

## A SELECTION OF TEN READINGS ON TOPICS RELATED TO GERIATRIC CARE 2024

Some are available as free full text, some require payment

Selection of readings made by A/Prof Goh Lee Gan

### READING 1 – STROKE TRANSITIONAL INTERVENTION

**Markle-Reid M,<sup>1,2,3,4</sup> Fisher K,<sup>5,6,7</sup> Ganann R,<sup>5,6,7</sup> Whitmore C,<sup>5,6,7</sup> Dayer D,<sup>6</sup> Hajas K,<sup>6</sup> Koetsier B,<sup>6</sup> Mahony R,<sup>6</sup> Prescott J,<sup>6</sup> Walker KM,<sup>6,8</sup> Gafni A,<sup>6,11</sup> Beauchamp M,<sup>7</sup> Cameron JI,<sup>9</sup> Fleck R,<sup>10</sup> Pollard C,<sup>12</sup> Rooke T.<sup>13</sup> The stroke transitional care intervention for older adults with stroke and multimorbidity: a multisite pragmatic randomized controlled trial. *BMC Geriatr.* 2023 Oct 24;23(1):687. PMID: 37872479**

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Author information:

<sup>1</sup>School of Nursing, Faculty of Health Sciences, McMaster University, 1280 Main Street West, Room HSc3N25, Hamilton, ON, L8S 4K1, Canada. [mreid@mcmaster.ca](mailto:mreid@mcmaster.ca)

<sup>2</sup>Health Research Methods, Department of Health, Evidence and Impact, Faculty of Health Sciences, and the Centre of Health Economics and Policy Analysis, McMaster University, 1280 Main Street West, HSC 2C, Hamilton, ON, L8S 4K1, Canada. [mreid@mcmaster.ca](mailto:mreid@mcmaster.ca)

<sup>3</sup>Aging, Community and Health Research Unit, School of Nursing, Faculty of Health Sciences, McMaster University, 1280 Main Street West, Room HSc3N25, Hamilton, ON, L8S 4K1, Canada. [mreid@mcmaster.ca](mailto:mreid@mcmaster.ca)

<sup>4</sup>McMaster Institute for Research On Aging, McMaster University, Hamilton, ON, Canada. [mreid@mcmaster.ca](mailto:mreid@mcmaster.ca)

<sup>5</sup>School of Nursing, Faculty of Health Sciences, McMaster University, 1280 Main Street West, Room HSc3N25, Hamilton, ON, L8S 4K1, Canada

<sup>6</sup>Aging, Community and Health Research Unit, School of Nursing, Faculty of Health Sciences, McMaster University, 1280 Main Street West, Room HSc3N25, Hamilton, ON, L8S 4K1, Canada

<sup>7</sup>McMaster Institute for Research On Aging, McMaster University, Hamilton, ON, Canada

<sup>8</sup>Upstream Lab, MAP Centre for Urban Health Solutions, St Michael's Hospital, 209 Victoria Street, Ontario, M5B 1T8, Toronto, Canada

<sup>9</sup>Department of Occupational Science and Occupational Therapy, Rehabilitation Sciences Institute, Temerty Faculty of Medicine, University of Toronto, 160-500 University Ave, Toronto, ON, M5V 1V7, Canada

<sup>10</sup>Rehabilitation Program, Parkwood Institute, St Joseph's Health Care London, 268 Grosvenor Street, Ontario, N6A 4V2, London, Canada

<sup>11</sup>Health Research Methods, Department of Health, Evidence and Impact, Faculty of Health Sciences, and the Centre of Health Economics and Policy Analysis, McMaster University, 1280 Main Street West, HSC 2C, Hamilton, ON, L8S 4K1, Canada

<sup>12</sup>Hotel Dieu Shaver Health, and Rehabilitation Centre, 541 Glenridge Ave, St Catherine's, ON, L2T 4C2, Canada

<sup>13</sup>CarePartners, 139 Washburn Drive, Kitchener, ON, N2R 1S1, Canada

### ABSTRACT

**BACKGROUND:** This study aimed to test, in real-world clinical practice, the effectiveness of a Transitional Care Stroke Intervention (TCSI) compared to usual care on health outcomes, self-management, patient experience, and health and social service use costs in older adults ( $\geq 55$  years) with stroke and multimorbidity ( $\geq 2$  chronic conditions).

