

Supplementary Text. Search strategy in PubMed and Embase

Search strategy in PubMed:

(diabetes OR diabetes[MeSH] OR glucose OR glucose[MeSH] OR "medical history" OR medical history[MeSH])

AND

("heart failure" OR heart failure[MeSH] OR "cardiac failure" OR cardiac failure[MeSH])

AND

"case-control" OR cohort OR prospective OR longitudinal OR retrospective OR "follow-up" OR "cross-sectional" OR "hazard ratio" OR "hazard ratios" OR "relative risk" OR "relative risks" OR "incidence rate ratio" OR "incidence rate ratios" OR "odds ratio" OR odds ratios OR incidence

Search strategy in Embase:

((diabetes or glucose or medical history).ab,ti. or (diabetes/ or glucose/ or medical history/)) and ((heart failure).ab,ti. or (heart failure/)) and (case-control or cohort or prospective or longitudinal or retrospective or follow-up or cross-sectional or hazard ratio or hazard ratios or relative risk or relative risks or incidence rate ratio or incidence rate ratios or odds ratio or odds ratios or incidence).af.

Supplementary Table 1. List of excluded studies and exclusion reason

Exclusion reason	Reference number
Abstract	(1-32)
Case-control study	(33-37)
Case only study	(38;39)
Case report	(40-42)
Comment	(43-51)
Cross-sectional study	(52-73)
Duplicate	(74-101)
Editorial	(102-106)
Exposure was random glucose, not fasting blood glucose	(107)
HbA1c as exposure	(108)
Heart failure readmission	(109;110)
Insulin treated diabetes only as exposure	(111)
Less than three categories of blood glucose	(112;113)
Letter	(114-116)
No confidence intervals	(117;118)
Not relevant data	(119-189)
Not relevant exposure	(190-353)
Not relevant outcome	(354-436)
No risk estimates	(437-483)
Non-specific outcome	(484-488)
Patient populations	(489-557)
Protocol	(558)
Review	(559-682)
Severity of heart failure	(683)

Unadjusted risk estimates	(684)
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#### Reference List

1. Villa G, Patel J, Qian Y, Lira A, Taylor B, Danese M. Cardiovascular event rates in patients with high cardiovascular risk in the United Kingdom. Value in Health Conference: ISPOR 1919;November.
2. Seghieri G, Policardo L, Anichini R, Seghieri C, Francesconi P. Gender differences in the relationship between diabetes process of care indicators and cardiovascular outcomes: A population based study. Italian Journal of Medicine Conference: 1920;2015.
3. Barac A. Inflammation and albuminuria are associated with the risk of incident heart failure: The strong heart study. Journal of the American College of Cardiology Conference: American College of Cardiology 58th Annual Scientific Session and i2 Summit: Innovation in Intervention Orlando, FL United States Conference Publication: (var pagings) 53 (10) (pp A192), 2009;2009.
4. Villacorta H, Ferradaes PV, Mesquita ET. Microalbuminuria is an independent prognostic marker in patients with established heart failure. Journal of Cardiac Failure Conference: 14th Annual Scientific Meeting Heart Failure Society of America San Diego, CA United States Conference Publication: (var pagings) 16 (8 SUPPL 1) (pp S97), 2010;August.
5. Deedwania PC. Diabetes is an independent risk factor for heart failure among community dwelling older adults. Journal of the American College of Cardiology Conference: American College of Cardiology's 59th Annual Scientific Session and i2 Summit: Innovation in Intervention Atlanta, GA United States Conference Publication: (var pagings) 55 (10 SUPPL 1) (pp A32 2010;09).
6. Barac A, Carter EA, Shara NM et al. Role of inflammatory markers and albuminuria in predicting incident heart failure in a population with a high prevalence of obesity and insulin resistance: The Strong Heart Study. Arteriosclerosis, Thrombosis, and Vascular Biology Conference: Arteriosclerosis, Thrombosis, and Vascular Biology 2010;01.
7. Barasa A, Rosengreen A, Swedberg K, Schaufelberger M. Incidence of heart failure in young adults in Sweden 1987 to 2007. European Heart Journal Conference: European Society of Cardiology, ESC Congress 2010;September.
8. Stewart S, Carrington MJ, Lee G, Jennings G, Wong C. High risk for heart failure: Diastolic dysfunction and left ventricular hypertrophy in the nurse-led intervention for less chronic heart failure (NIL-CHF) study cohort. European Heart Journal Conference: European Society of Cardiology, ESC Congress 2010;September.
9. Kelly DJ, Gershlick T, Witzendichler B, Guagliumi G, Mehran R, Stone GW. Incidence, severity and predictors of congestive heart failure following primary PCI: The HORIZONS-AMI trial.

Journal of the American College of Cardiology Conference: 22nd Annual Symposium of the Transcatheter Cardiovascular Therapeutics, TCT 2010;21.

10. Husainit B, Cain V, Hull P et al. Heart failure hospitalization in Tennessee (2006-2008): Race, age, and gender analyses. Journal of Clinical Hypertension Conference: 26th Annual Scientific Meeting and Exposition of the American Society of Hypertension, Inc , ASH 2011;April.
11. He J, Yang W, Anderson A et al. Risk factors for congestive heart failure in patients with chronic kidney disease: The cric study. Circulation Conference: American Heart Association 2012;20.
12. Murtagh G, O'Connell J, Dawkins I et al. The hidden truth: Stage B heart failure among diabetics and overweight. Irish Journal of Medical Science Conference: 63rd Irish Cardiac Society Annual Scientific Meeting 2012;October.
13. Murtagh G, O'Connell J, Dawkins I et al. The hidden truth: Stage B heart failure among diabetics and the obese. European Heart Journal Conference: ESC Congress 2012;August.
14. Abdul SB, Viswanathan S. A comparative study of heart failure with reduced ejection fraction and preserved ejection fraction. Indian Heart Journal Conference: 65th Annual Conference of Cardiology Society of India Bengaluru India Conference Publication: (var pagings) 65 (pp S66-S67), 2013;December.
15. Sato T, Ono T, Hatanaka K et al. Five-year clinical outcomes after implantation of sirolimus-eluting stent in patients with and without diabetes mellitus. Cardiology (Switzerland) Conference: 10th International Congress on Coronary Artery Disease, ICCAD 2013;October.
16. Quddus A, Klein L, Rossouw JE et al. Racial and ethnic differences in preserved ejection fraction and reduced ejection fraction incident heart failure in a multiracial cohort of post-menopausal women. Circulation Conference: American Heart Association's 2014;25.
17. He J, Yang W, Anderson A et al. Risk factors for congestive heart failure in patients with chronic kidney disease: The CRIC study. Global Heart Conference: World Congress of Cardiology Scientific Sessions 2014;March.
18. Acharya G, Rodeheffer R, Kane G. Sex-specific differences in left ventricular remodeling as a predictor of heart failure in the community moderated. Journal of the American College of Cardiology Conference: 63rd Annual Scientific Session of the American College of Cardiology and i2 Summit: Innovation in Intervention, ACC 14 Washington, DC United States Conference Publication: (var pagings) 63 (12 2014;01.
19. Dinesh SA, Langenberg C, Rapsomaniki E et al. Type 2 diabetes and incidence of a wide range of cardiovascular diseases: a cohort study in 1.9 million people. Lancet 2015;385 Suppl 1:S86.
20. Shah AD, Langenberg C, Rapsomaniki E et al. Type 2 diabetes and incidence of a wide range of cardiovascular diseases: A cohort study in 1.9 million people. The Lancet Conference: Spring Meeting for Clinician Scientists in Training 2015;26.

21. Sahle B, Owen A, Krum H, Reid C. Incidence of heart failure in elderly hypertensive patients. Heart Lung and Circulation Conference: Cardiac Society of Australia and New Zealand Annual Scientific Meeting and the International Society for Heart Research Australasian Section Annual Scientific Meeting 2015;2015.
22. Seghieri G, Policardo L, Anichini R, Francesconi P. Gender difference in diabetes related excess risk of cardiovascular events: When does the 'risk window' open? Diabetologia Conference: 51st Annual Meeting of the European Association for the Study of Diabetes, EASD 2015;September.
23. Ishii M, Ogawa H, Masunaga N et al. Association of hypertension with the incidence of adverse events in patients with atrial fibrillation: The Fushimi AF Registry. European Heart Journal Conference: European Society of Cardiology, ESC Congress 2015;01.
24. Ishii M, Ogawa H, Masunaga N et al. Association of diabetes mellitus with the incidence of adverse events in patients with atrial fibrillation: The Fushimi AF registry. European Heart Journal Conference: European Society of Cardiology, ESC Congress 2015;01.
25. Davis T, Davis WA. Predictors and outcome of heart failure complicating type 2 diabetes: The fremantle diabetes study. Diabetes Conference: 75th Scientific Sessions of the American Diabetes Association Boston, MA United States Conference Publication: (var pagings) 64 (pp A387), 2015;June.
26. Ilir S, I, Myftiu S, Quka A, Xhafaj M, Shkoza A, Cakerri L. Predictors of heart failure occurrence in a population of acute myocardial infarction patients. European Journal of Preventive Cardiology Conference: EuroPREvent 2015;May.
27. Lee NL, Knuiam M, Hung J, Briffa T. Effect of diabetes on age-specific long-term cardiovascular outcomes following first myocardial infarction: A population-based study. European Journal of Preventive Cardiology Conference: EuroPREvent 2015;May.
28. Ahmad FS, Ning H, Rich J, Lloyd-Jones D, Wilkins J. Hypertension, obesity, diabetes, and heart failure-free survival: The cardiovascular lifetime risk pooling project. Journal of the American College of Cardiology Conference: 64th Annual Scientific Session of the American College of Cardiology and i2 Summit: Innovation in Intervention, ACC 15 San Diego, CA United States Conference Publication: (var pagings) 65 (10 S 2015;17.
29. Wong ND, Magyar J, Gardin J et al. Cardiovascular event risk associated with angina in older persons with prediabetes and diabetes. Journal of the American College of Cardiology Conference: 65th Annual Scientific Session of the American College of Cardiology and i2 Summit: Innovation in Intervention, ACC 16 Chicago, IL United States Conference Publication: (var pagings) 67 (13 SUP 2016;05.
30. Ogunmoroti O, Oni E, Allen NB et al. Life's simple 7 and incident heart failure: The multi-ethnic study of atherosclerosis. Circulation Conference: American Heart Association's Epidemiology and Prevention/Lifestyle and Cardiometabolic Health 2016;01.
31. Abreu G, Azevedo P, Rodrigues C et al. CHA2DS2VASc score-A strong predictor of new onset atrial fibrillation. European Journal of Heart Failure Conference: Heart Failure 2017;May.

32. Abreu G, Azevedo P, Rodrigues C et al. CHA2DS2VASc score an useful tool to predict heart failure in patients admitted with STEMI. *European Journal of Heart Failure Conference: Heart Failure* 2017;May.
33. Dunlay SM, Weston SA, Jacobsen SJ, Roger VL. Risk factors for heart failure: a population-based case-control study. *Am J Med* 2009;122:1023-8.
34. Bjork A, Svensson AM, Fard MNP, Eriksson P, Dellborg M. Type 1 diabetes mellitus and associated risk factors in patients with or without CHD: a case-control study. *Cardiol Young* 2017;1-8.
35. Hartung DM, Touchette DR, Bultemeier NC, Haxby DG. Risk of hospitalization for heart failure associated with thiazolidinedione therapy: a medicaid claims-based case-control study. *Pharmacotherapy* 2005;25:1329-36.
36. Klein OL, Jones M, Lee J, Collard HR, Smith LJ. Reduced lung diffusion capacity in type 2 diabetes is independent of heart failure. *Diabetes Res Clin Pract* 2012;96:e73-e75.
37. Meng XY, Zhou Y, Zhang J, Tang ZH. The association and interaction analysis of hypertension and diabetes mellitus on diastolic heart failure in a high-risk population. *Int J Clin Exp Med* 2015;8:21311-8.
38. Bhoopatkar H, Simmons D. Diabetes and hyperglycaemia among patients with congestive cardiac failure in a multiethnic population. *The New Zealand medical journal* 109 (1026) (pp 268-270), 1996;26.
39. Rich MW, Shah AS, Vinson JM, Freedland KE, Kuru T, Sperry JC. Iatrogenic congestive heart failure in older adults: clinical course and prognosis. *J Am Geriatr Soc* 1996;44:638-43.
40. Sheehan JP, Sisam DA, Schumacher OP. Insulin-induced cardiac failure. *Am J Med* 1985;79:147-8.
41. Kermani A, Garg A. Thiazolidinedione-associated congestive heart failure and pulmonary edema. *Mayo Clin Proc* 2003;78:1088-91.
42. Srivastava PM, Calafiore P, MacIsaac RJ, Hare DL, Jerums G, Burrell LM. Thiazolidinediones and congestive heart failure--exacerbation or new onset of left ventricular dysfunction? *Diabet Med* 2004;21:945-50.
43. Shindler DM. Nonischaemic heart failure and diabetes mellitus. *Eur Heart J* 2004;25:629-30.
44. Jaderholm PL. Thiazolidinediones and heart failure. *Cleve Clin J Med* 2006;73:587-8.
45. Leier CV, Haas GJ. Diabetes and heart failure: the role of thiazolidinediones in managing these partners in crime. *J Am Coll Cardiol* 2007;50:37-9.
46. Bloch MJ, Basile JN. Heart failure in people younger than 50years is more common in black than white americans and is closely associated with poorly treated and controlled hypertension: The cardia study. *Journal of Clinical Hypertension* 11 (7) (pp 388-390), 2009;2009.

47. Opie LH. Glycaemia and heart failure in diabetes types 1 and 2. *Lancet* 2011;378:103-4.
48. Sharma A, Ezekowitz JA. Diabetes, impaired fasting glucose, and heart failure: it's not all about the sugar. *Eur J Heart Fail* 2014;16:1153-6.
49. Gilbert RE. Heart failure: fatal, forgotten, and frequent in type 1 diabetes too. *Lancet Diabetes Endocrinol* 2015;3:832-4.
50. Eckel RH, Hokanson JE. The Prediction of Atherosclerotic Cardiovascular Disease in Type 1 Diabetes Mellitus: Do We Just Stop Here? *Circulation* 2016;133:1051-3.
51. Rajasekeran H, Lytvyn Y, Cherney DZ. Sodium-glucose cotransporter 2 inhibition and cardiovascular risk reduction in patients with type 2 diabetes: the emerging role of natriuresis. *Kidney Int* 2016;89:524-6.
52. Eriksson H, Svardsudd K, Caidahl K et al. Early heart failure in the population. The study of men born in 1913. *Acta Med Scand* 1988;223:197-209.
53. Obasohan AO, Ajuyah CO. How common is heart failure due to systemic hypertension alone in hospitalised Nigerians? *J Hum Hypertens* 1996;10:801-4.
54. Demirovic J, Prineas R, Rudolph M. Epidemiology of congestive heart failure in three ethnic groups. *Congest Heart Fail* 2001;7:93-6.
55. Thrainsdottir IS, Aspelund T, Thorgeirsson G et al. The association between glucose abnormalities and heart failure in the population-based Reykjavik Study. *Diabetes Care* 28 (3) (pp 612-616), 2005;March.
56. Laramee AS, Morris N, Littenberg B. Relationship of literacy and heart failure in adults with diabetes. *BMC Health Serv Res* 2007;7:98.
57. Moretta G, Locatelli AJ, Gadola L et al. Rio de La Plata study: a multicenter, cross-sectional study on cardiovascular risk factors and heart failure prevalence in peritoneal dialysis patients in Argentina and Uruguay. *Kidney Int Suppl* 2008;S159-S164.
58. Mocan T, goston-Coldea L, Gatfosse M, Rosenstingl S, Mocan LC. Risk factors for heart failure in patients with one prior myocardial infarction episode. *Rom J Intern Med* 2008;46:213-21.
59. Caughey GE, Roughead EE, Vitry AI, McDermott RA, Shakib S, Gilbert AL. Comorbidity in the elderly with diabetes: Identification of areas of potential treatment conflicts. *Diabetes Res Clin Pract* 2010;87:385-93.
60. Carmona M, Garcia-Olmos LM, Alberquilla A et al. Heart failure in the family practice: a study of the prevalence and co-morbidity. *Fam Pract* 2011;28:128-33.
61. McGrady M, Krum H, Carrington MJ et al. Heart failure, ventricular dysfunction and risk factor prevalence in Australian Aboriginal peoples: the Heart of the Heart Study. *Heart* 2012;98:1562-7.

