-dwelling patients of any age with any type of dementia and/or their informal caregivers.
• They had to concern collaboration between a family physician and a case manager that comprises a comprehensive needs and health assessment, planning of services and their coordination, monitoring, and regular proactive follow-up.13,41
• They had to focus on primary medical care, defined as a range of community settings where family physicians intervene (patients’ homes and offices).42
• They could be of any type or design.
• Their outcomes could be the effects of CM on any type of need expressed by patients, expressed by caregivers, or measured.

Search Strategy and Study Selection

In accordance with PRISMA statement standards,43 a literature search was conducted by a specialized librarian, publications in English, French, or Russian listed in MEDLINE, PsycINFO, or EMBASE, published before October 2014, were searched (Supplemental Appendix 1, available at http://annfammed.org/content/14/2/166/suppl/DC1). Given the objectives of our review, 2 search strategies were applied in parallel: 1) studies of the needs of community-dwelling patients with dementia and their caregivers, and 2) studies of CM (Supplemental Figure, available at http://annfammed.org/content/14/2/166/suppl/DC1). Based on the eligibility criteria, relevant titles, abstracts, and full-text articles were selected independently by 1 author (V.K.) and a research assistant (Martin Beauchamp).

Quality Assessment

The quality of the studies was assessed independently by 1 author (V.K.) and one outside reviewer (Quan Nha Hong, MSc) using the validated Mixed Methods Appraisal Tool designed for the critical appraisal of studies with diverse designs.44-46 Studies were scored on their internal and external validity (eg, representativeness of the sample, randomization). Studies were included without regard to their quality. We performed a sensitivity analysis (with a potential score of 0 or 1) to assess the impact of lower-quality studies on the results.

Data Extraction and Synthesis

Two reviewers (V.K. and Beauchamp) independently extracted and coded data; discrepancies were resolved through consensus. We used a 3-step approach to synthesize the findings:

1. We defined a need as a perceived state of deprivation communicated by patients or their caregivers.6 The prevalence was extracted if it was reported. Needs expressed in other domains measured by instruments were also searched (eg, domains of quality of life).6 We used a narrative synthesis approach to develop a taxonomy of the needs and meta-analysis to evaluate their prevalence.
2. A narrative synthesis approach was applied to describe the key components of CM.
3. A narrative synthesis was used to describe CM effects on the needs (mapping of CM components to the needs identified in Step 1) and a meta-analysis to estimate their effects.

Narrative synthesis was the main analytical approach we used, while meta-analyses were performed to explore the observed effects (Table 1).

RESULTS

Fifty-four studies were included in the review: 46 on the needs of patients and their caregivers52-98 and 8 on CM (Supplemental Figure, available at http://annfammed.org/content/14/2/166/suppl/DC1). The characteristics of the included studies are presented in Table 2, and Supplemental Appendixes 2 and 3, available at http://annfammed.org/content/14/2/166/suppl/DC1.

Identification of Needs

Three main categories of need were identified and are presented in Table 3: needs of the patient-caregiver dyad, needs of the patient, and needs of the caregiver. Many needs are common to patients and caregivers. The needs reported by the largest number of studies are needs of the dyad: for education or counseling on the disease (32 studies) and early diagnosis (13 studies).

Meta-analyses showed that 58% (95% CI, 43%-72%) of caregivers were in favor of early dementia diagnosis, 50% (95% CI, 35%-65%) were in need of education on the disease, and 23% (95% CI, 17%-31%) needed in-home support (Table 4). Needs for meaningful activities that patients could participate in and assistance with daily activities were reported by 36% (95% CI, 5%-85%) and 22% (95% CI, 5%-59%) of patients with dementia respectively.

Description of Care Management

A key component of CM apparent in the studies we examined was close collaboration between case managers and family physicians (Supplemental Appendix 3, available at http://annfammed.org/content/14/2/166/suppl/DC1). The case managers involved were nurses specialized in care of the elderly.14-18,20 They were responsible for the coordination of treatment plans and for providing services. Through phone calls, web-based interactions, and case discussions, case managers communicated regularly with family physicians to inform them about patient and caregiver health conditions and needs.14-22 The role of family physicians was to develop care plans, provide medical treatment, and to modify care plans based on updates from case managers.

