Clinical audit: Antiplatelet and anticoagulant therapy in stroke prevention
Improving clinical practice for better patient health

How are you managing your patients?

This clinical audit will assist you to assess and select appropriate evidence-based drug therapies for stroke prevention and to optimise their use.

Identify 15 patients with:
• paroxysmal, persistent or permanent atrial fibrillation (AF) or atrial flutter and/or
• a previous ischaemic stroke or transient ischaemic attack (TIA) and/or
• oral antiplatelet and/or anticoagulant therapy prescribed for primary or secondary prevention of stroke.

Best practice use of antiplatelets and anticoagulants in stroke prevention

1. Use best practice guidelines
2. Review current practice
3. Implement change
4. Review and reflect
5. Monitor progress
Notes for clinical audit

Additional information to assist you to review your management.

**Identify 15 patients prospectively as they present or retrospectively from a search of your medical records.**

**Include patients who have:**
- paroxysmal, persistent or permanent AF (valvular and non-valvular) or atrial flutter and/or
- a previous ischaemic stroke or TIA and/or
- oral antplatelet and/or anticoagulant therapy prescribed for primary or secondary prevention of stroke.

**Exclude patients with:**
- lone AF (< 60 years of age with no hypertension and no clinical or echocardiographic evidence of heart disease)
- previous haemorrhagic stroke
- prosthetic heart valves.

Management of other risk factors for stroke including hypertension, obesity, smoking, vascular disease and diabetes is not addressed in this audit. Assessing and managing these risk factors is an essential part of reducing stroke risk. Use of thrombolytic therapy in acute stroke is also not addressed.

About 85% of all strokes are ischaemic, of which 20% are due to embolism of thrombi from the heart (cardioembolic).1

### Prevention of cardioembolic ischaemic stroke

Patients with atrial fibrillation (AF) have a three- to five-fold higher risk of ischaemic stroke than those without AF.2 Warfarin is underused in patients with AF at high risk of stroke and with no contraindications to its use.3 Use of warfarin is especially low in patients with AF of non-English speaking background.3 The main reason cited is concern about potential bleeding but there is evidence that the risk of bleeding with warfarin may be overemphasised.2

In patients with AF absolute stroke and bleeding risks inform the choice between warfarin and aspirin.4 Paroxysmal, persistent and permanent AF all pose the same stroke risk.1,2 Patients with valvular AF are at particularly high risk of stroke and do not require risk stratification (see Table 1). In patients with atrial flutter, assess the risk of stroke using similar stratification criteria as for AF (see below).1 Stroke risk in these patients is estimated to be higher than for those in sinus rhythm and less than for persistent or permanent AF.4

#### Determining stroke risk in patients with non-valvular AF

Patients with valvular AF are at very high risk and do not require stratification.

In patients with non-valvular AF, use a risk stratification tool to assess stroke risk and choose between warfarin and aspirin. The CHADS2 stratification tool is validated and based on two other stratification tools, but with a greater predictability than either of these tools alone.5 Points are assigned based on the presence of various risk factors. The total score gives an indication of the degree of stroke risk (see Tables 3 and 4).

**Table 1: Classification of atrial fibrillation**

<table>
<thead>
<tr>
<th>Type</th>
<th>Absolute stroke risk per annum</th>
<th>Recommended therapy¹,⁴</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valvular AF</td>
<td>15% to 20%¹ Very high risk</td>
<td>warfarin</td>
</tr>
<tr>
<td>Non-valvular AF</td>
<td>2% to 18%⁵ depending on risk factors (see table 4)</td>
<td>warfarin or aspirin (depending on stroke risk, see table 4)</td>
</tr>
</tbody>
</table>

**Table 3: Components of CHADS2 and point scoring⁶**

<table>
<thead>
<tr>
<th>Prognostic risk factors</th>
<th>Relative risk of stroke</th>
<th>CHADS2 Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congestive heart failure</td>
<td>1.4</td>
<td>1</td>
</tr>
<tr>
<td>Hypertension (past or present)</td>
<td>1.6</td>
<td>1</td>
</tr>
<tr>
<td>Age ≥ 75 years</td>
<td>1.4</td>
<td>1</td>
</tr>
<tr>
<td>Diabetes</td>
<td>1.7</td>
<td>1</td>
</tr>
<tr>
<td>Stroke or TIA previously</td>
<td>2.5</td>
<td>2</td>
</tr>
</tbody>
</table>

