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# Stroke Rehabilitation, Length-of-Stay, and Re-Admission Rates: A Literature Review

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## Statement of Purpose

Stroke is shown to be a significant U.S. health problem with a profound impact on the nation's rising healthcare costs (Hall, Levant, & DeFrances, 2012). Longer patient length-of-stay [LOS] and higher re-admission rates have brought consequences to healthcare systems as institutional budgets are unable to reconcile the additional services and the influx of healthcare demands. Through a comprehensive literature review, the author illustrates the general knowledge available on the stroke experience, on stroke care and rehabilitation, and on patient LOS and re-admission rates. The literature review is based on general medical research with a focus on the stroke population. The objectives of the literature review were: (1) to explore the patient and family experience of stroke, (2) to assess stroke rehabilitation services and the recovery process, (3) to evaluate LOS and re-admission rates associated with this population, and (4) to explore areas for improved practice and implications for social work intervention.

## Methodology

To complete this literature review, the investigator searched the Academic Search Premier database through the Minnesota State University, Mankato [MNSU, M] library services. Also, through the MNSU, M library services the investigator accessed *Topics in Stroke Rehabilitation*, *Stroke*, *Stroke Recovery and Rehabilitation*, and *Disability and Rehabilitation* journals. This investigator further utilized the Allina Health library system to search PubMed and the MeSH database with key terms "stroke," "re-admission rates," and "length of stay". All articles and resources collected were between the dates of 2006 to present. The investigator initially selected articles based on subject terms and the content of the abstract prior to including the study in the literature review. All articles were read and analyzed by the investigator to develop themes in order to present a comprehensive literature review.

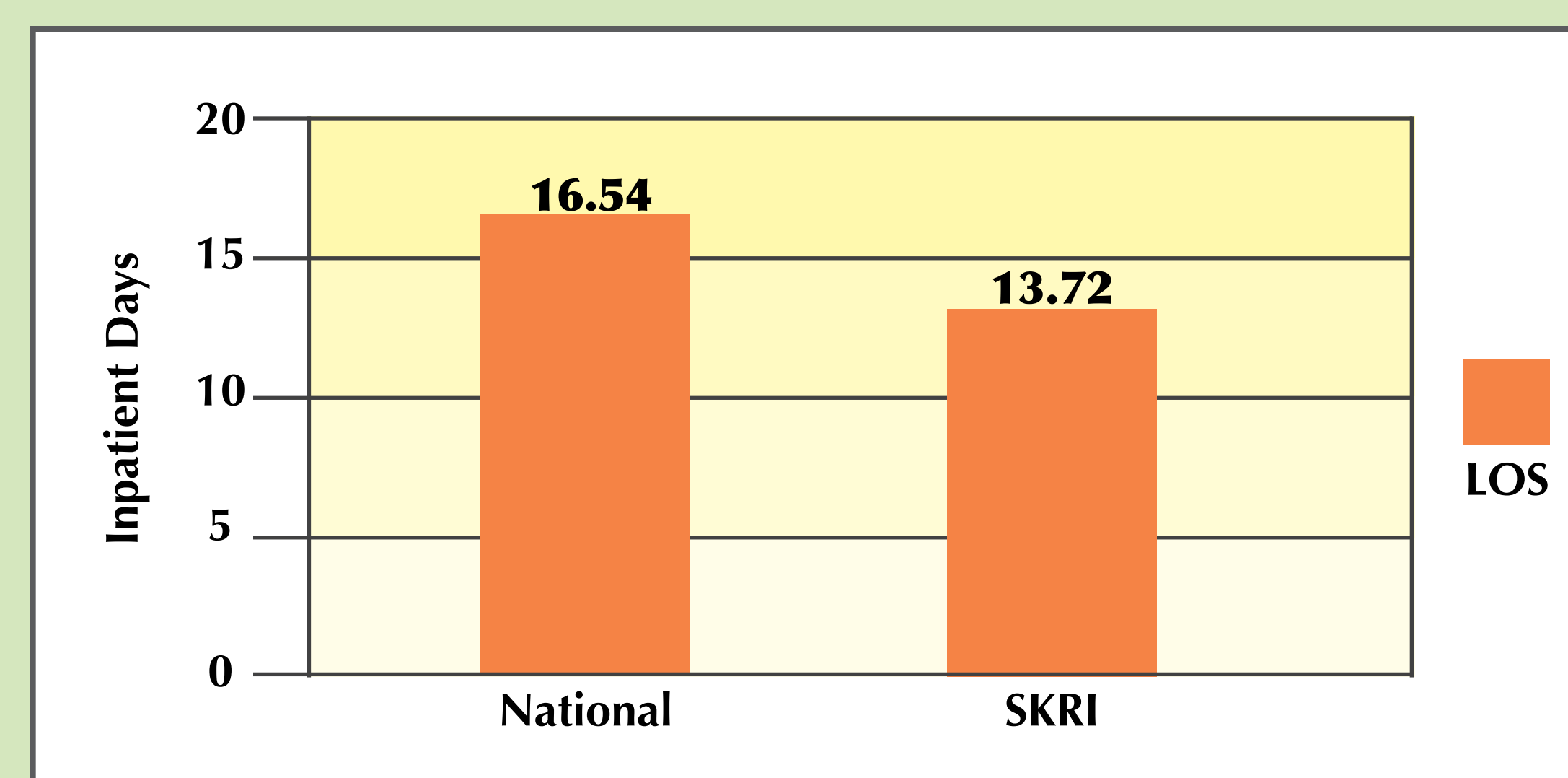
## Summary of the Literature

### Patient and Family Experience

- Stroke is shown to influence an individual's ability to return to work, engage in meaningful life activity, participate in the family system, and contribute to the community and society (Conroy, Milani, Levine, & Stein, 2009; Ewan, Kinmond, & Holmes, 2010).
- The impact of stroke on family members can present a variety of issues, including: declining physical and mental health of caregivers, and social issues and financial problems for the family system (Bakas, 2009).
- Family caregivers of stroke patients in the United States rarely have an adequate understanding of the role to which they are committing themselves (Lutz, Young, Cox, Martz, & Creasy, 2011).