We mapped the components of CM to the needs identified from the perspectives of the patients and their caregivers (Table 5). To meet the needs of the patient-caregiver dyad, case managers performed the prediagnostic work-up to assist family physicians with

| Table 1. Description of Synthesis |
|----------------------------------|

**Step 1. Identification of the needs by narrative synthesis and meta-analysis**

| Narrative synthesis (main approach) | Through a narrative synthesis, we developed an integrated interpretation of various primary studies from which conclusions may be drawn.47 This synthesis provides qualitative rather than quantitative data.48 We followed a narrative approach that includes textual description of studies on needs of the patient and caregiver, extraction of the needs and their grouping into categories based on their common features (eg, education on disease), and then transforming data into common rubrics (taxonomy development).17 We divided the identified needs into 3 categories: needs of the patient, needs of the caregiver, and needs common to both (needs of the dyad). |

| Meta-analysis | We performed a meta-analysis on quantitative studies only to determine the prevalence of the needs identified. Starting with the prevalence proportions extracted from each study, we used R 3.1.2 (The R Foundation) to calculate the pooled prevalence proportion and 95% confidence interval for each need.49 We employed random-effects models, since the studies were statistically and methodologically heterogeneous. The I² statistic was used to measure heterogeneity. Considering the context (needs are generally evaluated in the observational studies) the meta-analysis included studies of different designs (eg, nonrandomized studies and surveys).50 |

**Step 2. Description of case management**

| Narrative description | We described the main features of CM according to the definition of the Case Management Society of America,13 then mapped the various components of CM to the needs identified in Step 1 that they targeted. |

**Step 3. Evaluation of case management effects by narrative synthesis and meta-analysis**

| Narrative synthesis (main approach) | We followed the same narrative synthesis approach as in Step 1 to develop a textual description of the effects of CM on the subcategories of needs: mapping the components of CM to the needs identified in Step 1 from the perspectives of the patients and their caregivers.17 |

| Meta-analysis | We then conducted a meta-analysis to explore the potential effects of CM on the identified needs where data were available. At this point, we included only randomized controlled trials at 12 months follow-up. Meta-analyses were conducted on the effects of CM on needs (eg, the need for confidence in caregiving) and on surrogate markers of needs (eg, behavior management as a surrogate for behavior disturbance of the patient and emotional support as a surrogate for depression and burden of the caregiver). To evaluate the intervention effect, we calculated the standardized mean differences between groups along with 95% confidence intervals, since different scales were used to measure the same outcome. To obtain missing data, we contacted the authors. Fixed-effects models were used because of the small sample size (2 in each outcome evaluation).50,51 |

CM = case management.
diagnosis. They provided education on the disease, prognosis, treatment, and problematic home situations. They counseled on available resources/services, legal and financial issues, and advance directives. Finally, case managers coordinated medical and community services via electronic, written, and case conference discussion.

To meet the needs of patients, case managers applied, in collaboration with family physicians, non-pharmacologic and pharmacologic protocols for management of daily activities, behavior distress, cognition, mood, and home safety. Their decision-making capacity improved, as did satisfaction with social support, and in-home help (e.g., cleaning services). Moreover, caregivers were actively involved in care-plan development and regular discussion of the patient’s health problems.

The effects of the needs for early diagnosis, financial and legal aspects of the disease, and meaningful activities were not studied. CM was not found to have any effect on patients’ daily activities, cognition and depression.

A meta-analysis of the effects of CM (Figure 1 and Supplemental Appendix 4, available at http://www.annfammed.org)
annfammed.org/content/14/2/166/suppl/DC1) showed a significant decrease in behavioral disturbance of patients as a result of psychosocial interventions along with acetylcholinesterase inhibitors (standardized mean difference [SMD] -0.27, 95% CI, -0.53 to -0.01, \( P = .04 \)\(^{14,17}\) and a significant increase of confidence in caregiving (SMD 0.19, 95% CI, 0.01-0.37, \( P = .04 \)) due to the education in coping skills.\(^{16,17}\) The effect on depression of caregivers was uncertain (SMD -0.23, 95% CI, -0.46 to 0.01, \( P = .06 \))\(^{14,17,18}\) and there was no effect on caregivers’ burden (SMD 0.17, 95% CI, -0.18 to 0.52, \( P = .34 \)).

**Quality of Evidence**

Almost all studies (43 studies) of the needs of the dyad and all 8 studies of CM proved to be of high quality. The majority of RCTs clearly described the randomization, blinding, and drop-out rate. Most non-randomized and quantitative descriptive studies (surveys) reported adequate sampling strategies and measurements.

