

(uncorrected eGFR) or calculated (creatinine clearance [eCrCl] using Cockcroft-Gault for actual and ideal body weights [ABW, IBW]) in both studies.

**Results:** Study 1: before the pharmacist input, eCrCl was not used to guide drug-dosing of NOACS. Appropriate monitoring and adjustment was seen in only 50% usage compared to 100% at the study close ( $p = 0.0245$ ). Study 2: the appropriateness of management of the target medicines (pregabalin, NOACS, antidiabetic agents, statins, and digoxin) improved from 43% to 92% ( $p < 0.0001$ ) despite similarities in all measures of kidney function between both stages ( $P = 0.4872$ ). The metrics used to assess kidney function (eGFR vs eCrCl IBW) however, differed significantly from each other in both stages; means of stage 1 were 63mL/min/1.73m<sup>2</sup> vs 47mL/min; ( $P < 0.001$ .)

**Discussion:** There were significant differences in the estimates of kidney function which led to discrepancies in drug dosing in both studies, particularly for the NOACs. GPs have an ever-increasing range of medicines to manage with competing sources of information for guidance. The input of a clinical pharmacist improved the management of medicines in these general practices.

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#### Clinicians' attitudes and perceptions regarding stroke prevention in atrial fibrillation

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**Introduction:** While appropriate oral anticoagulation in atrial fibrillation (AF) can significantly reduce the risk of stroke and is supported by evidenced-based guidelines, evidence suggests that it remains underused, or is used inappropriately. There is currently little data regarding clinicians' perspectives on stroke prophylaxis in AF since the introduction of the non-vitamin K antagonist oral anticoagulants (NOACs).

**Aims:** To evaluate Australian clinicians' attitudes in their prescribing of anticoagulants for stroke prevention in AF, including their perceptions of the safety and effectiveness of the NOACs and preferred agents.

**Methods:** A vignette-based survey was distributed to a random sample of Australian cardiologists and general practitioners (GPs) ( $n = 500$  each), and an online version of the survey was distributed via email to all clinicians affiliated with the three major Tasmanian public hospitals. Clinicians were asked to indicate their preferred anticoagulant treatment for seven fictional patients with AF. Prescribing choices were compared against expert consensus. Additional multiple-choice and Likert-item questions addressed their use of guidelines and risk stratification tools, attitudes and perceptions.

**Results:** Of 174 respondents (39 GPs, 40 cardiologists and 95 other hospital-based clinicians), 88% reported routinely using an AF stroke risk stratification tool but only 44.5% routinely used a bleeding risk score. Fifty-three per cent of cardiologists, 49% of GPs and 32% of

other hospital-based clinicians agreed with the expert panel's prescribing choices for four or more vignettes; this was unrelated to use of scoring tools and guidelines ( $p > 0.05$ ). Cardiologists were significantly ( $p = 0.005$ ) more likely to favour a NOAC, with apixaban being the preferred agent. Choice of anticoagulant was also influenced by clinicians' knowledge and confidence.

**Discussion:** This study demonstrated that prescribing patterns varied between cardiologists, GPs and other hospital-based clinicians. Concerns over the safety of NOACs were identified as potential barriers to their utilisation by GPs and other hospital-based prescribers. Results from the vignettes demonstrated sub-optimal prescribing choices amongst all clinicians. Further education is required to ensure all clinicians are educated and confident prescribing stroke prophylaxis in AF.

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#### SMART-AF: Development of a decision support smartphone app to improve antithrombotic prescribing in atrial fibrillation

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**Introduction:** Appropriate thromboprophylaxis in patients with atrial fibrillation (AF) is highly effective in reducing the risk of stroke. Previous studies have demonstrated underuse of anticoagulants in high-risk patients, and while the introduction of non-vitamin K antagonist oral anticoagulants (NOACs) may increase access to anticoagulation, these agents are associated with a new range of clinical problems necessitating improved prescriber support.

**Aims:** To develop and validate a decision support smartphone application ('app') to support prescribers in the choice of thromboprophylaxis in patients with AF.

**Methods:** The app was developed via collaboration between a haematologist, stroke physician, cardiologist, specialist clinical pharmacists, pharmacy academics and information technology experts to increase use of contemporary evidence-based guidelines and stroke and bleeding risk stratification tools, and address poor understanding of the clinical use of NOACs. The app provides assessment of patients' stroke and bleeding risk using entered patient data, a recommendation for the need for anticoagulation, and suggestions and practice points regarding the most suitable antithrombotic agent(s). Validation was undertaken by comparing the app's prescribing recommendations with the consensus opinion of an expert panel of clinicians for seven hypothetical case studies.