**Table 4: CHADS2 score and risk of stroke**

<table>
<thead>
<tr>
<th>CHADS2 Score</th>
<th>% Adjusted annual stroke Rate (95% CI)¹</th>
<th>Stroke risk²</th>
<th>Recommended therapy³</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1.9% (1.2 to 3.0)</td>
<td>low</td>
<td>aspirin</td>
</tr>
<tr>
<td>1</td>
<td>2.8% (2.0 to 3.8)</td>
<td>moderate</td>
<td>aspirin or warfarin</td>
</tr>
<tr>
<td>2</td>
<td>4.0% (3.1 to 5.1)</td>
<td>high</td>
<td>warfarin</td>
</tr>
<tr>
<td>3</td>
<td>5.9% (4.6 to 7.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>8.5% (6.3 to 11.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>12.5% (8.2 to 17.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>18.2% (10.5 to 27.4)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Determining bleeding risk in patients considered for anticoagulant therapy

Assess risk factors for bleeding in all patients being considered for anticoagulant therapy. Reassess risk factors periodically.

**Table 5: Assessing risk factors for bleeding**

<table>
<thead>
<tr>
<th>Absolute contraindication regarding warfarin use*</th>
<th>Relative contraindication</th>
</tr>
</thead>
<tbody>
<tr>
<td>bacterial endocarditis</td>
<td>participation in activities predisposing to trauma</td>
</tr>
<tr>
<td>bleeding disorders</td>
<td>unexplained anaemia</td>
</tr>
<tr>
<td>frequent falls</td>
<td>unexplained recurrent syncope</td>
</tr>
<tr>
<td>non-adherence with medication or INR monitoring</td>
<td></td>
</tr>
<tr>
<td>previous intracranial bleed/aneurysm or retinal haemorrhage</td>
<td></td>
</tr>
<tr>
<td>recent gastrointestinal/genitourinary bleeding or active ulceration</td>
<td></td>
</tr>
<tr>
<td>untreated or poorly controlled hypertension</td>
<td></td>
</tr>
<tr>
<td>(consistently &gt; 160/90 mmHg)</td>
<td></td>
</tr>
<tr>
<td>(consistently &gt; 160/90 mmHg)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Relative contraindication</th>
</tr>
</thead>
<tbody>
<tr>
<td>conventional NSAID use without cytoprotection</td>
</tr>
<tr>
<td>heavy alcohol use or liver disease</td>
</tr>
<tr>
<td>dementia</td>
</tr>
<tr>
<td>participation in activities predisposing to trauma</td>
</tr>
<tr>
<td>unexplained anaemia</td>
</tr>
<tr>
<td>unexplained recurrent syncope</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No contraindication</th>
</tr>
</thead>
<tbody>
<tr>
<td>advanced age</td>
</tr>
<tr>
<td>COX-2 selective NSAID use</td>
</tr>
<tr>
<td>NSAID use with misoprostol or proton pump inhibitor</td>
</tr>
<tr>
<td>predisposition to falling</td>
</tr>
<tr>
<td>previous ischaemic stroke</td>
</tr>
<tr>
<td>recent, resolved peptic ulcer disease bleeding (with <em>H. pylori</em> testing and treatment)</td>
</tr>
</tbody>
</table>

* Other contraindications to warfarin use may include: recent or contemplated CNS, eye or traumatic surgery; major regional lumbar block anaesthesia; pregnancy.

**Anticoagulant (warfarin or phenindione) therapy**

Consider warfarin for all patients with valvular AF and those with non-valvular AF at moderate to high risk of stroke (CHADS2 score $\geq 1$). Consider in those with previous myocardial infarction (MI) at increased embolic risk (e.g. left ventricular thrombi detected within 3–6 months of MI). (See Drug evidence and recommendations insert.)

**Monitoring INR**

Frequency of INR monitoring:
- Initially: before starting warfarin and then daily until INR is stable in the therapeutic range.
- Long term: regular intervals of no more than 4 weeks.
- More frequently if there are changes to the patient’s condition including intercurrent illness (e.g. heart failure, liver disease, GI disturbances, infections, thyroid disorders), concurrent drugs, amount of alcohol consumed, or diet (green leafy vegetable consumption).