62. Bakker EJ, Valentijn TM, Van De Luitgaarden KM et al. Type 2 diabetes mellitus, independent of insulin use, is associated with an increased risk of cardiac complications after vascular surgery. *Anaesthesia and Intensive Care* 41 (5) (pp 584-590), 2013;September.
63. Tang ZH, Wang L, Zeng F, Zhang K. Association and predictive value analysis for metabolic syndrome on systolic and diastolic heart failure in high-risk patients. *BMC Cardiovasc Disord* 2014;14:124.
64. Okeahialam BN, Muoneme SA. Influence of gender on heart failure among hospitalised Nigerian patients. *Afr J Med Med Sci* 2015;44:151-5.
65. Alnajashi MA, Almasoud MA, Aldaham SA, Acuna JM, Zevallos JC. Association of gender and length of stay among Puerto Ricans hospitalized with decompensated heart failure. *Medicine (Baltimore)* 2016;95:e4255.
66. Yang H, Wang Y, Negishi K, Nolan M, Marwick TH. Pathophysiological effects of different risk factors for heart failure. *Open Heart* 2016;3:e000339.
67. Komanduri S, Jadhao Y, Guduru SS, Cheriya P, Wert Y. Prevalence and risk factors of heart failure in the USA: NHANES 2. *J Community Hosp Intern Med Perspect* 2017;7:15-20.
68. Kwa MC, Silverberg JI. Association Between Inflammatory Skin Disease and Cardiovascular and Cerebrovascular Co-Morbidities in US Adults: Analysis of Nationwide Inpatient Sample Data. *Am J Clin Dermatol* 2017.
69. Grazuleviciene R, Dulskiene V. Risk factors for heart failure in survivors after first myocardial infarction. *Medicina (Kaunas)* 2006;42:810-6.
70. Utrera-Lagunas M, Orea-Tejeda A, Castillo-Martinez L et al. Abnormal myocardial perfusion and risk of heart failure in patients with type 2 diabetes mellitus. *Exp Clin Cardiol* 2013;18:e44-e46.
71. Babar MZM, Baig MAR, Azam H, Azam SM. Risk factors of heart failure after myocardial infarction. *Journal of Postgraduate Medical Institute* 31 (1) (pp 29-32), 2017;2017.
72. Alonso-Moran E, Orueta JF, Fraile Esteban JI et al. The prevalence of diabetes-related complications and multimorbidity in the population with type 2 diabetes mellitus in the Basque Country. *BMC Public Health* 2014;14:1059.
73. Pepe A, Meloni A, Rossi G et al. Cardiac complications and diabetes in thalassaemia major: a large historical multicentre study. *Br J Haematol* 2013;163:520-7.
74. Kannel WB, Hjortland M, Castelli WP. Role of diabetes in congestive heart failure: the Framingham study. *Am J Cardiol* 1974;34:29-34.
75. Kannel WB, McGee DL. Diabetes and cardiovascular disease. The Framingham study. *JAMA* 1979;241:2035-8.
76. Kannel WB. Epidemiology and prevention of cardiac failure: Framingham Study insights. *Eur Heart J* 1987;8 Suppl F:23-6.



77. Kannel WB, Cupples A. Epidemiology and risk profile of cardiac failure. *Cardiovasc Drugs Ther* 1988;2:387-95.
78. Brand FN, Abbott RD, Kannel WB. Diabetes, intermittent claudication, and risk of cardiovascular events. The Framingham Study. *Diabetes* 1989;38:504-9.
79. Ho KK, Pinsky JL, Kannel WB, Levy D. The epidemiology of heart failure: the Framingham Study. *J Am Coll Cardiol* 1993;22:6A-13A.
80. Chen YT, Vaccarino V, Williams CS, Butler J, Berkman LF, Krumholz HM. Risk factors for heart failure in the elderly: a prospective community-based study. *Am J Med* 1999;106:605-12.
81. Aronow WS, Chul A. Incidence of heart failure in 2,737 older persons with and without diabetes mellitus. *Chest* 115 (3) (pp 867-868), 1999;1999.
82. Gottdiener JS, Arnold AM, Aurigemma GP et al. Predictors of congestive heart failure in the elderly: the Cardiovascular Health Study. *J Am Coll Cardiol* 2000;35:1628-37.
83. Johansson S, Wallander MA, Ruigomez A, Garcia Rodriguez LA. Incidence of newly diagnosed heart failure in UK general practice. *Eur J Heart Fail* 2001;3:225-31.
84. Ingelsson E, Arnlov J, Sundstrom J, Lind L. Inflammation, as measured by the erythrocyte sedimentation rate, is an independent predictor for the development of heart failure. *J Am Coll Cardiol* 2005;45:1802-6.
85. Suzuki T, Katz R, Jenny NS et al. Metabolic syndrome, inflammation, and incident heart failure in the elderly: the cardiovascular health study. *Circ Heart Fail* 2008;1:242-8.
86. Bahrami H, Kronmal R, Bluemke DA et al. Differences in the incidence of congestive heart failure by ethnicity: the multi-ethnic study of atherosclerosis. *Arch Intern Med* 2008;168:2138-45.
87. Bahrami H, Bluemke DA, Kronmal R et al. Novel metabolic risk factors for incident heart failure and their relationship with obesity: the MESA (Multi-Ethnic Study of Atherosclerosis) study. *J Am Coll Cardiol* 2008;51:1775-83.
88. Kalogeropoulos A, Georgiopoulou V, Harris TB et al. Glycemic status and incident heart failure in elderly without history of diabetes mellitus: the health, aging, and body composition study. *J Card Fail* 2009;15:593-9.
89. Tang WH, Katz R, Brennan ML et al. Usefulness of myeloperoxidase levels in healthy elderly subjects to predict risk of developing heart failure. *Am J Cardiol* 2009;103:1269-74.
90. Mujib M, Desai R, Levitan EB et al. Prospective population studies of incident heart failure without data on baseline left ventricular ejection fraction. *Arch Med Sci* 2010;6:686-8.
91. Hagstrom E, Ingelsson E, Sundstrom J et al. Plasma parathyroid hormone and risk of congestive heart failure in the community. *Eur J Heart Fail* 2010;12:1186-92.

92. Roy B, Pawar PP, Desai RV et al. A propensity-matched study of the association of diabetes mellitus with incident heart failure and mortality among community-dwelling older adults. *Am J Cardiol* 2011;108:1747-53.
93. Barac A, Wang H, Shara NM et al. Markers of inflammation, metabolic risk factors, and incident heart failure in American Indians: the Strong Heart Study. *J Clin Hypertens (Greenwich)* 2012;14:13-9.
94. Banerjee D, Biggs ML, Mercer L et al. Insulin resistance and risk of incident heart failure: Cardiovascular Health Study. *Circ Heart Fail* 2013;6:364-70.
95. Ebong IA, Goff DC, Jr., Rodriguez CJ, Chen H, Sibley CT, Bertoni AG. Association of lipids with incident heart failure among adults with and without diabetes mellitus: Multiethnic Study of Atherosclerosis. *Circ Heart Fail* 2013;6:371-8.
96. Ho JE, Lyass A, Lee DS et al. Predictors of new-onset heart failure: differences in preserved versus reduced ejection fraction. *Circ Heart Fail* 2013;6:279-86.
97. de Simone G, Devereux RB, Roman MJ et al. Does cardiovascular phenotype explain the association between diabetes and incident heart failure? The Strong Heart Study. *Nutr Metab Cardiovasc Dis* 2013;23:285-91.
98. Rawshani A, Rawshani A, Franzen S et al. Range of Risk Factor Levels: Control, Mortality, and Cardiovascular Outcomes in Type 1 Diabetes Mellitus. *Circulation* 2017;135:1522-31.
99. Bibbins-Domingo K, Lin F, Vittinghoff E et al. Predictors of heart failure among women with coronary disease. *Circulation* 2004;110:1424-30.
100. Kannel WB, Belanger AJ. Epidemiology of heart failure. *American Heart Journal* 121 (3 I) (pp 951-957), 1991;1991.
101. Lewis EF, Velazquez EJ, Solomon SD et al. Predictors of the first heart failure hospitalization in patients who are stable survivors of myocardial infarction complicated by pulmonary congestion and/or left ventricular dysfunction: a VALIANT study. *Eur Heart J* 2008;29:748-56.
102. Kamalesh M. Diabetes and prognosis: are systolic and diastolic heart failure different? *Heart* 2009;95:178-9.
103. Lam CS, Vasan RS. Heart failure risk: lessons from the family. *Congest Heart Fail* 2010;16:139-40.
104. Shen WF. An intriguing association between congestive heart failure and diabetes mellitus. *Chin Med J (Engl)* 2010;123:643-5.
105. Kearney MT. Chronic heart failure and type 2 diabetes mellitus: The last battle? *Diab Vasc Dis Res* 2015;12:226-7.
106. Peters MN, Pollock JS, Rajagopalan S. Unraveling the association of heart failure from drug and disease: Insights from recent cardiovascular trials in type 2 diabetes mellitus. *J Diabetes Complications* 2016;30:189-91.

107. Jackson SL, Safo S, Staimez LR et al. Reduced Cardiovascular Disease Incidence With a National Lifestyle Change Program. *Am J Prev Med* 2017;52:459-68.
108. Stratton IM, Adler AI, Neil HAW et al. Association of glycaemia with macrovascular and microvascular complications of type 2 diabetes (UKPDS 35): Prospective observational study. *British Medical Journal* 321 (7258) (pp 405-412), 2000;12.
109. Omersa D, Farkas J, Erzen I, Lainscak M. National trends in heart failure hospitalization rates in Slovenia 2004-2012. *Eur J Heart Fail* 2016;18:1321-8.
110. Steuer J, Granath F, de FU, Ekbom A, Stahle E. Increased risk of heart failure as a consequence of perioperative myocardial injury after coronary artery bypass grafting. *Heart* 2005;91:754-8.
111. Kelly DJ, Gershlick T, Witzenbichler B et al. Incidence and predictors of heart failure following percutaneous coronary intervention in ST-segment elevation myocardial infarction: The HORIZONS-AMI trial. *American Heart Journal* 162 (4) (pp 663-670), 2011;October.
112. Voulgari C, Tentolouris N, Dilaveris P, Tousoulis D, Katsilambros N, Stefanadis C. Increased heart failure risk in normal-weight people with metabolic syndrome compared with metabolically healthy obese individuals. *J Am Coll Cardiol* 2011;58:1343-50.
113. Barzilay JI, Davis BR, Bettencourt J et al. Cardiovascular outcomes using doxazosin vs. chlorthalidone for the treatment of hypertension in older adults with and without glucose disorders: a report from the ALLHAT study. *J Clin Hypertens (Greenwich)* 2004;6:116-25.
114. Karter AJ, Ahmed AT, Liu J et al. Use of thiazolidinediones and risk of heart failure in people with type 2 diabetes: a retrospective cohort study: response to Delea et al. *Diabetes Care* 2004;27:850-1.
115. Bell DS, Pantalone et al.: the risk of developing coronary artery disease or congestive heart failure, and overall mortality, in type 2 diabetic patients receiving rosiglitazone, pioglitazone, metformin, or sulfonylureas: a retrospective analysis. *Acta Diabetol* 2009;46:155.
116. Boonman-de Winter LJ, Hoes AW, Cramer MJ, de JG, Janssen RR, Rutten FH. Prognosis of screen-detected heart failure with reduced and preserved ejection fraction in patients with type 2 diabetes. *Int J Cardiol* 2015;185:162-4.
117. Brand FN, Kannel WB, Evans J, Larson MG, Wolf PA. Glucose intolerance, physical signs of peripheral artery disease, and risk of cardiovascular events: the Framingham Study. *Am Heart J* 1998;136:919-27.
118. Holme I, Aastveit AH, Hammar N, Jungner I, Walldius G. Lipoprotein components and risk of congestive heart failure in 84,740 men and women in the Apolipoprotein MOrtality RISK study (AMORIS). *Eur J Heart Fail* 2009;11:1036-42.
119. Seneviratne BI. Diabetic cardiomyopathy: the preclinical phase. *Br Med J* 1977;1:1444-6.
120. Kannel WB, Plehn JF, Cupples LA. Cardiac failure and sudden death in the Framingham study. *American Heart Journal* 115 (4) (pp 869-875), 1988;1988.

121. Fumelli P, Romagnoli F, Carlino G, Fumelli C, Boemi M. Diabetes mellitus and chronic heart failure. *Arch Gerontol Geriatr* 1996;23:277-81.
122. Rutter MK, Parise H, Benjamin EJ et al. Impact of glucose intolerance and insulin resistance on cardiac structure and function: sex-related differences in the Framingham Heart Study. *Circulation* 2003;107:448-54.
123. Iribarren C, Go AS, Tolstykh I, Sidney S, Johnston SC, Spring DB. Breast vascular calcification and risk of coronary heart disease, stroke, and heart failure. *J Womens Health (Larchmt)* 2004;13:381-9.
124. Gottlieb SS, Khatta M, Friedmann E et al. The influence of age, gender, and race on the prevalence of depression in heart failure patients. *J Am Coll Cardiol* 2004;43:1542-9.
125. Young LE, Cunningham SL, Buist DS. Lone mothers are at higher risk for cardiovascular disease compared with partnered mothers. Data from the National Health and Nutrition Examination Survey III (NHANES III). *Health Care Women Int* 2005;26:604-21.
126. Movahed MR, Hashemzadeh M, Jamal MM. Diabetes mellitus is a strong, independent risk for atrial fibrillation and flutter in addition to other cardiovascular disease. *Int J Cardiol* 2005;105:315-8.
127. Gorelik O, moznino-Sarafian D, Alon I et al. Heart failure in diabetes mellitus: clinical features and prognostic implications. *Cardiology* 2005;103:161-6.
128. McNeill AM, Katz R, Girman CJ et al. Metabolic syndrome and cardiovascular disease in older people: The cardiovascular health study. *J Am Geriatr Soc* 2006;54:1317-24.
129. Shook MS, Zafarullah H, Nelson MD et al. Normoglycemia in nondiabetic African Americans hospitalized with heart failure. *Am J Med Sci* 2009;338:255-8.
130. Schwarzwald U, Hauk M, Zeller T. RA. *Trials* 2009;10:60.
131. Eurich DT, Tsuyuki RT, Majumdar SR et al. Metformin treatment in diabetes and heart failure: when academic equipoise meets clinical reality. *Trials* 2009;10:12.
132. Ekundayo OJ, Muchimba M, Aban IB, Ritchie C, Campbell RC, Ahmed A. Multimorbidity due to diabetes mellitus and chronic kidney disease and outcomes in chronic heart failure. *Am J Cardiol* 2009;103:88-92.
133. Barker DJ, Gelow J, Thornburg K, Osmond C, Kajantie E, Eriksson JG. The early origins of chronic heart failure: impaired placental growth and initiation of insulin resistance in childhood. *Eur J Heart Fail* 2010;12:819-25.
134. Arnlov J, Ingelsson E, Sundstrom J, Lind L. Impact of body mass index and the metabolic syndrome on the risk of cardiovascular disease and death in middle-aged men. *Circulation* 2010;121:230-6.
135. MacDonald MR, Eurich DT, Majumdar SR et al. Treatment of type 2 diabetes and outcomes in patients with heart failure: A nested case-control study from the U.K. general practice research database. *Diabetes Care* 33 (6) (pp 1213-1218), 2010;June.

