



Proactive case finding and retention and improving access  
to services in disadvantaged areas (Health Inequalities)  
Statins

**Draft report to the National Institute for Health & Clinical  
Excellence**

**Report prepared by the Support Unit for Research Evidence  
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**September 2007**

## Summary of findings

The National Institute for Health and Clinical Excellence was asked by the Department of Health to produce guidance for the NHS on public health interventions aimed at reducing the rate of premature death (defined by ONS as death before the age of 75) in disadvantaged areas.

The aim of the review was to interrogate the literature for interventions aimed at finding and supporting adults from disadvantaged populations who are at increased risk of developing CVD or who have CVD. The research questions were as follows:

1. What interventions could PCTs introduce to identify and reach people at increased risk of developing or with established CHD
2. Once identified and reached, how do PCTs support people at increased risk of developing or with established CHD?
3. How can PCTs provide or improve access to services aimed at people at increased risk or with established CHD?

A total of 43 studies were included that addressed interventions to identify, support and improve access to services for people at risk of developing or with established coronary heart disease (CHD). Some studies were applicable to more than one question, therefore there were 22 studies applicable to question 1, 7 studies for question 2 and 16 studies for question 3.

For question one, a total of 22 studies were identified that addressed interventions to identify people from disadvantaged populations who were either at an increased risk of developing CHD or were already diagnosed with CHD.

Two randomised controlled trials (RCTs) and one controlled before and after study (CBA), and were identified (2 RCTs [+]<sup>Feder et al 1999, Krieger et al 1999</sup>, 1 CBA [-]<sup>O'Loughlin et al 1996</sup>).

The remainder comprised of one qualitative study ([++] Wright et al 2007) and 18 case studies (9 [+]<sup>Bader et al 2006, Byers et al 1999, Chatterjee 1997, Hamilton et al 1997, Haw et al 2004, Huckerby et al 2006, Lacey et al 2004, Macnee et al 1996, Osborn et al 2003</sup>. 9 [-]<sup>Ahktar et al 2001, Biswas et al 1997, Davis et al 1996, Kirkpatrick 2004, Margolis et al 2003, Molokhia 2000, Oexmann et al 2001, Will et al 2004, Williams et al 2001</sup>.)

Studies were diverse in terms of the interventions, outcomes measured, study design and populations. The variation in relevant outcome measures included prevalence of risk factors, referrals to healthcare services, participation rates with interventions, previously undetected risk/presence of CHD, and recording of risk factors.

The studies fell into three broad categories: practice-based initiatives, community based and multi-faceted interventions involving an element of cardiovascular risk assessment. The identified studies considered the following populations: people from socially deprived areas, ethnic groups, people with mental health problems, homeless people, prison inmates and manual workers.

For many of the papers (particularly for multiple-intervention studies) the primary purpose was not to examine the effectiveness of interventions to improve the identification of patients at cardiovascular risk. Whilst several interventions included

patient referral for those at risk, studies did not always report the numbers referred or the referral outcomes. The few studies that attempted to measure referral outcomes were unsuccessful in the following up of all patients.

No firm conclusions can be made from the identified literature for interventions to improve the identification of people with or at risk of CHD, however a number of promising initiatives were found. These include inviting specific populations to attend screening at their general practice, community blood-pressure measurements, workplace screening, the addition of cardiovascular screening to breast and cervical cancer programmes and culturally sensitive education sessions that include cardiovascular risk assessment. However, further well-designed research is required to determine the cost-effectiveness and transferability of such initiatives. One qualitative study ([++] Wright et al 2006) of service users with severe mental illness, and primary care staff and community mental health teams, identified a range of perceived obstacles to CHD screening. However, there was some disagreement about the best way to deliver appropriate care.

For question two (supporting patients once identified as being at risk or with CHD), only one study in disadvantaged groups was identified, which evaluated an intervention to improve patient compliance with statins/lipid lowering therapies or retention within services. No primary UK studies were identified in generic populations. Therefore research conducted in OECD countries for all population types was considered.

