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

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Background: To assess the safety of a Transient Ischameic 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 Ischameic Attack (TIA)—electronic decision support (EDS)—decision support techniques—decision making—computer-assisted—delivery of health care—integrated.

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 Ischameic 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 guideline[11] which includes but is not limited to the ABCD^2 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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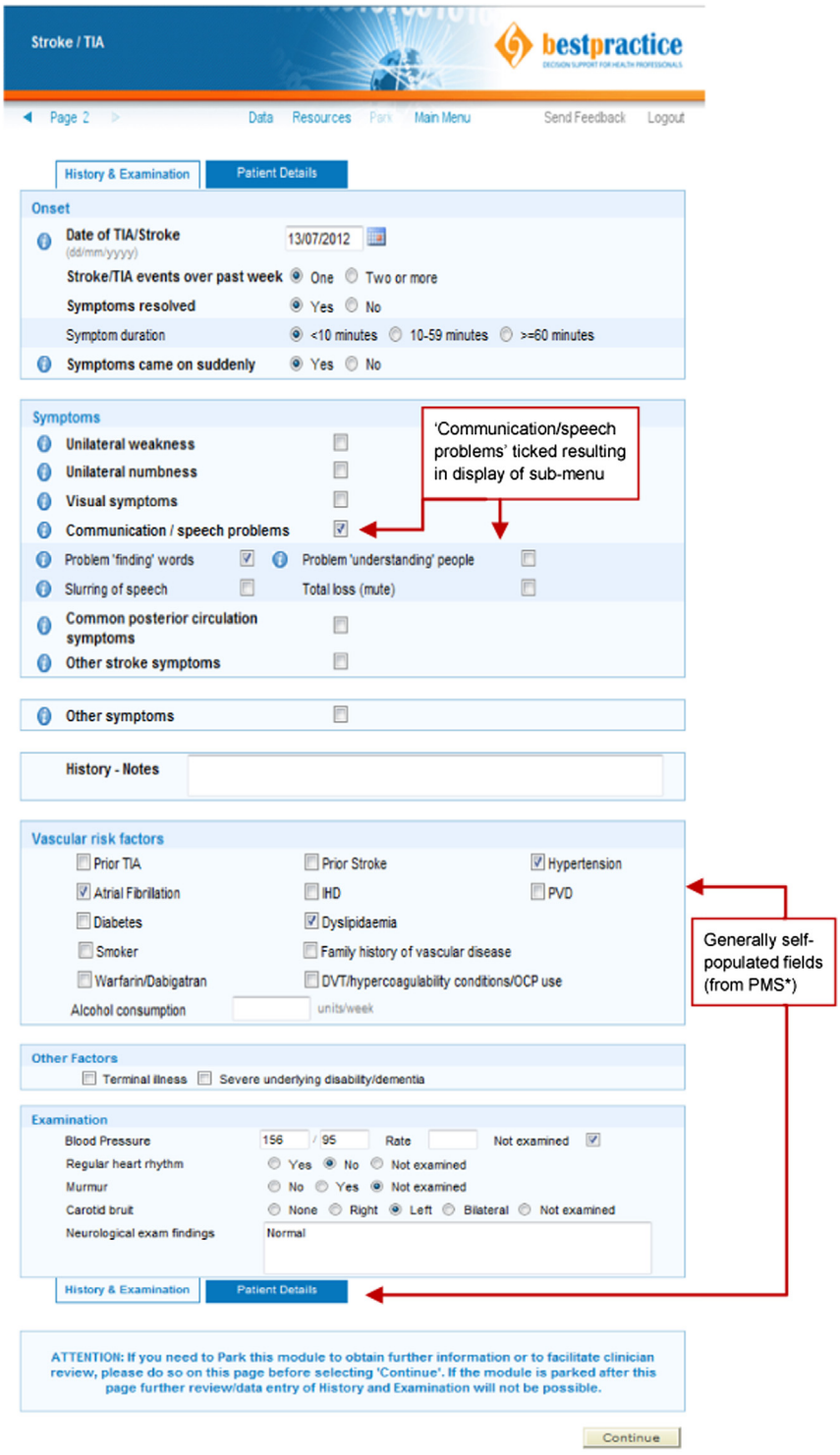

Figure 1. *Transient Ischameic Attack (TIA)/ Stroke Electronic Decision Support data entry form with sample case.*

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,