136. Dehghan M, Mente A, Teo KK et al. Relationship between healthy diet and risk of cardiovascular disease among patients on drug therapies for secondary prevention: a prospective cohort study of 31 546 high-risk individuals from 40 countries. *Circulation* 2012;126:2705-12.
137. Eaton CB, Abdulbaki AM, Margolis KL et al. Racial and ethnic differences in incident hospitalized heart failure in postmenopausal women: the Women's Health Initiative. *Circulation* 2012;126:688-96.
138. Sikdar KC, Dowden J, Alaghebandan R, MacDonald D, Peter P, Gadag V. Adverse drug reactions in elderly hospitalized patients: a 12-year population-based retrospective cohort study. *Ann Pharmacother* 2012;46:960-71.
139. Melenovsky V, Kotrc M, Polak J et al. Availability of energetic substrates and exercise performance in heart failure with or without diabetes. *Eur J Heart Fail* 2012;14:754-63.
140. Shinozaki T, Matsuyama Y, Iimuro S et al. Effective prevention of cardiovascular disease and diabetes-related events with atorvastatin in Japanese elderly patients with type 2 diabetes mellitus: adjusting for treatment changes using a marginal structural proportional hazards model and a rank-preserving structural failure time model. *Geriatr Gerontol Int* 2012;12 Suppl 1:88-102.
141. Chen CY, Asakura M, Asanuma H et al. Plasma adiponectin levels predict cardiovascular events in the observational Arita Cohort Study in Japan: the importance of the plasma adiponectin levels. *Hypertens Res* 2012;35:843-8.
142. Meyer S, van der MP, Massie BM et al. Sex-specific acute heart failure phenotypes and outcomes from PROTECT. *Eur J Heart Fail* 2013;15:1374-81.
143. Christensen HM, Schou M, Goetze JP et al. Body mass index in chronic heart failure: association with biomarkers of neurohormonal activation, inflammation and endothelial dysfunction. *BMC Cardiovasc Disord* 2013;13:80.
144. Sampson UK, Husaini BA, Cain VA, Samad Z, Jahangir EC, Levine RS. Short-term trends in heart failure-related hospitalizations in a high-risk state. *South Med J* 2013;106:147-54.
145. Hecker PA, Lionetti V, Ribeiro RF, Jr. et al. Glucose 6-phosphate dehydrogenase deficiency increases redox stress and moderately accelerates the development of heart failure. *Circ Heart Fail* 2013;6:118-26.
146. Scheuermeyer FX, Innes G, Pourvali R et al. Missed opportunities for appropriate anticoagulation among emergency department patients with uncomplicated atrial fibrillation or flutter. *Ann Emerg Med* 2013;62:557-65.
147. Ruiz-Laiglesia FJ, Sanchez-Marteles M, Perez-Calvo JI et al. Comorbidity in heart failure. Results of the Spanish RICA Registry. *QJM* 2014;107:989-94.
148. Lindman BR, Vila-Roman VG, Mann DL et al. Cardiovascular phenotype in HFpEF patients with or without diabetes: a RELAX trial ancillary study. *J Am Coll Cardiol* 2014;64:541-9.

149. Saheb Sharif-Askari N, Sulaiman SA, Saheb Sharif-Askari F, Al Sayed HA, Tabatabai S, Al-Mulla AA. Hospitalized heart failure patients with preserved vs. reduced ejection fraction in Dubai, United Arab Emirates: a prospective study. *Eur J Heart Fail* 2014;16:454-60.
150. Close GR, Newton PJ, Fung SC et al. Socioeconomic status and heart failure in Sydney. *Heart Lung Circ* 2014;23:320-4.
151. Skouri H, Dickstein K. Heart failure in the Middle East An Emerging Challenge in a Diverse Environment. *Eur Heart J* 2015;36:2970-2.
152. Kobylecki CJ, Afzal S, Nordestgaard BG. Genetically Low Antioxidant Protection and Risk of Cardiovascular Disease and Heart Failure in Diabetic Subjects. *EBioMedicine* 2015;2:2010-5.
153. Miro O, Rizzi A, Herrero P et al. OBESICA study: relationship between BMI and acute heart failure outcome. *Eur J Emerg Med* 2015.
154. Conde-Martel A, Arkuch ME, Formiga F et al. Gender related differences in clinical profile and outcome of patients with heart failure. Results of the RICA Registry. *Rev Clin Esp* 2015;215:363-70.
155. Zannad F, Cannon CP, Cushman WC et al. Heart failure and mortality outcomes in patients with type 2 diabetes taking alogliptin versus placebo in EXAMINE: a multicentre, randomised, double-blind trial. *Lancet* 2015;385:2067-76.
156. Vassilev ZP, Ruigomez A, Soriano-Gabarro M, Garcia Rodriguez LA. Diabetes, cardiovascular morbidity, and risk of age-related macular degeneration in a primary care population. *Invest Ophthalmol Vis Sci* 2015;56:1585-92.
157. Echouffo-Tcheugui JB, Xu H, DeVore AD et al. Temporal trends and factors associated with diabetes mellitus among patients hospitalized with heart failure: Findings from Get With The Guidelines-Heart Failure registry. *Am Heart J* 2016;182:9-20.
158. Fabbri A, Marchesini G, Carbone G et al. Acute heart failure in the emergency department: a follow-up study. *Intern Emerg Med* 2016;11:115-22.
159. Lyngbakken MN, Skranes JB, de Lemos JA et al. Impact of Smoking on Circulating Cardiac Troponin I Concentrations and Cardiovascular Events in the General Population: The HUNT Study (Nord-Trøndelag Health Study). *Circulation* 2016;134:1962-72.
160. Lam CS, Teng TK, Tay WT et al. Regional and ethnic differences among patients with heart failure in Asia: the Asian sudden cardiac death in heart failure registry. *Eur Heart J* 2016;37:3141-53.
161. Wang CC, Chang HY, Yin WH et al. TSOC-HFrEF Registry: A Registry of Hospitalized Patients with Decompensated Systolic Heart Failure: Description of Population and Management. *Acta Cardiol Sin* 2016;32:400-11.
162. Htike ZZ, Yates T, Brady EM et al. Rationale and design of the randomised controlled trial to assess the impact of liraglutide on cardiac function and structure in young adults with type 2 diabetes (the LYDIA study). *Cardiovasc Diabetol* 2016;15:102.

163. Jani BD, Mair FS, Roger VL, Weston SA, Jiang R, Chamberlain AM. Comorbid Depression and Heart Failure: A Community Cohort Study. *PLoS One* 2016;11:e0158570.
164. Marso SP, Daniels GH, Brown-Frandsen K et al. Liraglutide and Cardiovascular Outcomes in Type 2 Diabetes. *N Engl J Med* 2016;375:311-22.
165. Parrinello CM, Matsushita K, Woodward M, Wagenknecht LE, Coresh J, Selvin E. Risk prediction of major complications in individuals with diabetes: the Atherosclerosis Risk in Communities Study. *Diabetes Obes Metab* 2016;18:899-906.
166. Stubnova V, Os I, Grundtvig M, Waldum-Grevbo B. Prevalent Diabetes Mellitus: Mortality and Management in Norwegian Heart Failure Outpatients. *Cardiology* 2016;134:413-22.
167. Watson C, James S, O'Connell E et al. Influence of diabetes on natriuretic peptide thresholds in screening for Stage B heart failure. *Biomarkers* 2016;21:538-43.
168. Boonman-de Winter LJ, van Stel HF, Hoes AW et al. Health status of older patients with type 2 diabetes and screen-detected heart failure is significantly lower than those without. *Int J Cardiol* 2016;211:79-83.
169. Ou HT, Chang KC, Li CY, Wu JS. Risks of cardiovascular diseases associated with dipeptidyl peptidase-4 inhibitors and other antidiabetic drugs in patients with type 2 diabetes: a nation-wide longitudinal study. *Cardiovasc Diabetol* 2016;15:41.
170. Vistisen D, Andersen GS, Hansen CS et al. Prediction of First Cardiovascular Disease Event in Type 1 Diabetes Mellitus: The Steno Type 1 Risk Engine. *Circulation* 2016;133:1058-66.
171. Tunon J, Fernandez-Fernandez B, Carda R et al. Circulating fibroblast growth factor-23 plasma levels predict adverse cardiovascular outcomes in patients with diabetes mellitus with coronary artery disease. *Diabetes Metab Res Rev* 2016;32:685-93.
172. Maggioni AP, Orso F, Calabria S et al. The real-world evidence of heart failure: findings from 41 413 patients of the ARNO database. *Eur J Heart Fail* 2016;18:402-10.
173. Kim C, Bebu I, Braffett B et al. Testosterone and cardiac mass and function in men with type 1 diabetes in the Epidemiology of Diabetes Interventions and Complications Study (EDIC). *Clin Endocrinol (Oxf)* 2016;84:693-9.
174. Imai E, Ito S, Haneda M et al. Effects of blood pressure on renal and cardiovascular outcomes in Asian patients with type 2 diabetes and overt nephropathy: a post hoc analysis (ORIENT-blood pressure). *Nephrol Dial Transplant* 2016;31:447-54.
175. Parissis J, Farmakis D, Kadoglou N et al. Body mass index in acute heart failure: Association with clinical profile, therapeutic management and in-hospital outcome. *European Journal of Heart Failure* 18 (3) (pp 298-305), 2016;01.
176. Marques FZ, Prestes PR, Byars SG et al. Experimental and Human Evidence for Lipocalin-2 (Neutrophil Gelatinase-Associated Lipocalin [NGAL]) in the Development of Cardiac Hypertrophy and heart failure. *J Am Heart Assoc* 2017;6.

177. Abdurrachim D, Nabben M, Hoerr V et al. Diabetic db/db mice do not develop heart failure upon pressure overload: A longitudinal in vivo PET, MRI, and MRS study on cardiac metabolic, structural, and functional adaptations. *Cardiovasc Res* 2017.
178. Ha KH, Kim B, Choi H, Kim DJ, Kim HC. Cardiovascular events associated with second-line anti-diabetes treatments: analysis of real-world Korean data. *Diabet Med* 2017.
179. Veselka J, Faber L, Liebrechts M et al. Outcome of Alcohol Septal Ablation in Mildly Symptomatic Patients With Hypertrophic Obstructive Cardiomyopathy: A Long-Term Follow-Up Study Based on the Euro-Alcohol Septal Ablation Registry. *J Am Heart Assoc* 2017;6.
180. Peng CH, Yang YS, Chan KC, Kornelius E, Chiou JY, Huang CN. Periodontal Treatment and the Risks of Cardiovascular Disease in Patients with Type 2 Diabetes: A Retrospective Cohort Study. *Intern Med* 2017;56:1015-21.
181. Luers C, Trippel TD, Seelander S et al. Arterial stiffness and elevated left ventricular filling pressure in patients at risk for the development or a previous diagnosis of HF-A subgroup analysis from the DIAST-CHF study. *J Am Soc Hypertens* 2017;11:303-13.
182. Goyal P, Paul T, Almarzooq ZI et al. Sex- and Race-Related Differences in Characteristics and Outcomes of Hospitalizations for Heart Failure With Preserved Ejection Fraction. *J Am Heart Assoc* 2017;6.
183. Markman TM, Habibi M, Venketash BA et al. Association of left atrial structure and function and incident cardiovascular disease in patients with diabetes mellitus: results from multi-ethnic study of atherosclerosis (MESA). *Eur Heart J Cardiovasc Imaging* 2017.
184. Abi KC, Sulaiman K, Singh R et al. BMI is inversely correlated to the risk of mortality in patients with type 2 diabetes hospitalized for acute heart failure: Findings from the Gulf aCute heArt failuRE (Gulf-CARE) registry. *Int J Cardiol* 2017;241:262-9.
185. Mak KH, Moliterno DJ, Granger CB et al. Influence of diabetes mellitus on clinical outcome in the thrombolytic era of acute myocardial infarction. GUSTO-I Investigators. Global Utilization of Streptokinase and Tissue Plasminogen Activator for Occluded Coronary Arteries. *J Am Coll Cardiol* 1997;30:171-9.
186. Fenske W, Wanner C, Allolio B et al. Copeptin levels associate with cardiovascular events in patients with ESRD and type 2 diabetes mellitus. *J Am Soc Nephrol* 2011;22:782-90.
187. Mani H, Levy MJ, Davies MJ et al. Diabetes and cardiovascular events in women with polycystic ovary syndrome: a 20-year retrospective cohort study. *Clin Endocrinol (Oxf)* 2013;78:926-34.
188. Weijs B, de Vos CB, Tieleman RG et al. The occurrence of cardiovascular disease during 5-year follow-up in patients with idiopathic atrial fibrillation. *Europace* 2013;15:18-23.
189. Abaira C, Duckworth W, McCarren M et al. Design of the cooperative study on glyemic control and complications in diabetes mellitus type 2: Veterans Affairs Diabetes Trial. *J Diabetes Complications* 2003;17:314-22.



