

Impact of Home Health Care on Readmission Rates for Adults Diagnosed with Acute Stroke

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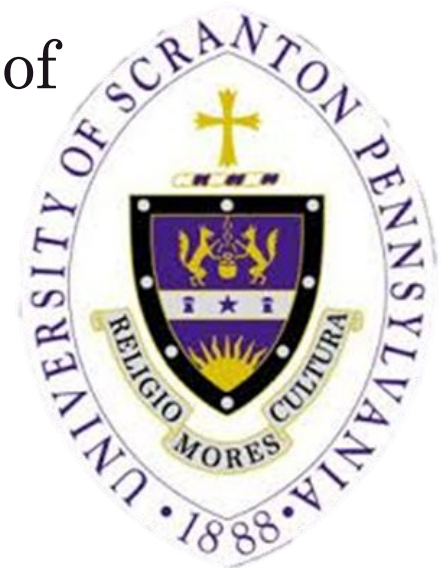
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Objectives

- Attendees will understand the benefits of home health rehab compared to other rehabilitation settings or nothing at all regarding hospital readmission rates for patients with acute stroke.
- Attendees will understand the cost effectiveness of home health use compared to nothing to reduce risk of rehospitalization.
- Attendees will understand the multidisciplinary approach to providing home health services.

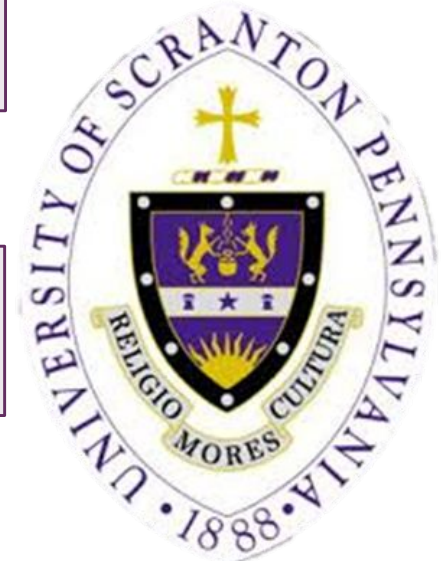


Background

Stroke affects 795,000 Americans each year and is a leading contributor to long-term disability.¹

Stroke management often requires extensive post-acute care rehabilitation.¹

Hospital readmission contributes to significant increases in healthcare costs and increased morbidity.¹



Background

90-day readmission rates following acute stroke are 26% due to post-discharge complications.²

Reducing rehospitalization by 10% could decrease medical costs by 1 billion US dollars.³



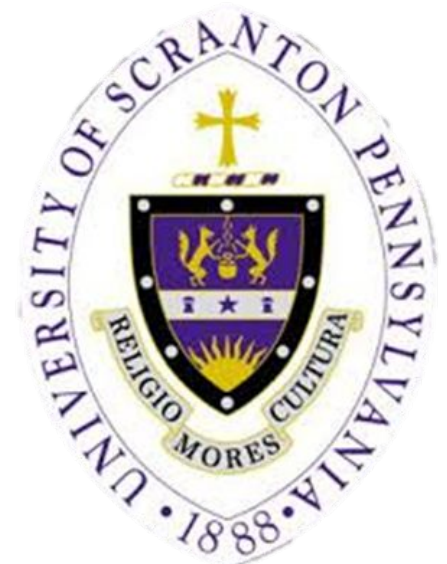
Background

- Causes for preventable readmissions²
 - Inadequate discharge planning
 - Lack of communication among providers
 - Lack of post-discharge follow-up visit
- Home health care administered by a licensed healthcare professional may be a **low cost** and **effective** way to provide care after discharge.



Purpose

- The purpose of this systematic review is to determine the impact of home health (HH) rehabilitation on hospital readmission rates for patients post CVA.



