Technical Brief Disposition of Comments Report

Research Review Title: *Telehealth: Mapping the Evidence for Patient Outcomes From Systematic Reviews*

Draft review available for public comment from December 10, 2015, to January 19, 2016.

Research Review Citation: Totten AM, Womack DM, Eden KB, McDonagh MS, Griffin JC, Grusing S, Hersh WR. Telehealth: Mapping the Evidence for Patient Outcomes From Systematic Reviews. Technical Brief No. 26. (Prepared by the Pacific Northwest Evidence-based Practice Center under Contract No. 290-2015-00009-I.) AHRQ Publication No. 16-EHC034-EF. Rockville, MD: Agency for Healthcare Research and Quality; June 2016. www.effectivehealthcare.ahrq.gov/reports/final.cfm.

Comments to Technical Brief

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The tables below include the responses by the authors of the technical brief to each comment that was submitted for this draft technical brief. 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
Public Reviewer #1 Annonymous	Introduction	Caught a typo For example on page 10 By definition....must have a more narrow focus and content THEN should be THAN.	Thank you, this has been corrected.
Peer Reviewer #1	Background	Background: this section is clear and concise. Maybe consider moving the definition up to this section?	Thank you for your comment. We have moved the definitions to the first paragraph of the background
Peer Reviewer #2	Background	The authors reference some systematic maps produced in the health field, which are the most relevant. There have been recent innovations in evidence mapping for international development that may also be useful for the authors to look at. Some may be found here: http://www.3ieimpact.org/en/evidence/gap-maps/	Thank you for the recommendation. We reviewed these maps and found their presentation and methods helpful.
Peer Reviewer #1	Guiding Questions	Guiding Questions: Clear and well described on what they were and how they were determined.	Thank you for your comment.
Peer Reviewer #2	Guiding Questions	I have no comments on this section.	No response needed.
Peer Reviewer #1	Methods	Methods: Strong and well justified. No problems.	Thank you for your comment.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #1	Methods	It would be really helpful if you could put together a grid for the excluded studies to show why they were excluded e.g. which criteria were not met as part of the Appendix. This will help people designing studies to understand where there might be weaknesses.	The excluded studies are included in an appendix which includes the primary reason. We have added to the text in the Results section on page 36 to include more information about the excluded studies.
Peer Reviewer #2	Methods	As mentioned in the general comments, my primary concern is that the maps include results information even though the systematic reviews are not assessed for the quality of the conclusions drawn by the SR. The authors do include SRs based on whether there is quality assessment of the individual studies included in the SR, but this is very different from assessing the quality of the analysis in the SR. The authors themselves suggest that RCTs are higher quality than non-RCTs but then extract results data from SRs that have very few RCTs.	We have added additional information in the Methods section on how we incorporated quality criteria for the systematic reviews into our inclusion and description (page 12). We agree that the quality of individual studies, how the quality of individual studies is addressed in a review, and the quality of the conduct of the review are all different topics. We included the number of RCTs in the reviews by topic and provided this data precisely so people could assess this.

Commentator & Affiliation	Section	Comment	Response
Peer Reviewer #2	Methods	Put differently, the authors of an individual SR could very well do a quality assessment of the included studies, but then use both low quality and high quality studies when calculating and reporting their results. Or they could have mostly high quality studies but still conduct low quality synthesis.	We agree. We have added information about the use of strength of evidence assessment in the text and figures as a means to begin to address this.
Peer Reviewer #2	Methods	In fact, table 3 strongly suggests that the quality of the reviews is quite mixed. And the authors point out the problem of not knowing how the quality of individual studies affects the quality of systematic reviews. (Page 43, lines 14-20)	We agree and have provided this information to make this point and allow the reader to see not just that reviews exists, but to also see some indications of the quality of the studies and the reviews.
Peer Reviewer #2	Methods	There are many tools available to assess the quality of an SR or to rate the confidence in the findings of an SR. If the authors really want to report results and not just map the characteristics of the included SRs, I strongly suggest that they perform a quality assessment of each of their 44 SRs using some generally accepted tool, and then propose a method of extracting results from the SRs that takes quality into account.	We have added text in the Methods sections describing how we incorporated selected AMSTAR criteria in to our map (page 12).

Commentator & Affiliation	Section	Comment	Response
Peer Reviewer #2	Methods	I am also not keen on the way the authors extract the results and then perform a weighted average. They rightly say that the index has no inherent meaning, but policy makers may not read this fine print and will instead just look at the picture and pick winning interventions.	As the questions this map strives to answer include comparisons of the evidence available across topics, we felt that this was an important component to include. While we agree that is potentially open to misinterpretation, we have endeavored to explain this in multiple places.
Peer Reviewer #1	Findings	Findings: Clear and well presented—liked the figures and tables except for the pie charts.	Thank you for your comment. We believe that in this case pie charts provide a quick means of assessing the distribution of clinical focus and function across the included reviews.
Public-Annonymous	Findings	I am a little puzzled by the setting location of patient. Don't any of the studies take place where the patient is seen in another clinic e.g. FQHC mental health clinic community health center primary care clinic school based health clinic A significant amount of telehealth takes place in these settings.	We have included the location of the patient in Table 1 and in the data from each review in Appendix E. While in most, the patient is in their home, there are studies where the patient is elsewhere.

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Public-Annonymous	Findings	How does sample size as a factor of the prevalence and incidence of certain conditions play a role in the strength of the study benefits of the intervention For example something like preterm birth would probably have a much lower incidence and prevalence than diabetes thus making it much more difficult to conduct a study that has a large enough sample size to have the power that a diabetes intervention might have.	The number of patients included in the studies is a separate variable on the y-axis of the bubble charts. The estimation of benefit value was created by weighting the conclusion of the review by the number of studies. The sample size does not affect our calculation. The more global observation that it can be more difficult to study rarer conditions is true.
Peer Reviewer #2	Findings	Figure 5 is very hard to read. I realize that a line graph would incorrectly imply that there is a continuous function, but it would at least let me follow the trends for the different modalities.	We considered several different presentations of the data in Figure 5 and determined the current format to best represent the data.

Commentator & Affiliation	Section	Comment	Response
Peer Reviewer #2	Findings	The number of studies and number of patients seems highly correlated. That is, the bubbles get bigger the higher they are on the Y axis. So trying to include both concepts (along with all the other concepts) in one figure seems overkill. But I can also understand that if they included one and not the other, readers would no doubt clamor for the other. Nonetheless, it does make already hard to read "maps" harder to read.	We have tried to make these clearer. We decided that both the relative number of studies and the number patients were important when considering the size of the body of evidence available. While it is possible that we might have found one large study, in this data they do appear correlated.
Peer Reviewer #2	Findings	I like that the authors go to the effort to take out duplicate studies. It is odd, though, that figures 8 and 9 then tell us something about the number of individual studies and the number of patients but nothing about the number of SRs, even though the weighted relative benefit on the X axis is calculated by SR and not but study. The weighted relative benefit DOES double count studies if they appear in more than one SR.	We have clarified this in the methods.

