



**THE UNIVERSITY  
OF BIRMINGHAM**

**Literature Search on  
Prognostic Risk of Sudden Cardiac Related Events  
Based on Coronary Angiographic Data**

**Aggressive Research Intelligence Facility  
West Midlands Health Technology Assessment Collaboration**

June 2005

For the Drivers Medical Group  
DVLA  
Swansea

***ARIF***



## About ARIF and the West Midlands Health Technology Assessment Collaboration

The West Midlands Health Technology Assessment Collaboration (WMHTAC) is an organisation involving several universities and academic groups who collaboratively produce health technology assessments and systematic reviews. The majority of staff are based in the Department of Public Health and Epidemiology at the University of Birmingham. Other collaborators are drawn from a wide field of expertise including economists and mathematical modellers from the Health Economics Facility at the University of Birmingham, pharmacists and methodologists from the Department of Medicines Management at Keele University and clinicians from hospitals and general practices across the West Midlands and wider.

WMHTAC produces systematic reviews, technology assessment reports and economic evaluations for the UK National Health Service's Health Technology Assessment (HTA) programme, the National Institute for Health and Clinical Excellence (NICE). Regional customers include Strategic Health Authorities, Primary Care Trusts and regional specialist units. WMHTAC also undertakes methodological research on evidence synthesis and provides training in systematic reviewing and health technology assessment.

The two core teams within WMHTAC are the Aggressive Research Intelligence Facility (ARIF) and the Birmingham Technology Assessment Group (BTAG)

ARIF provides a rapid on-demand evidence identification and appraisal service primarily to commissioners of health care. Its mission is to advance the use of evidence on the effects of health care and so improve public health. The rapid response is achieved by primarily relying on existing systematic reviews of research, such as those produced by the Cochrane Collaboration, the National Institute for Health and Clinical Excellence (NICE), the NHS Centre for Reviews and Dissemination, and the NHS Health Technology Assessment (HTA) programme. In some instances, longer answers to questions are required in which case mini rapid reviews of existing systematic reviews and key primary studies are compiled, typically taking 1-2 months to complete.

Occasionally a full systematic review is required and then topics are referred to BTAG who coordinate the production of systematic reviews for several customers under a number of contracts. ARIF is intrinsically involved in the production of these systematic reviews.

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### **Warning**

**This is a confidential document.**

**Do not quote without first seeking permission of the DVLA and ARIF.**

The information in this report is primarily designed to give approved readers a starting point to consider research evidence in a particular area. Readers should not use the comments made in isolation and should have read the literature suggested. This report stems from a specific request for information, as such utilisation of the report outside of this context should not be undertaken. Readers should also be aware that more appropriate reviews or information might have become available since this report was compiled.

# 1 Aims

The aims of this report were to address the following questions submitted by the Driver Medical Group:

## 1.1 Primary Questions

What is the prognostic risk of

- a) sudden disabling cardiac event
- b) sudden death

in the presence of

- i. 30-49% stenosis
- ii. 50% stenosis of greater

affecting the

- 1) left descending coronary artery
- 2) left main stem coronary artery?

## 1.2 Secondary questions

What is the prognostic risk of

- a) sudden disabling cardiac event
- b) sudden death

for coronary artery disease affecting 1, 2 or 3 vessels?

Is the prognostic risk level dependant on the degree of stenosis in these vessels (other than above) and/or the length of the vessel affected by stenoses?

What is the level of coronary artery disease on angiographic evidence which could be assumed to relate to a level of either of the risks (a and b) of <2%/annum?

Can risk levels be stratified to indicate whether they increase, decrease or stay the same over time (e.g. a 3 year or 10 year period)?

Further details are given in the request submitted by the Drivers Medical Group (Appendix 1 – Details of Request)

## **2 Background**

Background information is given in the documentation supplied by the Drivers Medical Group contained in Appendix 1 – Details of Request.

## **3 Methods**

Outline methods were submitted to the Drivers Medical Group by email and acceptance subsequently confirmed by telephone (Appendix 2 – Outline methods).

