

# Predicting Short-term Risk of Stroke After TIA

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## Clinical Question

What is the short-term (seven days) risk of stroke after transient ischemic attack (TIA)?

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### Evidence Summary

Five to 10 percent of patients presenting with TIA will have a stroke within the following week.<sup>1-3</sup> Because guidelines do not mandate hospitalization for patients who have had a TIA or suspected TIA,<sup>4,5</sup> validated clinical prediction rules may be used to identify patients who should definitely be hospitalized for expedited evaluation and patients for whom outpatient evaluation is a reasonable option.

A study in 16 California hospitals retrospectively identified all patients diagnosed with TIA in the emergency department.<sup>2</sup> A review of hospital and external medical records identified patients who had a stroke within 90 days of the emergency department visit. Stroke was confirmed by a consensus decision from two neurologists. The mean age of participants was 72 years. Of the 1,707 patients with TIA, 180 patients (10.5 percent) had a stroke within 90 days. One half of these strokes occurred within two days of initial presentation in the emergency department. Independent predictors of stroke were age greater than 60 years, diabetes mellitus, TIA duration greater than 10 minutes, and TIA with weakness or speech impairment. However, these results have not been validated in a separate group of patients and do not provide guidance regarding shorter-term risk of stroke.<sup>2</sup>

The ABCD (Age, Blood pressure, Clinical features, Duration of symptoms) rule for predicting stroke risk after TIA (Table 1)<sup>3</sup> was developed using data from patients with possible TIA who were referred to a neurologist by their primary care physician from 1981 to 1986 and who, on further evaluation, were suspected to have a probable or definite TIA.<sup>3</sup> The ABCD rule was validated in a separate group of patients from the Oxford Vascular Study who were referred from 2002 to 2004. The mean age was 69.5 years in the 375 patients with suspected TIA and 73.7 years in the 188 patients with probable or definite TIA. The overall risk of stroke within seven days of TIA was 5.3 percent in those with possible TIA and 10.5 percent in those with probable or definite TIA. Only one patient with a score of four or less and no

patient with a score of three or less had a stroke within seven days of TIA.

### Applying the Evidence

A 52-year-old patient who is hypertensive presents to your office after an episode of transient weakness in his right arm that occurred several days ago. The episode lasted about five minutes and was not accompanied by speech difficulty. His blood pressure has been well controlled and measures 130/78 mm Hg during the office visit. You diagnose him with possible TIA. What is his risk of stroke within the next seven days?

**Answer:** Using the ABCD clinical prediction rule, you give the patient two points for unilateral weakness and zero points for age, blood pressure, and duration of symptoms. Therefore, you conclude that the patient has low risk of stroke (none of 184 patients with possible TIA and none of 62 with probable or definite TIA who had a score of three or lower had a stroke within seven days), and you and the patient decide that outpatient evaluation is appropriate. 

See CPD Questionnaire, page 42

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This guide is one in a series that offers evidence-based tools to assist family physicians in improving their decision making at the point of care.

### REFERENCES

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4. Stroke Association, Intercollegiate Working Party for Stroke, Royal College of Physicians of London. National Clinical Guidelines for Stroke. 2nd ed. London: Royal College of Physicians, 2004.
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**Table 1:** ABCD Clinical Prediction Rule to Determine Short-term Stroke Risk After TIA

Risk factor	Points	
Age ≥ 60 years	1	
Blood pressure: systolic > 140 mm Hg and/or diastolic ≥ 90 mm Hg	1	
Clinical features (choose one)		
Unilateral weakness	2	
Speech disturbance without weakness	1	
Other	0	
Duration of symptoms (minutes)		
≥ 60	2	
10-59	1	
< 10	0	
<b>Total (0 to 6)</b>		
<b>Seven-day risk of stroke (stroke/no. of patients; %)</b>		
<b>Point total</b>	<b>Possible TIA*</b>	<b>Probable or definite TIA</b>
0 or 1	0/28 (0)	0/2 (0)
2	0/74 (0)	0/28 (0)
3	0/82 (0)	0/32 (0)
4	1/90 (1; 95% CI, 0 to 3)	1/46 (2; 95% CI, 0 to 6)
5	8/66 (12; 95% CI, 4 to 20)	8/49 (16; 95% CI, 6 to 27)
6	11/35 (31; 95% CI, 16 to 47)	11/31 (35; 95% CI, 19 to 52)
<b>Total</b>	<b>20/375 (5.3; 95% CI, 3 to 7.5)</b>	<b>20/188 (10.6; 95% CI, 6 to 15)</b>

ABCD = Age, Blood pressure, Clinical features, Duration of symptoms; TIA = transient ischemic attack; CI = confidence interval.  
 \*-Possible TIA includes patients who are later diagnosed with probable or definite TIA.  
 Information from reference 3.