Welcome to the Guidance on Risk Assessment and Stroke Prevention in Atrial Fibrillation (GRASP - AF) Project

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- **Background** **Return to Top**

  Atrial Fibrillation (AF) in the UK represents an epidemic of a disease which causes strokes, with a current prevalence of 1.2% of the total population[1]. Epidemiological studies consistently point to AF being the cause of between 15% and 20% of all thrombo-embolic strokes[2]. There is also strong evidence suggesting that AF is associated with the worst strokes in terms of subsequent morbidity and mortality[3].

  NICE estimate that approximately 40% of patients in whom warfarin is indicated are not receiving it, amounting to some 166,000 patients nationally. Identifying and treating these patients appropriately would prevent of the order of 6,000 strokes each year and save 4,000 lives. In many cases the patients are easily identifiable as they are already known to have AF with known risk factors for stroke[4].

  This project has been developed collaboratively by PRIMIS+, the West Yorkshire Cardiovascular Network and the Leeds Arrhythmia team. The pilot of the prototype confirmed the above estimation by NICE and found that of the AF patients at high risk of stroke and not on warfarin, only a minority had contraindications to warfarin.

- **Efficacy of Warfarin** **Return to Top**

The safety and efficacy of warfarin in stroke prevention in AF are very well established. A recent meta-analysis of over 28 randomised controlled trials showed that warfarin resulted in a 60-70% relative risk reduction for stroke[5].

- **Purpose of the Project**

  The set of MIQUEST queries in this tool will identify, for your practice, any patients with a diagnosis of AF who are not on warfarin and the GRASP - AF tool will calculate their stroke risk using the validated $CHADS_2$ scoring system. The tool will highlight patients with a $CHADS_2$ score of 2 or more who are not receiving warfarin who would benefit from review to assess the issue of anti-coagulation. The tool does not assess contraindications to warfarin, so the decision whether or not to start warfarin remains a clinical one.

- **Risk Stratification in Atrial Fibrillation**

  The stroke risk associated with AF depends largely on co-morbid factors such as a history of hypertension or prior TIA. There are a number of systems for evaluating risk of stroke amongst patients with AF. One of the simplest, which lends itself particularly to use in primary care, is called the $CHADS_2$ system. This refers to a simple risk evaluation.

$CHADS_2$ Scoring System

$CHADS_2$ Item	Points
Chronic Heart Failure	1
History of Hypertension	1
Age > 75	1
Diabetes	1
Previous stroke or transient ischaemic attack	2

A history of chronic heart failure, hypertension, age >75 and diabetes are each scored 1. A history of stroke or TIA is scored 2. The patient's score is then totalled.

- A score of 2 or more indicates that the patient is at high risk of stroke.
- A score of 0 indicates that the patient is at low risk and warfarin is not required - in many

cases   aspirin   may   be   considered   as   an   alternative.
• A score of 1 indicates an intermediate degree of risk. The benefits of warfarin are less
clear and the decision between aspirin and warfarin needs to be individualised.

- **Evidence Base for the CHADS2 Stroke Risk Scoring System** <u>Return to Top</u>
  The CHADS$_2$ score was first published in JAMA in 2001. Its predictive value was
  established and validated by a cohort study using 1,733 patients with AF forming a
  national registry of patients with AF in the US.

