Technical Brief Disposition of Comments Report

Title: *Interventions To Decrease Hospital Length of Stay*

Draft report available for public comment from September 23, 2020, to November 10, 2020.

Citation: Tipton K, Leas BF, Mull NK, Siddique SM, Greysen SR, Lane-Fall MB, Tsou AY. Interventions To Decrease Hospital Length of Stay. Technical Brief No. 40. (Prepared by the ECRI–Penn Medicine Evidence-based Practice Center under Contract No. 75Q80120D00002.) AHRQ Publication No. 21-EHC015. Rockville, MD: Agency for Healthcare Research and Quality; September 2021. DOI: 10.23970/AHRQEPCTB40. Posted final reports are located on the Effective Health Care Program search page.

Comments to Draft Report

The Effective Health Care (EHC) Program encourages the public to participate in the development of its research projects. Each draft report is posted to the EHC Program website or AHRQ website for public comment for a 3- to 4-week period. Comments can be submitted via the website, mail, or email. At the conclusion of the public comment period, authors use the commentators' comments to revise the draft report.

Comments on draft reports and the authors' responses to the comments are posted for public viewing on the website approximately 3 months after the final report is published. Comments are not edited for spelling, grammar, or other content errors. Each comment is listed with the name and affiliation of the commentator, if this information is provided. Commentators are not required to provide their names or affiliations in order to submit suggestions or comments.

This document includes the responses by the authors of the report to comments that were submitted for this draft report. 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.

Public Comments and Author Response

Commentator & Affiliation	Section	Comment	Response
Peer Reviewer #1	Overall	Excellent review. Minimal comments.	Thank you for your review and feedback.
Peer Reviewer #2	Overall	This review is well done and easy to follow. The topic is quite broad which makes a systemic approach necessary. I appreciate the work that the authors did to assess the topic and to ascertain the guiding questions as these are not obvious.	Thank you for your review.
Key Informant #1	Overall	Overall a good review of what is currently published. I do think that there are some 'implications' that should be reflected somewhere in the text. One key point is that raw/actual LOS is decreasingly the focus of hospitals. As we do better in keeping 'less sick' folks out of inpatient settings, and move surgeries safely to outpatient or minimally invasive procedures, overall LOS will likely rise (as those who are admitted are sicker overall). So an 'expected' or 'adjusted' overall LOS is a better measure of how we are efficiently caring for patients. In addition, ICU LOS is often seen as an important measure (from a quality of care and safety standpoint, as well as a cost/financial stewardship standpoint).	Thank you for your feedback. Our Key Informants agreed that LOS metrics that provide a standardized comparison amongst hospitals are important; therefore, we included LOS index as a primary outcome. The following text in the "Trade-Offs" section discusses the need for studies to use and report a standard LOS measurement: "All systematic reviews in our evidence base reported LOS and most reported readmissions and mortality. However, the manner in which outcomes were measured varied. Not only is it important for studies to evaluate these outcomes collectively, but to also standardize the way outcomes are reported."
Key Informant #2	Overall	Overall, this Technical Brief is well researched, written, and presented. This was my first review.	Thank you for your review.
Key Informant #3	Overall	Comprehensive review for a complex evaluation challenge. The lack of evidence specific to vulnerable heterogeneous populations is confounder for the evaluation of impact of interventions on LOS. The movement to create care management and intervention across settings also makes the evaluation of inpatient LOS from the hospital setting more complex.	Thank you for your review.

Source: https://effectivehealthcare.ahrq.gov/products/hospital-length-of-stay/report
Published Online: September 20, 2021

Commentator & Affiliation	Section	Comment	Response
Public Reviewer #1 (Jean Salera-Vieira, Association of Women's Health, Obstetric, and Neonatal Nurses)	Overall	Overall, this is a comprehensive technical brief. It is organized in a way that makes it easy to follow and provides the information in a useful format.	Thank you for your review.
Public Reviewer #1 (Jean Salera-Vieira, Association of Women's Health, Obstetric, and Neonatal Nurses)	Overall	The problem and evidence were presented in a way that could be easily understood. Organizing the findings in table format was especially useful. The narrative summaries of the findings following the tables helped pull the findings together and led nicely into the summary and next steps.	Thank you for your review.
Public Reviewer #2 (Kirsten H. Aquino, name, American Association of Neuorlogical Surgeons/Congress of Neurological Surgeons Council of State Neurological Societies)	Overall	The draft report on interventions to decrease hospital length of stay was comprehensive and methodologically sound. The findings that high-risk and vulnerable populations are frequently excluded from research studies is unsurprising, however, represents an opportunity to decrease length of in hospital stay with interventions specifically target to these patient populations.	Thank you for your review.
Public Reviewer #2 (Kirsten H. Aquino, name, American Association of Neuorlogical Surgeons/Congress of Neurological Surgeons Council of State Neurological Societies)	Overall	Yes, it does. Ultimately I think this document highlights the challenge of limited research and evidence for successful LOS reduction initiatives however the summary points to attempts to evaluate such programs and patient populations who may benefit.	Thank you for your review.