Commentator & Affiliation	Section	Comment	Response
Peer Reviewer #2	Findings	I find figure 10 to be more compelling. Here, since you put each review in separately, you could include some indicator for quality of review in addition to the indicator about direction of results and number of studies.	Thank you for the suggestion. We incorporate strength of evidence into Figures 10 and 11 in order to assess the evidence by topics rather than individual reviews.
Peer Reviewer #2	Findings	Have the authors considered marking in the figure those cells that they think are "not applicable"?	Thank you for the suggestion. Cells that did not contain combinations we did not expect to find now contain "—" while "none" is used where no systematic reviews were included.
Peer Reviewer #2	Findings	In the section on Gaps and Priority Topics, it would be useful to have a brief summary at the end of the evidence gaps section.	Findings are summarized and discussed in the discussion section of the report and in Table 8.
Peer Reviewer #2	Findings	The section on clinical focus priority topics seems to be looking at what one might call cross-cutting themes. These come a bit out of the blue having not been highlighted at the beginning. It would be useful to know how these were selected.	The clinical focus priority topics were considered in order to look across categories and summarize the results related to key policy and practice questions.
Peer Reviewer #1	Summary and Implications	Summary and Implications: Well done and complete. Tough body of evidence to summarize and present.	Thank you for your comment.
Peer Reviewer #2	Summary and Implications	In table 7, is the last row meant to have a C?	Yes, thank you, this correction has been made.

Commentator & Affiliation	Section	Comment	Response
Peer Reviewer #2	Summary and Implications	The literature review of other summaries of telehealth research is odd-placed at the end. It should be part of the background and literature review at the beginning.	Thank you for your suggestion. In some formats a summary of similar work is included in the discussion and we used that format.
Public Reviewer #1- Anonymous	Discussion	This is primarily a review of systematic reviews which by its very nature excludes studies of less frequently used applications of telehealth.	Thank you, we agree. We attempted to identify areas not covered in the systematics reviews, but this list is by nature incomplete.
Public Reviewer #2- April Armstrong American Telemedicine Association Teledermatology Special Interest Group (SIG)	Conclusion	We commend the AHRQ for its efforts to build an evidence map and encourage you to consider our recommendations when reviewing and further updating this report in the review process. Should you have any questions or require additional studies on the benefits of teledermatology, please contact Scott Weinberg, Specialist, Quality Care and Patient Access at 202.712.2613 or SWeinberg@aad.org.	Thank you for your comment.
Peer Reviewer #1	Next Steps	Next Steps: Logical and well laid out.	Thank you for your comment.

Commentator & Affiliation	Section	Comment	Response
Peer Reviewer #2	Next Steps	The future research section is very disjointed from the paper itself. Granted it is supposed to be about future research, but the reader expects a closer relationship.	We have revised text to improve the clarity and readability of the report.
Peer Reviewer #1	Clarity and Usability	The report is well written (see also my comment re inactive sentences). It has a logical and well thought out structure. The points are made well. Maybe a few more headings and more descriptive titles of figures and tables in places would make the report easier to follow.	Thank you. We have incorporated suggestions about headings and titles into our revision.
Peer Reviewer #1	Clarity and Usability	Conclusions are appropriate and useful as well as logical.	Thank you
Peer Reviewer #2	Clarity and Usability	The report is generally well structured and organized, but the writing can sometimes be complicated or confusing. I had to read some sentences and paragraphs multiple times to make sure I understood the meaning. My concern is that policy makers will just look at figures 8 and 9 and run with them. They are not easy to read either, but one can quickly see that 'certain interventions are more effective than others'.	Thank you. We have revised the text to improve clarity.

Commentator & Affiliation	Section	Comment	Response
Peer Reviewer #2	Clarity and Usability	I do think the conclusions about whether new SRs can be conducted and where primary research is needed is fairly clear and can certainly inform future research.	Thank you for your comment.
Peer Reviewer #1	General Comments	I liked this technical brief a lot. It is well done and thoughtfully done and presented. My comments follow. I did not find any major problems. Most of the issues below are rather minor although I would like to see them considered for inclusion in the next report.	Thank you for your comment.
Peer Reviewer #1	General Comments	Page 8. Line 27…there are currently 14,000… As the report ages this statement becomes out of date. I would prefer to see something along the line of….as of August 2014, 14,000 articles….	Thank you we have made this revision on page 5.
Peer Reviewer #1	General Comments	Page 8. Paragraph starting line 30. Please add the work telehealth somewhere in the paragraph so that it stands alone if needed.	Thank you for your comment. We have made this revision.

Commentator & Affiliation	Section	Comment	Response
Peer Reviewer #1	General Comments	Similarly, I would like to see the titles of figures and tables to be a bit more descriptive. Tables can be copied and if they have a fuller description of what each contains via the title, the tables and figures are more standalone. Figure 5 has a nice title.	Thank you for your comment. We revised titles to make them more descriptive.
Peer Reviewer #1	General Comments	The history of telehealth is long, probably one of the longest in the study of informatics or ehealth. I would like to see some indication of this somewhere in the document.	Thank you we have added this idea to the background.
Peer Reviewer #1	General Comments	I see a lot of inactive sentences. Although this is not technically a problem, more active sentences make reading faster (and potentially more "fun" or active). For example on page 15 you say …was there a strength of evidence assessment and was there a meta-analysis attempted… A shorter and more active statement might be…was the strength of evidence assessed and was a meta-analysis attempted…Try counting the number of "there's" if you want to see some of your inactive sentences.	Thank you for your comment. We revised text to improve clarity.