  From the analysis of the stroke rate amongst patients in their National Registry of AF, the
  authors of the CHADS$_2$ system produced an estimation of the annual risk of stroke
  associated with each score as displayed in the following chart. The associated risk rises
  from a 1.9% per year risk of stroke with a score of zero to over 18% per year risk of stroke
  with a score of 6 [6].
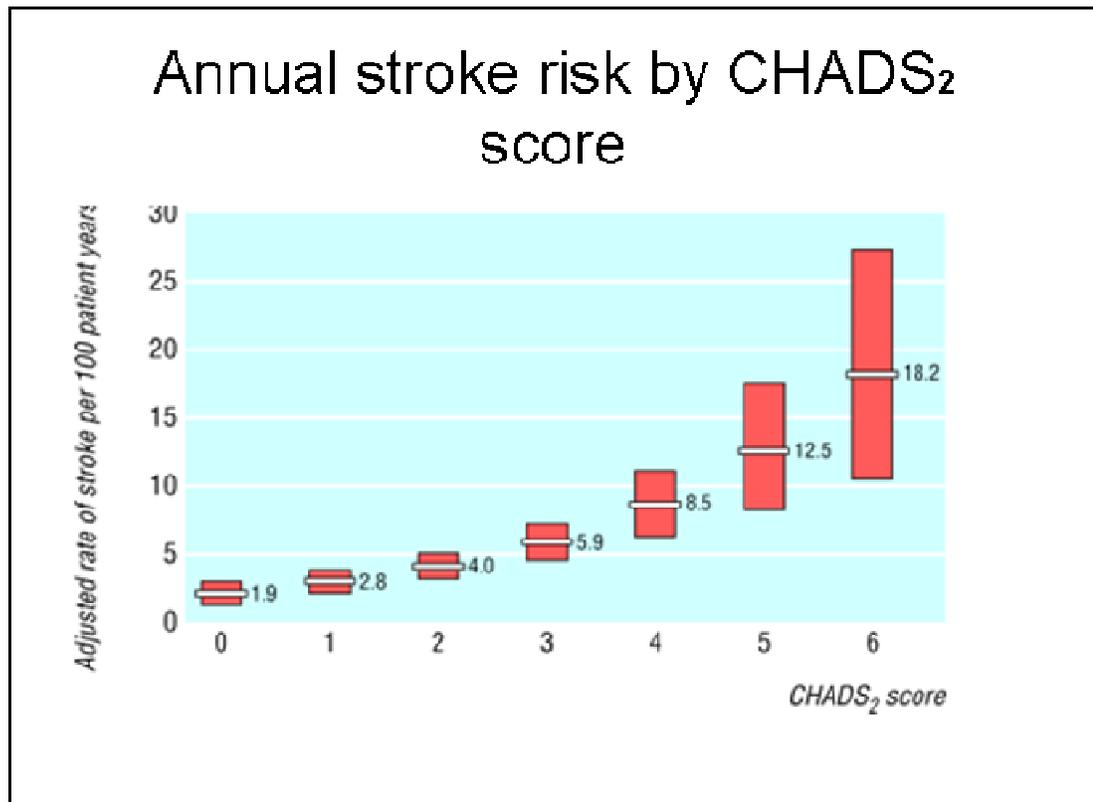
  The data search provided in this project will calculate the CHADS$_2$ score and estimated
  annual risk of stroke automatically for you and display the result by each patient's name.

- **What Does the GRASP - AF Tool Do?** <u>Return to Top</u>
  AF itself and its stroke risk factors (chronic heart failure, hypertension, age over 75,
  diabetes and prior stroke / TIA) are all comprehensively Read coded on General Practice
  Data systems. The tool thus applies a set of data queries to identify patients with AF who

are not on warfarin to calculate each patient's CHADS$_2$ score. It produces a list of patients with AF who are non-anticoagulated who may benefit from being reviewed with a view to commencing warfarin.

The tool has been piloted in Leeds since January 2008. The set of queries takes only a few minutes to run. In a typical practice of 10,000 patients, it produces a list of about 25 patients for case record review.

For advice on running the tool please refer to the instructions for running the queries on your practice system.

- **Your Results**
The display has four parts that you can access via the toolbar icons at the top of the screen.

1) Most importantly all your practice's patients with a recorded diagnosis of AF are listed line by line on a data sheet. Those at high risk of stroke (CHADS$_2$ > 1) and not on warfarin are highlighted in red. Using the Load Filter function can display a printable list of just these patients for review.

Many patients at a medium risk of stroke or a CHADS$_2$ score of 1 may benefit from and prefer to be on warfarin. Where these patients are not currently on warfarin they are highlighted in amber. A list of these patients can also be created using the filter function on the PRIMIS CHART menu.

