*Comparative Effectiveness Research Review Disposition of Comments Report*

**Research Review Title:** *Outpatient Case Management for Adults With Medical Illness and Complex Care Needs*

Draft review available for public comment from July 26, 2011 to August 23, 2011.

**Research Review Citation:** Hickam DH, Weiss JW, Guise J-M, Buckley D, Motu'apuaka M, Graham E, Wasson N, Saha S. Outpatient Case Management for Adults With Medical Illness and Complex Care Needs. Comparative Effectiveness Review No. 99. (Prepared by the Oregon Evidence-based Practice Center under Contract No. 290-2007-10057-I.) AHRQ Publication No.13-EHC031-EF. Rockville, MD: Agency for Healthcare Research and Quality; January 2013. www.effectivehealthcare.ahrq.gov/reports/final.cfm.

## Comments to Research Review

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The tables below include the responses by the authors of the review to each comment that was submitted for this draft review. The responses to comments in this disposition report are those of the authors, who are responsible for its contents, and do not necessarily represent the views of the Agency for Healthcare Research and Quality.

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| Commentator & Affiliation | Section | Comment | Response |
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| **Peer Reviewer #1** | Quality of the Report | Good | Thank you. |
| **Peer Reviewer #1** | General Comments | The clinical usefulness of this report is the hardest issue to address. The heterogeneity of interventions used under the definition of CM, the frequent lack of specification and the customized nature of the interventions employed for specific conditions makes any general conclusions difficult, if not impossible.<br><br>The authors did an excellent job attempting to make the available undifferentiated mass of data into more clinically granular and interpretable elements. Unfortunately, based on the nature of the material they had to work with, I left the report still unconvinced about what we truly know and don't know about the use of case management. | Thank you for your comment. |
| **Peer Reviewer #1** | Introduction | The introduction clearly outlines the key study questions.<br><br>The introduction does a very good job of highlighting the problem of the lack of consensus in the literature on how CM is defined, and the multiple activities (interventions) coupled to this heterogeneous definition. | Thank you for your comment. |
| **Peer Reviewer #1** | Methods | The methods section is written in a clear manner. It lays out an operational definition for CM used for study inclusion or exclusion. It breaks down the Key Questions into meaningful "measurable" categories, which also had the effect of allowing for the generation of some more focused “evidenced-based" conclusions. (A better term might be hypotheses given the nature of the data).<br><br>The methods used were a reasonable means of addressing the challenges posed by the nature of the available data | Thank you for your comment. |
| **Peer Reviewer #1** | Results | The results section provides an appropriate amount of detail and outlines clearly the important elements of the studies included in the analysis. | Thank you for your comment. |

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| **Peer Reviewer #1** | Discussion/ Conclusion | I would like to see better integration between the summary/discussion and the conclusions.<br>It also wasn't clear to me how the summary statements flowed from the data e.g. "Patients with progressive debilitating and often irreversible diseases for which supportive care can enhance independence and quality of life, such as dementia or multiple chronic disease in the aged." This seems like a reasonable statement—not sure how supported by the presented data. | Thank you. We have added study counts and references to provide better linkage between the summary statements and data sources. |
| **Peer Reviewer #1** | Discussion/ Conclusion | Study limitations section is fine. Regarding the issue of future research, I agree there is little use for further studies of the general effectiveness (or lack thereof) of case management per se. The gaps mentioned to be addressed in future research would be helpful in understanding "this beast". I would perhaps provide increased emphasis for the need for further study on the effectiveness of specific activities included under the category of CM—this would require a more detailed description of the interventions employed. | A Future Research Needs Project related to the CER topic is currently underway and will explore these issues further. |
| **Peer Reviewer #1** | Discussion/ Conclusion | The conclusion section provide a good summary of the results—perhaps there should be a little more emphasis on the often low level evidence strength for many of the conclusions cited. | We have added a new section title “Limitations of the Evidence Base” and have highlighted those areas in which the strength of evidence was mostly low. |
| **Peer Reviewer #1** | Clarity and Usability | I am not sure how much truly meaningful information this study provides—except for the methodological challenges provided by the heterogeneity contained in how the term CM was used in the literature.<br><br>The strongest evidence based conclusions are based on attempts to compare apples and oranges—case management, describe in multiple ways, is not effective regarding mortality, functional status—and we should likely include reducing healthcare expenditures. Given the nature of this data, it should not be used to support the premise that CM services are ineffective.<br><br>The further breakdown of the key questions into more granular elements and the related data | We found that the in-person, more intense connections with the clinical environment were more effective for patients with certain conditions.<br><br>We have changed the wording to clarify instances where there is lack of evidence regarding effectiveness (as opposed to evidence of lack of effectiveness). Thank you for emphasizing this important distinction. We’ve reviewed the summary and conclusions to make sure we are clear about what the evidence shows.<br><br>The Future Research Needs Project will provide additional focus on the gaps in research data. |

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| | | analyses do provide for a number of conclusions (with quite limited evidence) that at least provides some support for the continued use of CM activities under certain conditions (which ones are not clear) and provides support (again with limited evidence strength) for a number of clinical assumptions currently pervasive in the field regarding how and when CM is most effectively employed. This includes some of the following conclusions:<br><br>"CM effectiveness was greater when the intervention was more prolonged, included more patient contact, and included face-to-face (rather than telephone only) interactions. This finding validates the premise that the relationship between case manager and patient is likely to be a key ingredient for successful CM interventions."<br><br>"CM also appears to be most effective when the case manager works closely with patients' usual care providers (usually primary care physicians) and/or collaborates with a physician (or multidisciplinary team of health care providers) with expertise in managing the targeted medical condition. This finding suggests that CM may be most effective when case managers are embedded within a collaborative, team-based intervention model."<br><br>While the analyses support the above conclusions, as already mentioned, the evidence is far from overwhelming. With that said, one can make a strong case that the lack of evidence strength is more a problem with the nature of the available data, than the ineffectiveness of the various case management activities. | |
| **Peer Reviewer #2** | Quality of the Report | Good | Thank you. |

