

# Cardiovascular disease risk management

When designing services to manage cardiovascular disease, consider the following interventions as ways to achieve specific productivity improvements whilst maintaining the quality and safety of clinical care. This approach is being trialled as a beta product alongside the Map of Medicine Cardiovascular disease risk management, Dyslipidaemia and Hypertension pathways, which cover all areas of a patient's care.

## Statin therapy

### Statins in primary prevention of cardiovascular disease

Initiate lipid management therapy in primary prevention with the lowest cost statin (usually simvastatin).<sup>1</sup>

A 28-day course of a branded statin is on average about 6 times more costly than an appropriate generic statin, despite having similar clinical efficacy.<sup>2</sup> The number of prescriptions for statin therapy continues to increase by around 20% per year.<sup>2</sup> Current expenditure on statins is around £500 million per year. Initiating patients on simvastatin 40mg (or another low intensity statin of similar efficacy and cost) could result in considerable savings.<sup>2</sup>

### Statins in acute coronary syndrome (ACS)

Initiate therapy with a high intensity statin (eg atorvastatin 20mg) for secondary prevention in patients with ACS.<sup>1</sup>

Health economic modelling by the National Institute for Health and Clinical Excellence (NICE) demonstrated that the use of high intensity statins for secondary prevention in patients with ACS resulted in fewer cardiovascular events and was cost-effective when compared with low intensity statins.<sup>1</sup>

### Titration statin dose

Do not use more than a one-step titration model when attempting to treat cholesterol levels to a target threshold.<sup>1</sup>

Health economic modelling by NICE demonstrated that the use of a fixed dose strategy or a two-step titration model is not cost-effective when compared to a one-step model. Titration from simvastatin 40mg to simvastatin 80mg using a threshold target of 4mmol/L total cholesterol is cost-effective.<sup>1</sup>

### Statins in familial hypercholesterolaemia (FH)

Do not initiate therapy with high intensity statins in patients with FH who were diagnosed after age 60 years.<sup>3</sup>

Health economic modelling by NICE has demonstrated that use of high intensity statins are only cost-effective for treating adults with FH who are below age 60 years.<sup>3</sup>

## Anti-hypertensive therapy

### Calcium channel blockers

Prescribe a calcium channel blocker as first-line therapy for patients older than age 55 years with essential hypertension and a low risk of heart failure.<sup>4</sup>

NICE 2006 guidance on hypertension recommends either a calcium channel blocker or thiazide diuretic as first-line agents for patients older than 55 years of age with essential hypertension.<sup>4</sup> Health economic modelling by NICE demonstrated that calcium channel blockers were the most cost-effective option in patients at low risk of heart failure.<sup>4</sup>

### Diuretics

Prescribe a thiazide diuretic as first-line therapy for patients older than age 55 years with essential hypertension and a high risk of heart failure.<sup>4</sup>

NICE 2006 guidance on hypertension recommends either a calcium channel blocker or thiazide diuretic as first-line agents for patients older than age 55 years with essential hypertension.<sup>4</sup> Health economic modelling by NICE

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demonstrated that thiazide diuretics were the most cost-effective option in patients at high risk of heart failure, provided the patient did not also have a high risk of diabetes.<sup>4</sup>

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## Angiotensin-converting enzyme (ACE) inhibitor therapy

Prescribe an ACE inhibitor as first-line therapy for patients older than age 55 years with essential hypertension and a high risk of heart failure and diabetes.<sup>4</sup>

NICE 2006 guidance on hypertension recommends either a calcium channel blocker or thiazide diuretic as first-line agents for patients older than 55 years of age with essential hypertension.<sup>4</sup> However, in hypertensive patients with a high risk of developing heart failure and diabetes, health economic modelling by NICE has demonstrated that ACE inhibitors are actually the most cost-effective option.<sup>4</sup>

Initiate ACE inhibitor therapy with the lowest-cost generic version.<sup>2</sup>

There are generic versions available for some of the ACE inhibitors that are less costly than branded ACE inhibitors but equally as effective. The volume of prescribing of ACE inhibitors is increasing significantly.<sup>2</sup> Expenditure in primary care in England on medications affecting the renin-angiotensin system currently stands at over £400 million per year.<sup>2</sup> Prescribing generic rather than branded ACE inhibitors can be more cost-effective.<sup>2</sup>

## Antiplatelet therapy

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### Clopidogrel post non-ST segment elevation myocardial infarction (NSTEMI)

