

Appendix C Guideline scope

NATIONAL INSTITUTE FOR HEALTH AND CLINICAL EXCELLENCE

SCOPE

1 Guideline title

Hyperglycaemia in acute coronary syndromes: management of hyperglycaemia in people with acute coronary syndromes

1.1 *Short title*

Hyperglycaemia in acute coronary syndromes

2 The remit

The Department of Health has asked NICE: 'to produce a short clinical guideline on the management of hyperglycaemia in acute coronary syndrome in patients both with and without diagnosed diabetes mellitus'.

3 Clinical need for the guideline

3.1 *Epidemiology*

Acute coronary syndromes (ACS) encompass a spectrum of unstable coronary artery disease from unstable angina to transmural myocardial infarction. All forms begin with an inflamed and complicated fatty deposit (known as an atheromatous plaque) in a blood vessel, and blood clots forming on the plaque. The principles behind the presentation, investigation and management of these syndromes are similar with important distinctions depending on the category of acute coronary syndrome.

Hyperglycaemia is common in patients when they are admitted to hospital with ACS. Recent studies found that approximately 65% of patients with acute

myocardial infarction (heart attack) who were not known to have diabetes had impaired glucose regulation when given a glucose tolerance test.

For patients both with and without diabetes mellitus, hyperglycaemia on admission is a powerful predictor of poorer survival and increased risk of complications while in hospital. Despite this, hyperglycaemia remains underappreciated as a risk factor in acute coronary syndromes and it is frequently untreated.

Persistently elevated blood glucose levels during acute myocardial infarction have been shown to be associated with increased in-hospital mortality, and to be a better predictor of outcome than admission blood glucose.

3.2 Current practice

Currently, the management of hyperglycaemia in people with acute coronary syndromes is inconsistent across the UK, whether or not the person has diagnosed diabetes

The Joint British Societies' guidelines on prevention of cardiovascular disease in clinical practice recommend that:

- In people who present with an acute cardiovascular event, fasting glucose should be measured at least once, or an oral glucose tolerance test performed, during their hospital stay
- Fasting glucose should be measured during the acute phase of the illness. If there is evidence of impaired fasting glucose (more than 6.0 mmol/litre but less than 7.0 mmol/litre) or an indication of diabetes (more than 7.0 mmol/litre) fasting glucose should be measured twice (or an oral glucose tolerance test performed once) between 8 and 12 weeks after discharge from hospital.

The SIGN guidelines on acute coronary syndromes recommend that patients with clinical myocardial infarction and diabetes or marked hyperglycaemia (more than 11 mmol/litre) should be given immediate intensive blood glucose control. This should be continued for at least 24 hours. The European Society

of Cardiology also recommends that patients with acute myocardial infarction and diabetes should be given tight glucometabolic control.

There is currently no relevant national guidance for England, Wales and Northern Ireland on the management of hyperglycaemia in people with acute coronary syndromes.

4 The guideline

The guideline development process is described in detail on the NICE website (see section 6, 'Further information').

This scope defines what the guideline will (and will not) examine, and what the guideline developers will consider. The scope is based on the referral from the Department of Health.

The areas that will be addressed by the guideline are described in the following sections.

4.1 Population

4.1.1 Groups that will be covered

- Adults with acute coronary syndromes and hyperglycaemia with a diagnosis of diabetes.
- Adults with acute coronary syndromes and hyperglycaemia without a diagnosis of diabetes.
- Subgroups who are at higher risk of mortality and poorer outcomes associated with acute coronary syndrome will be considered as appropriate.

4.1.2 Groups that will not be covered

- Adults with hyperglycaemia who do not have acute coronary syndromes.
- Adults with acute coronary syndromes who do not have hyperglycaemia.

4.2 *Healthcare setting*

Secondary and tertiary care.

4.3 *Clinical management*

4.3.1 Key clinical issues that will be covered

- Threshold values of blood glucose levels for intervention.
- Inpatient glucometabolic management (glucose, potassium and insulin) of hyperglycaemia in patients with acute coronary syndrome, who have diagnosed diabetes mellitus.
- Inpatient glucometabolic management (glucose, potassium and insulin) of hyperglycaemia in patients with acute coronary syndrome, who do not have diagnosed diabetes mellitus.
- Timing and frequency of blood glucose level measures for monitoring purposes in hospital.
- Referral for subsequent investigation to confirm possible diabetes in patients without an existing diagnosis of diabetes.

4.3.2 Clinical issues that will not be covered

- Diagnosis of diabetes mellitus.
- Management of diabetes mellitus.
- Diagnosis of acute coronary syndromes.
- Management of acute coronary syndromes.
- Types of medical devices used to measure hyperglycaemia.
- Long-term management of hyperglycaemia and support beyond the acute phase.

4.4 *Main outcomes*

- All-cause mortality.
- Cardiovascular mortality.
- Cardiovascular events such as non-fatal reinfarction, heart failure and stroke.
- Measures and control of blood glucose levels.

- Health related quality of life.
- Adverse events associated with metabolic management of hyperglycaemia, including hypoglycaemia and hypokalaemia.
- Resource use and costs, such as length of hospital stay.

4.5 *Economic aspects*

Developers will take into account both clinical and cost effectiveness when making recommendations involving a choice between alternative interventions. A review of the economic evidence will be conducted and analyses will be carried out as appropriate. The preferred unit of effectiveness is the quality-adjusted life year (QALY), and the costs considered will usually be only from an NHS and personal social services (PSS) perspective. Further detail on the methods can be found in 'The guidelines manual' (see 'Further information').

The key health economic question is the cost effectiveness of intensive glucometabolic management of hyperglycaemia in inpatients with acute coronary syndromes and hyperglycaemia with or without diabetes. The full economic analysis will be developed in conjunction with the Clinical Review Group and the Guideline Development Group.

4.6 *Status*

4.6.1 *Scope*

This is the final scope.

4.6.2 *Timing*

The development of the guideline recommendations will begin in November 2010.

5 Related NICE guidance

5.1 *Published guidance*

5.1.1 Other related NICE guidance

- Liraglutide for the treatment of type 2 diabetes mellitus. NICE technology appraisal guidance 203 (2010). Available from www.nice.org.uk/guidance/TA203
- Chronic heart failure. NICE clinical guideline 108 (2010). Available from www.nice.org.uk/guidance/CG108
- Chest pain of recent onset. NICE clinical guideline 95 (2010). Available from www.nice.org.uk/guidance/CG95
- Unstable angina and NSTEMI. NICE clinical guideline 94 (2010). Available from www.nice.org.uk/guidance/CG94
- Type 2 diabetes (partial update of CG 66). NICE clinical guideline 87 (2009). Available from www.nice.org.uk/guidance/CG87
- Diabetes in pregnancy. NICE clinical guideline 63 (2008). Available from www.nice.org.uk/guidance/CG63
- Prasugrel for the treatment of acute coronary syndromes with percutaneous coronary intervention. NICE technology appraisal guidance 182 (2009). Available from www.nice.org.uk/guidance/TA182
- Continuous subcutaneous insulin infusion for the treatment of diabetes mellitus (review). NICE technology appraisal guidance 151 (2008). Available from www.nice.org.uk/guidance/TA151
- MI: secondary prevention. NICE clinical guideline 48 (2007). Available from www.nice.org.uk/guidance/CG48
- Type 1 diabetes in children, young people and adults. NICE clinical guideline 15 (2004). Available from www.nice.org.uk/guidance/CG15
- Type 2 diabetes: prevention and management of foot problems. NICE clinical guideline 10 (2004). Available from www.nice.org.uk/guidance/CG10

- Myocardial perfusion scintigraphy for the diagnosis and management of angina and myocardial infarction. NICE technology appraisal guidance 73 (2003). Available from www.nice.org.uk/guidance/TA73
- Guidance on the use of long acting insulin analogues for the treatment of diabetes – insulin glargine. NICE technology appraisal guidance 53 (2002). Available from www.nice.org.uk/guidance/TA53
- Guidance on the use of drugs for early thrombolysis in the treatment of acute myocardial infarction. NICE technology appraisal guidance 52 (2002). Available from www.nice.org.uk/guidance/TA52
- Guidance on the use of glycoprotein IIb/IIIa inhibitors in the treatment of acute coronary syndromes. NICE technology appraisal guidance 47 (2002). Available from www.nice.org.uk/guidance/TA47

5.2 Guidance under development

NICE is currently developing the following related guidance (details available from the NICE website):

- Ticagrelor for the treatment of acute coronary syndromes. NICE technology appraisal guidance. Publication expected July 2011.
- Long-acting exenatide for the second-line (dual therapy) or third-line (triple therapy) treatment of type 2 diabetes. NICE technology appraisal guidance. Publication date to be confirmed.
- Buccal insulin for the management of type 1 diabetes. NICE technology appraisal guidance. Publication date to be confirmed.

6 Further information

Information on the guideline development process is provided in:

- ‘How NICE clinical guidelines are developed: an overview for stakeholders the public and the NHS’
- ‘The guidelines manual’.

These are available from the NICE website (www.nice.org.uk/GuidelinesManual). Information on the progress of the guideline will also be available from the NICE website

Appendix D How this guideline was developed

This guideline was developed in accordance with the process for short clinical guidelines set out in 'The guidelines manual' (2009) (see www.nice.org.uk/GuidelinesManual). There is more information about how NICE clinical guidelines are developed on the NICE website (www.nice.org.uk/HowWeWork). A booklet, 'How NICE clinical guidelines are developed: an overview for stakeholders, the public and the NHS' (fourth edition, published 2009), is available from NICE publications (phone 0845 003 7783 or email publications@nice.org.uk and quote reference N1739).

Search strategies

The evidence reviews used to develop the guideline recommendations were underpinned by systematic literature searches, following the methods described in 'The guidelines manual' (2009). The aim of the systematic searches was to comprehensively identify the published evidence to answer the review questions developed by the Guideline Development Group and Short Clinical Guidelines Technical Team.

The search strategies for the review questions were developed by the Information Services Team with advice from the Short Clinical Guidelines Technical Team. Structured questions were developed using the PICO (population, intervention, comparison, outcome) model and translated into search strategies using subject heading and free text terms. The strategies were run across a number of databases with no date restrictions imposed on the searches.

The NHS Economic Evaluation Database (NHS EED) and the Health Economic Evaluations Database (HEED) were searched for economic evaluations. Search filters for economic evaluations and quality of life studies were used on bibliographic databases. There were no date restrictions imposed on the searches.

Guideline Development Group members were also asked to alert the Short Clinical Guidelines Technical Team to any additional evidence, published, unpublished or in press, that met the inclusion criteria.

The searches were undertaken between June 2010 and September 2010.

Scoping searches

Scoping searches were undertaken in May 2010 using the following websites and databases (listed in alphabetical order); browsing or simple search strategies were employed. The search results were used to provide information for scope development and project planning.

The below is a list of the related guidance used in the scoping searches

Guidance/guidelines	Systematic reviews/economic evaluations
American Diabetes Association	Clinical Evidence
British Medical Association	Cochrane Database of Systematic Reviews (CDSR)
Canadian Medical Association Infobase	Database of Abstracts of Reviews of Effects (DARE)
Clinical Knowledge Summaries	Health Economic Evaluations Database (HEED)
Clinical Resource Efficiency Support Team (CREST)	Health Technology Assessment database (HTA)
Department of Health	NHS Economic Evaluation Database (NHS EED)
Diabetes UK	NHS R&D Service Delivery and Organisation Programme
Guidelines International Network (GIN)	National Institute for Health Research Health Technology Assessment Programme (NIHR)
National Guideline Clearinghouse (US)	TRIP Database
National Health and Medical Research Council (Australia)	
New Zealand Guidelines Group	
NHS Evidence	
Royal College of Physicians	
Royal Pharmaceutical Society	
SIGN	
University of Warwick	
World Health Organisation	

Main searches

The following sources were searched for the topics presented in the sections below.

- Clinical Trials.gov
- Current Controlled Trials
- Cochrane Database of Systematic Reviews – CDSR (Wiley)
- Cochrane Central Register of Controlled Trials – CENTRAL (Wiley)
- Database of Abstracts of Reviews of Effects – DARE (CRD)
- Health Technology Assessment Database – HTA (CRD)
- CINAHL (EBSCO)
- EMBASE (Ovid)
- MEDLINE (Ovid)
- MEDLINE In-Process (Ovid)
- National Research Register Archive
- UK Clinical Research Network

What is the optimal inpatient metabolic management of patients presenting with hyperglycaemia and acute coronary syndrome (ACS) who have diagnosed diabetes mellitus and hyperglycaemia?

The following sources were searched to answer questions relating to:

Databases searched:

- Cochrane Central Register of Controlled Trials (Wiley)
- CINAHL (NHS Evidence)
- Cochrane Database of Systematic Reviews (Wiley)
- Database of Abstracts of Reviews of Effects (CRD)
- Embase (OVID)
- Health Technology Assessment database (CRD)
- Medline (OVID)
- Medline In-Process (OVID)

The searches were conducted on 10 August 2010.

Medline 1950 to July Week 4 2010

The Medline search strategy is presented below. It was translated for use in all of the other databases. Where appropriate, search filters for systematic reviews and randomised controlled trials were appended to the search strategies to retrieve high quality papers.

1. exp Hyperglycemia/
2. hyperglycemi\$.tw.
3. hyperglycaemi\$.tw.
4. (high\$ adj3 plasma\$ glucose\$).tw.
5. (high\$ adj3 blood\$ glucose\$).tw
6. (impair\$ adj3 glucose\$ regulation\$).tw.
7. (high\$ adj3 blood\$ sugar\$).tw.
8. (impair\$ adj3 blood\$ sugar\$ regulation\$).tw.
9. or/1-8
10. Acute Coronary Syndrome/
11. (acute\$ adj3 coronary\$ syndrome\$).tw.
12. acs.tw.
13. exp Myocardial Infarction/
14. (myocardial\$ adj3 infarction\$).tw.
15. mi.tw.
16. (heart\$ adj attack\$).tw.
17. (heart\$ adj3 infarction\$).tw.
18. exp Angina, Unstable/
19. (unstable\$ adj3 angina\$).tw.
20. (preinfarction\$ adj3 angina\$).tw.
21. (myocardial\$ adj3 preinfarction\$).tw.
22. (unstable\$ adj3 angina\$ pectoris\$).tw.
23. Myocardial Ischemia/
24. (myocardial\$ adj3 ischemia\$).tw.
25. (myocardial\$ adj3 ischaemia\$).tw.
26. (ischemic\$ adj3 heart\$ disease\$).tw.
27. (ischaemic\$ adj3 heart\$ disease\$).tw.
28. (heart\$ adj3 muscle\$ ischemia\$).tw.

29. (heart\$ adj3 muscle\$ ischaemia\$).tw.
30. or/10-29
31. exp Insulin/
32. (intensive\$ adj3 insulin\$ therap\$).tw.
33. (intensive\$ adj3 insulin\$ infusion\$).tw.
34. Glucose/
35. glucose\$.tw.
36. (glucose\$ adj3 therap\$).tw.
37. (glucose\$ adj3 infusion\$).tw.
38. potassium.tw.
39. or/31-38
40. Randomized Controlled Trial.pt.
41. Controlled Clinical Trial.pt.
42. Clinical Trial.pt.
43. exp Clinical Trials as Topic/
44. Placebos/
45. Random Allocation/
46. Double-Blind Method/
47. Single-Blind Method/
48. Cross-Over Studies/
49. ((random\$ or control\$ or clinical\$) adj2 (trial\$ or stud\$)).tw.
50. (random\$ adj2 allocat\$).tw.
51. placebo\$.tw.
52. ((singl\$ or doubl\$ or trebl\$ or tripl\$) adj (blind\$ or mask\$)).tw.
53. (crossover\$ or (cross adj over\$)).tw.
54. or/40-53
55. animals/ not humans/
56. 54 not 55
57. Meta-Analysis.pt.
58. Meta-Analysis as Topic/
59. Review.pt.
60. exp Review Literature as Topic/
61. (metaanaly\$ or metanaly\$ or (meta adj2 analy\$)).tw.
62. (review\$ or overview\$).ti.

63. (systematic\$ adj4 (review\$ or overview\$)).tw.
64. ((quantitative\$ or qualitative\$) adj4 (review\$ or overview\$)).tw.
65. ((studies or trial\$) adj1 (review\$ or overview\$)).tw.
66. (integrat\$ adj2 (research or review\$ or literature)).tw.
67. (pool\$ adj1 (analy\$ or data)).tw.
68. (handsearch\$ or (hand adj2 search\$)).tw.
69. (manual\$ adj2 search\$).tw.
70. or/57-69
71. animals/ not humans/
72. 70 not 71
73. 54 or 72
74. 9 and 30 and 39 and 73
75. limit 74 to english language

At what stage should patients with hyperglycaemia and ACS without diagnosed diabetes be referred for subsequent investigations for possible diabetes?

Databases searched:

- Cochrane Central Register of Controlled Trials (Wiley)
- CINAHL (NHS Evidence)
- Cochrane Database of Systematic Reviews (Wiley)
- Database of Abstracts of Reviews of Effects (CRD)
- Embase (OVID)
- Health Technology Assessment database (CRD)
- Medline (OVID)
- Medline In-Process (OVID)

The searches were conducted on 06 October 2010.

The Medline search strategy is presented below. It was translated for use in all of the other databases.

Medline 1950 to September Week 3 2010

1. exp Hyperglycemia/

2. hyperglycemi\$.tw.
3. hyperglycaemi\$.tw.
4. (high\$ adj3 plasma\$ glucose\$.tw.
5. (high\$ adj3 blood\$ glucose\$.tw.
6. (impair\$ adj3 glucose\$ regulation\$.tw.
7. (high\$ adj3 blood\$ sugar\$.tw.
8. (impair\$ adj3 blood\$ sugar\$ regulation\$.tw.
9. or/1-8
10. Acute Coronary Syndrome/
11. (acute\$ adj3 coronary\$ syndrome\$.tw.
12. acs.tw.
13. exp Myocardial Infarction/
14. (myocardial\$ adj3 infarction\$.tw.
15. mi.tw.
16. (heart\$ adj attack\$.tw.
17. (heart\$ adj3 infarction\$.tw.
18. exp Angina, Unstable/
19. (unstable\$ adj3 angina\$.tw.
20. (preinfarction\$ adj3 angina\$.tw.
21. (myocardial\$ adj3 preinfarction\$.tw.
22. (unstable\$ adj3 angina\$ pectoris\$.tw.
23. Myocardial Ischemia/
24. (myocardial\$ adj3 ischemia\$.tw.
25. (myocardial\$ adj3 ischaemia\$.tw.
26. (ischemic\$ adj3 heart\$ disease\$.tw.
27. (ischaemic\$ adj3 heart\$ disease\$.tw.
28. (heart\$ adj3 muscle\$ ischemia\$.tw.
29. (heart\$ adj3 muscle\$ ischaemia\$.tw.
30. or/10-29
31. exp Diabetes Mellitus/
32. diabet\$.tw.
33. or/31-32
34. Risk Factors/
35. (risk\$ adj3 factor\$.tw.

36. Blood Pressure/
37. (blood\$ adj3 pressure\$).tw.
38. Blood Glucose/
39. (blood\$ adj3 glucose\$).tw.
40. (plasma\$ adj3 glucose\$).tw.
41. (blood\$ adj3 sugar\$).tw.
42. exp Hematologic Tests/
43. (hematologic\$ adj3 test\$).tw.
44. (haematologic\$ adj3 test\$).tw.
45. (blood\$ adj3 examination\$).tw.
- 46 .Hemoglobin A, Glycosylated/
47. (glycosylated\$ adj3 (hemoglobin\$ or haemoglobin\$)).tw.
48. hb a1c.tw.
49. hb a1.tw.
50. exp Obesity/
51. (obesity or obese).tw.
52. exp Cholesterol/
53. cholesterol\$.tw.
54. or/34-53
55. 9 and 30 and 33 and 54
56. limit 55 to english language

What information should patients with peri ACS and hyperglycaemia (who are at high risk of developing diabetes) be provided while waiting for a referral for diagnostic investigations for diabetes?

