

Occupational Therapy's Role In Reducing Length Of Stay In Inpatient Care

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Objectives of Presentation:

- Identify occupational performance deficits that adults typically experience at inpatient settings.
- Analyze financial benefit of decreased length of stay for adults across inpatient settings.
- Describe occupation based interventions that decrease length of stay for the adult inpatient population.

PICO: How does engagement in ADL's and/or IADL's impact length of stay (LOS) in inpatient settings?

Methods:

- Databases used: PubMed, SCOPUS, and CINAHL
- Search terms:
 - P: Inpatient, acute, rehabilitation, acute rehabilitation, subacute, subacute rehabilitation, skilled nursing facility, hospital, long term acute care hospital, intensive care unit
 - I: Activities of daily living, ADL, Instrumental activities of daily living, IADL, occupational therapy, mobility, functional mobility, self care, self-care
 - O: Reduce length of stay, length of stay, reduce cost
- Quantitative synthesis of 12 articles using Critical Review Form-Quantitative Studies₁₂

Results and Primary Outcomes:

- Four types of interventions: occupation based, early rehabilitation, early mobilization, and pre-operative assessment
- LOS: statistically significant reductions in LOS in intensive care unit (ICU)_{4,9,22}, acute care₁₆, and acute rehabilitation₅.
 - Clinically significant reduction in LOS in ICU_{14,20}.
- Impact on cost:
 - Occupation based interventions assoc. w/ improved Functional Independence Measure (FIM) scores, ↓ need for services_{7,21}
 - Early rehab saved \$7,000 per patient in ICU (\$12 million annually)₉, ICU cost analysis of intervention showed annual savings of \$817,836₁₄
 - Early mobilization in ICU saves \$1.5 million annually₄
- Three themes identified:

Theme	Key points/findings
Strength of Evidence	<ul style="list-style-type: none"> ▪ Moderate strength of evidence ▪ No randomized control trials, but overall consistent outcomes ▪ Primarily retrospective analysis (9/12)
Early Interprofessional Interventions	<ul style="list-style-type: none"> ▪ Utilization of OT, PT, and Nursing to promote functional activity_{4,9,20,21,22} ▪ ICU → floor status_{4,9,14,20,22} ▪ Interprofessional training programs_{4,5,7,8,9,14,20,21,22} ▪ Physical gains over functional gains (initial step to improve functional outcomes) ▪ Assists in discharge recommendations_{4,5,19,20}
Secondary outcomes	<ul style="list-style-type: none"> ▪ Functional ability as measured by Modified Barthel Index (MBI) scores₁₉ ▪ Increase in OT referrals₁₆ ▪ Reduced time on ventilator₄ ▪ Patients more likely to be discharged home without services_{4,19} ▪ Higher activity levels₂₀ ▪ Reduced risk for hospital-acquired pneumonia₂₀ ▪ Reduced risk of falls₉