190. Tsuji H, Larson MG, Venditti FJ, Jr. et al. Impact of reduced heart rate variability on risk for cardiac events. The Framingham Heart Study. *Circulation* 1996;94:2850-5.
191. Nichols GA, Hillier TA, Erbey JR, Brown JB. Congestive heart failure in type 2 diabetes: prevalence, incidence, and risk factors. *Diabetes Care* 2001;24:1614-9.
192. Gerstein HC, Mann JF, Yi Q et al. Albuminuria and risk of cardiovascular events, death, and heart failure in diabetic and nondiabetic individuals. *JAMA* 2001;286:421-6.
193. Iribarren C, Karter AJ, Go AS et al. Glycemic control and heart failure among adult patients with diabetes. *Circulation* 2001;103:2668-73.
194. Delea TE, Edelsberg JS, Hagiwara M, Oster G, Phillips LS. Use of thiazolidinediones and risk of heart failure in people with type 2 diabetes: a retrospective cohort study. *Diabetes Care* 2003;26:2983-9.
195. Vaur L, Gueret P, Lievre M, Chabaud S, Passa P. Development of congestive heart failure in type 2 diabetic patients with microalbuminuria or proteinuria: observations from the DIABHYCAR (type 2 DIABetes, Hypertension, Cardiovascular Events and Ramipril) study. *Diabetes Care* 2003;26:855-60.
196. Haider AW, Larson MG, Franklin SS, Levy D. Systolic blood pressure, diastolic blood pressure, and pulse pressure as predictors of risk for congestive heart failure in the Framingham Heart Study. *Ann Intern Med* 2003;138:10-6.
197. Rajagopalan R, Rosenson RS, Fernandes AW, Khan M, Murray FT. Association between congestive heart failure and hospitalization in patients with type 2 diabetes mellitus receiving treatment with insulin or pioglitazone: a retrospective data analysis. *Clin Ther* 2004;26:1400-10.
198. Bertoni AG, Hundley WG, Massing MW, Bonds DE, Burke GL, Goff DC, Jr. Heart failure prevalence, incidence, and mortality in the elderly with diabetes. *Diabetes Care* 2004;27:699-703.
199. Carr AA, Kowey PR, Devereux RB et al. Hospitalizations for new heart failure among subjects with diabetes mellitus in the RENAAL and LIFE studies. *Am J Cardiol* 2005;96:1530-6.
200. Nissen SE, Wolski K, Topol EJ. Effect of muraglitazar on death and major adverse cardiovascular events in patients with type 2 diabetes mellitus. *JAMA* 2005;294:2581-6.
201. Berl T, Hunsicker LG, Lewis JB et al. Impact of achieved blood pressure on cardiovascular outcomes in the Irbesartan Diabetic Nephropathy Trial. *J Am Soc Nephrol* 2005;16:2170-9.
202. Koro CE, Bowlin SJ, Weiss SR. Antidiabetic therapy and the risk of heart failure in type 2 diabetic patients: an independent effect or confounding by indication. *Pharmacoepidemiol Drug Saf* 2005;14:697-703.
203. Maru S, Koch GG, Stender M et al. Antidiabetic drugs and heart failure risk in patients with type 2 diabetes in the U.K. primary care setting. *Diabetes Care* 2005;28:20-6.

204. Nichols GA, Koro CE, Gullion CM, Ephross SA, Brown JB. The incidence of congestive heart failure associated with antidiabetic therapies. *Diabetes Metab Res Rev* 2005;21:51-7.
205. Whelton PK, Barzilay J, Cushman WC et al. Clinical outcomes in antihypertensive treatment of type 2 diabetes, impaired fasting glucose concentration, and normoglycemia: Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (ALLHAT). *Archives of Internal Medicine* 165 (12) (pp 1401-1409), 2005;13.
206. Ingelsson E, Lind L, Arnlov J, Sundstrom J. Socioeconomic factors as predictors of incident heart failure. *J Card Fail* 2006;12:540-5.
207. Ingelsson E, Bjorklund-Bodegard K, Lind L, Arnlov J, Sundstrom J. Diurnal blood pressure pattern and risk of congestive heart failure. *JAMA* 2006;295:2859-66.
208. van Vark LC, Kardys I, Bleumink GS et al. Lipoprotein-associated phospholipase A2 activity and risk of heart failure: The Rotterdam study. *Eur Heart J* 2006;27:2346-52.
209. Owan TE, Hodge DO, Herges RM, Jacobsen SJ, Roger VL, Redfield MM. Trends in prevalence and outcome of heart failure with preserved ejection fraction. *N Engl J Med* 2006;355:251-9.
210. Nicklas BJ, Cesari M, Penninx BW et al. Abdominal obesity is an independent risk factor for chronic heart failure in older people. *J Am Geriatr Soc* 2006;54:413-20.
211. Ingelsson E, Sundstrom J, Lind L et al. Low-grade albuminuria and the incidence of heart failure in a community-based cohort of elderly men. *Eur Heart J* 2007;28:1739-45.
212. Djousse L, Gaziano JM. Alcohol consumption and heart failure in hypertensive US male physicians. *Am J Cardiol* 2008;102:593-7.
213. Kaplan RC, McGinn AP, Pollak MN et al. High insulinlike growth factor binding protein 1 level predicts incident congestive heart failure in the elderly. *Am Heart J* 2008;155:1006-12.
214. Nettleton JA, Steffen LM, Loehr LR, Rosamond WD, Folsom AR. Incident heart failure is associated with lower whole-grain intake and greater high-fat dairy and egg intake in the Atherosclerosis Risk in Communities (ARIC) study. *J Am Diet Assoc* 2008;108:1881-7.
215. Heeringa J, Kors JA, Hofman A, van Rooij FJA, Witteman JCM. Cigarette smoking and risk of atrial fibrillation: The Rotterdam Study. *American Heart Journal* 156 (6) (pp 1163-1169), 2008;December.
216. Krishnan E. Hyperuricemia and incident heart failure. *Circ Heart Fail* 2009;2:556-62.
217. Suzuki T, Solomon C, Jenny NS et al. Lipoprotein-associated phospholipase A(2) and risk of congestive heart failure in older adults: the Cardiovascular Health Study. *Circ Heart Fail* 2009;2:429-36.
218. Barasch E, Gottdiener JS, Aurigemma G et al. Association between elevated fibrosis markers and heart failure in the elderly: the cardiovascular health study. *Circ Heart Fail* 2009;2:303-10.

219. Folsom AR, Yamagishi K, Hozawa A, Chambless LE. Absolute and attributable risks of heart failure incidence in relation to optimal risk factors. *Circ Heart Fail* 2009;2:11-7.
220. Ahmed HN, Levitan EB, Wolk A, Mittleman MA. Coffee consumption and risk of heart failure in men: an analysis from the Cohort of Swedish Men. *Am Heart J* 2009;158:667-72.
221. Holme I, Aastveit AH, Hammar N, Jungner I, Walldius G. Uric acid and risk of myocardial infarction, stroke and congestive heart failure in 417,734 men and women in the Apolipoprotein MOrtality RISk study (AMORIS). *J Intern Med* 2009;266:558-70.
222. Wright JT, Jr., Probstfield JL, Cushman WC et al. ALLHAT findings revisited in the context of subsequent analyses, other trials, and meta-analyses. *Arch Intern Med* 2009;169:832-42.
223. Butler J, Kalogeropoulos A, Georgiopoulou V et al. Serum resistin concentrations and risk of new onset heart failure in older persons: the health, aging, and body composition (Health ABC) study. *Arterioscler Thromb Vasc Biol* 2009;29:1144-9.
224. Sundstrom J, Ingelsson E, Berglund L et al. Cardiac troponin-I and risk of heart failure: a community-based cohort study. *Eur Heart J* 2009;30:773-81.
225. Frankel DS, Vasani RS, D'Agostino RB, Sr. et al. Resistin, adiponectin, and risk of heart failure the Framingham offspring study. *J Am Coll Cardiol* 2009;53:754-62.
226. Kenchaiah S, Sesso HD, Gaziano JM. Body mass index and vigorous physical activity and the risk of heart failure among men. *Circulation* 2009;119:44-52.
227. Lieb W, Sullivan LM, Harris TB et al. Plasma leptin levels and incidence of heart failure, cardiovascular disease, and total mortality in elderly individuals. *Diabetes Care* 2009;32:612-6.
228. Ritchie C, Ekundayo OJ, Muchimba M et al. Effects of diabetes mellitus in patients with heart failure and chronic kidney disease: A propensity-matched study of multimorbidity in chronic heart failure. *International Journal of Cardiology* 134 (3) (pp 330-335), 2009;29.
229. Baena-Diez JM, Byram AO, Grau M et al. Obesity is an independent risk factor for heart failure: Zona Franca Cohort study. *Clin Cardiol* 2010;33:760-4.
230. Mostofsky E, Levitan EB, Wolk A, Mittleman MA. Chocolate intake and incidence of heart failure: a population-based prospective study of middle-aged and elderly women. *Circ Heart Fail* 2010;3:612-6.
231. Levitan EB, Mittleman MA, Wolk A. Dietary glycemic index, dietary glycemic load, and incidence of heart failure events: a prospective study of middle-aged and elderly women. *J Am Coll Nutr* 2010;29:65-71.
232. Graham DJ, Ouellet-Hellstrom R, MaCurdy TE et al. Risk of acute myocardial infarction, stroke, heart failure, and death in elderly Medicare patients treated with rosiglitazone or pioglitazone. *JAMA* 2010;304:411-8.
233. Levitan EB, Wolk A, Mittleman MA. Fatty fish, marine omega-3 fatty acids and incidence of heart failure. *Eur J Clin Nutr* 2010;64:587-94.

234. From AM, Scott CG, Chen HH. The development of heart failure in patients with diabetes mellitus and pre-clinical diastolic dysfunction a population-based study. *J Am Coll Cardiol* 2010;55:300-5.
235. Teng T-H, Finn J, Hobbs M, Hung J. Heart failure: Incidence, case fatality, and hospitalization rates in Western Australia between 1990 and 2005. *Circulation: Heart Failure* 3 (2) (pp 236-243), 2010;March.
236. Castagno D, Baird-Gunning J, Jhund PS et al. Intensive glycaemic control has no impact on the risk of heart failure in type 2 diabetic patients: evidence from a 37,229 patient meta-analysis. *Am Heart J* 2011;162:938-48.
237. Levitan EB, Ahmed HN, Mittleman MA, Wolk A. Coffee consumption and incidence of heart failure in women. *Circ Heart Fail* 2011;4:414-8.
238. Stewart S, Carrington M, Pretorius S, Methusi P, Sliwa K. Standing at the crossroads between new and historically prevalent heart disease: effects of migration and socio-economic factors in the Heart of Soweto cohort study. *Eur Heart J* 2011;32:492-9.
239. Bui AL, Horwich TB, Fonarow GC. Epidemiology and risk profile of heart failure. *Nat Rev Cardiol* 2011;8:30-41.
240. Khan NA, Wang H, Anand S et al. Ethnicity and sex affect diabetes incidence and outcomes. *Diabetes Care* 2011;34:96-101.
241. Wang Y, Tuomilehto J, Jousilahti P et al. Lifestyle factors in relation to heart failure among Finnish men and women. *Circ Heart Fail* 2011;4:607-12.
242. Pfister R, Sharp SJ, Luben R, Wareham NJ, Khaw KT. Plasma vitamin C predicts incident heart failure in men and women in European Prospective Investigation into Cancer and Nutrition-Norfolk prospective study. *Am Heart J* 2011;162:246-53.
243. Wang Y, Tuomilehto J, Jousilahti P et al. Coffee consumption and the risk of heart failure in Finnish men and women. *Heart* 97 (1) (pp 44-48), 2011;January.
244. Mostofsky E, Rice MS, Levitan EB, Mittleman MA. Habitual coffee consumption and risk of heart failure: a dose-response meta-analysis. *Circ Heart Fail* 2012;5:401-5.
245. Fernandez-Vega F, Prieto-Diaz MA, Redondo M et al. Cardiovascular risk in women attending primary care centres: baseline data of the EVA study. *Nephrol Dial Transplant* 2012;27 Suppl 4:iv22-iv27.
246. Hall MJ, Levant S, DeFrances CJ. Hospitalization for congestive heart failure: United States, 2000-2010. *NCHS Data Brief* 2012;1-8.
247. Fardet L, Petersen I, Nazareth I. Risk of cardiovascular events in people prescribed glucocorticoids with iatrogenic Cushing's syndrome: cohort study. *BMJ* 2012;345:e4928.
248. Shara NM, Wang H, Mete M et al. Estimated GFR and incident cardiovascular disease events in American Indians: the Strong Heart Study. *Am J Kidney Dis* 2012;60:795-803.

249. Lemaitre RN, Sitlani C, Song X et al. Circulating and dietary alpha-linolenic acid and incidence of congestive heart failure in older adults: the Cardiovascular Health Study. *Am J Clin Nutr* 2012;96:269-74.
250. Pfister R, Michels G, Sharp SJ, Luben R, Wareham NJ, Khaw KT. Resting heart rate and incident heart failure in apparently healthy men and women in the EPIC-Norfolk study. *Eur J Heart Fail* 2012;14:1163-70.
251. Bosch J, Gerstein HC, Dagenais GR et al. n-3 fatty acids and cardiovascular outcomes in patients with dysglycemia. *N Engl J Med* 2012;367:309-18.
252. Jones CD, Loehr L, Franceschini N et al. Orthostatic hypotension as a risk factor for incident heart failure: the atherosclerosis risk in communities study. *Hypertension* 2012;59:913-8.
253. Barzilay JI, Davis BR, Pressel SL et al. Long-term effects of incident diabetes mellitus on cardiovascular outcomes in people treated for hypertension: the ALLHAT Diabetes Extension Study. *Circ Cardiovasc Qual Outcomes* 2012;5:153-62.
254. Wannamethee SG, Whincup PH, Shaper AG, Lennon L, Sattar N. Gamma-glutamyltransferase, hepatic enzymes, and risk of incident heart failure in older men. *Arterioscler Thromb Vasc Biol* 2012;32:830-5.
255. Akinkuolie AO, Aleardi M, Ashaye AO, Gaziano JM, Djousse L. Height and risk of heart failure in the Physicians' Health Study. *Am J Cardiol* 2012;109:994-7.
256. Khan H, Kalogeropoulos AP, Georgiopoulou VV et al. Frailty and risk for heart failure in older adults: the health, aging, and body composition study. *Am Heart J* 2013;166:887-94.
257. Rahman MM, Kopec JA, Anis AH, Cibere J, Goldsmith CH. Risk of cardiovascular disease in patients with osteoarthritis: a prospective longitudinal study. *Arthritis Care Res (Hoboken)* 2013;65:1951-8.
258. Matsushita K, Williams EK, Mongraw-Chaffin ML et al. The association of plasma lactate with incident cardiovascular outcomes: the ARIC Study. *Am J Epidemiol* 2013;178:401-9.
259. Vestberg D, Rosengren A, Olsson M, Gudbjornsdottir S, Svensson AM, Lind M. Relationship between overweight and obesity with hospitalization for heart failure in 20,985 patients with type 1 diabetes: a population-based study from the Swedish National Diabetes Registry. *Diabetes Care* 2013;36:2857-61.
260. Petrone AB, Weir NL, Steffen BT, Tsai MY, Gaziano JM, Djousse L. Plasma vitamin D-binding protein and risk of heart failure in male physicians. *Am J Cardiol* 2013;112:827-30.
261. Wannamethee SG, Bruckdorfer KR, Shaper AG, Papacosta O, Lennon L, Whincup PH. Plasma vitamin C, but not vitamin E, is associated with reduced risk of heart failure in older men. *Circ Heart Fail* 2013;6:647-54.
262. Berry JD, Pandey A, Gao A et al. Physical fitness and risk for heart failure and coronary artery disease. *Circ Heart Fail* 2013;6:627-34.