Target INR is 2–3 for all indications except prosthetic heart valves (seek specialist advice). Almost half of all haemorrhages occur when INRs are above the therapeutic range and about half of thromboemboli occur when below it. There is insufficient evidence to recommend a compromise INR (e.g. 1.6 to 2.5) in subgroups of patients with AF; efficacy is around 80% of that achieved with higher anticoagulation.

**Reviewing use of drugs/complementary medicines with potential interactions with warfarin**

Identify and where possible exclude drugs which interact with warfarin (see Table 6). Alternatively, allow for the effects on warfarin control.
### Table 6: Commonly used drugs and complementary medicines which potentially affect INR control

#### Increased effect of warfarin (↑INR)

**Medications**
- amiodarone
- anabolic steroids and androgens e.g. testosterone
- antibiotics – cotrimoxazole, macrolides, metronidazole, quinolones (ciprofloxacin, moxifloxacin), tetracyclines
- azole antifungals (fluconazole, itraconazole, miconazole)
- cimetidine
- corticosteroids
- COX-2 selective NSAIDs (celecoxib)
- disulfiram
- fibrates
- fluvoxamine
- orlistat
- paracetamol (> 3.5 g weekly) – check INR 4 days after starting paracetamol
- quinine and quinidine
- salicylates (topical) e.g. methysalicylate
- selective serotonin re-uptake inhibitors
- statins e.g. fluvastatin, rosuvastatin, simvastatin (consider using atorvastatin or pravastatin)
- tamoxifen
- thyroid and antithyroid compounds e.g. thyroxine, propylthiouracil
- tibolone
- tramadol

**Complementary medicines or foods**
- cinchona
- dan Shen
- garlic
- cranberry juice
- dong quai
- papaya
- danshen
garlic

### Decreased effect of warfarin (↓INR)

**Medications**
- antibiotics – dicloxacillin, rifabutin, rifampicin
- antiepileptics (barbiturates, carbamazepine, phenytoin)
- cholestyramine
- griseofulvin
- raloxifene

**Complementary medicines or foods**
- coenzyme Q10
- ginseng
- green tea
- fermented soya bean products
- St John’s wort

### Increased or decreased effect of warfarin (↑ or ↓ INR)

**Medications**
- acarbose
- carbimazole

**Potentiated bleeding risk with warfarin due to their antiplatelet effect**
- aspirin – avoid combination (except low-dose aspirin in selected patients at high risk for thromboembolism where close monitoring is required)
- clopidogrel
- dipyridamole
- NSAIDs (except COX-2 selective inhibitors)
- ticlopidine

Aspirin, other NSAIDs and gingko biloba also potentiate the bleeding risk because of their effects on the gastric mucosa.

### Food interactions with warfarin

Most people taking warfarin do not experience any problems related to the amount of vitamin K in their diet. Advise patients to maintain a relatively constant intake of vitamin K-containing foods. Provide patients with a list of such foods (see *Patient information on warfarin*).

### Enhancing patient understanding of warfarin

Give all patients on medication for stroke prevention verbal and written information about their medicines in a format appropriate to their needs and abilities.
Cardioembolic ischaemic stroke, continued

Patient information on warfarin

Repatriation General Hospital (RGH) Pharmacy, SA: Anticoagulation handbook.

Antiplatelet therapy

Use aspirin in patients with non-valvular AF at low risk of stroke or where warfarin is contraindicated (see table 4 and Drug therapy evidence and recommendations insert).

Aspirin intolerance

Confirm that patients have true intolerance to aspirin. Aspirin intolerance is defined as:
• proven hypersensitivity to aspirin-containing medicines
• history of severe dyspepsia induced by low-dose aspirin. 14
Hypersensitivity includes aspirin-exacerbated respiratory tract disease, urticaria/angioedema, or anaphylaxis.
The prevalence of aspirin-exacerbated respiratory tract disease is approximately 10% and for aspirin-induced urticaria the prevalence varies from 0.07% to 0.2% in the general population. 15

Adding a proton pump inhibitor to aspirin

Only consider adding a proton pump inhibitor (PPI) to aspirin if there is dyspepsia, or other significant risk of gastrointestinal bleeding with aspirin, to allow aspirin to continue. 11 In patients with a history of aspirin-induced ulcer bleeding, clopidogrel causes more recurrent ulcer bleeding than aspirin plus a PPI. 8