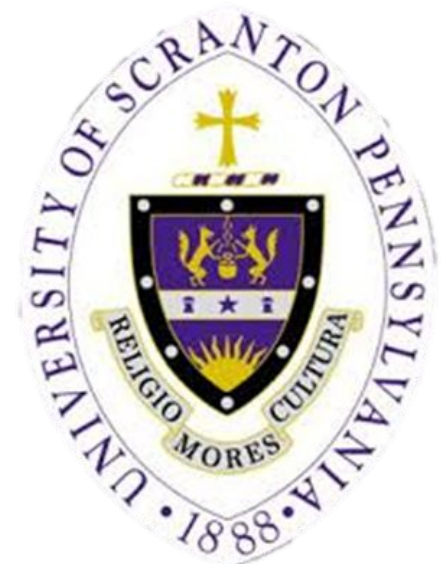
Methods

- Literature search of 4 databases
 - CINHAL
 - PubMed
 - ProQuest Central
 - Science Direct
- Search Limits
 - From 2011-2021
 - Human Subjects
 - English Language



Selection Criteria

- Any study design
- Participants included in study were adults over the age of 18 having sustained an acute stroke.
- Studies included an intervention of HH within 30 days of hospital discharge.
 - Provided by a licensed healthcare provider
- Primary outcome measure was hospital readmission.



Search Terms

("Home Care" **OR** "Home Health" **OR** "Home Health Rehab")

AND

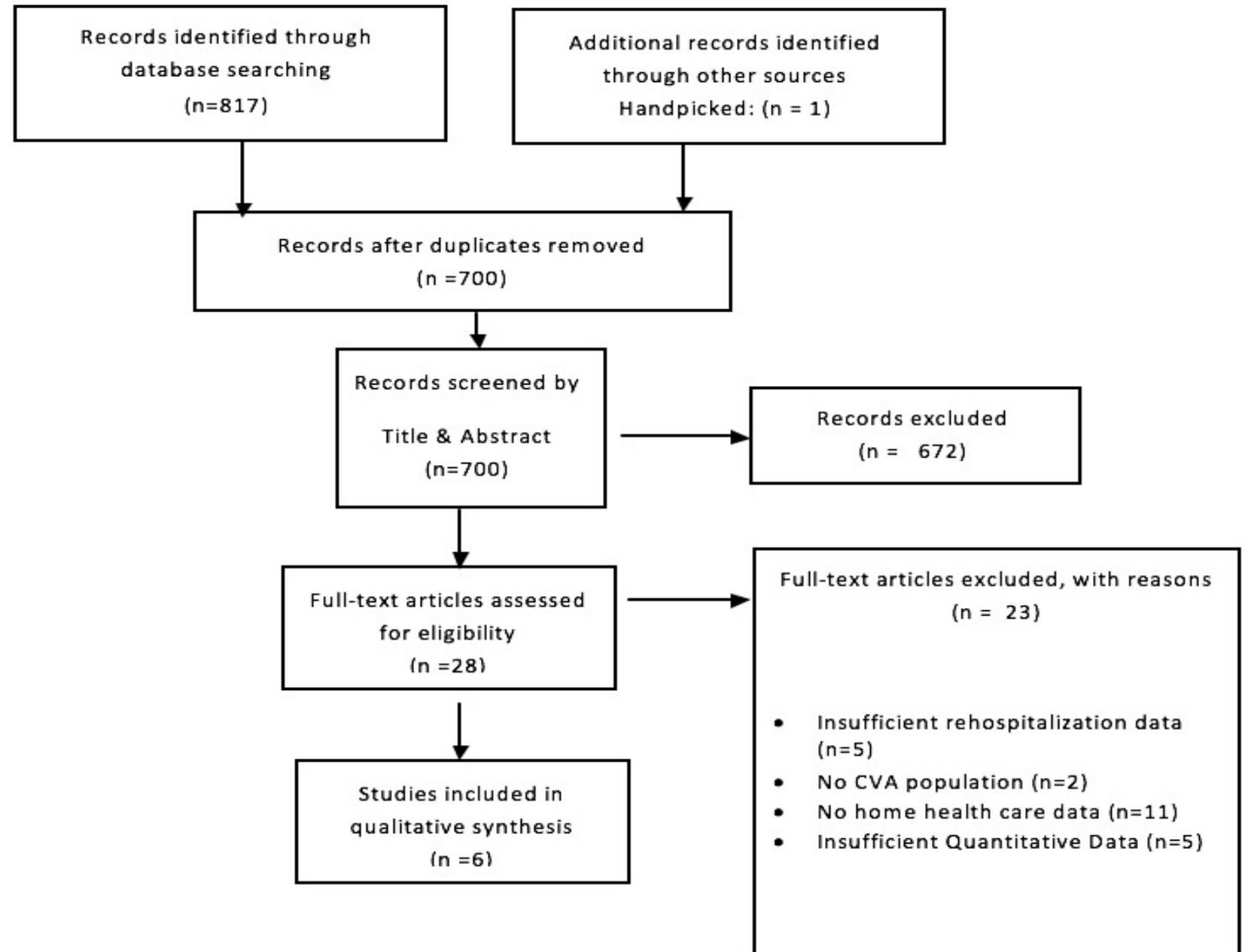
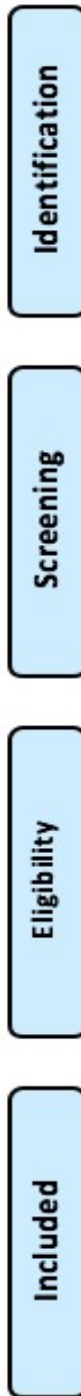
(Rehospitalization **OR** "Hospital Readmission")