2) The **dashboard view.** This gives you an analysis on the use of warfarin in AF in your practice and of the number of strokes you may be able to prevent amongst your population in the next year through reviewing anti-coagulant use amongst your AF patients.

3) A **summary spreadsheet** of how many patients in your practice have AF, how many of those have a high risk score for stroke and how many of these are on warfarin. We ask you to share this data with your PCT and NHS Quality Improvement–Heart via the export facility on the toolbar.

4) **Epidemiological data** regarding AF and its associated stroke risk within your practice population and the use of warfarin in that population is displayed visually in chart form with links back to the patient data.

- **Reviewing Your Patients**
The tool does not differentiate between patients who are suitable for warfarin therapy and those patients who have contraindications. This remains a clinical decision based on case record review and, where appropriate, discussion with the patient. In the Leeds pilot, most

of these patients were suitable candidates for warfarin. The number of patients with absolute contraindications to warfarin was relatively small.

There is a larger group with relative contraindications in whom the potential disadvantages of warfarin need to be weighed against the proven benefits. In some cases co-morbidities such as hypertension can be treated prior to commencing warfarin. The tool will give you an estimate based on $CHADS_2$ score of that patient's stroke risk in the next year if left untreated to consider against any relative contra-indication.

- **Exporting Data and Repeat Evaluation**

  The tool will also analyse the rate of warfarin use in these patients in your practice and give you a summary chart. We would encourage you to share this anonymised data via the export facility with your PCT and with NHS Quality Improvement–Heart for regional and national analysis of the potential value of the tool. Patient identifiable data will not leave the practice.

  We encourage you to re-run the queries at 6 monthly intervals and use the archiving and data export facilities available on the tool bar so that improvements in the provision of stroke prophylaxis in AF can be monitored.

  For further information or advice please contact your PCT, Cardiac Network or local PRIMIS+ Facilitator.

- **Bleeding Risk with Warfarin (Further Information)**

  In a meta analysis of all randomised controlled trials looking at these therapies up to 2006 Hart et al (2007)[5] reported an increased rate of 0.3% for extra-cranial bleeds. It is understandable to be concerned that bleeding rates with the warfarin might be high amongst elderly patients. However, the recent Birmingham Atrial Fibrillation Treatment of the Aged (BAFTA) study provided great presence in this respect. This trial randomised elderly patients with AF (mean age 82) to aspirin or warfarin. The incidence of extra-cranial haemorrhage was similar in both groups[7].

  Bleed risk, data from BAFTA study (Mean AGE 82)

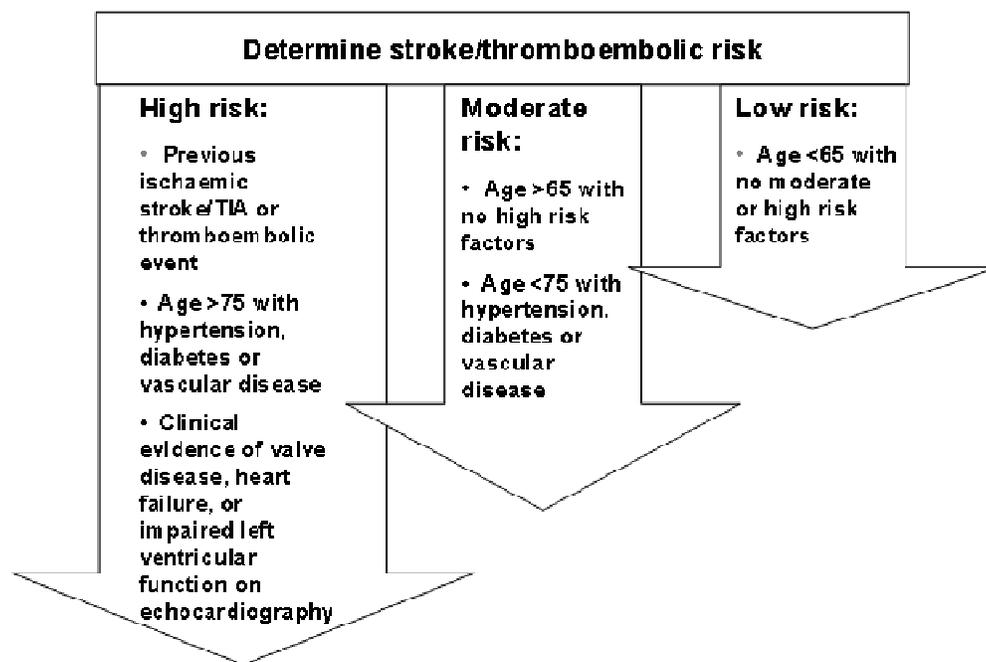 | on Warfarin | on Aspirin |
  | --- | --- |
  | 1.4% pa | 1.6%pa |

