

# A NATIONAL CONTRACT ON HEART DISEASE AND STROKE

## HEART DISEASE AND STROKE: Social and economic interventions

<i>POLICY</i>	<i>SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE</i>	<i>REFERENCES</i>
<p><b>Government and National Players can:</b></p> <p><b>H1</b> Continue to make smoking cost more through taxation</p>	<p>Higher cigarette prices reduce cigarette consumption.<sup>a</sup> However, the effect of increasing prices differs across demographic groups; more marked reduction in consumption is shown with increasing price amongst women and young people.<sup>b</sup> In the poorest groups, an increase in price produces significant hardship for those who do not curtail their consumption.<sup>b</sup></p>	<p>a. Chaloupka FJ, Wechsler H. Price, tobacco control policies and smoking among adults. <i>Journal of Health Economics</i> 1997;16:359-73. Choi BCK, Ferrence RG, Pock AWP. Evaluating the effects of price on the demand for tobacco products: review of methodologies and studies. Ontario Tobacco Research Unit, 1997.</p> <p><b>Department of Health. Guidance on commissioning cancer services: improving outcomes in lung cancer. Leeds: Department of Health, 1998.</b></p> <p>b. <b>Department of Health. Guidance on commissioning cancer services: improving outcomes in lung cancer. Leeds: Department of Health, 1998.</b></p>
<p><b>H2</b> Tackle joblessness, social exclusion, low educational standards and other factors which make it harder to live a healthier life</p>	<p>Social instability, unemployment and job insecurity are associated with high blood pressure and raised mortality rates.<sup>a</sup> In particular, depression and lack of social support appear to be independently associated with increased risk of coronary heart disease.<sup>b</sup> The direct effects of income supplementation have been subjected to randomised controlled trials but reliable estimates of health outcomes have not been made.<sup>c</sup> Structural and legislative measures are the most effective interventions in reducing health inequalities.<sup>d</sup></p>	<p>a. Schnall PL, Landsbergis PA. Job strain and cardiovascular disease. <i>Annual Review of Public Health</i> 1994;15:381-411.</p> <p>b. Hemingway H, Marmot M. Evidence based cardiology: psychosocial factors in the aetiology and prognosis of coronary heart disease. <i>Systematic review of prospective cohort studies. BMJ</i> 1999;318:1460-7.</p> <p>c. Connor J, Rodgers A, Priest P. Randomised studies of income supplementation: a lost opportunity to assess health outcomes. <i>Journal of Epidemiology and Community Health</i> 1999;53:725-30.</p> <p>d. Gepkens A, Gunning SL. Interventions to reduce socioeconomic health differences: A review of the international literature. <i>European Journal of Public Health</i> 1996;6:218-26.</p>

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<b>Local Players and Communities can:</b>		
<b>H3</b> Tackle social exclusion in the community which makes it harder to have a healthy lifestyle	No systematic reviews were identified in this area.	
<b>H4</b> Provide incentives to employees to cycle or walk to work, or leave their cars at home	Public health exercise promotion strategies aimed at modifying the environment, to encourage walking and cycling, are likely to reach a greater proportion of the inactive population than efforts that aim to increase the use of exercise facilities. <sup>a</sup>	a. Hillsdon M, Thorogood M. A systematic review of exercise promotion strategies. <i>British Journal of Sports Medicine</i> 1996;30:84-9.
<b>People can:</b>		
<b>H5</b> Cycle or walk to work	No systematic reviews were identified in this area.	
<b>H6</b> Take opportunities to better their lives and their families' lives, through education, training and employment	<p>There is a consistent and continuous gradient between the prevalence of cardiovascular disease and socioeconomic status, such that people from lower socioeconomic status have more disease.<sup>a</sup> The principal measures of socioeconomic status in research have been education, occupation, income or a combination of these.<sup>b</sup></p> <p>No evidence could be found to support the view that individuals taking responsibility to better their lives results in a reduction of disease prevalence.</p> <p>For many individuals, social circumstances may make it impossible for them to better their lives. Structural and legislative measures are the most effective interventions in reducing health inequalities.<sup>c</sup></p>	<p>a. <b>Acheson D. Independent inquiry into inequalities in health report. Department of Health, London, 1998.</b> Kaplan GA, Keil JE. Socioeconomic factors and cardiovascular disease: a review of the literature. <i>Circulation</i> 1993;88:1973-98.</p> <p>b. <b>Acheson D. Independent inquiry into inequalities in health report. Department of Health, London, 1998.</b></p> <p>c. Gepkens A, Gunning SL. Interventions to reduce socioeconomic health differences: A review of the international literature. <i>European Journal of Public Health</i> 1996;6:218-26.</p>

# HEART DISEASE AND STROKE: Environmental interventions

<i>POLICY</i>	<i>SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE</i>	<i>REFERENCES</i>
<b>Government and National Players can:</b>		
<p><b>H7</b> Encourage employers and others to provide a smoke-free environment for non-smokers</p>	<p>Environmental tobacco smoke is associated with an increased incidence of cardiovascular disease.<sup>a</sup></p> <p>Passive smoking at the workplace has similar coronary heart disease risks to exposure at home.<sup>b</sup> Daily consumption of cigarettes at work can be reduced by employers encouraging a smoke free work environment, but smokers may compensate by smoking more during non-working hours.<sup>c</sup> More recent evidence shows that smoke-free workplaces appear to reduce the overall consumption of cigarettes by a substantial amount.<sup>d</sup> A total ban on cigarettes in the workplace coupled with monetary incentives to quit can improve cessation rates substantially.<sup>c</sup></p> <p>Work place tobacco policies can reduce tobacco consumption at work and worksite environmental tobacco smoke exposure.<sup>e</sup></p> <p>A review of interventions for preventing tobacco use in public places is currently being prepared.<sup>f</sup></p>	<p>a. Law MR, Morris JK, Wald NJ. Environmental tobacco smoke exposure and ischaemic heart disease: an evaluation of the evidence. <i>BMJ</i> 1997;3:973-80.</p> <p>b. Wells AJ. Heart disease from passive smoking in the workplace. <i>Journal of the American College of Cardiology</i> 1998;31:1-9.</p> <p>c. Fielding JE. Smoking control in the workplace. <i>Annual Review of Public Health</i> 1991;12:209-34.</p> <p>d. Chapman S, Borland R, Scollo M, Brownson RC, Dominello A, Woodward S. The impact of smoke-free workplaces on declining cigarette consumption in Australia and the United States. <i>American Journal of Public Health</i> 1999;89:1018-23.</p> <p>e. Erikson MP, Gottlieb NH. A review of the health impact of smoking control at the workplace. <i>American Journal of Health Promotion</i> 1998;13:83-104.</p> <p>Fielding JE. Smoking control in the workplace. <i>Annual Review of Public Health</i> 1991;12:209-34.</p> <p>f. <b>Serra C, Cabezas C, Bonfill X, Pladevall-Vila M. Interventions for preventing tobacco use in public places [Protocol for a Cochrane Review] In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</b></p>
<b>Local Players and Communities can:</b>		
<p><b>H8</b> Through local employers and others, provide a smoke-free environment for non-smokers</p>	<p>Passive smoking at the workplace is associated with similar coronary heart disease risks as exposure at home.<sup>a</sup> Daily consumption of cigarettes at work can be reduced by employers encouraging a smoke free work environment, but smokers may compensate by smoking more during non-working hours.<sup>b</sup> More recent evidence shows that smoke-free workplaces appear to reduce the overall consumption of cigarettes by a substantial amount.<sup>c</sup> A total ban on cigarettes in the workplace coupled with monetary incentives to quit can improve cessation rates substantially.<sup>b</sup></p> <p>A review of interventions for preventing tobacco use in public places is currently being prepared.<sup>d</sup></p>	<p>a. Wells AJ. Heart disease from passive smoking in the workplace. <i>Journal of the American College of Cardiology</i> 1998;31:1-9.</p> <p>b. Fielding JE. Smoking control in the workplace. <i>Annual Review of Public Health</i> 1991;12:209-34.</p> <p>c. Chapman S, Borland R, Scollo M, Brownson RC, Dominello A, Woodward S. The impact of smoke-free workplaces on declining cigarette consumption in Australia and the United States. <i>American Journal of Public Health</i> 1999;89:1018-23.</p> <p>d. <b>Serra C, Cabezas C, Bonfill X, Pladevall-Vila M. Interventions for preventing tobacco use in public places [Protocol for a Cochrane Review] In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</b></p>

# HEART DISEASE AND STROKE: Environmental interventions

<i>POLICY</i>	<i>SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE</i>	<i>REFERENCES</i>
<p><b>H9</b> Through employers and staff, work in partnership to reduce stress at work</p>	<p>Job insecurity is associated with high blood pressure and raised mortality rates.<sup>a</sup></p> <p>No systematic reviews of the effects of interventions to reduce stress at work were identified.</p>	<p>a. Schnall PL, Landsbergis PA. Job strain and cardiovascular disease. <i>Annual Review of Public Health</i> 1994;15:381-411.</p>
<p><b>H10</b> Implement the Integrated Transport Policy – <i>A New Deal for Transport: Better for Everyone</i> – including a national cycling strategy and measures to make walking more attractive</p>	<p>Reducing air pollutants due to traffic benefits health. Exposure to air pollutants is associated with earlier deaths and hospital admissions for respiratory and cardiovascular disease. Evidence regarding the effects of particles, ozone and sulphur dioxide is sufficient for the size of the effect to be quantified. For nitrogen dioxide and carbon dioxide there is insufficient evidence to allow quantification but there is evidence to suggest exposure affects health.<sup>a</sup></p>	<p>a. <b>Glaister S, Graham D, Hoskins E. COMPEAD statement on: ‘Transport and Health in London’. Committee on the Medical Effects of Air Pollutants. Department of Health, October, 1999.</b></p>
<p><b>H11</b> Provide safe cycling and walking routes</p>	<p>Public health exercise promotion strategies aimed at modifying the environment, to encourage walking and cycling, are likely to reach a greater proportion of the inactive population than efforts that aim to increase the use of exercise facilities.<sup>a</sup></p>	<p>a. Hillsdon M, Thorogood M. A systematic review of exercise promotion strategies. <i>British Journal of Sports Medicine</i> 1996;30:84-9.</p>
<b>People can:</b>		
<p><b>H12</b> Protect others from second-hand smoke</p>	<p>Residential exposure to passive smoke is associated with increased risk of coronary heart disease, although conclusive evidence of a causal relationship is not presently available.<sup>a</sup></p> <p>A reduction in residential passive smoking is likely to be particularly effective in protecting the health of children.<sup>b</sup></p> <p>A systematic review on family/carer smoking control programmes for reducing children’s exposure to environmental tobacco smoke is in preparation.<sup>c</sup></p> <p>Policy makers should be aware that there are many contradictory reviews in this area – those published studies suggesting that passive smoking is not harmful were 88 times more likely to have an author affiliated with the tobacco industry.<sup>d</sup></p>	<p>a. <b>Department of Health. Guidance on commissioning cancer services: improving outcomes in lung cancer. Leeds: Department of Health, 1998.</b> Law MR, Morris JK, Wald NJ. Environmental tobacco smoke exposure and ischaemic heart disease: an evaluation of the evidence. <i>BMJ</i> 1997;3:973-80. He J, Vupputuri S, Allen K, Prerost M, Hughes J, Whelton P. Passive smoking and the risk of coronary heart disease - a meta-analysis of epidemiologic studies. <i>New England Journal of Medicine</i> 1999;340:920-6.</p> <p>b. Hackshaw AK, Law MR, Wald MJ. The accumulated evidence on lung cancer and environmental tobacco smoke. <i>BMJ</i> 1997;315:980-8.</p> <p>c. <b>Waters E, Campbell R, Webster P, Spencer N. Family and carer smoking control programmes for reducing children’s exposure to environmental tobacco smoke [Protocol for a Cochrane review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</b></p> <p>d. Barnes DE, Bero LA. Why review articles on the health effects of passive smoking reach different conclusions. <i>JAMA</i> 1998;279:1566-70.</p>

