



TITLE: Post-Discharge Cardiac Monitoring of Stroke Patients: Clinical Effectiveness and Guidelines

DATE: 13 May 2015

RESEARCH QUESTIONS

1. What is the diagnostic accuracy of post-discharge cardiac monitoring of stroke patients?
2. What is the clinical effectiveness of post-discharge cardiac monitoring of stroke patients?
3. What are the evidence-based guidelines regarding post-discharge cardiac monitoring of stroke patients?

KEY FINDINGS

Three systematic reviews were identified regarding the diagnostic accuracy of post-discharge cardiac monitoring of stroke patients.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. Methodological filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses and guidelines. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2010 and May 11, 2015. Internet links were provided, where available.

SELECTION CRITERIA

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

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Table 1: Selection Criteria

Population	Patients who are discharged from hospital following an ischemic stroke or transient ischemic attack
Intervention	Portable (ambulatory) electrocardiogram devices used post-discharge, including but not limited to: <ul style="list-style-type: none"> • ambulatory Holter monitor • external loop recorder (event recorder) • mobile cardiac outpatient telemetry (MCOT) • implantable loop recorder (ILR) • insertable cardiac monitor (ICM), such as the Medtronic REVEAL series
Comparator	No post-discharge monitoring; Devices compared with each other
Outcomes	Q1: diagnostic accuracy (sensitivity, specificity; positive and negative predictive value); diagnostic yield (detection rate) Q2: clinical effectiveness (prevention of secondary strokes and mortality; post-diagnostic clinical decisions based on results) Q3: guidelines
Study Designs	Health technology assessments, systematic reviews, meta-analyses, evidence-based guidelines

RESULTS

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by evidence-based guidelines.

Three systematic reviews were identified regarding the diagnostic yield of post-discharge cardiac monitoring of stroke patients. No relevant health technology assessments or evidence-based guidelines were identified. Additional references of potential interest are provided in the appendix.

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

1. Dussault C, Toeg H, Nathan M, Wang ZJ, Roux JF, Secemsky E. Electrocardiographic monitoring for detecting atrial fibrillation after ischemic stroke or transient ischemic attack: systematic review and meta-analysis. *Circ Arrhythm Electrophysiol.* 2015 Apr;8(2):263-9. [PubMed: PM25639643](#)
2. Sposato LA, Cipriano LE, Saposnik G, Ruiz VE, Riccio PM, Hachinski V. Diagnosis of atrial fibrillation after stroke and transient ischaemic attack: a systematic review and meta-analysis. *Lancet Neurol.* 2015 Apr;14(4):377-87. [PubMed: PM25748102](#)
3. Kishore A, Vail A, Majid A, Dawson J, Lees KR, Tyrrell PJ, et al. Detection of atrial fibrillation after ischemic stroke or transient ischemic attack: a systematic review and meta-analysis. *Stroke.* 2014 Feb;45(2):520-6.

[PubMed: PM24385275](#)

Guidelines and Recommendations

No literature identified.

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APPENDIX – FURTHER INFORMATION:

Guidelines and Recommendations – Post-Discharge Status of Patients not Specified

4. Coutts SB, Wein TH, Lindsay MP, Buck B, Cote R, Ellis P, et al. Canadian Stroke Best Practice Recommendations: secondary prevention of stroke guidelines, update 2014. *Int J Stroke*. 2015 Apr;10(3):282-91.
[PubMed: PM25535808](#)
5. Anderson d, Larson D, Bluhm J, Charipar R, Fiscus L, Hanson M, et al. Diagnosis and Initial Treatment of Ischemic Stroke [Internet]. Bloomington (MN): Institute for Clinical Systems Improvement; 2012 [cited 2015 May 12]. Available from:
https://www.icsi.org/_asset/xql3xv/Stroke.pdf
See: Screening Algorithm, page 1

Clinical Practice Guidelines – Uncertain Methodology

6. Verma A, Cairns JA, Mitchell LB, Macle L, Stiell IG, Gladstone D, et al. 2014 Focused Update of the Canadian Cardiovascular Society Guidelines for the Management of Atrial Fibrillation. *Can J Cardiol* [Internet]. 2014 Oct [cited 2015 May 12]; 30(10): 1114-30. Available from:
[http://www.onlinecjc.ca/article/S0828-282X\(14\)01249-5/pdf](http://www.onlinecjc.ca/article/S0828-282X(14)01249-5/pdf)
See: Recommendation 8, page 1119

Meta-Analysis – As Part of an Economic Evaluation

7. Kamel H, Hegde M, Johnson DR, Gage BF, Johnston SC. Cost-effectiveness of outpatient cardiac monitoring to detect atrial fibrillation after ischemic stroke. *Stroke*. 2010 Jul;41(7):1514-20.
[PubMed: PM20508188](#)

Review Articles

8. Loop recorders to detect atrial arrhythmias in patients post-discharge who have had a cryptogenic stroke: a review of clinical and cost-effectiveness [Internet]. Ottawa: CADTH; 2014 March 25. (Rapid response report: summary with critical appraisal). [cited 2015 May 12]. Available from:
<https://www.cadth.ca/loop-recorders-detect-atrial-arrhythmias-patients-post-discharge-who-have-had-cryptogenic-stroke>