1

The Impact of Home Health Care on Cost Effectiveness Compared to Other Post-Acute Settings in Individuals Status Post Total Joint Arthroplasty: A Systematic Review

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1

2

Outline

- Purpose
- Background
- Methods
- MINORS
- PRISMA
- Results
- Conclusion
- Limitations
- Future Research
- Clinical Relevance
- Acknowledgements

2

Purpose

3

- To determine the cost effectiveness of home health care (HHC) compared to other post-acute care (PAC) settings in individuals status post total joint arthroplasty (TJA)

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Background

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- Hip and knee replacements are the most common procedure for Medicare patients[1]
- In 2014, over 400,000 total hip and total knee replacements were performed[1]
- Resulted in over 7 billion dollars in hospitalization alone[1]
- By 2030, projected increase to 3.48 million TKAs and 572,000 THAs[2]
- Post-surgery physical therapy settings presently vary between outpatient, inpatient, and rehab

4

Implications

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- With the expected increase of patients undergoing TJA procedures, a need to determine the most cost effective PAC route is needed
- It is currently unclear which post-acute settings deliver the greatest value to an episode of care

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Methods

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- Databases:
  - PubMed
  - Medline
  - Health Source: Nursing/Academic Edition
  - CINAHL
- Two reviewers independently assessed each study
  - MINORS scale

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MINORS

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Article Authors	MINORS Score	
Mahomed N et al[3]	21/24	Mean: 14.6/24 Range: 10/24 – 21/24
Sigurdsson E et al[4]	20/24	
Ramos NL et al[5]	14/24	
Sabeh KG et al[6]	13/24	
Ponnusamy KE et al[7]	13/24	
Bozic KJ et al[8]	11/24	
Slover JD et al[9]	10/24	

7

Methods

8

- Search Terms
  - ("Total Joint Replacement" OR "Total Joint Arthroplasty" OR "Total Hip Replacement" OR "Total Hip Arthroplasty" OR "Total Knee Replacement" OR "Total Knee Arthroplasty") AND (Home-health* OR home health* OR home care OR home-based rehab* OR home intervention*) AND (Cost* Effect* OR Cost* OR cost-benefit* OR cost value analysis)
- Search Limits
  - English, published 2008-2018, human subjects, and peer reviewed scholarly journals

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Eligibility Criteria

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- Adults ≥45 years of age
- Underwent a TJA
- HHC vs. other PAC settings
- Must examine at least one cost-effectiveness outcome measure

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PRISMA

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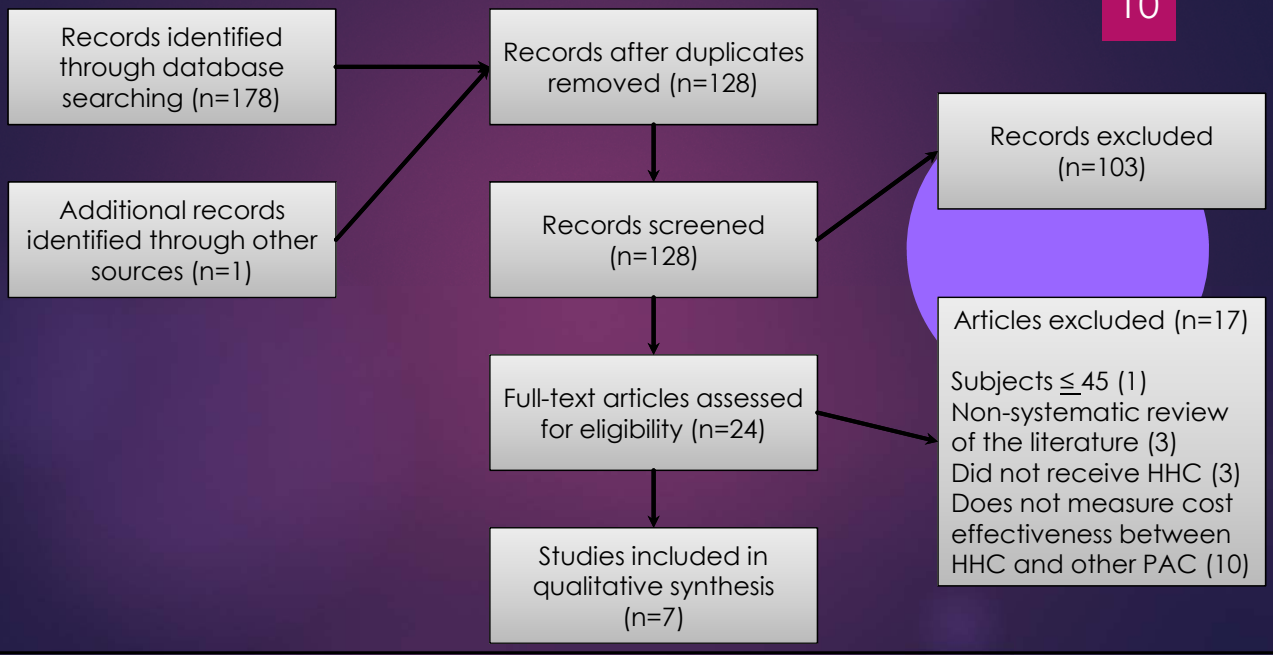