# HEART DISEASE AND STROKE: Personal behaviour

<i>POLICY</i>	<i>SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE</i>	<i>REFERENCES</i>
<b>Government and National Players can:</b>		
<p><b>H13</b> Control advertising and promotion of cigarettes</p>	<p>Control of advertising is an effective intervention to reduce smoking.<sup>a</sup></p> <p>Interventions aimed at retailers to enforce the legal age limit on selling cigarettes to young people reduces their access to cigarettes but there is no evidence that this affects smoking behaviour.<sup>b</sup></p> <p>Restricting access to cigarette vending machines limits access, but has not been shown to affect behaviour.<sup>c</sup> Stronger regional, national and international strategies are required if restriction of youth access is to contribute to a reduction in smoking prevalence in this age group.<sup>d</sup></p>	<p>a. <b>Department of Health. Guidance on commissioning cancer services improving outcomes in lung cancer. Leeds: Department of Health, 1998.</b></p> <p><b>Smee C. Effect of tobacco advertising on tobacco consumption: a discussion document reviewing the evidence. London: Department of Health, 1992.</b></p> <p>Sone T. Effects of tobacco advertising regulations in various countries. <i>Nippon Koshu Eisei. Zasshi</i> 1995;42:1017-28.</p> <p>b. <b>Department of Health. Guidance on commissioning cancer services improving outcomes in lung cancer. Leeds: Department of Health, 1998.</b></p> <p>US Department of Health and Human Resources. Preventing tobacco use among young people: a report of the Surgeon General, 1994.</p> <p>c. <b>Anonymous. Smoking kills executive summary. London: Department of Health, 1998.</b></p> <p>US Department of Health and Human Resources. Preventing tobacco use among young people: a report of the Surgeon General, 1994.</p> <p>d. <b>Lancaster T, Stead LF. Interventions for preventing tobacco sales to minors [Cochrane Review]. In: The Cochrane Library, Issue 2, 2000. Oxford: Update Software.</b></p>
<p><b>H14</b> Develop healthy living centres</p>	<p>There is no evidence that community heart health interventions (eg education, use of local media, screening and case-finding, sports clubs and involving local industry) affect smoking prevalence, physical activity level, mean blood pressure, mean cholesterol level or cardiovascular disease mortality. Community level analysis may mask an effect on high-risk groups.<sup>a</sup></p> <p>Once the intervention is stopped even the most significant treatment effects are not maintained.<sup>b</sup></p>	<p>a. Dobbins M, Beyers J. The effectiveness of community-based heart health projects: A systematic overview update. Ontario Public Health Research, Education &amp; Development Program 1999.</p> <p><b>Ebrahim S, Davey-Smith G. Health promotion in older people for cardiovascular disease prevention - a systematic review and meta-analysis. London: Health Education Authority, 1996.</b></p> <p>b. Dobbins M, Beyers J. The effectiveness of community-based heart health projects: A systematic overview update. Ontario Public Health Research, Education &amp; Development Program, 1999.</p>

# HEART DISEASE AND STROKE: Personal behaviour

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## *POLICY*

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**H15** Ensure access to and availability of, a wide range of foods for a healthy diet (*cont*)

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## *SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE*

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### **Fresh fruit and vegetables**

Eating more fresh fruit and vegetables is associated with a lower risk of coronary heart disease and stroke.<sup>a</sup>

There are no controlled intervention studies of the effects of eating more fruit and vegetables, so the size and nature of any real effect remains uncertain.<sup>b</sup> The associations reported could be due to the fact that socioeconomic status is associated with both diet and risk of cardiovascular disease.<sup>c</sup>

### **Saturated fats and fatty acids**

Diets high in saturated fats and cholesterol increase blood cholesterol and the risk of coronary heart disease.<sup>d</sup>

Reduction in saturated dietary fat is associated with reduction in cardiovascular events if sustained for at least two years.<sup>e</sup>

Available evidence suggests that consumption of oily fish – rich in omega-3 fatty acids - is associated with reduced mortality from coronary heart disease in high risk groups, but not in low risk groups.<sup>f</sup>

Fish oil supplements or advice to eat more fish in coronary heart disease patients reduces mortality.<sup>g</sup>

### **Vitamins**

There is no evidence that beta-carotene<sup>h</sup> and vitamin E<sup>i</sup> supplements affect cardiovascular disease.

A review of the effects of antioxidant vitamins for coronary heart disease prevention is in preparation.<sup>j</sup>

While changes in diet are feasible in controlled settings in the short term and can result in reductions in cardiovascular risk factors,<sup>d</sup> changing diets of free-living individuals through counselling and education is rarely possible.<sup>k</sup>

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Klerk M, Jansen MCJF, van't Veer P, Kok FJ. Fruits and vegetables in chronic disease prevention. *Grafisch Bedrijf Ponsen & Looijen*: Wageningen, 1998.
  - b. Ness AR, Powles JW. Does eating fruit and vegetables protect against heart attack and stroke? *Chemistry and Industry* 1996;20:792-4.  
Ness AR, Powles JW. Dietary habits and mortality in vegetarians and health conscious people: several uncertainties exist. *BMJ* 1997;314:148.
  - c. Serdula MK, Byers T, Mokdad AH, Simoes E, Mendlein JM, Coates RJ. The association between fruit and vegetable intake and chronic disease risk factors. *Epidemiology* 1996;7:161-5.
  - d. Clarke R, Frost C, Collins R, Appleby P, Peto R. Dietary lipids and blood cholesterol: a quantitative meta-analysis of metabolic ward studies. *BMJ* 1997;314:112-17.
  - e. Hooper L, Summerbell C, Higgins J, Clements G, Capps N, Davey Smith G, Riemersma RA, Ebrahim S. **Reduced or modified dietary fat for the prevention of cardiovascular disease [Cochrane Review]. In: The Cochrane Library, Issue 2, 2000. Oxford: Update Software.**
  - f. Marckmann P, Gronbaek M. Fish consumption and coronary heart disease mortality. A systematic review of prospective cohort studies. *European Journal of Clinical Nutrition* 1999;53:585-90.
  - g. Hooper L, Ness A, Higgins JPT, Moore T, Ebrahim S. Correspondence re GISSI-Prevenzione trial. *Lancet* 1999;354:1557.
  - h. Ness A, Egger M, Powles J. Fruit and vegetables and ischaemic heart disease: systematic review or misleading meta-analysis? *European Journal of Clinical Nutrition* 1999;53:900-2.
  - i. Hooper L, Ness A, Davey Smith G. The HOPE trial. *New*
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# HEART DISEASE AND STROKE: Personal behaviour

<b>POLICY</b>	<b>SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE</b>	<b>REFERENCES</b>
<p><b>H15</b> (cont) Ensure access to and availability of, a wide range of foods for a healthy diet</p>	<p>Low socioeconomic status is associated with a poorer diet and there is a growing disparity in diet between the rich and poor in the UK. Households in the lower end of income distribution spend a greater proportion of their income on food than those at the top. Low income restricts both the ability to afford many healthy foods and access to food retailers where healthy food can be purchased more cheaply.<sup>1</sup></p> <p>Adverse dietary patterns are reinforced by poverty as pricing policy encourages purchase and consumption of cholesterol-raising diets. By extending VAT to the main sources of dietary saturated fat, cardiovascular disease could be avoided and tax revenue generated.<sup>m</sup> However it is unclear whether this will improve poor peoples' diets or worsen health by increasing poverty.</p>	<p>England Journal of Medicine 2000 (in press)</p> <p>j. Hooper L, Capps N, Clements G, et al. <b>Anti-oxidant foods or supplements for preventing cardiovascular disease in patients with and without ischemic heart disease [Protocol for a Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</b></p> <p>k. Tang JL, Armitage JM, Lancaster T et al. Systematic review of dietary intervention trials to lower total cholesterol in free-living subjects. <i>BMJ</i> 1998;316:1220.</p> <p>l. James WPT, Nelson M, Ralph A, Leather S. Socioeconomic determinants of health: The contribution of nutrition to inequalities in health. <i>BMJ</i> 1997;314:1545-53.</p> <p>m. Marshall T. Exploring a fiscal food policy: the case of diet and ischaemic heart disease. <i>BMJ</i> 2000;320:301-5.</p>
<p><b>H16</b> Provide sound information on the health risks of smoking, poor diet and lack of physical activity</p>	<p>Health education campaigns which provide information but no additional interventions are only effective in altering the behaviour of higher status socio-economic groups.<sup>a</sup> Programmes providing information together with personal support can be used to change behaviour across all socio-economic groups.<sup>a</sup></p>	<p>a. Gepkens A, Gunning SL. Interventions to reduce socioeconomic health differences: A review of the international literature. <i>European Journal of Public Health</i> 1996;6:218-26.</p>
<p><b>Local Players and Communities can:</b></p>		
<p><b>H17</b> Encourage the development of healthy schools and healthy workplaces (cont)</p>	<p><b>School interventions</b></p> <p>Didactic knowledge based programmes have no effect on behaviour. Interactive programmes are more effective at changing behaviour than non-interactive ones.<sup>a</sup></p> <p>Drug use prevention programmes and sexual risk reduction programmes have been the most comprehensively evaluated.<sup>a</sup></p> <p>School based programmes which use social reinforcement techniques (and not simply education or information) reduce the uptake of smoking.<sup>b</sup></p> <p>Healthy school programmes concerned with healthy eating, fitness, injuries and mental health are more successful at increasing knowledge than those tackling substance abuse, safe sex and oral hygiene.<sup>c</sup></p> <p>Dietary interventions have been shown to lower fat intake slightly but have had</p>	<p>a. Thomas H, Siracusa L, Ross G et al. Effectiveness of School-Based Interventions in Reducing Adolescent Risk Behaviour: A Systematic Review of Reviews. Ontario Public Health Research Education &amp; Development Program, March, 1999.</p> <p>b. <b>NHS Centre for Reviews and Dissemination. Preventing the uptake of smoking in young people. Effective Health Care 1999;5:12.</b></p> <p>c. <b>Lister Sharp D, Chapman S, Stewart-Brown S, Sowden A. Health promoting schools and health promotion in schools: two systematic reviews. Health Technology Assessment 1999;3(22).</b></p> <p>d. <b>Roe L, Hunt P, Bradshaw H, Rayner M. Health promotion interventions to promote healthy eating in the general population: a review. London: Health Education Authority, 1997.</b></p> <p>e. Brug J, Campbell M, van Assema P. The application and impact of computer generated personalised nutrition education: a review of the literature. <i>Patient Education and</i></p>