Databases searched:

- Cochrane Central Register of Controlled Trials (Wiley)
- CINAHL (NHS Evidence)
- Cochrane Database of Systematic Reviews (Wiley)
- Database of Abstracts of Reviews of Effects (CRD)
- Embase (OVID)
- Health Technology Assessment database (CRD)
- Medline (OVID)

- Medline In-Process (OVID)

The searches were conducted on 2 November 2010.

The Medline search strategy is presented below. It was translated for use in all of the other databases. Where appropriate, search filters for patient information were appended to the search strategies to retrieve high quality papers.

Medline 1950 to October Week 3 2010

1. exp Hyperglycemia/
2. hyperglycemi\$.tw.
3. hyperglycaemi\$.tw.
4. (high\$ adj3 plasma\$ glucose\$).tw.
5. (high\$ adj3 blood\$ glucose\$).tw.
6. (impair\$ adj3 glucose\$ regulation\$).tw.
7. (high\$ adj3 blood\$ sugar\$).tw.
8. (impair\$ adj3 blood\$ sugar\$ regulation\$).tw.
9. or/1-8
10. Acute Coronary Syndrome/
11. (acute\$ adj3 coronary\$ syndrome\$).tw.
12. acs.tw.
13. exp Myocardial Infarction/
14. (myocardial\$ adj3 infarction\$).tw.
15. mi.tw.
16. (heart\$ adj attack\$).tw.
17. (heart\$ adj3 infarction\$).tw.
18. exp Angina, Unstable/
19. (unstable\$ adj3 angina\$).tw.
20. (preinfarction\$ adj3 angina\$).tw.
21. (myocardial\$ adj3 preinfarction\$).tw.
22. (unstable\$ adj3 angina\$ pectoris\$).tw.
23. Myocardial Ischemia/
24. (myocardial\$ adj3 ischemia\$).tw.

25. (myocardial\$ adj3 ischaemia\$).tw.
26. (ischemic\$ adj3 heart\$ disease\$).tw.
27. (ischaemic\$ adj3 heart\$ disease\$).tw.
28. (heart\$ adj3 muscle\$ ischemia\$).tw.
29. (heart\$ adj3 muscle\$ ischaemia\$).tw.
30. or/10-29
31. Qualitative Research/
32. Nursing Methodology Research/
33. exp Interviews as topic/
34. Questionnaires/
35. Narration/
36. Health Care Surveys/
37. (qualitative\$ or interview\$ or focus group\$ or questionnaire\$ or narrative\$ or narration\$ or survey\$).tw.
38. (ethno\$ or emic or etic or phenomenolog\$ or grounded theory or constant compar\$ or (thematic\$ adj3 analys\$) or theoretical sampl\$ or purposive sampl\$).tw.
39. (hermeneutic\$ or heidegger\$ or husserl\$ or colaizzi\$ or van kaam\$ or van manen\$ or giorgi\$ or glaser\$ or strauss\$ or ricoeur\$ or spiegelberg\$ or merleau\$).tw.
40. (metasynthes\$ or meta-synthes\$ or metasummar\$ or meta-summar\$ or metastud\$ or meta-stud\$).tw.
41. or/31-40
42. exp Patients/px
43. exp Parents/px
44. exp Family/px
45. Caregivers/px
46. Stress, Psychological/
47. (mental\$ adj3 stress\$).tw.
48. Adaptation, psychological/
49. (adaptive\$ adj3 behaviour\$).tw.
50. (adaptive\$ adj3 behavior\$).tw.
51. Emotions/
52. Anxiety/

53. Fear/
54. exp Consumer Satisfaction/
55. ((patient\$ or parent\$ or famil\$ or carer\$ or caregiver\$ or care-giver\$ or inpatient\$ or in-patient\$) adj2 (experience\$ or belief\$ or stress\$ or emotion\$ or anx\$ or fear\$ or concern\$ or uncertain\$ or unsure or thought\$ or feeling\$ or felt\$ or view\$ or opinion\$ or perception\$ or perspective\$ or attitud\$ or satisfact\$ or know\$ or understand\$ or aware\$)).tw.
56. or/42-55
57. Pamphlets/
58. Needs Assessment/
59. Information Centers/
60. Information Services/
61. Health Education/
62. Information Dissemination/
63. Counseling/
64. Social Support/
65. Self-Help Groups/
66. Self Care/
67. Patient Education as Topic/
68. Patient Education Handout/
69. Consumer Health Information/
70. Life Style/
71. patient* diar*.tw.
72. (educat\$ or informat\$ or communicat\$ or pamphlet\$ or handout\$ or hand-out\$ or hand out\$ or booklet\$ or leaflet\$ or support\$ or need\$ or advice\$ or advis\$).ti.
73. (counsel\$ or selfhelp\$ or self-help\$ or self help\$ or selfcar\$ or self-car\$ or self car\$).ti.
74. or/57-73
75. 41 or 56 or 74
76. 9 and 30 and 75
77. limit 76 to english language

Economic search

The following sources were searched to identify economic evaluations and quality of life data.

Databases searched:

- Health Economic Evaluations Database (Wiley)
- NHS Economic Evaluation Database (CRD)
- Embase(OVID)
- Medline (OVID)
- Medline In-Process (OVID)

The searches were conducted on 25 August 2010.

Medline1950 to August Week 2 2010

The Medline search strategy is presented below. It was translated for use in other databases except for Embase. Where appropriate, search filters for economic evaluations and quality of data were appended to the search strategies to retrieve high quality papers.

1. Acute Coronary Syndrome/
2. (acute\$ adj3 coronary\$ syndrome\$).tw.
3. acs.tw.
4. exp Myocardial Infarction/
5. (myocardial\$ adj3 infarction\$).tw.
6. mi.tw.
7. (heart\$ adj attack\$).tw.
8. (heart\$ adj3 infarction\$).tw.
9. exp Angina, Unstable/
10. (unstable\$ adj3 angina\$).tw.
11. (preinfarction\$ adj3 angina\$).tw.
12. (myocardial\$ adj3 preinfarction\$).tw.
13. unstable\$ adj3 angina\$ pectoris\$).tw.
14. Myocardial Ischemia/
15. (myocardial\$ adj3 ischemia\$).tw.

16. (myocardial\$ adj3 ischaemia\$).tw.
17. (ischemic\$ adj3 heart\$ disease\$).tw.
18. (ischaemic\$ adj3 heart\$ disease\$).tw.
19. (heart\$ adj3 muscle\$ ischemia\$).tw.
20. (heart\$ adj3 muscle\$ ischaemia\$).tw.
21. or/1-20
22. exp Insulin/
23. (intensive\$ adj3 insulin\$ therap\$).tw.
24. (intensive\$ adj3 insulin\$ infusion\$).tw.
25. Glucose/
26. glucose\$.tw.
27. (glucose\$ adj3 therap\$).tw.
28. (glucose\$ adj3 infusion\$).tw.
29. potassium.tw.
30. or/22-29
31. 21 and 30
32. Economics/ use mesz
33. exp "Costs and Cost Analysis"/
34. Economics, Dental/
35. exp Economics, Hospital/
36. exp Economics, Medical/
37. Economics, Nursing/
38. Economics, Pharmaceutical/
39. Budgets/
40. exp Models, Economic/
41. Markov Chains/
42. Monte Carlo Method/
43. Decision Trees/
44. econom\$.tw.
45. cba.tw.
46. cea.tw.
47. cua.tw.
48. markov\$.tw.
49. (monte adj carlo).tw.

50. (decision adj2 (tree\$ or analys\$)).tw.
51. (cost or costs or costing\$ or costly or costed).tw.
52. (price\$ or pricing\$).tw.
53. budget\$.tw.
54. expenditure\$.tw.
55. (value adj2 (money or monetary)).tw.
56. (pharmacoeconomic\$ or (pharmaco adj economic\$)).tw.
57. or/23-56
58. "Quality of Life"/ use mesz
59. quality of life.tw.
60. "Value of Life"/ use mesz
- 61 Quality-Adjusted Life Years/ use mesz
57. quality adjusted life.tw.
62. (qaly\$ or qald\$ or qale\$ or qtime\$).tw.
63. disability adjusted life.tw.
64. daly\$.tw.
65. Health Status Indicators/ use mesz
66. (sf36 or sf 36 or short form 36 or shortform 36 or sf thirtysix or sf thirty six or shortform thirtysix or shortform thirty six or short form thirtysix or short form thirty six).tw.
67. (sf6 or sf 6 or short form 6 or shortform 6 or sf six or sfsix or shortform six or short form six).tw.
68. (sf12 or sf 12 or short form 12 or shortform 12 or sf twelve or sftwelve or shortform twelve or short form twelve).tw.
69. (sf16 or sf 16 or short form 16 or shortform 16 or sf sixteen or sfsixteen or shortform sixteen or short form sixteen).tw.
70. (sf20 or sf 20 or short form 20 or shortform 20 or sf twenty or sftwenty or shortform twenty or short form twenty).tw.
71. (euroqol or euro qol or eq5d or eq 5d).tw.
72. (qol or hql or hqol or hrqol).tw.
73. (hye or hyes).tw.
74. health\$ year\$ equivalent\$.tw.
75. utilit\$.tw.
76. (hui or hui1 or hui2 or hui3).tw.

77. disutili\$.tw.
78. rosser.tw.
79. quality of wellbeing.tw.
80. quality of well-being.tw.
81. qwb.tw.
82. willingness to pay.tw.
83. standard gamble\$.tw.
84. time trade off.tw.
85. time tradeoff.tw.
86. tto.tw.
87. or/57-86
88. 57 or 87
89. 31 and 88
90. limit 89 to english language

Review questions and review protocols

Review questions

- What is the optimal inpatient metabolic management of hyperglycaemia in a person presenting with acute coronary syndrome and hyperglycaemia and who also has a previous diagnosis of diabetes mellitus?
- What is the optimal inpatient metabolic management for a person presenting with acute coronary syndrome and hyperglycaemia and who does not have a previous diagnosis of diabetes?
- What risk factors are associated with the development of diabetes in people with hyperglycaemia in ACS?
- What information should patients with ACS and hyperglycaemia (who are at high risk for developing diabetes) be provided before diagnostic investigations for diabetes?

Review protocols

REVIEW QUESTION 1		
	Details	Comments
REVIEW QUESTION 1	What is the optimal inpatient metabolic management of patients presenting	

	with hyperglycaemia and acute coronary syndrome (ACS) who have diagnosed diabetes mellitus and hyperglycaemia?	
OBJECTIVES	<p>To compare the effectiveness and safety of standard practice with intensive insulin therapy in the management of hyperglycaemia in ACS in patients who have been diagnosed with diabetes</p> <p>To determine how and when glucose, potassium and/or insulin should be given to patients with hyperglycaemia and ACS</p> <p>To investigate clinically acceptable targets of whole blood glucose level or plasma glucose level required to achieve normoglycemia</p> <p>To determine when and how often whole blood or plasma glucose level should be measured in hospital</p>	The wording of the objective was amended to include safety as adverse events such as hypoglycaemia were included as outcomes.
CRITERIA FOR CONSIDERING STUDIES	<p>Inclusion:</p> <p>Hyperglycaemia & ACS</p> <p>Adults (> 18 years only)</p> <p>Previous diagnosis of diabetes (type 1 or type2)</p> <p>RCTs and MINAP</p> <p>Treatment in first 48 hours only (acute phase)</p> <p>Assessment of mortality and/or other primary/secondary outcome</p> <p>Exclusion:</p> <p>Other observational studies</p>	
POPULATION	Adults with hyperglycaemia and ACS with diagnosed diabetes mellitus	
INTERVENTION	Intensive insulin therapy/infusion	
COMPARATORS	Standard practice/conventional treatment	
OUTCOMES	<p>All cause mortality</p> <p>Cardiovascular mortality</p> <p>Cardiovascular events associated with hyperglycaemia such as non fatal reinfarction, heart failure and stroke</p> <p>Measures of whole blood or plasma glucose levels</p> <p>Health related quality of life</p> <p>Adverse events associated with metabolic management of hyperglycaemia including</p>	

	hypoglycaemia and hypokalemia Resource use and costs such as length of stay	
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REVIEW QUESTION 2		
	Details	Comments
REVIEW QUESTION 2	What is the optimal inpatient metabolic management of patients presenting with hyperglycaemia and acute coronary syndrome (ACS) without a diagnosis of diabetes mellitus?	
OBJECTIVES	<p>To compare the effectiveness and safety of standard practice with intensive insulin therapy in the management of hyperglycaemia in ACS in patients without a diagnosis of diabetes mellitus</p> <p>To determine how and when glucose, potassium and/or insulin should be given to patients with hyperglycaemia and ACS</p> <p>To investigate clinically acceptable targets of whole blood glucose level or plasma glucose level required to achieve normoglycemia</p> <p>To determine when and how often whole blood or plasma glucose level should be measured in hospital</p>	The wording of the objective was amended to include safety as adverse events such as hypoglycaemia were included as outcomes
CRITERIA FOR CONSIDERING STUDIES	<p>Inclusion:</p> <p>Hyperglycaemia & ACS</p> <p>Adults (> 18 years only)</p> <p>No previous diagnosis of diabetes</p> <p>RCTs and MINAP</p> <p>Treatment in first 48 hours only (acute phase)</p> <p>Assessment of mortality and/or other primary/secondary outcome</p> <p>Exclusion:</p> <p>Other observational studies</p>	
POPULATION	Adults with hyperglycaemia and ACS without diagnosed diabetes mellitus	
INTERVENTION	Intensive insulin therapy/infusion	
COMPARATORS	Standard practice/ conventional	

	treatment	
OUTCOMES	<p>All cause mortality</p> <p>Cardiovascular mortality</p> <p>Cardiovascular events associated with hyperglycaemia such as non fatal reinfarction, heart failure and stroke</p> <p>Measures of whole blood or plasma glucose levels</p> <p>Health related quality of life</p> <p>Adverse events associated with metabolic management of hyperglycaemia including hypoglycaemia and hypokalemia</p> <p>Resource use and costs such as length of stay</p>	

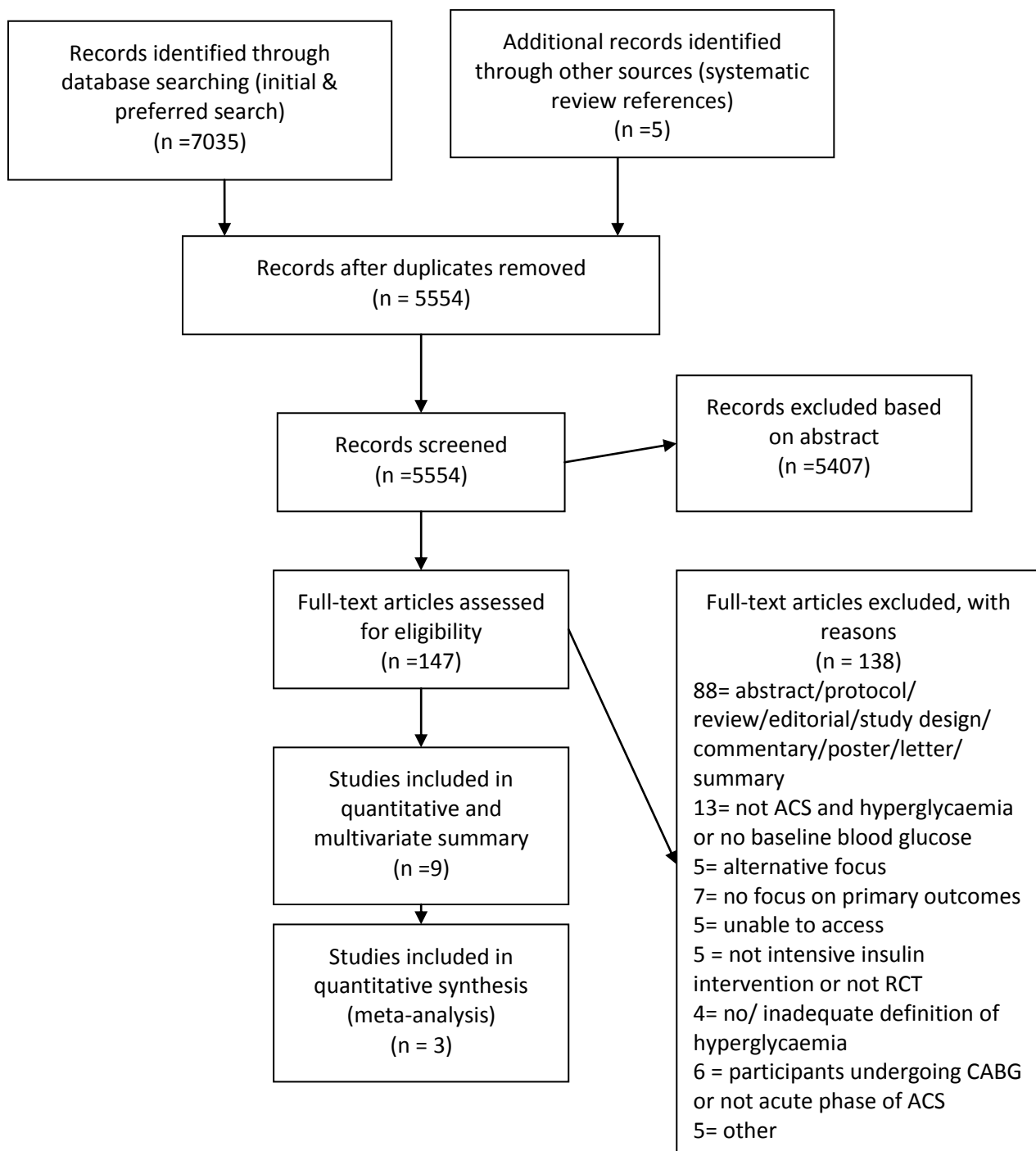
REVIEW QUESTION 3		
	Details	Comments
REVIEW QUESTION 3	What risk factors are associated with diabetes in patients with hyperglycaemia and ACS who have not previously been diagnosed?	The GDG reworded this question to focus on the risk factors for progression to diabetes rather than the time at which patients should be referred.
OBJECTIVES	To investigate if the presence of additional risk factors which would prompt referral for investigations for diabetes	
CRITERIA FOR CONSIDERING STUDIES	<p>Inclusion:</p> <p>Adults (> 18 years only)</p> <p>No previous diagnosis of diabetes</p> <p>No restrictions on study design</p> <p>Risk factors for diabetes (in ACS)</p> <p>Signs and symptoms</p> <p>Exclusion:</p> <p>Already diagnosed with diabetes</p>	
POPULATION	Adults with hyperglycaemia and ACS without diagnosed diabetes mellitus	
INTERVENTION	Intensive insulin therapy/infusion	
COMPARATORS	Standard practice/ conventional treatment	
OUTCOMES	Clinical signs and symptoms that lead to a referral for further investigation of possible diabetes	

	<p>Measures of whole blood or plasma glucose levels</p> <p>Health related quality of life</p> <p>Resource use and costs such as length of stay</p> <p>Appropriate referral for subsequent investigations to confirm possible diabetes in patients without an existing diagnosis of diabetes.</p>	
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REVIEW QUESTION 4		
	Details	Comments
REVIEW QUESTION 4	What information should patients with peri ACS and hyperglycaemia (who are at high risk of developing diabetes) be provided while waiting for a referral for diagnostic investigations for diabetes?	
OBJECTIVES	<p>To determine what information should be provided relating to the types of diagnostic investigations for diabetes</p> <p>To determine what lifestyle advice should be provided</p>	
CRITERIA FOR CONSIDERING STUDIES	<p>Inclusion:</p> <p>Adults (> 18 years only)</p> <p>No previous diagnosis of diabetes</p> <p>No restrictions on study design</p> <p>Patient information/support</p> <p>Exclusion:</p> <p>Already diagnosed with diabetes</p>	
POPULATION	Adults with hyperglycaemia and ACS without diagnosed diabetes mellitus	
INTERVENTION	Intensive insulin therapy/infusion	
COMPARATORS	Standard practice/ conventional treatment	
OUTCOMES	<p>Patient and carer information and support needs</p> <p>Health related quality of life</p> <p>Appropriate referral for subsequent investigations to confirm possible diabetes in patients without an existing diagnosis of diabetes.</p>	

Flow diagram of excluded studies for hyperglycaemia review Question 1

The flow diagram below shows an overview of the studies that were identified, included and excluded for review question 2, which focuses on the metabolic management of patients with ACS and hyperglycaemia who have diagnosed diabetes.