Briefly these were:

- To undertake a search for studies looking at the prognosis of patients with angiographic confirmation of arterial stenosis of left coronary artery, left anterior descending coronary artery, left circumflex artery and/or right coronary artery
- To initially search for existing systematic reviews. As a scoping search had identified that it was unlikely that a systematic review on the prognosis of coronary artery stenosis existed, searches were to be expanded to look for primary studies in MEDLINE
- To start by searching for articles published 2000-2005, and then work backwards in time as required in order to address the questions but also to ensure manageability of the task.
- To concentrate on primary studies following a defined cohort of patients who have angiographically ascertained stenosis of the above coronary vessels and measure outcomes directly related to sudden death or sudden cardiac events, and are studies in which rates of these events are/can be derived.
- Methodological quality of such studies was to be commented upon.
- Where appropriate and possible data on relevant outcomes was to be extracted and tabulated.
- Data analysis would depend on information identified.

### **3.1 Searches**

#### **3.1.1 Existing Reviews.**

Searches to identify existing systematic reviews on this topic were performed utilising the well-established ARIF search protocol (Appendix 3 – Search strategies)

#### **3.1.2 Primary Studies**

Searches were undertaken for primary studies in Ovid MEDLINE. The search strategy employed MeSH headings and text terms for stenosis, angiography and coronary and a filter to identify prognostic studies. The strategy was developed iteratively and modified accordingly.

Searches were initially conducted from 2000-2005 and then extended from 1990-1999.

The detailed search strategies can be found in Appendix 3 – Search strategies.

It was considered that guidelines on the health of airline pilots and flight safety might also be relevant so additional brief searches were conducted, to augment the formal searches, to identify any evidence based on recommendations in this area.

Searches were predominantly undertaken by an information specialist with additional searches by a research reviewer. Both interacted to ensure searches were conducted appropriately.

An information specialist and a research reviewer scanned the search results for relevance based on information in the title and abstract. Articles that adhered to the following broad criteria were obtained in full for further scrutiny:

**Design:** long term (at least 1 year) follow-up of a defined cohort of patients

**Population:** patients with known status of coronary artery stenosis obtained from angiography

**Outcome:** cardiac events, mortality

**Exclusion:**

Where the population:

Had or were undergoing coronary arterial bypass graft, angioplasty or other invasive cardiac procedures

Had an MI, acute angina or other serious cardiac problem – other than stenosis of coronary vessels.

Had severe coronary artery stenosis i.e. total occlusion

Papers:

Relating solely to Japanese or far East populations

Requiring translation (due to the time frame available for this report)

Full copy articles were assessed for their match to the questions being addressed (external validity) and the most informative articles (closest match to population [Section 1.1 Primary Questions], longest follow-up) subjected to further scrutiny and reporting.

The reference lists of the most relevant articles were also checked in order to identify further relevant papers.

## 4 Results

As expected we identified no existing systematic reviews or evidence that any were ongoing on this topic.

Searches for primary studies for the years 1990-2005 identified over 600 articles. A further 121 articles were identified in searches from 1980-89 but due to time constraints these papers have yet to be formally assessed. Many of the studies in this allocation were also identified through citation checking of articles found in searches for more recently published articles.

One of the key issues in undertaking searches of electronic bibliographic databases for study designs other than randomized controlled trials is the limitation of the indexing systems utilized to catalogue entries in the database. Search strategies tend to be more inclusive resulting in a large number of less relevant articles being identified with most of the identification of relevant articles being achieved through hand sifting the relatively large return from the searches.

From the search results over 30 full articles were obtained for further scrutiny.

We did not identify any study that looked at the risk of sudden death or sudden coronary event related to the degree of coronary artery stenosis in patients specifically with peripheral vascular disease or cerebrovascular episode.

We identified no study that measured either survival or coronary events in these populations.

Within the wider context of suspected ischaemic heart disease we found no study that specifically measured sudden disabling cardiac event rates related to extent of coronary arterial stenosis.

Survival rate was the most common outcome related to degree of stenosis however sudden death rates were almost never mentioned in the identified studies.

Given the lack of evidence regarding sudden death rates and sudden cardiac events, selected studies reporting survival that appeared of some match to the population of interest are detailed in Table 1, in order to provide some indication of the type of information available,

The studies in the table cover a range of severity of coronary vascular disease. Most of the studies enrolled patients with potential/suspected or confirmed coronary vascular disease. For the most part studies on congestive heart failure and ventricular disease were omitted. There is considerable heterogeneity across the studies with regard to patient sample, sample size (we have only included large sample size studies in the table), duration of follow up and methods of categorizing range of degrees of stenosis.