# HEART DISEASE AND STROKE: Personal behaviour

<i>POLICY</i>	<i>SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE</i>	<i>REFERENCES</i>
<p><b>H17</b> (cont) Encourage the development of healthy schools and healthy workplaces</p>	<p>no impact on intake of fibre, fruit or vegetables has been detected.<sup>d</sup> Computer generated nutrition education is more likely to be read, remembered and experienced as personally relevant than are standard educational materials.<sup>c</sup> School-based interventions encouraging healthy eating behaviours of 9-10 year old children have significant positive effects in attitude and knowledge,<sup>f</sup> but only slight changes in eating.<sup>g</sup></p> <p>A systematic review of school programmes for prevention of smoking is in preparation.<sup>h</sup> More widespread community interventions operating at multiple sites may have an impact on smoking rates.<sup>i</sup> Mass media campaigns may be effective in preventing uptake of smoking among young people, but the intensity and duration of campaigns are important in determining their effects.<sup>j</sup></p> <p><b>Workplace interventions</b></p> <p>Individual programmes (eg smoking counselling, risk factor screening and comprehensive risk assessment) have been effective in influencing behaviour.<sup>k</sup></p> <p>Healthy eating interventions based at work sites can be effective in lowering blood cholesterol levels.<sup>d</sup></p> <p>Workplace programmes for detection and control of high blood pressure have been only poorly evaluated and have not been shown to offer any benefits.<sup>l</sup></p> <p>Work place tobacco policies can reduce tobacco consumption at work and worksite environmental tobacco smoke exposure.<sup>m</sup></p>	<p>Counselling 1999;36:145-56.</p> <p>f. McArthur DB. Heart healthy eating behaviors of children following a school-based intervention: a meta-analysis. <i>Issues Comprehensive Pediatric Nursing</i> 1998;21:35-48.</p> <p>Levy SR, Iverson BK, Walberg HJ. Nutrition-education research: An interdisciplinary evaluation and review. <i>Health Education Quarterly</i> 1980;7:107-26.</p> <p>g. Hursti UK, Sjoden P. Changing food habits in children and adolescents: experiences from intervention studies. <i>Scandinavian Journal of Nutrition</i> 1997;41:102-10.</p> <p>h. <b>Thomas R, Busby K. School based programmes for preventing smoking [Protocol for a Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</b></p> <p>i. <b>Sowden AJ, Arblaster L. Mass media interventions for preventing smoking in young people [Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</b></p> <p>j. <b>Sowden A, Arblaster L. Community interventions for preventing smoking in young people [Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</b></p> <p>k. <b>Peersman G. Effectiveness of health promotion interventions in the workplace: a review. Health Education Authority, 1998.</b></p> <p>l. <b>Ebrahim S. Detection, adherence and control of hypertension for the prevention of stroke: a systematic review. Health Technology Assessment 1998;2(11).</b></p> <p>m. Erikson MP, Gottlieb NH. A review of the health impact of smoking control at the workplace. <i>American Journal of Health Promotion</i> 1998;13:83-104.</p> <p>Fielding JE. Smoking control in the workplace. <i>Annual Review of Public Health</i> 1991;12:209-34.</p>
<p><b>H18</b> Enforce the ban on illegal sale of cigarettes to underage smokers</p>	<p>Interventions aimed at retailers to enforce the legal age limit reduces young people's access to cigarettes but there is no evidence that this affects smoking behaviour.<sup>a</sup> Targeting retailers with educational programmes alone is less effective than combined education and enforcement (warnings or visits by police or health officials), but sustained effects require enforcement at least 4-6 times a year.<sup>b</sup></p>	<p>a. <b>NHS Executive. Improving outcomes in lung cancer. London: Department of Health, 1998.</b></p> <p>b. <b>Lancaster T, Stead LF. Interventions for preventing tobacco sales to minors [Cochrane Review]. In: The Cochrane Library, Issue 2, 2000. Oxford: Update Software.</b></p>

# HEART DISEASE AND STROKE: Personal behaviour

## POLICY

**H19** Target information about a healthy life on groups and areas where people are most at risk

## SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE

Targeting information – in conjunction with other health promotion activities - on high-risk groups may be more effective in reducing cardiovascular risk factors than community wide use of heart health interventions but definitive evidence is lacking.<sup>a</sup>

Individuals with a central pattern of obesity are at particularly high risk of cardiovascular mortality, hypertension and non-insulin dependent diabetes.<sup>b</sup> The following groups are also at high risk of obesity and consequent heart disease: children in families with one or more overweight parents; lower status socio-economic groups, in particular women in these groups; people with learning disabilities; particular ethnic groups, including the south Asian and Afro-Caribbean communities; those who have given up smoking; and the elderly.<sup>b</sup>

A review of healthy eating interventions in ethnic minorities shows a dearth of UK studies, poor methodology and considerable uncertainty about how to develop programmes suitable for a multi-cultural society.<sup>c</sup>

Interventions promoting smoking cessation are more likely to be effective if they are based on a knowledge of differences in smoking patterns amongst ethnic and other population groups.<sup>d</sup>

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## People can:

**H20** Manage their blood pressure if they are at risk of or suffering from circulatory disease (*cont*)

Observational studies have demonstrated a strong relationship between blood pressure and risk of coronary heart disease and stroke with no evidence of any threshold below which further reductions are not associated with greater benefits.<sup>a</sup>

Drug treatment of hypertension decreases the risk of fatal and non-fatal stroke, cardiac events, and total mortality. The biggest benefit is seen in those with highest baseline risk of cardiovascular disease<sup>b</sup> and in elderly people.<sup>c</sup>

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- c. **Mulrow C, Lau J, Cornell J, Brand M. Pharmacotherapy for hypertension in the elderly [Cochrane Review]. In: The Cochrane Library, Issue 2,**

## HEART DISEASE AND STROKE: Personal behaviour

<i>POLICY</i>	<i>SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE</i>	<i>REFERENCES</i>
<p><b>H20</b> (cont) Manage their blood pressure if they are at risk of or suffering from circulatory disease</p>	<p>For some high-risk groups, such as diabetics, trials have shown that intensive lowering of blood pressure (to levels of 150/85 or below) reduces the risk of cardiovascular events more effectively than less intensive regimes.<sup>d</sup></p> <p>Weight reduction in obese hypertensive patients produces only a small reduction in blood pressure (about -3 mmHg systolic) and may reduce medication dosage requirements.<sup>e</sup></p> <p>Salt restriction in hypertensive patients has only a small effect on blood pressure which may be due to concomitant weight reduction.<sup>f</sup> Considerable controversy surrounds the salt-blood pressure relationship. While there is little doubt that population levels of blood pressure are associated with dietary salt intake,<sup>g</sup> the size of this effect is open to debate.<sup>h</sup> Studies of the effects of dietary salt restriction show variable results. While small, short-term experiments of salt restriction using cross-over designs are able to show modest reductions in blood pressure, larger, longer term (ie over 6 months), parallel group trials show much smaller effects on blood pressure, particularly among normotensive adults reflecting the difficulties of maintaining a low salt diet. Among children, there is evidence from one well-designed large trial that salt restriction has a prolonged effect on blood pressure.<sup>i</sup> The public health impact of reducing dietary salt (through lower hidden salt in processed foods) may be smaller than might be predicted from systematic reviews including both long and short term trials, but could be expected to have an effect in children.</p>	<p><b>2000. Oxford: Update Software.</b></p> <p>d. Hansson L, Zanchetti A, Comuthers SG. Effects of intensive blood pressure lowering and low-dose aspirin in patients with hypertension: principal results of the Hypertension Optimal Treatment (HOT) randomised trial. <i>Lancet</i> 1998;351:1755-62.</p> <p>UK Prospective Diabetes Study Group. Tight blood pressure control and risk of macrovascular and microvascular complications in type 2 diabetes: UKPDS 38. <i>BMJ</i> 1998;317:703-13.</p> <p>e. <b>Mulrow CD, Chiquette E, Angel L, Cornell J, Summerbell C, Anagnostelis B, Grimm R Jr, Brand MB. Dieting to reduce body weight for controlling hypertension in adults [Cochrane Review]. In: The Cochrane Library, Issue 2, 2000. Oxford: Update Software.</b></p> <p>f. Cutler JA, Follmann D, Allender PS: Randomized trials of sodium reduction: an overview. <i>American Journal of Clinical Nutrition</i> 1997;65:643S-651S.</p> <p>Ebrahim S, Davey Smith G. Lowering blood pressure: a systematic review of sustained effects of non-pharmacological interventions. <i>Journal of Public Health Medicine</i> 1998;20:441-8.</p> <p>Graudal NA, Galloe AM, Anders M, et al: Effects of sodium restriction on blood pressure, renin, aldosterone, catecholamines, cholesterol and triglyceride: a meta-analysis. <i>JAMA</i> 1998;279:1383-91.</p> <p>Law MR, Frost CD, Wald NJ. By how much does dietary salt reduction lower blood pressure? III - Analysis of data from trials of salt reduction. <i>BMJ</i> 1991;302:819-24.</p> <p>Midgley JP, Matthew AG, Greenwood CM, et al: Effect of reduced dietary sodium on blood pressure: a meta-analysis of randomized controlled trials. <i>JAMA</i> 1996;275:1590-7.</p> <p>g. Elliott P, Stamler J, Nichols R, Dyer AR, Stamler R, Kesteloot H, Marmot M. Intersalt revisited: further analyses of 24 hour sodium excretion and blood pressure within and across populations. <i>BMJ</i> 1996;312:1249-53.</p> <p>h. Davey Smith G, Phillips AN. Inflation in epidemiology: "The proof and measurement of association between two things" revisited. <i>BMJ</i> 1996;312:1659-64.</p> <p>i. Hofman A, Hazebroek A, Valkenburg HA. A randomized</p>