### Table 3. Needs of Community Dwelling Patients With Dementia and Their Caregivers

| Categories of Need | Description | No. of Studies |
|--------------------|-------------|---------------|
| Needs of the patient/caregiver dyad | | |
| Early diagnosis\(^{5,52,65,66,69,70,73,75,81-83}\) | Need for early diagnosis (to understand the behavioral problems and gain timely access to resources) | 13 |
| Education/ counseling\(^{5,52,59,68,72,75,78,80,82,85,89,92-97}\) | Need for access to family physicians who know the disease, respond competently at disclosure of the diagnosis, and communicate test results clearly. | |
| Information about relevant services\(^{5,52,71,73,78,79,81,85,89,92,94,96,98}\) | Need for specific information on medical and interpersonal aspects of the disease, meaningful counseling on dealing with behavioral problems, guidelines on dementia before and after diagnosis. | 32 |
| Legal assistance\(^{60,93,97}\) | Need for information on future care problems. | 1 |
| Financial support/planning\(^{5,53,55,59,68,80,92,93,96,97}\) | Need for help in managing fall and wander risk, ensuring home safety, and minimizing the risk of accidental self-harm. | 11 |
| Advance care planning\(^{85}\) | Need for information on future care problems. | 1 |
| Care coordination/continuity of care/well-defined care pathway\(^{61,63,64,65,67,68,73,96,98}\) | Need for continuity between the various health care services involved, access to services corresponding to the severity of the disease, support throughout the course of the disease from the same health care professionals, and coordination of medical and community services to optimize services and prevent overlap. | 10 |
| Access to other health care professionals trained in geriatrics\(^{5,55,63,67,73,96,98}\) | Need for pharmacologic and nonpharmacologic approaches to managing depression. | 9 |
| Needs of the patient | | |
| Meaningful activities\(^{70,74,77,78,84,93,94,95,96}\) | Need for help with ADL (commonly for bathing/dental care, dressing, and walking) and with IADL (commonly for housekeeping, meal preparation, and transportation). | 9 |
| Assistance with ADL/IADL\(^{57,58,67,70,74,84,85,89,92,95,97}\) | Need for help with ADL/IADL. | 11 |
| Behavior management\(^{63,75,84,87,89,92,94,95,97}\) | Need for pharmacologic and nonpharmacologic approaches to managing the behavioral spectrum of the disease, especially agitation and restlessness, verbal aggression, and anxiety. | 9 |
| Cognition management\(^{70,84,87,88,90}\) | Need for pharmacologic and nonpharmacologic approaches to managing the cognitive spectrum of the disease. | 5 |
| Management of mood swings/depression\(^{77,78,84,90,93,97}\) | Need for pharmacologic and nonpharmacologic approaches to managing depression. | 7 |
| Safety\(^{69,74,77,78,84,90,91,97}\) | Need for help in managing fall and wander risk, ensuring home safety, and minimizing the risk of accidental self-harm. | 8 |
| Needs of the caregiver | | |
| Emotional support\(^{53,57,58,60,64,68,90,95,97}\) | Need for assistance with feelings of being alone, abandoned, helpless, exhausted, and mentally burdened. | 10 |
| Social support\(^{53,56,58,60,67,75,81,87,98,91,97}\) | Needs to have social outlets such as time alone, social interaction with friends, and mental supports to shop and to go out. | 12 |
| In-home support\(^{53,56,66,75,81,95,97}\) | Need for help with house chores (e.g., cleaning). | 6 |
| Capacity to provide care\(^{62,63,80,87,90,94,96,97}\) | Need for training in communication skills and in strategies for handling maladaptive behaviors. | 8 |
| Involvement in care planning\(^{65}\) | Need to be included as an equal partner in formal and informal care planning. | 1 |

ADL = activities of daily living; IADL = instrumental activities of daily living.

Note: Needs for help with urinary incontinence, help with sight and hearing problems, and culturally sensitive services are not presented in the table, since only a few studies evaluated these needs.
Table 4. Meta-Analysis of Needs of Patients and Their Caregivers