Some of the key themes apparent across the majority of these studies include: sample selection that is often not described in detail, limited patient details (for example it is often not clear if any patients have had a

previous cardiac event) and it is often not clear what interventions if any have been available to / given to patients.

Making comparisons across apparently similar studies is fraught with problems due to but not solely related to the lack of information about enrolment criteria, patient characteristics, interventions available to the patients during the study, and differing follow up durations and historical recruitment periods.

It is perhaps more pertinent to highlight those studies in Table 1 that supply information on survival related to differing degrees of stenosis, to inform on the type on data available; and if required, to act as a starting point for further assessment on this topic. Bearing in mind the caution above, survival rates are deliberately not reported in this section but can be found in the table.

The studies by Proudfit et al (1980) and Kemp et al (1986) provide information on survival with less than 50% stenosis of a major vessel over 10 years and 7 years respectively. Patient follow-up was practically complete at 10 years and 5 years respectively. In both studies patients were subgrouped by degree of stenosis (ie 0% , <30%, <50%, 30-50%). The sample sizes in each group vary considerably.

The studies by Proudfit et al (1983), Bruscke et al (1973) and Gohlke et al (1983) provide information on survival with greater than 50% stenosis in one or more coronary artery over 15 years, 7 years and 4 years respectively. Most patients were followed for these periods in the first two studies, but less so in Gohlke et al. Patients in these studies were subgrouped by the number of vessels with qualifying stenosis and the sample sizes were reasonably matched between groups.

The studies by <sup>i</sup>Caraccioli et al (1995), Proudfit et al (1983), and Bruscke et al (1973) provide information on survival with greater than 50% stenosis of the left main coronary artery.

Mocke et al (1982) provides information on survival with stenosis of more than 70% of in any major vessel over 4yrs and <sup>ii</sup>Caraccioli et al (1995) contains survival data on patients with left main equivalent disease.

We also looked at the aviation safety literature we identified through the formal and ancillary internet searches. These provided no further direct evidence to address this request. For interest the articles utilised are outlined in a separate reference section at the end of this report (Section 6.2)

#### **4.1 Limitations of this report**

This is not a systematic review but a rapid assessment for relevant literature  
Although the search strategies were broad and comprehensive for both systematic reviews and primary studies, the searches for the latter were restricted to specific years (1990-2005) in MEDLINE. To aid comprehensiveness the reference lists of relevant articles were scanned for further studies.

Searches were also conducted in MEDLINE for the years 1980-1989 however time restrictions mean that the articles identified have not at present been assessed for relevancy. Citation checking of relevant articles identified further studies in this and other time frames.

## **5 Conclusion**

We identified no study that readily reported sudden death or sudden cardiac events related to differing degrees of stenosis of coronary arteries in patient populations with suspected ischaemic heart disease and or peripheral vascular disease and cerebrovascular episode. Cardiac event rates were also not readily identified for these populations.

Survival rates are reported for a wide range of populations with suspected/confirmed ischaemic heart disease. Studies reporting these in relation to degree of stenosis of coronary arteries in the absence of overt cardiac pathology such as heart failure and vessel occlusion are highlighted for reference in this report. Drawing firm conclusions across apparently similar studies about risk of death is problematical due to between study heterogeneity. Generalisability of study findings to current populations needs to consider any historical context, as most of the studies highlighted above recruited patients well over 25 years ago.



**Table 1 - Potentially Relevant Studies**

Study	Population	N	Follow Up	Subgroups	Event Rate		Comments
					Survival	Cardiac	
Proudfit et al 1980 Recruitment Period: 1964-65	HD suspected but no severe stenosis on angiography. <50% stenosis in any major vessel.  Pts with clinically recognizable form of heart disease were excluded	521	10 yrs	Normal – no stenosis (n=352)  Mild - <30% stenosis in a major vessel (n=101)  Moderate – 30-50% stenosis in a major vessel (n=63)	Gross: 93.6% (99.2% from coronary disease)  Gross 74.6% (83.5% from coronary disease) gross: p<0.01 for normal vs all other groups p<0.06 for mild vs moderate but <0.01 for mild vs moderate for cardiac outcomes	Number of events (not pts) Progression: Normal: 4 Mild: 3 Moderate: 9  Infarction: Normal 2 Mild: 8 Moderate: 4  Patients with an event Normal:2.1% Mild: 13.8% Moderate: 20.33% P<0.01 for all	Follow up assessment appears masked from clinical status  Mismatch of group sizes  Rationale for pooling normal and mild groups in the survival analysis is unclear  Appears that practically all patients were followed for 10 yrs.
Kemp et al 1986 Recruitment Period: 1976-79	Normal/near normal arteriograms. (no segment with stenosis $\geq$ 50%. No congestive heart failure, no left ventricular abnormality)	4051	7yrs	Normal coronary arteries (n=3136)  Mild disease (stenosis of at least one segment of more than 0 but less than 50%) (n=915)	96%  92%  p>0.0001  data also given by age band		CASS Registry Patients  98.7% follow up at 7 yrs  Year on year rates appear constant for first 5 yrs.

