

Peer Review File

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Reviewer A

Comment 1: Does the cost of the pharmacists and techs greater involvement add a dollar amount to the cost? If so or if not explain how having full-time employees involved impacts the cost of the medication.

Reply 1: The labor costs were allocated to the respective SNF/SNU facilities, with dedicated technicians assigned to each campus to support and streamline workflow, although their roles encompass responsibilities beyond that. Through effective budget management, a balanced approach has been maintained. It was observed that utilizing internal services, as opposed to outsourcing, resulted in improved net cost savings in terms of both drugs and labor.

Changes in the text: Added to line 147: The labor costs were allocated to the respective SNF/SNU facilities, with dedicated technicians assigned to each campus to support and streamline workflow, although their roles encompass responsibilities beyond that. Through effective budget management, a balanced approach has been maintained. It was observed that utilizing internal services, as opposed to outsourcing, resulted in improved net cost savings in terms of both drugs and labor.

Reviewer B

The work is very interesting and the topic is of paramount importance for the clinical pharmacist's profession and patient safety. However, I believe that due to the importance of the topic, some further study or comments and improvements would be necessary.

Comment 2: Have the authors determined which classes of drugs have been most affected by therapeutic reconciliation and in general the therapeutic areas where there appears to be a need for more incisive intervention?

Reply 2: Antibiotics and anticoagulation

Changes in the text: Added to line 242: The majority of therapeutic interventions conducted by the pharmacists focused on two key drug classes: anticoagulants and antibiotics. These interventions were targeted at optimizing patient care and ensuring the appropriate use of these medications.

Comment 3: I propose that the authors mention the profession of clinical pharmacology and the role this discipline plays in improving clinical pharmacy practice. A 2016 WHO document deserves attention. But there are also several systematic reviews on this subject, expanding by a few entries the bibliography of the work, which seems to me rather poor.

Reply 3: I appreciate the feedback and completely agree. In order to offer a more comprehensive assessment of the impact of pharmacists as integral members of the care team, I will diligently examine additional literature and sources. By doing so, I aim to provide a more meaningful evaluation of the value they bring to healthcare settings. However, I do not see a relevant 2016 WHO document. I have instead incorporated ACCP statements and further studies.

Changes in the text: Added to line 85:

Clinical pharmacists are integral healthcare professionals responsible for medication therapy and patient outcomes. They work closely with physicians, healthcare providers, and patients to ensure that prescribed medications contribute to optimal health outcomes. Operating across various healthcare settings, clinical pharmacists leverage their extensive knowledge of medications and disease states to effectively manage medication therapy within a multidisciplinary team. They serve as a primary source of scientifically valid information on the safe, appropriate, and cost-effective use of medications.

The role of a clinical pharmacist entails making critical decisions regarding medication therapy, including development, selection, and assessment of a patient's health issues. Collaborating with other healthcare professionals, such as physicians and nurses, clinical pharmacists assume responsibility and accountability for providing safe, effective, and timely medication therapy. With their specialized expertise in different medicines, clinical pharmacists have a profound impact on the well-being of their patients.

In healthcare teams, clinical pharmacists play a pivotal role by enhancing screenings, diagnoses, and the management of long-term conditions in patients. They conduct thorough patient interviews encompassing medical history, social and family history, allergy records, and the use of over-the-counter drugs. This comprehensive approach ensures that medication therapy is appropriate and tailored to individual patients. Clinical pharmacists are also capable of expanding their roles, incorporating tasks such as therapeutic drug monitoring and managing a patient's pharmacotherapy, ultimately leading to significant improvements in patient care.