With these broader inclusion criteria, a total of seven studies were identified that addressed interventions to improve patient compliance with statins or lipid-lowering medication (SR [+] Beswick et al 2004, 2 RCTs [-] Faulkner et al 2000, Guthrie 2001, Lopez-Cabezas et al 2006, UBCA [-] Ali 2003, 2 observational [-] Bluml et al 2000, Muhlestein et al 2001).

The literature suggests there is a paucity of good quality research on this topic, particularly in disadvantaged areas. The following interventions were examined, pharmacist initiatives, telephone reminders, patient education and in-hospital prescription of statins. The studies were however methodologically flawed and the applicability to disadvantaged populations is limited. There was also a lack of research regarding the retention of patients within services. Just one systematic review ([+] Beswick et al 2004) was identified on adherence to cardiac rehabilitation. It found some promising results for self-management techniques based around individualised assessment, problem solving, goal setting and follow-up. However, the authors concluded that there were few studies of sufficient quality to make specific recommendations of methods to improve adherence to outpatient cardiac rehabilitation and its components.

For question 3, sixteen studies were identified that looked at access to services aimed at people at increased risk or with established CHD in disadvantaged populations. UK research in generic populations was also considered but this did not result in any further eligible studies.

Evidence regarding the effectiveness of interventions to improve access was reported in five studies (SR [+] Beswick et al 2004, 2 RCTs [+] Feder et al 1999, Krieger et al 1999, 2 CS [+] Manson-Siddle et al 1999, Lacey 2004)

The four primary studies indicated the importance of providing additional staff resources to encourage or support the uptake of services in people living in socially

deprived areas. Evidence from one RCT suggested that, in an area of deprivation, postal prompts to patients and their GPs following an acute coronary event, improves the likelihood of the patient having at least one consultation with their GP or nurse ([+] Feder et al 1999). The systematic review ([+]Beswick et al 2004) highlighted the need for trials of interventions applicable to all patients and targeting specific under-represented groups.

Evidence from ten qualitative studies identified a number of enablers and barriers for addressing service uptake in ethnic groups, people living in socially deprived areas and older people (2 [++] Netto et al 2007, Tod et al 2001, 7 [+] Clark et al 2002, Higginbottom 2006, Lindesey 1997, Macintosh 2003, Tod et al 2002, Richards et al 2003, Vishram et al 2007, 2 [-] East et al 2004, Naqvi 2003)

The following issues were highlighted: flexible services, transport, personal views, awareness or understanding of services and treatment, religious and cultural issues, one-to-one care/group care, patient communication problems and the absence of services or long waiting lists. It was not possible to tell from the literature how strong an impact addressing these barriers would have on improving service uptake.

# Evidence Statements

## Question 1 Identifying and reaching people at increased risk of, or with established CHD

No.	Statement
1.	<p>There is evidence from three case studies suggesting interventions inviting specific populations (South Asians, homeless people or patients with psychosis) to attend risk screening at their GP practice or primary care clinic may identify a number of people at risk of coronary heart disease (outcomes reported in two case studies [+]<sup>1</sup>, [-]<sup>2</sup>). Although it is difficult to draw firm conclusions on how well such interventions are attended due to poor reporting of participation rates (outcomes reported in three case studies [+]<sup>1</sup>, [-]<sup>2</sup> [+]<sup>3</sup>).</p> <p>1 Macnee et al 1996 2 Ahktar et al 2001 3 Osborn et al 2003</p>
2.	<p>There is evidence from one small case study ([+]<sup>4</sup>) that screening long-term psychiatric hospital patients can identify previously undetected coronary heart disease. Screening 64 patients identified one new case of established CHD and 22 previously undetected test abnormalities. Participation in the intervention was high (64/94 i.e.66%) but only a small proportion consented to having blood tests.</p> <p>4 Haw et al 2004</p>
3.	<p>There is evidence from one RCT ([+]<sup>5</sup>) that in an area of deprivation, postal prompts to patients and their GPs following an acute coronary event, improves monitoring of patients risk and the likelihood of the patient having at least one consultation with their GP or nurse.</p> <p>5 Feder et al 1999</p>
4.	<p>There is evidence from one case study ([+]<sup>6</sup>) to suggest that in an area of deprivation, a project funding a nurse and exercise worker to develop practice nurse and GP skills in identifying and monitoring patients and facilitate the provision of exercise facilities for CHD patients, may lead to a small improvement in cholesterol testing of patients. 72.5% of control patients reported receiving cholesterol tests in the past year compared to 77.8% of the intervention group, p=0.002. No differences were seen in blood pressure measurement.</p> <p>6 Lacey et al 2004</p>
5.	<p>There is weak quality evidence from two case studies ([-]<sup>7,8</sup>) to suggest that offering cardiovascular risk assessment opportunistically to Afro-Caribbean general practice patients or patients from a range of socioeconomic categories may identify a number of people at risk of CHD. However the interventions require further research from well conducted studies before firm conclusions can be made.</p> <p>7 Molokhia 2000 8 Davis et al 1996</p>