Important advice for patients using warfarin 4

• Take tablets at the same time every day; use a calendar or ‘anticoagulant book’ to keep a record of your dose and to mark off the date immediately after taking a dose.
• Always use the same brand of tablets.
• Eat a balanced diet, without varying it too much, to keep vitamin K intake stable; warfarin is affected by vitamin K, which is found in some foods.
• Avoid excessive alcohol consumption, 1–2 standard drinks/day is generally safe.
• Avoid drinking large amounts of cranberry juice; this may increase the effects of warfarin.
• Tell your doctor or pharmacist that you are taking warfarin before starting or stopping other drugs, vitamin supplements, complementary or over-the-counter products.
• Tell your dentist, podiatrist, physiotherapist or chiropractor that you are taking warfarin.
• Have regular blood tests, call for a result within 24 hours of the test and before the next dose in case it needs adjusting. Extra tests may be needed when you are experiencing any other serious illness.
• Tell your doctor immediately if you have any unexplained bruising, bleeding, pink, red or dark brown urine, or black or red faeces.

Prevention of ischaemic stroke due to arterial disease

Antiplatelet therapy

In primary stroke prevention, consider aspirin for those at high risk of cardiovascular disease. 8 Vascular benefits of aspirin are most likely to outweigh the bleeding risk if the 5-year absolute risk of a cardiovascular event is > 15%. 16 (see Drug therapy evidence and recommendations insert.)

In patients with a previous ischaemic stroke or TIA due to arterial disease, long-term antiplatelet therapy is recommended; there is no evidence of additional benefit with anticoagulation in these patients. 17 Aspirin, aspirin plus dipyridamole 5R or clopidogrel are the main antiplatelet options. 17 (see Drug therapy evidence and recommendations insert.)

Table 7: Contraindications to antiplatelet use 8–9

<table>
<thead>
<tr>
<th>Antiplatelet</th>
<th>Contraindication</th>
</tr>
</thead>
<tbody>
<tr>
<td>aspirin</td>
<td>Active peptic ulceration, allergy to aspirin/NSAIDs, aspirin-sensitive asthma, bleeding disorders</td>
</tr>
<tr>
<td>clopidogrel</td>
<td>Severe hepatic impairment, active internal bleeding, pregnancy, lactation</td>
</tr>
<tr>
<td>dipyridamole</td>
<td>Hypersensitivity to any component</td>
</tr>
<tr>
<td>ticlopidine</td>
<td>Bleeding disorders, local haemorrhagic lesions (e.g. peptic ulcer, epistaxis, menorrhagia, haemorrhagic stroke), blood dyscrasias, severe hepatic impairment or cholestatic jaundice.</td>
</tr>
</tbody>
</table>
Confidentiality and privacy

You must sign and date the Submission cover sheet to participate in this audit. By participating you agree to aggregation of your de-identified patient data and use of your personal data. Individual results of your clinical audit are kept confidential by NPS.

What will happen to your patient data

• Your de-identified patient data forms are scanned and returned to you.
• Your individual results are provided to you only.
• Your data are aggregated with those of other participants and the de-identified aggregate results:
  – are provided to all participants
  – may be used in NPS evaluation and reports
  – are provided to the RACGP and ACRRM.

The RACGP has advised that program information may be shared with researchers and interested general practitioners for the purpose of continuing education coordination at the discretion of the QA&CPD Program.

What will happen to your personal details

Your personal details:
• are provided to the mail house for processing
• are provided to the RACGP QA&CPD Program and/or ACRRM Professional Development Program for point allocation (if applicable)
• are recorded for the purpose of the PIP and NPS evaluation
• can be obtained from NPS by request in writing.

Individual clinical audit results will not be made available after potentially identifying data are removed from NPS records at the close of the clinical audit cycle.

Please note: You are responsible for advising NPS of any changes of address during the audit cycle.