| Categories of Need                          | No. of Studies | Pooled Proportion (95% CI) | Variation Across Studies ($I^2$, %) | Test of Heterogeneity ($Q^2$, $P$ value) |
|--------------------------------------------|----------------|---------------------------|-------------------------------------|------------------------------------------|
| Needs of the patient-caregiver dyad        |                |                           |                                     |                                          |
| Early diagnosis17,18,19                      | 3              | 0.58 (0.43-0.72)          | 80.0                                | .007                                     |
| Education/counseling on disease7,8,9,11,12,17| 8              | 0.50 (0.35-0.65)          | 97.3                                | <0.001                                   |
| Needs of the patient                        |                |                           |                                     |                                          |
| Meaningful activities1,2,8,11               | 3              | 0.36 (0.05-0.85)          | 97.8                                | <0.001                                   |
| Assistance with ADL/IADL7,8,9,11            | 3              | 0.22 (0.05-0.59)          | 95.5                                | <0.001                                   |
| Needs of the caregiver                       |                |                           |                                     |                                          |
| In-home support7,8,11                        | 3              | 0.23 (0.17-0.31)          | 17.7                                | 0.30                                     |

ADL = activities of daily living; IADL = instrumental activities of daily living

a Needs reported by caregivers.

b Needs reported by patients.

Table 5. Mapping of Components of Case Management to Needs and Their Effects on the Needs

| Categories of Need                          | Corresponding Components of Case Management                                                                 | Resultant Effects                                                                 |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Needs of the patient/caregiver dyad        | Gathering information through the basic diagnostic battery to help family physicians establish a diagnosis11,12 | Dementia diagnosis increased in primary care while remaining stable in specialty care11,12 |
| Education/counseling on disease            | Holding interactive seminars and family meetings for patients and caregivers on relevant care issues11,12 | Caregivers understood medical treatment for behavior and depression: 78.4% vs 72.2% in usual care ($P = .49$) |
|                                            | Providing information by phone to caregivers11,12                                                        | Perception of caregiver’s clarity in discussing patient’s care: 16.8% vs 21.3% of usual care ($P = .01$) |
|                                            | Helping the patient and family understand the disease, prognosis, and rationale of treatment11,12         | 100% of caregivers were satisfied with the ability of case managers to answer questions11 |
|                                            | Exploring problematic home care situations11                                                            | Educational material was relevant to the dyad situation in 95% of cases11         |
| Information on relevant services           | Recommending caregiver resources—e.g., Alzheimer’s Association, meals on wheels, and Safe Return program (for wandering)11 | 95% of caregivers were satisfied with quality of educational material provided11   |
| Help with legal issues                     | Helping with various services (day care, respite care)10                                                  | A majority of caregivers were satisfied with information allowing them to understand the nature of the disease10 |
| Financial support and planning             | Educating caregivers on legal issues14,15                                                               | Caregiver knowledge about dementia was not improved ($P = .19$)                   |
| Advance care planning                      | Advising on advance directives16                                                                       | With CM, advance directives were discussed or completed and documented in 69.4% of cases, vs 44.4% in usual care ($P = .001$) |
| Care coordination, continuity of care, and a well-defined care pathway | Communicating regularly with family physicians,14,15,17,19 maintaining written consultation notes,14,16 producing secure electronic updates,15 via web-based systems,14,16 and attending case conferences14,16 | Decision-making capacity improved in 34.2% of patients vs 9.7% in usual care ($P = .001$) |
|                                            | Connecting patients and their caregivers to support services14,17                                         | 90% of caregivers were satisfied with future planning15                              |
|                                            | Operating in conjunction with any services patient already had17                                           | 70% to 82.8% of caregivers rated a new way of primary care delivery as very good/excellent14 |
|                                            |                                                                                                           | 88% of caregivers were satisfied with the care coordination provided14             |
|                                            |                                                                                                           | 100% of caregivers stated that intervention was efficient17                        |
|                                            |                                                                                                           | 95% of caregivers were satisfied with the ability of case managers to link them with community resources15 |
|                                            |                                                                                                           | The quality of patient’s health care improved ($P = .003$)18                      |

1 study found no difference in interdisciplinary communication between intervention and usual care group ($P = .3$)18 continues
Table 5. Mapping of Components of Case Management to Needs and Their Effects on the Needs (continued)