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| **Peer Reviewer #2** | General Comments | The report is clinically meaningful. As more than 130 million Americans are living with multiple chronic conditions as highlighted by the National Quality Strategy, clinical strategies that help manage complex diseases in a longitudinal fashion are of increasing import. Successful strategies are needed to achieve the national reform aims of improving system efficiencies while improving the lives of patients with chronic conditions. The report suffers slightly from the lack of more precisely defining the target population. For example, persons of a certain age with chronic cardiac or respiratory conditions may have provided sub populations of study that would have enhanced CER assumptions made about care management (CM) in this paper. | The population of interest included all adults with medical illness and complex care needs in outpatient settings. To identify the broadest sample of literature relevant to case management for such patients, we did not want to limit the results of the literature search to any particular disease condition or conditions. Our search was designed to include all subpopulations with ***any*** medical illness and complex care needs for whom case management had been studied. |
| **Peer Reviewer #2** | Introduction | Excellent overall introduction. Contains appropriate summary of complexity and scope of the problem at hand and justifies its import as an area of current study. | Thank you. |
| **Peer Reviewer #2** | Methods | Methods are well stated and literature search is logical. Given the total number of reviewed articles it is clear to this manuscript reviewer that the authors did due diligence in investigating the literature for relevant articles and then parred down their hits appropriately. Again, the somewhat nebulous way in which patients with complex diseases were defined limits the ultimate poignancy of the results (though the authors do not an attempt at this, in some cases N was too small to adequately analyze patients by specific disease type). However, methodology is sound and complete. Control for temporality, location of services delivered are excellent search limiting methodologies to most accurately research the intended target population. | Thank you. |

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| **Peer Reviewer #2** | Results | Results section is well organized. Textual format for Q/A of key questions posed earlier in the document is highly legible. Some answers unable to be given but this is cited as a gap in the literature making such information unavailable. Notably M/M was not significantly changed, a major result. However utilization and efficiencies seem to have improved, also an important result. Tables address some elements of disease specific aspects of CM (see above comments) but tables are largely qualitative and would be aided with additional data. | Thank you. The evidence gaps identified in the CER will be considered in the Future Research Needs Project underway.<br><br>Our goal was to balance the amount of data presented with making the tables understandable – the tables would be difficult to read if additional data was included in the in-text tables. Please see the full evidence tables in the appendix for additional data. |
| **Peer Reviewer #2** | Discussion/ Conclusion | Conclusions are good. There is some vaguery embedded in the conclusions regarding what is required to more fully evaluate CM programs however future research is suggested to include better cohort stratification and more rigorous or lengthy evaluation of these programs which seems appropriate. The low level of evidence for increased system efficiencies with CM is notable and the conclusions made are a logical extension of the paper's content. | These issues have been addressed in the new Limitations of the Evidence Base section. |
| **Peer Reviewer #2** | Clarity and Usability | Relatively clear. Information is of high value but practicality for a policy making standpoint somewhat limited by lack of strong conclusions. At most, CM appears to be in need of more rigorous study in order to afford a positive policy recommendation. | Thank you. We agreed that study design improvements in future research should yield stronger evidence for policymaking. |

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| **Peer Reviewer #3** | General comments | This appears to be a carefully done summary of the field, but there are some things that concern me, even though I do not have time for a very careful reading. First, I looked for a couple of studies that seem pertinent to the topic, the transition from hospital to home RCTs of Mary Naylor (2004) and Eric Coleman (2006). I didn't find them, and they had some positive results regarding resource utilization. That made me wonder about the search strategy. Second, the paper is exceedingly negative, and therefore not useful to policy makers grappling with the critical question of how to contain the costs of high-utilizing patients. I agree that CM has thus far had limited success, but it has had some success. I think that the tone of the conclusion needs to be more helpful, i.e. under certain conditions; resource utilization can be reduced by CM.<br>Then, exactly what are those conditions? There is some discussion of the predictors of success, but it is not prominent enough. Third, there could be some recommendations on what to do and what not to do policy-wise. For example, phone-only CM is rarely effective. Primary care based CM may be effective if the right care managers are working with the right patients, though the evidence for this is mixed. And hospital to home CM is hopeful. | Thank you. We restricted the review to case management that was characterized by an ongoing and sustained relationship between the case manager and patient. Hence, despite promising evidence for certain models of short-term, intensive case management or models that focus on transitional care, (Naylor 1999, Naylor 2004, Coleman, 2006) we did not include such models in this review.<br><br>The complete search strategy, included studies list, and excluded studies list are included in the Appendix for reference.<br><br>We edited the conclusion to make clearer the conditions under which case management appears to be more effective.<br><br>While the CER points out evidence of positive outcomes as well as reporting where there is a lack of evidence, it is beyond our scope to make policy recommendations—that is a role for other entities.<br><br>We have edited text in the Conclusion to address the evidence about resource utilization effects in patient sub-groups. |
| **TEP #1** | Quality of report | Superior | Thank you. |
| **TEP #1** | General Comments | The report is timely and will be viewed by healthcare professionals as "very valuable" in that it communicates relevant knowledge about the practice of case management and its effects for adults with complex conditions and needs. The report is beneficial for both clinicians and administrators. | Thank you for these helpful comments. |
| **TEP #1** | General Comments | The target population is explicitly defined and the key questions are appropriate and relevant. | Thank you. |

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| **TEP #1** | General Comments | It is important to communicate the setting of focus early on and specifically in the executive summary. For example, the objectives and Key Question sections on Page ES-2 do not refer to the setting at all, meanwhile the setting is limited to outpatient or ambulatory clinic. Knowing this upfront prevents the reader from wondering about outcomes of hospital-based case management a setting that is most popular and excluded from this review. | The Key Questions were established during the initial topic refinement phase of the CER, with input from Key Informants (interviews with national stakeholders) and with consideration of feedback when the Key Questions were posted for public comment. Though we cannot change the wording of Key Questions used in the review, we have added text to this section and throughout the report to clarify that scope of included research is limited to studies in outpatient settings. .We have added text (pages ES-2 and 4) to clarify the rationale for our decisions on the scope of included case management models. |
| **TEP #1** | General Comments | Population of Interest (Page ES-4) is another section where a description of the setting is important to eliminate reader's confusion or misunderstanding of the population of interest. | We have added text (pages ES-2 and 4) to clarify the rationale for our decisions on the scope of included case management models. |
| **TEP #1** | General Comments | Although the authors explicitly describe the timing of study inclusion, exclusion of short-term, intensive case management is not convincing. This type of case management tends to result in positive long-term outcomes. Including studies with short-term intensive case management (30 days or less) but those which measured outcomes greater than 30 days later will be of added value. If such studies do not exist, it is as important to sate such finding.<br>Including outpatient setting only may have resulted in unintended exclusion of few important and recent studies by Eric Coleman and Mary Naylor. Coleman and Naylor's work included recruitment and enrollment of patients in the acute care/hospital setting however most of the case management interventions occurred outside the hospital. Focused and purposeful review of the research work of these two experts is of added value. If after the review the team decides to still exclude the works of Coleman and Naylor from the analysis, it is important to indicate that such review was undertaken and the reason why the work still was excluded. | Text has been added to clarify that this description of case management is based on studies reviewed and included in this review. |