Further information

Therapeutic enquiries
Karin Gurman (02) 8217 8700

Audit and QPI enquiries
Chun Fang Yu (02) 8217 8700

References

9.  MIMS online. 2009.
## Drug therapy evidence and recommendations

### Prevention of ischaemic stroke due to arterial disease (atherothromboembolism)

<table>
<thead>
<tr>
<th>Drug therapy</th>
<th>Primary prevention</th>
<th>Secondary prevention</th>
</tr>
</thead>
</table>
| **aspirin**                   | Balance potential benefits in terms of overall cardiovascular protection, against the risk of major bleeding.¹  
Vascular benefits of aspirin are most likely to outweigh the bleeding risk if the 5-year absolute risk of a cardiovascular event is > 15%.² Assess absolute cardiovascular risk using a standardised tool.⁴ | Reduces the relative risk of stroke by about 13% (95% CI 6% to 19%) compared with placebo.³ Risk is further reduced by the addition of dipyridamole (see below).  
Give as soon as possible after the onset of stroke. Can also be used for long-term antiplatelet therapy after stroke or TIA.¹  
Suitable option for patients who:  
• cannot tolerate dipyridamole  
• have co-existing coronary heart disease  
• for whom cost considerations are paramount.⁴ ⁵ |
| **aspirin plus dipyridamole SR** | Not indicated; no evidence that combining aspirin and dipyridamole is significantly more effective than low-dose aspirin.¹ | Adding dipyridamole to aspirin reduces the risk of the composite endpoint of MI, stroke, vascular death or major bleeding complication compared with aspirin alone (ARR = 1% per year, 95% CI 0.1 to 1.8).⁶  
Can be used for initial long-term antiplatelet therapy or if recurrent stroke occurs while taking aspirin.¹  
Use sustained-release preparations; immediate-release preparations have limited evidence to support their use in stroke.⁷  
Headache is common with dipyridamole and leads to more discontinuation of therapy than with aspirin alone.⁸ Substituting the morning dose of aspirin plus dipyridamole SR with low-dose aspirin for a short period (e.g. < 1 week) may improve headache.⁹ |
| **clopidogrel**                | Slightly more effective than aspirin alone in reducing combined endpoint of ischaemic stroke, MI or vascular death (absolute risk reduction [ARR] = 0.51%) in patients with atherosclerotic vascular disease; need to treat 196 patients with clopidogrel instead of aspirin for 1 year to prevent one vascular event.¹⁰ Similar overall risk of bleeding to aspirin, but less cost effective.¹ ¹⁰ ¹¹ | Similar efficacy to aspirin plus dipyridamole SR in prevention of recurrent stroke and comparable risk of bleeding.⁸  
Can be used for initial long-term antiplatelet therapy and is a suitable alternative to aspirin for patients with:  
• intolerance or contraindication to aspirin¹ ¹⁴  
• recurrent vascular events while on aspirin.¹  
Suitable alternative to aspirin plus dipyridamole SR for patients with:  
• intolerance to aspirin plus dipyridamole⁶  
• co-existing coronary heart disease⁶, for which aspirin plus dipyridamole has less evidence.  
Better tolerated than ticlopidine (see below).¹² |
| **dipyridamole SR**            | Not indicated⁹  
Use in combination with aspirin (see above).  
Use alone if neither aspirin nor clopidogrel is tolerated.⁴ | No evidence that dipyridamole alone is more effective than aspirin alone.¹³  
Use in combination with aspirin (see above).  
Use alone if neither aspirin nor clopidogrel is tolerated.⁴ |
| **ticlopidine**                | Not indicated⁹  
Use in patients unresponsive to aspirin.¹² Where possible, use clopidogrel instead of ticlopidine due to lower risk of severe adverse effects.¹² | Severe haematological adverse effects limit its use; can cause mild–severe neutropenia, risk is greatest in first 12 weeks of treatment.¹²  
Use in patients unresponsive to aspirin.¹³ Where possible, use clopidogrel instead of ticlopidine due to lower risk of severe adverse effects.¹² |
| **aspirin plus clopidogrel**   | Not indicated | Not recommended for patients with a recent TIA or stroke¹⁰; combination is no more effective than aspirin or clopidogrel alone for secondary prevention of ischaemic stroke but increases the risk of moderate or life-threatening bleeding.¹⁴ ¹⁶  
Combination is indicated in patients with an acute coronary syndrome or coronary stent.¹² |

* Use the National Vascular Disease Prevention Alliance (NVDPA) paper-based tool or online calculator, or until these are available, the New Zealand Guidelines Group Cardiovascular Risk Calculator (at nps.org.au/cv_risk_calculator).
## Prevention of cardioembolic ischaemic stroke