Excluded studies

List of excluded studies for review question 1 (diabetes)

Bianchi, C., Miccoli, R., Daniele, G., Penno, G., & Del, P.S. 2009. Is there evidence that oral hypoglycemic agents reduce cardiovascular morbidity/mortality? Yes. [Review] [53 refs]. *Diabetes Care*, 32, Suppl-8

Ref ID: 12A

EXC-NARRATIVE REVIEW

Mannucci, E., Monami, M., Lamanna, C., Gori, F., & Marchionni, N. 2009. Prevention of cardiovascular disease through glycemic control in type 2 diabetes: a meta-analysis of randomized clinical trials. *Nutrition Metabolism & Cardiovascular Diseases*, 19, (9) 604-612

Ref ID: 13A

EXC-REVIEW WITHOUT PERI ACS AND HYPERGLYCAEMIA AND FOCUS ON TYPE 2 DIABETES

Goyal, A., Mehta, S.R., Diaz, R., Gerstein, H.C., Afzal, R., Xavier, D., Liu, L., Pais, P., & Yusuf, S. 2009. Differential clinical outcomes associated with hypoglycemia and hyperglycemia in acute myocardial infarction. *Circulation*, 120, (24) 2429-2437

Ref ID: 15A

EXC-FOCUS ON PROGNOSTIC SIGNIFICANCE OF HYPERGLYCAEMIA ON ADMISSION

Avanzini, F., Marelli, G., Donzelli, W., Sorbara, L., Palazzo, E., Bellato, L., Colombo, E.L., Roncaglioni, M.C., Riva, E., De, M.M., & DDD study group 2009. Hyperglycemia during acute coronary syndrome: a nurse-managed insulin infusion protocol for stricter and safer control. *European Journal of Cardiovascular Nursing*, 8, (3) 182-189

Ref ID: 18A

EXC-PROTOCOL FOR INTENSIVE INSULIN AND NOT AN RCT

Monteiro, S., Monteiro, P., & Providencia, L.A. 2009. Optimization of blood glucose control in MI patients: state of the art and a proposed protocol for

intensive insulin therapy. [Review] [28 refs]. *Revista Portuguesa de Cardiologia*, 28, (1) 49-61

Ref ID: 22A

EXC-NARRATIVE REVIEW

Anantharaman, R., Heatley, M., & Weston, C.F. 2009. Hyperglycaemia in acute coronary syndromes: risk-marker or therapeutic target?. [Review] [65 refs]. *Heart*, 95, (9) 697-703

Ref ID: 26A

EXC-REVIEW

Gan, R.M., Wong, V., Cheung, N.W., & McLean, M. 2009. Effect of insulin infusion on electrocardiographic findings following acute myocardial infarction: importance of glycaemic control. *Diabetic Medicine*, 26, (2) 174-176

Ref ID: 30A

EXC-FOCUS ON ECG CHANGES AS AN OUTCOME

Goyal, A., Nerenberg, K., Gerstein, H.C., Umpierrez, G., & Wilson, P.W. 2008. Insulin therapy in acute coronary syndromes: an appraisal of completed and ongoing randomised trials with important clinical end points. [Review] [58 refs]. *Diabetes & Vascular Disease Research*, 5, (4) 276-284

Ref ID: 35A

EXC-REVIEW

Cheung, N.W. 2008. Glucose control during acute myocardial infarction. [Review] [20 refs]. *Internal Medicine Journal*, 38, (5) 345-348

Ref ID: 49A

EXC-NARRATIVE REVIEW

Braatvedt, G.D. 2008. Glucose control peri-myocardial infarction. [Review] [17 refs]. *Internal Medicine Journal*, 38, (5) 341-344

Ref ID: 50A

EXC-NARRATIVE REVIEW

Pinto, D.S., Kirtane, A.J., Pride, Y.B., Murphy, S.A., Sabatine, M.S., Cannon, C.P., Gibson, C.M., & CLARITY, T.I.M.I. 2008. Association of blood glucose

with angiographic and clinical outcomes among patients with ST-segment elevation myocardial infarction (from the CLARITY-TIMI-28 study). *American Journal of Cardiology*, 101, (3) 303-307

Ref ID: 53A

EXC-FOCUS ON USE OF CLOPIDOGREL

Diaz, R., Goyal, A., Mehta, S.R., Afzal, R., Xavier, D., Pais, P., Chrolavicius, S., Zhu, J., Kazmi, K., Liu, L., Budaj, A., Zubaid, M., Avezum, A., Ruda, M., & Yusuf, S. 2007. Glucose-insulin-potassium therapy in patients with ST-segment elevation myocardial infarction. *JAMA*, 298, (20) 2399-2405

Ref ID: 62A

EXC-COMBINED ANALYSIS OF CREATE ECLA AND OASIS-6. CREATE ECLA PAPER HAS BEEN EXCLUDED

Chaudhuri, A., Janicke, D., Wilson, M., Ghanim, H., Wilding, G.E., Aljada, A., & Dandona, P. 2007. Effect of modified glucose-insulin-potassium on free fatty acids, matrix metalloproteinase, and myoglobin in ST-elevation myocardial infarction. *American Journal of Cardiology*, 100, (11) 1614-1618

Ref ID: 63A

EXC-NOT PERI ACS AND HYPERGLYCAEMIA

Hafidh, S.A., Reuter, M.D., Chassels, L.J., Aradhyula, S., Bhutto, S.S., & Alpert, M.A. 2007. Effect of intravenous insulin therapy on clinical outcomes in critically ill patients. [Review] [56 refs]. *American Journal of the Medical Sciences*, 333, (6) 354-361

Ref ID: 70A

EXC-NARRATIVE REVIEW

Zarich, S.W. & Nesto, R.W. 2007. Implications and treatment of acute hyperglycemia in the setting of acute myocardial infarction. [Review] [23 refs]. *Circulation*, 115, (18) e436-e439

Ref ID: 73A

EXC-REVIEW

Cheung, N.W., Wong, V.W., & McLean, M. 2006. Insulin infusion therapy for myocardial infarction. [Review] [41 refs]. *Expert Opinion on Pharmacotherapy*,

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7, (18) 2495-2503

Ref ID: 91A

EXC-REVIEW

Wade, A.O. & Cordingley, J.J. 2006. Glycaemic control in critically ill patients with cardiovascular disease. [Review] [51 refs]. *Current Opinion in Critical Care*, 12, (5) 437-443

Ref ID: 95A

EXC-REVIEW

Bhadriraju, S., Ray, K.K., DeFranco, A.C., Barber, K., Bhadriraju, P., Murphy, S.A., Morrow, D.A., McCabe, C.H., Gibson, C.M., Cannon, C.P., & Braunwald, E. 2006. Association between blood glucose and long-term mortality in patients with acute coronary syndromes in the OPUS-TIMI 16 trial. *American Journal of Cardiology*, 97, (11) 1573-1577

Ref ID: 100A

EXC-ORAL INTERVENTION-NOT INTENSIVE INSULIN THERAPY

Milicevic, Z., Raz, I., Strojek, K., Skrha, J., Tan, M.H., Wyatt, J.W., Beattie, S.D., Robbins, D.C., & Study, D. 2005. Hyperglycemia and its effect after acute myocardial infarction on cardiovascular outcomes in patients with Type 2 diabetes mellitus (HEART2D) Study design. *Journal of Diabetes & its Complications*, 19, (2) 80-87

Ref ID: 129A

EXC-NOT ACUTE EPISODE

Zarich, S.W. 2005. The role of intensive glycemic control in the management of patients who have acute myocardial infarction. [Review] [65 refs]. *Cardiology Clinics*, 23, (2) 109-117

Ref ID: 131A

EXC-NARRATIVE REVIEW

Imran, S.A., Malmberg, K., Cox, J.L., Ransom, T.P., & Ur, E. 2004. An overview of the role of insulin in the treatment of hyperglycemia during acute myocardial ischemia. [Review] [65 refs]. *Canadian Journal of Cardiology*, 20, (13) 1361-1365

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Ref ID: 136A

EXC-NARRATIVE REVIEW

Pittas, A.G., Siegel, R.D., & Lau, J. 2004. Insulin therapy for critically ill hospitalized patients: a meta-analysis of randomized controlled trials. *Archives of Internal Medicine*, 164, (18) 2005-2011

Ref ID: 139A

EXC-REVIEW

Furnary, A.P., Gao, G., Grunkemeier, G.L., Wu, Y., Zerr, K.J., Bookin, S.O., Floten, H.S., & Starr, A. 2003. Continuous insulin infusion reduces mortality in patients with diabetes undergoing coronary artery bypass grafting. *Journal of Thoracic & Cardiovascular Surgery*, 125, (5) 1007-1021

Ref ID: 164A

EXC-PARTICIPANTS UNDERGOING CABG

Dandona, P., Aljada, A., & Bandyopadhyay, A. 2003. The potential therapeutic role of insulin in acute myocardial infarction in patients admitted to intensive care and in those with unspecified hyperglycemia. [Review] [60 refs]. *Diabetes Care*, 26, (2) 516-519

Ref ID: 172A

EXC-COMMENTARY

McNulty, P.H. 2002. Glucose and insulin management in the post-MI setting. [Review] [51 refs]. *Current Diabetes Reports*, 2, (1) 37-44

Ref ID: 174A

EXC-NARRATIVE REVIEW

Davies, M.J. & Lawrence, I.G. 2002. DIGAMI (Diabetes Mellitus, Insulin Glucose Infusion in Acute Myocardial Infarction): theory and practice. [Review] [60 refs]. *Diabetes, Obesity & Metabolism*, 4, (5) 289-295

Ref ID: 177A

EXC-OVERVIEW OF DIGAMI STUDY

Walker, E.F. 1999. Management of diabetes and hyperglycaemia during myocardial infarction: review of the literature. [Review] [23 refs]. *Intensive &*

Critical Care Nursing, 15, (5) 259-265

Ref ID: 209A

EXC-NARRATIVE REVIEW

Rogers, W.J., Stanley, A.W., Jr., Breinig, J.B., Prather, J.W., McDaniel, H.G., Moraski, R.E., Mantle, J.A., Russell, R.O., Jr., & Rackley, C.E. 1976.

Reduction of hospital mortality rate of acute myocardial infarction with glucose-insulin-potassium infusion. *American Heart Journal*, 92, (4) 441-454

Ref ID: 250A

EXC-NOT PERI ACS AND HYPERGLYCAEMIA AND NO BASELINE BLOOD GLUCOSE LEVELS

Hermanides, J., Engstrom, A.E., Wentholt, I.M., Sjauw, K.D., Hoekstra, J.B., Henriques, J.P., & DeVries, J.H. 2010. Sensor-augmented insulin pump therapy to treat hyperglycemia at the coronary care unit: a randomized clinical pilot trial. *Diabetes Technology & Therapeutics*, 12, (7) 537-542

Ref ID: 253A

EXC-NO FOCUS ON PRIMARY OUTCOMES

Langley, J. & Adams, G. 2007. Insulin-based regimens decrease mortality rates in critically ill patients: a systematic review. *Diabetes/Metabolism Research and Reviews*, 23, (3) 184-192

Ref ID: 275A

EXC-SYSTEMATIC REVIEW ON CRITICALLY ILL PATIENTS- NOT SPECIFIC TO ACS AND HYPERGLYCAEMIA

Devine, M.J., Chandrasekara, W.M., & Hardy, K.J. 2010. Management of hyperglycaemia in acute coronary syndrome. *British Journal of Diabetes & Vascular Disease*, 10, (2) 59-66

Ref ID: 287A

EXC-REVIEW

Rensing, K.L., Kastelein, J.J., & Twickler, M. 2009. Is insulin the preferred compound in lowering glucose levels in patients after a myocardial infarction?... *Arch Intern Med*. 2009 Mar 9;169(5):438-46. *Archives of Internal Medicine*, 169, (17) 1636-1639

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Ref ID: 292A

EXC-COMMENT

Dandona, P., Chaudhuri, A., & Ghanim, H. 2009. Acute myocardial infarction, hyperglycemia, and insulin. *Journal of the American College of Cardiology*, 53, (16) 1437-1440

Ref ID: 297A

EXC-EDITORIAL

Kloner, R.A. & Nesto, R.W. 2008. Glucose-insulin-potassium for acute myocardial infarction: continuing controversy over cardioprotection. *Circulation*, 117, (19) 2523-2534

Ref ID: 305A

EXC-REVIEW

Smith, R.J. & McLean, M. 2008. Managing high blood glucose levels in coronary care. *Internal Medicine Journal*, 38, (5) 305-307

Ref ID: 306A

EXC-EDITORIAL

Opie, L.H. 2008. Metabolic management of acute myocardial infarction comes to the fore and extends beyond control of hyperglycemia. *Circulation*, 117, (17) 2172-2178

Ref ID: 308A

EXC-EDITORIAL

Black, S., Green, D., & Bryant, M. 2007. Role of tight glycaemic control for emergency department acute coronary syndrome patients... 6th International Conference for Emergency Nurses: Future Directions, Future ChallengesEL Beyond Tomorrow, 11-13 October 2007, Melbourne, Victoria, Australia. *Australasian Emergency Nursing Journal*, 10, (4) 193-194

Ref ID: 314A

EXC-CONFERENCE ABSTRACT

Jones, C. & Fisher, M. 2007. Intensive insulin treatment in coronary and intensive care. *Practical Diabetes International*, 24, (1) 42-48

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Ref ID: 320A

EXC-NARRATIVE REVIEW

Mesotten, D. & Van den Berghe, G. 2003. Clinical potential of insulin therapy in critically ill patients. *Drugs*, 63, (7) 625-637

Ref ID: 333A

EXC-NARRATIVE REVIEW

Norhammar, A., Tenerz, Å., Nilsson, G., Hamsten, A., Efendic, S., Rydén, L., & Malmberg, K. 2002. Glucose metabolism in patients with acute myocardial infarction and no previous diagnosis of diabetes mellitus: a prospective study. *Lancet*, 359, (9324) 2140-2145

Ref ID: 335A

EXC-NO INTERVENTION OF INTENSIVE INSULIN

Marfella, R., Di, F.C., Portoghese, M., Ferraraccio, F., Rizzo, M.R., Siniscalchi, M., Musacchio, E., D'Amico, M., Rossi, F., & Paolisso, G. 2009. Tight Glycemic Control Reduces Heart Inflammation and Remodeling During Acute Myocardial Infarction in Hyperglycemic Patients. *Journal of the American College of Cardiology*, 53, (16) 1425-1436

Ref ID: 357A

EXC-NO FOCUS ON PRIMARY OUTCOMES & COMPARING
NORMOGLYCAEMIA WITH HYPERGLYCAEMIA

Inzucchi, S.E. 2008. Hyperglycaemia and its therapy during acute coronary syndromes. *Diabetes and Vascular Disease Research*, 5, (4) 259

Ref ID: 484A

EXC-EDITORIAL

Adams, G.G., Grainge, M., & Langley, J. 2008. Glucose-insulin-potassium (GIK) and tight-glycaemic-control (TGC) versus standard therapy insulin for critically ill patients. *Cochrane Database of Systematic Reviews* (1)

Ref ID: 518A

EXC-PROTOCOL

Chaudhuri, A., Nesto, R., & Dandona, P. 2008. Glucose-insulin-potassium therapy in patients with STEMI [4]. *JAMA - Journal of the American Medical Association*, 299, (20) 2386-2387

Ref ID: 520A

EXC-LETTER

Arora, R.R. & Katragadda, S. 2008. Glucose-insulin-potassium therapy in patients with STEMI [3]. *JAMA - Journal of the American Medical Association*, 299, (20) 2386

Ref ID: 521A

EXC-LETTER

Selker, H.P., Ingwall, J., & Rackley, C.E. 2008. Glucose-insulin-potassium therapy in patients with STEMI [1]. *JAMA - Journal of the American Medical Association*, 299, (20) 2385

Ref ID: 522A

EXC-LETTER

Loney-Hutchinson, L.M. & McFarlane, S.I. 2007. Glycemic control for hospitalized patients with diabetes: Strategies for effective management. *Therapy*, 4, (3) 217-220

Ref ID: 592A

EXC-NOT PROVIDED BY THE BRITISH LIBRARY

Gray, C.S., Hildreth, A.J., Sandercock, P.A., O'Connell, J.E., Johnston, D.E., Cartlidge, N.E., Bamford, J.M., James, O.F., & Alberti, K.G.M. 2007. Glucose-potassium-insulin infusions in the management of post-stroke hyperglycaemia: the UK Glucose Insulin in Stroke Trial (GIST-UK). *Lancet Neurology*, 6, (5) 397-406

Ref ID: 612A

EXC-REVIEW WITH FOCUS ON STROKE

Fitchett, D.H. 2007. Future strategies for improving outcomes in patients with diabetes and acute coronary syndromes. *Future Cardiology*, 3, (2) 115-121

Ref ID: 614A

EXC-EDITORIAL

Hyperglycaemia in acute coronary syndromes: DRAFT appendix D (August 2011)

Narain, V.S., Puri, A., & Ahuja, A. 2006. 10 Years of clinical trials in diabetic patient with coronary artery disease. *Journal of Internal Medicine of India*, 9, (1) 20-26

Ref ID: 620A

EXC-NARRATIVE REVIEW

Vanhorebeek, I., Ingels, C., & Van den Berghe, G. 2006. Intensive Insulin Therapy in High-Risk Cardiac Surgery Patients: Evidence from the Leuven Randomized Study. *Seminars in Thoracic and Cardiovascular Surgery*, 18, (4) 309-316

Ref ID: 632A

EXC-NARRATIVE REVIEW

Hirsch, I.B. 2006. Inpatient diabetes: Review of data from the cardiac care unit. *Endocrine Practice*, 12, (SUPPL. 3) 27-34

Ref ID: 635A

EXC-NARRATIVE REVIEW

Hasin, T., Eldor, R., & Hammerman, H. 2006. Intensive insulin therapy in the intensive cardiac care unit. *Acute Cardiac Care*, 8, (4) 181-185

Ref ID: 637A

EXC-NARRATIVE REVIEW

Henderson, W.R., Chittock, D.R., Dhingra, V.K., & Ronco, J.J. 2006. Hyperglycemia in acutely ill emergency patients - Cause or effect? *Canadian Journal of Emergency Medicine*, 8, (5) 339-343

Ref ID: 654A

EXC-REVIEW

Soran, H., Barzangy, B., & Younis, N. 2006. The benefits of insulin therapy following acute myocardial infarction revisited. *QJM*, 99, (9) 635-637

Ref ID: 656A

EXC-COMMENTARY

Pittas, A.G., Siegel, R.D., & Lau, J. 2006. Insulin therapy and in-hospital mortality in critically ill patients: Systematic review and meta-analysis of

randomized controlled trials. *Journal of Parenteral and Enteral Nutrition*, 30, (2) 164-172

Ref ID: 665A

EXC-REVIEW

Furnary, A.P. & Braithwaite, S.S. 2006. Effects of Outcome on In-Hospital Transition from Intravenous Insulin Infusion to Subcutaneous Therapy. *American Journal of Cardiology*, 98, (4) 557-564

Ref ID: 671A

EXC-NARRATIVE REVIEW

Devos, P., Chiolero, R., Van den Berghe, G., & Preiser, J.-C. 2006. Glucose, insulin and myocardial ischaemia. *Current Opinion in Clinical Nutrition and Metabolic Care*, 9, (2) 131-139

Ref ID: 673A

EXC-REVIEW

Vogelzang, M., Svilaas, T., van der Horst, I.C.C., Nijsten, M.W.N., & Zijlstra, F. 2006. Refractory hyperglycaemia induced by glucose-insulin-potassium infusion in acute myocardial infarction. *Netherlands Heart Journal*, 14, (2) 46-48

Ref ID: 696A

EXC-FOCUS ON ASSOCIATION BETWEEN HIGH DOSE INSULIN INFUSION AND REFRACTORY HYPERGLYCAEMIA

Rasoul, S., Svilaas, T., Ottervanger, J.-P., Timmer, J.R., Van't Hof, A.W.J., & Zijlstra, F. 2006. A quantitative analysis of the effect of glucose-insulin-potassium in acute myocardial infarction. *Netherlands Heart Journal*, 14, (1) 19-23

Ref ID: 697A

EXC-REVIEW

van der Horst, I.C.C. & Zijlstra, F. 2005. Role for insulin in acute myocardial infarction: Ruled out or hard to prove? [1]. *European Heart Journal*, 26, (23) 2600

Ref ID: 714A

EXC-LETTER

van der Horst, I.C.C. & Zijlstra, F. 2005. GIK in acute myocardial infarction: Lessons from CREATE-ECLA, GIPS II and DIGAMI 2. *Netherlands Heart Journal*, 13, (7-8) 251-253

Ref ID: 724A

EXC-EDITORIAL

Holt, R.I.G. 2005. DIGAMI-2 - The optimal management of hyperglycaemia remains controversial. *Diabetes, Obesity and Metabolism*, 7, (1) 110-116

Ref ID: 754A

EXC-COMMENTARY

Vaage, J. 2004. Glucose-insulin-potassium in cardiac surgery: A meta-analysis. Invited commentary. *Annals of Thoracic Surgery*, 78, (5) 1658

Ref ID: 778A

EXC- COMMENTARY

Bretzel, R.G. 2004. Intensive insulin regimens: Evidence for benefit.