**METHODS:** This pragmatic randomised controlled trial (RCT) included older adults discharged from hospital to community with stroke and multimorbidity using outpatient stroke rehabilitation services in two communities in Ontario, Canada. Participants were randomised 1:1 to usual care (control group) or usual care plus the 6-month TCSI (intervention group). The TCSI was delivered virtually by an interprofessional (IP) team and included care coordination/system navigation support, phone/video visits, monthly IP team conferences, and an online resource to support system navigation. The primary outcome was risk of hospital readmission (all cause) after six months. Secondary outcomes included physical and mental functioning, stroke self-management, patient experience, and health and social service use costs. The intention-to-treat principle was used to conduct the primary and secondary analyses.

**RESULTS:** Ninety participants were enrolled (44 intervention, 46 control); 11 (12%) participants were lost to follow-up, leaving 79 (39 intervention, 40 control). No significant between-group differences were seen for baseline to six-month risk of hospital readmission. Differences favouring the intervention group were seen in the following secondary outcomes: physical functioning (SF-12 PCS mean difference: 5.10; 95% CI: 1.58-8.62,  $p=0.005$ ), stroke self-management

(Southampton Stroke Self-Management Questionnaire mean difference: 6.00; 95% CI: 0.51-11.50,  $p=0.03$ ), and patient experience (Person-Centred Coordinated Care Experiences Questionnaire mean difference: 2.64, 95% CI: 0.81, 4.47,  $p=0.005$ ). No between-group differences were found in total healthcare costs or other secondary outcomes.

**CONCLUSIONS:** Although participation in the TCSI did not impact hospital readmissions, there were improvements in physical functioning, stroke self-management, and patient experience in older adults with stroke and multimorbidity without increasing total healthcare costs. Challenges associated with the COVID-19 pandemic, including the shift from in-person to virtual delivery, and re-deployment of interventionists could have influenced the results. A larger pragmatic RCT is needed to determine intervention effectiveness in diverse geographic settings and ethno-cultural populations and examine intervention scalability.

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## READING 2 – EXOSKELETON ROBOT-ASSISTED TRAINING ON GAIT FUNCTION

**Yang J,<sup>1</sup> Gong Y,<sup>1</sup> Yu L,<sup>1</sup> Peng L,<sup>1</sup> Cui Y,<sup>2</sup> Huang H.<sup>3</sup> Effect of exoskeleton robot-assisted training on gait function in chronic stroke survivors: a systematic review of randomised controlled trials. *BMJ Open*. 2023 Sep 14;13(9):e074481. PMID: 37709309.**

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Author information:

<sup>1</sup>Department of Rehabilitation Medicine, Zhongnan Hospital of Wuhan University, Wuhan, China

<sup>2</sup>Department of Pain Management, Wuhan No 1 Hospital, Wuhan, China

<sup>3</sup>Department of Rehabilitation Medicine, Zhongnan Hospital of Wuhan University, Wuhan, China [hailong.huang@whu.edu.cn](mailto:hailong.huang@whu.edu.cn).

### ABSTRACT

**OBJECTIVES:** Numbers of research have reported the usage of robot-assisted gait training for walking restoration post-stroke. However, no consistent conclusion has been reached yet about the efficacy of exoskeleton robot-assisted training (ERAT) on gait function of stroke survivors, especially during the chronic period. We conducted a systematic review to investigate the efficacy of ERAT on gait function for chronic stroke survivors.

**DESIGN:** This review followed the Participant, Intervention, Comparison, and Outcome principle.

**DATA SOURCES:** PubMed, Cochrane Library, Web of Science, Embase, and Cumulative Index to Nursing and Allied Health Literature databases were systematically searched until December 2022.