263. Wong YW, Thomas L, Sun JL et al. Predictors of incident heart failure hospitalizations among patients with impaired glucose tolerance: insight from the Nateglinide And Valsartan in Impaired Glucose Tolerance Outcomes Research study. *Circ Heart Fail* 2013;6:203-10.
264. Benderly M, Haim M, Boyko V, Goldbourt U. Socioeconomic status indicators and incidence of heart failure among men and women with coronary heart disease. *J Card Fail* 2013;19:117-24.
265. Carlsson AC, Larsson A, Helmersson-Karlqvist J et al. Urinary kidney injury molecule 1 and incidence of heart failure in elderly men. *Eur J Heart Fail* 2013;15:441-6.
266. Vardeny O, Gupta DK, Claggett B et al. Insulin resistance and incident heart failure the ARIC study (Atherosclerosis Risk in Communities). *JACC Heart Fail* 2013;1:531-6.
267. Citrome L, Collins JM, Nordstrom BL et al. Incidence of cardiovascular outcomes and diabetes mellitus among users of second-generation antipsychotics. *J Clin Psychiatry* 2013;74:1199-206.
268. Djousse L, Benkeser D, Arnold A et al. Plasma free fatty acids and risk of heart failure: the Cardiovascular Health Study. *Circ Heart Fail* 2013;6:964-9.
269. Shah SA, Kambur T, Chan C, Herrington DM, Liu K, Shah SJ. Relation of short-term heart rate variability to incident heart failure (from the Multi-Ethnic Study of Atherosclerosis). *Am J Cardiol* 2013;112:533-40.
270. Djousse L, Wilk JB, Hanson NQ, Glynn RJ, Tsai MY, Gaziano JM. Association between adiponectin and heart failure risk in the physicians' health study. *Obesity* 21 (4) (pp 831-834), 2013;April.
271. Andersen K, Mariosa D, Adami HO et al. Dose-response relationship of total and leisure time physical activity to risk of heart failure: a prospective cohort study. *Circ Heart Fail* 2014;7:701-8.
272. Larghat AM, Swoboda PP, Biglands JD, Kearney MT, Greenwood JP, Plein S. The microvascular effects of insulin resistance and diabetes on cardiac structure, function, and perfusion: a cardiovascular magnetic resonance study. *Eur Heart J Cardiovasc Imaging* 2014;15:1368-76.
273. Hughes MF, Appelbaum S, Havulinna AS et al. ST2 may not be a useful predictor for incident cardiovascular events, heart failure and mortality. *Heart* 2014;100:1715-21.
274. Pfister R, Michels G, Sharp SJ, Luben R, Wareham NJ, Khaw KT. Low bone mineral density predicts incident heart failure in men and women: the EPIC (European Prospective Investigation into Cancer and Nutrition)-Norfolk prospective study. *JACC Heart Fail* 2014;2:380-9.
275. Pileggi S, Barlera S, Nicolis E et al. Association of ADIPOQ variants and heart failure in an Italian population. *Ther Adv Cardiovasc Dis* 2014;8:89-96.
276. Cubbon RM, Woolston A, Adams B et al. Prospective development and validation of a model to predict heart failure hospitalisation. *Heart* 2014;100:923-9.

277. Djousse L, Matsumoto C, Petrone A, Weir NL, Tsai MY, Gaziano JM. Plasma galectin 3 and heart failure risk in the Physicians' Health Study. *Eur J Heart Fail* 2014;16:350-4.
278. Karas MG, Benkeser D, Arnold AM et al. Relations of plasma total and high-molecular-weight adiponectin to new-onset heart failure in adults  $\geq 65$  years of age (from the Cardiovascular Health study). *Am J Cardiol* 2014;113:328-34.
279. Agha G, Loucks EB, Tinker LF et al. Healthy lifestyle and decreasing risk of heart failure in women: the Women's Health Initiative observational study. *J Am Coll Cardiol* 2014;64:1777-85.
280. Ogah OS, Stewart S, Falase AO et al. Short-term outcomes after hospital discharge in patients admitted with heart failure in Abeokuta, Nigeria: data from the Abeokuta Heart Failure Registry. *Cardiovasc J Afr* 2014;25:217-23.
281. Gencer B, Butler J, Bauer DC et al. Association of electrocardiogram abnormalities and incident heart failure events. *Am Heart J* 2014;167:869-75.
282. Dandamudi S, Slusser J, Mahoney DW, Redfield MM, Rodeheffer RJ, Chen HH. The prevalence of diabetic cardiomyopathy: a population-based study in Olmsted County, Minnesota. *J Card Fail* 2014;20:304-9.
283. Khan H, Kunutsor S, Rauramaa R et al. Cardiorespiratory fitness and risk of heart failure: a population-based follow-up study. *Eur J Heart Fail* 2014;16:180-8.
284. Pfister R, Michels G, Sharp SJ, Luben R, Wareham NJ, Khaw KT. Estimated urinary sodium excretion and risk of heart failure in men and women in the EPIC-Norfolk study. *Eur J Heart Fail* 2014;16:394-402.
285. Young DR, Reynolds K, Sidell M et al. Effects of physical activity and sedentary time on the risk of heart failure. *Circ Heart Fail* 2014;7:21-7.
286. Opdahl A, Ambale VB, Fernandes VR et al. Resting heart rate as predictor for left ventricular dysfunction and heart failure: MESA (Multi-Ethnic Study of Atherosclerosis). *J Am Coll Cardiol* 2014;63:1182-9.
287. Lazo M, Halushka MK, Shen L et al. Soluble receptor for advanced glycation end products and the risk for incident heart failure: The Atherosclerosis Risk in Communities Study. *Am Heart J* 2015;170:961-7.
288. Chen Y, Sloan FA, Yashkin AP. Adherence to diabetes guidelines for screening, physical activity and medication and onset of complications and death. *J Diabetes Complications* 2015;29:1228-33.
289. Vestberg D, Rosengren A, Olsson M et al. Decreased eGFR as a Risk Factor for Heart Failure in 13 781 Individuals With Type 1 Diabetes. *J Diabetes Sci Technol* 2015;10:131-6.
290. Dorans KS, Mostofsky E, Levitan EB, Hakansson N, Wolk A, Mittleman MA. Alcohol and incident heart failure among middle-aged and elderly men: cohort of Swedish men. *Circ Heart Fail* 2015;8:422-7.

291. Larsson SC, Akesson A, Wolk A. Egg consumption and risk of heart failure, myocardial infarction, and stroke: results from 2 prospective cohorts. *Am J Clin Nutr* 2015;102:1007-13.
292. Lewis EF, Claggett B, Parfrey PS et al. Race and ethnicity influences on cardiovascular and renal events in patients with diabetes mellitus. *Am Heart J* 2015;170:322-9.
293. Jiao F, Fung CS, Wan YF et al. Long-term effects of the multidisciplinary risk assessment and management program for patients with diabetes mellitus (RAMP-DM): a population-based cohort study. *Cardiovasc Diabetol* 2015;14:105.
294. Gonzalez-Lopez E, Gallego-Delgado M, Guzzo-Merello G et al. Wild-type transthyretin amyloidosis as a cause of heart failure with preserved ejection fraction. *Eur Heart J* 2015;36:2585-94.
295. Del Gobbo LC, Kalantarian S, Imamura F et al. Contribution of Major Lifestyle Risk Factors for Incident Heart Failure in Older Adults: The Cardiovascular Health Study. *JACC Heart Fail* 2015;3:520-8.
296. Wang SH, Chen DY, Lin YS et al. Cardiovascular Outcomes of Sitagliptin in Type 2 Diabetic Patients with Acute Myocardial Infarction, a Population-Based Cohort Study in Taiwan. *PLoS One* 2015;10:e0131122.
297. Djousse L, Petrone AB, Gaziano JM. Consumption of fried foods and risk of heart failure in the physicians' health study. *J Am Heart Assoc* 2015;4.
298. Enhorning S, Hedblad B, Nilsson PM, Engstrom G, Melander O. Copeptin is an independent predictor of diabetic heart disease and death. *Am Heart J* 2015;169:549-56.
299. Vazquez-Benitez G, Desai JR, Xu S et al. Preventable major cardiovascular events associated with uncontrolled glucose, blood pressure, and lipids and active smoking in adults with diabetes with and without cardiovascular disease: a contemporary analysis. *Diabetes Care* 2015;38:905-12.
300. Donneyong MM, Hornung CA, Taylor KC et al. Risk of heart failure among postmenopausal women: a secondary analysis of the randomized trial of vitamin D plus calcium of the women's health initiative. *Circ Heart Fail* 2015;8:49-56.
301. Larsson SC, Wolk A. Potato consumption and risk of cardiovascular disease: 2 prospective cohort studies. *Am J Clin Nutr* 2016;104:1245-52.
302. Schneider C, Coll B, Jick SS, Meier CR. Doubling of serum creatinine and the risk of cardiovascular outcomes in patients with chronic kidney disease and type 2 diabetes mellitus: a cohort study. *Clin Epidemiol* 2016;8:177-84.
303. Zacharias M, Joffe S, Konadu E et al. Clinical epidemiology of heart failure with preserved ejection fraction (HFpEF) in comparatively young hospitalized patients. *Int J Cardiol* 2016;202:918-21.
304. Dschietzig TB, Boschann F, Ruppert J et al. Plasma Zonulin and its Association with Kidney Function, Severity of Heart Failure, and Metabolic Inflammation. *Clin Lab* 2016;62:2443-7.



305. Paul Chubb SA, Davis WA, Peters KE, Davis TM. Serum bicarbonate concentration and the risk of cardiovascular disease and death in type 2 diabetes: the Fremantle Diabetes Study. *Cardiovasc Diabetol* 2016;15:143.
306. Li J, Wu N, Dai W et al. Association of serum calcium and heart failure with preserved ejection fraction in patients with type 2 diabetes. *Cardiovasc Diabetol* 2016;15:140.
307. Adamsson ES, Gudbjornsdottir S, Manhem K et al. Blood pressure and complications in individuals with type 2 diabetes and no previous cardiovascular disease: national population based cohort study. *BMJ* 2016;354:i4070.
308. White WB, Wilson CA, Bakris GL et al. Angiotensin-Converting Enzyme Inhibitor Use and Major Cardiovascular Outcomes in Type 2 Diabetes Mellitus Treated With the Dipeptidyl Peptidase 4 Inhibitor Alogliptin. *Hypertension* 2016;68:606-13.
309. Ndumele CE, Matsushita K, Lazo M et al. Obesity and Subtypes of Incident Cardiovascular Disease. *J Am Heart Assoc* 2016;5.
310. Hung YC, Lin CC, Huang WL, Chang MP, Chen CC. Sitagliptin and risk of heart failure hospitalization in patients with type 2 diabetes on dialysis: A population-based cohort study. *Sci Rep* 2016;6:30499.
311. McGuire DK, Van de WF, Armstrong PW et al. Association Between Sitagliptin Use and Heart Failure Hospitalization and Related Outcomes in Type 2 Diabetes Mellitus: Secondary Analysis of a Randomized Clinical Trial. *JAMA Cardiol* 2016;1:126-35.
312. Hippisley-Cox J, Coupland C. Diabetes treatments and risk of heart failure, cardiovascular disease, and all cause mortality: cohort study in primary care. *BMJ* 2016;354:i3477.
313. Tseng CH. Sitagliptin and heart failure hospitalization in patients with type 2 diabetes. *Oncotarget* 2016;7:62687-96.
314. Sandip C, Tan L, Huang J et al. Common variants in IL-17A/IL-17RA axis contribute to predisposition to and progression of congestive heart failure. *Medicine (Baltimore)* 2016;95:e4105.
315. Rosengren A, Aberg M, Robertson J et al. Body weight in adolescence and long-term risk of early heart failure in adulthood among men in Sweden. *Eur Heart J* 2016.
316. Hung CL, Yun CH, Lai YH et al. An observational study of the association among interatrial adiposity by computed tomography measure, insulin resistance, and left atrial electromechanical disturbances in heart failure. *Medicine (Baltimore)* 2016;95:e3912.
317. Tracey ML, McHugh SM, Fitzgerald AP, Buckley CM, Canavan RJ, Kearney PM. Risk Factors for Macro- and Microvascular Complications among Older Adults with Diagnosed Type 2 Diabetes: Findings from The Irish Longitudinal Study on Ageing. *J Diabetes Res* 2016;2016:5975903.
318. Chan SY, Ou SM, Chen YT, Shih CJ. Effects of DPP-4 inhibitors on cardiovascular outcomes in patients with type 2 diabetes and end-stage renal disease. *Int J Cardiol* 2016;218:170-5.

319. Kunutsor SK, Khan H, Laukkanen JA. Serum magnesium and risk of new onset heart failure in men: the Kuopio Ischemic Heart Disease Study. *Eur J Epidemiol* 2016;31:1035-43.
320. Toh S, Hampp C, Reichman ME et al. Risk for Hospitalized Heart Failure Among New Users of Saxagliptin, Sitagliptin, and Other Antihyperglycemic Drugs: A Retrospective Cohort Study. *Ann Intern Med* 2016;164:705-14.
321. Taveira TH, Ouellette D, Gulum A et al. Relation of Magnesium Intake With Cardiac Function and Heart Failure Hospitalizations in Black Adults: The Jackson Heart Study. *Circ Heart Fail* 2016;9:e002698.
322. Shin S, Kim H. The effect of sitagliptin on cardiovascular risk profile in Korean patients with type 2 diabetes mellitus: a retrospective cohort study. *Ther Clin Risk Manag* 2016;12:435-44.
323. Tancredi M, Rosengren A, Olsson M et al. The relationship between three eGFR formulas and hospitalization for heart failure in 54 486 individuals with type 2 diabetes. *Diabetes Metab Res Rev* 2016;32:730-5.
324. Gori M, Gupta DK, Claggett B et al. Natriuretic Peptide and High-Sensitivity Troponin for Cardiovascular Risk Prediction in Diabetes: The Atherosclerosis Risk in Communities (ARIC) Study. *Diabetes Care* 2016;39:677-85.
325. Seghieri C, Policardo L, Francesconi P, Seghieri G. Gender differences in the relationship between diabetes process of care indicators and cardiovascular outcomes. *Eur J Public Health* 2016;26:219-24.
326. Eurich DT, Weir DL, Simpson SH, Senthilselvan A, McAlister FA. Risk of new-onset heart failure in patients using sitagliptin: a population-based cohort study. *Diabet Med* 2016;33:621-30.
327. Wang Y, Katzmarzyk PT, Horswell R, Zhao W, Johnson J, Hu G. Comparison of the heart failure risk stratification performance of the CKD-EPI equation and the MDRD equation for estimated glomerular filtration rate in patients with Type 2 diabetes. *Diabet Med* 2016;33:609-20.
328. Steinhaus DA, Mostofsky E, Levitan EB et al. Chocolate intake and incidence of heart failure: Findings from the Cohort of Swedish Men. *Am Heart J* 2017;183:18-23.
329. Halldin AK, Schaufelberger M, Lernfelt B et al. Obesity in Middle Age Increases Risk of Later Heart Failure in Women-Results From the Prospective Population Study of Women and H70 Studies in Gothenburg, Sweden. *J Card Fail* 2017;23:363-9.
330. Policardo L, Seghieri G, Francesconi P, Anichini R, Franconi F, Del PS. Gender difference in diabetes related excess risk of cardiovascular events: When does the 'risk window' open? *J Diabetes Complications* 2017;31:74-9.
331. Ohkuma T, Jun M, Woodward M et al. Cardiac Stress and Inflammatory Markers as Predictors of Heart Failure in Patients With Type 2 Diabetes: The ADVANCE Trial. *Diabetes Care* 2017.