International Journal of Obesity, 28, (SUPPL. 2) S8-S13

Ref ID: 782A

EXC-REVIEW

Lazar, H.L. 2003. Tight glycemic control essential in diabetics undergoing CABG surgery. *Cardiology Review*, 20, (2) 22

Ref ID: 852A

EXC-NOT PROVIDED BY THE BRITISH LIBRARY

Davey, G. & McKeigue, P. 1996. Insulin infusion in diabetic patients with acute myocardial infarction. Effective in diabetes, but patients with glucose intolerance may also benefit. *British Medical Journal*, 313, (7058) 639-640

Ref ID: 927A

EXC-EDITORIAL

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Hemmingsen, B., Lund, S.S., Gluud, C., Vaag, A., Almdal, T., & Wetterslev, J. 2009. Targeting intensive glycaemic control versus targeting conventional glycaemic control for type 2 diabetes mellitus. Cochrane Database of Systematic Reviews (4)

Ref ID: 958A

EXC-PROTOCOL

Benito, B., Conget, I., Bosch, X., Heras, M., Ordóñez, J., Sionis, A., Díaz, G., & Esmatjes, E. 2008. [Intensive insulin therapy in non-diabetic patients with myocardial infarction and hyperglycemia. INSUCOR study]. *Medicina clínica*, 130, (16) 601-605

Ref ID: 983A

EXC-NON-ENGLISH

Misso, M.L., Egberts, K.J., Page, M., O'Connor, D., & Shaw, J. 2010. Continuous subcutaneous insulin infusion (CSII) versus multiple insulin injections for type 1 diabetes mellitus. Cochrane Database of Systematic Reviews (1)

Ref ID: 1

EXC-NOT PERI ACS AND HYPERGLYCAEMIA

Lankisch, M., Füh, R., Gülker, H., Lapp, H., Bufe, A., Haastert, B., Martin, S., & Rathmann, W. 2008. Screening for undiagnosed diabetes in patients with acute myocardial infarction. *Clinical research in cardiology : official journal of the German Cardiac Society*, 97, (10) 753-759

Ref ID: 81

EXC-NOT AN RCT

Bucciarelli-Ducci, C., Bianchi, M., De, L.L., Battagliese, A., Di, R.C., Proietti, P., Vizza, C.D., & Fedele, F. 2006. Effects of glucose-insulin-potassium infusion on myocardial perfusion and left ventricular remodeling in patients treated with primary angioplasty for ST-elevation acute myocardial infarction. *The American journal of cardiology*, 98, (10) 1349-1353

Ref ID: 135

EXC-NO FOCUS ON PRIMARY OUTCOMES AND NO RECORD OF BLOOD GLUCOSE STATES

Krljanac, G., Vasiljević, Z, Radovanović, M, Stanković, G, Milić, N, Stefanović, B, Kostić, J, Mitrović, P, Radovanović, N, Dragović, M, Marinković, J, Karadžić, & A 2005. Effects of glucose-insulin-potassium infusion on ST-elevation myocardial infarction in patients treated with thrombolytic therapy. *The American journal of cardiology*, 96, (8) 1053-1058

Ref ID: 174

EXC-NOT PERI ACS AND HYPERGLYCAEMIA

Stefanidis, A., Melidonis, A., Tournis, S., Zairis, M., Handanis, S., Beldekos, D., Argyrakis, S., Asimacopoulos, P., & Foussas, S. 2003. Effect of intravenous insulin administration on left ventricular performance during non-ST-elevation acute coronary events in patients with diabetes mellitus. *The American journal of cardiology*, 91, (10) 1237-1240

Ref ID: 238

EXC-NO FOCUS ON PRIMARY OUTCOMES AND CONTROL GROUP ALSO RECEIVED INSULIN IF BLOOD GLUCOSE ABOVE SPECIFIC THRESHOLD

Rymarz, E., Mosiewicz, J., & Hanzlik, J. 2003. The influence of polarizing GIK mixture on the indicators of myocardial necrosis. *Annales Universitatis Mariae Curie-Skłodowska. Sectio D: Medicina*, 58, (1) 5-10

Ref ID: 253

EXC-NOT PROVIDED BY THE BRITISH LIBRARY

Melidonis, A., Stefanidis, A., Tournis, S., Manoussakis, S., Handanis, S., Zairis, M., Dadiotis, L., & Foussas, S. 2000. The role of strict metabolic control by insulin infusion on fibrinolytic profile during an acute coronary event in diabetic patients. *Clinical cardiology*, 23, (3) 160-164

Ref ID: 320

EXC-FIBRINOLYTIC FUNCTION IS NOT A PRIMARY OUTCOME

Díaz, R., Paolasso, E.A., Piegas, L.S., Tajer, C.D., Moreno, M.G., Corvalán, R., Isea, J.E., & Romero, G. 1998. Metabolic modulation of acute myocardial infarction. The ECLA (Estudios Cardiológicos Latinoamérica) Collaborative Group. *Circulation*, 98, (21) 2227-2234

Ref ID: 349

EXC-NO DEFINITION OF HYPERGLYCAEMIA

Yang, Z.H., Yang, K.H., Ma, B., & Yin, S.F. 2008. Effect of glucose-insulin-potassium on heart function of patients with acute myocardial infarction: a systematic review. *Chinese Journal of Evidence-Based Medicine*, 8, (2) 97-101

Ref ID: 556

EXC-NON-ENGLISH

Mamas, M.A., Neyses, L., & Fath-Ordoubadi, F. 2010. A meta-analysis of glucose-insulin-potassium therapy for treatment of acute myocardial infarction. *Experimental & Clinical Cardiology*, 15, (2) e2--e24

Ref ID: 574

EXC-REVIEW WITH NO FOCUS ON HYPERGLYCAEMIA

Opie, L.H. 2008. Glucose-insulin-potassium therapy in patients with STEMI... *JAMA*. 2007 Nov 28;298(20):2399-405. *JAMA: Journal of the American Medical Association*, 299, (20) 2385-2389

Ref ID: 734

EXC-LETTER

Arora, R.R. & Katragadda, S. 2008. Glucose-insulin-potassium therapy in patients with STEMI... *JAMA*. 2005 Jan 26;293(4):437-46; *JAMA*. 2007 Nov 28;298(20):2399-405. *JAMA: Journal of the American Medical Association*, 299, (20) 2386-2389

Ref ID: 735

EXC-LETTER

Chaudhuri, A., Nesto, R., & Dandona, P. 2008. Glucose-insulin-potassium therapy in patients with STEMI... JAMA. 2007 Nov 28;298(20):2399-405.

JAMA: Journal of the American Medical Association, 299, (20) 2386-2389

Ref ID: 736

EXC-LETTER

Chaudhuri, A., Miller, M., Nesto, R., Rosenberg, N., & Dandona, P. 2007.

Targeting glucose in acute myocardial infarction: has glucose, insulin, and potassium infusion missed the target? Diabetes care, 30, (12) 3026-3029

Ref ID: 778

EXC-NOT AN RCT

Murphy, S.A. 2006. OASIS-6 -- Glucose-Insulin-Potassium (OASIS-6 -- GIK).

ACC Cardiosource Review Journal 38-39

Ref ID: 825

EXC-CONFERENCE POSTER

Timmer, J.R., Svilaas, T., Ottervanger, J.P., Henriques, J.P., Dambrink, J.H., van den Broek, S.A., van der Horst, I.C., & Zijlstra, F. 2006. Glucose-insulin-potassium infusion in patients with acute myocardial infarction without signs of heart failure: the Glucose-Insulin-Potassium Study (GIPS)-II. Journal of the American College of Cardiology, 47, (8) 1730-1732

Ref ID: 878

EXC-LETTER TO EDITOR

Yusuf, S. 2005. Intensive insulin-glucose infusion regimens with long-term or standard glucose control did not differ for reducing mortality in type 2 diabetes mellitus and MI. ACP Journal Club, 143, (2) 43-44

Ref ID: 919

EXC-SUMMARY OF DIGAMI 2

Mukherjee, D. 2005. [Commentary on] Intensive metabolic control by means of insulin in patients with diabetes mellitus and acute myocardial infarction (DIGAMI 2): effects on mortality and morbidity. ACC Current Journal Review, 14, (7) 6-7

Ref ID: 927

EXC-COMMENT

Berger, P.B. 2005. A glucose-insulin-potassium infusion did not reduce, mortality, cardiac arrest, or cardiogenic shock after acute MI. ACP Journal Club, 143, (1) 4-6

Ref ID: 929

EXC-COMMENTARY AND NOT PERI ACS AND HYPERGLYCAEMIA

Apstein, C.S., Cobb, L.A., Killip, T., Lambrew, C.T., MacLeod, B.A., Rackley, C.E., Selker, H.P., Zalenski, R.J., Dey, J., Blonde, L., Burshell, A., Bolton, P., Richard, A., Mehta, S.R., Yusuf, S., Diaz, R., & Paolasso, E. 2005. Glucose-insulin-potassium infusion and mortality in the CREATE-ECLA trial... Mehta SR, Yusuf S, Diaz R et al. Effect of glucose-insulin-potassium infusion on mortality in patients with acute ST-segment elevation myocardial infarction. JAMA. 2005;293:437-446. JAMA: Journal of the American Medical Association, 293, (21) 2596-2599

Ref ID: 937

EXC-LETTER

Rubensfire, M. 2005. [Commentary on] Effect of glucose-insulin-potassium infusion on mortality in patients with acute ST-segment elevation myocardial infarction. The CREATE-ECLA randomized controlled trial. ACC Current Journal Review, 14, (4) 9-10

Ref ID: 941

EXC-COMMENTARY

2005. Effect of glucose-insulin-potassium infusion on mortality in patients with acute ST-segment elevation myocardial infarction: the CREATE-ECLA randomized controlled trial. JAMA: Journal of the American Medical Association, 293, (4) 437-447

Ref ID: 951

EXC-NO PRECISE DEFINITION OF HYPERGLYCAEMIA AND BLOOD GLUCOSE LEVELS

Mak, K.H. & Topol, E.J. 2000. Emerging concepts in the management of acute myocardial infarction in patients with diabetes mellitus. *Journal of the American College of Cardiology*, 35, (3) 563-569

Ref ID: 1082

EXC-FOCUS ON FIBRINOLYSIS

1999. AMI treatment rejected in '60s draws new attention: GIK cuts death rate in half. *Cost Management in Cardiac Care*, 4, (2) 21-23

Ref ID: 1104

EXC-COMMENT

Marso, S.P., Kennedy, K.F., House, J.A., & McGuire, D.K. 2010. The effect of intensive glucose control on all-cause and cardiovascular mortality, myocardial infarction and stroke in persons with type 2 diabetes mellitus: a systematic review and meta-analysis. [Review] [30 refs]. *Diabetes & Vascular Disease Research*, 7, (2) 119-130

Ref ID: 1189

EXC-REVIEW

Conget, I. & Gimenez, M. 2009. Glucose control and cardiovascular disease: is it important? No. [Review] [25 refs]. *Diabetes care*, 32, Suppl-6

Ref ID: 1223

EXC-BRITISH LIBRARY NOT ABLE TO SUPPLY

Ray, K.K., Seshasai, S.R., Wijesuriya, S., Sivakumaran, R., Nethcott, S., Preiss, D., Erqou, S., & Sattar, N. 2009. Effect of intensive control of glucose on cardiovascular outcomes and death in patients with diabetes mellitus: a meta-analysis of randomised controlled trials. *Lancet*, 373, (9677) 1765-1772

Ref ID: 1262

EXC-REVIEW-NO FOCUS ON THE ACUTE PHASE OF ACS

Malmberg, K. & Ryden, L. 2006. Effect of insulin-glucose infusion on mortality following acute myocardial infarction in patients with diabetes: the diabetes and insulin-glucose infusion in acute myocardial infarction studies. [Review] [15 refs]. *Seminars in Thoracic & Cardiovascular Surgery*, 18, (4) 326-329

Ref ID: 1464

EXC-NARRATIVE REVIEW

Schipke, J.D., Friebe, R., & Gams, E. 2006. Forty years of glucose-insulin-potassium (GIK) in cardiac surgery: a review of randomized, controlled trials. [Review] [70 refs]. *European Journal of Cardio-Thoracic Surgery*, 29, (4) 479-485

Ref ID: 1531

EXC-REVIEW OF CARDIAC SURGERY

Turel, B., Gemici, K., Baran, I., Yesilbursa, D., Gullulu, S., Aydinlar, A., Serdar, A., Kazazoglu, A.R., Kumbay, E., & Cordan, J. 2005. Effects of glucose-insulin-potassium solution added to reperfusion treatment in acute myocardial infarction. *Anadolu Kardiyoloji Dergisi*, 5, (2) 90-94

Ref ID: 1642

EXC-NOT PERI ACS AND HYPERGLYCAEMIA AND NO BASELINE RECORD OF BLOOD GLUCOSE

Timmer, J.R., van der Horst, I.C., Ottervanger, J.P., De, L.G., van 't Hof, A.W., Bilo, H.J., & Zijlstra, F. 2004. Glucose-insulin-potassium infusion as adjunctive therapy in myocardial infarction: current evidence and potential mechanisms. *Italian Heart Journal: Official Journal of the Italian Federation of Cardiology*, 5, (10) 727-731

Ref ID: 1682

EXC-REVIEW

Apstein, C.S. 2003. The benefits of glucose-insulin-potassium for acute myocardial infarction (and some concerns). [Review] [30 refs]. *Journal of the American College of Cardiology*, 42, (5) 792-795

Ref ID: 1796

EXC-EDITORIAL COMMENT

Janiger, J.L. & Cheng, J.W. 2002. Glucose-insulin-potassium solution for acute myocardial infarction. [Review] [14 refs]. *Annals of Pharmacotherapy*, 36, (6) 1080-1084

Ref ID: 1887

EXC-NARRATIVE REVIEW

Ceremuzyński, L., Budaj, A., Czepiel, A., Burzykowski, T., Achremczyk, P., Smielak-Korombel, W., Maciejewicz, J., Dziubińska, J., Nartowicz, E., Kawka-Urbaneck, T., Piotrowski, W., Hanzlik, J., Cieslinski, A., Kawecka-Jaszcz, K., Gessek, J., & Wrabec, K. 1999. Low-dose glucose-insulin-potassium is ineffective in acute myocardial infarction: results of a randomized multicenter Pol-GIK trial. *Cardiovascular Drugs & Therapy*, 13, (3) 191-200

Ref ID: 2044

EXC-NO PERI ACS AND HYPERGLYCAEMIA

Apstein, C.S. & Opie, L.H. 1999. Glucose-insulin-potassium (GIK) for acute myocardial infarction: a negative study with a positive value. [Review] [38 refs]. *Cardiovascular Drugs & Therapy*, 13, (3) 185-189

Ref ID: 2045

EXC-EDITORIAL

Fath-Ordoubadi, F. & Beatt, K.J. 1999. Glucose-insulin-potassium in acute myocardial infarction. *Lancet*, 353, (9168) 1968

Ref ID: 2050

EXC-CORRESPONDENCE

Fisher, M. 1999. Diabetes and myocardial infarction. [Review] [56 refs]. *Best Practice & Research Clinical Endocrinology & Metabolism*, 13, (2) 331-343

Ref ID: 2078

EXC-NARRATIVE REVIEW

Apstein, C.S. 1998. Glucose-insulin-potassium for acute myocardial infarction: remarkable results from a new prospective, randomized trial. [Review] [27 refs]. *Circulation*, 98, (21) 2223-2226

Ref ID: 2102

EXC-EDITORIAL

Williams, R. 1997. Intensive insulin treatment after acute myocardial infarction in diabetes mellitus. Evidence exists from study of non-insulin dependent

diabetes in Japan. *BMJ*, 315, (7107) 544

Ref ID: 2168

EXC-EDITORIAL

Surawicz, B. 1968. Evaluation of treatment of acute myocardial infarction with potassium, glucose and insulin. [Review] [110 refs]. *Progress in Cardiovascular Diseases*, 10, (6) 545-560

Ref ID: 2692

EXC-NARRATIVE REVIEW

Rogers, W.J., McDaniel, H.G., Mantle, J.A., & Rackley, C.E. 1982. Glucose-insulin-potassium infusion in acute myocardial infarction - results of a prospective randomized study. *Clinical Research*, 30, (2) 216A

Ref ID: 2877

EXC-ABSTRACT ONLY

Stanley, J., Prather, J.W., & Snow, R.M. 1979. Glucose-insulin-potassium, acute myocardial infarction and patient mortality: Results from an ongoing prospective randomized study. *Clinical Research*, 27, (5) 734A

Ref ID: 2921

EXC-ABSTRACT ONLY

Puskarich, M., Jones, A., Kline, J., Runyon, M., & Trzeciak, S. 2009. Critical Care, Conference: 29th International Symposium on Intensive Care and Emergency Medicine Brussels Belgium. Conference Start: 20090324 Conference End: 20090327. Conference: 29th International Symposium on Intensive Care and Emergency Medicine Brussels Belgium. Conference Start: 20090324 Conference End: 20090327. Conference Publication: (var.pagings) S54

Ref ID: 3462

EXC-BRITISH LIBRARY CANNOT PROVIDE A COPY

Cefalu, W.T. & Watson, K. 2008. Intensive glycaemic control and cardiovascular disease observations from the ACCORD study: Now what can a clinician possibly think? *Diabetes*, 57, (5) 1163-1165

Ref ID: 3525

EXC-EDITORIAL

Goyal, A., Nerenberg, K., Gerstein, H.C., Umpierrez, G., & Wilson, P.W.F. 2008. Insulin therapy in acute coronary syndromes: An appraisal of completed and ongoing randomised trials with important clinical end points. *Diabetes and Vascular Disease Research*, 5, (4) 276-284

Ref ID: 3585

EXC-REVIEW

Goyal, A., Diaz, R., & Mehta, S.R. 2008. Glucose-insulin-potassium therapy in patients with STEMI: Reply. *JAMA - Journal of the American Medical Association*, 299, (20) 2387-2388

Ref ID: 3696

EXC-LETTER

Opie, L.H. 2008. Glucose-insulin-potassium therapy in patients with STEMI [2]. *JAMA - Journal of the American Medical Association*, 299, (20) 2385-2386

Ref ID: 3697

EXC-LETTER

Ranasinghe, A.M., Quinn, D.W., Pagano, D., Edwards, N., Faroqui, M., Graham, T.R., Keogh, B.E., Mascaro, J., Riddington, D.W., Rooney, S.J., Townend, J.N., Wilson, I.C., & Bonser, R.S. 2006. Glucose-insulin-potassium and tri-iodothyronine individually improve hemodynamic performance and are associated with reduced troponin I release after on-pump coronary artery bypass grafting. *Circulation*, 114, (SUPPL. 1) I245-I250

Ref ID: 4253

EXC-PARTICIPANTS UNDERGOING CABG

Yazici, M., Demircan, S., Durna, K., Yasar, E., Acar, Z., & Sahin, M. 2005. Effect of glucose-insulin-potassium infusion on myocardial damage due to percutaneous coronary revascularization. *American Journal of Cardiology*, 96, (11) 1517-1520

Ref ID: 4456

EXC-NO FOCUS ON PRIMARY OUTCOMES

Hyperglycaemia in acute coronary syndromes: DRAFT appendix D (August 2011)

2005. Effect of glucose-insulin-potassium infusion on mortality in patients with acute ST-segment elevation myocardial infarction: Comments. *Indian Heart Journal*, 57, (2) 187

Ref ID: 4535

EXC-COMMENT

van der Horst, I.C.C., De, L.G., Ottervanger, J.P., de, B.M.J., Hoorntje, J.C.A., Suryapranata, H., Dambrink, J.-H., Gosselink, A.T.M., Zijlstra, F., & Van 't Hof, A.W.J. 2005. ST-segment elevation resolution and outcome in patients treated with primary angioplasty and glucose-insulin-potassium infusion. *American heart journal*, 149, (6) 1135

Ref ID: 4555

EXC-NOT PERI ACS AND HYPERGLYCAEMIA AND NO EVALUATION OF BASELINE BLOOD GLUCOSE

van der Horst, I.C.C., Timmer, J.R., Ottervanger, J.P., Bilo, H.J.G., Gans, R.O.B., de, B.M.J., & Zijlstra, F. 2005. Glucose-insulin-potassium and reperfusion in acute myocardial infarction: Rationale and design of the Glucose-Insulin-Potassium Study-2 (GIPS-2). *American heart journal*, 149, (4) 585-591

Ref ID: 4601

EXC-NO MENTION OF BASELINE BLOOD GLUCOSE

Zhang, L., Li, Y.H., Zhang, H.Y., Chen, M.L., Gao, M.-M., Hu, A.H., Yang, H.S., & Liu, L.S. 2005. High-dose glucose-insulin-potassium treatment reduces myocardial apoptosis in patients with acute myocardial infarction. *European journal of clinical investigation*, 35, (3) 164-170

Ref ID: 4630

EXC-NOT PERI ACS AND HYPERGLYCAEMIA AND NO EVALUATION OF BASELINE BLOOD GLUCOSE

Yusuf, S., Mehta, S.R., Diaz, R., Paolasso, E., Pais, P., Xavier, D., Xie, C., Ahmed, R.J., Khazmi, K., Zhu, J., & Liu, L. 2004. Challenges in the conduct of large simple trials of important generic questions in resource-poor settings: The CREATE and ECLA trial program evaluating GIK (glucose, insulin and

potassium) and low-molecular-weight heparin in acute myocardial infarction.