References

- 1) Admi, H., Shadmi, E., Baruch, H., and Zisberg, A. (2015). From Research to Reality: Minimizing the Effects of Hospitalization on Older Adults. *Rambam Maimonides Medical Journal*, 6(2), e0017.
- 2) AOTA. (2014). *Guidelines for Systematic Reviews* [PDF Document]. Retrieved from http://jefferson.blackboard.com/bbcswebdav/pid-552533-dt-content-rid-2116347_1/courses/201604.OT.670.02/AJOT%20Criteria_systematic_reviews.pdf
- 3) Burtin, C., Clerckx, B., Robbeets, C., Ferdinande, P., Langer, D., Troosters, T., Hermans, G., Decramer, M., and Gosselink, R. (2009). Early exercise in critically ill patients enhances short-term functional recovery. *Critical Care Medicine*, 37(9), 2499-2505
- 4) Corcoran, J. R., Herbsman, J.M., Bushnik, T., Van Lew, S., Stolfi, A., Parkin, K., McKenzie, A., Hall, G.W., Joseph, W., Whiteson, J., Flanagan, S. R. (2017). Early rehabilitation in the medical and surgical intensive care units for patients with and without mechanical ventilation: An interprofessional performance improvement project. *PM & R : The Journal of Injury, Function, and Rehabilitation*, 9(2), 113-119. doi:S1934-1482(16)30223-4 [pii]
- 5) DiSotto-Monastero, M., Chen, X., Fisch, S., Donaghy, S., & Gomez, M. (2012). Efficacy of 7 days per week inpatient admissions and rehabilitation therapy. *Archives of Physical Medicine and Rehabilitation*, 93(12), 2165-2169. doi:10.1016/j.apmr.2012.07.003
- 6) Ehlenbach, W.J., Larson, E.B., Curtis, J.R., and Hough, C.L. (2015). Physical Function and Disability After Acute Care and Critical Illness Hospitalizations in a Prospective Cohort of Older Adults. *Journal of the American Geriatrics Society*, 63(10), 2061-2069.
- 7) Foley, N., McClure, J. A., Meyer, M., Salter, K., Bureau, Y., & Teasell, R. (2012). Inpatient rehabilitation following stroke: Amount of therapy received and associations with functional recovery. *Disability & Rehabilitation*, 34(25), 2132-2138. doi:10.3109/09638288.2012.676145
- 8) Harte, D., Hamill, P., Williams-Condell, C., & Lewis, S. (2017). Evaluation of the impact of preoperative assessment on length of stay after a total hip arthroplasty. *British Journal of Occupational Therapy*, 80(6), 361-367. doi:10.1177/0308022616685583
- 9) Hester, J. M., Guin, P. R., Danek, G. D., Thomas, J. R., Titsworth, W. L., Reed, R. K., Vasilopoulos, T., Fahy, B. G. (2017). The economic and clinical impact of sustained use of a progressive mobility program in a neuro-ICU. *Critical Care Medicine*, 45(6), 1037-1044. doi:10.1097/CCM.0000000000002305
- 10) Hwabejire, J.O., Kaafarani, H.M.A., Imam, A.M., Solis, C.V., Verge, J., Sullivan, N.M., DeMoya, M.A., Alam, H.B., and Velmahos, G.C. (2013). Excessively Long Hospital Stays After Trauma Are Not Related to the Severity of Illness Let's Aim to the Right Target! *JAMA Surgery*, 148(10), 956-961. doi:10.1001/jamasurg.2013.2148
- 11) Kortebein, P., Brock Symons, T., Ferrando, A., Paddon-Jones, D., Ronsen, O., Protas, E., Conger, S., Lombeida, J., Wolfe, R., and Evans, W.J. (2008). Functional Impact of 10 Days of Bed Rest in Healthy Older Adults. *Journal of Gerontology*, 63A(10), 1076-1081.
- 12) Law, M. & MacDermid, J. (2014) Evidence based rehabilitation: A guide to practice, Third edition. (pp. 375-389). Thorofare, NJ: Slack, Inc.
- 13) *Longer stay in hospital ICU has lasting impact on quality of life.* (2014). Johns Hopkins Medicine News and Publications. Retrieved from http://www.hopkinsmedicine.org/news/media/releases/longer_stay_in_hospital_icu_has_lasting_impact_on_quality_of_life.
- 14) Lord, R. K., Mayhew, C. R., Korupolu, R., Manthey, E. C., Friedman, M. A., Palmer, J. B., & Needham, D. M. (2013). ICU early physical rehabilitation programs: Financial modeling of cost savings. *Critical Care Medicine*, 41(3), 717-724. doi:10.1097/CCM.0b013e3182711de2
- 15) Mendez-Tellez, P.A., Nusr, R., Feldman, D., and Needham, D.M. (2012). Early Physical Rehabilitation in the ICU: A Review for the Neurohospitalist. *The Neurohospitalist*, 2(3), 96-105.
- 16) O'Brien, L., Bynon, S., Morarty, J., & Presnell, S. (2012). Improving older trauma patients' outcomes through targeted occupational therapy and functional conditioning. *American Journal of Occupational Therapy*, 66(4), 431-437. doi:10.5014/ajot.2012.003137
- 17) Parker, A., Sricharoenchai, T., and Needham, D.M. (2013). Early Rehabilitation in the Intensive Care Unit: Preventing Physical and Mental Health Impairments. *Current Physical Medicine and Rehabilitation Reports*, 1(4), 307-314.
- 18) Robinson, A., Lord-Vince, H., & Williams, R. (2014). The need for a 7-day therapy service on an emergency assessment unit. *British Journal of Occupational Therapy*, 77(1), 19-23. doi:10.4276/030802214X13887685335508
- 19) Shearer, T., & Guthrie, S. (2013). Facilitating early activities of daily living retraining to prevent functional decline in older adults. *Australian Occupational Therapy Journal*, 60(5), 319-325. doi:10.1111/1440-1630.12070
- 20) Stolbrink, M., McGowan, L., Saman, H., Nguyen, T., Knightly, R., Sharpe, J., Reilly, H., Jones, S., Turner, A. M. (2014). The early mobility bundle: A simple enhancement of therapy which may reduce incidence of hospital-acquired pneumonia and length of hospital stay. *Journal of Hospital Infection*, 88(1), 34-39. doi:10.1016/j.jhin.2014.05.006
- 21) Tan, C., Ng, Y. S., Koh, G. C., De Silva, D. A., Earnest, A., & Barbier, S. (2014). Disability impacts length of stay in general internal medicine patients. *Journal of General Internal Medicine*, 29(6), 885-890. doi:10.1007/s11606-014-2815-z [doi]
- 22) Wahab, R., Yip, N. H., Chandra, S., Nguyen, M., Pavlovich, K. H., Benson, T., Vilotijevic, D., Rodier, D. M., Patel, K.R., Rychcik, P., Perez-Mir, E., Boyle, D., Needham, D.M., Brodie, D. (2016). The implementation of an early rehabilitation program is associated with reduced length of stay: A multi-ICU study. *Journal of the Intensive Care Society*, 17(1), 2-11. doi:10.1177/1751143715605118