Proudfit et al 1983 Recruitment Period: ?	Unclear as in part covered in previous reports of this study, which were unavailable at time of constructing this report.	601	15yrs	Narrowing of at least 50% in 1 vessel (n=196) 2 vessels (n=219) 3 vessels (n=139) LMCA (n=44)	48% 28% 18% 9%  Survival for 5 & 10 yrs is given & read from graph is approximately 1V – 83% & 59% 2V – 61% & 46% 3V – 49% & 21% LMCA – 44% & 21%		Paper contains subgroup analysis often based on those cases going on to receive surgery  Follow up appears good at 598 out of 601 pts at 15yrs.
Bruscke et al 1973 Recruitment Period: 1963-1965	Patients receiving arteriography mainly because of chest pain or congestive heart failure. $\geq$ 50% narrowing of at least one major vessel	607	5-8yrs	All 1 vessel (n=202) 2 vessels (n=233) 3 vessels (n=118) LMCA (n=37)	5yr & 7yrs 64.4% 56.8% 82.7% & 76.1% 61.8% & 55.5% 44.9% & 32.7% 43.2% & 37.4%		Follow up on 590/607
Gohlke et al 1983 Recruitment Period: 1975-1978	Patients undergoing coronary angiography and exercise stress test	1772	Mean 4.5yrs	Narrowing of at least 50% in 0 vessels (n=403) 1 vessel (n=495) 2 vessels (n=413) 3 vessels (n=461)	4yrs & 6yrs 98.5% & 97.5% 95% & 90% 93.5% & 87.5% 86% & 75%		Follow up not complete

Caracciolo et al 1995 Recruitment Period 1974-1979	≥50% left main coronary artery stenosis treated surgically or non- surgically	1484	15yrs	CABG n=1153 (78%)  No CABG n=331 (22%) (39% severe angina, 19% congestive heart failure)	5yr 85% 10yr 67% 15yr 37%  5yr 59% 10yr 39% 15yr 27%		CASS Registry patients  Only a small proportion of patients actually followed up to 15yrs Data at 10yrs contains most patients
Mock et al 1982 Study Period: 1975-1979	Suspected or proven cardio vascular disease. No cardiovascular surgery. Medically treated 73% had chest pain, 48% MI	20,088	4 yrs	Number of vessels ≥70% in right/left anterior descending or left circumflex artery or ≥ 50% of LMCA 0 vessels 1 vessel 2 vessel  3 vessel	97% 92% 84% (80% if 1x LMCA; 84% if no LMCA) 68% (60% if 1xLMCA; 70% if no LMCA; P<0.001)		Only a small proportion was actually followed up for 4 yrs.
Caraccioli et al 1995	Left main equivalent disease  ≥70% stenosis of left anterior descending and proximal left circumflex coronary artery disease and >30% stenosis of LMCA	912	15yrs	CABG n=230  No CABG n=282 (43% severe angina, 26% congestive heart failure)	5yr 88% 10yr 69% 15yr 44%  5yr 55% 10yr 39% 15yr 31%		CASS Registry patients  Only a small number followed to 15yrs. Data at 10yrs contains most patients.