American heart journal, 148, (6) 1068-1078

Ref ID: 4705

EXC-RELATES TO STUDY DESIGN

Kastrati, A. & Bellandi, F. 2004. Trial finds routine intravenous glucose-insulin-potassium does not improve myocardial salvage in people with acute myocardial infarction. Evidence-based Cardiovascular Medicine, 8, (4) 339-342

Ref ID: 4707

EXC-NOT PERI ACS AND HYPERGLYCAEMIA

Lazar, H.L., Chipkin, S.R., Fitzgerald, C.A., Bao, Y., Cabral, H., & Apstein, C.S. 2004. Tight Glycemic Control in Diabetic Coronary Artery Bypass Graft Patients Improves Perioperative Outcomes and Decreases Recurrent Ischemic Events. Circulation, 109, (12) 1497-1502

Ref ID: 4850

EXC-PARTICIPANTS UNDERGOING CABG

Castro, P.F., Larrain, G., Baeza, R., Corbalan, R., Nazzari, C., Greig, D.P., Miranda, F.P., Perez, O., Acevedo, M., Marchant, E., Olea, E., & Gonzalez, R. 2003. Effects of glucose-insulin-potassium solution on myocardial salvage and left ventricular function after primary angioplasty. Critical care medicine, 31, (8) 2152-2155

Ref ID: 5004

EXC-NOT PERI ACS AND HYPERGLYCAEMIA

Stefanidis, A., Melidonis, A., Tournis, S., Zairis, M., Handanis, S., Olympios, C., Asimacopoulos, P., & Foussas, S. 2002. Intensive insulin treatment reduces transient ischaemic episodes during acute coronary events in diabetic patients. Acta Cardiologica, 57, (5) 357-364

Ref ID: 5150

EXC-HYPERGLYCAEMIC POPULATION NOT WELL DEFINED AND DOES NOT DEFINE BLOOD GLUCOSE ON RECRUITMENT

Diaz-Araya, G., Nettle, D., Castro, P., Miranda, F., Greig, D., Campos, X., Chiong, M., Nazzari, C., Corbalan, R., & Lavandero, S. 2002. Oxidative stress after reperfusion with primary coronary angioplasty: Lack of effect of glucose-insulin-potassium infusion. *Critical care medicine*, 30, (2) 417-421

Ref ID: 5220

EXC-NOT PERI ACS AND HYPERGLYCAEMIA AND OXIDATIVE STRESS NOT A PRIMARY OUTCOME

Fath-Ordoubadi, F., Markides, V., & Beatt, K.J. 1998. Meta-analysis of glucose-insulin-potassium therapy for myocardial infarction. *Cardiology Review*, 15, (4) 41-44

Ref ID: 5511

EXC-REVIEW ARTICLE NOT FOCUSING ON PERI ACS AND HYPERGLYCAEMIA

Fath-Ordoubadi, F. & Beatt, K.J. 1997. Glucose-insulin-potassium therapy for treatment of acute myocardial infarction: An overview of randomized placebo-controlled trials. *Circulation*, 96, (4) 1152-1156

Ref ID: 5571

EXC-REVIEW

Mellbin, L.G., Malmberg, K., Norhammar, A., Wedel, H., & Ryden, L. 2008. The impact of glucose lowering treatment on long-term prognosis in patients with type 2 diabetes and myocardial infarction: A report from the DIGAMI 2 trial. *European heart journal*, 29, (2) 166-176

Ref ID: 5618

EXC-FOCUS ON TREATMENT FOLLOWING DISCHARGE (NOT ACUTE PHASE)

Rasoul, S., Ottervanger, J.P., Timmer, J.R., Svilaas, T., Henriques, J.P.S., Dambrink, J.-H., van der Horst, I.C.C., & Zijlstra, F. 2007. One year outcomes after glucose-insulin-potassium in ST elevation myocardial infarction. The Glucose-insulin-potassium study II. *International journal of cardiology*, 122, (1) 52-55

Ref ID: 5703

EXC-NO CUT OFF POINT FOR HYPERGLYCAEMIA OR BLOOD GLUCOSE

Marano, L., Bestetti, A., Lomuscio, A., Tagliabue, L., Castini, D., Tarricone, D., Dario, P., Tarolo, G.L., & Fiorentini, C. 2000. Effects of infusion of glucose-insulin-potassium on myocardial function after a recent myocardial infarction. *Acta Cardiologica*, 55, (1) 9-15

Ref ID: 5804

EXC-NOT PERI ACS AND HYPERGLYCAEMIA AND NO EVALUATION OF BASELINE BLOOD GLUCOSE

Wistbacka, J.-O., Lepojarvi, M.V.K., Karlqvist, K.E.V., Koistinen, J., Kaukoranta, P.K., Nissinen, J., Peltola, T., Rainio, P., Ruokonen, A., & Nuutinen, L.S. 1995. Amino acid-enriched glucose-insulin-potassium infusion improves hemodynamic function after coronary bypass surgery. A double-blind study in patients with unstable angina and/or compromised left ventricular function. *Infusionstherapie und Transfusionsmedizin*, 22, (2) 82-90

Ref ID: 5996

EXC-PATIENTS UNDERGOING CABG

Pache, J., Kastrati, A., Mehilli, J., Bollwein, H., Ndrepepa, G., Schuhlen, H., Martinoff, S., Seyfarth, M., Nekolla, S., Dirschinger, J., Schwaiger, M., & Schomig, A. A randomized evaluation of the effects of glucose-insulin-potassium infusion on myocardial salvage in patients with acute myocardial infarction treated with reperfusion therapy. *American heart journal* 148[1]. 2004.

Ref Type: Generic

Ref ID: 6048

EXC-NO PERI ACS AND HYPERGLYCAEMIA

The OASIS-6 trial group. Effects of fondaparinux on mortality and reinfarction in patients with acute ST-segment elevation myocardial infarction The OASIS-6 randomized trial. *JAMA* 295[13], 1519-1530. 2006.

Ref Type: Generic

Ref ID: 6049

EXC-RESULTS FOR GIK INFUSION NOT REPORTED HERE. NOT PERI
ACS AND HYPERGLYCAEMIA

Brunkhorst, F. M., Engel, C., Bloos, F., Meier-Hellmann, A., Ragaller, M., Weiler, N., Moerer, O., & et al. Intensive insulin therapy and pentastarch resuscitation in severe sepsis. *The New England journal of medicine* 358, 125-139. 2008.

Ref Type: Generic

Ref ID: 6050

EXC-NOT SPECIFIC TO ACS

Van den Berghe, G., Wouters, P., Weekers, F., Verwaest, C., Bruyninckx, F., & et al. Intensive insulin therapy in critically ill patients. *The New England journal of medicine* 345[19], 1359-1367. 2001.

Ref Type: Generic

Ref ID: 6051

EXC-NOT SPECIFIC TO ACS

Van der Berghe, G., Wilmer, A., Hermans, G., Meersseman, W., & et al. Intensive insulin therapy in the medical ICU. *The New England journal of medicine* 354[5]. 2006.

Ref Type: Generic

Ref ID: 6052

EXC-NOT SPECIFIC TO ACS

Diaz, R., Paolasso, E.A., Piegas, L.S., Tajer, C.D., Moreno, M.G., Corvalan, R., Isea, J.E., & Romero, G. 1998. Metabolic modulation of acute myocardial infarction: The ECLA glucose- insulin-potassium pilot trial. *Circulation*, 98, (21) 2227-2234

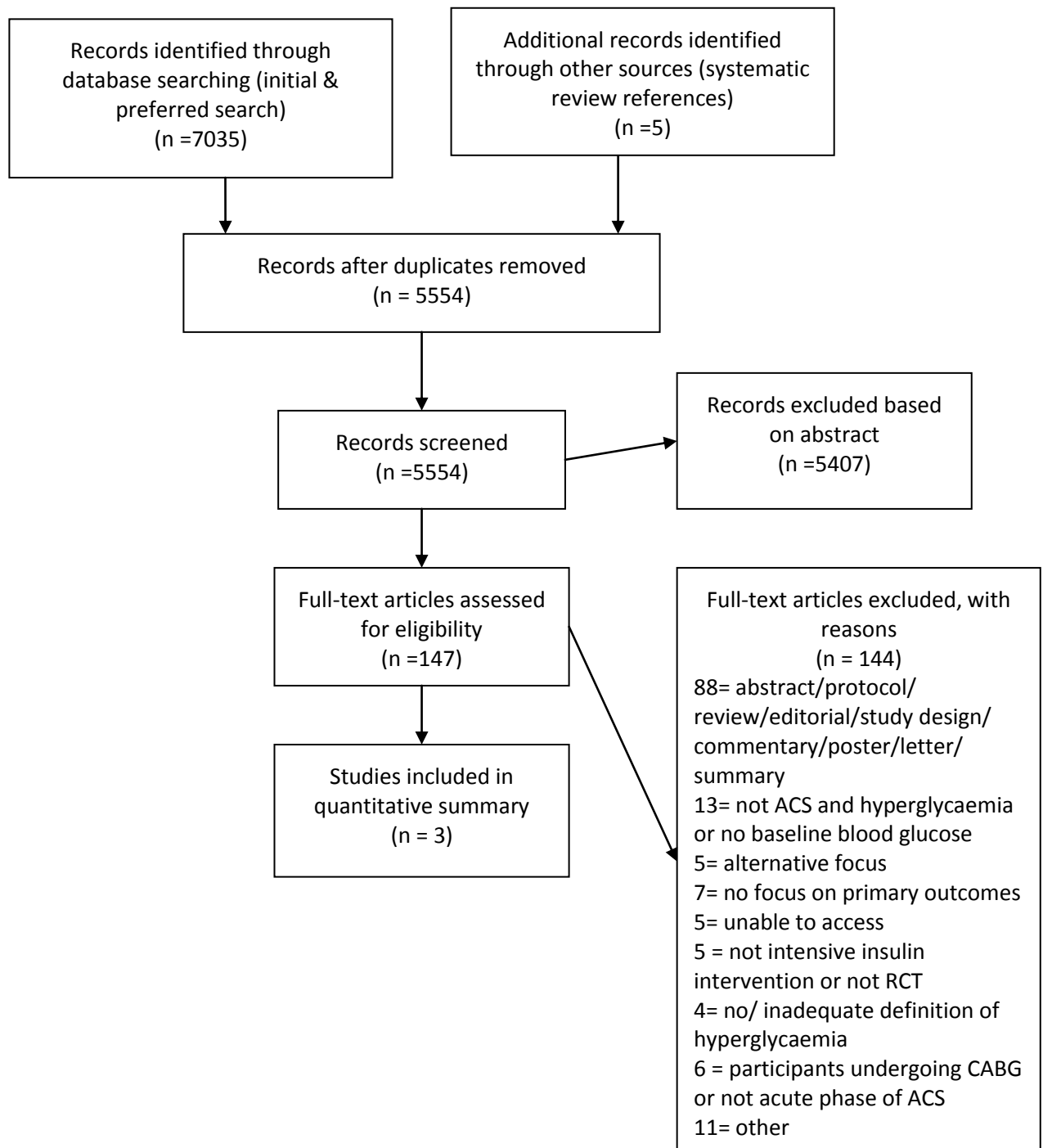
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EXC-NO DEFINITION OF HYPERGLYCAEMIA

Flow diagram of excluded studies for hyperglycaemia review

Question 2

The flow diagram below shows an overview of the studies that were identified, included and excluded for review question 2 which focuses on the metabolic management of patients with ACS and hyperglycaemia without diagnosed diabetes.



Excluded studies

List of excluded studies for review question 2 (non-diabetes)

Bianchi, C., Miccoli, R., Daniele, G., Penno, G., & Del, P.S. 2009. Is there evidence that oral hypoglycemic agents reduce cardiovascular morbidity/mortality? Yes. [Review] [53 refs]. *Diabetes Care*, 32, Suppl-8

Ref ID: 12A

EXC-NARRATIVE REVIEW

Mannucci, E., Monami, M., Lamanna, C., Gori, F., & Marchionni, N. 2009. Prevention of cardiovascular disease through glycemic control in type 2 diabetes: a meta-analysis of randomized clinical trials. *Nutrition Metabolism & Cardiovascular Diseases*, 19, (9) 604-612

Ref ID: 13A

EXC-REVIEW WITHOUT PERI ACS AND HYPERGLYCAEMIA AND FOCUS ON TYPE 2 DIABETES

Goyal, A., Mehta, S.R., Diaz, R., Gerstein, H.C., Afzal, R., Xavier, D., Liu, L., Pais, P., & Yusuf, S. 2009. Differential clinical outcomes associated with hypoglycemia and hyperglycemia in acute myocardial infarction. *Circulation*, 120, (24) 2429-2437

Ref ID: 15A

EXC-FOCUS ON PROGNOSTIC SIGNIFICANCE OF HYPERGLYCAEMIA ON ADMISSION

Avanzini, F., Marelli, G., Donzelli, W., Sorbara, L., Palazzo, E., Bellato, L., Colombo, E.L., Roncaglioni, M.C., Riva, E., De, M.M., & DDD study group 2009. Hyperglycemia during acute coronary syndrome: a nurse-managed insulin infusion protocol for stricter and safer control. *European Journal of Cardiovascular Nursing*, 8, (3) 182-189

Ref ID: 18A

EXC-PROTOCOL FOR INTENSIVE INSULIN AND NOT AN RCT

Monteiro, S., Monteiro, P., & Providencia, L.A. 2009. Optimization of blood glucose control in MI patients: state of the art and a proposed protocol for

intensive insulin therapy. [Review] [28 refs]. *Revista Portuguesa de Cardiologia*, 28, (1) 49-61

Ref ID: 22A

EXC-NARRATIVE REVEIW

Anantharaman, R., Heatley, M., & Weston, C.F. 2009. Hyperglycaemia in acute coronary syndromes: risk-marker or therapeutic target?. [Review] [65 refs]. *Heart*, 95, (9) 697-703

Ref ID: 26A

EXC-REVIEW

Gan, R.M., Wong, V., Cheung, N.W., & McLean, M. 2009. Effect of insulin infusion on electrocardiographic findings following acute myocardial infarction: importance of glycaemic control. *Diabetic Medicine*, 26, (2) 174-176

Ref ID: 30A

EXC-FOCUS ON ECG CHANGES AS AN OUTCOME

Goyal, A., Nerenberg, K., Gerstein, H.C., Umpierrez, G., & Wilson, P.W. 2008. Insulin therapy in acute coronary syndromes: an appraisal of completed and ongoing randomised trials with important clinical end points. [Review] [58 refs]. *Diabetes & Vascular Disease Research*, 5, (4) 276-284

Ref ID: 35A

EXC-REVIEW

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Ref ID: 1464

EXC-NARRATIVE REVIEW

Schipke, J.D., Friebe, R., & Gams, E. 2006. Forty years of glucose-insulin-potassium (GIK) in cardiac surgery: a review of randomized, controlled trials. [Review] [70 refs]. *European Journal of Cardio-Thoracic Surgery*, 29, (4) 479-485

Ref ID: 1531

EXC-REVIEW OF CARDIAC SURGERY

Turel, B., Gemici, K., Baran, I., Yesilbursa, D., Gullulu, S., Aydinlar, A., Serdar, A., Kazazoglu, A.R., Kumbay, E., & Cordan, J. 2005. Effects of glucose-insulin-potassium solution added to reperfusion treatment in acute myocardial infarction. *Anadolu Kardiyoloji Dergisi*, 5, (2) 90-94

Ref ID: 1642

EXC-NOT PERI ACS AND HYPERGLYCAEMIA AND NO BASELINE RECORD OF BLOOD GLUCOSE

Timmer, J.R., van der Horst, I.C., Ottervanger, J.P., De, L.G., van 't Hof, A.W., Bilo, H.J., & Zijlstra, F. 2004. Glucose-insulin-potassium infusion as adjunctive therapy in myocardial infarction: current evidence and potential mechanisms. *Italian Heart Journal: Official Journal of the Italian Federation of Cardiology*, 5, (10) 727-731

Ref ID: 1682

EXC-REVIEW

Apstein, C.S. 2003. The benefits of glucose-insulin-potassium for acute myocardial infarction (and some concerns). [Review] [30 refs]. *Journal of the American College of Cardiology*, 42, (5) 792-795

Ref ID: 1796

EXC-EDITORIAL COMMENT

Janiger, J.L. & Cheng, J.W. 2002. Glucose-insulin-potassium solution for acute myocardial infarction. [Review] [14 refs]. *Annals of Pharmacotherapy*, 36, (6) 1080-1084

Ref ID: 1887

EXC-NARRATIVE REVIEW

Ceremuzyński, L., Budaj, A., Czepiel, A., Burzykowski, T., Achremczyk, P., Smielak-Korombel, W., Maciejewicz, J., Dziubińska, J., Nartowicz, E., Kawka-Urbanek, T., Piotrowski, W., Hanzlik, J., Cieslinski, A., Kawecka-Jaszcz, K., Gessek, J., & Wrabec, K. 1999. Low-dose glucose-insulin-potassium is ineffective in acute myocardial infarction: results of a randomized multicenter Pol-GIK trial. *Cardiovascular Drugs & Therapy*, 13, (3) 191-200

Ref ID: 2044

EXC-NO PERI ACS AND HYPERGLYCAEMIA

Apstein, C.S. & Opie, L.H. 1999. Glucose-insulin-potassium (GIK) for acute myocardial infarction: a negative study with a positive value. [Review] [38 refs]. *Cardiovascular Drugs & Therapy*, 13, (3) 185-189