## HEART DISEASE AND STROKE: Personal behaviour

<i>POLICY</i>	<i>SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE</i>	<i>REFERENCES</i>
<b>H21</b> Stop smoking or cut down, watch what they eat and take regular physical activity	<p>In overweight people, any level of weight loss has significant health benefits. This could usefully be emphasised in health promotion campaigns.<sup>a</sup></p> <p>Attempts to lower blood pressure and blood cholesterol by increasing physical activity have not been shown to be effective.<sup>b</sup></p> <p>The health benefits of increasing physical activity are considerable.<sup>c</sup> It is now recognised that regimens need not be intensive (eg three times a week for at least 20 minutes) to improve health outcomes.<sup>c</sup></p> <p>For further relevant evidence see H24 and H31.</p>	<p>trial of sodium intake and blood pressure in newborn infants. JAMA 1983;250:370-3.</p> <p>a. <b>NHS Centre for Reviews and Dissemination. The prevention and treatment of obesity. Effective Health Care 1997;3(5).</b></p> <p><b>NHS Centre for Reviews and Dissemination. Systematic review in the treatment and prevention of obesity. Report 10 University of York: NHS Centre for Reviews and Dissemination, 1997.</b></p> <p>b. <b>Ebrahim S, Davey-Smith G. Health promotion in older people for cardiovascular disease prevention - a systematic review and meta-analysis. London: Health Education Authority, 1996.</b></p> <p>c. Fentem PH. Benefits of exercise in health and disease. BMJ 1994;308:1291-5.</p>

# HEART DISEASE AND STROKE: Services interventions

<i>POLICY</i>	<i>SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE</i>	<i>REFERENCES</i>
<p><b>Government and National Players can:</b></p>		
<p><b>H22</b> Encourage doctors and nurses and other health professionals to give advice on healthier living, and deliver effective and efficient services (<i>cont</i>)</p>	<p><b>Stopping smoking</b></p> <p>Advice by physicians to quit smoking has a small but definite effect on cessation rates. More intensive interventions are only marginally more effective.<sup>a</sup> Smoking advice given by nurses is also effective but direct comparisons of nurses and doctors have not been conducted.<sup>b</sup> There is no evidence that brief advice augmented by nurse follow up is more effective than brief advice alone.<sup>b</sup> Summary guidelines have been published.<sup>c</sup> Training health professionals increases the degree to which they offer anti-smoking interventions, and their effectiveness in doing so.<sup>d</sup></p> <p><b>Diet and obesity</b></p> <p>Opportunistic screening for obesity at the primary care level, particularly amongst known high risk groups, may be a useful preventive intervention.<sup>e</sup> Primary health care teams will be more effective in this context if they are given adequate training in the prevention and treatment of obesity.<sup>e</sup></p> <p>Promoting physical activity in children helps reduce weight and family therapy can be beneficial in high risk children.<sup>e</sup> Drug treatments are only helpful in the short term.<sup>e</sup> Dietary interventions have been shown to lower fat intake slightly but have had no impact on intake of fibre, fruit or vegetables has been detected.<sup>f</sup> Computer generated nutrition education is more likely to be read, remembered and experienced as personally relevant than are standard educational materials.<sup>g</sup></p> <p><b>Diet and cardiovascular risk factors</b></p> <p>Reductions in blood pressure and blood cholesterol can be achieved by dietary changes promoted through advice and education.<sup>h</sup> However there is little consequent impact on overall mortality and improvements tend to be among the more socially 'advantaged' participants.<sup>h</sup> The effects of dietary advice given by dieticians compared with other health professionals will be addressed in a forthcoming review.<sup>i</sup></p>	<p>a. NHS Centre for Reviews and Dissemination. <b>Smoking cessation: what the health service can do. Effectiveness matters 1998;3(1).</b>  <b>Silagy C, Ketteridge S. Physician advice for smoking cessation. [Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</b></p> <p>b. <b>Rice VH, Stead LF. Nursing interventions for smoking cessation [Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</b>  Lancaster T, Dobbie W, Vos K, Yudkin P, Murphy M, Fowler G. Randomized trial of nurse-assisted strategies for smoking cessation in primary care. <i>British Journal of General Practice</i> 1999;49:191-4.</p> <p>c. Raw M, McNeill A, West R. Smoking cessation: evidence based recommendations for the healthcare system. <i>BMJ</i> 1999;318:182-5.</p> <p>d. <b>Lancaster T, Silagy C, Fowler G, Spiers I. Training health professionals in smoking cessation. [Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</b></p> <p>e. <b>NHS Centre for Reviews and Dissemination. The prevention and treatment of obesity. Effective Health Care 1997;3(2).</b>  <b>NHS Centre for Reviews and Dissemination. Systematic review in the treatment and prevention of obesity. Report 10. University of York: NHS Centre for Reviews and Dissemination, 1997.</b></p> <p>f. <b>Roe L, Hunt P, Bradshaw H, Rayner M. Health promotion interventions to promote healthy eating in the general population: a review. London: Health Education Authority, 1997.</b></p> <p>g. Brug J, Campbell M, van Assema P. The application and impact of computer generated personalised nutrition education: a review of the literature. <i>Patient Education and Counselling</i> 1999;36:145-56</p> <p>h. <b>Ebrahim S, Davey-Smith G. Health promotion in older people for cardiovascular disease prevention - a systematic review and meta-analysis. London: Health Education Authority 1996.</b></p>

# HEART DISEASE AND STROKE: Services interventions

<b>POLICY</b>	<b>SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE</b>	<b>REFERENCES</b>
<p><b>H22</b> (cont) Encourage doctors and nurses and other health professionals to give advice on healthier living, and deliver effective and efficient services (cont)</p>	<p>Intensive efforts to detect, treat and follow up patients with hypertension reduces stroke mortality and socio-economic variations in stroke mortality.<sup>j</sup></p> <p><b>Physical activity</b></p> <p>Advice to promote physical activity in primary care has been inadequately studied, with few UK trials. Only small effects have been found.<sup>k</sup></p> <p><b>Alcohol intake</b></p> <p>Routine opportunistic detection and brief treatment of patients in primary care and hospital settings has been shown to reduce alcohol consumption by up to 20% in those with consumption levels above recommended guidelines.<sup>l</sup> Brief interventions are as effective as more expensive specialist treatment in this context, and they may have a concomitant impact on the incidence of alcohol related heart disease.<sup>m</sup></p> <p><b>Professional organisation and practice</b></p> <p>Use of computers can improve the administrative aspects of hypertensive patient care.<sup>n</sup> In different clinical settings, computer aided decision support appears to improve prescribing and preventive care, but effects on patient outcomes have not been widely studied.<sup>o</sup> Computer aided decision support for hypertension management has not been shown to be more effective than with manual systems for assessing risk.<sup>p</sup> Decision aids for patients following screening improve knowledge and allow patients to be more active in decision making without increasing anxiety.<sup>q</sup></p> <p>No systematic reviews of the effects of nurse-led clinics in primary care focussing on secondary prevention have been identified. One trial has shown that they are able to increase the amount of secondary prevention – both through lifestyle changes and pharmacological treatments - for coronary heart disease.<sup>r</sup></p> <p>Printed educational materials, conferences and workshops appear to have very little effect on professional practice and health outcomes.<sup>s</sup> Outreach visits and use of local opinion leaders are more likely to achieve professional behaviour</p>	<p>Brunner E, White I, Thorogood M, Bristow A, Curle D, Marmot M. Can dietary interventions change diet and cardiovascular risk factors? A meta-analysis of randomized controlled trials. <i>American Journal of Public Health</i> 1997;87:1415-22.</p> <p>i. <b>Thompson RL, Summerbell CD, Higgins JPT, Little PS, Talbot D, Ebrahim S. Dietary advice given by a dietitian versus other health professional or self-help methods to reduce blood cholesterol [Protocol for a Cochrane Review]. In: The Cochrane Library, Issue 1, 2000 Oxford: Update Software.</b></p> <p>j. <b>NHS Centre for Reviews and Dissemination. Review of the research on the effectiveness of Health Service interventions to reduce variations in health. Report 3. University of York. NHS Centre for reviews and Dissemination, 1995.</b></p> <p>k. <b>Riddoch C. Effectiveness of physical activity promotion schemes in primary care: a review. Health Education Authority, 1998.</b></p> <p>l. Kahan M, Wilson C, Becker L. Effectiveness of physician-based interventions with problem drinkers: a review. <i>Canadian Medical Association Journal</i> 1995;152:851-9. <b>NHS Centre for Reviews and Dissemination. Brief interventions and alcohol use. Effective Health Care 1993;1(7).</b></p> <p>Fleming MF, Barry KL, Manwell LB, Johnson K, London R. Brief physician advice for problem alcohol drinkers. A randomized controlled trial in community-based primary care practices. <i>JAMA</i> 1997;277:1039-45.</p> <p>m. Kahan M, Wilson C, Becker L. Effectiveness of physician-based interventions with problem drinkers: a review. <i>Canadian Medical Association Journal</i> 1995;152:851-9. <b>NHS Centre for Reviews and Dissemination. Brief interventions and alcohol use. Effective Health Care 1993;1(7).</b></p> <p>n. Montgomery AA, Fahey T. A systematic review of the use of computers in the management of hypertension. <i>Journal of Epidemiology &amp; Community Health</i> 1998;52:520-5.</p> <p>o. Hunt DL, Haynes RB, Hanna SE, Smith K. Effects of computer-based clinical decision support systems on physician performance and patient outcomes. <i>JAMA</i></p>

# HEART DISEASE AND STROKE: Services interventions

<i>POLICY</i>	<i>SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE</i>	<i>REFERENCES</i>
<p><b>H22</b> (cont) Encourage doctors and nurses and other health professionals to give advice on healthier living, and deliver effective and efficient services (cont)</p>	<p>change.<sup>s</sup> However professional outreach visits combined with social marketing are more promising and have an effect on prescribing levels.<sup>t</sup> Audit and feedback may also be effective in altering prescribing, but enhancements to the process do not appear to yield greater effects.<sup>u</sup></p> <p>Clinical guidelines (produced internally, with explicit dissemination, education and implementation strategies, and using patient-specific reminders at the time of consultation) used by physicians in both primary care and hospitals improve the process of care, and patient outcomes where this has been measured.<sup>v</sup> Another review examining the effects of clinical practice guidelines in primary care only found little evidence that guidelines improve patient outcomes.<sup>w</sup> In professions allied to medicine (including mainly nurses), there is some evidence that guideline driven care is effective at changing the process and outcome of care.<sup>x</sup></p> <p>Reviews examining the effects of paper reminders<sup>y</sup> and computerised reminders on professional practice, health outcomes<sup>z</sup> and drug prescribing<sup>aa</sup> are currently being prepared. A further review will focus on educational, financial and regulatory interventions to promote implementation of preventive services.<sup>ab</sup> The effects on preventive care of substituting nurses for doctors in primary care will also be examined.<sup>ac</sup></p> <p>A review of the effect of target payments to primary care physicians is currently being prepared.<sup>ad</sup></p>	<p>1998;280:1339-46.</p> <p>p. Montgomery AA, Fahey T, Peters TJ, MacIntosh C, Sharp DJ. Evaluation of a computer-based clinical decision support system and risk chart for the management of hypertension in primary care: a randomised controlled trial. <i>British Journal of General Practice</i> 2000 (in press).</p> <p>q. O'Connor AM. Decision aids for patients facing health treatment or screening decisions: systematic review. <i>BMJ</i> 1999;319:731-4.</p> <p>r. Campbell NC, Ritchie LD, Thain J, Deans HG, Rawles JM, Squair JL. Secondary prevention in coronary heart disease: a randomised trial of nurse led clinics in primary care. <i>Heart</i> 1998;80:447-52.</p> <p>s. <b>Freemantle N, Harvey EL, Wolf F, Grimshaw JM, Grilli R, Bero LA. Printed educational materials: effects on professional practice and health care outcomes [Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</b> Davis D, O'Brien MA, Freemantle N, Wolf FM, Mazmanian P, Taylor V. Impact of formal continuing medical education: do conferences, workshops, rounds, and other traditional continuing education activities change physician behavior or health care outcomes? <i>JAMA</i> 1999;282:867-74.</p> <p>t. <b>Thomson O'Brien MA, Oxman AD, Davis DA, Haynes RB, Freemantle N, Harvey EL. Educational outreach visits: effects on professional practice and health care outcomes [Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</b></p> <p>u. <b>Thomson O'Brien MA, Oxman AD, Davis DA, Haynes RB, Freemantle N, Harvey EL. Audit and feedback versus alternative strategies: effects on professional practice and health care outcomes [Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</b></p> <p>v. Grimshaw JM, Russell IT. Effect of clinical guidelines on medical practise: a systematic review of rigorous evaluations. <i>Lancet</i> 1993;34:1317-22.</p> <p><b>NHS Centre for Reviews and Dissemination. Implementing clinical practice guidelines: can guidelines be used to improve clinical practice? Effective Health Care 1994;8:1-12.</b></p>