## 6 References

### 6.1 Main References

Bruschke AVG, Proudfit WL, Sones FM Jr. Progress Study of 590 Consecutive Nonsurgical Cases of Coronary Disease Followed 5-9 Years. *Circulation* 1973;47:1147-1153

<sup>i</sup>Caracciolo EA, Davis KB, Sopko G et al. Comparison of Surgical and Medical Group Survival in Patients with Left Main Coronary Artery Disease Long-term CASS Experience. *Circulation* 1995;91:2325-2334

<sup>ii</sup>Caracciolo EA, Davis KB, Sopko G et al. Comparison of Surgical and Medical Group Survival in Patients with Left Main Coronary Artery Disease Long-term CASS Experience. *Circulation* 1995;91:2335-2344

Gohlke H, Samek L, Betz P, Roskamm H. Exercise Testing Provides Additional Prognostic Information in Angiographically Defined Subgroups of Patients with Coronary Artery Disease. *Circulation* 1983;68:979-9

Kemp HG, Kronmal RA, Vlietstra RE, Frye RL. Seven Year Survival of Patients with Normal or Near Normal Coronary Arteriograms: A CASS Registry Study. *Journal of the American College of Cardiology* 1986;7:479-483

Mock MB, Ringqvist I, Fisher LD et al. Survival of Medically Treated Patients in the Coronary Artery Surgery Study (CASS) Registry. *Circulation* 1982;66:562-568

Proudfit WL, Bruschke AVG, Sones FM. Clinical Course of Patients with Normal or Slightly or Moderately Abnormal Coronary Arteriograms: 10-year Follow-up of 521 Patients. *Circulation* 1980;62:712-717

Proudfit WL, Bruschke AVG, MacMillan JP, Williams GW, Sones FM Jr. Fifteen Year Survival Study of Patients with Obstructive Coronary Artery Disease. *Circulation* 1983;68:986-997

### 6.2 Aviation Safety References

American Society of Aerospace Medicine Specialists. Clinical Practice Guideline for Coronary Artery Disease – Developed for the Aerospace Medical Association.

<http://www.asams.org/guidelines/Completed/NEW%20Coronary%20Artery%20Disea...>

Bruschke AVG, Van Der Wall EE, Cats VM. The Natural History of Angiographically Demonstrated Coronary Artery Disease. *European Heart Journal* 1992;13 (Suppl H):70-75

Joy M. Introduction and Summary of Principal Conclusions to the First European Workshop in Aviation Cardiology. *European Heart Journal* 1992;13 (Suppl H):1-9

Joy M. A Risk Orientated Approach to the Problems of Cardiovascular Certification in Aircrew: Summary of Principal Conclusions of the Second U.K. Workshop in Aviation Cardiology. *European Heart Journal* 1988;9 (Suppl G):1-8

Treasure T, Janvrin S. Flying After Heart Surgery. *Heart* 1999;82:3-4

## 7 Appendices

### 7.1 Appendix 1 – Details of Request

#### ARIF REQUEST FORM

Date of Request

8 / 4 / 05

Lead Medical Adviser  
Issuing request

Name – Dr Clare Jenkins  
Secretary to Cardiac Panel

Contact details

Drivers Medical Group  
DVLA  
Sandringham Park  
Swansea Vale  
Llansamlet  
Swansea  
SA7 OAA

1. Without worrying about the structure of the question, state in full the nature and context of the problem.

We want to know the prognostic risk of:

- a) sudden disabling cardiac event
- b) sudden death for stenoses

in the presence of:

- i) 30% - 49% stenoses
- ii) 50% stenoses or greater

affecting

- 1) the Left Ascending Coronary Artery
- 2) the Left main stem coronary artery

In addition, we wish to know the prognostic risk levels (a and b) for coronary artery disease affecting 1,2 or 3 vessels.

It would be helpful to know whether the prognostic risk level is dependent on the degree of stenosis in these vessels (other than above) and/or the length of the vessel affected by the stenoses.

It would also be helpful to identify in each group the level of coronary artery disease on angiographic evidence, which could be assumed to relate to a level of either of the risks (a, and b) of < 2% per annum.

Can the risk levels be stratified to indicate whether they increase, decrease or stay the same over time e.g. over a 3 year or 10 year period?

2. Please give a background to the question. Why has DMG raised this problem?

A Group 2 licence holder who has a history suggestive of the presence of ischaemic heart disease (including cerebrovascular episode CVA or peripheral arterial disease PAD) is required to demonstrate that there is no significant ischaemic change induced in the heart with exercise. In general standards are based on the risk of occurrence of a sudden distracting or disabling event i.e. likely to have an adverse effect on driving if it occurred at the wheel. If it is possible to ascertain a risk level for standards for Group 2 driving, it should not exceed 2% per annum.

The current standard requires an exercise test to be carried out to demonstrate that there is not evidence of significant ischaemic change in the cardiac muscle vascularisation when provoked by exercise. An alternative assessment is a stressed perfusion scan, to look for significant reversible changes currently defined as more than 1 out of 9 segments affected.