Ref ID: 2045

EXC-EDITORIAL

Fath-Ordoubadi, F. & Beatt, K.J. 1999. Glucose-insulin-potassium in acute myocardial infarction. *Lancet*, 353, (9168) 1968

Ref ID: 2050

EXC-CORRESPONDENCE

Fisher, M. 1999. Diabetes and myocardial infarction. [Review] [56 refs]. *Best Practice & Research Clinical Endocrinology & Metabolism*, 13, (2) 331-343

Ref ID: 2078

EXC-NARRATIVE REVIEW

Apstein, C.S. 1998. Glucose-insulin-potassium for acute myocardial infarction: remarkable results from a new prospective, randomized trial. [Review] [27 refs]. *Circulation*, 98, (21) 2223-2226

Ref ID: 2102

EXC-EDITORIAL

Williams, R. 1997. Intensive insulin treatment after acute myocardial infarction in diabetes mellitus. Evidence exists from study of non-insulin dependent diabetes in Japan. *BMJ*, 315, (7107) 544

Ref ID: 2168

EXC-EDITORIAL

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Surawicz, B. 1968. Evaluation of treatment of acute myocardial infarction with potassium, glucose and insulin. [Review] [110 refs]. Progress in Cardiovascular Diseases, 10, (6) 545-560

Ref ID: 2692

EXC-NARRATIVE REVIEW

Rogers, W.J., McDaniel, H.G., Mantle, J.A., & Rackley, C.E. 1982. Glucose-insulin-potassium infusion in acute myocardial infarction - results of a prospective randomized study. Clinical Research, 30, (2) 216A

Ref ID: 2877

EXC-ABSTRACT ONLY

Stanley, J., Prather, J.W., & Snow, R.M. 1979. Glucose-insulin-potassium, acute myocardial infarction and patient mortality: Results from an ongoing prospective randomized study. Clinical Research, 27, (5) 734A

Ref ID: 2921

EXC-ABSTRACT ONLY

Puskarich, M., Jones, A., Kline, J., Runyon, M., & Trzeciak, S. 2009. Critical Care, Conference: 29th International Symposium on Intensive Care and Emergency Medicine Brussels Belgium. Conference Start: 20090324 Conference End: 20090327. Conference: 29th International Symposium on Intensive Care and Emergency Medicine Brussels Belgium. Conference Start: 20090324 Conference End: 20090327. Conference Publication: (var.pagings) S54

Ref ID: 3462

EXC-BRITISH LIBRARY CANNOT PROVIDE A COPY

Cefalu, W.T. & Watson, K. 2008. Intensive glycemc control and cardiovascular disease observations from the ACCORD study: Now what can a clinician possibly think? Diabetes, 57, (5) 1163-1165

Ref ID: 3525

EXC-EDITORIAL

Goyal, A., Nerenberg, K., Gerstein, H.C., Umpierrez, G., & Wilson, P.W.F. 2008. Insulin therapy in acute coronary syndromes: An appraisal of completed

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and ongoing randomised trials with important clinical end points. *Diabetes and Vascular Disease Research*, 5, (4) 276-284

Ref ID: 3585

EXC-REVIEW

Goyal, A., Diaz, R., & Mehta, S.R. 2008. Glucose-insulin-potassium therapy in patients with STEMI: Reply. *JAMA - Journal of the American Medical Association*, 299, (20) 2387-2388

Ref ID: 3696

EXC-LETTER

Opie, L.H. 2008. Glucose-insulin-potassium therapy in patients with STEMI [2]. *JAMA - Journal of the American Medical Association*, 299, (20) 2385-2386

Ref ID: 3697

EXC-LETTER

Ranasinghe, A.M., Quinn, D.W., Pagano, D., Edwards, N., Faroqui, M., Graham, T.R., Keogh, B.E., Mascaro, J., Riddington, D.W., Rooney, S.J., Townend, J.N., Wilson, I.C., & Bonser, R.S. 2006. Glucose-insulin-potassium and tri-iodothyronine individually improve hemodynamic performance and are associated with reduced troponin I release after on-pump coronary artery bypass grafting. *Circulation*, 114, (SUPPL. 1) I245-I250

Ref ID: 4253

EXC-PARTICIPANTS UNDERGOING CABG

Yazici, M., Demircan, S., Durna, K., Yasar, E., Acar, Z., & Sahin, M. 2005. Effect of glucose-insulin-potassium infusion on myocardial damage due to percutaneous coronary revascularization. *American Journal of Cardiology*, 96, (11) 1517-1520

Ref ID: 4456

EXC-NO FOCUS ON PRIMARY OUTCOMES

2005. Effect of glucose-insulin-potassium infusion on mortality in patients with acute ST-segment elevation myocardial infarction: Comments. *Indian Heart Journal*, 57, (2) 187

Ref ID: 4535

EXC-COMMENT

van der Horst, I.C.C., De, L.G., Ottervanger, J.P., de, B.M.J., Hoorntje, J.C.A., Suryapranata, H., Dambrink, J.-H., Gosselink, A.T.M., Zijlstra, F., & Van 't Hof, A.W.J. 2005. ST-segment elevation resolution and outcome in patients treated with primary angioplasty and glucose-insulin-potassium infusion. *American heart journal*, 149, (6) 1135

Ref ID: 4555

EXC-NOT PERI ACS AND HYPERGLYCAEMIA AND NO EVALUATION OF BASELINE BLOOD GLUCOSE

van der Horst, I.C.C., Timmer, J.R., Ottervanger, J.P., Bilo, H.J.G., Gans, R.O.B., de, B.M.J., & Zijlstra, F. 2005. Glucose-insulin-potassium and reperfusion in acute myocardial infarction: Rationale and design of the Glucose-Insulin-Potassium Study-2 (GIPS-2). *American heart journal*, 149, (4) 585-591

Ref ID: 4601

EXC-NO MENTION OF BASELINE BLOOD GLUCOSE

Zhang, L., Li, Y.H., Zhang, H.Y., Chen, M.L., Gao, M.-M., Hu, A.H., Yang, H.S., & Liu, L.S. 2005. High-dose glucose-insulin-potassium treatment reduces myocardial apoptosis in patients with acute myocardial infarction. *European journal of clinical investigation*, 35, (3) 164-170

Ref ID: 4630

EXC-NOT PERI ACS AND HYPERGLYCAEMIA AND NO EVALUATION OF BASELINE BLOOD GLUCOSE

Yusuf, S., Mehta, S.R., Diaz, R., Paolasso, E., Pais, P., Xavier, D., Xie, C., Ahmed, R.J., Khazmi, K., Zhu, J., & Liu, L. 2004. Challenges in the conduct of large simple trials of important generic questions in resource-poor settings: The CREATE and ECLA trial program evaluating GIK (glucose, insulin and potassium) and low-molecular-weight heparin in acute myocardial infarction. *American heart journal*, 148, (6) 1068-1078

Ref ID: 4705

EXC-RELATES TO STUDY DESIGN

Kastrati, A. & Bellandi, F. 2004. Trial finds routine intravenous glucose-insulin-potassium does not improve myocardial salvage in people with acute myocardial infarction. *Evidence-based Cardiovascular Medicine*, 8, (4) 339-342

Ref ID: 4707

EXC-NOT PERI ACS AND HYPERGLYCAEMIA

Lazar, H.L., Chipkin, S.R., Fitzgerald, C.A., Bao, Y., Cabral, H., & Apstein, C.S. 2004. Tight Glycemic Control in Diabetic Coronary Artery Bypass Graft Patients Improves Perioperative Outcomes and Decreases Recurrent Ischemic Events. *Circulation*, 109, (12) 1497-1502

Ref ID: 4850

EXC-PARTICIPANTS UNDERGOING CABG

Castro, P.F., Larrain, G., Baeza, R., Corbalan, R., Nazzal, C., Greig, D.P., Miranda, F.P., Perez, O., Acevedo, M., Marchant, E., Olea, E., & Gonzalez, R. 2003. Effects of glucose-insulin-potassium solution on myocardial salvage and left ventricular function after primary angioplasty. *Critical care medicine*, 31, (8) 2152-2155

Ref ID: 5004

EXC-NOT PERI ACS AND HYPERGLYCAEMIA

Stefanidis, A., Melidonis, A., Tournis, S., Zairis, M., Handanis, S., Olympios, C., Asimacopoulos, P., & Foussas, S. 2002. Intensive insulin treatment reduces transient ischaemic episodes during acute coronary events in diabetic patients. *Acta Cardiologica*, 57, (5) 357-364

Ref ID: 5150

EXC-HYPERGLYCAEMIC POPULATION NOT WELL DEFINED AND DOES NOT DEFINE BLOOD GLUCOSE ON RECRUITMENT

Diaz-Araya, G., Nettle, D., Castro, P., Miranda, F., Greig, D., Campos, X., Chiong, M., Nazzal, C., Corbalan, R., & Lavandero, S. 2002. Oxidative stress after reperfusion with primary coronary angioplasty: Lack of effect of glucose-

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insulin-potassium infusion. *Critical care medicine*, 30, (2) 417-421

Ref ID: 5220

EXC-NOT PERI ACS AND HYPERGLYCAEMIA AND OXIDATIVE STRESS
NOT A PRIMARY OUTCOME

Fath-Ordoubadi, F., Markides, V., & Beatt, K.J. 1998. Meta-analysis of glucose-insulin-potassium therapy for myocardial infarction. *Cardiology Review*, 15, (4) 41-44

Ref ID: 5511

EXC-REVIEW ARTICLE NOT FOCUSING ON PERI ACS AND
HYPERGLYCAEMIA

Fath-Ordoubadi, F. & Beatt, K.J. 1997. Glucose-insulin-potassium therapy for treatment of acute myocardial infarction: An overview of randomized placebo-controlled trials. *Circulation*, 96, (4) 1152-1156

Ref ID: 5571

EXC-REVIEW

Mellbin, L.G., Malmberg, K., Norhammar, A., Wedel, H., & Ryden, L. 2008. The impact of glucose lowering treatment on long-term prognosis in patients with type 2 diabetes and myocardial infarction: A report from the DIGAMI 2 trial. *European heart journal*, 29, (2) 166-176

Ref ID: 5618

EXC-FOCUS ON TREATMENT FOLLOWING DISCHARGE (NOT ACUTE
PHASE)

Rasoul, S., Ottervanger, J.P., Timmer, J.R., Svilaas, T., Henriques, J.P.S., Dambrink, J.-H., van der Horst, I.C.C., & Zijlstra, F. 2007. One year outcomes after glucose-insulin-potassium in ST elevation myocardial infarction. The Glucose-insulin-potassium study II. *International journal of cardiology*, 122, (1) 52-55

Ref ID: 5703

EXC-NO CUT OFF POINT FOR HYPERGLYCAEMIA OR BLOOD GLUCOSE

Marano, L., Bestetti, A., Lomuscio, A., Tagliabue, L., Castini, D., Tarricone, D., Dario, P., Tarolo, G.L., & Fiorentini, C. 2000. Effects of infusion of glucose-

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insulin-potassium on myocardial function after a recent myocardial infarction.
Acta Cardiologica, 55, (1) 9-15

Ref ID: 5804

EXC-NOT PERI ACS AND HYPERGLYCAEMIA AND NO EVALUATION OF
BASELINE BLOOD GLUCOSE

Wistbacka, J.-O., Lepojarvi, M.V.K., Karlqvist, K.E.V., Koistinen, J.,
Kaukoranta, P.K., Nissinen, J., Peltola, T., Rainio, P., Ruokonen, A., &
Nuutinen, L.S. 1995. Amino acid-enriched glucose-insulin-potassium infusion
improves hemodynamic function after coronary bypass surgery. A double-
blind study in patients with unstable angina and/or compromised left
ventricular function. *Infusionstherapie und Transfusionsmedizin*, 22, (2) 82-90

Ref ID: 5996

EXC-PATIENTS UNDERGOING CABG

Pache, J., Kastrati, A., Mehilli, J., Bollwein, H., Ndrepepa, G., Schuhlen, H.,
Martinoff, S., Seyfarth, M., Nekolla, S., Dirschinger, J., Schwaiger, M., & and
Schomig, A. A randomized evaluation of the effects of glucose-insulin-
potassium infusion on myocardial salvage in patients with acute myocardial
infarction treated with reperfusion therapy. *American heart journal* 148[1].
2004.

Ref Type: Generic

Ref ID: 6048

EXC-NO PERI ACS AND HYPERGLYCAEMIA

The OASIS-6 trial group. Effects of fondaparinux on mortality and reinfarction
in patients with acute ST-segment elevation myocardial infarction The OASIS-
6 randomized trial. *JAMA* 295[13], 1519-1530. 2006.

Ref Type: Generic

Ref ID: 6049

EXC-RESULTS FOR GIK INFUSION NOT REPORTED HERE. NOT PERI
ACS AND HYPERGLYCAEMIA

Brunkhorst, F. M., Engel, C., Bloos, F., Meier-Hellmann, A., Ragaller, M.,
Weiler, N., Moerer, O., & et al. Intensive insulin therapy and pentastarch

resuscitation in severe sepsis. *The New England journal of medicine* 358, 125-139. 2008.

Ref Type: Generic

Ref ID: 6050

EXC-NOT SPECIFIC TO ACS

Van den Berghe, G., Wouters, P., Weekers, F., Verwaest, C., Bruyninckx, F., & et al. Intensive insulin therapy in critically ill patients. *The New England journal of medicine* 345[19], 1359-1367. 2001.

Ref Type: Generic

Ref ID: 6051

EXC-NOT SPECIFIC TO ACS

Van der Berghe, G., Wilmer, A., Hermans, G., Meersseman, W., & et al. Intensive insulin therapy in the medical ICU. *The New England journal of medicine* 354[5]. 2006.

Ref Type: Generic

Ref ID: 6052

EXC-NOT SPECIFIC TO ACS

Diaz, R., Paolasso, E.A., Piegas, L.S., Tajer, C.D., Moreno, M.G., Corvalan, R., Isea, J.E., & Romero, G. 1998. Metabolic modulation of acute myocardial infarction: The ECLA glucose- insulin-potassium pilot trial. *Circulation*, 98, (21) 2227-2234

Ref ID: 6013

EXC-NO DEFINITION OF HYPERGLYCAEMIA

Malmberg, K., Rydén, L., Efendic, S., Herlitz, J., Nicol, P., Waldenström, A., Wedel, H., & Welin, L. 1995. Randomized trial of insulin-glucose infusion followed by subcutaneous insulin treatment in diabetic patients with acute myocardial infarction (DIGAMI study): effects on mortality at 1 year. *Journal of the American College of Cardiology*, 26, (1) 57-65

Ref ID: 396

EXC-ASSESSED FOR RQ1 (PATIENTS WITH DIABETES)

Malmberg, K., Rydén, L., Hamsten, A., Herlitz, J., Waldenström, A., & Wedel, H. 1996. Effects of insulin treatment on cause-specific one-year mortality and morbidity in diabetic patients with acute myocardial infarction. DIGAMI Study Group. Diabetes Insulin-Glucose in Acute Myocardial Infarction. European heart journal, 17, (9) 1337-1344

Ref ID: 378

EXC-ASSESSED FOR RQ1 (PATIENTS WITH DIABETES)

Malmberg, K., Ryden, L., Hamsten, A., Herlitz, J., Waldenstrom, A., & Wedel, H. 1997. Mortality prediction in diabetic patients with myocardial infarction: experiences from the DIGAMI study.[Erratum appears in Cariovasc Res 1997 Dec;36(3):460]. Cardiovascular research, 34, (1) 248-253

Ref ID: 2181

EXC-ASSESSED FOR RQ1 (PATIENTS WITH DIABETES)

Malmberg, K. 1997. Prospective randomised study of intensive insulin treatment on long term survival after acute myocardial infarction in patients with diabetes mellitus. DIGAMI (Diabetes Mellitus, Insulin Glucose Infusion in Acute Myocardial Infarction) Study Group. BMJ (Clinical research ed.), 314, (7093) 1512-1515

Ref ID: 367

EXC-ASSESSED FOR RQ1 (PATIENTS WITH DIABETES)

Mellbin, L.G., Malmberg, K., Waldenstrom, A., Wedel, H., & Ryden, L. 2009. Prognostic implications of hypoglycaemic episodes during hospitalisation for myocardial infarction in patients with type 2 diabetes: A report from the DIGAMI 2 trial. Heart, 95, (9) 721-727

Ref ID: 3363

EXC-ASSESSED FOR RQ1 (PATIENTS WITH DIABETES)

Malmberg, K. 2004. Role of insulin-glucose infusion in outcomes after acute myocardial infarction: the diabetes and insulin-glucose infusion in acute myocardial infarction (DIGAMI) study. Endocrine Practice, 10, Suppl-6

Ref ID: 144

EXC-ASSESSED FOR RQ1 (PATIENTS WITH DIABETES)

Malmberg, K., Norhammar, A., Wedel, H., & Ryden, L. 1999. Glycometabolic state at admission: important risk marker of mortality in conventionally treated patients with diabetes mellitus and acute myocardial infarction: long-term results from the Diabetes and Insulin-Glucose Infusion in Acute Myocardial Infarction (DIGAMI) study. *Circulation*, 99, (20) 2626-2632

Ref ID: 207

EXC-ASSESSED FOR RQ1 (PATIENTS WITH DIABETES)

Malmberg, K., Ryden, L., Wedel, H., Birkeland, K., Bootsma, A., Dickstein, K., Efendic, S., Fisher, M., Hamsten, A., Herlitz, J., Hildebrandt, P., MacLeod, K., Laakso, M., Torp-Pedersen, C., & Waldenström, A. 2005. Intense metabolic control by means of insulin in patients with diabetes mellitus and acute myocardial infarction (DIGAMI 2): effects on mortality and morbidity. *European heart journal*, 26, (7) 650-661 available from:

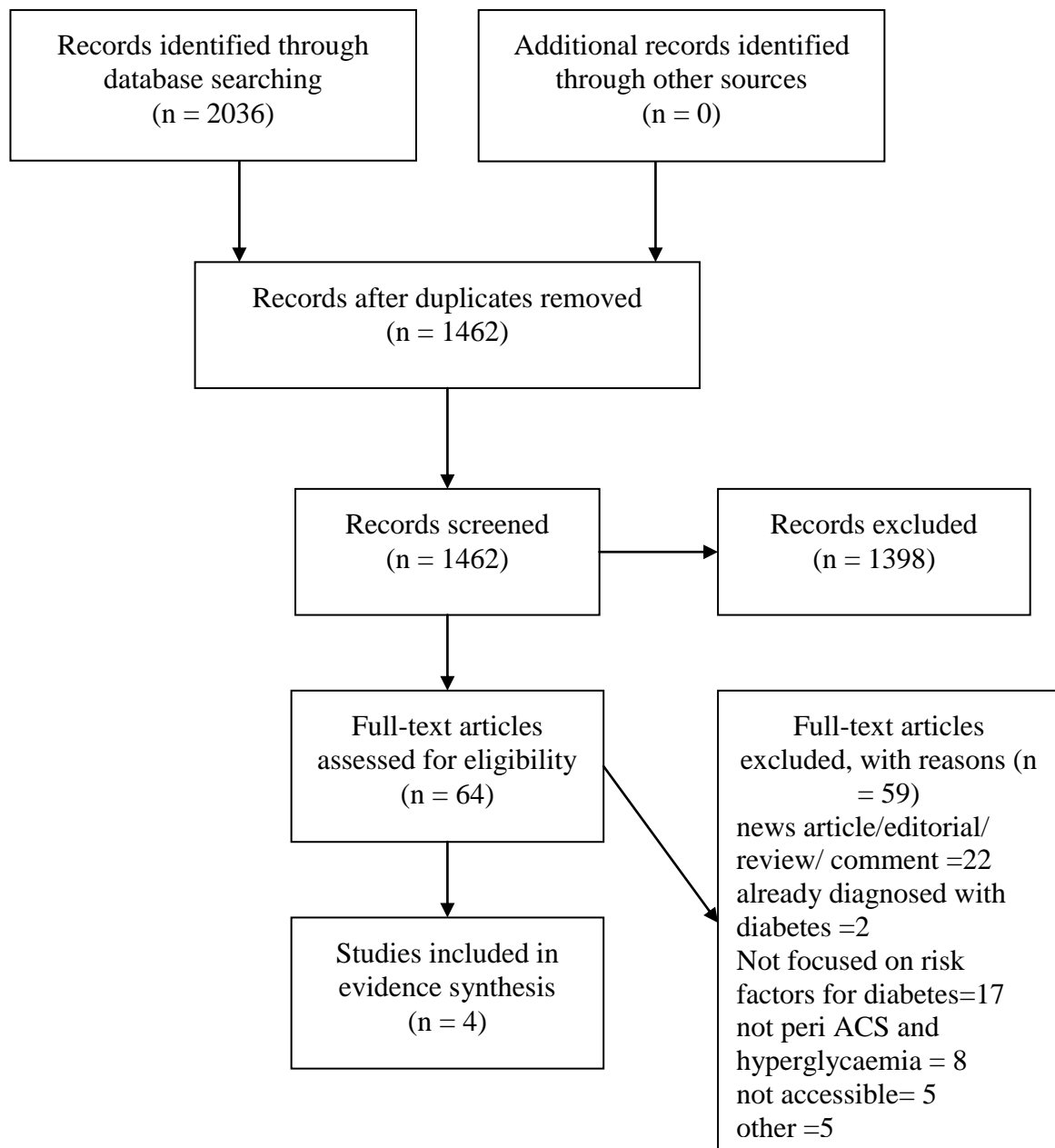
<http://eurheartj.oxfordjournals.org/content/26/7/650.abstract>

Ref ID: 6053

EXC-ASSESSED FOR RQ1 (PATIENTS WITH DIABETES)

Flow diagram of excluded studies for hyperglycaemia review question 3

The flow diagram below shows an overview of the studies that were identified, included and excluded for review question 3, which focuses on risk factors for diabetes in patients with ACS and hyperglycaemia.