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6. Due to the very poor quality nature of a case study ([-]<sup>9</sup>) no firm conclusions can be made on the feasibility of a primary care physician performing hand carried cardiac ultrasound examinations in attenders of an urban clinic for underserved minority patients.

9 Kirkpatrick 2004

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7. There is evidence from three studies to suggest that workplace cardiovascular screening provided in schools or businesses in multi-ethnic low income areas (CBA [-]<sup>10</sup>, case study [-]<sup>11</sup>), or in factory workers (case study [+]<sup>12</sup>) is moderately well attended. Results suggest that a number of participants were identified for referral to a physician for follow-up (outcome reported in two studies CBA [-]<sup>10</sup>, case study [-]<sup>11</sup>). No firm conclusions can be made on patients completion of follow-up as this was only reported in one poor quality study (case study [-]<sup>11</sup>).

10 O'Loughlin et al 1996

11 Margolis et al 2003

12 Chatterjee 1997

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8. No firm conclusions can be made on whether continuous interaction with prevention-focused, advanced nurses improves the response level of a minority worksite employee group to CVD screening programs due to the poor quality and lack of methodological information reported in one case study ([-]<sup>13</sup>).

13 Williams et al 2001

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9. Evidence from one UK case study ([-]<sup>14</sup>) evaluating the establishment of a health screening clinic in a prison, indicated a moderate 35% voluntary uptake by the inmates. There were active interventions following the screening for 87 (34%) inmates and 13 (32%) staff screened. These ranged from simple anti-smoking and dietary advice to more formal medical interventions to manage raised blood pressure and cholesterol. Uptake data should be viewed cautiously, as the number of potential participants was not reported.

14 Biswas et al 1997

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10. Two case studies suggest that offering blood pressure measurements at community sites in areas of deprivation can identify a number of people with elevated blood pressure. No firm conclusion can be made on participation rates as these were not reported in the studies. One UK case study ([+]<sup>15</sup>) found 221 people out of 758 first time users of self-reading sphygmomanometers placed in public sites had elevated blood pressure measurements. No firm conclusions can be made regarding physician follow-up as the researchers were unable to contact all of these people. One US RCT ([+]<sup>16</sup>) providing blood pressure measurements at a range of community sites and identified 31.4% with elevated blood pressure and 10.7% with severely elevated blood pressure. Transferability and cost-effectiveness of such interventions requires further study.

15 Hamilton et al 1997

16 Krieger et al 1999

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- 11.** There is evidence from two case studies evaluating phase one ([+]17) and phase two ([-]18) of the Well-Integrated Screening and Evaluation for Women Across the Nation (WISEWOMAN) to suggest that adding cardiovascular screening to state breast and cervical cancer screening programmes reaches financially disadvantaged and minority women and identifies a number at risk of coronary heart disease. No conclusions can be made on participation rates or physician referrals as these outcomes have not been reported. Applicability and transferability of these programmes to a UK setting requires further study.

17 Byers et al 1999

18 Will et al 2004

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- 12.** Evidence from three studies (two case studies [+]19,20 and one uncontrolled before and after study [+]21) suggests that culturally-sensitive education sessions that include an element of cardiovascular risk assessment may be effective in the identification of at risk individuals. Two moderate quality studies evaluated educational interventions in black and minority community groups ([+]19) and Turkish immigrants at a Mosque ([+]20), offering blood pressure measurements. Participation with blood pressure measurements were high, and revealed a number of patients with uncontrolled hypertension or with elevated blood pressure readings. Evidence from one case study ([-]21) in which health checks were conducted before and after a church-based educational intervention with predominantly black participants should be viewed more cautiously owing to concerns of transferability and applicability.