| Categories of Need                  | Corresponding Components of Case Management                                                                 | Resultant Effects                                                                 |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Access to health care professionals trained in geriatrics | Case managers are trained in geriatrics/geropsychiatry,14,15,19 communicating the diagnosis to the families,15 skills in communicating with patients and their caregivers,15 dementia home care19 Involving a multidisciplinary team in patient care (eg, geriatrician, geriatric psychiatrist, and psychologists)14 Helping with access to health care professionals19 Referring to specialists if needed17,21,22 | Not evaluated                                                                      |
| Access to family physician trained in geriatrics | No prior formal training of family physicians in geriatrics                                                                                                   | Not evaluated                                                                      |
| Needs of the patient               |                                                                                                             |                                                                                   |
| Meaningful activities               | Providing patient exercise guidelines and resources (eg, group chair-based exercises)14,15                                                             | Not evaluated                                                                      |
| Assistance with ADL/IADL            | Advising on implementation of predictable routine of daily activities16 Providing nonpharmacologic protocols that include mobility management, personal care concerns15,16 | No effect16,18                                                                     |
| Behavior management                | Arranging interactive seminars for caregivers on evaluation of acute behavior changes16 Providing specific protocols and nonpharmacologic interventions for repetitive behavior, agitation, aggression, delusions or hallucinations14-16 Providing drug therapy with anticholinesterase inhibitors and memantine14,16,21,22 | 47.2% Received as much help as needed with behavioral problems vs 29% in usual care (P = .01)16 The rate of antidementia medication prescription by family physicians was increased from 42% to 86% and the rate of neuroleptic prescription decreased21,22 |
| Cognition management               | Assessing patients’ memory regularly14,16 Educating on communication14 and applying nonpharmacologic protocols that include communication techniques15 | No effect14                                                                         |
| Management of mood swings/depression | Providing a specific protocol of nonpharmacologic interventions on depression, with drug therapy as a backup14,15 Arranging interactive seminars for caregivers on managing depression in patients19 | No effect16,18                                                                     |
| Safety                              | Making recommendations on home safety and the Safe Return program (for wandering)16 Providing personal alarms19 Assessing the patient's home situation19 Guiding the caregiver in organizing home care18 | 27.3% of patients were enrolled in Safe Return vs 8.4% in usual care (P = .001)16 |
| Needs of the caregiver              |                                                                                                             |                                                                                   |
| Emotional support                  | Providing support sessions focused on caregiver stress15,16; Recommending nonpharmacologic protocols that includes stress management15 | In 2 studies, caregiver mood improved at 12 months (P = .03)15,16; another found no effect at 18 months (P = .33)15 Caregiver burden was not affected (P = .49)17,18 Caregivers’ support systems were adequate in 80.4% of cases vs 45% in usual care (P = .001)16 40.7% of caregivers received services vs 19.2% in usual care (P = .002)16 Caregivers were socially supported (P = .03)16 | |
| Social support                     | Recommending a caregiver support group16; Organizing family meetings aimed at improving social support and relieving the primary caregiver17,21,22 | 38.7% of caregivers received in-home help vs 28.9% in usual care (P = .02)16 100% of caregivers were satisfied with home help17 Caregiver confidence and mastery were greater in CM (P = .001)19 | |
| In-home support                    | Helping with home care,17,18 meals on wheels,19 and dinner services17                                                                                       | 38.2% of caregivers were involved in care planning development vs 22.1% in usual care (P = .001)16 In 82.5% of cases, caregiver gave input on behavior issues vs 39% in usual care (P = .001)16 96% of caregivers were satisfied with discussion of patient’s health problems17 | |
| Capacity to provide care           | Educating caregivers on coping skills14                                                                                                                         |                                                                                  |
| Involvement in care planning       | Involving caregivers in individualized care plan and problem list development14,16,20,22                                                                   |                                                                                  |

ADL = activities of daily life; CM = case management; IADL = instrumental activities of daily living

* Only 1 of the studies on CM interventions enrolled patients not already diagnosed with dementia.21
Qualitative studies clearly described their inclusion and exclusion criteria, methods of analysis, and contexts. Exclusion of studies of lower quality did not change the overall results (Supplemental Appendix 5, available at http://annfammed.org/content/14/2/166/suppl/DC1).

**DISCUSSION**

This is the first systematic mixed-studies review conducted to evaluate whether CM meets the needs of patients with dementia and their caregivers. The main novelty of our review is that we first identified the needs from the perspectives of patients and their caregivers and only then evaluated whether CM targeted their needs and led to the desired outcomes. Our systematic review showed that CM addressed most needs of patients and caregivers. It also demonstrated that some very common needs (eg, early diagnosis) are still overlooked, while other needs (eg, education/information) are well targeted.

