

1.6 Percentage of patients with atrial fibrillation that are discharged on oral anticoagulants

Purpose

This indicator addresses effectiveness of processes that encourage judicious use of preventive pharmacotherapy in patients at risk of stroke.

Background and evidence

Under-utilisation of anticoagulation continues to be an issue in people with atrial fibrillation (AF).¹⁻³ Anticoagulants reduce the risk of stroke by about two thirds compared to aspirin which reduces risk of stroke by about one fifth.^{4,5} The benefits of warfarin are not offset by increased bleeding in the majority of patients.⁶ Older people, provided they are carefully monitored, can use anticoagulants with reasonable safety,⁷⁻¹⁰ however, patients over 80 years of age are at greater risk of adverse events.^{5,11} Direct oral anticoagulants (dabigatran, rivaroxaban and apixaban) have demonstrated non-inferiority to warfarin in stroke prevention and show lower rates of intracranial haemorrhage.⁸⁻¹⁰ They are alternative therapeutic options to warfarin in selected patients.

Key definitions

Patients with atrial fibrillation refers to patients less than 80 years of age admitted with permanent (chronic), persistent or paroxysmal (intermittent) AF^{4,5} as a primary or secondary diagnosis.

Oral anticoagulants refer to orally administered vitamin K antagonists such as warfarin, direct thrombin inhibitors such as dabigatran and direct Factor Xa inhibitors such as apixaban and rivaroxaban. Newer medicines may be included within these oral anticoagulant classes as they become licensed for clinical use in stroke prevention in nonvalvular atrial fibrillation in Australia.

Discharged on oral anticoagulants means there is documentation in the discharge summary or letter at the time of transfer to the community, residential care or another hospital that an oral anticoagulant is to be taken on an ongoing basis. A supply of oral anticoagulant may or may not be provided by the hospital.

Data collection for local use

Please refer to the section *Using the National Quality Use of Medicines Indicators for Australian Hospitals* for guidance on sample selection, sample size, measurement frequency and other considerations.

Inclusion criteria: Discharged patients aged between 18 and 80 years of age with a primary or secondary diagnosis of AF.

Exclusion criteria: Patients less than 65 years of age diagnosed with lone AF.

Recommended data sources: Medical records and discharge documentation.

The data collection tool for QUM Indicator 1.6 assists data collection and indicator calculation.

Data collection for inter-hospital comparison

This indicator may be suitable for inter-hospital comparison. In this case, definitions, sampling methods and guidelines for audit and reporting need to be agreed in advance in consultation with the coordinating agency.

Indicator calculation

$$\frac{\text{Numerator}}{\text{Denominator}} \times 100\%$$

Numerator = Number of patients with AF that are discharged on an oral anticoagulant

Denominator = Number of patients discharged with AF in sample

Limitations and interpretation

This indicator examines patients less than 80 years because the risk of bleeding increases after this age, and stroke prevention in this age group is complex and challenging.¹¹ Antithrombotic therapy is not recommended in patients aged less than 65 years with lone AF¹²; hence their exclusion from the sample. Anti-platelet agents have not been included as acceptable alternatives to oral anticoagulants because there is clear evidence of the superiority of anticoagulation.^{13,14}

Consideration of potential contraindications requires a detailed review of risks associated with anticoagulation and specific risks related to each oral anticoagulant.^{15,16} If an oral anticoagulant is not prescribed for the patient on discharge, the reason(s) for omission, such as a contra-indication or a plan to initiate therapy in the future, should be documented in the patient's discharge summary or letter.