332. Pareek M, Bhatt DL, Vaduganathan M et al. Single and multiple cardiovascular biomarkers in subjects without a previous cardiovascular event. *Eur J Prev Cardiol* 2017;2047487317717065.
333. Fitch K, Engel T, Sander S, Kuti E, Blumen H. Cardiovascular event incidence and cost in type 2 diabetes mellitus: a Medicare claims-based actuarial analysis. *Curr Med Res Opin* 2017;1-17.
334. Sharma A, Demissei BG, Tromp J et al. A network analysis to compare biomarker profiles in patients with and without diabetes mellitus in acute heart failure. *Eur J Heart Fail* 2017.
335. Kaneko M, Narukawa M. Assessment of the Risk of Hospitalization for Heart Failure With Dipeptidyl Peptidase-4 Inhibitors, Saxagliptin, Alogliptin, and Sitagliptin in Patients With Type 2 Diabetes, Using an Alternative Measure to the Hazard Ratio. *Ann Pharmacother* 2017;51:570-6.
336. Wolsk E, Claggett B, Pfeiffer MA et al. Role of B-Type Natriuretic Peptide and N-Terminal Prohormone BNP as Predictors of Cardiovascular Morbidity and Mortality in Patients With a Recent Coronary Event and Type 2 Diabetes Mellitus. *J Am Heart Assoc* 2017;6.
337. Agarwala A, Pokharel Y, Saeed A et al. The association of lipoprotein(a) with incident heart failure hospitalization: Atherosclerosis Risk in Communities study. *Atherosclerosis* 2017;262:131-7.
338. Effeo VS, McClendon EE, Rodriguez CJ et al. Diabetes status modifies the association between carotid intima-media thickness and incident heart failure: The Atherosclerosis Risk in Communities study. *Diabetes Res Clin Pract* 2017;128:58-66.
339. Tyminska A, Kaplon-Cieslicka A, Ozieranski K et al. Anemia at Hospital Admission and Its Relation to Outcomes in Patients With Heart Failure (from the Polish Cohort of 2 European Society of Cardiology Heart Failure Registries). *Am J Cardiol* 2017;119:2021-9.
340. Kheirbek RE, Fokar A, Shara N et al. Characteristics and Incidence of Chronic Illness in Community-Dwelling Predominantly Male U.S. Veteran Centenarians. *J Am Geriatr Soc* 2017.
341. Patel SK, Wai B, Lang CC et al. Genetic Variation in Kruppel like Factor 15 Is Associated with Left Ventricular Hypertrophy in Patients with Type 2 Diabetes: Discovery and Replication Cohorts. *EBioMedicine* 2017;18:171-8.
342. Morici N, Savonitto S, Ponticelli C et al. Post-Discharge Worsening Renal Function in Patients with Type 2 Diabetes and Recent Acute Coronary Syndrome. *Am J Med* 2017.
343. Williams R, de VF, Kothny W et al. Cardiovascular safety of vildagliptin in patients with type 2 diabetes: a European multi-database, non-interventional post-authorization safety study. *Diabetes Obes Metab* 2017.
344. Polonsky TS, Ning H, Daviglius ML et al. Association of Cardiovascular Health With Subclinical Disease and Incident Events: The Multi-Ethnic Study of Atherosclerosis. *J Am Heart Assoc* 2017;6.

345. Soliman EZ, Backlund JC, Bebu I, Orchard TJ, Zinman B, Lachin JM. Electrocardiographic Abnormalities and Cardiovascular Disease Risk in Type 1 Diabetes: The Epidemiology of Diabetes Interventions and Complications (EDIC) Study. *Diabetes Care* 2017;40:793-9.
346. Akwo EA, Kabagambe EK, Wang TJ et al. Heart Failure Incidence and Mortality in the Southern Community Cohort Study. *Circ Heart Fail* 2017;10.
347. Zaw KK, Nwe N, Hlaing SS. Prevalence of cardiovascular morbidities in Myanmar. *BMC Res Notes* 2017;10:99.
348. Lindgren M, Aberg M, Schaufelberger M et al. Cardiorespiratory fitness and muscle strength in late adolescence and long-term risk of early heart failure in Swedish men. *Eur J Prev Cardiol* 2017;24:876-84.
349. Saiki H, Petersen IA, Scott CG et al. Risk of Heart Failure With Preserved Ejection Fraction in Older Women After Contemporary Radiotherapy for Breast Cancer. *Circulation* 2017;135:1388-96.
350. Ou HT, Chang KC, Li CY, Wu JS. Comparative cardiovascular risks of dipeptidyl peptidase 4 inhibitors with other second- and third-line antidiabetic drugs in patients with type 2 diabetes. *Br J Clin Pharmacol* 2017;83:1556-70.
351. Lee YC, Chang CH, Dong YH et al. Comparing the risks of hospitalized heart failure associated with glinide, sulfonylurea, and acarbose use in type 2 diabetes: A nationwide study. *Int J Cardiol* 2017;228:1007-14.
352. Skrtic S, Cabrera C, Olsson M, Schneck V, Lind M. Contemporary risk estimates of three HbA1c variables in relation to heart failure following diagnosis of type 2 diabetes. *Heart* 2017;103:353-8.
353. di GR, Biemann R, Wirth J et al. Plasma osteoprotegerin, its correlates, and risk of heart failure: a prospective cohort study. *Eur J Epidemiol* 2017;32:113-23.
354. Sarma S, Mentz RJ, Kwasny MJ et al. Association between diabetes mellitus and post-discharge outcomes in patients hospitalized with heart failure: Findings from the EVEREST trial. *European Journal of Heart Failure* 15 (2) (pp 194;February).
355. Klem I, Wehinger C, Schneider B, Hartl E, Finsterer J, Stollberger C. Diabetic atrial fibrillation patients: Mortality and risk for stroke or embolism during a 10-year follow-up. *Diabetes/Metabolism Research and Reviews* 1919;July/August.
356. Jaffe AS, Spadaro JJ, Schechtman K, Roberts R, Geltman EM, Sobel BE. Increased congestive heart failure after myocardial infarction of modest extent in patients with diabetes mellitus. *Am Heart J* 1984;108:31-7.
357. Alderman MH, Cohen H, Madhavan S. Distribution and determinants of cardiovascular events during 20 years of successful antihypertensive treatment. *J Hypertens* 1998;16:761-9.
358. Kim YJ, Choi SY, Lee HY et al. Heart failure in Korean elderly patients - clinical features, prognosis and prognostic factors. *Arch Gerontol Geriatr* 1999;29:183-91.

359. Kim Y-J, Choi S-Y, Lee H-Y et al. Heart failure in Korean elderly patients - Clinical features, prognosis and prognostic factors. *Archives of Gerontology and Geriatrics* 29 (2) (pp 183-191), 1999;September.
360. Verhaegen P, Borchelt M, Smith J. Relation between cardiovascular and metabolic disease and cognition in very old age: cross-sectional and longitudinal findings from the berlin aging study. *Health Psychol* 2003;22:559-69.
361. Shiba N, Watanabe J, Shinozaki T et al. Analysis of chronic heart failure registry in the Tohoku district: third year follow-up. *Circ J* 2004;68:427-34.
362. Kip KE, Marroquin OC, Kelley DE et al. Clinical importance of obesity versus the metabolic syndrome in cardiovascular risk in women: a report from the Women's Ischemia Syndrome Evaluation (WISE) study. *Circulation* 2004;109:706-13.
363. Marroquin OC, Kip KE, Kelley DE et al. Metabolic Syndrome Modifies the Cardiovascular Risk Associated with Angiographic Coronary Artery Disease in Women: A Report from the Women's Ischemia Syndrome Evaluation. *Circulation* 109 (6) (pp 714-721), 2004;17.
364. Thrainsdottir IS, Aspelund T, Hardarson T et al. Glucose abnormalities and heart failure predict poor prognosis in the population-based Reykjavik Study. *Eur J Cardiovasc Prev Rehabil* 2005;12:465-71.
365. Sejil S, Janand-Delenne B, Avierinos J-F et al. Six-year follow-up of a cohort of 203 patients with diabetes after screening for silent myocardial ischaemia. *Diabetic Medicine* 23 (11) (pp 1186-1191), 2006;November.
366. Koyama Y, Takeishi Y, Arimoto T et al. High serum level of pentosidine, an advanced glycation end product (AGE), is a risk factor of patients with heart failure. *J Card Fail* 2007;13:199-206.
367. Gurm HS, Rajagopal V, Sachar R et al. Impact of diabetes mellitus on outcome of patients undergoing carotid artery stenting: Insights from a single center registry. *Catheterization and Cardiovascular Interventions* 69 (4) (pp 541-545), 2007;01.
368. Biesenbach G, Loipl J, Schmekal B, Janko O. Different risk factors and causes for early death after initiating dialysis in diabetic and non-diabetic patients. *Renal Failure* 29 (1) (pp 49-53), 2007;January.
369. Fuchs SC, Moreira LB, Camey SA, Moreira MB, Fuchs FD. Clustering of risk factors for cardiovascular disease among women in Southern Brazil: a population-based study. *Cad Saude Publica* 2008;24 Suppl 2:S285-S293.
370. Dziedzic T, Slowik A, Pera J, Szczudlik A. Association between hyperglycemia, heart failure and mortality in stroke patients. *European Journal of Neurology* 16 (2) (pp 251-256), 2009;February.
371. Halkos ME, Kilgo P, Lattouf OM et al. The effect of diabetes mellitus on in-hospital and long-term outcomes after heart valve operations. *Ann Thorac Surg* 2010;90:124-30.

372. Sze E, Moss AJ, McNitt S et al. Risk factors for recurrent heart failure events in the Multicenter Automatic Defibrillator Implantation Trial II (MADIT-II). *J Cardiovasc Electrophysiol* 2010;21:1217-23.
373. Cabrera MA, de Andrade SM, Mesas AE. A prospective study of risk factors for cardiovascular events among the elderly. *Clin Interv Aging* 2012;7:463-8.
374. Cederholm J, Gudbjornsdottir S, Eliasson B, Zethelius B, Eeg-Olofsson K, Nilsson PM. Blood pressure and risk of cardiovascular diseases in type 2 diabetes: further findings from the Swedish National Diabetes Register (NDR-BP II). *J Hypertens* 2012;30:2020-30.
375. Miot A, Ragot S, Hammi W et al. Prognostic value of resting heart rate on cardiovascular and renal outcomes in type 2 diabetic patients: a competing risk analysis in a prospective cohort. *Diabetes Care* 2012;35:2069-75.
376. Cantu-Brito C, Chiquete E, Ruiz-Sandoval JL et al. Atherothrombotic disease, traditional risk factors, and 4-year mortality in a Latin American population: the REACH Registry. *Clin Cardiol* 2012;35:451-7.
377. Parissis JT, Rafouli-Stergiou P, Mebazaa A et al. Acute heart failure in patients with diabetes mellitus: clinical characteristics and predictors of in-hospital mortality. *Int J Cardiol* 2012;157:108-13.
378. Anand SS, Dagenais GR, Mohan V et al. Glucose levels are associated with cardiovascular disease and death in an international cohort of normal glycaemic and dysglycaemic men and women: the EpiDREAM cohort study. *Eur J Prev Cardiol* 2012;19:755-64.
379. Carrasco-Sanchez FJ, ramburu-Bodas O, Salamanca-Bautista P et al. Predictive value of serum galectin-3 levels in patients with acute heart failure with preserved ejection fraction. *Int J Cardiol* 2013;169:177-82.
380. Latini R, Staszewsky L, Sun JL et al. Incidence of atrial fibrillation in a population with impaired glucose tolerance: the contribution of glucose metabolism and other risk factors. A post hoc analysis of the Nateglinide and Valsartan in Impaired Glucose Tolerance Outcomes Research trial. *Am Heart J* 2013;166:935-40.
381. Miller J, Edwards LD, Agusti A et al. Comorbidity, systemic inflammation and outcomes in the ECLIPSE cohort. *Respir Med* 2013;107:1376-84.
382. Sundstrom J, Sheikhi R, Ostgren CJ et al. Blood pressure levels and risk of cardiovascular events and mortality in type-2 diabetes: cohort study of 34 009 primary care patients. *J Hypertens* 2013;31:1603-10.
383. Chaudhry SI, McAvay G, Chen S et al. Risk factors for hospital admission among older persons with newly diagnosed heart failure: findings from the Cardiovascular Health Study. *J Am Coll Cardiol* 2013;61:635-42.
384. Senni M, Parrella P, De MR et al. Predicting heart failure outcome from cardiac and comorbid conditions: the 3C-HF score. *Int J Cardiol* 2013;163:206-11.

385. Mentz RJ, Bittner V, Schulte PJ et al. Race, exercise training, and outcomes in chronic heart failure: findings from Heart Failure - a Controlled Trial Investigating Outcomes in Exercise TraiNing (HF-ACTION). *Am Heart J* 2013;166:488-95.
386. Takiguchi M, Yoshihisa A, Miura S et al. Impact of body mass index on mortality in heart failure patients. *Eur J Clin Invest* 2014;44:1197-205.
387. Yamamoto K, Origasa H, Suzuki Y et al. Relation of risk factors with response to carvedilol in heart failure with preserved ejection fraction - a report from the Japanese Diastolic Heart Failure Study (J-DHF). *J Cardiol* 2014;63:424-31.
388. van D, V, Urso R, Laroche C et al. Co-morbidities in patients with heart failure: an analysis of the European Heart Failure Pilot Survey. *Eur J Heart Fail* 2014;16:103-11.
389. Okrainec K, Bell CM, Hollands S, Booth GL. Risk of cardiovascular events and mortality among a population-based cohort of immigrants and long-term residents with diabetes: Are all immigrants healthier and if so, for how long? *Am Heart J* 2015;170:123-32.
390. Hoang K, Zhao Y, Gardin JM et al. LV Mass as a Predictor of CVD Events in Older Adults With and Without Metabolic Syndrome and Diabetes. *JACC Cardiovasc Imaging* 2015;8:1007-15.
391. Teng TH, Katzenellenbogen JM, Hung J et al. A cohort study: temporal trends in prevalence of antecedents, comorbidities and mortality in Aboriginal and non-Aboriginal Australians with first heart failure hospitalization, 2000-2009. *Int J Equity Health* 2015;14:66.
392. Fragoso A, Mendes F, Silva AP, Neves PL. Insulin resistance as a predictor of cardiovascular morbidity and end-stage renal disease. *J Diabetes Complications* 2015;29:1098-104.
393. Ramirez-Prado D, Palazon-Bru A, Folgado-de la Rosa DM et al. A four-year cardiovascular risk score for type 2 diabetic inpatients. *PeerJ* 2015;3:e984.
394. Hayward RA, Reaven PD, Wiitala WL et al. Follow-up of glycemic control and cardiovascular outcomes in type 2 diabetes. *N Engl J Med* 2015;372:2197-206.
395. El-Menyar A, Al-Thani H, Mekkodathil A et al. Diabetes Mellitus in Patients Presenting with Cardiovascular Events: Descriptive Analysis from a Tertiary Heart Hospital Over a 22-year Period. *Curr Vasc Pharmacol* 2015;13:624-36.
396. Gejl M, Starup-Linde J, Scheel-Thomsen J, Gregersen S, Vestergaard P. Risk of cardiovascular disease: the effects of diabetes and anti-diabetic drugs - a nested case-control study. *Int J Cardiol* 2015;178:292-6.
397. Rangarajan V, Chacko SJ, Romano S et al. Left ventricular long axis function assessed during cine-cardiovascular magnetic resonance is an independent predictor of adverse cardiac events. *J Cardiovasc Magn Reson* 2016;18:35.
398. Alonso N, Lupon J, Barallat J et al. Impact of diabetes on the predictive value of heart failure biomarkers. *Cardiovasc Diabetol* 2016;15:151.