Commentator & Affiliation	Section	Comment	Response
Peer Reviewer #1	General Comments	Pages 16 and 18. I am not comfortable with your choice of making inconsistent or contradictory evidence into "unclear". Can you justify this choice?	Thank you for your comment. We have added text to clarify that what is "unclear" is not the studies themselves, but what conclusion can be drawn from the inconsistent or contradictory evidence.
Peer Reviewer #1	General Comments	Page 19. Table 1. No resource utilization outcome data?	Thank you for your comment. We have corrected the label in the table.
Peer Reviewer #1	General Comments	Strengths: Use of a standard and carefully laid out (and intelligent) definition of telehealth. Strong methods carefully thought out and applied consistently. I like the bubble plots a lot. Well done!! On principle, however, I do not like pie charts as they do not really show data well. I will go with your standards however on this. I like Figure 10 (Table?) a lot. Well done. Limitations sections are well thought out and presented.	Thank you for your comment.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	Dear Dr. Berliner: The undersigned organizations, representing an established – and growing – coalition of diverse stakeholders spanning the healthcare and technology communities with interests in telehealth and remote patient monitoring ("RPM") solutions that improve patient care, reduce readmissions, and improve care coordination, write to provide comment on the draft Technical Brief titled Telehealth: An Evidence map for Decisionmaking ("Draft Technical Brief").1 As explained below, we believe that an accurate evidence map for decision-making requires a broader and more complete literature review. One that accurately reflects the state of science and studies on the benefits of telehealth and remote patient monitoring (RPM). Without a broader review, the technical brief does not provide a complete evidence map and potentially leads policymakers to develop incomplete or misguided policies.	The technical brief/evidence map of systematic reviews was created to be the initial step in a multi-step process, particularly for an extremely broad topic area. This evidence brief was not intended to be comprehensive or sufficient across the range of topics related to telehealth, but intended to identify a) topics where sufficient evidence exists in a synthesize format (systematic reviews) and b) topics where additional systematic reviews or primary studies may be helpful.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	As the Agency for Healthcare Research and Quality ("AHRQ") notes, this Draft Technical Brief originates from a request by Senators Bill Nelson and John Thune on "the value of telehealth and remote patient monitoring, particularly for the chronically ill, with a focus on expanding access to care and reducing costs." 2 Ample evidence exists clinically demonstrating telehealth and RPM of PGHD as cornerstones of advanced healthcare systems. The known benefits pf RPM include improved care, reduced hospitalizations, avoidance of complications and improved satisfaction, particularly for the chronically ill.3 A prominent example of the use of RPM is virtual chronic care management by the Department of Veterans Affairs which found the use of RPM led to a substantial decrease in hospital and emergency room use.4	Our conclusions concur. One of the topics that we conclude have been the subject of sufficient study and review is Remote Patient Monitoring for Chronic Conditions.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition (continued)	General Comments (continued)	There is also a growing body of clinical evidence documenting cost savings, noted most recently by a study predicting that remote monitoring will result in a savings of $36 billion globally by 2018, with North America accounting for 75% of those savings.5	
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	We have appended to this letter a non-exclusive list of studies demonstrating the value of telehealth and RPM to patients with chronic conditions.	Thank you. We reviewed these. While these are interesting they do not meet our inclusion criteria.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	This AHRQ evidence review comes at a crucial time, as policy makers consider revisions to outdated statuses and regulations that limit the use of evidence based, patient centered care delivery, including for telehealth and RPM. A perceived lack of evidence on clinical benefits impedes policymakers' consideration of modifications that would permit the reimbursement of telehealth and RPM. A notable example of the outdated policy barriers to delivery of evidence based care using telehealth and/or RPM is Section 1834(m) of the Social Security Act which places significant financial reimbursement restrictions on telehealth services;6 further, remote patient monitoring, independent of telehealth services, is unreasonably restrained by CMS' decision to bundle these costs with in-person or face-to-face care delivery, defeating the very efficiencies and conveniences the RPM offers patients and providers.	Our conclusion is that there is indeed evidence available, but it is concentrated in some topics, while for other applications there is less evidence.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3-Brian Scarpelli, Scarpelli Coalition (continued)	General Comments (continued)	As a result, Medicare coverage for telehealth and RPM does not align with clinical evidence,7 and incorporation of patient-generated health data (PGHD) through RPM is effectively non-existent.	
Public Reviewer #3-Brian Scarpelli, Scarpelli Coalition	General Comments	• While the report discusses the range of telehealth and RPM technologies intended to be included in the report, the Draft Technical Brief effectively excludes RPM by limiting the scope of the study to those where there was direct interaction between provider and patient. Exclusion of RPM undermines the technical brief's purpose – to be an evidence map – by excluding a large portion of the 'map'.	We have renamed this category Remote Patient Monitoring. This category included interventions that are often called by other names such as home telehealth, and home telemonitoring. We required involvement of a clinician in care, but not in every transaction. RPM includes a clinician as it is the clinician doing the monitoring. We excluded education websites or non-customized text messages.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	• While the Draft Technical Brief is intended to include "a large, broad evidence base about effectiveness of telehealth,"8 it relies on other literature reviews exclusively. As a result, the Draft Technical Brief is too narrow in scope and does not include the most recent evidence. As noted in the following bullet, the Draft Technical Brief should include key individual studies (including those noted elsewhere in this letter), or it will lack reliability and completeness which is counter to the Senate request. A number of high-quality clinical trial studies are not included.	The scope and purpose of the Brief did not include surveying all the literature or the most recent. Its purpose was to identify where systematic reviews were sufficient and where more reviews could be helpful.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	• The Draft Technical Brief does not include widely-known and highly-regarded studies (including those from the Federal context), including those noted above and appended. Notably, key studies from Federal agencies (such as studies from the United States Department of Veterans Affairs and the Department of Defense) are omitted.	Individual studies were not included in areas where multiple systematic reviews were identified. This is explained in the protocol and the methods of the report.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	Based on the above, we urge that an expanded evidence review be conducted to inform a revision of the Technical brief before it is finalized. Sincerely, ACT The App Association American Association for Respiratory Care (AARC) American Telemedicine Association (ATA) AT&T Biocom CHRISTUS Health Health Tech Strategies Hill-Rom HIMSS Intel LifeWIRE Personal Connected Health Alliance (PCHA) Qualcomm Telecommunications Industry Association (TIA)	An expanded review is outside the scope of the contract for this technical brief but may be the subject of future work by AHRQ or others.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	APPENDIX A: Key Clinical Studies Demonstrating the Benefits of Remote Access Technologies CHRONIC CONDITION MANAGEMENT Adam Darkins: Telehealth and the VA FY2013 Report In FY2013, 608,900 (11%) of veterans received some element of their health care via telehealth. This amounted to 1,793,496 telehealth episodes of care. 45% of these patients lived in rural areas. Home Telehealth Services: Helps patients with chronic conditions • Provided care for 144,520 veterans • 59% reduction in bed days of care • 35% reduction in hospital readmissions • Saves $1,999 per annum per patient • 84% patient satisfaction Store-and-Forward Telehealth: Remote scanning, then send to specialist	Thank you for these references. The purpose of this report was to identify areas where the evidence is already synthesized through systematic reviews and to identify areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper to synthesize individual studies to answer questions about effectiveness of specific telehealth interventions.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition (continued)	General Comments (continued)	• Served 311,396 veterans • 95% patient satisfaction Saves $38.41 per consultation Clinical Video Telehealth: Real-time video consultation that covers over 44 specialties • 94% patient satisfaction Saves $34.45 per consultation TeleMental Health • Over 278,000 encounters to 91,000 patients • 1.1 million patient encounters since FY2003 • Reduced bed days of care by 38% Nearly 7,500 patients with chronic mental health conditions are now living independently thanks to TeleMental Health The number of veterans receiving care through telehealth is climbing by 22% each year. http://ehritelligence.com/2014/06/23/va-reduces-admissions-by-35-due-to-telemedicne-services/	