AND

(CVA **OR** Stroke **OR** TIA **OR** "Cerebrovascular Accident")



Prisma Flow Diagram



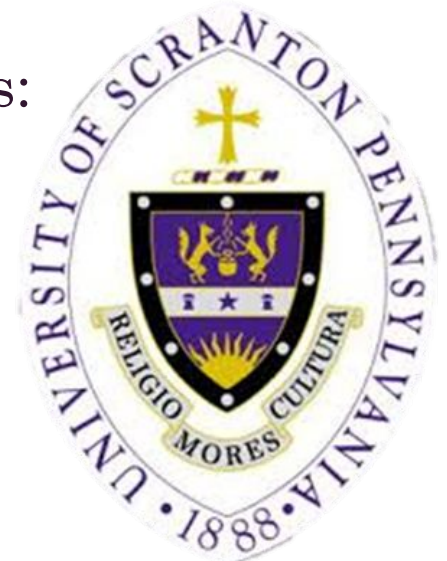
Results

- 817 articles were screened for eligibility
 - 6 met the selection criteria⁴⁻⁹
- From the Oxford Centre for Evidence-Based Medicine (2009)
 - 5 studies \longrightarrow Level 2B Evidence
 - Retrospective cohorts⁴⁻⁸
 - 1 study \longrightarrow Level 3B Evidence
 - Case control study⁹
- Participant Characteristics
 - N = 288,401⁴⁻⁹
 - Studies ranged from 524 - 130,670 participants⁴⁻⁹
 - Average age \longrightarrow 75.78 \pm 5.89⁴⁻⁹



Results

- HH treatment parameters varied widely and were provided by:
 - PT^{5,8}
 - Social Work⁵
 - OT^{5,8}
 - Home Nursing⁹
 - SLP⁵
 - Home Health Agency⁶
- Period of readmission data
 - Studies varied between 30 days to 1 year.⁴⁻⁹
- HH interventions were compared to a variety of other settings:
 - Outpatient (OP)⁸
 - Skilled Nursing (SNF)^{4,6,7}
 - Inpatient Rehab (IRF)^{4,6,7}
 - No services (NS)^{5,8,9}



Summary of Methods

Articles by lead author	Oxford level of evidence	Number of participants post-stroke	Professional Who Administered Home Care	Period of Readmission
Suri M & Qureshi A. ⁴	2B	1,018	Not specified	Not specified
Langstaff C, Martin C, Brown G, et al. ⁵	2B	534	PT, OT, SLP, SW	365-day
Middleton A, Kuo Y-F, Graham JE, & Karmrkar A. ⁶	2B	127,680	Home health agency	30-day 90-day
Li C-Y, Karmarkar A, Kuo Y-F, et al. ⁷	2B	130,670	Not specified	30-day 90-day
Freburger JK, Li D, & Fraher EP. ⁸	2B	23,413	PT, OT	30-60 days
Swanson JO & Moger TA. ⁹	3B	5,096	HN- Home Nursing HN/AC- Home nursing and ambulatory care	90-day 365-day

Summary of Results

- 5 studies reported a lower readmission rate when HH interventions were implemented into care when compared to rehabilitation in other settings.