399. Sorensen BM, Houben AJ, Berendschot TT et al. Prediabetes and Type 2 Diabetes Are Associated With Generalized Microvascular Dysfunction: The Maastricht Study. *Circulation* 2016;134:1339-52.
400. Messerli F. SY 07-2 SHOULD DIABETES MELLITUS REMAIN A COMPELLING INDICATION FOR USE OF RENIN ANGIOTENSIN SYSTEM BLOCKERS? *J Hypertens* 2016;34 Suppl 1 - ISH 2016 Abstract Book:e21.
401. Jorgensen PG, Jensen MT, Mogelvang R et al. Impact of type 2 diabetes and duration of type 2 diabetes on cardiac structure and function. *Int J Cardiol* 2016;221:114-21.
402. Jorgensen PG, Jensen MT, Mogelvang R et al. Abnormal echocardiography in patients with type 2 diabetes and relation to symptoms and clinical characteristics. *Diab Vasc Dis Res* 2016;13:321-30.
403. Deeka H, Skouri H, Noureddine S. Readmission rates and related factors in heart failure patients: A study in Lebanon. *Collegian* 2016;23:61-8.
404. Wang RT, Liu HT, Zhao YL et al. Bone mineral density is associated with left ventricular diastolic function in men with type 2 diabetes. *Diabetes Metab* 2016;42:256-62.
405. Moreira-Silva S, Urbano J, Nogueira-Silva L, Bettencourt P, Pimenta J. Impact of Chronic Nitrate Therapy in Patients With Ischemic Heart Failure. *J Cardiovasc Pharmacol Ther* 2016;21:466-70.
406. Abdul-Rahim AH, Maclsaac RL, Jhund PS, Petrie MC, Lees KR, McMurray JJ. Efficacy and safety of digoxin in patients with heart failure and reduced ejection fraction according to diabetes status: An analysis of the Digitalis Investigation Group (DIG) trial. *Int J Cardiol* 2016;209:310-6.
407. Risk Factors for Cardiovascular Disease in Type 1 Diabetes. *Diabetes* 2016;65:1370-9.
408. Intensive Diabetes Treatment and Cardiovascular Outcomes in Type 1 Diabetes: The DCCT/EDIC Study 30-Year Follow-up. *Diabetes Care* 2016;39:686-93.
409. Aksnes TA, Kjeldsen SE, Rostrup M, Holzhauer B, Hua TA, Julius S. Predictors of cardiac morbidity in diabetic, new-onset diabetic and non-diabetic high-risk hypertensive patients: The Valsartan Antihypertensive Long-term Use Evaluation (VALUE) trial. *Blood Press* 2016;25:235-40.
410. Ahmadizar F, Fazeli FS, Souverein PC, van d, V, de BA, Maitland-van der Zee AH. Cardiovascular medication use and cardiovascular disease in children and adolescents with type 1 diabetes: a population-based cohort study. *Pediatr Diabetes* 2016;17:433-40.
411. Ahmad FS, Chan C, Rosenman MB et al. Validity of Cardiovascular Data From Electronic Sources: The Multi-Ethnic Study of Atherosclerosis and HealthLNK. *Circulation* 2017.
412. Aggarwal SR, Herrington DM, Vladutiu CJ et al. Higher number of live births is associated with left ventricular diastolic dysfunction and adverse cardiac remodelling among US Hispanic/Latina women: results from the Echocardiographic Study of Latinos. *Open Heart* 2017;4:e000530.



413. Lu Z, Lense L, Sharma M et al. Prevalence of QT prolongation and associated LVEF changes in diabetic patients over a four-year retrospective time period. *J Community Hosp Intern Med Perspect* 2017;7:87-94.
414. Shahim B, De BD, De BG et al. The Prognostic Value of Fasting Plasma Glucose, Two-Hour Postload Glucose, and HbA1c in Patients With Coronary Artery Disease: A Report From EUROASPIRE IV: A Survey From the European Society of Cardiology. *Diabetes Care* 2017.
415. Tsujimoto T, Sugiyama T, Shapiro MF, Noda M, Kajio H. Risk of Cardiovascular Events in Patients With Diabetes Mellitus on beta-Blockers. *Hypertension* 2017;70:103-10.
416. Ho JE, McCabe EL, Wang TJ et al. Cardiometabolic Traits and Systolic Mechanics in the Community. *Circ Heart Fail* 2017;10.
417. Chang J, Hou YP, Wu JL et al. Blood pressure circadian rhythms and adverse outcomes in type 2 diabetes patients diagnosed with orthostatic hypotension. *J Diabetes Investig* 2017.
418. Bonsu KO, Owusu IK, Buabeng KO, Reidpath DD, Kadirvelu A. Clinical characteristics and prognosis of patients admitted for heart failure: A 5-year retrospective study of African patients. *Int J Cardiol* 2017;238:128-35.
419. Lee KS, Moser DK, Lennie TA et al. Obesity Paradox: Comparison of Heart Failure Patients With and Without Comorbid Diabetes. *Am J Crit Care* 2017;26:140-8.
420. Cavender MA, White WB, Jarolim P et al. Serial Measurement of High-Sensitivity Troponin I and Cardiovascular Outcomes in Patients With Type 2 Diabetes Mellitus in the EXAMINE Trial (Examination of Cardiovascular Outcomes With Alogliptin Versus Standard of Care). *Circulation* 2017;135:1911-21.
421. Sajeev CG, Rajan NS, George B, Rajesh GN, Krishnan MN. Demographical and clinicopathological characteristics in heart failure and outcome predictors: a prospective, observational study. *ESC Heart Fail* 2017;4:16-22.
422. Bergerot C, Davidsen ES, Amaz C et al. Diastolic function deterioration in type 2 diabetes mellitus: predictive factors over a 3-year follow-up. *Eur Heart J Cardiovasc Imaging* 2017.
423. Wiley JF, Chan YK, Ahamed Y et al. Multimorbidity and the Risk of All-Cause 30-Day Readmission in the Setting of Multidisciplinary Management of Chronic Heart Failure: A Retrospective Analysis of 830 Hospitalized Patients in Australia. *J Cardiovasc Nurs* 2017.
424. Kaku K, Lee J, Mattheus M, Kaspers S, George J, Woerle HJ. Empagliflozin and Cardiovascular Outcomes in Asian Patients With Type 2 Diabetes and Established Cardiovascular Disease-Results From EMPA-REG OUTCOME(R). *Circ J* 2017;81:227-34.
425. Marzona I, Avanzini F, Lucisano G et al. Are all people with diabetes and cardiovascular risk factors or microvascular complications at very high risk? Findings from the Risk and Prevention Study. *Acta Diabetol* 2017;54:123-31.
426. Kattel S, Kasai T, Matsumoto H et al. Association between elevated blood glucose level on admission and long-term mortality in patients with acute decompensated heart failure. *J Cardiol* 2017;69:619-24.

427. Dauriz M, Targher G, Laroche C et al. Association between diabetes and 1-year adverse clinical outcomes in a multinational cohort of ambulatory patients with chronic heart failure: Results from the ESC-HFA Heart Failure Long-Term Registry. *Diabetes Care* 40 (5) (pp 671-678), 2017;01.
428. Bener A, Al SJ, Ghaffar A. Is hypertension a predictor for heart failure? A cross cultural comparison over a 10-year period. *Eur J Heart Fail* 2005;7:784-6.
429. Aksnes TA, Schmieder RE, Kjeldsen SE, Ghani S, Hua TA, Julius S. Impact of new-onset diabetes mellitus on development of atrial fibrillation and heart failure in high-risk hypertension (from the VALUE Trial). *Am J Cardiol* 2008;101:634-8.
430. Ritchie C, Ekundayo OJ, Muchimba M et al. Effects of diabetes mellitus in patients with heart failure and chronic kidney disease: a propensity-matched study of multimorbidity in chronic heart failure. *Int J Cardiol* 2009;134:330-5.
431. Cederholm J, Gudbjornsdottir S, Eliasson B, Zethelius B, Eeg-Olofsson K, Nilsson PM. Systolic blood pressure and risk of cardiovascular diseases in type 2 diabetes: an observational study from the Swedish national diabetes register. *J Hypertens* 2010;28:2026-35.
432. McMurray JJ, Uno H, Jarolim P et al. Predictors of fatal and nonfatal cardiovascular events in patients with type 2 diabetes mellitus, chronic kidney disease, and anemia: an analysis of the Trial to Reduce cardiovascular Events with Aranesp (darbepoetin-alfa) Therapy (TREAT). *Am Heart J* 2011;162:748-55.
433. Kim SA, Shim CY, Kim JM et al. Impact of left ventricular longitudinal diastolic functional reserve on clinical outcome in patients with type 2 diabetes mellitus. *Heart* 2011;97:1233-8.
434. Nystrom T, Holzmann MJ, Eliasson B, Kuhl J, Sartipy U. Glycemic Control in Type 1 Diabetes and Long-Term Risk of Cardiovascular Events or Death After Coronary Artery Bypass Grafting. *J Am Coll Cardiol* 2015;66:535-43.
435. Muddu M, Mutebi E, Mondo C. Prevalence, types and factors associated with echocardiographic abnormalities among newly diagnosed diabetic patients at Mulago Hospital. *Afr Health Sci* 2016;16:183-93.
436. Sommerfeld A, Althouse AD, Prince J, Atwood CW, Mulukutla SR, Hickey GW. Obstructive sleep apnea is associated with increased readmission in heart failure patients. *Clin Cardiol* 2017.
437. Kannel WB, McGee DL. Diabetes and glucose tolerance as risk factors for cardiovascular disease: the Framingham study. *Diabetes Care* 1979;2:120-6.
438. Remes J, Reunanen A, Aromaa A, Pyorala K. Incidence of heart failure in eastern Finland: a population-based surveillance study. *Eur Heart J* 1992;13:588-93.
439. Chong AY, Rajaratnam R, Hussein NR, Lip GY. Heart failure in a multiethnic population in Kuala Lumpur, Malaysia. *Eur J Heart Fail* 2003;5:569-74.

440. Al SJ, Bener A, Hajar HA, Numan MT. Does hospitalization for congestive heart failure occur more frequently in Ramadan: a population-based study (1991-2001). *Int J Cardiol* 2004;96:217-21.
441. Bener A, Al SJ, El-Menyar A, Gehani A. The effect of hypertension as a predictor of risk for congestive heart failure patients over a 10-year period in a newly developed country. *Blood Press* 2004;13:41-6.
442. Drechsler K, Dietz R, Klein H et al. Euro heart failure survey. Medical treatment not in line with current guidelines. *Z Kardiol* 2005;94:510-5.
443. Dzudie A, Kengne AP, Mbahe S, Menanga A, Kenfack M, Kingue S. Chronic heart failure, selected risk factors and co-morbidities among adults treated for hypertension in a cardiac referral hospital in Cameroon. *Eur J Heart Fail* 2008;10:367-72.
444. McMurray JJ, Carson PE, Komajda M et al. Heart failure with preserved ejection fraction: clinical characteristics of 4133 patients enrolled in the I-PRESERVE trial. *Eur J Heart Fail* 2008;10:149-56.
445. Elshaer F, Hassan W, Fawzy ME et al. The prevalence, clinical characteristics, and prognosis of diastolic heart failure: a clinical study in elderly Saudi patients with up to 5 years follow-up. *Congest Heart Fail* 2009;15:117-22.
446. Miura Y, Fukumoto Y, Shiba N et al. Prevalence and clinical implication of metabolic syndrome in chronic heart failure. *Circ J* 2010;74:2612-21.
447. Candrilli SD, Kuznik A, Mendys PM, Wilson DJ. Prevalence and coexistence of cardiovascular comorbidities among the US dyslipidemic population aged  $\geq 65$  years by lipid-lowering medication use status. *Postgrad Med* 2010;122:142-9.
448. Romeo R, Scalisi C, Tafuri L, Romeo A, Maugeri D, Sorace R. Different characteristics of chronic heart failure (CHF) in elderly diabetics and non-diabetics. *Arch Gerontol Geriatr* 2010;50:101-4.
449. Bjerre M, Kistorp C, Hansen TK et al. Complement activation, endothelial dysfunction, insulin resistance and chronic heart failure. *Scand Cardiovasc J* 2010;44:260-6.
450. Thalib L, Zubaid M, Rashed W et al. Impact of diabetic status on the hyperglycemia-induced adverse risk of short term outcomes in hospitalized patients with acute coronary syndromes in the Middle East: findings from the Gulf registry of Acute Coronary Events (Gulf RACE). *Clin Med Res* 2011;9:32-7.
451. Stewart S, Mocumbi AO, Carrington MJ, Pretorius S, Burton R, Sliwa K. A not-so-rare form of heart failure in urban black Africans: pathways to right heart failure in the Heart of Soweto Study cohort. *Eur J Heart Fail* 2011;13:1070-7.
452. Boonman-de Winter LJ, Rutten FH, Cramer MJ et al. High prevalence of previously unknown heart failure and left ventricular dysfunction in patients with type 2 diabetes. *Diabetologia* 2012;55:2154-62.