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Peer Reviewer #1	Title, Key Messages, and Structured Abstract	Would consider modification if possible as this technical brief is narrow in its studied population and does NOT focus on surgical populations and others. As emphasized in the Summary and Implications, it is a summary of evidence "for medically complex and vulnerable patients requiring acute medical care." This should be emphasized in the Abstract (such as in Purpose) and even Title.	Thank you for your feedback. We have added text to the purpose statement. It now reads: "This Technical Brief aimed to identify and synthesize current knowledge and emerging concepts regarding systematic strategies that hospitals and health systems can implement to reduce length of stay (LOS), with emphasis on medically complex or vulnerable patients at high risk for prolonged LOS due to clinical, social, or economic barriers to timely discharge." In addition, we state in the last bullet point of the Key Messages section that average-risk patients undergoing elective surgery or specialized procedures were not the focus of this Technical Brief.
Public Reviewer #1 (Jean Salera-Vieira, Association of Women's Health, Obstetric, and Neonatal Nurses)	Title, Key Messages, and Structured Abstract	Clearly outlined the objectives of the technical brief. Listing Key Messages as a bulleted list was helpful. Conclusions section of the abstract was very brief. It may be beneficial to include highlights from the next steps outlined in the summary and implications section at the end of the technical brief.	Thank you for your suggestion. We have added the following as an additional bullet: "Hospital administrative leaders, researchers, and policymakers can work to reduce LOS by improving research practice, developing targeted health system interventions, and collaboratively addressing the social care needs of medically complex and vulnerable patient populations."

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Peer Reviewer #1	Background	Excellent background. Would like to see mention of healthcare disparities (paragraph 4 would be most amenable to this) and how addressing these challenges can not only improve delivery of safe and effective care but more equitable care.	Thank you for your review. We have added the highlighted text to this paragraph: "Particular patient populations, such as patients who are socioeconomically vulnerable, affected by longstanding healthcare disparities, or with medically complex needs, may be at increased risk for unnecessary delays in discharge. These patients are typically at greater risk for adverse events during and after hospitalization. Interventions that address the distinctive challenges of LOS reduction in these populations might increase the efficiency of patient throughput while reducing health inequities and improving the delivery of safe and effective care."
Peer Reviewer #2	Background	The background is sufficient to set the stage for the reader. It is thorough and efficient.	Thank you for your review.
Key Informant #1	Background	No comments	Thank you for your review.
Key Informant #2	Background	The background is well thought out and reasoned, and the contextual factors are addressed as the need behind intervention.	Thank you for your review.
Key Informant #3	Background	Well described and comprehensive	Thank you for your review.
Public Reviewer #2 (Kirsten H. Aquino, name, American Association of Neuorlogical Surgeons/Congress of Neurological Surgeons Council of State Neurological Societies)	Background	The introduction section was thorough and adequately described the significance of the project.	Thank you for your review.
Peer Reviewer #1	Guiding Questions	Excellent questions.	Thank you for your review and feedback.

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Peer Reviewer #2	Guiding Questions	I believe that these are appropriate.	Thank you for your review.
Key Informant #1	Guiding Questions	No comments	Thank you for your review.
Key Informant #2	Guiding Questions	The authors did a good job of sticking to the overall points and objectives of the guiding questions.	Thank you for your review.
Key Informant #3	Guiding Questions	This section notes changes made as a result of KI interviews.	Thank you for your review.
Peer Reviewer #1	Methods	Very comprehensive. The authors exclude non-emergent and elective procedures - but some of the systematic reviews and comments discuss geriatric pts undergoing procedures. Can the authors reconcile this? Is it because the majority of the study were non-surgical/procedural patients? Is there any further detailed description of the KIs and their backgrounds? If there is some way to show how diverse and representative they are, it would strengthen and validate their insights (i.e, not a large group-think panel).	Thank you for your review. Yes, the majority of patients within these studies were non-surgical/procedural patients. The final report includes the list of key informants and their respective professional roles. The following text has been added to the first paragraph of the "Discussions with Key Informants" section: "KI expertise included care model transformation (e.g., co-design and coaching), healthcare delivery processes, managed care and risk management, and hospital quality and safety. Additionally, KIs had first-hand experience of working with high-risk and vulnerable populations at their institutions."
Peer Reviewer #2	Methods	I appreciated the use of the Key Informants. It appears that this lead to the inclusion of other diagnosis and key characteristics of patients with multiple medical diagnosis. I appreciated the inclusion of the questions that were asked of the Key Informants in the manuscript. An important piece of the methods is the inclusion of Grey Literature. As noted, this resulted into additions.	Thank you for your review.
Key Informant #1	Methods	No comments	Thank you for your review.