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| **TEP #1** | General Comments | Key Question 3 addresses case manager experience, training and skills. It will be helpful to also add specialty certification (e.g., case management certification and clinical specialty certification such as pediatrics). If certification was not addressed in the studies reviewed, then a statement about that is necessary. Case management experts may be under the assumption that certified case managers contribute better outcomes compared with those who are not certified. If certification has not been included as a variable in any study, one can then conclude there is need for research in this area. | Text added to clarify the setting as suggested. |
| **TEP #1** | General Comments | The discussion section of the ES describes what case management is (Page ES-14). This is helpful to have and it does clarify to the leader what case management is as an intervention. However, the summary does not explicitly state if this description was developed based on the research studies reviewed in this effectiveness analysis. Mentioning that in this summary adds value and allows the reader a better understanding of what case management as an intervention is. | Text added to clarify the setting as suggested. |
| **TEP #1** | General Comments | On Page ES-14, lines 48 and 49 where caseloads are mentioned, important to clarify that these caseload sizes are for ambulatory or outpatient settings. Such clarification is necessary even if it ultimately serves to remind the reader of the setting of the study to avoid confusion or misinterpretation. | Text added to clarify the setting as suggested. |

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| **TEP #1** | Introduction | Page 3, Table 1. It is unclear if the features of case management programs was developed based on the research literature and evidence reviewed. Clearly stating this is important and it adds value to the industry. As the researchers stated, there is no standardized approach to case management and therefore, having developed a clear and concise approach based on the evidence-based literature is a step close toward standardization. Applicability of this table is also beyond the outpatient setting. Its implications for use in other settings are major.<br><br>I was pleased to see that the researchers stated that they used the description of the case management intervention and its components rather than its label to make decisions about the intervention (Page 4, Lines 41-45). This is important mention since the term case management is used loosely in the literature and using the term does not necessarily mean it is truly case management intervention. | Text has been added to clarify that the features of case management programs presented in Table 1 are based on the interventions described in the studies included in this review.<br><br>Thank you. |

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| **TEP #1** | Methods | Understanding the origination of the topic and its refinement was helpful. However, explicitly sharing the setting "outpatient" is necessary to prevent any misunderstanding.<br><br>Search strategy is appropriate; however it would have been advantageous to include a rationale why key terms such as disease manager and disease management were excluded from the literature review since disease management programs use case managers and case management interventions and they take place in an outpatient/ambulatory or telephonic setting.<br><br>It is important to communicate the setting of focus clearly in this section as well, especially in the population of interest section on Page 8. Knowing this upfront prevents the reader from wondering about outcomes of hospital-based case management a setting that is most popular and excluded from this review.<br><br>Although the authors explicitly describe the timing of study inclusion, exclusion of short-term, intensive case management is not convincing. This type of case management tends to result in positive long-term outcomes. Including studies with short-term intensive case management (30 days or less) but those which measured outcomes greater than 30 days later will be of added value. If such studies do not exist, it is as important to sate such finding. | Thank you. We have revised text in the "Setting" section of the "PICOTS Framework" narrative to specify that "We included only studies in the outpatient setting, including primary care, specialty care, and home care settings." We have reviewed and edited text throughout to clarify the outpatient setting.<br><br>We included case management, care coordination, care management and disease management programs and others that had elements of case management (e.g., coordination, medical monitoring). We excluded disease management without care coordination.<br><br>We restricted the review to case management that was characterized by an ongoing and sustained relationship between the case manager and patient. Hence, despite promising evidence for certain models of short-term, intensive case management or models that focus on transitional care, (Naylor 1999, Naylor 2004, Coleman, 2006) we did not include such models in this review.<br><br>Thank you for your comments. |
| **TEP #1** | Results | The report of results is very well done! The report was easy to read, follow and understand. Findings and conclusions were substantiated by the data reviewed and analyzed. It is well organized which made it easier to read and decipher its applicability to the practice of case management.<br><br>I do suggest adding Morbidity to the list of clinical outcomes addressed in Key Question 1a. Not sure if findings support adding such outcome. If | We appreciate your feedback on the organization of results—making the report readable and usable was a priority for the review team.<br><br>We note that elements of morbidity are explicitly described and included in this list of patient-centered outcomes (e.g., functional status, ability to remain at home, symptoms caused by cancer).<br><br>We have added text (pages ES-2 and 4) to clarify the |

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| | | morbidity (or deterioration of one's health condition beyond physical functioning) was not studied in any of the studies reviewed it is worthwhile sharing such observation where appropriate in the report.<br><br>Key Question 1c addresses resource utilization. However when utilization of ambulatory visits by patients increased it was viewed as a negative or undesirable outcome and addressed as adding expenses. I would suggest, to the degree feasible or appropriate, discussing increase in ambulatory visits as a result of reduction in absenteeism (or no show for a clinic appointment) and relevant to a decrease in ED visits and Hospitalizations. Theoretically and logically speaking, reduction in such unplanned visits is somewhat related to the case management intervention of increasing planned and proactive ambulatory visits to primary care provider. If findings do not necessarily support such theoretical assumption, then addressing lack of support is also as valuable and necessary in the report.<br><br>Key Question 3, Page 20, unclear why hospital is included when the study was limited to outpatients and objectives clearly state the exclusion of hospital or short-term case management interventions.<br><br>Unclear if functions of case managers listed in last paragraph on Page 20 include an exhaustive list of the functions or just examples. Clarification is necessary especially since case managers assume more functions than those stated in some institutions or programs.<br><br>Including outpatient setting only may have resulted in unintended exclusion of few important and recent studies by Eric Coleman and Mary Naylor. Coleman and Naylor's work included recruitment and enrollment of patients in the acute care/hospital setting, however most of the case | rationale for our decisions on the scope of included case management models.<br><br>We recognize that Increased primary care utilization may be viewed as a positive outcome in various circumstances; we have presented the outcomes reported in the context of the studies, for example, changes in regularity of eye examinations in diabetic patients receiving case management interventions.<br><br>We have revised the text to read:<br>“Characteristics of the setting in which CM was implemented (e.g., integrated health system, home health agency, outpatient clinic) did not clearly influence the effectiveness of CM.”<br><br>Text has been added to clarify that the list of functions of case managers and the examples given are not exhaustive.<br><br>Thank you. We restricted the review to case management that was characterized by an ongoing and sustained relationship between the case manager and patient. Hence, despite promising evidence for certain models of short-term, intensive case management or models that focus on transitional care, (Naylor 1999, Naylor 2004, Coleman, 2006) we did not include such models in this review. This is noted in the final report. |