<table>
<thead>
<tr>
<th>Therapy</th>
<th>Primary prevention</th>
<th>Secondary prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>warfarin</td>
<td>Reduces relative risk of stroke by about 60% to 70% in patients with atrial fibrillation (AF) compared to no treatment. More effective than aspirin in reducing the risk of stroke due to AF but is more likely to cause major bleeding. Use in all patients with valvular AF, unless contraindicated. Consider use in patients with non-valvular AF at moderate to high risk of stroke (CHADS₂ score ≥ 1) unless contraindicated. Use a risk stratification tool e.g. CHADS₂ to determine stroke risk in non-valvular AF (See Guide p.3). Warfarin or aspirin can be used in patients with a CHADS₂ score = 1. Consider use in those with previous myocardial infarction (MI) at increased embolic risk (e.g. left ventricular thrombi detected within 3–6 months of MI). Use in all people with previous cardioembolic ischaemic stroke e.g. due to AF, valvular heart disease or recent MI, unless contraindicated. Use in all patients with previous cardioembolic ischaemic stroke e.g. due to AF, valvular heart disease or recent MI, unless contraindicated. Patients with a previous thromboembolic event are at high risk of stroke. Start anticoagulation after cerebrovascular events only after brain imaging has excluded haemorrhage and not usually until 14 days have passed from the onset of disabling ischaemic stroke.</td>
<td></td>
</tr>
<tr>
<td>aspirin</td>
<td>Less effective than warfarin in patients with AF; reduces the relative risk of stroke by about 20%, but less likely to cause severe haemorrhage. Use in patients with non-valvular AF at low risk of stroke (e.g. CHADS₂ score = 0) or when anticoagulation is contraindicated. An option for patients with CHADS₂ score = 1. Used in patients with AF if anticoagulation is contraindicated.</td>
<td></td>
</tr>
<tr>
<td>clopidogrel</td>
<td>Currently no evidence to support use over aspirin or warfarin in patients with AF. Not recommended in patients with AF; warfarin is safer and more effective.</td>
<td></td>
</tr>
<tr>
<td>phenindione</td>
<td>Indications as for warfarin (see above). Much less widely used than warfarin due to higher incidence of adverse effects especially allergic reactions e.g. liver and kidney damage, rash, myocarditis, blood dyscrasia.</td>
<td></td>
</tr>
<tr>
<td>aspirin plus clopidogrel</td>
<td>Not recommended in patients with AF; warfarin is safer and more effective.</td>
<td></td>
</tr>
</tbody>
</table>

### Indications for other drug therapy combinations

- **aspirin, clopidogrel plus warfarin** May be indicated in patients with an acute coronary syndrome or coronary stent and using warfarin therapy for another indication. Seek specialist advice.
- **aspirin plus warfarin** Aspirin plus low-dose warfarin is not as effective as adjusted-dose warfarin alone for stroke prevention in patients with AF. Adding aspirin to adjusted-dose warfarin does not provide further reductions in stroke risk in patients with AF. Adding aspirin for another indication (e.g. coronary artery disease) may benefit people with AF using warfarin for thromboembolic prophylaxis, but the risk of bleeding increases. Dose of aspirin should probably be 75–100 mg/day. Combination indicated in recurrent thrombosis or mechanical valve prosthesis.
- **dipyridamole plus warfarin** Used for prevention of thromboembolism in patients with prosthetic heart valves.

### References

**Medical history**

1. **Gender:**
   - [ ] male
   - [ ] female

2. **Is the patient of non-English speaking background?**
   - [ ] yes
   - [ ] no
   - [ ] not known

**Diagnosis:**
Mark ALL that apply

- [ ] atrial fibrillation (AF)
- [ ] atrial flutter
- [ ] previous stroke or TIA
- [ ] other reason for stroke prevention (specify) __________

**If you answered atrial fibrillation, what type:**
- [ ] valvular AF
- [ ] non-valvular AF
- [ ] not known (see Guide p.2)

**If you answered previous stroke or TIA:**
- [ ] yes
- [ ] no
- [ ] not known

Type of stroke:
- [ ] cardioembolic (e.g. due to AF; recent MI or valvular heart disease)
- [ ] due to arterial disease
- [ ] not known

**Other relevant coexisting conditions/procedures:**
Mark ALL that apply

- [ ] cardiomyopathy
- [ ] coronary stent (< 1 year ago)
- [ ] mural thrombus
- [ ] recurrent venous thrombosis
- [ ] acute coronary syndrome