Readmission Rates		
30 Day Readmission	Home Health ^{4,6,7}	11.87% ± 5.67%
	Inpatient Rehabilitation Facility ^{4,6,7}	15.97% ± 3.87%
	Skilled Nursing Facility ^{4,6,7}	14.26% ± 2.70%
90 Day Readmission	Home Health ^{6,7,9}	16.45% ± 3.68%
	Inpatient Rehabilitation Facility ^{6,7}	27.7% ± 4.9%
	Skilled Nursing Facility ^{6,7}	23.17% ± 1.67%

Summary of Key Findings

Articles by lead author	Setting Compared	Summary of Key Findings
Suri M & Qureshi A. ⁴	Home without HH Home with HH IRF SNF	Patients discharged without health services were more likely to be readmitted compared to patients discharged with health service.
Langstaff C, Martin C, Brown G, et al. ⁵	HH NS	Introducing home rehabilitation services was associated with decreased readmission rates when patients were discharged from acute care to home.
Middleton A, Kuo Y-F, Graham JE, & Karmarkar A. ⁶	HH SNF IRF	Lowest 30-day and 90-day readmission rates for ischemic and hemorrhagic stroke were in patient's D/C to the HH setting.

Summary of Key Findings

Articles by lead author	Setting Compared	Summary of Key Findings
Li C-Y, Karmarkar A, Kuo Y-F, et al ⁷	SNF HH IRF	Patients discharged to a HHA demonstrated decreased 30-day and 90-day readmission rates when compared to SNF and IRF.
Freburger JK, Li D, & Fraher EP ⁸	Therapy Services • HH • OP No Therapy Services	Individuals receiving therapy (HHC or OP) were less likely to be readmitted than individuals receiving no service.
Swanson JO & Moger TA ⁹	NS Home Nursing (HN) Rehabilitation HN and Rehabilitation	Patients being discharged with NS have lower hospital readmission rates. However, individuals D/C to HN or rehab had increased LOS, incidence of comorbidities, and older average age.

Conclusion

- **Moderate to strong** evidence supporting the use of HH services post-discharge to reduce hospital readmission rates for patients with an acute stroke.



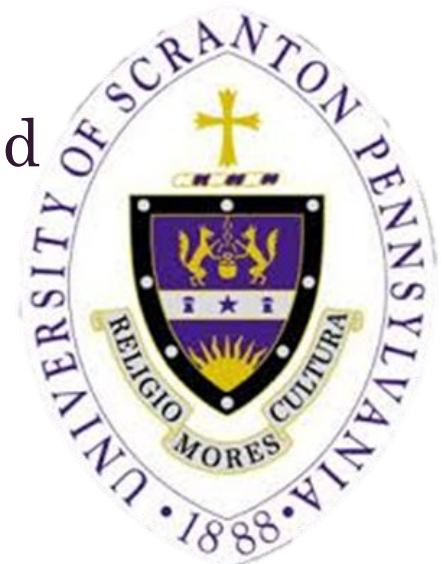
Limitations

- Limited sample size
- Participant recruitment
- Loss to follow-up
- Limited information on type of stroke
- Detail on specific interventions used during care
- Limited number of databases searched



Clinical Relevance

- HH services may prove to be a beneficial and cost-effective approach to reduce hospital readmission rates after hospital discharge for patients following an acute stroke.
- PTs are involved in discharge planning in acute care.
- HH services including PT, OT, and nursing should be considered for the appropriate patient when discharged from acute care to reduce hospital readmission rates.