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| | | management interventions occurred outside the hospital. Focused and purposeful review of the research work of these two experts is of added value. If after the review the team decides to still exclude the works of Coleman and Naylor from the analysis, it is important to indicate that such review was undertaken and the reason why the work still was excluded. | |
| **TEP #1** | Discussion / Conclusion | The discussion and conclusions section is clear and built on the findings of the review. Recommendations for future research are also relevant.<br><br>Both the limitations and conclusions sections of the report neglected to directly and explicitly address whether the research methods, designs, procedures of data collection and analysis may have contributed to the finding of "inability of CM programs...to achieve some desired outcomes" (Page 91, Lines 10-12).<br><br>Suggesting a review of the evidence of case management programs that are hospital-based may be of added value and may assist in explaining the findings of the current review. This is important because most case management programs tend to recruit patients or enroll patients during a hospital stay or frequent ED visits. Conducting such review to compliment the current review may reveal important evidence not just about hospital case management but also outpatient case management as well. The work of Naylor and Coleman which this review excluded are only two examples of important research conducted over the past few years. | Thank you.<br><br>These sections were edited to address this point.<br><br>Inpatient case management was beyond the scope of the report; as noted above, we have recognized the promise of work in this area by Naylor, Coleman, and others.<br><br>The AHRQ Effective Health Care Program welcomes nominations of new and/or related topics such as this. Nominations can be submitted directly on the EHC Web site at http://www.effectivehealthcare.ahrq.gov/index.cfm/submit-a-suggestion-for-research/<br><br>In addition to the topic nomination form, the site offers details on the topic selection criteria and other information on the Effective Health Care Program. |

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| **TEP #1** | Clarity and Usability | The report is very well written, organized in a logical and systematic manner. It is clear and easy to read, understand and follow.<br><br>Healthcare professionals, clinicians, administrators, payors, and policy makers will find it helpful and valuable to have. It definitely allows more informed decisions about the business case of "ambulatory case management."<br><br>Suggest adding the setting to the title of this report since the setting is crucial and provides a clear understanding about what type of case management was reviewed and appraised. Current title presents risk for generalization beyond the targeted setting. For example, "Comparative Effectiveness of Outpatient Case Management for Adults with Medical Illness and Complex Care Needs."<br><br>The Tables describing the evidence and the appendices are clear, easy to understand, well organized and include important information which makes it easy for the reader and reviewer to ascertain what was reviewed by the research team. | Thank you.<br><br>Thank you for your suggestion. We have revised to title to read, “Outpatient Case Management for Adults with Medical Illness and Complex Care Needs: A Comparative Effectiveness Review.”<br><br>Thank you for your feedback. |
| **TEP #2** | Quality of the Report | Good | Thank you. |
| **TEP #2** | General Comments | The report is clinically meaningful and the target populations are explicitly defined. The key questions are appropriate and clearly stated. However, given the focus today on integrated models of care, I believe that the report should have considered some of the integrated models of care which look at medical and behavioral health case management such as Dr. Roger Kathol's work. | Thank you. We have added text (pages ES-1-2, 4) to clarify the rationale for our decisions on the scope of included case management models. |

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| **TEP #2** | Introduction | The study is well thought out and designed. The statistical methods used are appropriate and tell a compelling story. Since the study focuses mainly on the discipline of nursing, I suggest including not only the American Nurses Association definition of case management in Appendix A but the American Nurses Credentialing Center definition of case management. "Nursing Case Management is a dynamic and systematic collaborative approach to providing and coordinating health care services to a defined population. It is a participative process to identify and facilitate options and services for meeting individuals' health needs, while decreasing fragmentation and duplication of care, and enhancing quality, cost-effective clinical outcomes. The framework for nursing case management includes five components: assessment, planning, implementation, evaluation and interaction." in addition, the definitions should be listed alphabetically by author. | Thank you. We have added the ANCC definition and reorganized the listing of definitions by author. |
| **TEP #2** | Methods | The details presented in the results section are appropriate. The characteristics of the study are clearly described. The key messages are explicit and applicable. Although I believe the mortality measure was a stretch. Figures, tables, appendices are very well presented and thorough. My thoughts about the target population not including adults with medical and behavioral health conditions have been expressed above. However, it appears that the literature search was comprehensive. I also have not yet seen reasons listed for the inclusion and exclusion of studies except for the broad statement about timeframes for case management to be for greater than 30 days. Thereby, excluding the newer studies looking at safe transitions of care and the role and effectiveness of case managers as care coordinators. | We have added text (pages ES-2 and 4) to clarify the rationale for our decisions on the scope of included case management models. Inclusion and exclusion criteria are also described in Appendix C. |
| **TEP #2** | Results | In the work presented here, the investigators are very clear about findings, limitations of the study and the review of the literature was comprehensive. | Thank you. |

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| **TEP #2** | Discussion/ Conclusion | This report is very well structured and organized. The main points are presented clearly. While the conclusions can be used to inform policy makers, there are many new projects being or about to be funded under PPACA looking to save money through care coordination. Therefore, I suggest that the need identified for more studies looking at integrated models be reviewed and some of the unanswered questions discovered through this work be included in the measures being built into these new programs. Since many of the new Health Home programs being proposed are looking at complex patient needs such as socio-economic issues like homelessness. This is a population where case management has had a positive impact on certain measures such as medication adherence and self-management skills. | Thank you.<br><br>A Future Research Needs Project related to the CER topic is currently underway and will explore these issues further. |
| **TEP #2** | Clarity and Usability | This study is well designed and the findings are well organized, clear and informative. Kudos to all involved. The findings about utilization management and cost savings are disappointing; I think there is a great deal of work being conducted at this time in those areas which will prove different from the findings of this study. | Thank you. |
| **Peer Reviewer #4** | Quality of the Report | Good | Thank you. |
| **Peer Reviewer #4** | General Comments | This is a comprehensive report that is clinically meaningful. The target populations are clearly explicated as are the key questions. The target audience is implicitly both clinicians and administrators who staff and develop case management programs. Presumably policy makers are also an audience although that is not explicit. | Thank you.<br><br>The team was mindful of a range of stakeholders, including clinicians, administrators, and policymakers, as well as patients and their families and caregivers, consistent with the aims of the AHRQ Effective Health Care Program: “The information in this report is intended to help health care decisionmakers—patients and clinicians, health system leaders, and policymakers, among others—make well-informed decisions and thereby improve the quality of health care services.” This statement will appear in the front matter of the final report. |