On occasion DVLA is presented with the outcome of angiography. DVLA has concerns about the possible difference of risk levels quoted depending on whether a functional or anatomical assessment has been carried out. Where the angiographic results leads to a proposal to carry out CABG it is likely that this indicates a high mortality risk per annum level. We are not aware if this equates to a level of >2%. However other results are less clear-cut and it would be helpful to have an estimate of risk levels and death associated with various levels of coronary pathology. This may avoid having to proceed to perfusion scans in some cases where ETT cannot be completed for a reason other than cardiac pathology. In addition, 'false positive' ETT results occur and where angiography is presented as evidence, a clear understanding of the risk levels indicated would help to balance this against the failure to meet the ETT standard.

This is relevant to the issuing of licences for Group 2 (LGV and PCV entitlements).

3. Giving references where appropriate, briefly detail the sources you have used to obtain background information on the *options* and *issues*, which might be important for the problems, you describe.

(a) Chapter 2 Cardiovascular Disorders - At A Glance Guide to the current Medical Standards of Fitness to Drive February 2005

(b) Good Practice Guidelines Cardio Vascular Disorders 6<sup>th</sup> Edition April 2005

(c) Minutes of the Secretary of State for Transport's Honorary Medical Advisory Panel on Driving and Disorders of the Cardiovascular System held on:

24<sup>th</sup> November 2004

28<sup>th</sup> April 2004

20<sup>th</sup> November 2003

21<sup>st</sup> October 2003

13<sup>th</sup> May 2003

27<sup>th</sup> November 2002

25<sup>th</sup> April 2002

29<sup>th</sup> November 2001

31<sup>st</sup> May 2001

(c) Reenan, J. (2004) 'Indications for Bypass Surgery', *American Medical Association*, Volume 6, Number 2

4. Please give name and contact details of any expert or clinical contact e.g. relevant Panel Chairman/ expert Panel member.

Dr H. Swanton (Chairman)  
MB BChir MRCP MA MD FRCP FESC  
Consultant Cardiologist  
The Heart Hospital  
Westmoreland Street  
London W1G 8PH



Dr D.R. Holdright (Panel Member)  
FRCP FEDSC MS BSc DA  
Consultant Cardiologist  
The Heart Hospital  
Westmoreland Street  
London W1G 8PH



5. What is the nature of the target population of the issue detailed above? E.g. age, profile, vocational drivers, young drivers, other co-morbid features.

Group 2 licence holders range in age from 21years to no upper age limit. There are a total of 1.7 million vocational licence holders. The majority of cases where IHD/PAD/CVA leads to medical enquiry will be in the middle age range 45 plus.

The target population has particularly relevant co-morbidity e.g. Type II diabetes, obesity, hypercholesterolaemia, life style risk factors, which renders them a high-risk group for coronary artery disease.

6. What are the outcomes you consider particularly important in relation to the question posed? What decisions rest on these outcomes?

Identify in each group the level of angiographic evidence (which may/may not be age related) which can be confidently accepted as representing a risk (a and b) level of < 2% per annum.

Can this be stratified to show if the risk (a and b) increases/reduces/stays the same over time e.g. a 3 year (duration of normal review licence in the presence of IHD), a 5 year (duration of licence after age 45) or a 10-year period?

What is the latest date that an ARIF response would be of value

2 / 6 / 05

Please either:

Fax this form to:  marking FAO ARIF

E-mail as a word document or pdf attachment to: [d.j.moore@bham.ac.uk](mailto:d.j.moore@bham.ac.uk)

Post to:- Dr David Moore

Senior Research Reviewer and Analyst  
Aggressive Research Intelligence Facility  
West Midlands Health Technology Assessment Collaboration  
Department of Public Health  
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Edgbaston  
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Please ring 0121 414 3166 or 6767 if you have any queries, or you want to check the progress with your request.



## 7.2 Appendix 2 – Outline methods

-----Original Message-----

**From:** David Moore  
**Sent:** 21 April 2005 16:38  
**To:** Clare Jenkins (E-mail)  
**Cc:** Heather Major (E-mail); Susan Lloyd (E-mail); Anne Fry-Smith; Ann Massey  
**Subject:** Search request

Dear Clare,

Further to the information you supplied to us on the pilot DVLA search request, our plan of action is briefly outlined below.