**Results:** Initial testing identified the need to make minor amendments to the app logic and interface to ensure

consistency with the experts' recommendations. These were addressed in the final build, and the app is due for launch in late September 2015.

**Discussion:** Multidisciplinary collaboration has resulted in the development of a validated, readily accessible decision support tool for prescribers initiating thromboprophylaxis in patients with AF. Initial prescriber feedback has been positive. Future research will investigate the usability of the app, and its effect on prescriber confidence and prescribing choices, with the aim of optimising the clinical outcomes for patients with AF.

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#### Association of antihypertensive medication class and falls in the elderly: systematic review and meta-analysis

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**Introduction:** An association between antihypertensive medication use and falls in older persons has been reported in the literature. However, the differing effects of antihypertensive drug class on falls are less well characterised.

**Aims:** Our objective was to review the literature systematically to evaluate the effect of chronic antihypertensive medication use and antihypertensive drug class on the risk of falls in older persons.

**Methods:** Studies measuring the association between falls and antihypertensive medication use in older persons were identified through a systematic search of English language articles published from 2007 to 2014 in CINAHL, Cochrane, EBM, EMBASE and MEDLINE databases. Studies were included if they provided original data measuring the association between antihypertensive medication use (ATC Codes C to C09) and falls in people older than 65 years old. Of the 6208 retrieved articles, 15 studies met our inclusion criteria for meta-analysis. There was no statistically significant heterogeneity in the included studies. Pooled HR (hazard ratio) and OR (odds ratio) and 95% CI (confidence interval) were calculated to estimate the effects of antihypertensive medication use and antihypertensive drug class on risk of falls.

**Results:** The following pooled estimates were obtained: OR 0.96 (95% CI 0.89–1.02) for any kind of antihypertensive drug use (ATC code C); OR 1.16 (95% CI 0.82–1.49) for cardiac therapy drug use (ATC code:C01); OR 1.29 (95% CI 1.09–1.48) for diuretic use (ATC code:C03); OR 1.02 (95% CI 0.82–1.22) for  $\beta$ -blocker use (ATC code:C07); OR 1.12 (95% CI 0.90–1.34) for calcium channel blocker (CCB) use (ATC code:C08); OR 1.16 (95% CI 1.00–1.32) for angiotensin converting enzyme inhibitor/angiotensin II receptor blocker (ACEi/ARB)(ATC code :C09) use.

**Discussion:** The chronic use of diuretics was significantly associated with increased risk of falls in older persons.

ACEi/ARB use approached significance. Neither  $\beta$ -blocker nor CCB use was significantly associated with falls. Clinicians and patients should be aware of the increased risk of falls associated with chronic diuretic or ACEi/ARB use.

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#### Understanding healthcare professionals' perspectives on Nepalese patients' diabetes management

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**Introduction:** Patients with type 2 diabetes (T2D) visit a multitude of healthcare professionals, ranging from general physicians to specialists to allied healthcare professionals such as dietitians. Exploring healthcare professionals' perspectives is essential to understanding and addressing gaps in diabetes care.

**Aims:** To understand Nepalese healthcare providers' perspectives on diabetes management in patients with T2D; and to explore strategies to improve diabetes care in Nepal.

**Methods:** Semi-structured in-depth face-to-face interviews are being conducted with healthcare professionals involved in diabetes care in Kathmandu Valley, using an interview protocol addressing the study aims.

**Results:** Eleven healthcare professionals have been interviewed to date. The participants reported an overall rise in patients' awareness and understanding of their own health and personal wellbeing, and an improvement in how they managed their diabetes. This was observed mostly in city-based patients, particularly in Kathmandu. Nonetheless, this observation was perceived to be highly variable between patients. While some patients were considered to be more aware and to effectively engage in their diabetes management, others were reported as "careless" and/or lacking in understanding about their disease and its management. Most participants felt that this limited understanding was the major barrier to effective diabetes management. Awareness and information dissemination was, therefore, reported as the most important strategy to address diabetes management in Nepal. The services provided to patients with T2D varied between healthcare institutions, with the patient care model regarded by majority as not ideal. Services were mostly limited to providing patient-consultations; only a few health institutions provided additional diabetes education classes and dietitian services. Effective multidisciplinary inter-professional collaboration was considered lacking.

**Discussion:** Although there has been an observed improvement in patients' understanding about diabetes and health over time, participants felt that patients' knowledge and understanding of their condition and management was still inadequate. Educating patients and the general public in Nepal, implementing a multidisciplinary collaborative model of care, and providing a consistent service to patients with T2D