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| **Peer Reviewer #4** | Introduction | The scope of the review is well laid out, along with its relevance to clinicians and program managers. The explication of both the fuzzy history and vague definitions of case management and the operational definition used in this review was very helpful.<br><br>The strategy to consider CM 'packages' (lines 4-26, page 29) made this a manageable and more clinically useful exercise, in my view. | Thank you. |
| **Peer Reviewer #4** | Methods | The literature search and evaluation criteria were explicitly laid out and sensible. The PICOTS framework is easy to follow and logical for the diversity of CM programs. The study questions and outcomes of interest are appropriate for both clinical and managerial audiences.<br><br>The reasons for not attempting meta-analyses are appropriate. The explicit search strategy in the appendices are very helpful to anyone who might want to duplicate the strategy. | Thank you. |
| **Peer Reviewer #4** | Results | One item that needs correcting: line 44-45 page 90. The statement "In the case of diabetes, this ranged from eye examinations to screen for nephropathy..." should be corrected to "screen for retinopathy..."<br><br>Overall, the results are presented in a reasonable way. Because the scope of the review is so broad, with respect to the kinds of complex disorders reviewed, the results cannot be succinctly summarized. I think the way the authors laid out the overall findings for each disease group and then the detail for each key question was helpful to keep the reader from drowning in detail. The appendix tables were helpful if one really wants to get into the excruciating detail!<br><br>Given the definition the authors used for case management, I don't think they overlooked appropriate studies. | Thank you. We have clarified this sentence to read: "In the case of diabetes, this ranged from screening examinations for diabetes-related illness (i.e., neuropathy, nephropathy, or retinopathy) to prescription of appropriate medication regimens such as aspirin and angiotensin converting enzyme inhibitor use." |

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| **Peer Reviewer #4** | Discussion/ Conclusion | The overall finding of minimal impact from CM in the aggregate is a disappointing one for the proponents of this model of care, but it seems to stand on solid ground in the review. The authors are careful to follow that statement up with evidence for instances in which there was success for some populations with some approaches.<br><br>The recommendations for further research are appropriate for the findings of the review. | Thank you. |
| **Peer Reviewer #4** | Clarity and Usability | Overall, the report is well-structured and the key points that can influence policy and practice are well outlined in several places. | Thank you. |
| **Peer Reviewer #5** | Quality of the Report | Good | Thank you. |
| **Peer Reviewer #5** | General Comments | Is the report clinically meaningful?<br>The report is a thorough review and synthesis of the case management literature, as defined by the authors, and reports what most of us who have been involved in the field of case management programs have learned over the years. Community-based case management that is not integrated into systems of care (i.e., multidisciplinary team-based primary care) has not consistently demonstrated positive effects on clinical, service utilization, or cost outcomes, and its cost effectiveness is questionable. The overall report reaches the same conclusions that practitioners have known for a long time. | Thank you. |

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| **Peer Reviewer #5** | Introduction | Are the target population and audience explicitly defined?<br><br>The target patient population is clearly defined and appropriate for review. This is a primary concern to community-based practitioners. The intended reading audience is clearly stated.<br><br>Are the key questions appropriate and explicitly stated?<br><br>Yes, they are appropriate for this review. Questions 1a, 1b, and 1c are the 'nuts and bolts' of the synthesis and the most important to practitioners and policymakers. | Thank you. |

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| **Peer Reviewer #5** | Methods | Are the inclusion and exclusion criteria justifiable?<br><br>As described, the inclusion and exclusion criteria are justifiable and appropriate.<br><br>Are the search strategies explicitly stated and logical?<br>From my point of view they are. I'm no expert in search strategies and would use the expertise of librarians, which I'm sure the authors did.<br><br>Are the definitions or diagnostic criteria for the outcome measures appropriate?<br><br>Yes, the authors used the main outcomes familiar to practitioners/clinicians and policymakers to evaluate these types of programs: quality of life, quality of care, patient and provider satisfaction, service utilization, and cost of care.<br>One outcome that was mentioned that I've never encountered was "missed appointments" (P. 41, L. 11). I think it would be a very hard to come up with a 'hard and fast definition' for an outcome and difficult data to collect.<br><br>Are the statistical methods used appropriate?<br>Yes, methods to include/exclude studies reviewed and scoring mechanisms very thorough, especially since the studies did not lend themselves to a meta analysis. | Thank you.<br><br>Few studies measured the frequency of missed appointments as an outcome of CM interventions. |

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| **Peer Reviewer #5** | Results | Is the amount of detail presented in the results section appropriate?<br><br>The results section is about the right amount of information for someone to scan for general information and main points. References are provided for more in-depth information in the original studies.<br><br>Are the characteristics of the studies clearly described?<br><br>Studies are briefly, but clearly described. Information in appendices supplements descriptions in text.<br><br>Are the key messages explicit and applicable? The key messages are consistent with results of the information presented.<br><br>Are the figures, tables, and appendices adequate and descriptive?<br><br>Informative and easily interpreted.<br><br>Did the investigators overlook any studies that ought to have been included or conversely did they include studies that ought to have been excluded? It appears that the authors did a very thorough literature search and identified the prominent case management studies conducted during the last 15 years or so. I do think the authors could have reviewed more articles and reports pertaining to some of the studies that would have added additional data and information on the studies themselves (see Discussion/Conclusion, future research question for more details). | Thank you. |

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| **Peer Reviewer #5** | Discussion/ Conclusion | Are the implications of the major findings clearly stated?<br><br>The major findings are concise and to the point. This is one of the main strengths of the report.<br><br>Are the limitations of the review/studies described adequately?<br><br>For the number of studies reviewed, this section is rather short with only three limitations discussed. However, the length and style of this section fits well with the rest of the report.<br><br>In the discussion, did the investigators omit any important literature?<br><br>In my opinion, the authors covered the main case management studies that should have been included based on selection criteria.<br><br>Is the future research section clear and easily translated into new research?<br><br>This section is summed up in the first paragraph, third sentence (P. 122, L. 11). There is no need to continue case management studies when it's a standalone function. The gaps identified are important to consider when conducting new research. It would be helpful if the authors consider some examples of, or a definition of, what they mean by "indicators of socioeconomic status" and "access to health care." | Thank you.<br><br>Socioeconomic factors (based on income, education, and occupation) were addressed in only a few studies that explicitly targeted low-income populations.<br><br>We will look more closely at these suggestions and related materials in the course of the Future Research Needs project that follows the CER. |