Erica Y. Tong and colleagues conducted a systematic review that examined the clinical outcomes of clinical pharmacist roles in general medicine patients who were hospitalized. The review revealed that the involvement of clinical pharmacists led to a significant reduction in medication errors, an improvement in medication appropriateness, and a decrease in the length of hospital stay.⁷ In a comprehensive systematic review conducted by Kaboli PJ and colleagues, 36 studies were analyzed to assess the impact of pharmacy participation in patient rounds and medication reconciliation efforts. The findings of the review indicated that the involvement of clinical pharmacists can effectively enhance medication safety, reduce medication errors, and improve patient outcomes.⁸

Added citations to 360:

7. Tong, E.Y., Edwards, G., Hua, P.U. and Yip, G. (2020), Systematic review of clinical outcomes of clinical pharmacist roles in hospitalised general medicine patients. *J Pharm Pract Res*, 50: 297-307. <https://doi.org/10.1002/jppr.1685>

8. Kaboli PJ, Hoth AB, McClimon BJ, et al. Clinical pharmacists and inpatient medical care: a systematic review. *Arch Intern Med*. 2006;166(9):955-64.

9. [Internet]. [cited 2023 Jun 26]. Available from: <https://www.accp.com/docs/positions/guidelines/standardsofpractice.pdf>

Comment 4: Have the authors determined whether this specific action of the pharmacist also impacts on the organisational-educational model of multidisciplinary work teams?

Reply 4: The pharmacist actively engages in various medication education initiatives and plays a crucial role in providing training and education to both nursing staff and providers. They actively participate in on-site training sessions and contribute to ongoing educational activities on a daily basis.

Changes in the text: Added to line 246:

The pharmacist plays a crucial role in providing education to nursing staff regarding medication passes and bar code medication administration. Additionally, they actively engage with the nursing and provider teams on the floors, offering face-to-face visits to utilize their extensive drug expertise. The pharmacist also conducts one-on-one counseling sessions with nursing staff who may not be adhering to the BCMA standards appropriately. Furthermore, the clinical pharmacist performs audits to ensure compliance with accrediting body standards, including medication management. Moreover, the clinical specialist delivers monthly education sessions to providers and serves as a valuable resource daily for medication-related inquiries.

Comment 5: The figure on re-hospitalisation and its discussion is not very clear and could be misleading in the sense that this could actually increase the cost for the healthcare system

Reply 5: Healthcare costs were increased as SNF/SNU patients were readmitted to the acute care setting. This was a negative finding in our study. However, in the discussion we attribute that to COVID-19 and changing reimbursement models.

Changes in the text: Added to line 308: There is a possibility that healthcare costs were elevated due to readmissions of SNF/SNU patients to the acute care setting, which was a concerning outcome in our study. However, in the subsequent discussion, we attributed this trend to factors such as the impact of COVID-19 and the dynamic nature of reimbursement models.

Comment 5: The figure on the number of adverse reactions is missing: it is not clear whether this intervention had a benefit in decreasing the number of adverse reactions or in increasing their reporting.

Reply 5: Adverse reactions was not collected. Rather medication errors (serious safety events adjusted per 100 patient days) as defined and reported by Medicare. The definition of a serious safety event in the context of Medicare is as “Resulting in death or loss of a body part, disability, or more than transient loss of a body function. This is a standardized definition that was not changed pre and post implementation.” This is graphed in figure 7.

Changes in the text: Added 198 Adverse reactions were not specifically collected in our study. Instead, we focused on medication errors, specifically serious safety events adjusted per 100 patient days, as defined and reported by Medicare. In the context of Medicare, a serious safety event is defined as an incident resulting in death, loss of a body part, disability, or a more than transient loss of a body function. It is important to note that this standardized definition remained consistent both before and after implementation, ensuring comparability of data.

Comment 6: The graphics in figures 1 and 2 should be improved because the text exceeds the borders of the boxes. And also the tables should be made clearer in the description of the outcomes, there are also errors in the spacing between the numbers.

Reply 6: All comments in formatting addressed.

Changes in the text: Figures 1 & 2 transformed into flow carts. Spacing errors in tables adjusted.

Comment 7: A table with the characteristics of the patients considered would also be useful for readers of your work.

Reply 7: We did not analyze specific patients. We analyzed generalized reports that were provided via Medicare data.

Changes in the text: Added to 172: Individualized patient data was not collected; instead, data was extracted from a deidentified Medicare quality report.