Further information

A number of issues need to be considered when evaluating the appropriateness of oral anticoagulants for individual patients. Table 1 outlines a scoring system that may be used to calculate the risk of stroke in patients with AF. Table 2 outlines a scoring system that may be used to calculate bleeding risk. Unfortunately, as the risk of thromboembolism rises, so the risk of bleeding also tends to rise. Absolute and relative contraindications related to a patient's medical condition, functional and cognitive status, and capability to manage their medicines need to be taken into account when evaluating individual patient risk.^{15,16}

The Medication Safety Self Assessment for Antithrombotic Therapy in Australian Hospitals¹⁷ (MSSA-AT) can help identify potential strategies for improvement with this and other indicators. The MSSA-AT encourages development of robust systems for safe prescribing, dispensing, administration and monitoring of antithrombotic therapy. The MSSA-AT is available at www.cec.health.nsw.gov.au

This indicator can be used to assist hospitals in meeting the National Safety and Quality Health Service Standard 1 [items 1.2.1, 1.2.2, 1.5.2, 1.6.1, 1.6.2] and Standard 4 [items 4.2.1, 4.2.2, 4.5.1, 4.5.2].¹⁸

Table 1: Risk factors for stroke in patients with atrial fibrillation: the CHA₂DS₂-VASc scoring system¹⁹

Risk factor	Score
C Congestive heart failure/left ventricular dysfunction	1
H Hypertension	1
A₂ Age ≥75 years	2
D Diabetes mellitus	1
S₂ Stroke/Transient Ischaemic Attack/Thromboembolism	2
V Vascular disease – coronary artery disease (prior myocardial infarction, peripheral artery disease, or aortic plaque)	1
A Age 65–74 years	1
Sc Sex category (i.e. female gender)	1
Maximum Score	9*

* Maximum score is 9 as age may contribute 0, 1, or 2 points.

The European Society of Cardiology (ESC) 2012 focused update of the Guidelines for the management of atrial fibrillation recommends oral anticoagulation if the CHA₂DS₂-VASc is equal to or greater than one, unless a score of one is due to female gender.¹²

When considering the use of thromboprophylaxis the risk of stroke needs to be balanced against the risk of major bleeding, particularly intracranial haemorrhage.²⁰ The ESC guidelines recommend the use of the HAS-BLED score to determine bleeding risk and identify modifiable risk factors and monitoring requirements.¹²

Table 2: Risk factors for bleeding: the HAS-BLED scoring system^{21,22}

Risk factor	Score
H Hypertension History? (uncontrolled, >160 mmHg systolic)	1
A Renal Disease? (Dialysis, transplant, Cr >200 micromol/L)	1
Liver Disease? (Cirrhosis, Bilirubin >2x Normal, AST/ALT/AP >3x Normal)	1
S Stroke History?	1
B Prior Major Bleeding or Predisposition to Bleeding?	1
L Labile INR? (Unstable/high INRs, <60% time in therapeutic range)	1
E Age ≥65?	1
D Medication Usage Predisposing to Bleeding? (Antiplatelet agents, NSAIDs, corticosteroids)	1
Alcohol Usage History?	1
Maximum Score	9

Cr=Serum creatinine; AST=Aspartate aminotransferase; ALT= Alanine aminotransferase; AP=Alkaline phosphatase

HAS-BLED stands for hypertension, abnormal renal/liver function, stroke, bleeding history or predisposition, labile INR, elderly (age over 65), and drugs/alcohol.

References:

1. Evidence Practice Gaps Report, Volume One: A Review of Developments 2004-2007. National Institute of Clinical Studies, 2008.
2. Choudhry NK, Soumerai SB, Normand SL, et al. Warfarin prescribing in atrial fibrillation: the impact of physician, patient, and hospital characteristics. *Am J Med* 2006; 119: 607-615.
3. Friberg L, Hammar N, Ringh M, et al. M. Stroke prophylaxis in atrial fibrillation: who gets it and who does not? Report from the Stockholm Cohort-study on Atrial Fibrillation (SCAF-study). *Eur Heart J* 2006; 27: 1954-1964.
4. Hankey GJ. Non-valvular atrial fibrillation and stroke prevention. *Med J Aust* 2001; 174: 234-239.
5. eTG complete [Internet]. Melbourne: Therapeutic Guidelines Limited; 2013 November.
6. Benavente O, Hart R, Koudstaal P, et al. Oral anticoagulants for preventing stroke in patients with non-valvular atrial fibrillation and no previous history of stroke or transient ischemic attacks. *Cochrane Database Syst Rev* 2005 (3): CD001927.
7. Fang MC, Go AS, Hylek EM, et al. Age and the risk of warfarin-associated hemorrhage: the anticoagulation and risk factors in atrial fibrillation study. *J Am Geriatr Soc* 2006; 54: 1231-1236.
8. Connolly SJ, Ezekowitz MD, Yusuf S, et al. Dabigatran vs. warfarin in patients with atrial fibrillation. *N Engl J Med* 2009; 361: 1139-1151.
9. Patel MR, Mahaffey KW, Garg J, et al. Rivaroxaban vs. warfarin in nonvalvular atrial fibrillation. *N Engl J Med* 2011; 365: 883-891.
10. Granger CB, Alexander JH, McMurray JJ, et al. Apixaban vs. warfarin in patients with atrial fibrillation. *N Engl J Med* 2011; 365: 981-992.
11. Hylek EM, Evans-Molina C, Shea C, et al. Major hemorrhage and tolerability of warfarin in the first year of therapy among elderly patients with atrial fibrillation. *Circulation* 2007; 115: 2689-2696.
12. Camm AJ, Lip GYH, De Caterina R, et al. An update of the 2010 ESC Guidelines for the management of atrial fibrillation. *Eur Heart J* 2012; 33: 2719-2747.
13. Connolly S, Pogue J, Hart R, et al. Clopidogrel plus aspirin versus oral anticoagulation for atrial fibrillation in the Atrial Fibrillation Clopidogrel Trial with Irbesartan for prevention of Vascular Events (ACTIVE W): a randomised controlled trial. *Lancet* 2006; 367: 1903-1912.
14. Connolly SJ, Eikelboom J, Joyner C, et al. Apixaban in patients with atrial fibrillation. *N Engl J Med* 2011; 364:806-817.
15. Bajorek BV, Krass I, Ogle SJ, et al. Optimizing the use of antithrombotic therapy for atrial fibrillation in older people: a pharmacist-led multidisciplinary intervention. *J Am Geriatr Soc* 2005; 53: 1912-1920.
16. Tran H, Joseph J, Young L, et al. New oral anticoagulants: a practical guide on prescription, laboratory testing and peri-procedural/bleeding management. *Int Med J* 2014; 44: 525-536.
17. Medication Safety Self Assessment for Antithrombotic Therapy in Australian Hospitals: Institute for Safe Medication Practices USA (Adapted for Australian use by NSW Therapeutic Advisory Group and the Clinical Excellence Commission), 2007.
18. Australian Commission on Safety and Quality in Health Care. National Safety and Quality Health Service Standards. Sydney, ACSQHC, 2012.
19. Lip GY, Nieuwlaet R, Pisters R, et al. Refining clinical risk stratification for predicting stroke and thromboembolism in atrial fibrillation using a novel risk factor-based approach: the euro heart survey on atrial fibrillation. *Chest* 2010; 137(2): 263-272.
20. Lane DA and Lip GYH. Use of the CHA2DS2-VASc and HAS-BLED Scores to Aid Decision Making for Thromboprophylaxis in Nonvalvular Atrial Fibrillation. *Circulation* 2012; 126: 860-865.
21. Pisters R, Lane DA, Nieuwlaet R, et al. A novel, user-friendly score (HAS-BLED) to assess one-year risk of major bleeding in atrial fibrillation patients: The Euro Heart Survey. *Chest* 2010; 138: 1093-1100.
22. Lip GYH, Frison L, Halperin JL, et al. Comparative validation of a novel risk score for predicting bleeding risk in anticoagulated patients with atrial fibrillation. *J Am Coll Cardiol* 2011; 57: 173-80.