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| **Peer Reviewer #5** | Discussion/ Conclusion | A point I think the authors missed is with the second paragraph, P. 122, L. 38. These case management elements have been described in detail in other peer-reviewed publications, articles, and reports that were not mentioned, identified, or reviewed as part of this report. For example, there are numerous reports of two CMS demonstrations identified in this report, the MADDE and MCCD available online, that describe the case management models of the individual participating sites in detail. They describe the experience and training received by the programs' case managers, their functions and types of patient and other healthcare provider contacts, caseloads, and use of protocols and guidelines. Perhaps a review of these documents were beyond the scope of this report, but the documents are in the public record. | We included the additional reports from these studies in the report and have addressed the findings in our discussion of sub-group findings. |
| **Peer Reviewer #5** | Discussion/ Conclusion | What has not been investigated and reported on is how these elements relate to the original case management model as planned. How is fidelity measured, what are the results, and what essential elements are most important in influencing outcomes? The authors hint at this but perhaps it needs to be made more explicit in the text. | We have addressed this issue in the new Limitations of the Evidence Base section. |
| **Peer Reviewer #5** | Clarity and Usability | Is the report well structured and organized?<br>Yes, specific information can be gleaned from the Executive Summary and found in the main text easily and quickly.<br>Are the main points clearly presented?<br>Yes, concise and to the point.<br><br>Can conclusions be used to inform policy and/or practice decisions?<br>Yes, given the specific definition of case management used in this report. Case management practiced in a vacuum has not proven to be cost effective. | Thank you. |
| **Peer Reviewer #5** | Recommendation | Make revisions and/or additions based on peer review comments and publish. | The text has been edited to indicate that peer reviewer and public comments were addressed, with appropriate revisions and additions to the report. |

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| **Public Comments: Chad Boult** | Results | The report miss-classifies the outcomes of Boyd's study of the effects of Guided Care (Boyd CM, Reider L, Frey K, et al. The effects of guided care on the perceived quality of health care for multi-morbid older persons: 18-month outcomes from a cluster-randomized controlled trial. J Gen Intern Med. Mar 2010; 25(3):235-242). On page 26, the report states that the study "evaluated a measure of overall satisfaction with health care." In fact, the study's main outcome was patient-reported quality of care, which should be reflected in the following section on Quality of Care Outcomes—and in Table 3 (p. 28). | Thank you. The Boyd study is incorporated in the results on "Quality of Care Outcomes." |
| **Public Comments: Chad Boult** | Conclusions | Because this RCT showed a statistically significant effect on the quality of care (aOR = 2.13, 95% CI = 1.30-3.50 for receipt of recommended health care services), perhaps the report's conclusion regarding the strength of evidence that CM improves the quality of care for patients with multiple chronic diseases (Q1b in Table 17) should be changed from Moderate to High. | Thank you. We agree, and have assigned a High strength of evidence rating:<br>***Patient perception of care coordination***. CM programs that serve patients with multiple chronic diseases increase patients' perceptions of the coordination of their care.<br>(Q1b, Table 17). |
| **Public Comments: American Physical Therapy Association** | General Comment (Role of the Physical Therapist in Care of Adults with Medical Illness and Complex Care Needs) | Physical therapists are an essential member of the health care team treating patients with medical illness and complex care needs. Physical therapists treat patients in a variety of practice settings including hospitals, skilled nursing facilities, home health agencies, rehabilitation agencies, private practices, and comprehensive outpatient rehabilitation facilities. Physical therapists, in conjunction with other members of the health care team, such as case managers, play a role in the coordination of care and services for patients. The need for a coordinated effort across the continuum of care is imperative to good outcomes for patients. | Thank you. |

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| **Public Comments: American Physical Therapy Association** | Comments and Recommendations | APTA applauds AHRQ for examining the role of case management in adults with medical illness and complex care needs. Although this report found limited impact in the utilization of case management on improved outcomes, we are encouraged to see that there was some evidence to support the use of case management in specific circumstances as outlined in the discussion section of the report. APTA feels that further research should be pursued in order to gain a better understanding of the positive applications of case management in chronic disease populations | Thank you.<br><br>A Future Research Needs Project related to the CER topic is currently underway and will explore these issues further. |
| **Public Comments: AID Gwinnett Inc.** | | None of the Case Managers in the 5 studies related to HIV named in this article were Social Workers; they were nurses or in some cases, paraprofessionals. Given that the findings of the AHRQ are frequently utilized by the IOM and various Government agencies to determine the value of funded programs, we could not leave our concerns undocumented. To judge the work of trained, experienced professionals by an article that draws conclusions based on the work of untrained paraprofessionals or professionals trained in unrelated fields is highly inappropriate and irresponsible.<br><br>The overarching summary of this article is certainly troubling and we strongly encourage those who are making critical funding decisions based on the information contained herein read the entire article before doing so, particularly for those looking for information on HIV Case Management (CM). The majority of the article focuses on other chronic illnesses; only 7 pages are devoted to discussing the review of research related to HIV CM. Of 99 studies reviewed, only 5 focused on individuals living with HIV. The studies were conducted between 1992 and 2007, a time frame during which there were tremendous changes in the field of HIV care that affected not only the health and mortality rates of our patients, but challenged us to look at how supportive services, including CM, could be | Thank you.<br><br>We agree that the findings of all sections of the report should not be applied to case management in the HIV population; additionally the few includable studies did not allow for robust conclusions. Future research needed to fill gaps in the evidence related to case management interventions in HIV will be explored in the Future Research Needs Project currently underway. |