The most frequently reported need was early diagnosis of dementia. The impact of CM on this important need, however, has not been evaluated. While there is no consensus among health care profes-

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**Figure 1. Forest plot of standardized mean differences of case management vs control by subgroups.**

| Study                          | Standardized Mean Difference | SMD (95% CI)                  | Weight (fixed), % |
|-------------------------------|-----------------------------|-------------------------------|------------------|
| Behavior disturbance          |                             |                               |                  |
| Callahan, 2006                | -0.51 (-0.83; -0.19)        | -0.27 (-0.53 to -0.01)        | 100              |
| Jansen, 2011                  | 0.18 (-0.25 to 0.62)        |                               |                  |
|                               | -0.27 (-0.53 to -0.01)      |                               |                  |
|                               | Heterogeneity: $I^2 = 84\%$; $T^2 = 0.2025$, $P = .01$ |                  |                  |
| Depression of caregivers      |                             |                               |                  |
| Callahan, 2006                | -0.31 (-0.64 to 0.01)       | -0.23 (-0.46 to 0.01)         | 100              |
| Jansen, 2011                  | -0.04 (-0.48 to 0.40)       |                               |                  |
| Shoemakers, 2010              | 0.25 (-0.83 to 0.33)        |                               |                  |
|                               | Heterogeneity: $I^2 = 0\%$; $T^2 = 0$, $P = .61$ |                  |                  |
| Burden of caregivers          |                             |                               |                  |
| Jansen, 2011                  | 0.24 (-0.20 to 0.68)        | 0.17 (-0.18 to 0.52)          | 100              |
| Shoemakers, 2010              | 0.06 (-0.52 to 0.64)        |                               |                  |
|                               | Heterogeneity: $I^2 = 0\%$; $T^2 = 0$, $P = .62$ |                  |                  |
| Confidence in caregiving      |                             |                               |                  |
| Jansen, 2011                  | -0.12 (-0.56 to 0.32)       | 0.19 (0.01 to 0.37)           | 100              |
| Vickrey, 2006                 | 0.25 (0.05 to 0.45)         |                               |                  |
|                               | Heterogeneity: $I^2 = 55.7\%$; $T^2 = 0.0383$, $P = .13$ |                  |                  |

-1 -0.5 0 0.5 1
sionals on the early diagnosis of dementia, our systematic review suggests that patients and their caregivers would like to receive an early diagnosis. Early diagnosis of dementia does not necessarily change the disease’s course, but it prompts health care professionals to identify the needs earlier and thus sustain the quality of life for both the patient and the caregiver. Moreover, it may positively affect appropriate medication prescription, decrease levels of caregiver burden and depression, and diminish the risk of early placement in a long-term care facility.

The second most frequently reported need was education and counseling on the disease. This finding is in line with those of previous research, which has showed that most unmet needs were related to a lack of knowledge about the existing services, progression of dementia, and management of behavioral problems. Unlike early diagnosis, this need seems to be well targeted and appropriately addressed by CM.

Identification of the needs of patients and their caregivers is the basis for the development of interventions sensitive to these needs. CM focuses on integration of medical and community services to deliver patient-centered care according to the specific needs of individual patients. The key element of CM is the collaboration of case managers with family physicians. Regular communication between case managers and family physicians is essential to the patient-centered care targeting these vulnerable populations; it allows family physicians to make timely modifications of their care plans.

Formal training of case managers in care of the elderly is a valuable asset to the care. Case managers specialized in dementia care can assess needs promptly and follow up regularly. For instance, they are better able to evaluate the needs of patients with regards to daily activities and orient them to the appropriate services (eg, mobility improvement programs). They also assess the needs for information and support and guide the patient-caregiver dyad to the appropriate services (eg, the Alzheimer Society or the Alzheimer’s Association). Moreover, as the first point of contact for the dyad, they appear to be more easily reachable than family physicians. Our previous studies demonstrated that the effectiveness of CM depends on a small caseload, regular and proactive follow-up, and transparent communication among health care professionals.

**Limitations**

As in any systematic review, we may have missed studies that we should have included. It is unlikely, however, that we missed large studies, as the literature search was comprehensive and included publications in 3 languages (English, French, and Russian). The meta-analysis of the effects of CM was conducted on a limited number of available studies, but it was exploratory; its conclusion should be considered with caution. The limited number of available studies on CM in which family physicians collaborate with case managers necessarily limited our review.

**Future Research**

Future studies are needed to evaluate the effects of CM on the needs that are overlooked—early diagnosis of dementia, legal issues, and financial issues. An avenue for some future studies could be the integration of social workers into primary care to assist with financial and legal issues of the dyad. Family physicians and researchers should perceive the needs of the dyad as unique features of patient-centered outcomes research related to primary care.

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