# HEART DISEASE AND STROKE: Services interventions

<i>POLICY</i>	<i>SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE</i>	<i>REFERENCES</i>
<p><b>H22</b> (cont) Encourage doctors and nurses and other health professionals to give advice on healthier living, and deliver effective and efficient services</p>		<p>w. Worrall G, Chaulk P, Freaque D. The effects of clinical practice guidelines on patient outcomes in primary care: a systematic review. <i>Canadian Medical Association Journal</i> 1997;156:1705-12.</p> <p>x. Thomas L, Cullum N, McColl E, Rousseau N, Soutter J, Steen N. Guidelines in professions allied to medicine. [Cochrane Review]. In: <i>The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</i></p> <p>y. Rowe R, Wyatt J, Grimshaw J, et al. Manual paper reminders: effects on professional practice and health care outcomes [Protocol for a Cochrane Review] In: <i>The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</i></p> <p>z. Gordon RB, Grimshaw JM, Eccles M, Rowe RE, Wyatt JC. On-screen computer reminders: effects on professional practice and health care outcomes [Protocol for a Cochrane Review]. In: <i>The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</i></p> <p>aa. Walton RT, Harvey EL, Dovey S, Freemantle N. Computerised advice on drug dosage: effects on prescribing practice [Protocol for a Cochrane Review] In: <i>The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</i></p> <p>ab. Hulscher MEJL, Wensing M, Van der Weijden T, Grol R, Van Weel C. Interventions to implement prevention in primary care [Protocol for a Cochrane Review] In: <i>The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</i></p> <p>ac. Laurant M, Sergison M, Sibbald B. Substitution of doctors by nurses in primary care [Protocol for a Cochrane Review] In: <i>The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</i></p> <p>ad. Giuffrida A, Leese B, Forland F, Gosden T, Kristiansen I, Sergison M et al. Target payments in primary care: effects on professional practice and health care outcomes [Protocol for a Cochrane Review] In: <i>The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</i></p>
<p><b>H23</b> Develop National Service Frameworks and work towards their implementation</p>	<p>The National Service Framework for coronary heart disease has focused on smoking cessation, healthy eating, physical activity and reducing obesity and overweight among the general population, and GPs are expected to focus on</p>	<p>a. <i>National Service Framework for Coronary Heart Disease. Modern Standards &amp; Service Models. Department of Health, London, 2000.</i></p> <p>b. Freemantle N, Harvey EL, Wolf F, Grimshaw JM,</p>

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**H23** (cont) Develop National Service Frameworks and work towards their implementation

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## SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE

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secondary prevention and identifying those at high risk of developing cardiovascular disease.<sup>a</sup> Although it does not refer explicitly and systematically to the relevant evidence base, it draws on much of the evidence referred to in this report.

Implementation of service frameworks will depend on influencing health professionals. Printed educational materials, conferences and workshops appear to have very little effect on professional practice and health outcomes; outreach visits and use of local opinion leaders are more likely to achieve professional behaviour change.<sup>b</sup> However professional outreach visits combined with social marketing are more promising and have an effect on prescribing levels.<sup>c</sup> Audit and feedback may also be effective in altering prescribing, but enhancements to the process do not appear to yield greater effects.<sup>d</sup>

Clinical guidelines (produced internally, with explicit dissemination, education and implementation strategies, and using patient-specific reminders at the time of consultation) applied in both primary care and hospitals may improve the process of care, but have not been shown to improve patient outcomes.<sup>e</sup>

Reviews examining the effects of paper reminders,<sup>f</sup> and computerised reminders on professional practice, health outcomes<sup>g</sup> and drug prescribing<sup>h</sup> are currently being prepared. A further review will focus on educational, financial and regulatory interventions to promote implementation of preventive services.<sup>i</sup> The effects on preventive care of substitution of nurses for doctors in primary care will also be examined.<sup>j</sup>

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- c. **Thomson O'Brien MA, Oxman AD, Davis DA, Haynes RB, Freemantle N, Harvey EL. Educational outreach visits: effects on professional practice and health care outcomes [Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.**
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Worrall G, Chaulk P, Freaque D. The effects of clinical practice guidelines on patient outcomes in primary care: a systematic review. *Canadian Medical Association Journal* 1997;156:1705-12.
- f. **Rowe R, Wyatt J, Grimshaw J, et al. Manual paper reminders: effects on professional practice and health care outcomes [Protocol for a Cochrane Review] In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.**
- g. **Gordon RB, Grimshaw JM, Eccles M, Rowe RE, Wyatt JC. On-screen computer reminders: effects on professional practice and health care outcomes [Protocol for a Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.**
- h. **Walton RT, Harvey EL, Dovey S, Freemantle N. Computerised advice on drug dosage: effects on prescribing practice [Protocol for a Cochrane Review] In: The Cochrane Library, Issue 1, 2000. Oxford:**
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# HEART DISEASE AND STROKE: Services interventions

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## POLICY

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## SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE

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### Local Players and Communities can:

**H24** Provide help to people who want to stop smoking (*cont*)

A number of interventions are effective in promoting smoking cessation.<sup>a</sup> These include nicotine replacement therapy (inhalers and patches appear to be slightly more effective than chewing gum);<sup>b</sup> behaviour modification, combined with advice and social skills training;<sup>c</sup> and encouragement and brief advice given by well trained GPs or other health professionals during routine consultations (which is particularly effective with more motivated patients).<sup>d</sup> Among patients with coronary heart disease, smoking cessation advice increases quit rates by 45% compared with usual care.<sup>e</sup> Patient education and counselling have been shown to significantly reduce smoking and drinking rates. Larger effects are seen using behavioural techniques, particularly self monitoring.<sup>f</sup>

There is no evidence that silver acetate,<sup>g</sup> aversion treatments,<sup>h</sup> lobeline,<sup>i</sup> acupuncture,<sup>j</sup> anxiolytics or antidepressants<sup>k</sup> are effective in smoking cessation.

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- i. Hulscher MEJL, Wensing M, Van der Weijden T, Grol R, Van Weel C. Interventions to implement prevention in primary care [Protocol for a Cochrane Review] In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.
  - j. Laurant M, Sergison M, Sibbald B. Substitution of doctors by nurses in primary care [Protocol for a Cochrane Review] In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.

- a. Law M, Tang JL. An analysis of the effectiveness of interventions intended to help people stop smoking. Archives of Internal Medicine 1995;155:1933-41.
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**Juni P, Fux C, Hertog MGL, Egger M, Ernst E. A Tibetan herbal preparation, Padma 28, for the treatment of intermittent claudication. [Protocol for Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.**  
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Law M, Tang JL. An analysis of the effectiveness of interventions intended to help people stop smoking. Archives of Internal Medicine 1995;155:1933-41.
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**Silagy C, Ketteridge S. Physician advice for smoking cessation. [Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software .**

## HEART DISEASE AND STROKE: Services interventions

<i>POLICY</i>	<i>SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE</i>	<i>REFERENCES</i>
<p><b>H24</b> (cont) Provide help to people who want to stop smoking</p>		<p><b>Lancaster T, Silagy C, Fowler G, Spiers I. Training health professionals in smoking cessation. [Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software .</b></p> <p>Law M, Tang JL. An analysis of the effectiveness of interventions intended to help people stop smoking. Archives of Internal Medicine 1995;155:1933-41.</p> <p>e. van Berkel T.F, Boersma,H, Roos-Hesselink JW, Erdman RAM, Simoons ML. Impact of smoking cessation and smoking interventions in patients with coronary heart disease. European Heart Journal 1999, 20:1773-82.</p> <p>f. Mullen PD. Simons-Morton DG. Ramirez G. Frankowski RF. Green LW. Mains DA. A meta-analysis of trials evaluating patient education and counseling for three groups of preventive health behaviors. Patient Education and Counseling. 1997;32:157-73.</p> <p>g. <b>Lancaster T, Stead L. Silver acetate for smoking cessation [Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</b></p> <p>h. <b>Hajek P, Stead LF. The effect of aversive smoking on smoking cessation. [Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</b></p> <p>i. <b>Stead LF, Hughes JR. Lobeline for smoking cessation. [Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</b></p> <p>j. <b>White AR, Rampes H. Acupuncture in smoking cessation. [Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</b></p> <p>k. <b>Hughes JR, Stead LF, Lancaster TR. Anxiolytics and antidepressants in smoking cessation. [Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</b></p>
<p><b>H25</b> Improve access to a variety of affordable food in deprived areas</p>	<p>Low socioeconomic status is associated with a poorer diet and there is a growing disparity in diet between the rich and poor in the UK. Households at the lower end of income distribution spend a greater proportion of their income on food than those at the top. Low income restricts both the ability to afford many healthy foods and access to food retailers where healthy food can be purchased more cheaply.<sup>a</sup></p>	<p>a. James WPT, Nelson M, Ralph A, Leather S. Socioeconomic determinants of health: The contribution of nutrition to inequalities in health. British Medical Association 1997;314:1545-53.</p>