Clinical Relevance

- Must consider factors for why someone would be discharged to other settings or home without services
 - Stroke severity
 - Type of stroke
 - Home support
 - Financial Resources
 - Insurance Coverage

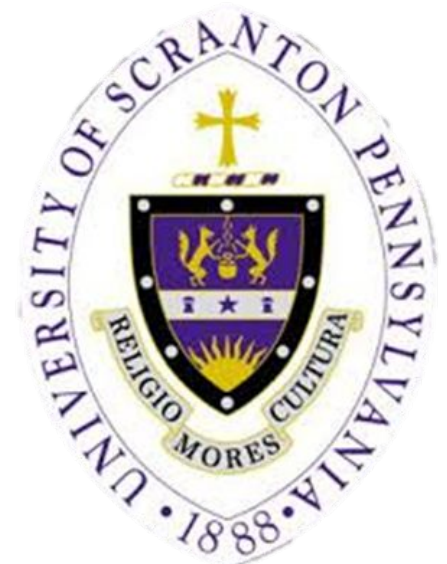


References

1. Nahab F, Takesaka J, Mailyan E, Judd L, Culler S, Webb A, Frankel M, Choi D, Helmers S. Avoidable 30-day readmissions among patients with stroke and other cerebrovascular disease. *Neurohospitalist*. 2012; 2(1):7-11.
2. Andrews AW, Li D, Freburger JK. Association of rehabilitation intensity for stroke and risk of hospital readmission. *Phys Ther*. 2015; 95(12):1660-1667. doi:[10.2522/ptj.20140610](https://doi.org/10.2522/ptj.20140610)
3. Hong I, Knox S, Pryor L, Mroz T, Graham J, Shields M, Reistetter T. Is referral to home health rehabilitation after inpatient rehabilitation facility associated with 90-Day hospital readmission for adult patients with stroke? *Am J Phys Med Rehabil*. 2020; 99(9): 837-841.
4. Suri M, Qureshi A. Readmission within 1 month of discharge among patients with acute ischemic stroke: results of the university healthsystem consortium stroke benchmarking study. *J Vasc Interv Neurol* 2013;6(2):47.
5. Langstaff C, Martin C, Brown G, et al. Enhancing community-based rehabilitation for stroke survivors: creating a discharge link. *Top Stroke Rehabil*. 2014; 21(6):510-519. doi:[10.1310/tsr2106-510](https://doi.org/10.1310/tsr2106-510)
6. Middleton A, Kuo Y-F, Graham JE, Karmrkar A. Readmission patterns over 90-day episodes of care among medicare fee-for-service beneficiaries discharged to post-acute care. *J Am Med Dir Assoc*. 2018;19(10):896-901. doi:[10.1016/j.jamda.2018.03.006](https://doi.org/10.1016/j.jamda.2018.03.006)
7. Li C-Y, Karmarkar A, Kuo Y-F, et al. A comparison of three methods in categorizing functional status to predict hospital readmission across post-acute care. *PLoS One*. 2020; 15(5):e0232017. doi:[10.1371/journal.pone.0232017](https://doi.org/10.1371/journal.pone.0232017)
8. Freburger JK, Li D, Fraher EP. Community use of physical and occupational therapy after stroke and risk of hospital readmission. *Arch Phys Med Rehabil*. 2018; 99(1): 26-34.e.5. Doi:[10.1016/j.apmr.2017.07.011](https://doi.org/10.1016/j.apmr.2017.07.011)
9. Swanson JO, Moger TA. Comparisons of readmissions and mortality based on post-discharge ambulatory follow-up services received by stroke patients discharged home: a register-based study. *BMC Health Serv Res*. 2019;19(1):1-11. doi:[10.1186/s12913-018-3809-z](https://doi.org/10.1186/s12913-018-3809-z)

Thank you!

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- Department of Physical Therapy Faculty
- Assistant Professor Ian O'Hara, Weinberg Memorial Library
- Fellow DPT Students



Questions?