- **Comparison with the NICE Guideline**

A similar set of risk factors was used to construct the NICE guideline algorithm for stroke risk stratification. However the NICE guideline makes use of additional criteria (such as echo findings) which may be less readily available in a general practice population.
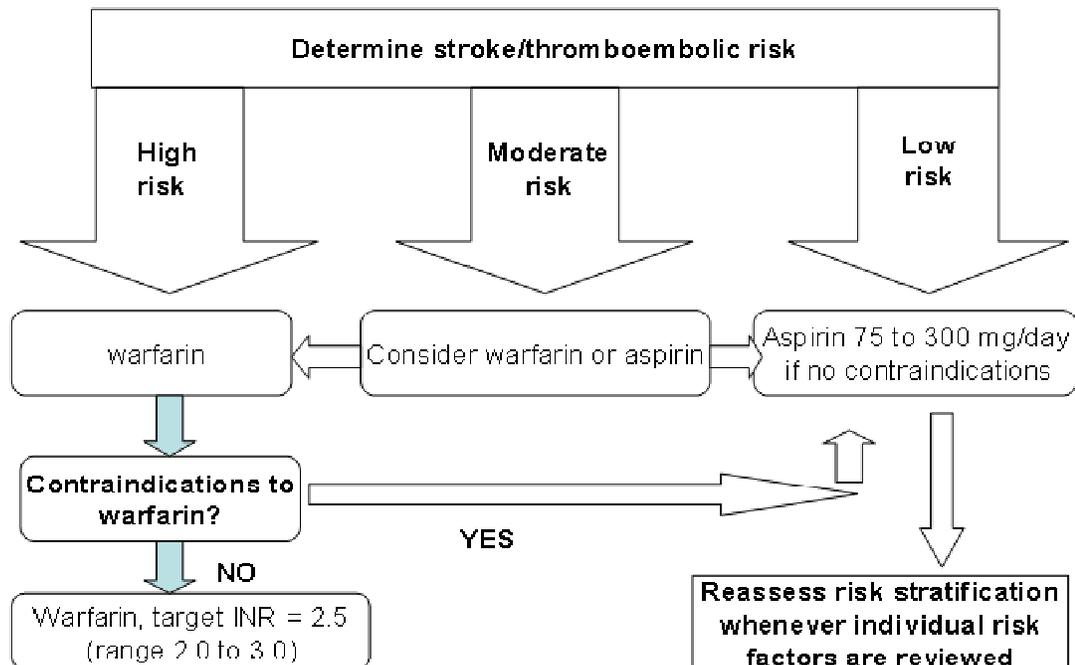
NICE stratifies patients into low, medium and high thrombo-embolic risk. There is a close correspondence between the NICE and CHADS$_2$ risk evaluation. When a score of 2 or more is calculated by the CHADS$_2$ system this closely parallels the high risk group in the NICE guideline in whom warfarin is recommended.

When a score of 1 is calculated by the CHADS$_2$ system you should find that this concords with a moderate risk of stroke with the NICE guideline and also a group among whom many patients would benefit from, and prefer to be on warfarin[8].