### Stroke Rehabilitation and Recovery

- Inpatient stroke rehabilitation in the United States is most commonly conceptualized as a "team-oriented, patient-centered, Medicare-driven service provided to stroke survivors" (Conroy, DeJong, & Horn, 2009, p. 42).
- Inpatient rehabilitation facilities are the most frequently utilized facilities for stroke rehabilitation in the United States with maximum functional recovery best achieved with early intensive rehabilitation (Conroy et al., 2009; Gregory, Edwards, Faurot, Williams, & Felix, 2010; Kind, Smith, Frytak, & Finch, 2007).



**Table 1: Average Length-of-Stay (Allina Health, 2012b)**

Sister Kenny Rehabilitation Institute [SKRI] average patient length-of-stay is 13.72 days. The national average for inpatient rehabilitation facilities is 16.54 days. A difference of 2.82 days in patient LOS presents an area in which SKRI may conduct research to present strategies or organizational features that allow for a shortened LOS.

## Sister Kenny Rehabilitation Institute

Today, the Sister Kenny Rehabilitation Institute serves patients with stroke, spinal cord injury, traumatic brain injury, and amputation as well as several other health conditions. Following the Commission on the Accreditation of Rehabilitation Facilities and The Joint Commission standards, the institute continues to reduce patient length of hospitalization and improve patient outcomes. With specialized organizational features and strategic intervention methods, the rehabilitation teams at the Sister Kenny Rehabilitation Institute average a patient LOS 2.82 days shorter than the national average. Additionally, the institute offers a stroke support group, patient advisory groups, and patient volunteer visitors. Patient advisory groups provide for a discussion between stroke survivors with practitioners and administration on the subjective experience of stroke, including the patient experience in rehabilitation and the process of community re-integration for the patient and family system. The use of patient advisory groups presents an opportunity for future research by the Sister Kenny Rehabilitation Institute to share how the patient experience can be better incorporated into service provision. Additionally, the use of a stroke support group and patient volunteer visitors allows for a community of survivors to be established that can provide a supportive network for coping and adjustment to the stroke experience. The Sister Kenny Research Center continues to strive to improve therapy outcomes and decrease health care costs through ongoing studies at the institute (Allina Health, 2012a). Several opportunities are present for future research that may influence practice methods in stroke rehabilitation.

### Length-of-Stay and Re-Admission Rates

- In 2009, the average LOS in U.S. inpatient rehabilitation facilities was 15 days for a stroke patient (Conroy et al., 2009), while the hospitalization of U.S. stroke patients cost an estimated \$18.8 billion in 2008 (Hall et al., 2012).
- Hospital re-admissions are often preventable with patient- and community-level factors shown to be the primary determinants (Joynt & Jha, 2012; Lichtman et al., 2010).
- With one-quarter of stroke patients being re-admitted annually, no comparison or statistical models for predicting risk of re-admission in stroke patients is present in the literature (Bhattacharya, Khanal, Madhavan, & Chaturvedi, 2011; Lichtman et al., 2010).

## Key Findings

- Specialized stroke unit care in partnership with inpatient stroke rehabilitation may present an ideal system of care in serving this population for administrators, practitioners, patients, and families.
- It would be influential in stroke care to have comparative or statistical models available for assessing risk of re-admission, as such models may present an opportunity for cost savings and improved service provision.

## Discussion

The most important aspect of a stroke event is the subjective experience. With limited insight on the personal meaning of stroke, it remains the practitioner's duty to provide a holistic, comprehensive assessment for effective service provision. With LOS and re-admission rates as an ever-growing concern of administration and practitioners it becomes more difficult to take into account patient preference. The social work role presents a patient-centered approach to service provision and a system of communication for the rehabilitation team in working with the patient and family. As the national healthcare system continues to adjust with increasing economic burden, the social work position provides an opportunity for facilities to deliver highly effective and efficient services with limited cost.

## Future Recommendations

- Examine inpatient rehabilitation facilities for specific strategies in predicting and reducing patient LOS.
- Assess organizational features for reducing patient LOS and re-admission rates.
- Develop comparative or statistical models for assessing patient risk of re-admission.
- Continue to study the subjective experience of stroke and the process of family adjustment and community re-integration.

## References

References are available from the author upon request.

### Practice Implications

- Not until the stroke experience is viewed as a psychosocial transition can the role of social work be adequately understood for this population (Salter, Hellings, Foley, & Teasell, 2008).
- More patient- and family-centered care may provide better outcomes for stroke patients as the involvement of the patient and family may aid with coping and adjustment as well as discharge planning (Rosewilliam, Roskell, & Pandyan, 2011; Visser-Meily et al., 2006).
- It is appropriate to consider patient preference in discharge planning in order to account for the individual's perception of their limitations and the subjective experience of the stroke survivor (Almborg, Ulander, Thulin, & Berg, 2010).