One of the most common sustained arrhythmias encountered in clinical practice is atrial fibrillation (AF), which affects about 1% to 2% of the general population. The estimated prevalence of AF in Europe is 4.5 million and in America is 5.1 million. 1,2 Most of the epidemiological data on AF are based on studies conducted in the Caucasian and African-American ethnic groups. There is paucity of data about AF in Asian population. A small study conducted in a Himalayan village demonstrated a prevalence of AF of 0.1%. Another study conducted among Indo-Asian patients aged > 50 years in West Birmingham, UK demonstrated a prevalence of AF of 0.6%. 5

The prevalence of AF rises markedly with age, affecting about 10% of the population aged > 80 years. The most common contributors for AF include hypertension, valvular heart disease (VHD) and heart failure. 1 The global AF registry results indicate that hypertension, followed by heart failure were the leading predisposing factors of AF in Eastern Europe, South and North America when compared with the developing countries. Rheumatic heart disease (RHD) was a dominant aetiological factor in India, accounting for approximately 31% of cases. Hypertension and ischaemic heart disease (IHD) are emerging as important factors because of the rise in life expectancy of the population. Additionally, the proportions of patients with heart failure with valvular disease were the highest in India (50.3%) and Africa. Table 1 highlights the key observations in this study. 6

Other predisposing factors for AF include autonomic, inflammatory, infective, and toxic causes. Idiopathic AF accounts for 10% of the AF population. AF has serious implications even when asymptomatic. Some of the life-threatening complications of AF include arterial thromboembolism, stroke, and heart failure. It leads to significant morbidity because of the aforementioned disorders, and at times, it leads to cognitive dysfunction. 8,9

Abstract
The estimated prevalence of atrial fibrillation (AF) in Europe is 4.5 million and in America is 5.1 million. Arterial thromboembolism, stroke, and heart failure are some of the most serious complications of AF. There is a fivefold increase in the risk of stroke and the risk of death doubles among patients with AF when compared with the control population. AF-related strokes are more disabling and fatal. The ESC 2010 guidelines and the 2011 ACCF/AHA/HRS update on the management of patients with AF recommend use of adjusted dose warfarin for all patients with a CHA2DS2-VASc score ≥1. Though an effective drug, warfarin remains underused due to the several limitations associated with its use. It is limited by a slow onset and offset of action, unpredictable pharmacokinetics, several drug-drug and drug-food interactions and need for regular INR monitoring and dosage adjustments. Newer anticoagulants developed as an alternative to warfarin have better pharmacological and safety profiles and promises effective stroke prevention in AF.
Cardiogenic embolism because of AF has been responsible for about 20% of all ischaemic strokes.\textsuperscript{10} There is a fivefold increase in the risk of stroke and the risk of death doubles among patients with AF when compared with the control population.\textsuperscript{1} Strokes secondary to AF are generally more disabling and fatal with a 1-year mortality of almost 50%. About 1.7 million new strokes occur every year, of which AF accounts for almost 7%. Studies have estimated that there is a threefold increase in mortality due to stroke compared with IHD among Asians.\textsuperscript{12}

**Current Standard of Care**

Symptoms because of AF are relatively nonspecific and not disabling at initial presentation. This leads to delayed recognition and a more complacent attitude towards this condition. The lack of adequate anticoagulation leads to cardioembolic stroke, often crippling and at times fatal.