Excluded studies**Full list of excluded studies for RQ3-Risk factors for diabetes**

2007. Newline: another risk factor turns up for diabetes. Clinical Advisor for Nurse Practitioners, 10, (10) 11-12

Ref ID: 1964

EXCLUDE-NEWS ARTICLE

Adler, A.I., Neil, H.A.W., Manley, S.E., Holman, R.R., & Turner, R.C. 1999. Hyperglycemia and hyperinsulinemia at diagnosis of diabetes and their association with subsequent cardiovascular disease in the United Kingdom Prospective Diabetes Study (UKPDS 47). American Heart Journal, 138, (5 I) S353-S359

Ref ID: 1100

EXCLUDE-PARTICIPANTS ALREADY DIAGNOSED WITH DIABETES

Alajbegovic, S., Metelko, Z., Alajbegovic, A., Suljic, E., & Resic, H. 2003. Hyperglycemia and acute myocardial infarction in a nondiabetic population. Diabetologia Croatica, 32, (4) 169-174

Ref ID: 905

EXCLUDE-FOCUS ON PREVALANCE OF DIABETES NOT RISK FACTORS FOR ITS DEVELOPMENT

Aquilante, C.L. & Griend, J.R.V. 2008. Understanding metabolic syndrome: Knowing the risks. Pharmacy Times, 74, (7) 61-68

Ref ID: 386

EXCLUDE-REVIEW

Bangalore, S., Parkar, S., Grossman, E., & Messerli, F.H. 2007. A meta-analysis of 94,492 patients with hypertension treated with beta blockers to determine the risk of new-onset diabetes mellitus. American Journal of Cardiology, 100, (8) 1254-1262

Ref ID: 1902

EXCLUDE-NOT PERI ACS AND HYPERGLYCAEMIA

Barry, H. 2002. How often does diabetes occur within 3 months of an acute myocardial infarction? *Evidence-Based Practice*, 5, (10) -NaN

Ref ID: 2023

EXCLUDE-NOT ACCESSIBLE

Basile, J.N. 2009. Antihypertensive therapy, new-onset diabetes, and cardiovascular disease. *International Journal of Clinical Practice*, 63, (4) 656-666

Ref ID: 211

EXCLUDE-REVIEW ARTICLE

Belknap, S. 2008. Review: beta-blockers for hypertension increase risk of new onset diabetes: Commentary. *Evidence-Based Medicine*, 13, (2) 50

Ref ID: 418

EXCLUDE-NOT PERI ACS AND HYPERGLYCAEMIA

Bestermann, W., Houston, M.C., Basile, J., Egan, B., Ferrario, C.M., Lackland, D., Hawkins, R.G., Reed, J., Rogers, P., Wise, D., & Moore, M.A. 2005. Addressing the global cardiovascular risk of hypertension, dyslipidemia, diabetes mellitus, and the metabolic syndrome in the Southeastern United States, part II: Treatment recommendations for management of the global cardiovascular risk of hypertension, dyslipidemia, diabetes mellitus, and the metabolic syndrome. *American Journal of the Medical Sciences*, 329, (6) 292-305

Ref ID: 769

EXCLUDE-REVIEW FOCUSING ON CARDIOVASCULAR RISK

Betteridge, D.J. 2004. The interplay of cardiovascular risk factors in the metabolic syndrome and type 2 diabetes. *European Heart Journal*, Supplement, 6, (7) G3-G7

Ref ID: 828

EXCLUDE-REVIEW FOCUSING ON RISK OF CARDIOVASCULAR DISEASE

Braatvedt, G.D. 2008. Glucose control peri-myocardial infarction. *Internal Medicine Journal*, 38, (5) 341-344

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Ref ID: 415

EXCLUDE-REVIEW FOCUSING ON EFFECT ON MORTALITY

Brancati, F. 2000. Resolving the glucose response curve: The underestimated importance of postprandial glucose. *American Journal of Managed Care*, 6, (21 SUPPL.) S1082-S1088

Ref ID: 1071

EXCLUDE-FOCUS ON RISK OF MORTALITY

Califf, R.M., Boolell, M., Haffner, S.M., Bethel, M.A., McMurray, J., Duggal, A., & Holman, R.R. 2008. Prevention of diabetes and cardiovascular disease in patients with impaired glucose tolerance: Rationale and design of the Nateglinide And Valsartan in Impaired Glucose Tolerance Outcomes Research (NAVIGATOR) Trial. *American Heart Journal*, 156, (4) 623-632

Ref ID: 369

EXCLUDE-DETAILS OF TRIAL DESIGN

Capes, S.E., Hunt, D., Malmberg, K., & Gerstein, H.C. 2000. Stress hyperglycaemia and increased risk of death after myocardial infarction in patients with and without diabetes: A systematic overview. *Lancet*, 355, (9206) 773-778

Ref ID: 1093

EXCLUDE-FOCUS ON RISK OF MORTALITY NOT PROGRESSION TO DIABETES

Chioncel, V., Mincu, D., Anastasiu, M., & Sinescu, C. 2009. The prognostic value of blood glucose level on admission in non-diabetic patients with acute myocardial infarction. *Journal of medicine and life*, 2, (3) 271-278

Ref ID: 51

EXCLUDE-NO FOCUS ON DEVELOPMENT OF DIABETES

Colagiuri, S., Cull, C.A., & Holman, R.R. 2002. Are lower fasting plasma glucose levels at diagnosis of type 2 diabetes associated with improved outcomes?: U.K. prospective diabetes study 61. *Diabetes Care*, 25, (8) 1410-1417

Ref ID: 996

EXCLUDE-PATIENTS ALREADY DIAGNOSED WITH TYPE 2 DIABETES

Conaway, D.G. & O'Keefe, J.H. 2006. Frequency of undiagnosed and untreated diabetes mellitus in patients with acute coronary syndromes. *Expert Review of Cardiovascular Therapy*, 4, (4) 503-507

Ref ID: 647

EXCLUDE-NARRATIVE REVIEW

Davis, T.M.E. & Colagiuri, S. 2004. The continuing legacy of the United Kingdom prospective diabetes study. *Medical Journal of Australia*, 180, (3) 104-105

Ref ID: 895

EXCLUDE-EDITORIAL WITH NO FOCUS ON SUBSEQUENT DEVELOPMENT OF DIABETES

Del, P.S., Bianchi, C., Miccoli, R., & Penno, G. 2007. Pharmacological intervention in prediabetes: Considering the risks and benefits. *Diabetes, Obesity and Metabolism*, 9, (SUPPL.1) 17-22

Ref ID: 501

EXCLUDE-REVIEW NOT FOCUSING ON PERI ACS AND HYPERGLYCAEMIA

Edavalath, M. & Rees, A. 2009. Therapy and clinical trials: Glycaemic control and cardiovascular disease. *Current Opinion in Lipidology*, 20, (6) 530-531

Ref ID: 66

EXCLUDE-COMMENT

Edelman, L., McGinn, T., & Korenstein, D. 2009. Just a spoonful of sugar: does presenting hyperglycemia impact prognosis in non-diabetics with acute myocardial infarction? *Mount Sinai Journal of Medicine*, 76, (3) 294-296

Ref ID: 1295

EXCLUDE-NOT FOCUSED ON RISK FACTORS FOR DIABETES

Engberg, S., Vistisen, D., Lau, C., Glumer, C., Joergensen, T., Pedersen, O., & Borch-Johnsen, K. 2009. Progression to impaired glucose regulation and

diabetes in the population-based inter99 study. *Diabetes Care*, 32, (4) 606-611

Ref ID: 167

EXCLUDE-PATIENTS FROM GENERAL POPULATION WITH HYPERGLYCAEMIA WITHOUT ACS. HIGH RISK GROUP HAVE ABSOLUTE RISK OF ISCHEMIC HEART DISEASE

Fisman, E.Z., Motro, M., Tenenbaum, A., Boyko, V., Mandelzweig, L., & Behar, S. 2001. Impaired fasting glucose concentrations in nondiabetic patients with ischemic heart disease: a marker for a worse prognosis. *American Heart Journal*, 141, (3) 485-490

Ref ID: 1664

EXCLUDE-FOCUS ON PREDICTORS OF MORTALITY

Fonseca, V. 2006. Newly diagnosed diabetes/hyperglycemia in hospitals: What should we do? *Endocrine Practice*, 12, (SUPPL. 3) 108-111

Ref ID: 599

ASSESS FOR RQ4 (PATIENT INFO)

Goyal, A., Mahaffey, K.W., Garg, J., Nicolau, J.C., Hochman, J.S., Weaver, W.D., Theroux, P., Oliveira, G.B.F., Todaro, T.G., Mojcik, C.F., Armstrong, P.W., & Granger, C.B. 2006. Prognostic significance of the change in glucose level in the first 24 h after acute myocardial infarction: Results from the CARDINAL study. *European Heart Journal*, 27, (11) 1289-1297

Ref ID: 667

EXCLUDE-FOCUS ON RISK OF MORTALITY NOT PROGRESSION TO DIABETES

Guptha, S.H., Suman, S., & Matthews, A.A. 2004. Screening for diabetes in medical inpatients with hyperglycaemia. *Postgraduate Medical Journal*, 80, (943) 302

Ref ID: 871

EXCLUDE-LETTER

Hanna-Moussa, A., Gardner, M.J., Romaine, K.L., & Sowers, J.R. 2009. Dysglycemia/prediabetes and cardiovascular risk factors. *Reviews in*

Hyperglycaemia in acute coronary syndromes: DRAFT appendix D (August 2011)

Cardiovascular Medicine, 10, (4) 202-208

Ref ID: 12

EXCLUDE-REVIEW FOCUSING ON RISK FACTORS FOR
CARDIOVASCULAR DISEASE NOT PROGRESSION TO DIABETES

Herman, W.H., Hoerger, T.J., Hicks, K., Brandle, M., Sorensen, S.W., Zhang, P., Engelgau, M.M., Hamman, R.F., Marrero, D.G., Ackermann, R.T., & Ratner, R.E. 2006. Managing people at high risk for diabetes [4]. *Annals of Internal Medicine*, 144, (1) 66-67

Ref ID: 587

EXCLUDE-LETTER

Hristova, K., Milanov, S., & Petrov, D. 2010. *Circulation, Conference: World Congress of Cardiology Scientific Sessions 2010, WCC 2010 Beijing China. Conference Start: 20100616 Conference End: 20100619. Conference: World Congress of Cardiology Scientific Sessions 2010, WCC 2010 Beijing China. Conference Start: 20100616 Conference End: 20100619. Conference Publication: (var.pagings) e195*

Ref ID: 276

EXCLUDE-CONFERENCE PAPER

Husband, D.J., Alberti, K.G.M.M., & Julian, D.G. 1983. 'Stress' hyperglycaemia during acute myocardial infarction: An indicator of pre-existing diabetes. *Lancet*, 2, (8343) 179-181

Ref ID: 1231

EXCLUDE-NOT FOCUSED ON RISK FACTORS FOR DEVELOPMENT OF
DIABETES

Inzucchi, S.E. 2008. Hyperglycaemia and its therapy during acute coronary syndromes. *Diabetes and Vascular Disease Research*, 5, (4) 259

Ref ID: 358

EXCLUDE-EDITORIAL

Jessani, S., Gangopadhyay, K., Patel, J.V., Lip, G.Y., & Millane, T. 2007. Should oral glucose tolerance testing be mandatory following acute myocardial infarction? *International Journal of Clinical Practice*, 61, (4) 680-

Hyperglycaemia in acute coronary syndromes: DRAFT appendix D (August 2011)

683

Ref ID: 1403

EXCLUDE-NO FOCUS ON RISK FACTORS FOR THE DEVELOPMENT OF DIABETES

Klein, B.E., Klein, R., & Lee, K.E. 2002. Components of the metabolic syndrome and risk of cardiovascular disease and diabetes in beaver dam. *Diabetes Care*, 25, (10) 1790-1794

Ref ID: 990

EXCLUDE-DATA FOR PROGRESSION TO DIABETES IN PATIENTS WITH ELEVATED GLYCAEMIA BUT NO ACS

Lakhdar, A. 1998. The diagnosis of preexisting diabetes associated with acute myocardial infarction. *Diabetes Care*, 21, (3) 461

Ref ID: 1108

EXCLUDE-LETTER

Lavernia, F. 2008. Treating hyperglycemia and diabetes with insulin therapy: Transition from inpatient to outpatient care. *MedGenMed Medscape General Medicine*, 10, (9)

Ref ID: 374

EXCLUDE-NOT ACCESSIBLE

Madsen, J.K., Haunsoe, S., & Helquist, S. 1986. Prevalence of hyperglycaemia and undiagnosed diabetes mellitus in patients with acute myocardial infarction. *Acta Medica Scandinavica*, 220, (4) 329-332

Ref ID: 1214

EXCLUDE-FOCUS ON PREVALANCE OF DIABETES NOT RISK FACTORS FOR PROGRESSION TO DIABETES

Melidonis, A., Koutsovasilis, A., Tsourous, G., Nikolaou, A., Chrysomallis, I., Dragoumanos, V., Iraklianos, S., & Foussas, S. 2010. Diabetologia, Conference: 46th Annual Meeting of the European Association for the Study of Diabetes, EASD 2010 Stockholm Sweden. Conference Start: 20100920 Conference End: 20100924. Conference: 46th Annual Meeting of the European Association for the Study of Diabetes, EASD 2010 Stockholm

Hyperglycaemia in acute coronary syndromes: DRAFT appendix D (August 2011)

Sweden. Conference Start: 20100920 Conference End: 20100924.

Conference Publication: (var.pagings) S495

Ref ID: 299

EXCLUDE-CONFERENCE ABSTRACT

Monteiro, S., Monteiro, P., Goncalves, F., Freitas, M., & Providencia, L.A. 2010. Hyperglycaemia at admission in acute coronary syndrome patients: Prognostic value in diabetics and non-diabetics. *European Journal of Cardiovascular Prevention and Rehabilitation*, 17, (2) 155-159

Ref ID: 8

EXCLUDE-FOCUS ON RISK OF MORTALITY NOT PROGRESSION TO DIABETES

Mozaffarian, D., Marfisi, R., Levantesi, G., Silletta, M.G., Tavazzi, L., Tognoni, G., Valagussa, F., & Marchioli, R. 2007. Incidence of new-onset diabetes and impaired fasting glucose in patients with recent myocardial infarction and the effect of clinical and lifestyle risk factors. *Lancet*, 370, (9588) 667-675

Ref ID: 1388

EXCLUDE-FOCUSED ON RISK FACTORS FOR PROGRESSION TO DIABETES IN PATIENTS WITH ACS (NO SPECIFIC REFERENCE TO BASELINE BLOOD GLUCOSE)

Nesto, R.W. 2006. Prevalence of newly diagnosed diabetes in clinical settings. *Reviews in Cardiovascular Medicine*, 7, (SUPPL. 2) S18-S24

Ref ID: 582

EXCLUDE-REVIEW FOCUSING ON PREVALENCE OF DIABETES NOT RISK FACTORS FOR DEVELOPMENT OF DIABETES

Nichols, G.A., Koro, C.E., & Kolatkar, N.S. 2007. The epidemiology of congestive heart failure in hyperglycemia below the threshold for diabetes: A critical review. *Diabetes and Metabolic Syndrome: Clinical Research and Reviews*, 1, (4) 273-278

Ref ID: 486

EXCLUDE-REVIEW FOCUSING ON RISK OF CHRONIC HEART DISEASE

Nielson, C., Lange, T., & Hadjokas, N. 2006. Blood glucose and coronary artery disease in nondiabetic patients. *Diabetes Care*, 29, (5) 998-1001

Ref ID: 657

EXCLUDE-PATIENTS WITH HYPERGLYCAEMIA NOT INCLUDED

Nilsson, P.M. 2010. ACCORD and risk-factor control in type 2 diabetes. *New England Journal of Medicine*, 362, (17) 1628-1630

Ref ID: 11

EXCLUDE-EDITORIAL AND PATIENTS ALREADY DIAGNOSED WITH DIABETES

Oswald, G.A., Corcoran, S., & Yudkin, J.S. 1984. Prevalence and risks of hyperglycaemia and undiagnosed diabetes in patients with acute myocardial infarction. *Lancet*, 1, (8389) 1264-1267

Ref ID: 1223

EXCLUDE-NOT FOCUSED ON RISK FACTORS FOR PROGRESSION TO DIABETES

Oswald, G.A. & Yudkin, J.S. 1987. Hyperglycaemia following acute myocardial infarction: The contribution of undiagnosed diabetes. *Diabetic Medicine*, 4, (1) 68-70

Ref ID: 1200

EXCLUDE-TEMPORARILY UNAVAILABLE

Petursson, P., Herlitz, J., Caidahl, K., From-Attebring, M., Sjoland, H., Gudbjornsdottir, S., & Hartford, M. 2006. Association between glycometabolic status in the acute phase and 2 1/2 years after an acute coronary syndrome. *Scandinavian Cardiovascular Journal*, 40, (3) 145-151

Ref ID: 644

EXCLUDE-NOT SPECIFIC TO PROGRESSION TO DIABETES. FOCUSES ON GLYCOMETABOLIC DISTURBANCE IN GENERAL WHICH INCLUDES BOTH IFG OR DIABETES

Rasmussen, S.S., Lauritzen, T., Sandbaeck, A., & Borch-Johnsen, K. 2009. *Diabetologia*, Conference: 45th EASD Annual Meeting of the European Association for the Study of Diabetes Vienna Austria. Conference Start:

Hyperglycaemia in acute coronary syndromes: DRAFT appendix D (August 2011)

20090930 Conference End: 20091002. Conference: 45th EASD Annual Meeting of the European Association for the Study of Diabetes Vienna Austria. Conference Start: 20090930 Conference End: 20091002. Conference Publication: (var.pagings) S327

Ref ID: 109

EXCLUDE-CONFERENCE PAPER

Ravid, M., Berkowicz, M., & Sohar, E. 1975. Hyperglycemia during acute myocardial infarction. A six-year follow-up study. JAMA : the journal of the American Medical Association, 233, (7) 807-809

Ref ID: 1239

EXCLUDE-FOCUSED ON PREVALANCE OF DIABETES NOT RISK FACTORS FOR PROGRESSION TO DIABETES

Ryden, L., Standl, E., Bartnik, M., Van Den Berghe, G., Betteridge, J., De, B.M.J., Cosentino, F., Jonsson, B., Laakso, M., Malmberg, K., Priori, S., Ostergren, J., Tuomilehto, J., Thrainsdottir, I., Vanhorebeek, I., Stramba-Badiale, M., Lindgren, P., Qiao, Q., Priori, S.G., Blanc, J.-J., Budaj, A., Camm, J., Dean, V., Deckers, J., Dickstein, K., Lekakis, J., McGregor, K., Metra, M., Morais, J., Osterspey, A., Tamargo, J., Zamorano, J.L., Deckers, J.W., Bertrand, M., Charbonnel, B., Erdmann, E., Ferrannini, E., Flyvbjerg, A., Gohlke, H., Juanatey, J.R.G., Graham, I., Monteiro, P.F., Parhofer, K., Pyorala, K., Raz, I., Schernthaner, G., Volpe, M., & Wood, D. 2007.