19 Huckerby et al 2006

20 Bader et al 2006

21 Oexmann et al 2001

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- 13.** Evidence from one qualitative study ([++]22) of service users with severe mental illness, and primary care staff and community mental health teams, indicate a range of perceived obstacles to CHD screening. These include lack of appropriate resources in existing services; anticipation of low uptake rates by patients with SMI; perceived difficulty in making lifestyle changes amongst people with SMI; patients dislike having blood tests and lack of funding for CHD screening services or it not being seen as a priority by Trust management. There was some disagreement about the best way to deliver appropriate care, and authors concluded that increased risk of CHD associated with SMI and antipsychotic medications requires flexible solutions with clear lines of responsibility for assessing, communication and managing CHD risks.

22 Wright et al 2006

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## Question 2 Supporting patients once identified and reached

No.	Statement
1.	<p>There is a paucity of good quality research on the effectiveness of pharmacist interventions to improve compliance with lipid lowering therapy, particularly in disadvantaged groups. Results from the four studies identified (two RCTs [-]<sup>1,2</sup> one UBCA [-]<sup>3</sup> and one observational study [-]<sup>4</sup>) should be viewed with caution owing to poor methodological quality and doubts about applicability to disadvantaged groups.</p> <p>1 Faulkner et al 2000 2 Lopez-Cabezas et al 2006 3 Ali 2003 4 Bluml et al 2000</p>
2.	<p>Evidence from one low quality RCT ([-]<sup>5</sup>) suggests that telephone reminders and postcards to reinforce messages about coronary risk reduction does not produce significant improvements in short term compliance in patients prescribed pravastatin treatment. Results should be viewed with caution as the poor quality study is likely to be highly biased and may not be applicable to disadvantaged groups.</p> <p>5 Guthrie 2001</p>
3.	<p>Well conducted research examining patient education to improve compliance with lipid lowering therapy is required before firm conclusions can be made regarding its effectiveness, particularly in disadvantaged groups. Evidence from one uncontrolled before and after study ([+]<sup>6</sup>) of nurse-led education in heart failure patients suggested there was no significant difference in self-reported compliance at one year, whereas one RCT ([-]<sup>2</sup>) of a pharmacy intervention including patient education for heart failure patients found a significant difference in compliance at 2 and 6 months, but not at 12 months. Applicability of the studies may be limited as the medication prescribed was not specified.</p> <p>2 Lopez-Cabezas et al 2006 6 Gonzalez et al 2005</p>
4.	<p>Due to poor methodological quality, no firm conclusions can be made from one observational study ([-]<sup>7</sup>) suggesting in hospital prescription of statins for patients undergoing arteriography improves medication compliance compared to post discharge prescription. Effectiveness and applicability to disadvantaged populations is required in well-conducted research.</p> <p>7 Muhlestein et al 2001</p>
5.	<p>Well-conducted research is required examining the effectiveness of improving retention of patients at risk of or with CHD within services. Evidence from the one systematic review identified ([+]<sup>8</sup>) highlights the dearth of literature reporting the evaluation of simple interventions aimed at improving adherence to cardiac rehabilitation for all patients or specific groups of patients. The systematic review identified few studies of sufficient quality to enable the recommendation of specific methods to improve adherence to outpatient cardiac rehabilitation. The most promising approach was the use of self-management techniques based around individualised assessment, problem solving, goal setting and follow-up. This was most likely to be effective in improving specific aspects of rehabilitation, including diet and exercise.</p> <p>8 Beswick et al 2004</p>