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Results

11

- Sample size
  - Range: 50-468,075
  - Total: 729,983
- Primary Outcomes
  - Cost of Post-Acute Care Routes[3-9]
- Secondary Outcomes
  - Length of Stay[3,5,7,9]
  - Physical Function & Quality of Life[3,4]
  - Readmission Rates[5,7,8]
  - Comorbidities[3,5,7]

11

Results

12

Article	Home Health	Skilled Nursing	Inpatient Rehab
Mahomed N et al[3]	$11,082	N/A	$14,531
Sigurdsson E et al[4]	$8,550	N/A	$11,952
Ramos NL et al[5]	$4,000	$7,560	$11,000
Sabeh KG et al[6]	$11,592	$14,544	$25,284
Ponnusamy et al[7]	$5,785	$8,480	12,510
Bozic KJ et al[8]	$5,054	$13,387	$7,135
Slover JD et al[9]	$4657	$11,719	N/A*

12

Results

13

- Economic Evaluation
  - All seven studies found that HHC costs were lower than any other PAC route that was examined[3-9]
- Readmission Rate
  - Two studies found HHC was comparable to SNF but was significantly lower than IRF[5,7]
- Patient Comorbidities
  - Three studies found those discharged to IRF had significantly higher comorbid conditions compared to HHC or SNF[3,5,7]

13

Results

14

- Length of Stay
  - Inconsistent across studies[3,5,7,9]
- Functional Outcomes
  - One study found it to be more cost effective when analyzing the OHS[4]
  - All other functional outcomes (WOMAC, SF-36, patient satisfaction) were comparable no matter what the discharge setting[3]

14

Conclusion

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- Findings consistently showed that a discharge to home health costs significantly less than an IRF or SNF
- Moderate evidence suggesting that discharge to HHC is shown to be more cost effective than discharge to a SNF or IRF

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Limitations

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- Inconsistent sample characteristics
- Unclear protocols
- Lack of long-term follow up
- Inadequate reporting of comorbidities
- Lack of uniform outcome measures

16

Future Research

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- Future research should aim at providing PAC discharge recommendations for middle age and older populations post total joint arthroplasty
- There is a need to obtain more RCT's on this subject
- Also, determining the effect of comorbidities, caregiver status/availability, and home environment on discharge disposition for patients
  - i.e. *Do post acute care routes affect the functional outcomes of patients status-post total joint arthroplasty who have similar comorbid conditions?*

17

Clinical Relevance

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- Discharge home is a safer and more cost-effective option for patients after TJA compared to other PAC settings
- PTs should recommend a discharge to HHC after TJA compared to other PAC settings based on:
  - Decreased episode of care cost
  - Existing evidence in comparable functional outcomes (WOMAC, SF-36, and Oxford Hip Score)

18

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19

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19

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21

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21

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Appendix

22

Tests and Measures Psychometrics

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Test	ICF-Domain	Populations	MCID	Reliability	Validity	Sensitivity & Specificity
WOMAC	Body Function Activity, Participation	Musculoskeletal Conditions	TKA: 11.5[10] (6 & 12 months) THA: 25.91, 29.26[11] (stiffness, pain)	THA & TKA Test-retest: 0.79[12]	THA & TKR Construct validity: 0.80[13] (pain subscale to physical function)	Physical Function: 0.51, 0.88[14]
SF-36	Body Function Activity, Participation	Musculoskeletal and Neuromuscular Conditions	Not established	Test-retest: 0.80[15]	Concurrent Validity: 0.81[16]	Physical Function: 0.34, 0.97[14]
OHS	Body Structure, Body Function, Activity	Arthritis, Joint Condition, Pain Management	Osteoarthritis: 6.11[17]	Test-retest: Adequate, ICC > 0.70[18] (THR)	Excellent correlation with WOMAC global, pain, and functional sub scales (Spearman's p= 0.82, 0.81, 0.87) [19]	Not established

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Questions?

24