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Key Informant #2	Methods	The methods are clear, and the authors do a nice job of describe how the data for this report was gathered. I would have liked to see more KI interviews and a better description of the KIs interviewed. Ideally there would be more patient or family stakeholder KIs. Additionally, I understand that covid-19 makes research with KIs challenging, but I would have like to see all interviews done in real-time vs some being done via written submission. With that being said, the questions for the key informants seem well thought out, and it does appear that the authors do a good job of incorporating KI feedback in shaping the report.	Thank you for your feedback. We make every effort to interview a diverse group of key informants with varying perspectives about the topic of interest. The final report includes the list of key informants and their respective professional roles. Of the seven key informant interviews, only two were done via written submission. The following text has been added to the first paragraph of the "Discussions with Key Informants" section: "KI expertise included care model transformation (e.g., co-design and coaching), healthcare delivery processes, managed care and risk management, and hospital quality and safety issues. Additionally, KIs had first-hand experience of working with high-risk and vulnerable populations at their institutions."
Key Informant #3	Methods	Describes role, engagement and impact of KI interviews.	Thank you for your review.
Public Reviewer #1 (Jean Salera-Vieira, Association of Women's Health, Obstetric, and Neonatal Nurses)	Methods	Please change substance abuse disorder. Should be updated to display substance use or mis-use disorder to reflect more contemporary language. We appreciate the explanation of how input from KIs informed the guiding questions and exclusion of interventions solely occurring in an outpatient setting. We would suggest including sepsis in the medically complicated patients as sepsis has been identified as a primary source for complications, morbidity, mortality, length of stay, and readmissions.	Thank you for your suggestion. We have confirmed that the term 'substance use disorder' has been used throughout the report. Based on guidance from our Key Informants, patients with sepsis were not a population of interest for this report and therefore excluded from our evidence base.

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Public Reviewer #2 (Kirsten H. Aquino, name, American Association of Neuorlogical Surgeons/Congress of Neurological Surgeons Council of State Neurological Societies)	Methods	The search strategy was clear, thorough and comprehensive, and use of feedback from KI interviews provided the necessary refinement to the search strategy.	Thank you for your review.
Peer Reviewer #1	Findings	Figure 6 – The directional arrows and strength of evidence are hard to read. Would recommend further stratifying, within each column, the "low" evidence justify left, "middle" evidence to center and "high" evidence to justify right (within each column). That will help draw the eyes to the high evidence vs. low evidence.	Thank you for your suggestion. We added color to this figure as an additional indicator of the direction of effect.
Peer Reviewer #2	Findings	The findings are appropriate. It was encouraging to see that most of the articles include were in the 2015 to 2020 time frame. The presentation of the findings is thorough and succinct. I appreciate the chosen groupings and would not recommend changing this. The population section is particularly important. The important research gaps identified are well noted. The dearth of data regarding patients with social and economic barriers is a large issue. I appreciate that the authors noted this and commented forcefully about this.	Thank you for your review.
Key Informant #1	Findings	See notes below [summary and implications section]	Thank you for your review.
Key Informant #2	Findings	This section of the brief contains the necessary details about the proposed intervention as well as detailed evidence maps. I find that this section is balanced and does a nice job of summarizing the different components, including size, comparators, etc. They explain clearly any gaps as well.	Thank you for your review.
Key Informant #3	Findings	Comprehensively describes and compares the existing evidence. Identifies gaps in the evidence specific to complex populations.	Thank you for your review.
Public Reviewer #1 (Jean Salera-Vieira, Association of Women's Health, Obstetric, and Neonatal Nurses)	Findings	Effective use of the PRISMA flow diagram outlining the findings of the systematic literature review. Summary of findings was well organized in table format.	Thank you for your review.