## HEART DISEASE AND STROKE: Services interventions

<i>POLICY</i>	<i>SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE</i>	<i>REFERENCES</i>
<p><b>H26</b> Provide facilities for physical activity and relaxation and decent transport to help people get to them</p>	<p>Interventions promoting physical activity amongst the general public are more likely to be effective if they involve activities which can fit into an individual's daily routine than if they require attendance at exercise facilities.<sup>a</sup></p>	<p>a. Hillsdon M, Thorogood M. A systematic review of exercise promotion strategies. <i>British Journal of Sports Medicine</i> 1996;30:84-9.</p>
<p><b>H27</b> Reduce waiting times for coronary artery surgery and angioplasty</p>	<p>Consultants involved in both the NHS and private care determine who gets what and how long they wait under the NHS. While this arrangement may be convenient for government and health authorities,<sup>a</sup> it may increase NHS waiting lists. No systematic reviews of the determinants of length of waiting lists were found.</p> <p>There is evidence of unequal access to testing and re-vascularisation by gender, ethnicity and socio-economic group.<sup>b</sup> Monitoring testing and introducing procedures to promote equity may reduce inequality.<sup>b</sup></p>	<p>a. Klein R, Day P, Redmayne S. Rationing in the NHS: the dance of the seven veils-in reverse. <i>British Medical Bulletin</i>. 1995;51:769-80.</p> <p>b. <b>NHS Centre for Reviews and Dissemination. Management of stable angina. <i>Effective Health Care</i> 1997;3(5).</b></p>
<p><b>H28</b> Aim to reduce the incidence of second strokes</p>	<p>Lowering blood pressure in hypertensive stroke survivors reduces risk of further stroke.<sup>a</sup></p> <p>Antiplatelet agents such as aspirin reduce risk of stroke recurrence.<sup>b</sup> For stroke survivors in atrial fibrillation, warfarin is more effective than aspirin.<sup>c</sup></p> <p>Carotid endarterectomy reduces the risk of stroke in patients with severe carotid artery stenosis who have recently suffered a transient ischaemic attack in the part of the brain supplied by the diseased artery.<sup>d</sup></p>	<p>a. Gueyffier F, Boissel JP, Boutitie F, et al. Effect of antihypertensive treatment in patients having already suffered from stroke: gathering the evidence. <i>Stroke</i> 1997;28:2557-62.</p> <p>b. Antiplatelet Trialists' Collaboration. Collaborative overview of randomised trials of antiplatelet therapy: I: Prevention of death, myocardial infarction, and stroke by prolonged antiplatelet therapy in various groups of patients. <i>BMJ</i> 1994;308:81-106.</p> <p>c. <b>Koudstaal P. Antiplatelet therapy for preventing stroke in patients with nonrheumatic atrial fibrillation and a history of stroke or transient ischemic attacks. [Cochrane Review]. <i>The Cochrane Library</i>, Issue 1, 2000. Oxford: Update Software. 2000.</b></p> <p><b>Koudstaal P. Anticoagulants for preventing stroke in patients with nonrheumatic atrial fibrillation and a history of stroke or transient ischemic attacks [Cochrane Review]. <i>The Cochrane Library</i>, Issue 1, 2000. Oxford: Update Software. 2000.</b></p> <p><b>Koudstaal P. Anticoagulants versus antiplatelet therapy for preventing stroke in patients with nonrheumatic atrial fibrillation and a history of stroke or transient ischemic attacks [Cochrane Review]. <i>The Cochrane Library</i>, Issue 1, 2000. Oxford: Update Software.</b></p> <p>d. Cina CS, Clase CM, Haynes RB. Carotid</p>

# HEART DISEASE AND STROKE: Services interventions

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## *POLICY*

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**H29** Support those suffering from coronary heart disease and stroke, and their carers

**H30** Implement the National Service Frameworks (*cont*)

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## *SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE*

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Depressive symptoms and social support have direct effects on prognosis after myocardial infarction, suggesting that treating depression and mobilising social support may be beneficial.<sup>a</sup> For reviews on cardiac rehabilitation, see H31: rehabilitation.

Caring for people with stroke is associated with significant emotional and social problems.<sup>b</sup> A number of simple interventions to reduce patient and carer psychosocial problems have been studied, but there is insufficient evidence to judge whether any of these work.<sup>c</sup> Systematic reviews assessing the effects of information provision and stroke liaison workers are in preparation.<sup>d</sup>

The National Service Framework for coronary heart disease has focused on smoking cessation, healthy eating, physical activity and reducing obesity and overweight among the general population. GPs are expected to focus on secondary prevention and identifying those at high risk of developing cardiovascular disease.<sup>a</sup> Although it does not refer explicitly and systematically to the relevant evidence base, it draws on much of the evidence referred to in this report.

Implementation of service frameworks will depend on influencing health professionals. Printed educational materials, conferences and workshops appear to have very little effect on professional practice and health outcomes; outreach visits and use of local opinion leaders are more likely to achieve professional behaviour change.<sup>b</sup> However professional outreach visits combined with social marketing are more promising and have an effect on prescribing levels.<sup>c</sup> Audit and feedback may also be effective in altering prescribing, but enhancements to the process do not appear to yield greater effects.<sup>d</sup>

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## HEART DISEASE AND STROKE: Services interventions

<i>POLICY</i>	<i>SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE</i>	<i>REFERENCES</i>
<p><b>H30</b> (cont) Implement the National Service Frameworks</p>	<p>Use of clinical practice guidelines in primary care have not been shown to improve patient outcomes.<sup>e</sup></p> <p>Reviews examining the effects of paper reminders,<sup>f</sup> and computerised reminders on professional practice, health outcomes<sup>g</sup> and drug prescribing<sup>h</sup> are currently being prepared. A further review will focus on educational, financial and regulatory interventions to promote implementation of preventive services.<sup>i</sup> The effects on preventive care of substitution of nurses for doctors in primary care will also be examined.<sup>j</sup></p> <p>The national service framework for coronary heart disease, although it does not refer explicitly and systematically to the relevant evidence base, draws on much of the evidence referred to in this report.<sup>k</sup></p>	<p>d. Thomson O'Brien MA, Oxman AD, Davis DA, Haynes RB, Freemantle N, Harvey EL. <b>Audit and feedback versus alternative strategies: effects on professional practice and health care outcomes [Cochrane Review].</b> In: <i>The Cochrane Library, Issue 1, 2000.</i> Oxford: Update Software.</p> <p>e. Worrall G, Chaulk P, Freake D. The effects of clinical practice guidelines on patient outcomes in primary care: a systematic review. <i>Canadian Medical Association Journal</i> 1997;156:1705-12.</p> <p>f. Rowe R, Wyatt J, Grimshaw J, et al. <b>Manual paper reminders: effects on professional practice and health care outcomes [Protocol for a Cochrane Review]</b> In: <i>The Cochrane Library, Issue 1, 2000.</i> Oxford: Update Software.</p> <p>g. Gordon RB, Grimshaw JM, Eccles M, Rowe RE, Wyatt JC. <b>On-screen computer reminders: effects on professional practice and health care outcomes [Protocol for a Cochrane Review].</b> In: <i>The Cochrane Library, Issue 1, 2000.</i> Oxford: Update Software.</p> <p>h. Walton RT, Harvey EL, Dovey S, Freemantle N. <b>Computerised advice on drug dosage: effects on prescribing practice [Protocol for a Cochrane Review]</b> In: <i>The Cochrane Library, Issue 1, 2000.</i> Oxford: Update Software.</p> <p>i. Hulscher MEJL, Wensing M, Van der Weijden T, Grol R, Van Weel C. <b>Interventions to implement prevention in primary care [Protocol for a Cochrane Review]</b> In: <i>The Cochrane Library, Issue 1, 2000.</i> Oxford: Update Software.</p> <p>j. Laurant M, Sergison M, Sibbald B. <b>Substitution of doctors by nurses in primary care [Protocol for a Cochrane Review]</b> In: <i>The Cochrane Library, Issue 1, 2000.</i> Oxford: Update Software.</p> <p>k. <b>National Service Framework for Coronary Heart Disease. Modern Standards &amp; Service Models.</b> Department of Health, London, 2000.</p>
<p><b>H31</b> Identify those at risk of heart disease and stroke and provide high quality services (cont)</p>	<p>Access to healthcare facilities for high risk ethnic minorities could be improved through the use of focused inner city facilities with well trained and bilingual staff and also by improving referral mechanisms to secondary care.<sup>a</sup></p>	<p>a. <b>NHS Centre for Reviews and Dissemination. Ethnicity and health. Report 5.</b> University of York. NHS Centre for Reviews and Dissemination, 1996.</p>

# HEART DISEASE AND STROKE: Services interventions

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## *POLICY*

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**H31** (*cont*) Identify those at risk of heart disease and stroke and provide high quality services (*cont*)

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## *SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE*

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### **Prevention: Targeting obesity**

There is no evidence that community based interventions using educational and social learning methods aimed at reducing the prevalence of obesity among adults are successful.<sup>b</sup> Financial incentives in combination with educational programmes result in minor weight loss, but appeal most to those who are not over-weight.<sup>b</sup>

Interventions designed to reduce sedentary behaviour are effective in reducing overweight in children.<sup>b</sup>

Family therapy can prevent and reduce obesity in high risk children. It has been shown to be more effective than standard dietary and exercise interventions in this context.<sup>b</sup>

Drug treatments are effective in reducing obesity over the short term. In general they are best used as an adjunct to diet and lifestyle management in the treatment of obesity.<sup>b</sup>

Surgery is the most effective and possibly the most cost-effective way to reduce weight in morbidly obese people. Particularly effective techniques are gastric bypass and vertical banded gastroplasty.<sup>b</sup>

Long-term follow up and the use of maintenance interventions in weight loss programmes are necessary to sustain weight loss over time.<sup>b</sup>

Reviews on prevention and treatment of obesity in children,<sup>c</sup> the effect of low-fat diets for reducing obesity,<sup>d</sup> and the organisation of care for managing overweight and obese people are currently in preparation.<sup>e</sup>

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### **Prevention: Targeting hypertension**

Intensive programmes of hypertension detection and treatment following protocols, not only reduces cardiovascular mortality, but also narrow social class mortality differences.<sup>a</sup>

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# HEART DISEASE AND STROKE: Services interventions

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## *POLICY*

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**H31** (*cont*) Identify those at risk of heart disease and stroke and provide high quality services (*cont*)

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## *SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE*

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There is no evidence that screening programmes in shopping centres or housing blocks increase detection or reach disadvantaged people, as intended.<sup>a</sup> Case finding is particularly useful when linked with professional training, protocols and reminders, given to both patients and doctors.<sup>a</sup> The diagnosis of hypertension should take into account the full clinical picture, including risk factors such as obesity and smoking, and should not rely solely on measurement of blood pressure values.<sup>b</sup>

Non-pharmacological interventions – salt restriction, alcohol reduction, stress management, physical exercise - for controlling blood pressure in hypertensive people have only small effects compared with drug therapy.<sup>c</sup> Weight reduction stands out as showing modest but important effects.<sup>d</sup> Trials of salt reduction have shown only very small reductions in blood pressure among normotensive people and the findings do not support a general recommendation to reduce salt intake.<sup>e</sup>