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| | | used to support and empower our patients as they lived longer and healthier lives. Out of the four key points made, 3 were labeled as having low strength of evidence. The fourth key point was labeled as having insufficient evidence.<br>For example, *Key Point 1: CM does not improve survival among patients with HIV infection (strength of evidence: low)*. 4 of 5 studies did not report specific co-morbidities; in our experience the majority of individuals living with HIV do have co-morbidities, and those co-morbidities are often more detrimental than the HIV infection. In these situations, CM may not be enough to improve the patient's survival but can help coordinate care and supportive services to enhance Quality of Life while the patient is living.<br><br>The lack of strong evidence tells the reader that the studies chosen for this review did not provide sufficient data for answering the proposed research questions and therefore, one wonders why the studies were included in this review at all. According to Appendix N, the programs studied had differing definitions of Case Management, employed Case Managers from varying educational backgrounds, and utilized different models of Case Management. The comparison groups were also starkly different from one another, leading the reader to question how general conclusions could be made about the 5 studies as a whole.<br><br>It is troubling to realize that individuals who do not take the time to thoroughly review this article in its entirety could draw conclusions about HIV Case Management based on the overall findings. The responsible researcher would include the lack of evidence to support these conclusions as they related to HIV Case Management in the Limitations section. It is impossible to apply these findings to HIV Case Management when 95% of the studies reviewed did not apply to HIV Case Management. | |

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| | | We wholeheartedly agree with the writer's conclusion that more evidence is needed to judge the efficacy of HIV Case Management. There is absolutely a lack of research devoted to this topic, perhaps because it is difficult to determine the efficacy of these interventions in settings where medical care is also provided. The list of variables seems never-ending and it would be most beneficial to conduct mixed-method studies of our work, as oftentimes our patients' first-hand accounts of their experiences with Case Management speak louder than any number calculated by a research software tool. | |
| **Public Comments: Commission for Case Manager Certification** | Recommendations focus on three key concerns: | 1. It is important to define "case management" and apply that definition consistently; likewise, it is essential to define the roles, functions and capabilities of those who are called "case managers."<br><br>2. It is crucial to articulate the importance of defining the various roles of the care team (who assist in establishing appropriate expectations and outcomes), taking into consideration the different processes, functions and licensure requirements.<br><br>Only with these definitions firmly in place can we truly assess the value of case management; until then, we have no accurate basis for comparison. This leads us to our third issue:<br><br>3. **We have serious concerns about the methodology used in this report.** In particular, as we will discuss in greater detail, we find tremendous variability in the studies.<br><br>Some are U.S.-based, some are not. The characteristics of the case managers vary–and often, they are not even identified. | Thank you.<br><br>We agree that clarity and consistency of definitions of case management and descriptions of case management interventions are essential. This is highlighted throughout the report, and should be a focus of the Future Research Needs Project exploration of issues. |

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| **Public Comments: Commission for Case Manager Certification** | A lack of a common definition | The Commission and AHRQ share similar views regarding the value of coordinated, patient-centered, team-based care. **We do not believe, however, that one can arrive at a single, broad, generalizable conclusion about the value of case management from these dissimilar studies.**<br><br>The *Comparative Effectiveness of Case Management for Older Adults with Medical Illness and Complex Care Needs* draws its conclusions from an exceptionally diverse group of studies that share no common understanding of case management, no common understanding of the role of a case manager and, in many cases, were not conducted in the U.S. health care system. **Accordingly, the report's findings do not accurately reflect the value of professional case management.**<br><br>The authors acknowledge the problem at the outset:<br>The evolution of CM models in health care, and their expanding use in chronic illness management, has led to the term 'case management' being used to describe a wide variety of interventions. As a result, there is no consensus about the core components of CM. Moreover, the term 'case management' is often used interchangeably with other forms of chronic illness management interventions–such as 'disease management' and 'self management support.' (Introduction, page 1)<br>We agree, and we appreciate the effort to articulate an accurate, comprehensive definition of case management. The definition stated on page 7 and referenced elsewhere is acceptable to us:<br>We define CM as a process in which a person (alone or in conjunction with a team) manages multiple aspects of a patient's care. Key components of CM include planning and assessment, coordination of services, patient education, and clinical monitoring. | Thank you for your comments. The heterogeneity of interventions and outcomes represented in the studies of case management, and the variations in reporting study design, implementation, and results, indeed presented major challenges in the conduct of this review.<br><br>Your articulation of the difficulties inherent in the body of evidence represented by the literature on case management will be important to the project underway to identify and prioritize future research needs. |

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| | | This definition includes many of the same elements as the Commission's definition of case management.<br>But even with an explicit definition of case management, actual practice varies, as the authors note on page 4:<br>Individual CM programs usually are customized for the clinical problems of the population being served. […] This variability of CM interventions makes it challenging to evaluate the effectiveness of CM as a discrete entity. It is therefore of potentially greater interest to evaluate the impact of specific components within CM intervention 'packages.' However, in many studies, the way in which CM is implemented is poorly described, making it difficult to study the individual components of CM intervention. The issue is not that AHRQ has failed to define case management; rather, **the problem is that a consistent definition was not used in the various studies cited.**<br><br>Moreover, AHRQ's approach has been to look at case management *programs*. We posit that case management is a *process*, and to understand the value of case management, one must consider the case management process and the capabilities of the case manager.<br>So, even allowing that the research is solid, it does not follow that one can arrive at a single general conclusion about case management itself.<br><br>Therein lies one of our greatest concerns. The conclusion on page 87 reads, in part: "The cumulative evidence about case management (CM) is sufficient to draw several conclusions, some of which pertain to the inability of CM programs (as they have been commonly deployed) to achieve some desired outcomes."<br><br>These individual studies may offer useful insights into case management programs. But unless they | |

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| | | operate from a common understanding of case management, one can draw no broader, **generalizable** conclusions from the studies individually or *in toto.*<br><br>We welcome the opportunity to comment on this report, and we recognize that it is currently a draft; however, in its current iteration, AHRQ's conclusions fail to adequately account for variations in the case management process and in how the case manager role is filled. | |
| **Public Comments: Commission for Case Manager Certification** | More research needed | Given AHRQ's valuable role in educating and informing, we were heartened to read your plans for future research. The following passage on pages 92-93 stood out:<br>Many CM interventions employed more than one case manager, but few studies examined the effectiveness of CM delivered by different case managers. CM is a human intervention, and the effectiveness of CM may vary substantially according to the skills, experience, and personality of the person delivering the intervention. Understanding how much variability there is from one case manager to another would provide valuable information about the degree to which CM can be standardized, and the importance of choosing individuals to implement CM.<br><br>It would be interesting to see a similar report that assesses case management as a function and a role in an "apples to apples" manner–focusing on examples in which the case management functions are performed by professional case managers–those who possess the knowledge and experience to fill the role.<br>As noted in the discussion of Key Question 3 on page 19:<br>Studies did not consistently provide details about the experience, training, or skills of case managers. In most studies the case managers were nurses, and some had specialized training in caring for patients with the conditions targeted by | Thank you.<br><br>We appreciate your insights on Future Research—as noted above, we are also conducting a project to identify and prioritize Future Research Needs. The report of that project is intended to inform those who will perform primary research in this area in the future.<br><br>Thank you for noting your interest in a related topic. The AHRQ Effective Health Care Program welcomes nominations of new and/or related topics such as this. Nominations can be submitted directly on the EHC Web site at http://www.effectivehealthcare.ahrq.gov/index.cfm/submit-a-suggestion-for-research/<br>In addition to the topic nomination form, the site offers details on the topic selection criteria and other information on the Effective Health Care Program. |