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3-Brian Scarpelli, Scarpelli Coalition (continued)	General Comments (continued)	http://c.ymcdn.com/sites/www.hisa.org.au/resource/resmgr/telehealth2014/Adam-Darkins.pdf http://www.va.gov/health/NewsFeatures/2014/June/Connecting-Veterans-with-Telehealth.asp	
Public Reviewer #3-Brian Scarpelli, Scarpelli Coalition	General Comments	Veterans Administration: Study Size: Over 17,000 patients. "Routine analysis of data obtained for quality and performance purposes from a cohort of 17,025 CCHT patients shows the benefits of a 25% reduction in numbers of bed days of care, 19% reduction in numbers of hospital admissions, and mean satisfaction score rating of 86% after enrollment into the program. The cost of CCHT is $1,600 per patient per annum, substantially less than other NIC programs and nursing home care. VHA's experience is that enterprize-aide home telehealth implementation is an appropriate and cost-effective way of managing chronic care patients in both urban and rural settings."	Thank you for these references. The purpose of this report was to identify areas where the evidence is already synthesized through systematic reviews and to identify areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper to synthesize individual studies to answer questions about effectiveness of specific telehealth interventions.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3-Brian Scarpelli, Scarpelli Coalition (continued)	General Comments (continued)	"Care Coordination/Home Telehealth: the systematic implementation of health informatics, home telehealth, and disease management to support the care of veteran patients with chronic condition" [Darkins A, Ryan P, Kobb R, Foster L, Edmonson E, Wakefield B, Lancaster AEs, Telemed J E Health. 2008 Dec;14(10):1118-26. Doi: 10.1089/tmj.2008.0021.] http://online.liebertpub.com/doi/odf/10.1089/tmj.2008.0021 Note: this specific area has been supplemented with further data from Darkins, available at: http://c.ymcdn.com/sites/www.hisa.org.au/resaource/resmgr/telehealth2014/Adam-Darkins.pdf	

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	University of Virginia Health System Since 1994, the University of Virginia Health System's Office of Telemedicine has grown to become an international leader in telemedicine. UVA Health System Office of Telemedicine. Providing more than 40,000 consults in over 40 specialties, UVA's telehealth services range from clinical consultations to medical education for providers and patients across Virginia, surrounding regions, and internationally. The success of UVA's telemedicine program has generated impressive results. 30% increase in satisfaction from patients living in remote areas where travel is an issue. 40,000 consults via telemedicine across 40 specialty and subspecialty areas Telemedicine has saved Virginians 8.9 million miles of travel to see a health specialist	Thank you for these references. The purpose of this report was to identify areas where the evidence is already synthesized through systematic reviews and to identify areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper to synthesize individual studies to answer questions about effectiveness of specific telehealth interventions.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition (continued)	General Comments (continued)	73 new clinical projects under development across a wide range of specialties 4.6x growth in the volume of encounters via telemedicine http://www.wired.virginia.gov/toolkit/applications-of-interest/telemedicine-university-of-virginia-health-system-case-study/	
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	Primary Care E-Visit v. Physician Office Visit: Study Size 8,000 Office and E-Visits From The Washington Post, 1/21/2013: "A new study suggests that "e-visits" to health-care providers for sinus infections and urinary tract infections (UTIs) may be cheaper than in-person office visits and similarly effective." [Ateev Mehrotra, MD; Suzanne Paone, DHA; G. Daniel Martich, MD; Steven M. Albert, PhD; Grant J. Shevchik, MD, JAMA Intern Med. 2013;173(1):72-74. Doi: 10.1001/20013. Jamainternmed.305] http://archinte.jamanetwork.com/article.aspx?articleid=1392490	Thank you for these references. The purpose of this report was to identify areas where the evidence is already synthesized through systematic reviews and to identify areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper to synthesize individual studies to answer questions about effectiveness of specific telehealth interventions.

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Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	Randomized Control Trial of Telehealth and Telecare: Study Size 6,191 pateints, 238 practices "The early indications show that if used correctly telehealth can deliver a 15% reduction in A&E visits, a 20% reduction in emergency admissions, a 14% reduction in elective admissions, a 14% reduction in bed days and an 8% reduction in tariff costs. More strikingly they also demonstrate a 45% reduction in mortality rates." [Source" "Whole System Demonstrator Programme, Headline Findings – December 2011" Department of Health, United Kingdom] http://www.telecare.org.uk/sites/default/files/file-directory/secure_annual_reports/Publications/Effect%20of%20Telehealth%20on%20use%20of%20secondary%20care%20and%20mortality%20findings%20from%20the%20WSD%20cluster%20randomised%20trial.pdf	Thank you for these references. The purpose of this report was to identify areas where the evidence is already synthesized through systematic reviews and to identify areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper to synthesize individual studies to answer questions about effectiveness of specific telehealth interventions.

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Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	HEART FAILURE MANAGEMENT Remote Monitoring /or Heart Failure: Study Size 50 patients Flagstaff Medical Center found that through implementing a remote heart failure monitoring solution for the 6 months prior to versus following program enrollment, the average number of hospitalizations decreased 42%, from 3.3 to 1.9 admissions, the average number of days hospitalized decreased 64%, from 14.2 to 5.2 days, and the average total charges decreased 67%, from $138,600 to $44,673. Comparably significant reductions were found for the 30- and 90-day periods prior to versus following enrollment. http://www.ncbi.nlm.nih.gov/pubmed/25025239	Thank you for these references. The purpose of this report was to identify areas where the evidence is already synthesized through systematic reviews and to identify areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper to synthesize individual studies to answer questions about effectiveness of specific telehealth interventions.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	Remote Patient Monitoring o/ Heart Failure Patients, Meta analysis: Study Size 4,264 patients "Remote monitoring programmes reduced rates of admission to hospital for chronic heart failure by 21% {95% confidence interval 11% to 31%) and all cause mortality by 20% {8% to 31%); of the six trials evaluating health related quality of life three reported significant benefits with remote monitoring." [Telemonitoring or structured telephone support programmes for patients with chronic heart failure: systematic review and meta-analysis, Robyn Clark, Sally Inglis, Finlay McAlister, John Cleland, Simon Stewart, MJ {British Medical Journal), doi:10.1136/bmj.39156.536968.55 {published 10 April 2007)] http://www.ncbi.nlm .nih.gov/pmc/artic le s/PMC1865411/	This review was excluded due to a mixture of included and excluded interventions and/or outcomes. It is listed in the excluded reviews list.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	Remote Patient Monitoring o/ Heart Failure Patients, Meta analysis: Study Size 6,258/ 2,354 Patients "RPM convers a significant protective clinical effect in patients with chronic HF compared with usual care." [J Am Coll Cardio: 2009;54:1683-94] http://content.o nlinejacc .org/article.aspx ?artic leid=1140154	This review was excluded due to a mixture of included and excluded interventions and/or outcomes. It is listed in the excluded reviews list.
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	Telehome Monitoring Program: 1,000 Patients Enrolled "Research at the Heart Institute has shown telehome monitoring at the Heart Institute has cut hospital readmission for heart failure by 54 percent with savings up to $20,000 for each patient safey diverted from an emergency department visit, readmission and hospital stay." [University of Ottawa Heart Institute, Feburary 24, 2011, Press Release] http://www.heartandlung.org/artic le/S0147-9563{07)00084-2/fulltext	We agree these are important, but they are reports. Summarizing primary evidence is outside the scope of this evidence map.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	Remote Patient Monitoring at St. Vincent's Hospital: "Impact: In less than two years, preliminary results show that the care management program implemented by St. Vincent Health and facilitated by the Guide platform reduced hospital readmissions to 5 percent for patients participating in the program - a 75 percent reduction compared to the control group {20 percent), and to the national average {20 percent)." [St. Vincent's Hospital Reduces Readmissions by 75 percent with a Remote Patient Monitoring-Enabled Program, Case Study by Care Innovations, an Intel GE Company] http://www.careinnovations.com/data/s ites/1/downloads/Guide_product/guide_s tvincent_profile.pdf	Thank you for these references. The purpose of this report was to identify areas where the evidence is already synthesized through systematic reviews and to identify areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper to synthesize individual studies to answer questions about effectiveness of specific telehealth interventions.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	Program Evaluation of Remote Heart Failure Monitoring: Healthcare Utilization Analysis in a Rural Regional Medical Center: "HF patients enrolled in this program showed substantial and statistically significant reductions in healthcare utilization during the 6 months following enrollment, and these reductions were significantly greater compared with those who declined to participate but not when compared with a matched cohort. The findings from this project indicate that a remote HF monitoring program can be successfully implemented in a rural, underserved area. Reductions in healthcare utilization were observed among program participants, but reductions were also observed among a matched cohort, illustrating the need for rigorous assessment of the effects of HF remote monitoring programs in healthcare systems."	Thank you for these references. The purpose of this report was to identify areas where the evidence is already synthesized through systematic reviews and to identify areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper to synthesize individual studies to answer questions about effectiveness of specific telehealth interventions.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition (continued)	General Comments (continued)	[Program Evaluation of Remote Heart Failure Monitoring: Healthcare Utilization Analysis in a Rural Regional Medical Center, William T. Riley, PhD, corresponding author Pamela Keberlein, RN, MSN, Gigi Sorenson, RN, MSN, Sailor Mohler, BS, Blake Tye, MPIA, A. Susana Ramirez, PhD, and Mark Carroll, MD, Telemed J E Health. 2015 March 1; 21{3): 157-162. doi: 10.1089/tmj.2014.0093] http://www.ncbi.nlm .nih.gov/ pmc/article s/PMC4365431/	