Anti-hypertensive drug therapy is effective in treating those at high risk of stroke, particularly the elderly.<sup>f</sup> Up to the age of 80 years, drug treatment is more beneficial in terms of numbers-needed-to-treat than among younger adults aged less than 60 years.<sup>f</sup> Above this age, the benefits of treatment have not been established.<sup>g</sup> Physicians should take particular care to ensure that the specific drugs used are suited to patient characteristics and are the most cost-effective available.<sup>h</sup>

Tight control of blood pressure (aiming for a blood pressure of 150/85) in patients with diabetes significantly reduces the risk of stroke and mortality due to diabetic complications (stroke, coronary heart disease, peripheral vascular disease, renal failure and microvascular complications).<sup>1</sup>

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# HEART DISEASE AND STROKE: Services interventions

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## *POLICY*

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**H31** (cont) Identify those at risk of heart disease and stroke and provide high quality services (cont)

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## *SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE*

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### **Prevention: Targeting cholesterol levels**

General population screening for blood cholesterol is not advisable as cholesterol level, by itself, is a relatively poor predictor of coronary heart disease events. Cholesterol reduction in people at high risk of coronary heart disease, even if

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# HEART DISEASE AND STROKE: Services interventions

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## POLICY

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**H31** (*cont*) Identify those at risk of heart disease and stroke and provide high quality services (*cont*)

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## SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE

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their cholesterol levels are not raised, reduces mortality.<sup>a</sup>

Dietary interventions may lower blood cholesterol in metabolic wards,<sup>b</sup> prisons and psychiatric hospitals, but their effects in “free-living” populations is limited by the lack of long-term adherence to such diets.<sup>c</sup> If dietary interventions are applied for at least two years, they may reduce cardiovascular disease events, but the evidence is weak.<sup>d</sup>

More specific dietary changes, such as increasing fibre<sup>e</sup> and garlic,<sup>f</sup> show only small effects in trials that were poorly designed.

Drug therapy, in particular the use of statins, to lower cholesterol levels, is effective, and cost effective when targeted at people who are at high risk of coronary heart disease.<sup>g</sup>

Use of statins for primary prevention has been shown to reduce combined primary outcomes of vascular events and revascularisation procedures even in people with only average levels of blood cholesterol (5.7mmol/l) in a major trial. In higher risk men with a mean blood cholesterol of 7.0mmol/l in Scotland, statins were effective.<sup>a</sup>

### Prevention: Other dietary interventions

Both a “Mediterranean” diet and increased consumption of oily fish for secondary prevention appear to have dramatic effects in reducing recurrence and mortality and are very cost-effective compared with statins, but have only been examined in small trials that have not been replicated.<sup>h</sup>

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# HEART DISEASE AND STROKE: Services interventions

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## POLICY

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**H31** (cont) Identify those at risk of heart disease and stroke and provide high quality services (cont)

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## SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE

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### Prevention: Targeting other risk factors

Multiple risk factor interventions (eg smoking cessation, dietary advice, physical activity) for primary prevention used in primary care have not been shown to have convincing effects on cardiovascular events, and have only small effects on risk factors.<sup>a</sup>

Observational data suggest that blood homocysteine levels are associated with increased risk of heart disease and stroke. Lowering blood homocysteine with folic acid and vitamin B6 or B12 supplements is feasible and may therefore reduce cardiovascular disease.<sup>b</sup> Trials of folic acid and vitamin supplementation measuring substantive outcomes have not yet reported.

Modest alcohol intake of one to four drinks per day may lower coronary heart disease incidence.<sup>c</sup> The beneficial effects of alcohol may be mediated through increases in high density lipoprotein cholesterol and haemostatic factors.<sup>d</sup> However, even low alcohol intake may have adverse effects on various cancers, cirrhosis, haemorrhagic stroke, blood pressure, injuries and accidents.<sup>e</sup>

No specific intervention programmes preventing alcohol misuse by young people can yet be recommended as there is little evidence that any presently available programmes are effective in the long term.<sup>f</sup> Short and medium term reductions in

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## POLICY

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**H31** (cont) Identify those at risk of heart disease and stroke and provide high quality services (cont)

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## SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE

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drinking were found in several trials but these were of low methodological quality.<sup>f</sup>

Infection with *Helicobacter pylori* is associated with moderately increased risk of coronary heart disease not accounted for by other measured risk factors, but the more methodologically robust prospective studies failed to show a statistically significant relationship.<sup>g</sup>

No cardiovascular benefits have been detected from the use of hormone replacement therapy (HRT).<sup>h</sup>

Atrial fibrillation is an important independent risk factor for stroke.<sup>i</sup> This risk can be reduced substantially by treatment with warfarin or more modestly by treatment with aspirin.<sup>j</sup> Treatment choice for individual patients can be guided by decision analysis tools which take into account underlying stroke risk and risk of haemorrhage (which is greater on warfarin than on aspirin).<sup>k</sup>

A number of interventions are effective in promoting smoking cessation.<sup>l</sup> These include nicotine replacement therapy (inhalers and patches appear to be slightly more effective than chewing gum);<sup>m</sup> behaviour modification, combined with advice and social skills training;<sup>n</sup> and encouragement and brief advice given by well trained GPs or other health professionals during routine consultations (which is particularly effective with more motivated patients).<sup>o</sup> Among patients with coronary heart disease, smoking cessation advice increases quit rates by 45% compared with usual care.<sup>p</sup> Patient education and counselling have been shown to significantly reduce smoking and drinking rates. Larger effects are seen using behavioural techniques, particularly self monitoring.<sup>q</sup>

There is no evidence that silver acetate,<sup>r</sup> aversion treatments,<sup>s</sup> lobeline,<sup>t</sup> acupuncture,<sup>u</sup> anxiolytics or antidepressants<sup>v</sup> are effective in smoking cessation.

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# HEART DISEASE AND STROKE: Services interventions

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## *POLICY*

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**H31** (*cont*) Identify those at risk of heart disease and stroke and provide high quality services (*cont*)

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## *SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE*

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## *POLICY*

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**H31** (cont) Identify those at risk of heart disease and stroke and provide high quality services (cont)

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## *SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE*

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### **Treatment and secondary prevention: Surgical and invasive interventions**

#### **Coronary heart disease**

Angina sufferers are an easily identifiable target group for potential surgical or other invasive interventions for coronary artery problems, which are known to be effective in treating angina.<sup>a</sup>

The relative effectiveness of Coronary Artery Bypass Grafting (CABG), Percutaneous Transluminal Coronary Angioplasty (PTCA) and medical treatment depends on the severity of the disease, the responsiveness of patients with less severe disease to medical intervention, and is changing as new technologies and techniques are introduced.<sup>b</sup>

In acute coronary syndromes, emergency PTCA is superior to thrombolysis for short term outcomes, but is only an option in centres with considerable experience.<sup>c</sup>

Long term low dose aspirin and lipid-lowering reduce the risk of re-stenosis, myocardial infarction, stroke or vascular death in post PTCA and CABG patients.<sup>d</sup>

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## *POLICY*

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**H31** (*cont*) Identify those at risk of heart disease and stroke and provide high quality services (*cont*)

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## *SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE*

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### **Treatment and secondary prevention: Surgical and invasive interventions**

#### **Stroke**

Carotid endarterectomy reduces the risk of stroke in patients with severe carotid artery stenosis who have recently suffered a transient ischaemic attack in the part of the brain supplied by the diseased artery.<sup>a</sup> The operation probably also reduces risk of stroke in asymptomatic patients with carotid artery stenosis, but the overall benefit is small.<sup>b</sup> A variety of surgical techniques are used, but there is insufficient evidence to prefer the use of any particular approach.<sup>c</sup> The risks from surgery are related to a number of patient-specific factors. Taking account of these might help decision making for individual patients.<sup>d</sup>

There is insufficient evidence to judge whether acute surgical interventions for primary intracerebral haemorrhage should be performed.<sup>e</sup>

Elective surgery to prevent sub-arachnoid haemorrhage from intracranial aneurysms is associated with important postoperative mortality and permanent morbidity.<sup>f</sup> A review is exploring the timing of surgery to prevent re-bleeding following a sub-arachnoid haemorrhage.<sup>g</sup>

Systematic reviews about the effects of percutaneous transluminal angioplasty in the treatment of carotid and vertebral artery stenosis found no completed trials.<sup>h</sup>

There is no reliable evidence to suggest that extracranial-intracranial bypass reduces the rate of stroke in comparison to medical management.<sup>i</sup>

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# HEART DISEASE AND STROKE: Services interventions

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## *POLICY*

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**H31** (*cont*) Identify those at risk of heart disease and stroke and provide high quality services (*cont*)

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## *SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE*

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### Treatment and secondary prevention: Drug therapies

#### Coronary heart disease

Use of low dose aspirin in patients at high risk of coronary heart disease is highly cost-effective in terms of cost per life saved. There is no evidence to support the addition of heparin to aspirin therapy in the treatment of myocardial infarction.<sup>a</sup>

Long term beta-blockade following myocardial infarction, with propranolol,

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# HEART DISEASE AND STROKE: Services interventions

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## POLICY

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**H31** (cont) Identify those at risk of heart disease and stroke and provide high quality services (cont)

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## SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE

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timolol and metoprolol, is safe and effective.<sup>b</sup>

Amiodarone may reduce mortality in high-risk patients following myocardial infarction, heart failure or a history of cardiac arrest, but is poorly tolerated by many patients. Most of the benefits are obtained in those with heart failure.<sup>c</sup>

Class 1 anti-arrhythmic drugs given in the acute phase of myocardial infarction increase mortality and should not be used.<sup>d</sup>

Statins (HMG Co-A reductase inhibitors) reduce blood cholesterol and clinical events (including revascularisations) in patients following myocardial infarction.<sup>j</sup> Statins are effective over a wide range of blood cholesterol levels, including those considered “normal” in Britain.<sup>e</sup>

High-intensity oral anticoagulation (INR 2.8-4.8) in patients with coronary heart disease reduces the risk of recurrence, total mortality and stroke but is associated with a six fold increase of major bleeding. Moderate intensity oral anticoagulation (INR 2-3) reduces the risk of recurrence and stroke (reduction of total mortality is not significant) but is associated with a seven fold increase in major bleeding. Low intensity oral anticoagulation together with aspirin is not superior to aspirin alone. There is currently insufficient evidence to assess the effect of high / moderate intense regimens with aspirin.<sup>f</sup>

Pooled data from controlled trials of hormone replacement therapy (HRT) do not support the idea that that postmenopausal HRT prevents cardiovascular events. In women with known ischaemic heart disease one large well designed trial failed to detect any reduction in cardiovascular disease events or all cause mortality in those allocated to a minimum of 4 years treatment with HRT. HRT significantly increased the risk of venous thrombosis and gall bladder disease.<sup>g</sup>