**Bleeding risk assessment** – complete for patients considered for or using warfarin

8. **Does the patient have any contraindications to warfarin use?**
   - [ ] no contraindications

**Absolute contraindications**
Mark ALL that apply

- [ ] bacterial endocarditis
- [ ] bleeding disorder
- [ ] frequent falls
- [ ] non-adherence with medication or INR monitoring
- [ ] previous intracranial bleed/aneurysm or retinal haemorrhage
- [ ] recent gastrointestinal/genitourinary bleeding or active ulceration
- [ ] unsupervised dementia
- [ ] untreated or poorly controlled hypertension (consistently > 160/90 mmHg)

**Relative contraindications**
Mark ALL that apply

- [ ] conventional NSAID use without cytoprotection
- [ ] heavy alcohol use or liver disease
- [ ] dementia
- [ ] participation in activities predisposing to trauma
- [ ] unexplained anaemia
- [ ] unexplained recurrent syncope
- [ ] other (specify) ____________

**Current pharmacological management**

**Anticoagulant therapy**

9. **Is an oral anticoagulant (warfarin or phenindione) currently used?**
   - [ ] yes
   - [ ] no
   - [ ] contraindication (see Q8 and Guide p.3)
   - [ ] adverse effect
   - [ ] not indicated
   - [ ] not previously considered
   - [ ] no access to INR monitoring
   - [ ] patient refusal
   - [ ] other (specify) ____________
   - [Go to Q10]

10. **What is the patient’s target INR range?**
    - [ ] < 1.5
    - [ ] 1.5–1.9
    - [ ] 2.0–3.0
    - [ ] 3.1–3.5
    - [ ] > 3.5
    - [ ] other (specify) ____________

   **What was the patient’s last INR result?**
   - [ ] below target range
   - [ ] in target range
   - [ ] above target range
10. (continued)

If the INR is not in target range, is it due to:

- anticoagulant newly started/restarted
- intercurrent illness
- medication change (incl. complementary)
- significant diet change
- dosage change
- poor adherence
- other (specify) ________________________________________

What is the current frequency of INR monitoring?

- daily to < weekly
- weekly to < fortnightly
- fortnightly to ≤ 4 weekly
- 5 to 6 weekly
- > 6 weekly

INR monitoring is undertaken in: Mark ALL that apply

- GP practice
- laboratory
- patient’s home

Does the patient keep a record of INR results and warfarin doses?

- yes
- no
- not known

Have you confirmed patient contact details are up to date for INR follow up?

- yes
- no
- not known

The patient is concurrently using drug(s)/complementary medicine(s) which may: Mark ALL that apply (see Table 6, Guide p.4)

- increase INR
- decrease INR
- increase or decrease INR
- increase the risk of bleeding due to its antiplatelet effect
- not on an interacting drug/complementary medicine

Antiplatelet therapy

11. Is an oral antiplatelet currently used?

- yes ▼

- no ▼

Go to Q12

- contraindication to all antiplatelets
- adverse effect with all antiplatelets
- not indicated
- not previously considered
- using warfarin
- other (specify) ________________________________________

Go to Q13

Patient support and follow up

13. Which of the following have been provided? Mark ALL that apply

- consumer medicine information (CMI)
- written information on ▼
  - anticoagulants
  - antiplatelets
  - stroke
- other (specify) ________________________________________

14. Has the patient had any of the following in the last 12 months? Mark ALL that apply

- home medicines review (HMR)
- team care arrangement
- GP management plan
- none of the above

15. If the patient is using an anticoagulant and has had an HMR, was this undertaken since the anticoagulant was started?

- yes
- no
- not known
- HMR not undertaken
- not using an anticoagulant

12. Current antiplatelet drug(s) used: Mark ALL that apply

- Aspirin (including combination products)
  - yes
  - no ▼

- Dipyridamole (including combination products)
  - yes
  - no ▼

- Clopidogrel
  - yes
  - no

- Ticlopidine
  - yes
  - no

Other
  - yes ▼
  - no ▼

(specific) ________________________________________

Are any of the following co-prescribed?