**ELIGIBILITY CRITERIA:** Only randomised controlled trials (RCTs) were included and these RCTs took patients who had a chronic stroke as participants, exoskeleton robot-assisted gait training as intervention, regular rehabilitation therapy as comparison, and gait-related functional assessments as outcomes.

**DATA EXTRACTION AND SYNTHESIS:** Data extraction and synthesis used the reporting checklist for systematic review based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. The risk of bias and methodological quality of included studies were evaluated by two independent investigators under the guidance of Cochrane risk of bias.

**RESULTS:** Out of 278 studies, a total of 10 studies ( $n=323$ , mean age 57.6 years, 63.2% males) were identified in this systematic review. According to the Cochrane risk of bias, the quality of these studies was assessed as low risk. Six studies reported favourable effects of ERAT on gait function involving gait performance, balance function, and physical endurance, and the ERAT group was significantly superior when compared with the control group. In contrast, the other four trials showed equal or negative effects of ERAT considering different study designs. All the included studies did not claim any serious adverse events.

**CONCLUSION:** ERAT could be an efficient intervention to improve gait function for individuals who had a chronic stroke. However, more rigorously designed trials are required to draw more solid evidence.

### READING 3 – NON-PHARMACOLOGICAL INTERVENTIONS IN MANAGEMENT OF BPSD OF DEMENTIA

**Md Hussin NS,<sup>1</sup> Karuppannan M,<sup>1</sup> Gopalan Y,<sup>1</sup> Gnanasan S,<sup>1</sup> Tan KM.<sup>2</sup> Exploration of non-pharmacological interventions in the management of behavioural and psychological symptoms of dementia. *Singapore Med J.* 2023 Aug;64(8):497-502. PMID: 34600449.**

**DOI: doi: 10.11622/smedj.2021125. PMID: 34600449; PMID: 34600449. Free full text.**

Author information:

<sup>1</sup>Department of Pharmacy Practice, Faculty of Pharmacy, Universiti Teknologi MARA Cawangan Selangor, Selangor, Malaysia

<sup>2</sup>Division of Geriatric Medicine, Department of Medicine, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia

#### ABSTRACT

**INTRODUCTION:** Behavioural and psychological symptoms of dementia (BPSD) are considered integral parts of dementia. While pharmacotherapy is reserved for severe symptoms of BPSD, the associated adverse effects can be detrimental. Therefore, non-pharmacological intervention is recommended as the first line of treatment in the management of BPSD. This study aimed to explore the non-pharmacological approaches for the management of BPSD and the strategies and barriers to implementing them in secondary care facilities in Malaysia.

**METHODS:** A qualitative study design was employed. Data were collected through observations and semi-structured interviews of 12 caregivers and 11 people with dementia (PWD) at seven secondary care facilities. Observations were written in the field notes, and interviews were audio-recorded and transcribed. All data were subjected to thematic analysis.

**RESULTS:** Some personalised non-pharmacological interventions, such as physical exercise, music therapy, reminiscence therapy, and pet therapy were conducted in several nursing care centres. Collaborative care from the care providers and family members was found to be an important facilitating factor. The lack of family support led to care providers carrying additional workload beyond their job scope. Other barriers to non-pharmacological interventions were cultural and language differences between the care providers and PWD, inadequate staff numbers and training, and time constraints.

**CONCLUSION:** Although non-pharmacological approaches have been used to some extent in Malaysia, continuous education and training of healthcare providers and the family members of PWD is needed to overcome the challenges to their successful implementation.