### Question 3 Providing and improving access

No.	Statement
1.	<p>Evidence from one systematic review ([+]<sup>1</sup>) highlighted the need for trials of interventions applicable to all patients and targeting specific under-represented groups. The review revealed some evidence to support the use of approaches aimed at motivating patients, regular support and practice assistance from trained lay volunteers and a multifaceted approach for the coordination of transfer of care from hospital to general practice. Applicability and transferability of these programmes to disadvantaged populations requires further study.</p> <p>1 Beswick et al 2004</p>
2.	<p>Evidence from three studies indicated the importance of providing additional staff resources to encourage or support the uptake of services in people living in socially deprived areas.</p> <p>One US moderate quality RCT ([+]<sup>2</sup>) in a predominantly black population from a low income area found improved uptake of services with a tracking and outreach intervention, where community health workers supported patients in completing referral to their physician for high blood pressure. Evidence from one non-comparative UK case study ([+]<sup>3</sup>) indicates that additional resources for tertiary cardiology may have reduced socioeconomic inequities in angiography without being specifically targeted at the needier, more deprived groups, but the impact on revascularisation equity is not yet clear.</p> <p>Evidence from one UK case study ([-]<sup>4</sup>) suggested that a project funding one nurse and one exercise worker to support GP practices in a socially deprived area increased the practices provision of cardiac rehabilitation services such as exercise programmes, psychological and social support and dietary advice. Project nurses worked directly with practice nurses and GPs to develop their skills in identifying and monitoring patients with CHD, giving lifestyle advice and ensuring optimum medication regimes and an exercise worker worked with practices and the community to identify and facilitate the provision of exercise resources suitable for CHD patients.</p> <p>2 Krieger et al 1999 3 Manson-Siddle 4 Lacey 2004</p>
3.	<p>There is evidence from one RCT ([+]<sup>5</sup>) that in an area of deprivation, postal prompts to patients and their GPs following an acute coronary event, improved the likelihood of the patient having at least one consultation with their GP or nurse.</p> <p>5 Feder et al 1999</p>

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- 4.** A number of barriers and enablers to accessing services were identified in five qualitative studies involving people from socially deprived areas ([++]<sup>6</sup> [+]<sup>7-10</sup>). Common themes were a lack of understanding of services and treatments and the need for flexible services; the inconvenient timing of appointments and the lack of transport were both cited as barriers; with the latter overcome by the provision of home visits. Personal factors such as minimising the severity of their illness, taking a cope and don't fuss approach and fear of blame were also reported as barriers. The absence of cardiac rehabilitation services and long waiting lists was also noted and for some patients the reluctance to attend group care. ([++]<sup>6</sup> [+]<sup>7,8</sup>, [-]<sup>9</sup>).  
Healthcare providers agreed on the need to expand cardiac rehabilitation services to reach out into the communities and that the expansion would need to take place in the community t ([+]<sup>10</sup>)  
6 Tod et al 2001  
7 Tod et al 2002  
8 Richards et al 2003  
9 East et al 2004  
10 Macintosh 2003
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- 5.** A number of barriers and enablers to accessing services were identified in five qualitative studies involving Asian populations ([++]<sup>11</sup>, [+]<sup>12-14</sup>) and Afro-Caribbean populations ([+]<sup>15</sup>)  
Amongst Asian populations, a range of religious and cultural issues were identified including female inhibitions, religious practices, family commitments and influence, and 'inappropriate' topics. The need for flexibility in the timing of services was highlighted and sensitivity in planning activities around religious events was viewed positively. Patients lack of understanding of services and treatment, including low levels of education and misunderstanding of Western medicine, what services were available and how to apply. Communication and language barriers were also perceived.  
  
A cope and don't fuss approach amongst Afro-Caribbean hypertensive patients was a reported barrier to accessing services ([+]<sup>15</sup>).  
  
11 Netto et al 2007  
12 Vishram et al 2007  
13 Naqvi 2003  
14 Lindesey 1997  
15 Higginbottom 2006
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- 6.** One qualitative study of cardiac rehabilitation coordinators in Scotland ([+]<sup>16</sup>), found that age age was widely perceived to influence access, both during initial assessment and in assessments for exercise components. Focus groups revealed that staff appeared to have knowledge of the benefits for older people but that scarcity of resources prevented them offering more accessible and appropriate services.  
16 Clark 2002 et al
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