### Heart failure

Phosphodiesterase inhibitors *increase* mortality in patients suffering from chronic heart failure.<sup>h</sup>

Angiotensin converting enzyme (ACE) inhibitors can reduce left ventricular hypertrophy.<sup>i</sup> In patients with mild or moderate heart failure, beta-blockade reduces mortality but this effect is in addition to benefits obtained by ACE

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## HEART DISEASE AND STROKE: Services interventions

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### *POLICY*

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**H31** (*cont*) Identify those at risk of heart disease and stroke and provide high quality services (*cont*)

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### *SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE*

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inhibitors.<sup>l</sup> The effects on mortality are reduced in sensitivity analyses excluding less robust trials.<sup>k</sup> Patients with severe heart failure may be adversely affected by beta-blockers. It is not clear whether one beta-blocker is better than another, and their effects in older patients and those with more severe heart failure require further study.<sup>l</sup>

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# HEART DISEASE AND STROKE: Services interventions

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## ***POLICY***

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**H31** (*cont*) Identify those at risk of heart disease and stroke and provide high quality services (*cont*)

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## ***SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE***

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### **Treatment and secondary prevention: Drug therapies**

#### **Stroke: acute treatment**

In acute stroke, aspirin therapy is safe and reduces the risk of early stroke recurrence and improves long term outcome.<sup>a</sup> Thrombolysis increases risk of death, but reduces dependency in survivors so that, overall, risk of death or dependency is reduced.<sup>b</sup> Indirect comparison of the different thrombolytic agents that have been used in trials suggests that recombinant tissue plasminogen activator is associated with fewer deaths and greater chance of a good outcome (alive and independent).<sup>c</sup> There is no evidence that routine anti-coagulants and calcium antagonists are effective in acute stroke.<sup>d</sup> There have been reviews of several other therapies in acute stroke, but there is insufficient evidence to justify use of any of them outside randomised controlled trials.<sup>e</sup> Nine further reviews are being prepared on other medical interventions for acute stroke.<sup>f</sup>

In subarachnoid haemorrhage, use of nimodipine reduces the risk of a poor outcome (death or dependency), probably through reducing secondary cerebral ischaemia.<sup>g</sup> There is no evidence to support the use of antifibrinolytic therapy.<sup>h</sup> Two reviews are being prepared on other aspects of management of subarachnoid haemorrhage.<sup>i</sup>

Echocardiography can identify cardiac sources of embolus in patients with stroke and clinical evidence of cardiac disease. There is evidence from observational studies that patients with intra-cardiac thrombus benefit from anticoagulation.<sup>j</sup>

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# HEART DISEASE AND STROKE: Services interventions

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## *POLICY*

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**H31** (*cont*) Identify those at risk of heart disease and stroke and provide high quality services (*cont*)

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## *SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE*

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### **Stroke: Secondary prevention**

Aspirin has a net beneficial effect in secondary prevention of stroke,<sup>k</sup> despite causing a small increase in risk of haemorrhagic stroke.<sup>l</sup> There is no evidence that higher (eg 300mg per day) doses of aspirin are any more effective than lower doses (eg 75mg per day).<sup>m</sup> The Antithrombotic Trialists' Collaboration is reviewing whether the addition of dipyridamole to aspirin is more effective than aspirin alone.<sup>n</sup> Thienopyridine derivatives (for example clopidogrel and ticlopidine) are effective, but more expensive, alternative for patients who cannot take aspirin.<sup>o</sup> Anticoagulant therapy slightly reduces the risk of recurrence after non-embolic ischaemic stroke or transient ischaemic attack, but this benefit is more than outweighed by a much larger increase in the risk of intracranial haemorrhage (so there is a net hazard).<sup>p</sup>

For patients with atrial fibrillation, warfarin (substantially) and aspirin (moderately) reduce risk of stroke.<sup>q</sup> Warfarin is associated with greater risk of haemorrhage than aspirin.<sup>r</sup> Combining aspirin therapy with warfarin is associated with a further increase in risk of haemorrhage.<sup>s</sup> A review of anticoagulants versus antiplatelet agents in atrial fibrillation is in preparation.<sup>t</sup>

Four further reviews are in preparation looking at the role of antiplatelet agents and anticoagulants in various sub-groups of patients who are at increased risk of stroke.<sup>u</sup>

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## HEART DISEASE AND STROKE: Services interventions

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### *POLICY*

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**H31** (*cont*) Identify those at risk of heart disease and stroke and provide high quality service (*cont*)

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### *SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE*

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# HEART DISEASE AND STROKE: Services interventions

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## *POLICY*

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**H31** (*cont*) Identify those at risk of heart disease and stroke and provide high quality services (*cont*)

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## *POLICY*

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- H31** (*cont*) Identify those at risk of heart disease and stroke and provide high quality services (*cont*)

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## *POLICY*

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**H31** (*cont*) Identify those at risk of heart disease and stroke and provide high quality services (*cont*)

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# HEART DISEASE AND STROKE: Services interventions

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## *POLICY*

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**H31** (*cont*) Identify those at risk of heart disease and stroke and provide high quality services (*cont*)

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## *SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE*

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### Rehabilitation

#### **Coronary Heart Disease**

Cardiac rehabilitation programmes can improve recovery and survival in patients who have had a heart attack or invasive heart procedure.<sup>a</sup> Programmes combining exercise, psychosocial and educational interventions tend to be more effective, whereas exercise alone may be insufficient to reduce recurrence and mortality.<sup>a</sup> The essential components of a successful service, the duration of rehabilitation required, and effects in different types of patient are all largely unknown. Variation in provision and uptake is considerable.

A review is being prepared examining the effects of exercise programmes for coronary heart disease.<sup>b</sup>

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#### **Stroke**

Observational studies using historical controls suggest that recognising and treating swallowing difficulties in stroke patients will reduce risk of pneumonia.<sup>a</sup> However, there is a lack of evidence available to guide care and feeding of these patients.<sup>b</sup> A review of pharmacological treatments for dysphasia is underway.<sup>c</sup>

There is some evidence that more intensive rehabilitation leads to better outcome.<sup>d</sup>

There is a lack of evidence about the effects of speech and language therapy after stroke.<sup>e</sup>

Other systematic reviews are available or planned looking at specific treatments in stroke rehabilitation.<sup>f</sup> Recent trials have suggested that domiciliary occupational therapy is effective both for stroke patients who stay at home and for those discharged from hospital.<sup>g</sup>

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# HEART DISEASE AND STROKE: Services interventions

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## *POLICY*

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**H31** (*cont*) Identify those at risk of heart disease and stroke and provide high quality services (*cont*)

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## *SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE*

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### Service issues

#### **Coronary heart disease**

Evaluations show that many patients are not being given appropriate treatment to reduce risks of recurrence, and that access to treatment is often delayed, inadequate and inequitable.<sup>a</sup>

There is also variation in provision of cardiac rehabilitation services.<sup>b</sup>

There is evidence that coronary artery bypass grafting surgery is associated with lower post-operative mortality rates in hospitals operating on more than 100 patients per year, and post-PTCA mortality rates fall with increased operator experience and hospital volumes.<sup>c</sup>

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# HEART DISEASE AND STROKE: Services interventions

<i>POLICY</i>	<i>SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE</i>	<i>REFERENCES</i>
<p><b>H31</b> (<i>cont</i>) Identify those at risk of heart disease and stroke and provide high quality services</p>	<p><b>Stroke</b></p> <p>Organised in-patient care in stroke units leads to better survival, less dependency, and greater likelihood of patients living at home after one year as compared to conventional in-patient care. Stroke unit care is not associated with any increase in hospital length of stay.<sup>a</sup></p> <p>There is no evidence that services which aim to avoid hospital admission for stroke patients can achieve the same benefits as inpatient stroke units.<sup>b</sup></p> <p>Models of care that support early discharge from hospital reduce length of stay, but the effects on patient and carer outcomes and on overall costs of this approach are unclear.<sup>c</sup> There are similar uncertainties over the effects of day-hospital rehabilitation.<sup>d</sup></p>	<p>a. <b>Stroke Unit Trialists' Collaboration. Organised inpatient (stroke unit) care for stroke [Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</b></p> <p>b. <b>Langhorne P, Dennis MS, Kalra L, Shepperd S, Wade DT, Wolfe CDA. Services for helping acute stroke patients avoid hospital admission [Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</b></p> <p>c. <b>Early Supported Discharge Trialists. Services for reducing duration of hospital care for acute stroke patients [Cochrane Review]. In: The Cochrane Library, Issue 1, 2000. Oxford: Update Software.</b> Weir RP. Rehabilitation of cerebrovascular disorder (stroke): early discharge and support: a critical review of the literature. Christchurch: New Zealand Health Technology Assessment, 1999.</p> <p>d. Dekker R, Drost EA, Groothoff JW, Arendzen JH, van Gijn JC, Eisma WH. Effects of day-hospital rehabilitation in stroke patients: a review of randomized clinical trials. <i>Scandinavian Journal of Rehabilitation Medicine</i> 1998;30:87-94.</p>
<b>People can:</b>		
<p><b>H32</b> Learn how to recognise a heart attack and what to do, including resuscitation skills</p>	<p>Bystander cardiopulmonary resuscitation following sudden cardiac arrest and defibrillator-capable emergency services increases survival.<sup>a</sup> No systematic reviews or trials of the effects of training in cardio-pulmonary resuscitation were found.</p>	<p>a. Nichol G, Stiell IG, Laupacis A, Wells GA. A cumulative meta-analysis of the effectiveness of defibrillator-capable emergency medical services for victims of out-of-hospital cardiac arrest. <i>Annals of Emergency Medicine</i> 1999;34:17-25.</p> <p>Auble TE, Menegazzi JJ, Paris PM. Effect of out-of-hospital defibrillation by basic life support providers on cardiac arrest mortality: a meta-analysis. <i>Annals of Emergency Medicine</i> 1995;25:642-48.</p>
<p><b>H33</b> Have their blood pressure checked regularly</p>	<p>Intensive programmes of hypertension detection and treatment following protocols, not only reduces cardiovascular mortality, but also narrow social class mortality differences.<sup>a</sup></p>	<p>a. <b>NHS Centre for Reviews and Dissemination. Review of the research on the effectiveness of Health Service interventions to reduce variations in health. Report 3. NHS Centre, for reviews and Dissemination, 1995.</b> <b>Ebrahim S, Davey SG. Health promotion in older people for cardiovascular disease prevention - a systematic review and meta-analysis. London: Health Education Authority, 1996.</b> <b>Ebrahim S. Detection, adherence and control of hypertension for the prevention of strokes: a systematic</b></p>

## HEART DISEASE AND STROKE: Services interventions

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### *POLICY*

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**H34** Take medicine as it is prescribed

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### *SYSTEMATIC REVIEWS OF RELEVANT EVIDENCE*

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Current methods of improving adherence for chronic health problems are mostly complex and not very effective.<sup>a</sup> More studies of innovative approaches to assist patients to follow medication prescriptions are needed.

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