Guidelines on diabetes, pre-diabetes, and cardiovascular diseases: Full text.

Diabetes, Stoffwechsel und Herz, 16, (7) C3-C74

Ref ID: 455

EXCLUDE-GUIDELINE

Salmasi, A.-M., Frost, P., & Dancy, M. 2005. Left ventricular diastolic function in normotensive subjects 2 months after acute myocardial infarction is related to glucose intolerance. American Heart Journal, 150, (1) 168-174

Ref ID: 755

EXCLUDE-UNCLEAR IF PARTICIPANTS WERE HYPERGLYCAEMIC ON ADMISSION

Santaguida, P.L., Balion, C., Hunt, D., Morrison, K., Gerstein, H., Raina, P., Booker, L., & Yazdi, H. 2005. Diagnosis, prognosis, and treatment of impaired glucose tolerance and impaired fasting glucose. Evidence Report/Technology Assessment, 128, 312 available from:

<http://www.ahrq.gov/clinic/tp/impglutp.htm>

Ref ID: 1914

EXCLUDE-NOT SPECIFIC TO ACS

Savage, M. 2004. Screening for glucose intolerance post myocardial infarction. Diabetic Medicine, Supplement, 21, (4) 12-13

Ref ID: 850

EXCLUDE-CASE STUDY/EDITORIAL

Sen, K., Mukherjee, A.K., Dharchowdhury, L., & Chatterjee, A. 2008. A study to find out the proportion of prediabetes in patients with acute coronary syndrome in a Medical College of Kolkata. Journal of the Indian Medical Association, 106, (12) 776-778

Ref ID: 323

EXCLUDE-NOT ACCESSIBLE

Singh, R.B., Vargoa, V., Mechirova, V., & Pella, D. 2008. Acute coronary syndrome: A progression of pre-metabolic syndrome. World Heart Journal, 1, (4) 307-308

Ref ID: 251

EXCLUDE-NOT ACCESSIBLE

Stranders, I., Diamant, M., Van Gelder, R.E., Spruijt, H.J., Twisk, J.W.R., Heine, R.J., & Visser, F.C. 2004. Admission Blood Glucose Level as Risk Indicator of Death after Myocardial Infarction in Patients with and without Diabetes Mellitus. Archives of Internal Medicine, 164, (9) 982-988

Ref ID: 876

EXCLUDE-FOCUS ON RISK OF MORTALITY

Tenerz, A., Lonnberg, I., Berne, C., Nilsson, G., & Leppert, J. 2001. Myocardial infarction and prevalence of diabetes mellitus: Is increased casual blood glucose at admission a reliable criterion for the diagnosis of diabetes?

Hyperglycaemia in acute coronary syndromes: DRAFT appendix D (August 2011)

European Heart Journal, 22, (13) 1102-1110

Ref ID: 1050

EXCLUDE-FOCUS ON PREVALANCE OF DIABETES NOT RISK FACTORS
FOR PROGRESSION TO DIABETES

Venskutonyte, L., Malmberg, K., Norhammar, A., & Ryden, L. 2009. Journal of Diabetes, Conference: 3rd International Congress on Prediabetes and the Metabolic Syndrome Nice France. Conference Start: 20090401 Conference End: 20090404. Conference: 3rd International Congress on Prediabetes and the Metabolic Syndrome Nice France. Conference Start: 20090401 Conference End: 20090404. Conference Publication: (var.pagings) A66

Ref ID: 255

EXCLUDE-CONFERENCE PAPER

Wallander, M., Malmberg, K., Norhammar, A., Ryden, L., & Tenerz, A. 2008. Oral glucose tolerance test: a reliable tool for early detection of glucose abnormalities in patients with acute myocardial infarction in clinical practice: a report on repeated oral glucose tolerance tests from the GAMI study. Diabetes Care, 31, (1) 36-38

Ref ID: 1368

EXCLUDE-FOCUS ON RELIABILITY OF OGTT

Wannamethee, S.G. 2008. The metabolic syndrome and cardiovascular risk in the British regional heart study. International Journal of Obesity, 32, (SUPPL. 2) S25-S29

Ref ID: 403

EXCLUDE-NOT PERI ACS AND HYPERGLYCAEMIA. FOCUS ON RISK OF
CHRONIC HEART DISEASE AND DIABETES IN PARTICIPANTS WITHOUT
HISTORY OF THESE CONDITIONS

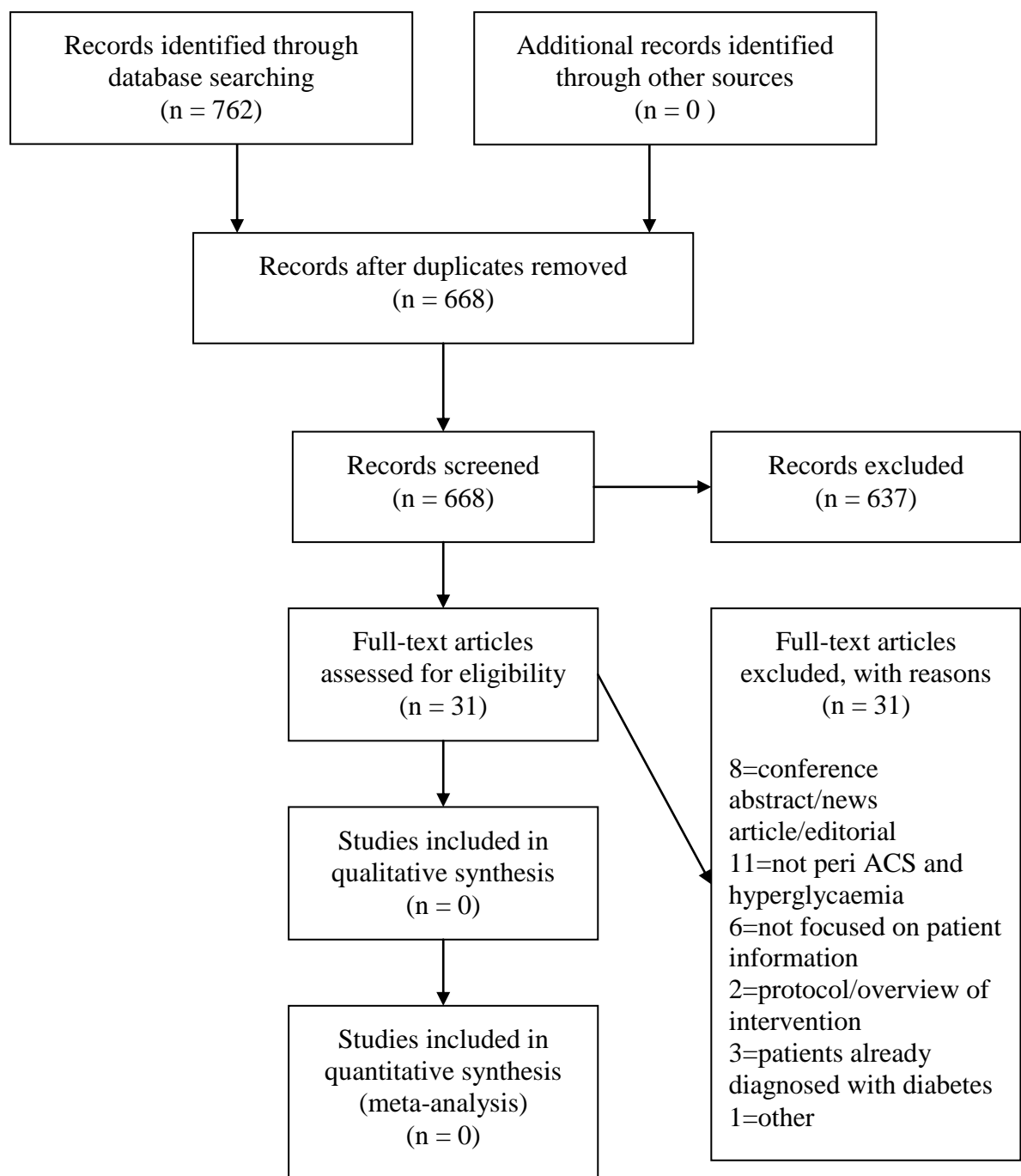
Zareba, W. 2008. Hyperglycemia as a risk factor in postinfarction patients. Cardiology Journal, 15, (5) 399-401

Ref ID: 365

EXCLUDE-NARRATIVE REVIEW

Flow diagram of excluded studies for hyperglycaemia review question 4

The flow diagram below shows an overview of the studies that were identified, included and excluded for review question 4, which focuses on the information or support that should be provided for patients with ACS and hyperglycaemia (who are at high risk for developing diabetes) while they are waiting for a referral for diabetic investigations.



Excluded studies**List of excluded studies for review question 4 (patient information)**

2005. Summaries for patients. Levels of risk factors associated with heart attacks.[Original report in Ann Intern Med. 2005 Mar 15;142(6):393-402; PMID: 15767617]. Annals of Internal Medicine, 142, (6) 123

Ref ID: 64

EXCLUDE-FOCUS ON RISK FACTORS FOR CHRONIC HEART DISEASE
NOT PATIENT INFORMATION

2007. Newslines: another risk factor turns up for diabetes. Clinical Advisor for Nurse Practitioners, 10, (10) 11-12

Ref ID: 546

EXCLUDE-NEWS ARTICLE

Antman, E.M.A. 2004. ACC/AHA guidelines for the management of patients with ST-elevation myocardial infarction - Executive summary: A report of the American College of cardiology/American heart association task force on practice guidelines (writing committee to revise the 1999 guidelines for the management of patients with acute myocardial infarction). Canadian Journal of Cardiology, 20, (10) 977-1025

Ref ID: 445

EXCLUDE-NOT FOCUSED ON PATIENT INFORMATION FOR
HYPERGLYCAEMIA

Basina, M.K. 2002. Effectiveness of diabetes management: Is improvement feasible? American Journal of Medicine, 112, (8) 670-672

Ref ID: 492

EXCLUDE-FOCUS ON MANAGEMENT OF DIAGNOSED DIABETES

Clark, C.M., Jr. 1999. The National Diabetes Education Program: Changing the way diabetes is treated. Annals of Internal Medicine, 130, (4 I) 324-326

Ref ID: 508

EXCLUDED-OVERVIEW OF DIABETES EDUCATION PROGRAM

De Mulder, M.O. 2010. European Heart Journal, Conference: European Society of Cardiology, ESC Congress 2010 Stockholm Sweden. Conference Start: 20100828 Conference End: 20100901. Conference Publication: (var.pagings) 349

Ref ID: 266

EXCLUDE-CONFERENCE ABSTRACT

Del Prato S.Bianchi 2007. Pharmacological intervention in prediabetes: Considering the risks and benefits. Diabetes, Obesity and Metabolism, 9, (SUPPL.1) 17-22

Ref ID: 328

EXCLUDE-NOT PERI ACS AND HYPERGLYCAEMIA

Engberg, S., Vistisen, D., Lau, C., Glumer, C., Jorgensen, T., Pedersen, O., & Borch-Johnsen, K. 2009. Progression to impaired glucose regulation and diabetes in the population-based Inter99 study.[Erratum appears in Diabetes Care. 2009 Sep;32(9):1751]. Diabetes Care, 32, (4) 606-611

Ref ID: 10

EXCLUDE-NOT PERI ACS AND HYPERGLYCAEMIA

Engelgau, M. C. S. R. A. B.-J. K. N. K. Prevention of Type 2 Diabetes: Issues and Strategies for Identifying Persons for Interventions. Diabetes Technology & Therapeutics 6, 874-882. 2004.

Ref ID: 656

EXCLUDE-NOT PERI ACS AND HYPERGLYCAEMIA

Gavin III, J.R.P. 2003. Reducing Cardiovascular Disease Risk in Patients with Type 2 Diabetes: A Message from the National Diabetes Education Program. American Family Physician, 68, (8) 1569-1578

Ref ID: 470

EXCLUDE-NOT FOCUSED ON PATIENT INFO FOR POTENTIAL DIABETES

Hanna-Moussa, A., Gardner, M.J., Romayne, K.L., & Sowers, J.R. 2009. Dysglycemia/prediabetes and cardiovascular risk factors. *Reviews in Cardiovascular Medicine*, 10, (4) 202-208

Ref ID: 12

EXCLUDE-NOR FOCUSED ON PATIENT INFORMATION/ADVICE

Heinig, R.E. 2006. The patient with diabetes: Preventing cardiovascular complications. *Clinical Cardiology*, 29, (10 SUPPL.) II13-II20

Ref ID: 371

EXCLUDE-FOCUS ON PATIENTS ALREADY DIAGNOSED WITH DIABETES

Hristova, K.M. 2010. Circulation, Conference: World Congress of Cardiology Scientific Sessions 2010, WCC 2010 Beijing China. Conference Start: 20100616 Conference End: 20100619. Conference Publication: (var.pagings) e195

Ref ID: 244

EXCLUDE-CONFERENCE ABSTRACT

Jaber, L.A., Halapy, H., Fernet, M., Tummalapalli, S., & Diwakaran, H. 1996. Evaluation of a pharmaceutical care model on diabetes management. *The Annals of pharmacotherapy*, 30, (3) 238-243 available from: <http://www.mrw.interscience.wiley.com/cochrane/clcentral/articles/791/CN-00130791/frame.html>

Ref ID: 654

EXCLUDE-NOT FOCUSED ON PATIENT INFORMATION

Kane, J.S.K. 2009. Diabetes, Conference: 69th Annual Meeting of the American Diabetes Association New Orleans, LA United States. Conference Start: 20090605 Conference End: 20090609. Conference Publication: (var.pagings)

Ref ID: 164

EXCLUDE-CONFERENCE ABSTRACT

Lansdown, A.J.R. 2010. Diabetic Medicine, Conference: Diabetes UK Annual Professional Conference Liverpool United Kingdom. Conference Start:

Hyperglycaemia in acute coronary syndromes: DRAFT appendix D (August 2011)

20100303 Conference End: 20100305. Conference Publication: (var.pagings)
90

Ref ID: 155

EXCLUDE-CONFERENCE ABSTRACT

MacFarlane, I.A.W. 2007. Focus on smoking and diabetes. *Practical Diabetes International*, 24, (3) 117-118

Ref ID: 322

EXCLUDE-FOCUS ON LINK BETWEEN SMOKING AND DIABETES NOT
PATIENT INFORMATION

Mozaffarian, D., Marfisi, R., Levantesi, G., Silletta, M.G., Tavazzi, L., Tognoni, G., Valagussa, F., & Marchioli, R. 2007. Incidence of new-onset diabetes and impaired fasting glucose in patients with recent myocardial infarction and the effect of clinical and lifestyle risk factors. *Lancet*, 370, (9588) 667-675

Ref ID: 28

EXCLUDE-NOT PERI ACS AND HYPERGLYCAEMIA

Murray, E., Burns, J., See, T.S., Lai, R., & Nazareth, I. 2005. Interactive Health Communication Applications for people with chronic disease. *Cochrane Database of Systematic Reviews: Reviews 2005 (4)* available from: <http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD004274/frame.html>

Ref ID: 623

EXCLUDE-NOT SPECIFIC TO PATIENTS WITH ACS AND
HYPERGLYCAEMIA

Noknoy, S., Chamnan, P., & Anothaisintawee, T. 2009. Theory-based behavioural interventions for prediabetic state and people with diabetes mellitus. *Cochrane Database of Systematic Reviews: Protocols 2009 (4)* available from: <http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD008082/frame.html>

Ref ID: 613

EXCLUDE-PROTOCOL

Orozco, L.J., Buchleitner, A.M., Gimenez, P.G., Figuls, M., Richter, B., & Mauricio, D. 2008. Exercise or exercise and diet for preventing type 2 diabetes mellitus. Cochrane Database of Systematic Reviews: Reviews 2008 (3) available from:

<http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD003054/frame.html>

Ref ID: 617

EXCLUDE-PAPERS DONT INCLUDE PATIENTS WITH ACS
(HYPERGLYCAEMIA ONLY)

Rasmussen, S.S.L. 2009. Diabetologia, Conference: 45th EASD Annual Meeting of the European Association for the Study of Diabetes Vienna Austria. Conference Start: 20090930 Conference End: 20091002. Conference Publication: (var.pagings) S327

Ref ID: 180

EXCLUDE-CONFERENCE ABSTRACT

Ratner, R., Goldberg, R., Haffner, S., Marcovina, S., Orchard, T., Fowler, S., Tempresa, M., & Diabetes Prevention Program Research Group 2005. Impact of intensive lifestyle and metformin therapy on cardiovascular disease risk factors in the diabetes prevention program. Diabetes Care, 28, (4) 888-894

Ref ID: 63

EXCLUDE-NOT SPECIFIC TO PATIENTS WITH ACS AND
HYPERGLYCAEMIA

Rosenstock, J. 2007. Reflecting on type 2 diabetes prevention: More questions than answers! Diabetes, Obesity and Metabolism, 9, (SUPPL.1) 3-11

Ref ID: 502

EXCLUDE-NOT PERI ACS AND HYPERGLYCAEMIA

Tenerz, A.L., I 2001. Myocardial infarction and prevalence of diabetes mellitus: Is increased casual blood glucose at admission a reliable criterion for the diagnosis of diabetes? European Heart Journal, 22, (13) 1102-1110

Ref ID: 500

EXCLUDE-NOT FOCUSED ON PATIENT INFORMATION

Tuomilehto, J. & L. J. The major diabetes prevention trials. *Current diabetes review* 3, 115-122. 2003.

Ref Type: Generic

Ref ID: 655

EXCLUDE-NOT PERI ACS AND HYPERGLYCAEMIA

Unger, J. & Moriarty, C. 2008. Preventing Type 2 Diabetes. *Primary Care - Clinics in Office Practice*, 35, (4) 645-662

Ref ID: 362

EXCLUDE-NOT PERI ACS AND HYPERGLYCAEMIA

Uusitupa, M.I. 1996. Early lifestyle intervention in patients with non-insulin-dependent diabetes mellitus and impaired glucose tolerance. *Annals of medicine*, 28, (5) 445-449 available from:

<http://www.mrw.interscience.wiley.com/cochrane/clcentral/articles/538/CN-00134538/frame.html>

Ref ID: 653

EXCLUDE-NOT PERI ACS AND HYPERGLYCAEMIA

Vancea, D.M., Vancea, J.N., Pires, M.I., Reis, M.A., Moura, R.B., & Dib, S.A. 2009. Effect of frequency of physical exercise on glycemic control and body composition in type 2 diabetic patients. *Arquivos brasileiros de cardiologia*, 92, (1) 23-30 available from:

<http://www.mrw.interscience.wiley.com/cochrane/clcentral/articles/403/CN-00721403/frame.html>

Ref ID: 637

EXCLUDE-PATIENTS ALREADY DIAGNOSED WITH TYPE 2 DIABETES

Varadhan, L.W. 2009. Diabetes, Conference: 69th Annual Meeting of the American Diabetes Association New Orleans, LA United States. Conference

Start: 20090605 Conference End: 20090609. Conference Publication:
(var.pagings)

Ref ID: 159

EXCLUDE-CONFERENCE ABSTRACT

Zhao, Z.Y.W. 2010. Cardiology, Conference: International Heart Forum
Beijing China. Conference Start: 20100811 Conference End: 20100813.
Conference Publication: (var.pagings) 44

Ref ID: 260

EXCLUDE-CONFERENCE ABSTRACT