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| | | the CM intervention (e.g., diabetes, cancer). There was some evidence that pre-intervention training of nurses in providing CM for the targeted conditions, the use of protocols or scripts to guide clinical management, and collaboration between a case manager and a physician (or multidisciplinary team) specializing in the targeted clinical condition, resulted in more successful interventions.<br><br>One cannot compare the work of a lay person with the title “case manager” to that of a professional case manager.<br>Individuals lacking demonstrated expertise–or those serving in an administrative role–may not be capable of performing the critical functions patients need, regardless of their functional needs or care settings. If those providing services such as care coordination and case/care management are nonlicensed or non-clinical personnel, this lack of training and qualification could be detrimental–and potentially dangerous–to those they seek to serve. In contrast, board-certified case managers proactively engage in measurement and tracking of outcomes as part of evidence-based practice.<br><br>We strongly encourage AHRQ to move ahead with its research, carefully defining the role and function of the professional case manager. Ideally, the qualifications of a case manager would be limited to health and human services professionals with a license to practice independently and certification in case management.<br><br>Research into the roles, functions and responsibilities of each team member would prove very useful; not only in assessing case management, but in better articulating the team-based approach that is a core element of the new models of care such as the ACO and the medical home. Moreover, it would help ensure that each team member is working at the top of his or her license. | |

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| | | Such research would also address one of the limitations of the report, identified on page 85: "The multiplicity of roles and variability of day to day activities means that evaluations of CM can never fully specify the content of the intervention. […] Synthesizing the evidence about CM requires indirect comparisons among different types of clinical programs."<br><br>We sorely need research into just what constitutes an efficient, patient-centered team, and AHRQ is the appropriate entity to provide it. Such research, provided it compares "like to like," can ensure each team member is working at the top of his or her license and help health care organizations achieve the Institute for Healthcare Improvement's Triple Aim: Improve the experience of care, improve the health of populations and reduce (or control) the per capita costs of health care. | |
| **Public Comments: HIV Medicine Association** | | We appreciate AHRQ's focus on this important topic and were pleased that HIV infection was among the medical conditions included in the review. However, we are concerned by the conclusions drawn in the evidence review without acknowledging the gaps in research on the role of case management in HIV care and the challenges to evaluation posed by the heterogeneity of case management definitions and standards. We urge great caution in applying these findings to coverage and delivery system reform recommendations without additional study.<br><br>Case management has been a staple of effective HIV care since the early days of the HIV epidemic and evolved into a complex area of practice that encompasses a broad range of models, approaches, and standards. For patients with HIV infection, particularly those with co-occurring conditions, case management has supported care coordination as well as patient engagement and retention in care. As a result, since 2006 the Ryan White program has identified medical case | Thank you. We agree that clarity and consistency of definitions of case management and descriptions of case management interventions are essential. This is highlighted throughout the report, should be a focus of the Future Research Needs Project exploration of issues.<br><br>We appreciate your insights on Future Research as we are also conducting a project to identify and prioritize Future Research Needs.<br><br>We have passed along your suggestions to relevant funding programs within AHRQ and to PCORI. |

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| | | management as a core medical service because of its central role in HIV care.<br><br>AHRQ completed a rigorous review and applied high standards to evaluate the quality and strength of the research evidence for case management. However, there are serious conceptual and procedural challenges in applying the biomedical gold standard research model when evaluating behavioral or other non-pharmacologic interventions.<br><br>Some of the challenges to pursuing investigation in this area are noted below and should be acknowledged in reviews of case management for HIV patients and addressed through additional research are identified below.<br>1) There is no consistent and clear definition of case management.<br>2) Outcomes besides mortality need to be considered because mortality is too remote of an outcome except among populations at very high risk such as elderly homeless with multiple medical problems.<br>3) Qualifications, training and standards for case managers vary across programs and settings.<br><br>A 2008 joint paper developed by the Centers for Disease Control and Prevention (CDC) and the Health Resources Services Administration (HRSA) in collaboration with the Federal Interagency HIV/AIDS Case Management working group4 cited evidence that case management was linked to numerous beneficial patient outcomes and cost efficiencies:<br>“Studies have found a high level of need for care and support services among HIV-infected individuals. Research suggests that case management is an effective approach for addressing the complex needs of chronically ill clients. Case management can help improve client quality of life satisfaction with care, and use of | |

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| | | community-based services.<br><br>Case management also helps reduce the cost of care by decreasing the number of hospitalizations a client undergoes to address HIV-related medical conditions. On the behavioral front, case management has been effective in helping clients address substance abuse issues, as well as criminal and HIV risk behavior.<br><br>Clients with case managers are more likely than those without to be following their drug regimens. One study found that use of case management was associated with higher rates of treatment adherence and improved CD4 cell counts among HIV-infected individuals who were homeless and marginally housed. More intensive contact with a case manager has been associated with fewer unmet needs for income assistance, health insurance, home care and treatment.16 Recent studies have found that even brief interventions by a case manager can improve the chances that a newly diagnosed HIV-infected patient will enter into care."<br><br>Optimal HIV care requires a comprehensive approach to service delivery, incorporating a range of practitioners, including doctors, mental health professionals, pharmacists, nurses and dietitians, to monitor disease progression, adherence to medication regimens, side effects and drug resistance, and access necessary support services both inside and outside HIV systems of care. Case management that is linked to medical care is a critical component of quality and cost-effective HIV care.<br>Further investigation of the association between case management models and medical care outcomes is warranted. We urge AHRQ and the Patient Centered Outcomes Research Institute to fund Comparative Effectiveness Research studies to further evaluate the role of case management in | |

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| | | chronic disease management, including HIV care, and to identify best practices that improve patient outcomes and reduce health care costs. | |
| **Public Comments: HIV Medicine Association** | | We also recommend convening an expert panel to develop a standard case management definition as the New York State Department of Health did for their new Medicaid Health Home program. | Convening an expert panel is outside the scope of this report. In the Future Research Needs section we do recommend that a standard consistent definition of CM be adopted. |