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	DIABETES MANAGEMENT: Mobile Phone Personalized Behavior Coaching /or Diabetes: Study Size 163 patients over 26 Practices "Conclusions - The combination of behavioral mobile coaching with blood glucose data, lifestyle behaviors, and patient self-management individually analyzed and presented with evidence-based guidelines to providers substantially reduced glycated hemoglobin level over 1 year." [Cluster-Randomized Trial of a Mobile Phone Personalized Behavioral Intervention for Blood Glucose Control, Charlene Quinn, Michelle Shardelll, Michael Terrin, Eric Barr, Soshana Ballew, Ann Gruber-Baldini, Diabetes Care. Published Online July 25, 2011] http://care.diabetesjournals.org/co ntent/34/9/1934.long	Thank you for these references. The purpose of this report was to identify areas where the evidence is already synthesized through systematic reviews and to identify areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper to synthesize individual studies to answer questions about effectiveness of specific telehealth interventions.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	Mobile Phone Diabetes Management: Study Size 30 patients /rom 3 group practices "Conclusions: Adults with type 2 diabetes using WellDoc's software achieved statistically significant improvements in A1c. HCP and patient satisfaction with the system was clinically and statistically significant." [WellDoc™ Mobile Diabetes Management Randomized Controlled Trial: Change in Clinical and Behavioral Outcomes and Patient and Physician Satisfaction, Charlene Quinn, Suzanne Sysko Clough, James Minor, Dan Lender, Maria Okafor, Ann Gruber-Baldini, Diabetes Technology & Therapeutics, Vol 10, Number 3, 2008, pps 160-168] http://online.liebertpub.com/doi/pdf/10.1089/dia.2008.0283	Thank you for these references. The purpose of this report was to identify areas where the evidence is already synthesized through systematic reviews and to identify areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper to synthesize individual studies to answer questions about effectiveness of specific telehealth interventions.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	CHRONIC OBSTRUCTIVE PULMONARY DISEASE MANAGEMENT Content-Driven Telehealth System Coupled with Care Management: Study Size Medicare patients enrolled in CMS' Health Buddy Program demonstration /rom 2006-2010 The Health Buddy Program is a content=driven telehealth system combined with care management designed to enhance patient education, self-management, and timely access to care. "The Health Buddy Program was associated with 23% lower quarterly all-cause hospital admissions and 40% lower quarterly respiratory-related hospital admissions compared to baseline for intervention beneficiaries vs. controls. In subgroup analyses, patients who engaged in the intervention during the study period {n=247)demonstrated significantly lower quarterly hospital admissions for chronic obstructive pulmonary disease exacerbations.	Thank you for these references. The purpose of this report was to identify areas where the evidence is already synthesized through systematic reviews and to identify areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper to synthesize individual studies to answer questions about effectiveness of specific telehealth interventions.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition (continued)	General Comments (continued)	The Health Buddy System was not associated with reductions in quarterly emergency department use." "CONCLUSIONS: A content-driven telehealth system combined with care management has the potential to improve health outcomes in Medicare beneficiaries with chronic obstructive pulmonary disease." [David Au, Dendy Macaulay, John Jarvis, Urvi Desai, Howard Birnbaum. Annals ATS. First published online 02 Feb 2015 as DOI: 20.1513/ AnnalsATS.201501-04OC] http://www.ncbi.nlm .nih.gov/ pubmed/?term =Au+DH%2C+Mac aulay +DS%2C+Jarv is+J L +et+al	

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	MEDICATION ADHERENCE FOR CHRONIC CONDITIONS: 50 patients "There was a trend toward increased prescription refill rates with the use of the Pill Phone application and a decrease after the application was discontinued" [Case study titled: "Medication Adherence and mHealth: The George Washington University and Wireless Reach Pill Phone Study", Study designed, conducted and analyzed by George Washington University Medical Center; Qualcomm Wireless Reach Initiative was the primary funder of this study] http://www.qualcomm .com /me dia/documents/files/wi rel ess-reac h-c ase-study -united-states -pill- phone-englis h-.pdf	Thank you for these references. The purpose of this report was to identify areas where the evidence is already synthesized through systematic reviews and to identify areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper to synthesize individual studies to answer questions about effectiveness of specific telehealth interventions.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	1 http://www.effectivehealthcare.ahrq.gov/research-available-for-comment/comment-draft-reports/?pageaction =displaydraftcommentform&topicid=624&productid=2160&documenttype=draftReport 2 http://effectivehealthcare.ahrq.gov/index.cfm/search-for-guides-reviews-and-reports/?productid=2110&pageaction=displayproduct 3 See Hindricks, et al., The Lancet, Volume 384, Issue 9943, Pages 583 - 590, 16 August 2014 doi:10.1016/S0140-6736{14)61176-4. See also U.S. Agency for Healthcare Research and Quality {"AHRQ") Service Delivery Innovation Profile, Care Coordinators Remotely Monitor Chronically Ill Veterans via Messaging Device, Leading to Lower Inpatient Utilization and Costs {last updated Feb. 6, 2013), available at http://www.innovations.ahrq.gov/content.aspx ?id =3006. s/mobile_health_fitness .	Thank you for these references. The purpose of this report was to identify areas where the evidence is already synthesized through systematic reviews and to identify areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper to synthesize individual studies to answer questions about effectiveness of specific telehealth interventions.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #3- Brian Scarpelli, Scarpelli Coalition	General Comments	4 See Darkins, Telehealth Services in the United States Department of Veterans Affairs {VA), available at http://c.ymcdn.com/sites/www.hisa.org.au/resource/resmgr/telehealth2014/Adam-Darkins.pdf. 5 See Juniper Research, Mobile Health & Fitness: Monitoring, App-enabled Devices & Cost Savings 2013-2018 {rel. Jul. 17, 2013), available at http://www.juniperresearch.com/report 6 See 42 CFR § 410.78. 7 For example, according to the Centers for Medicare & Medicaid Services {CMS), Medicare telemedicine reimbursement totaled a mere $13.9 million in Calendar Year 2014. See http://ctel.org/2015/05/cm s-medicarereimburses-nearly-14-million-for-tele medicine-in -2014/. 8 Draft Technical Brief at 46.	Thank you for these references. The purpose of this report was to identify areas where the evidence is already synthesized through systematic reviews and to identify areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper to synthesize individual studies to answer questions about effectiveness of specific telehealth interventions.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #4- Eli Fleet, HIMSS	General Comments	Dear Dr. Kronick: On behalf of the Healthcare Information and Management System Society (HIMSS) and the Personal Connected Health Alliance (PCHA), we are pleased to provide written comments to the Agency for Healthcare Research and Quality (AHRQ) on its Technical Brief titled, Telehealth: An Evidence map for Decisionmaking Draft Report. We appreciate the opportunity to leverage our members' expertise in developing these comments, and we look forward to establishing a dialogue with AHRQ on how telehealth and remote patient monitoring solutions help improve patient care, reduce readmissions, and improve care coordination.	Introductory content – no response required