Do not prescribe clopidogrel for greater than 12 months following a NSTEMI.<sup>5, 6</sup>

The use of clopidogrel as an adjunct to aspirin was assessed in a National Institute for Health Research (NIHR) Health Technology Assessment (HTA) study, published in 2004.<sup>6</sup> The study showed that treatment with clopidogrel post-NSTEMI was only cost-effective for the first 12 months.<sup>6</sup> The trial data suggested that a substantial part of the benefit derived from clopidogrel is achieved by 3 months, with a further small benefit over the remaining 9 months.<sup>6</sup> The cost per patient for one quality adjusted life year (QALY) was £6078.<sup>5, 6</sup> Documenting a 12 month duration of treatment when initially prescribing clopidogrel is important.

## Prevention

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### Extended course varenicline for smoking cessation

Consider an extended course (12 + 12 weeks) of varenicline as first-line therapy in people looking to quit smoking.<sup>7</sup>

Currently, NICE public health guidance on smoking cessation services, published in 2008, recommends offering nicotine replacement therapy, varenicline, or bupropion as pharmacotherapy to people planning to stop smoking.<sup>8</sup> However, an economic evaluation published in 2010 concluded that extended varenicline therapy was clinically superior to and cheaper than bupropion, nicotine-replacement therapy, and unaided cessation.<sup>7</sup> When compared with a 12 week course, 24 weeks of varenicline had an incremental cost per QALY gained of \$972 (approx. £600 as of January 2010).<sup>7</sup> At a threshold of \$30,000 (approx. £18,600 as of January 2010) per QALY, extended varenicline was the most cost-effective strategy in 73% of cases, while 12 weeks of varenicline was cost-effective in 9%.<sup>7</sup>

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### NHS Health Check

Ensure everyone between the age of 40 and 74 years undergoes vascular checks every 5 years.<sup>9</sup>

The NHS Health Check programme aims to prevent heart disease, stroke, diabetes, and kidney disease.<sup>9</sup> Everyone between the age of 40 and 74 years, who has not already been diagnosed with one of these conditions, should have a check once every 5 years to assess their risk of heart disease, stroke, kidney disease, and diabetes and should be given support and advice to help them reduce or manage that risk.<sup>9</sup> Health economic modelling by the Department of Health (DH) predicted an average annual cost of £332 million to implement the programme, with an average annual benefit of £3678 million.<sup>9</sup> This policy is highly cost effective, with a conservative estimate of its cost per QALY of £3505.<sup>9</sup>

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## Key dates

The Map of Medicine systematically monitors the medical literature for the latest productivity interventions and will update this document as new evidence emerges.

Last update: 09-Mar-2011

Version: 1.1

## Methodology

The productivity considerations presented in this document are relevant to the UK. They were identified by systematically searching for and appraising productivity evidence from multiple sources, including NICE guidance, health economic databases and Zynx Health (a sister company of Map of Medicine).

A productivity message explicitly states interventions that can reduce the cost of care, whilst maintaining or improving patient outcomes. Actions that are believed to lead to improved productivity, but lack unequivocal clinical or economic evidence, are not included.

Some productivity considerations are informed by more recent evidence than that included in relevant national guidelines.

The document has been peer reviewed by an independent group of experts.

## Feedback

This approach to productivity guidance is being trialled as a beta product alongside the Map of Medicine Cardiovascular disease risk management, Dyslipidaemia and Hypertension pathways. We welcome your feedback. If you know of additional resources that describe cost-effective interventions, please forward the reference information to us at [productivity@mapofmedicine.com](mailto:productivity@mapofmedicine.com).

## Other topics of interest

Productivity considerations for service design – [Diabetes](#)

Productivity considerations for service design – [Stable coronary artery disease](#)

Productivity considerations for service design – [Stroke and transient ischaemic attack \(TIA\)](#)

## References

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7. Knight C, Howard P, Baker C et al. [The cost-effectiveness of an extended course \(12 + 12 weeks\) of varenicline compared with other available smoking cessation strategies in the United States: an extension and update to the BENESCO model](#). Value Health 2010; 13: 209-14.
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9. Department of Health (DH). [Putting prevention first. Vascular checks: risk assessment and management – Impact assessment](#). London: DH; 2008.

## Disclaimer

This document is not to be substituted for a healthcare professional's diagnosis or clinical decisions.