### READING 4 – PERTURBATION-BASED BALANCE TRAINING

**McCrum C,<sup>1,2</sup> Bhatt TS,<sup>3</sup> Gerards MHG,<sup>4,5</sup> Karamanidis K,<sup>6</sup> Rogers MW,<sup>7</sup> Lord SR,<sup>8,9</sup> Okubo Y.<sup>8,9</sup> Perturbation-based balance training: Principles, mechanisms and implementation in clinical practice. *Front Sports Act Living.* 2022 Oct 6;4:1015394. PMID: 36275443.**

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Author information:

<sup>1</sup>Department of Nutrition and Movement Sciences, NUTRIM School of Nutrition and Translational Research in Metabolism, Maastricht University, Maastricht, Netherlands

<sup>2</sup>Neuromotor Rehabilitation Research Group, Department of Rehabilitation Sciences, KU Leuven, Leuven, Belgium

<sup>3</sup>Department of Physical Therapy, College of Applied Health Sciences, University of Illinois, Chicago, IL, United States

<sup>4</sup>Department of Epidemiology, Care and Public Health Institute (CAPHRI), Maastricht University, Maastricht, Netherlands

<sup>5</sup>Department of Physiotherapy, Maastricht University Medical Center (MUMC+), Maastricht, Netherlands

<sup>6</sup>Sport and Exercise Science Research Centre, School of Applied Sciences, London South Bank University, London, United Kingdom

<sup>7</sup>Department of Physical Therapy and Rehabilitation Science, School of Medicine, University of Maryland, Baltimore, MD, United States

<sup>8</sup>Falls, Balance and Injury Research Centre, Neuroscience Research Australia, Sydney, NSW, Australia

<sup>9</sup>Faculty of Medicine and Health, University of New South Wales, Sydney, NSW, Australia

## ABSTRACT

Since the mid-2000s, perturbation-based balance training has been gaining interest as an efficient and effective way to prevent falls in older adults. It has been suggested that this task-specific training approach may present a paradigm shift in fall prevention. In this review, we discuss key concepts and common issues and questions regarding perturbation-based balance training. In doing so, we aim to provide a comprehensive synthesis of the current evidence on the mechanisms, feasibility, and efficacy of perturbation-based balance training for researchers and practitioners. We address this in two sections: "Principles and Mechanisms" and "Implementation in Practice". In the first section, definitions, task-specificity, adaptation and retention mechanisms, and the dose-response relationship are discussed. In the second section, issues related to safety, anxiety, evidence in clinical populations (e.g., Parkinson's disease, stroke), technology, and training devices are discussed. Perturbation-based balance training is a promising approach to fall prevention. However, several fundamental and applied aspects of the approach need to be further investigated before it can be widely implemented in clinical practice.

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## **READING 5 – APPROACH TO PATIENT LACKING DECISION-MAKING CAPACITY**

**Ader J,<sup>1</sup> Otten ML,<sup>1</sup> Critchfield A,<sup>1</sup> Prager KM.<sup>1</sup> A Standardized Approach to Treatment Over Objection in Patients Lacking Decision-Making Capacity Secondary to Neurologic Disease. *Neurol Clin Pract.* 2022 Oct;12(5):e105-e111. PMID: 36380893.**

**DOI: 10.1212/CPJ.0000000000200064. PMID: 36380893. Free full text.**

Author information:

<sup>1</sup>Department of Neurology (JA), Columbia University Irving Medical Center; Department of Neurosurgery (MLO), Columbia University Irving Medical Center; Department of Consultation-Liaison Psychiatry (AC), Columbia University Irving Medical Center; and Department of Medicine (KMP), Columbia University Irving Medical Center

## ABSTRACT

Neurologic diseases, ranging from Alzheimer dementia to mass lesions in the frontal lobe, may impair decision-making.

When patients with neurologic disease lack decision-making capacity, but refuse treatment, should they be treated over their objection?

To address this type of ethical dilemma in medical illness, Rubin and Prager developed a standardised 7-question approach: (1) How imminent is harm without intervention? (2) What is the likely severity of harm without intervention? (3) What are the risks of intervention? (4) What are the logistics of treating over objection? (5) What is the efficacy of the proposed intervention? (6) What is the likely emotional effect of a coerced intervention? (7) What is the patient's reason for refusal?