NICE Stroke risk stratification algorhythm

Determine stroke/thromboembolic risk

High risk:

- Previous ischaemic stroke/TIA or thromboembolic event

- Age >75 with hypertension, diabetes or vascular disease

- Clinical evidence of valve disease, heart failure, or impaired left ventricular function on echocardiography

Moderate risk:

- Age >65 with no high risk factors

- Age <75 with hypertension, diabetes or vascular disease

Low risk:

- Age <65 with no moderate or high risk factors

Who Should be on Warfarin according to NICE

- **Information Materials**

  Please find below links to the documents forming the evidence base for the project and to some excellent decision support resources available.

  We hope you find these hyperlinked resources helpful. They include patient information materials and links to key trials and guidance on the use of warfarin to prevent stroke in AF.

  Decision Support Web Sites

  The first links to the National Library for Health's Clinical Knowledge Summary for AF Management whilst the second links to the National Prescribing Centre's "area" dedicated to AF.

  http://cks.library.nhs.uk/atrial_fibrillation

  http://www.npci.org.uk/lift/lift.php

  NICE Guideline for the Management of AF

  http://www.nice.org.uk/nicemedia/pdf/cg036fullguideline.pdf

CHADS$_2$ Score

Links to the original paper reporting the development of the CHADS$_2$ score.

http://jama.ama-assn.org/cgi/reprint/285/22/2864

Warfarin

Links to the meta-analysis published by Hart et al in 2007 on the efficacy of warfarin v aspirin and the publication of the BAFTA study on the safety and efficacy of warfarin in elderly people in primary care.

http://www.annals.org/cgi/content/abstract/146/12/857

BAFTA study.pdf

Patient Information Leaflet

Link to a patient information leaflet on AF and Warfarin. It is reviewed every 18 months by a UK medical panel and a patient group for EMIS Patient Information Leaflets Quality Control.

http://www.patient.co.uk/showdoc/23068883/

Charitable Organisations

Links to two charities who provide information and support to patients living with AF. The first links to resources provided by the Atrial Fibrillation Association. The second to the British Heart Foundation web site.

http://www.atrialfibrillation.org.uk/

http://www.bhf.org.uk/publications/publications_search_results.aspx?m=simple&q=atrial+fibrillation

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2) Graeme J. Hankey, John W. Eikelboom, "Ximelagatran or Warfarin for Stroke Prevention in Patients with Atrial Fibrillation?" Stroke.
2004; 35:389-391

3) Paul S.J. Miller, MSc; Fredrik L. Andersson, PhD Lalit Kalra, PhD "Are Cost Benefits of Anticoagulation for Stroke Prevention in
   Atrial Fibrillation Underestimated?" Stroke. 2005; 36:360-366

4) NICE CG036 "Atrial fibrillation: the management of atrial fibrillation Costing report : Implementing NICE guidance in England ". 2006,
   http://www.nice.org.uk/Guidance/CG36/CostReport/pdf/English

5) Robert G. Hart, MD; Lesly A. Pearce, MS; and Maria I. Aguilar, MD "Meta-analysis: Antithrombotic Therapy to Prevent Stroke in
   Patients Who Have Nonvalvular Atrial Fibrillation". Ann Intern Med. 2007; 146:857-867

6) Gage BF, Waterman AD, Shannon W, et al. "Validation of clinical classification schemes for predicting stroke: results from the
   National Registry of Atrial Fibrillation". JAMA. 2001; 285:2864-2870

7) Jonathan Mant, FD Richard Hobbs, Kate Fletcher, Andrea Roalfe, David Fitzmaurice, Gregory YH Lip, Ellen Murray ," Warfarin
   versus aspirin for stroke prevention in an elderly community population with atrial fibrillation (the Birmingham Atrial Fibrillation
   Treatment of the Aged Study, BAFTA): a randomised controlled trial" Lancet 2007; 370: 493-503

8) The National Collaborating Centre for Chronic Conditions, "ATRIAL FIBRILLATION : National clinical guideline for management in
   primary and secondary care"
   http://www.nice.org.uk/nicemedia/pdf/cg036fullguideline.pdf