

Transient Ischemic Attack/Stroke Electronic Decision Support: A 14-Month Safety Audit

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Background: To assess the safety of a Transient Ischemic Attack (TIA)/Stroke Electronic Decision Support (EDS) tool in the primary care setting intended to aid general practitioners in the timely management of transient ischemic attacks (TIAs). *Methods:* A 14-month safety audit reviewing all patients managed with the help of the TIA/Stroke EDS tool. Major morbidity and mortality were assessed by screening patients for subsequent hospital admissions and investigating potential links to EDS use. *Results:* Seventy-nine patients were managed with the aid of the TIA/Stroke EDS. EDS use resulted in 8 appropriate immediate hospital admissions because of patients being at high risk of stroke. Three patients had delayed admission, but care was fully guideline based and patients had no adverse outcome. Eleven admissions were unrelated to EDS use. Two deaths occurred; these did not result from inappropriate EDS advice. *Conclusions:* Results suggest that TIA/Stroke EDS use is not associated with major morbidity or mortality. Larger studies are needed to draw more definite conclusions regarding the utility of this TIA/Stroke EDS in preventing strokes. **Key Words:** Stroke—Transient Ischemic Attack (TIA)—electronic decision support (EDS)—decision support techniques—decision making—computer-assisted—delivery of health care—integrated.

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Introduction

Stroke is a significant burden on patients, society, and health care systems.^{1,2} Overall, it constitutes the second highest cause of death worldwide and the most common cause of long-term disability.^{3,4}

Transient ischemic attacks (TIAs) or ministrokes often herald an imminent disabling or fatal stroke,^{5,6,7} and early investigation and initiation of secondary prevention via rapid access specialist clinics have been

shown to substantially reduce the risk of subsequent stroke and other adverse events.^{6,8,9}

In New Zealand, many rural and smaller urban areas cannot offer rapid (<24 hours) access specialist TIA clinics, and admitting all potential TIA patients to the hospital is not only costly but also often inappropriate because of a high rate of misdiagnosis.¹⁰ To address this challenge, a Transient Ischemic Attack (TIA)/Stroke Electronic Decision Support (EDS) tool was designed to improve the diagnostic accuracy of general practitioners (GPs), limit emergency department referrals to high-risk patients, and prompt GPs to initiate secondary prevention immediately if specialist review is anticipated to be delayed by more than 24 hours. Throughout the process, the treating GP has ready access to phone advice from a hospital specialist with expertise in stroke care if backup is required.

This tool consists of a web-based single-page data entry form that is completed by the GP (Fig 1). The computer algorithm incorporates diagnostic criteria and risk stratification in accordance with the New Zealand TIA guideline¹¹ which includes but is not limited to the ABCD² score.¹² If a diagnosis of TIA or stroke is confirmed, a management recommendation is rendered including preferred triage destination, urgency of investigations, and

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Stroke / TIA

bestpractice
DECISION SUPPORT FOR HEALTH PROFESSIONALS

Page 2 | Data Resources Park Main Menu | Send Feedback Logout

History & Examination | Patient Details

Onset

Date of TIA/Stroke: 13/07/2012

Stroke/TIA events over past week: One Two or more

Symptoms resolved: Yes No

Symptom duration: <10 minutes 10-59 minutes >=60 minutes

Symptoms came on suddenly: Yes No

Symptoms

Unilateral weakness:
 Unilateral numbness:
 Visual symptoms:
 Communication / speech problems: → 'Communication/speech problems' ticked resulting in display of sub-menu
 Problem 'finding' words: Problem 'understanding' people:
 Slurring of speech: Total loss (mute):
 Common posterior circulation symptoms:
 Other stroke symptoms:
 Other symptoms:

History - Notes

Vascular risk factors

Prior TIA: Prior Stroke: Hypertension:
 Atrial Fibrillation: IHD: PVD:
 Diabetes: Dyslipidaemia:
 Smoker: Family history of vascular disease:
 Warfarin/Dabigatran: DVT/hypercoagulability conditions/OCP use:
 Alcohol consumption: _____ units/week

Other Factors

Terminal illness: Severe underlying disability/dementia:

Examination

Blood Pressure: 156 / 95 Rate: _____ Not examined:
 Regular heart rhythm: Yes No Not examined
 Murmur: No Yes Not examined
 Carotid bruit: None Right Left Bilateral Not examined
 Neurological exam findings: Normal

History & Examination | Patient Details

ATTENTION: If you need to Park this module to obtain further information or to facilitate clinician review, please do so on this page before selecting 'Continue'. If the module is parked after this page further review/data entry of History and Examination will not be possible.

Continue

Figure 1. Transient Ischemic Attack (TIA)/ Stroke Electronic Decision Support data entry form with sample case.

*PMS = Practice Management System i.e GP electronic patient records

medical/risk factor management. Strategies to encourage GP's utilization of the tool include automatically generated referrals and prescriptions, tailored patient information leaflets, links to additional educational materials, and in some instances direct GP access to relevant investigations. To facilitate rapid data entry, the tool integrates with the GP's medical record system allowing fields to

self-populate if relevant information has previously been documented (e.g. medical history of atrial fibrillation and demographic data). All these features have been listed as favorable by surveyed GPs contributing to general end user uptake.¹³

To ensure that the tool sufficiently mimics expert advice, a study was conducted comparing expert, generalist,

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