We describe the application of the standardised Rubin/Prager approach as a checklist to the case of a 50-year-old woman with a large frontal lobe meningioma, who lacked capacity as a result of the meningioma but refused surgery. This approach may be applied to similar ethical dilemmas of treatment over objection in patients lacking capacity as a result of neurologic disease.

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## READING 6. DETERMINANTS OF EMERGENCY DEPARTMENT UTILISATION BY OLDER ADULTS IN SINGAPORE

**Tang XR,<sup>1</sup> Pek PP, Siddiqui FJ, Malhotra R, Kwan YH, Tiah L, Ho AFW, Ong MEH. Determinants of emergency department utilisation by older adults in Singapore: A systematic review. Ann Acad Med Singap. 2022 Mar;51(3):170-179. PMID: 35373240.**

**doi: 10.47102/annals-acadmedsg.2021437. PMID:35373240. Free full text.**

Author information:

<sup>1</sup>Yong Loo Lin School of Medicine, National University of Singapore, Singapore

### ABSTRACT

**INTRODUCTION:** Adults aged  $\geq 60$  years contribute to disproportionately higher visits to the emergency departments (ED). We performed a systematic review to examine the reasons why older persons visit the ED in Singapore.

**METHODS:** We searched Medline, Embase, and Scopus from January 2000 to December 2021 for studies reporting on ED utilisation by older adults in Singapore, and included studies that investigated determinants of ED utilisation. Statistically significant determinants and their effect sizes were extracted. Determinants of ED utilisation were organised using Andersen and Newman's model. Quality of studies was evaluated using Newcastle Ottawa Scale and Critical Appraisal Skills Programme.

**RESULTS:** The search yielded 138 articles, of which seven were used for analysis. Among the significant individual determinants were predisposing (staying in public rental housing, religiosity, loneliness, poorer coping), enabling (caregiver distress from behavioural and psychological symptoms of dementia), and health factors (multimorbidity in patients with dementia, frailty, primary care visit in last 6 months, better treatment adherence). The seven included studies are of moderate quality and none of them employed conceptual frameworks to organise determinants of ED utilisation.

**CONCLUSION:** The major determinants of ED utilisation by older adults in Singapore were largely individual factors. Evaluation of societal determinants of ED utilisation was lacking in the included studies. There is a need for a more holistic examination of determinants of ED utilisation locally based on conceptual models of health-seeking behaviours.

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## READING 7. TRANSIENT GLOBAL AMNESIA

**Sealy D,<sup>1</sup> Tiller RJ,<sup>1</sup> Johnson K.<sup>1</sup> Am Fam Physician. 2022 Jan 1;105(1):50-54. Transient Global Amnesia. Am Fam Physician. 2022 Jan 1;105(1):50-54. PMID: 35029951.**

**DOI: PMID: 35029951. Full free text.**

Author information:

<sup>1</sup>Medical University of South Carolina, Greenwood, SC, USA

### ABSTRACT

Transient global amnesia (TGA) is a clinical syndrome characterised by anterograde amnesia, mild retrograde amnesia, and confusion for up to 24 hours. Most commonly seen in patients older than 50 years, TGA results from the temporary impairment of short-term memory formation. Clinically, patients have time disorientation and often ask repeated questions regarding the day's events. Vomiting, headache, blurry vision, dizziness, and nausea may be present. A physically or psychologically stressful precipitating event, such as emotional stress, significant physical exertion, exposure to extreme temperatures, high-altitude conditions, Valsalva manoeuvre, acute illness, or sexual intercourse is often the cause.

The pathophysiology of TGA is not well understood but may be related to impaired venous drainage of the hippocampus. The diagnosis is primarily clinical, but recent studies suggest that magnetic resonance imaging may be helpful. TGA is self-limited and resolves within 24 hours. There is no established treatment for episodes. The lifetime recurrence rate is 2.9% to 23.8%. Recent evidence suggests an association between TGA and migraine headaches as well as takotsubo cardiomyopathy. No apparent increased risk of cerebrovascular events occurs in patients who have had an episode of TGA. There is conflicting evidence as to whether an episode of TGA predisposes to future seizures or dementia.