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #4- Eli Fleet, HIMSS	General Comments	HIMSS is a global, cause-based, not-for-profit organization focused on better health through information technology (IT). HIMSS leads efforts to optimize health engagements and care outcomes using IT. The organization produces health IT thought leadership, education, events, market research, and media services around the world. Founded in 1961, HIMSS encompasses more than 61,000 individuals, of which more than two-thirds work in healthcare provider, governmental, and not-for-profit organizations across the globe, plus over 640 corporations and 450 not-for-profit partner organizations, that share this cause.	Introductory content – no response needed

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #4- Eli Fleet, HIMSS	General Comments	PCHA is the leading organization advocating for global technology standards for personal connected health. A collaboration between Continua, mHealth Summit, and HIMSS, PCHA publishes the Continua Design Guidelines, which provide a flexible implementation framework for authentic interoperability of personal connected health devices and systems and convenes the mHealth Summit, the largest gathering of its kind focused solely on connected health. PCHA also works closely with regulators, government agencies and industry to create the technology 'ecosystem' required for delivering on the promise of personal connected health. More than 100 companies, healthcare systems, and governments work together to advance PCHA's mission of interoperable, patient-focused connected health.	Introductory content – no response required

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #4- Eli Fleet, HIMSS	General Comments	This Report was as result of calls from Senators Bill Nelson (D-FL) and John Thune (R-SD), who in responding to a group of healthcare stakeholders led by HIMSS in December 2014, asked for AHRQ to review "the value of telehealth and remote patient monitoring, particularly for the chronically ill, with a focus on expanding access to care and reducing costs."1 As AHRQ noted, there is abundant evidence (including more work being done) supporting telehealth and remote patient monitoring as cornerstones of an advanced healthcare system.	Background context – no response needed

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #4- Eli Fleet, HIMSS	General Comments	We would like to note the need for AHRQ to review international studies that—when properly analyzed—can aid US policymakers in understanding additional applications of new and novel technology. We also recommend that given the Congressional Budgets Office's recent blog on telemedicine (Publication 50680), that data from other delivery systems such as the Department of Veterans Affairs be considered when reviewing the issue of telehealth services, our organizations encourage you to include findings by Dr. Adam Darkins and his 2008 article, Care Coordination/Home Telehealth: the systematic implementation of health informatics, home telehealth, and disease management to support the care of veteran patients with chronic conditions. To this end, we suggest that AHRQ also aggregate and report cost findings clearly within Table 6.	Location or country was not a criteria for inclusion or exclusion. While the majority of the studies included in reviews were conducted in the US, the majority of the review authors were not American and it seems likely that they included studies from a range of countries when available. While the Darkins study is interesting and potentially important, it is an individual study not a systematic review. The purpose of this evidence map was to identify areas where there are existing systematic reviews that summarize the evidence for decision-makers, but not to summarize all individual studies on this broad topic area. We have added an additional section including a table and figure addressing cost and resource utilization to the text. We have presented the findings as they were presented in the research, which varies considerably.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #4- Eli Fleet, HIMSS	General Comments	In reviewing Table 1 of the Draft Report, we offer the following recommendations on the Study Characteristics: • Location of Patient - We note the following research, which acknowledges the importance of expanded definitions associated with monitoring in the home and the potential impacts of doing so: o Controversies in Cardiovascular Medicine – Akshay Desai o Implant-based multiparameter telemonitoring of patients with heart failure (IN-TIME): a randomised controlled trial – Gerhard Hindricks	We did not restrict inclusion based on the location of the patient or provider.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #4- Eli Fleet, HIMSS	General Comments	• Telehealth Modality - We urge AHRQ to expand and refine modality types to include the term remote patient monitoring. This ensures that multiple modality types are not excluded as a result of unintended bias based on evolving terms as noted in the background and definition section. We also encourage AHRQ to consider the use of "continuity of care" as a modality type to account for platforms which assist with population health management, or other advanced platforms which leverage the elements of data aggregation and analysis to assist in the management of patients.	Re: modality: The category Monitoring and Management has been changed to Remote Patient Monitoring. The modality of telehealth was not an inclusion or exclusion factor in our search for literature. We aggregated the modalities from the included studies into categories. The list of categories reflects the content of the included studies. Other categories may be appropriate and in use today, but which are not yet seen in high-quality systematic reviews. We have added definitions of our categories to the results and explained how they were created in methods.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #4- Eli Fleet, HIMSS	General Comments	• Outcome Type - We ask AHRQ to expand outcomes to include patient engagement. Technologies associated with telehealth are becoming increasingly accessible to patients as consumers. We offer the following studies for inclusion that analyze the role of patient engagement and remote patient monitoring: o Enhanced registered nurse care coordination with sensor technology: Impact on length of stay and cost in aging in place housing – Marilyn Rantz o Reducing 30-day Hospital Readmissions through a Home Health TeleStation Monitoring Program for Heart Failure Patients – Dignity Health o Telemedical Support in Patients with Chronic Heart Failure: Experience from Different Projects in Germany – Axel Müller	The current literature map limits outcomes to clinical and cost outcomes. Future work, including new systematic reviews could be designed to include patient engagement