- proton pump inhibitor
- antacid
- H2 receptor antagonist
- misoprostol

If any are co-prescribed, does the patient have: Mark ALL that apply

- aspirin-induced dyspepsia
- high risk of GI bleeding with antiplatelet
- gastro-oesophageal reflux disease or peptic ulcer disease
- other (specify) ________________________________________

16. Which, if any, of the following actions do you plan to undertake for this patient? Mark ALL that apply

- none (no action planned at this stage)

Assessment and monitoring

- reassess bleeding risk regularly
- monitor INR more frequently

Drug therapy

- initiate anticoagulant therapy
- initiate antiplatelet agent
- cease anticoagulant therapy
- cease antiplatelet agent
- review use of drugs which may affect INR

Follow up

- refer to neurologist/cardiologist
- refer for HMR
- initiate team care arrangement
- initiate GP management plan
- provide CMI
- provide written information on ▼

- anticoagulants
- antiplatelets
- stroke
- other (specify) ________________________________________

Document any planned actions in the ‘Action plan for individual patients’ and/or the patient’s file to assist with implementing changes to practice.
Clinical audit: Antiplatelet and anticoagulant therapy in stroke prevention
Improving clinical practice for better patient health

How are you managing your patients?

This clinical audit will assist you to assess and select appropriate evidence-based drug therapies for stroke prevention and to optimise their use.

Identify 15 patients with:
- paroxysmal, persistent or permanent atrial fibrillation (AF) or atrial flutter and/or
- a previous ischaemic stroke or transient ischaemic attack (TIA) and/or
- oral antiplatelet and/or anticoagulant therapy prescribed for primary or secondary prevention of stroke.

Best practice use of antiplatelets and anticoagulants in stroke prevention

1. Use best practice guidelines

2. Review current practice

3. Implement change

4. Review and reflect

5. Monitor progress

Stratify stroke risk in patients with non-valvular AF

Stroke risk informs the choice between warfarin or aspirin in non-valvular AF.

Assess bleeding risk in patients being considered for anticoagulant therapy

Reassess regularly in patients using anticoagulant therapy.

Select appropriate anticoagulant or antiplatelet therapy based on stroke risk and bleeding risk

Use warfarin or aspirin in patients with AF, depending on risk of stroke and bleeding.

Monitor and follow up INR regularly

Once stabilised, INR should be monitored at least every 4 weeks.

Target INR is 2–3 for all indications (except prosthetic heart valves).

Enhance patient skills in self-management of warfarin and adherence to antithrombotic therapy

Provide patients with medicine instructions; this is associated with a lower rate of warfarin-related hospitalisation for bleeding.

This clinical audit activity has been approved by the RACGP QA&CPD Program, total points: 40 (Category 1) in the 2008–2010 triennium and by the ACRRM PD Program for 30 points (extended skills). Points are awarded only to participants who complete the review phase.

This audit is recognised for the Quality Prescribing Initiative of the Practice Incentives Program (May 2009 to April 2010).
Antiplatelet and anticoagulant therapy in stroke prevention

This is the first NPS paper clinical audit for the May 2009–April 2010 QPI year.

Enrol by Friday 10 April 2009

Fill out the form below then return to NPS.

Fax this form to: 02 9283 2028
OR Telephone: 02 8217 8700
OR Post to: PO Box 1147
Strawberry Hills
NSW 2012

Submit initial data collection by Friday 8 May 2009, for completion of the clinical audit by November 2009.

For more information

To see a sample audit form before enrolling, visit www.nps.org.au/healthpro

Karin Gurman Phone: 02 8217 8700
Chun Fang Yu Email: info@nps.org.au

Participant details

☐ GP ☐ GP registrar ☐ Other medical specialist (please mark relevant box)

Please use BLOCK LETTERS

Title ☐ Dr ☐ Mr ☐ Mrs ☐ Miss ☐ Ms

Family name

Given name

Postal address

Town or Suburb

State or Territory □ □ Postcode □ □

Phone no. □ □ □ □ □ □ Prescriber no. □ □ □ □ □ □

Fax no. □ □ □ □ □ □ Provider no. □ □ □ □ □ □

NPS consults widely with general practitioners in the development of quality assurance activities.

☐ Yes, I am interested in participating in the development of NPS quality assurance activities.

NPS adheres to the National Privacy Principles contained in the Privacy Act 1988 (Cwlth). All personal information collected by NPS will be used only for mailing of NPS materials relating to this audit and/or evaluation purposes.

See over for more details

NPS is an independent, non-profit organisation for Quality Use of Medicines, funded by the Australian Government Department of Health and Ageing.