- We propose to undertake a search for studies looking at the prognosis of patients with angiographic confirmation of arterial stenosis of left coronary artery, left anterior descending coronary artery, left circumflex artery and/or right coronary artery
- The search strategy will use the ARIF search protocol to identify existing reviews in the first instance. As a scoping search has identified that it is unlikely that a systematic review on the prognosis of coronary artery stenosis exists, other studies will be sought in MEDLINE using index and text words encompassing coronary stenosis, coronary heart disease and angiography. A search filter for prognostic studies will also be used. The strategy will develop iteratively and be extended to other databases if appropriate. Citations in key articles identified will be utilised to identify further studies.
- We propose to start by searching for articles published 2000-2005, and then work backwards as required in order to address the questions but also to ensure manageability.
- Articles will be selected that follow a defined cohort of patients who have angiographically ascertained stenosis of the above vessels and measure outcomes directly related to sudden death or sudden cardiac events and in which rates of these events are/can be derived.
- The methodological quality of these studies will be commented upon.
- Data on the relevant outcomes will be extracted and tabulated.
- Data analysis will depend on what we identify.

Please do not hesitate to contact ARIF to comment on the above.

I will be out of the office from Friday 22 April until Tuesday 3rd May, in my absence please contact Anne Fry-Smith ([REDACTED]).

Best Wishes

Dave

-----  
David Moore PhD  
Senior Research Reviewer and Analyst  
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<http://www.publichealth.bham.ac.uk/wmhtac/>

## **7.3 Appendix 3 – Search strategies**

### **7.3.1 ARIF Reviews Protocol**

#### **SEARCH PROTOCOL FOR ARIF ENQUIRIES**

(Feb 2005)

**In the first instance the focus of ARIF's response to requests is to identify systematic reviews of research. The following will generally be searched, with the addition of any specialist sources as appropriate to the request.**

#### **A. Cochrane Library**

- Cochrane Reviews
- Database of Abstracts of Reviews of Effectiveness (DARE)
- Cochrane Central Register of Controlled Trials (CENTRAL)
- Health Technology Assessment (HTA) database

#### **B. ARIF Database**

- An in-house database of reviews compiled by scanning current journals and appropriate WWW sites. Many reviews produced by the organisations listed below are included.

#### **C. NHSCRD (WW Web access)**

- DARE
- Health Technology Assessment Database
- Completed and ongoing CRD reviews

#### **D. Health Technology Assessments and evidence based guidelines(WW Web access)**

- NICE appraisals and work plans for TARs, Interventional Procedures and Guidelines programmes (NCCHTA work pages:[www.ncchta.org/nice/](http://www.ncchta.org/nice/))
- Office of Technology Assessment
- NHS Coordinating Centre for Health Technology Assessments
- Canadian Co-ordinating Office for Health Technology Assessment
- New Zealand Health Technology Assessment
- Wessex STEER Reports
- Agency for Healthcare Research and Quality (AHRQ)
- National Horizon Scanning Centre
- SIGN (Scottish Intercollegiate Guidelines Network)

## E. Clinical Evidence

## F. Bandolier

## G. TRIP Database

## H. Bibliographic databases

- Medline - systematic reviews
- Embase - systematic reviews
- Other specialist databases.

## I. Contacts

- Cochrane Collaboration (via Cochrane Library)
- Regional experts, especially Pharmacy Prescribing Unit, Keele University (&MTRAC) and West Midlands Drug Information Service (url: [www.ukmicentral.nhs.uk](http://www.ukmicentral.nhs.uk)) for any enquiry involving drug products

### 7.3.2 Primary studies protocol

Database: Ovid MEDLINE(R) <1966 to May Week 2 2005>

Search Strategy:

-----  
1 coronary stenosis/  
2 limit 1 to "prognosis (specificity)"  
3 limit 1 to "etiology (specificity)"  
4 2 or 3  
5 angiography/ or coronary angiography/  
6 stenosis.mp.  
7 coronary disease/  
8 6 and 7  
9 limit 8 to "prognosis (specificity)"  
10 limit 8 to "etiology (specificity)"  
11 9 or 10  
12 5 and 11  
13 4 or 12  
14 11 or 13

Search strategy limited by year bands 1980-1989, 1990-1999, 2000-2005 to maintain manageability of sifting of search results.