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #4- Eli Fleet, HIMSS	General Comments	• Study Type - AHRQ's decision to use only literature reviews rather than individual studies limits the inclusion of more recent data on remote patient monitoring usage. We urge AHRQ to include individual studies with an emphasis on studies that do not restrict the research to only care delivery models that require doctor-patient interaction.	Thank you for the comment. Because the topic of telehealth is quite broad, this Technical brief took the first step to map the areas where systematic reviews have already synthesized evidence on the effectiveness of telehealth interventions, while also examining areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper into questions about effectiveness of specific telehealth interventions.. We revised the description of inclusion criteria to clarify that we did not restrict our inclusion to doctor-patient interaction.
Public Reviewer #4- Eli Fleet, HIMSS	General Comments	Finally, we request that AHRQ broaden its evaluation to include telehealth encounters that go beyond isolated interventions constrained to direct encounters with patients. As noted in the technical brief, the size and scope of healthcare delivery in a virtual sense has expanded dramatically over recent years. In addition, many of these studies leverage telehealth and remote patient monitoring as ancillary to other supportive technologies to achieve outcomes, cost savings, and to better engage patients.	Thank you for the comment. We have clarified the text to be clear that remote patient monitoring was included.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #4- Eli Fleet, HIMSS	General Comments	It is our hope that this feedback will be taken into account before the Draft Technical Brief is finalized. HIMSS and PCHA are committed to be being a resource to AHRQ in its mission to produce, disseminate, and encourage widespread use of evidence to make health care safer, higher quality, more accessible, equitable, and affordable. We look forward to the opportunity to meet with you and your team to discuss these issues in more depth. Please feel free to contact Jeff Coughlin, Senior Director of Federal & State Affairs, at 703.562.8824, or Eli Fleet, Director of Federal Affairs, at 703.562.8834, with questions or for more information. Thank you for your consideration.	AHRQ received this comment and will consider this for future work.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #4- Eli Fleet, HIMSS	General Comments	Dear Director Kronick: On behalf of the undersigned organizations representing thousands of physicians nationwide, we appreciate the opportunity to comment on the Telehealth: An Evidence map for Decisionmaking technical brief drafted by the Agency for Healthcare Research and Quality (AHRQ). We support AHRQ's decision to develop this report in response to Senators Nelson and Thune requesting a review of available literature on the value of telehealth and remote patient monitoring, particularly for the chronically ill, with a focus on expanding access to care and reducing costs. We believe that teledermatology helps further enable high-quality patient care, increases access to dermatologists, and encourages professionalism, through patient care coordination and communication between specialties.	We agree that it is important that telehealth support the field Teledermatology. Many studies focus on diagnostic criteria, not patient outcomes. We re-examined the literature, and found one systematic review that met our criteria. This study is now included in the literature map and we have added this topic to our list of topics that would benefit from further research.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #2- April Armstrong, American Telemedicine Association Teledermatology Special Interest Group (SIG)	General Comments	Importance of Teledermatology We have first-hand knowledge and clinical experience of the benefits that telemedicine can offer patients in gaining access to specialty care. The American Academy of Dermatology Association sponsors AccessDerm, a volunteer teledermatology platform, which allows Board-certified dermatologists to provide care to underserved populations in the United States using store-and-forward technology.12 The AccessDerm program gives trained primary care providers (PCPs) who work in participating clinics efficient access to dermatologists' expertise through a HIPAA-compliant mobile application that allows for secure transmission of photos and other relevant clinical information. To date, AccessDerm has provided over approximately 1,600 patient consultations, with notable diagnoses of a previously undiagnosed melanoma and Kaposi's sarcoma. 3	Thank you for this information.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #2 - April Armstrong, American Telemedicine Association Tele-dermatology Special Interest Group (SIG)	General Comments	The use of teledermatology fosters a robust collaboration between the dermatologist and primary care provider. This type of collaboration ultimately benefits the patient, as it results in increased access to dermatologic care, without necessarily requiring an in-person visit to the specialist.4 In 75 percent of AccessDerm cases, where the PCP would have sent the patient for an in-person dermatology consultation (absent teledermatology), the consulting dermatologist did not consider the in-person consultation necessary (American Academy of Dermatology unpublished results). By providing their clinical advice through teledermatology, the dermatologists enabled PCPs to treat their own patients in a faster, more cost-efficient manner.	Thank you for the information

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #2 - April Armstrong, American Telemedicine Association Tele-dermatology Special Interest Group (SIG) (continued)	General Comments (continued)	On the other hand, in AccessDerm cases where the PCP would not have sent the patient for an in-person consultation, the dermatologist, based on the information received, recommended an in-person consultation in 12 percent of cases.	