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Public Reviewer #2 (Kirsten H. Aquino, name, American Association of Neuorlogical Surgeons/Congress of Neurological Surgeons Council of State Neurological Societies)	Findings	The authors found inconclusive evidence on the effectiveness of interventions to decreased length of hospital stay. A criticism of this review is that it primarily focuses on medical (non-surgical) conditions, such as diabetes, COPD, renal diseases, congestive heart failure, and psychiatric illnesses. Presumably the patient level factors that drive prolonged length of hospital stay in patients with multi morbidity, and system-level interventions designed to address this, may be different in medical versus surgical patients. Minor Concerns, Reconsideration Required: Reconsider for approval/endorsement after minor revisions requiring review by JGRC officers only.	Thank you for your review. Based on input from our Key Informants, populations of interest were medically complex or vulnerable patients at high-risk for prolonged LOS. Average-risk patients undergoing surgery such as elective surgery or specialized procedures were not the focus of this Technical Brief.
Peer Reviewer #1	Research Gaps	Interventions - the discussion has several points on surgery-related interventions such as minimally-invasive surgery. While MIS is a technique, many (esp. surgeons and surgical disparities researchers) would argue that it is also a process that SHOULD be delivered by all organizations and considered a best-practice (under Enhanced Recovery programs, MIS is considered one of the processes to adhere to). It's benefits to surgical patients is absolutely clear (look at laparoscopic cholecystectomy vs. open cholecystectomy and lap colectomy vs. open colectomy in the NEJM COST trial which also showed a 1-day reduction in LOS). Would consider tempering these points as interventions such as holding organizations accountable for MIS and implementing system-wide adoption of MIS could be an effective intervention (at least for surgical patients).	We edited the discussion of minimally invasive surgery to avoid implying that such interventions may lack value.
Peer Reviewer #1	Summary and Implications	Well-organized.	Thank you for your review and feedback.
Peer Reviewer #2	Summary and Implications	Much of the summary has been covered, but I believe that the Challenges for Local Implementation is particularly important. There are many promising interventions noted in the published and grey literature. Many of these have not been scaled and generalized. This is a large issue. Additionally, there are significant trade-offs with a strict focus on LOS. These include, as noted, the use of post-acute settings and morbidity associated with "unsafe" discharges. LOS is a hospital-centric measure and may not have as large of a role in a total cost of care/population health environment.	Thank you for your suggestion. We added text to the Summary and Implications emphasizing this challenge. We agree that there are important limitations on the utility of LOS as a metric for evaluating broader health care concepts.

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Key Informant #1	Summary and Implications	Something that is not called out in the discussion, and is important to note, is the age of the data in the studies that are cited. Clinical care innovations such as care pathway implementation, enhanced decision support tools, use of reconfigured inpatient care teams, care management/navigation, and community partnerships continue to be expanded at a rapid rate. Data from 10 years ago provide an important historical snapshot, but are not necessarily reflective of current state. Also, I would recommend specifically noting that this paper was prepared and discussions were held in a more pre-pandemic medical world, and so does not include reference to care delivery improvements (for example, the rapid stand-up of telehealth interventions) that have occurred just in the last few months.	We added text to the Summary and Implications to address both the age of the data and potential innovations resulting from the coronavirus pandemic.
Key Informant #2	Summary and Implications	The authors do a nice job of summarizing the most important issues and including how addressing discussions with the KIs. The summary and implications section lays out the different populations nicely so that the next steps section can follow.	Thank you for your review.
Key Informant #3	Summary and Implications	Clearly and comprehensively describes summary and implications.	Thank you for your review.
Peer Reviewer #1	Next Steps	Is there consideration here for researchers to conduct research on traditional medical *and surgical* inpatient wards? The use of the term Enhanced Recovery After Surgery (ERAS) has increasingly evolved to Enhanced Recovery programs (ERPs)... part of the reason is because ERAS is technically trademarked by the ERAS Society and thus many organizations have moved to calling it ERPs. The term ERP is also more broad and accurate as much of ERP happens BEFORE surgery. I would recommend changing the terms ERAS to "enhanced recovery programs" throughout the paper.	Thank you for this suggestions. We have added “and surgical” to the first bullet under Researchers in the Next Steps section. We have also replaced the term “ERAS” with “enhanced recovery programs” where appropriate.
Peer Reviewer #2	Next Steps	I believe that the next steps are well done. One might consider asking the question as to the role LOS should play in a value-based world.	Thank you for this suggestion. We added a new point in the Next Steps highlighting the need to consider LOS in this context.
Key Informant #1	Next Steps	No comments	Thank you for your review.
Key Informant #2	Next Steps	This section is clear and concise with next steps to provide guidance to those in hospital administration. I would have liked to see more mention of technology.	Thank you. We added a point in the Next Steps to address the need for further research on the contribution of technology.
Key Informant #3	Next Steps	Identifies specific actions health system leaders can take to impact LOS and also identifies areas for investment to impact better evidence going forward for complex populations.	Thank you for your review.

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Public Reviewer #1 (Jean Salera-Vieira, Association of Women's Health, Obstetric, and Neonatal Nurses)	Next Steps	We appreciate the organization of next step recommendations by role (e.g. Hospital administrative leaders, researchers, & policymakers).	Thank you for your review.