One of the most important steps in the stroke prevention in AF (SPAF) is individualised risk stratification of the patients, for which several clinically validated tools are available. The most commonly used tools include the CHADS\textsubscript{2} and the recent CHA\textsubscript{2}DS\textsubscript{2}-VASc scores. The European Society of Cardiology (ESC) 2010 guidelines for the management of AF recommend the use of CHADS\textsubscript{2} when the patient presents for the first time with AF. A CHADS\textsubscript{2} score of 2 or more carries > 4.8% annual stroke risk, and therefore oral anticoagulation (OAC) is strongly advised. The only drawback of this tool is that it is not an accurate risk predictor in the low-risk patient population. It has been observed that a score of 0 is still associated with a 1.9 %/year rate of stroke. To improve the risk stratification in the low-risk group, CHA\textsubscript{2}DS\textsubscript{2}-VASc score has been recommended. The inclusion of a greater number of risk factors enables CHA\textsubscript{2}DS\textsubscript{2}-VASc risk stratification tool to better identify this low-risk category. The HAS-BLED tool is a user-friendly counterpart to the CHADS\textsubscript{2} and CHA\textsubscript{2}DS\textsubscript{2}-VASc that enables the clinician to balance the risk of stroke vs bleeding in a patient on oral anticoagulants.\textsuperscript{13}

OAC's in general and more specifically warfarin have long been the gold standard in stroke prevention following AF. The ESC 2010 guidelines and more recently the 2011 ACCF/AHA/HRS update on the management of patients with AF recommend use of adjusted dose warfarin for all patients with a CHA\textsubscript{2}DS\textsubscript{2}-VASc score of ≥ 1. Multiple historical trials have repeatedly proven the efficacy of adjusted-dose warfarin over not only placebo but also low-fixed-dose warfarin, aspirin and combination therapy with different agents.\textsuperscript{13}

Antiplatelet agents such as aspirin are another group of drugs used for SPAF. However, they do not confer adequate protection against stroke, and hence they are only recommended in patients with a low-to-moderate risk of stroke. Evidence suggests that when appropriately treated and regularly monitored with vitamin K antagonists (VKAs), the risk of stroke is lowered by about 60% following AF.\textsuperscript{13}

**Limitations of Current Standard of Care in SPAF**

Despite current guidelines and relatively high eligibility of AF patients for SPAF, it has been reported by the Asian Pacific Congress of Cardiology (APCC) that up to 36% of at-risk patients do not receive guideline-adherent therapy for clot prevention in the Asia-Pacific region.\textsuperscript{15}

VKAs such as warfarin act by decreasing the levels of vitamin-K-dependent clotting factors. However, their variable and unpredictable pharmacokinetics compounded by the slow onset and offset of action leads to challenges in optimal dosing. The effectiveness and safety of warfarin is intricately linked to the international normalised ratio (INR) values. For warfarin to be used with maximal stroke preventive action and minimal risk of bleeding, the INR needs to be maintained very rigidly between the therapeutic ranges of 2 and 3. The INR is also strongly influenced by the concomitant administration of certain drugs, foods, alcohol consumption, acute illness, liver disease and other factors. This actually
contributes in a major way to the well-founded risk of bleeding associated with warfarin. Thus, the use of VKAs mandates constant monitoring and dose adjustment, most often leading to noncompliance and under-coagulation. These practical difficulties and a high prevalence of contraindications to VKA use only emphasise the need for improved and more effective strategies to manage AF and its complications.\textsuperscript{16,17}

**Conclusion**

A recent study by a World Bank project on primary health services in New Delhi highlighted multiple shortcomings in the Indian health sector. This project found a combination of poor medical care, low awareness and a lack of clinical competency of medical personnel. In addition, the lack of a standardised, national protocol for management compounds the scenario.\textsuperscript{11}

The APCC report has recommended urgent measures to tackle the growing epidemic of stroke following AF. The most important of which is to increase awareness among patients on the crippling impact it could have on the family as a whole. This is only possible by extensive patient education. Considering the varied presentation of AF, it is essential to develop diagnostic modalities that would ensure early diagnosis and prompt treatment. Incorporation of newer anticoagulants that have a better pharmacological and safety profile is one of the important steps to ensure effective prevention of stroke following AF. It is also necessary to initiate research on AF to address the huge paucity of data in this field in not just India but also in the entire Asia-Pacific region.\textsuperscript{15}

**References**