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #2- April Armstrong, American Telemedicine Association Teledermatology Special Interest Group (SIG)	General Comments	In the report it is mentioned that AHRQ limited its search to "evidence reviews in Ovid MEDLINE®, the Cochrane Library of Systematic Reviews, and PROSPERO." Based on the findings from these databases we would like to pose the following questions: 1. Was "teledermatology" considered as a search term and if so what criteria limited it from being included in the final report? Are there data that the specialty of dermatology should focus on producing in the coming years? Did AHRQ identify any data gaps for teledermatology? 2. Will AHRQ consider expanding the number of databases and search parameters utilized for this review? 3. The report highlights how studies had to report clinical, resource utilization, or cost outcomes. Based on these criteria was teledermatology listed in Category C?	We have added teledermatology to the report. In response to your other questions. 1. Teledermatology was not excluded and we used search terms that included teledermatology. The issue is that many studies were of diagnostic accuracy and not patient outcomes. More work with these outcomes is needed. 2. Broader scopes may be considered in future work but not in this technical brief. 3. Teledermatology is now added to Category C in the revision.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #2- April Armstrong, American Telemedicine Association Teledermatology Special Interest Group (SIG)	General Comments	High Quality Evidence Available: Teledermatology Dermatology has been a leader in telehealth since its inception. Legislators and our colleagues within the house of medicine have looked to our specialty for guidance in shaping telehealth policy, implementation, and education because of our extensive experience and solid (and growing) evidence base.	Introductory content – no response required
Public Reviewer #2- April Armstrong, American Telemedicine Association Teledermatology Special Interest Group (SIG)	General Comments	Upon initial review of the available literature there are several systematic reviews that highlight the value of teledermatology which we recommend for inclusion in the evidence map: ☐ Bashshur RL, Shannon GW, Tejasvi T, Kvedar JC,Gates M. The Empirical Foundations of Teledermatology: A Review of the Research Evidence. Telemedicine journal and ehealth: the official journal of the American Telemedicine Association 2015;21:953-79.	This review did not meet the criteria of an includable systematic review, as it did not report quality of the individual studies.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #2- April Armstrong, American Telemedicine Association Teledermatology Special Interest Group (SIG)	General Comments	☐ Whited, J. Summary of the Status of Teledermatology Research. Durham Veteran Affairs Medical Center.	This review did not meet the criteria of an includable systematic review, as it did not report quality of the individual studies.
Public Reviewer #2- April Armstrong, American Telemedicine Association Teledermatology Special Interest Group (SIG)	General Comments	☐ Warshaw E, et. al. Teledermatology for diagnosis and management of skin conditions: A systematic review. Journal of the American Academy of Dermatology. April 2011; 64(4): 759-72.	Thank you for your comment. We have added this review to the report.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #2- April Armstrong, American Telemedicine Association Teledermatology Special Interest Group (SIG)	General Comments	☐ Levin Y, and Warshaw, E. Teledermatology: A Review of Reliability and Accuracy of Diagnosis and Management. Dermatologic Clinics. April 2009; 27 (2): 163-176.	We did review this study and it did not contain results for any of the outcomes in our report.
Public Reviewer #2- April Armstrong, American Telemedicine Association Teledermatology Special Interest Group (SIG)	General Comments	☐ N. Eminovi☐N.F. De Keizer, P.J.E. Bindels and A. Hasman. Maturity of teledermatology evaluation research: a systematic literature review. British Journal of Dermatology. March 2007; 156(3): 412-419.	We did review this study and it did not contain results for any of the outcomes in our report.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #2- April Armstrong, American Telemedicine Association Teledermatology Special Interest Group (SIG)	General Comments	If upon further review the inclusion criteria are expanded outside of systematic reviews, we recommend the addition of several studies, including one funded by AHRQ, on the benefits of teledermatology in minimizing resource utilization and costs including for example: ☐ Datta SK, Warshaw EM, Edison KE, Kapur K, Thottapurathu L, Moritz TE, Reda DJ, Whited JD. Cost and Utility Analysis of a Store-and-Forward Teledermatology Referral System: A Randomized Clinical Trial. JAMA Dermatol. 2015 Dec 1;151(12):1323-1329.	Thank you for these references. The purpose of this report was to identify areas where the evidence is already synthesized through systematic reviews and to identify areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper to synthesize individual studies to answer questions about effectiveness of specific telehealth interventions.
Public Reviewer #2- April Armstrong, American Telemedicine Association Teledermatology Special Interest Group (SIG)	General Comments	☐ Nelson CA, Takeshita J, Wanat KA, Bream KD, Holmes JH, Koenig HC, et al. Impact of store-and-forward (SAF) teledermatology on outpatient dermatologic care: A prospective study in an underserved urban primary care setting. Journal of the American Academy of Dermatology 2015.	Thank you for these references. The purpose of this report was to identify areas where the evidence is already synthesized through systematic reviews and to identify areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper to synthesize individual studies to answer questions about effectiveness of specific telehealth interventions.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #2- April Armstrong, American Telemedicine Association Teledermatology Special Interest Group (SIG)	General Comments	Tan E, Yung A, Jameson M, Oakley A,Rademaker M. Successful triage of patients referred to a skin lesion clinic using teledermoscopy (IMAGE IT trial). The British journal of dermatology 2010;162:803-11.	Thank you for these references. The purpose of this report was to identify areas where the evidence is already synthesized through systematic reviews and to identify areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper to synthesize individual studies to answer questions about effectiveness of specific telehealth interventions.
Public Reviewer #2- April Armstrong, American Telemedicine Association Teledermatology Special Interest Group (SIG)	General Comments	☐ Armstrong AW, Dorer DJ, Lugn NE, Kvedar JC. Economic evaluation of interactive teledermatology compared with conventional care. Telemed J E Health. 2007 Apr;13(2):91-9.	Thank you for these references. The purpose of this report was to identify areas where the evidence is already synthesized through systematic reviews and to identify areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper to synthesize individual studies to answer questions about effectiveness of specific telehealth interventions.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #2- April Armstrong, American Telemedicine Association Teledermatology Special Interest Group (SIG)	General Comments	• Eminović N, Dijkgraaf MG, Berghout RM, et al. A cost minimisation analysis in teledermatology: model-based approach. BMC Health Serv Res. 2010 Aug 25;10:251.	Thank you for these references. The purpose of this report was to identify areas where the evidence is already synthesized through systematic reviews and to identify areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper to synthesize individual studies to answer questions about effectiveness of specific telehealth interventions.
Public Reviewer #2- April Armstrong, American Telemedicine Association Teledermatology Special Interest Group (SIG)	General Comments	☐ Lamminen H, Lamminen J, Ruohonen K, Uusitalo H. A cost study of teleconsultation for primary-care ophthalmology and dermatology. J Telemed Telecare. 2001;7(3):167-73.	Thank you for these references. The purpose of this report was to identify areas where the evidence is already synthesized through systematic reviews and to identify areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper to synthesize individual studies to answer questions about effectiveness of specific telehealth interventions.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #2- April Armstrong, American Telemedicine Association Teledermatology Special Interest Group (SIG)	General Comments	☐ Armstrong AW, Johnson MA, Lin S, Maverakis E, Fazel N, Liu FT. Patient-centered, direct-access online care for management of atopic dermatitis: a randomized clinical trial. JAMA Dermatol. 2015 Feb;151(2):154-60.(Funded by AHRQ K08 HS018341)	Thank you for these references. The purpose of this report was to identify areas where the evidence is already synthesized through systematic reviews and to identify areas which have not yet been synthesized or areas where more research is needed. Future projects may delve deeper to synthesize individual studies to answer questions about effectiveness of specific telehealth interventions.
Public Reviewer #1- Annonymous	General Comments	In spite of the many caveats about the limitations of the study the media is already drawing and publishing conclusions from the study that are not really in line. Talking points should be given to the media about what can and can't be concluded.	We have revised the abstract to provide key findings.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #5- Karen McKoy, Lahey Clinic	General Comments	I am concerned that teledermatology got no mention in this report it may be because there are not many published systematic reviews on teledermatology. Nevertheless this has been one of the most frequent telemedicine practices of the specialties and there are numerous publications. Another reason it may have been ignored is that reports are not usually on clinical resource utilization or cost outcomes. The American Telemedicine Association has a very active teledermatology group which you did not even mention.	We reviewed our triage and identified a review that should be included and have added a discussion of teledermatology to the text.

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #5- Karen McKoy, Lahey Clinic	General Comments	Several studies of which you may be unaware in your literature review include: Summary of Teledermatology Research by John Whited httpwww.americantelemed.orgdocsdefaultsourcemembergroups2015summaryofthestatusofteledermatologyresearch.pdfsfvrsn2 American Telemedicine Association Teledermatology for diagnosis and management of skin conditions a systematic review EM Warshaw YJ Hillman NL Greer EM Hagel... Journal of the American Academy of Dermatology 2011 Elsevier Teledermatology a review of reliability and accuracy of diagnosis and management YS Levin EM Warshaw Dermatologic clinics 2009 Elsevier Maturity of teledermatology evaluation research a systematic literature review N Eminovi NF De Keizer PJE Bindels... British Journal of Dermatology 2007 Wiley Online Library	Warshaw, 2009 was added to our evidence map. Whited did not meet the criteria for systematic reviews, and Levin and Eminovic were excluded due to wrong outcome- not clinical or utilization/cost outcomes

Commentator & Affiliation	Section	Comment	Response
Peer Reviewer #2	General Comments	Overall, this is very useful research reportedly in a generally well-written document. There are some crucial places where the text is not clear. And the core map figures are hard to read. My main concern with the research is that the authors provide results information, averaged across systematic reviews, with no consideration of the quality of evidence used for the result being extracted from each review. I think that policy makers will walk away from figures 8 and 9 drawing much stronger policy conclusions than warranted by the quality of results synthesis presented in those figures.	Thank you for your review and suggestions. We have attempted to address your concern by revising the figures and adding to the text.