453. Kim Y, Shin MS, Kim YS et al. The impact of diabetes duration on left ventricular diastolic function and cardiovascular disease. *Postgrad Med J* 2012;88:189-93.
454. Al SJ, Asaad N, Al-Qahtani A, Al-Mulla AW, Singh R, AlBinali HA. Prevalence and outcome of Middle-eastern Arab and South Asian patients hospitalized with heart failure: insight from a 20-year registry in a Middle-eastern country (1991-2010). *Acute Card Care* 2012;14:81-9.
455. Al SJ, Al-Qahtani A, Asaad N, Al-Mulla AW, Singh R, AlBinali HA. Comparison of women versus men hospitalized with heart failure (from a 20-year registry in a middle-eastern country 1991-2010). *Am J Cardiol* 2012;109:395-400.
456. Stein GY, Kremer A, Shochat T et al. The diversity of heart failure in a hospitalized population: the role of age. *J Card Fail* 2012;18:645-53.
457. Dai S, Walsh P, Wielgosz A, Gurevich Y, Bancej C, Morrison H. Comorbidities and mortality associated with hospitalized heart failure in Canada. *Can J Cardiol* 2012;28:74-9.
458. Yang HY, Chiu WC, Huang JH, Hsu CY, Lin YK, Chen YJ. Analysis of 10-year nationwide population-based data on sex differences in hospitalization for heart failure. *Heart Vessels* 2013;28:721-7.
459. Muhammad Z, Hashmi A. Frequency of diabetic cardiomyopathy among type-2 diabetics presenting as heart failure. *J Coll Physicians Surg Pak* 2013;23:538-42.
460. Ogah OS, Stewart S, Falase AO et al. Contemporary profile of acute heart failure in Southern Nigeria: data from the Abeokuta Heart Failure Clinical Registry. *JACC Heart Fail* 2014;2:250-9.
461. Dokainish H, Teo K, Zhu J et al. Heart failure in low- and middle-income countries: background, rationale, and design of the INTERNATIONAL Congestive Heart Failure Study (INTER-CHF). *Am Heart J* 2015;170:627-34.
462. Albuquerque DC, Neto JD, Bacal F et al. I Brazilian Registry of Heart Failure - Clinical Aspects, Care Quality and Hospitalization Outcomes. *Arq Bras Cardiol* 2015;104:433-42.
463. Eschwege E, Basdevant A, Crine A, Moisan C, Charles MA. Type 2 diabetes mellitus in France in 2012: results from the ObEpi survey. *Diabetes Metab* 2015;41:55-61.
464. Szczerbinska K, Topinkova E, Brzyski P et al. The characteristics of diabetic residents in European nursing homes: results from the SHELTER study. *J Am Med Dir Assoc* 2015;16:334-40.
465. Panduranga P, Al-Zakwani I, Sulaiman K et al. Comparison of Indian subcontinent and Middle East acute heart failure patients: Results from the Gulf Acute Heart Failure Registry. *Indian Heart J* 2016;68 Suppl 1:S36-S44.
466. Gini R, Schuemie MJ, Mazzaglia G et al. Automatic identification of type 2 diabetes, hypertension, ischaemic heart disease, heart failure and their levels of severity from Italian General Practitioners' electronic medical records: a validation study. *BMJ Open* 2016;6:e012413.

467. Lee JH, Lim NK, Cho MC, Park HY. Epidemiology of Heart Failure in Korea: Present and Future. *Korean Circ J* 2016;46:658-64.
468. Goyal P, Almarzooq ZI, Horn EM et al. Characteristics of Hospitalizations for Heart Failure with Preserved Ejection Fraction. *Am J Med* 2016;129:635-26.
469. Schwarzl M, Ojeda F, Zeller T et al. Risk factors for heart failure are associated with alterations of the LV end-diastolic pressure-volume relationship in non-heart failure individuals: data from a large-scale, population-based cohort. *Eur Heart J* 2016;37:1807-14.
470. Hayes A, Arima H, Woodward M et al. Changes in Quality of Life Associated with Complications of Diabetes: Results from the ADVANCE Study. *Value Health* 2016;19:36-41.
471. Trullas JC, Miro O, Formiga F et al. The utility of heart failure registries: a descriptive and comparative study of two heart failure registries. *Postgrad Med J* 2016;92:260-6.
472. Houehanou YC, Mizehoun-Adissoda C, Amidou S et al. Feasibility of a cardiovascular cohort in a Sub-Saharan Africa community: preliminary report of the pilot project TAHES (Tanve Health Study) in Benin. *Glob Health Action* 2017;10:1270528.
473. Farre N, Vela E, Cleries M et al. Real world heart failure epidemiology and outcome: A population-based analysis of 88,195 patients. *PLoS One* 2017;12:e0172745.
474. Nilsson G, Strender L-E. Management of heart failure in primary health care: A retrospective study on electronic patient records in a registered population. *Scandinavian Journal of Primary Health Care* 1920;September.
475. Avery CL, Loehr LR, Baggett C et al. The population burden of heart failure attributable to modifiable risk factors: the ARIC (Atherosclerosis Risk in Communities) study. *J Am Coll Cardiol* 2012;60:1640-6.
476. Desai JR, Vazquez-Benitez G, Xu Z et al. Who Must We Target Now to Minimize Future Cardiovascular Events and Total Mortality?: Lessons From the Surveillance, Prevention and Management of Diabetes Mellitus (SUPREME-DM) Cohort Study. *Circ Cardiovasc Qual Outcomes* 2015;8:508-16.
477. Kupsy DF, Ahmed AM, Sakr S et al. Cardiorespiratory fitness and incident heart failure: The Henry Ford Exercise Testing (FIT) Project. *Am Heart J* 2017;185:35-42.
478. Christiansen MN, Kober L, Weeke P et al. Age-Specific Trends in Incidence, Mortality, and Comorbidities of Heart Failure in Denmark, 1995 to 2012. *Circulation* 2017;135:1214-23.
479. Ali AS, Rybicki BA, Alam M et al. Clinical predictors of heart failure in patients with first acute myocardial infarction. *Am Heart J* 1999;138:1133-9.
480. Husakova J, Jasenkova E, Murin J, Sleiman O. The incidence and the characteristics of heart failure patients at a large medical department. *Bratisl Lek Listy* 2002;103:385-9.
481. Qin A, Thompson CL, Silverman P. Predictors of late-onset heart failure in breast cancer patients treated with doxorubicin. *J Cancer Surviv* 2015;9:252-9.

482. Ohlmeier C, Mikolajczyk R, Frick J, Prutz F, Haverkamp W, Garbe E. Incidence, prevalence and 1-year all-cause mortality of heart failure in Germany: a study based on electronic healthcare data of more than six million persons. *Clinical Research in Cardiology* 104 (8) (pp 688-696), 2015;29.
483. Corrada E, Bigi R, Colombo P et al. Cardiac death and heart failure following primary angioplasty in extensive myocardial infarction: incremental prognostic value of clinical, functional and angiographic data. *Ital Heart J* 2004;5:912-8.
484. Halon DA, Merdler A, Flugelman MY et al. Late-onset heart failure as a mechanism for adverse long-term outcome in diabetic patients undergoing revascularization (a 13-year report from the Lady Davis Carmel Medical Center registry). *Am J Cardiol* 2000;85:1420-6.
485. Lamblin N, Fertin M, de GP, Bauters C. Cardiac remodeling and heart failure after a first anterior myocardial infarction in patients with diabetes mellitus. *J Cardiovasc Med (Hagerstown)* 2012;13:353-9.
486. Ezaz G, Long JB, Gross CP, Chen J. Risk prediction model for heart failure and cardiomyopathy after adjuvant trastuzumab therapy for breast cancer. *J Am Heart Assoc* 2014;3:e000472.
487. Hoffman RM, Psaty BM, Kronmal RA. Modifiable risk factors for incident heart failure in the coronary artery surgery study. *Arch Intern Med* 1994;154:417-23.
488. Van De Veire NR, De Winter O, Gillebert TC, De Sutter J. Diabetes and impaired fasting glucose as predictors of morbidity and mortality in male coronary artery disease patients with reduced left ventricular function. *Acta Cardiologica* 61 (2) (pp 137-143), 2006;April.
489. Wang KL, Liu CJ, Chao TF et al. Sitagliptin and the risk of hospitalization for heart failure: a population-based study. *Int J Cardiol* 2014;177:86-90.
490. Scirica BM, Braunwald E, Raz I et al. Heart failure, saxagliptin, and diabetes mellitus: observations from the SAVOR-TIMI 53 randomized trial. *Circulation* 2014;130:1579-88.
491. Lynch CP, Gebregziabher M, Zhao Y, Hunt KJ, Egede LE. Impact of medical and psychiatric multi-morbidity on mortality in diabetes: emerging evidence. *BMC Endocr Disord* 2014;14:68.
492. Huang ES, Laiteerapong N, Liu JY, John PM, Moffet HH, Karter AJ. Rates of complications and mortality in older patients with diabetes mellitus: the diabetes and aging study. *JAMA Intern Med* 2014;174:251-8.
493. Zhao W, Katzmarzyk PT, Horswell R, Wang Y, Johnson J, Hu G. HbA1c and heart failure risk among diabetic patients. *J Clin Endocrinol Metab* 2014;99:E263-E267.
494. Zhao W, Katzmarzyk PT, Horswell R et al. Blood pressure and heart failure risk among diabetic patients. *Int J Cardiol* 2014;176:125-32.
495. Suh S, Seo GH, Jung CH et al. Increased Risk of Hospitalization for Heart Failure with Newly Prescribed Dipeptidyl Peptidase-4 Inhibitors and Pioglitazone Using the Korean Health Insurance Claims Database. *Diabetes Metab J* 2015;39:247-52.

496. Giorda CB, Picariello R, Tartaglino B et al. Hospitalisation for heart failure and mortality associated with dipeptidyl peptidase 4 (DPP-4) inhibitor use in an unselected population of subjects with type 2 diabetes: a nested case-control study. *BMJ Open* 2015;5:e007959.
497. Henry RR, Buse JB, Wu H et al. Efficacy, safety and tolerability of aleglitazar in patients with type 2 diabetes: pooled findings from three randomized phase III trials. *Diabetes Obes Metab* 2015;17:560-5.
498. Podgor MJ, Kannel WB, Cassel GH, Sperduto RD. Lens changes and the incidence of cardiovascular events among persons with diabetes. *Am Heart J* 1989;117:642-8.
499. Hockensmith ML, Estacio RO, Mehler P et al. Albuminuria as a predictor of heart failure hospitalizations in patients with type 2 diabetes. *J Card Fail* 2004;10:126-31.
500. Torffvit O, Lovestam-Adrian M, Agardh E, Agardh CD. Nephropathy, but not retinopathy, is associated with the development of heart disease in Type 1 diabetes: a 12-year observation study of 462 patients. *Diabet Med* 2005;22:723-9.
501. Bethel MA, Sloan FA, Belsky D, Feinglos MN. Longitudinal incidence and prevalence of adverse outcomes of diabetes mellitus in elderly patients. *Arch Intern Med* 2007;167:921-7.
502. Winkelmayer WC, Setoguchi S, Levin R, Solomon DH. Comparison of cardiovascular outcomes in elderly patients with diabetes who initiated rosiglitazone vs pioglitazone therapy. *Arch Intern Med* 2008;168:2368-75.
503. Pazin-Filho A, Kottgen A, Bertoni AG et al. HbA 1c as a risk factor for heart failure in persons with diabetes: the Atherosclerosis Risk in Communities (ARIC) study. *Diabetologia* 2008;51:2197-204.
504. McAlister FA, Eurich DT, Majumdar SR, Johnson JA. The risk of heart failure in patients with type 2 diabetes treated with oral agent monotherapy. *Eur J Heart Fail* 2008;10:703-8.
505. Cheung N, Wang JJ, Rogers SL et al. Diabetic retinopathy and risk of heart failure. *J Am Coll Cardiol* 2008;51:1573-8.
506. Hsiao FY, Huang WF, Wen YW, Chen PF, Kuo KN, Tsai YW. Thiazolidinediones and cardiovascular events in patients with type 2 diabetes mellitus: a retrospective cohort study of over 473,000 patients using the National Health Insurance database in Taiwan. *Drug Saf* 2009;32:675-90.
507. Gimeno-Orna JA, Faure-Nogueras E, Castro-Alonso FJ, Boned-Juliani B. Ability of retinopathy to predict cardiovascular disease in patients with type 2 diabetes mellitus. *Am J Cardiol* 2009;103:1364-7.
508. Juhaeri J, Gao S, Dai WS. Incidence rates of heart failure, stroke, and acute myocardial infarction among Type 2 diabetic patients using insulin glargine and other insulin. *Pharmacoepidemiol Drug Saf* 2009;18:497-503.
509. Kanaya AM, Adler N, Moffet HH et al. Heterogeneity of diabetes outcomes among asians and pacific islanders in the US: the diabetes study of northern california (DISTANCE). *Diabetes Care* 2011;34:930-7.

510. Gallagher AM, Smeeth L, Seabroke S, Leufkens HG, van Staa TP. Risk of death and cardiovascular outcomes with thiazolidinediones: a study with the general practice research database and secondary care data. *PLoS One* 2011;6:e28157.
511. Lind M, Olsson M, Rosengren A, Svensson AM, Bounias I, Gudbjornsdottir S. The relationship between glycaemic control and heart failure in 83,021 patients with type 2 diabetes. *Diabetologia* 2012;55:2946-53.
512. Negishi K, Seicean S, Negishi T, Yingchoncharoen T, Aljaroudi W, Marwick TH. Relation of heart-rate recovery to new onset heart failure and atrial fibrillation in patients with diabetes mellitus and preserved ejection fraction. *Am J Cardiol* 2013;111:748-53.
513. Son JW, Kim S. Dipeptidyl Peptidase 4 Inhibitors and the Risk of Cardiovascular Disease in Patients with Type 2 Diabetes: A Tale of Three Studies. *Diabetes Metab J* 2015;39:373-83.
514. Gregg EW, Jakicic JM, Blackburn G et al. Association of the magnitude of weight loss and changes in physical fitness with long-term cardiovascular disease outcomes in overweight or obese people with type 2 diabetes: a post-hoc analysis of the Look AHEAD randomised clinical trial. *Lancet Diabetes Endocrinol* 2016;4:913-21.
515. Papademetriou V, Lovato L, Tsioufis C et al. Effects of High Density Lipoprotein Raising Therapies on Cardiovascular Outcomes in Patients with Type 2 Diabetes Mellitus, with or without Renal Impairment: The Action to Control Cardiovascular Risk in Diabetes Study. *Am J Nephrol* 2017;45:136-45.
516. Pfister R, Cairns R, Erdmann E, Schneider CA. A clinical risk score for heart failure in patients with type 2 diabetes and macrovascular disease: an analysis of the PROactive study. *Int J Cardiol* 2013;162:112-6.
517. Toprani A, Fonseca V. Thiazolidinediones and congestive heart failure in veterans with type 2 diabetes. *Diabetes Obes Metab* 2011;13:276-80.
518. Wang CC, Chen WL, Kao TW, Chang YW, Loh CH, Chou CC. Incidence of cardiovascular events in which 2 thiazolidinediones are used as add-on treatments for type 2 diabetes mellitus in a Taiwanese population. *Clin Ther* 2011;33:1904-13.
519. Lind M, Bounias I, Olsson M, Gudbjornsdottir S, Svensson AM, Rosengren A. Glycaemic control and incidence of heart failure in 20,985 patients with type 1 diabetes: an observational study. *Lancet* 2011;378:140-6.
520. Filion KB, Joseph L, Boivin JF, Suissa S, Brophy JM. Thiazolidinediones and the risk of incident congestive heart failure among patients with type 2 diabetes mellitus. *Pharmacoepidemiol Drug Saf* 2011;20:785-96.
521. Roussel R, Hadjadj S, Pasquet B et al. Thiazolidinedione use is not associated with worse cardiovascular outcomes: a study in 28,332 high risk patients with diabetes in routine clinical practice: brief title: thiazolidinedione use and mortality. *Int J Cardiol* 2013;167:1380-4.
522. Scirica BM, Bhatt DL, Braunwald E et al. Saxagliptin and cardiovascular outcomes in patients with type 2 diabetes mellitus. *N Engl J Med* 2013;369:1317-26.



523. Breunig IM, Shaya FT, McPherson ML, Snitker S. Development of heart failure in Medicaid patients with type 2 diabetes treated with pioglitazone, rosiglitazone, or metformin. *J Manag Care Spec Pharm* 2014;20:895-903.
524. Brownrigg JR, de LS, McGovern A et al. Peripheral neuropathy and the risk of cardiovascular events in type 2 diabetes mellitus. *Heart* 2014;100:1837-43.
525. Bauduceau B, Doucet J, Le Floch JP, Verny C. Cardiovascular events and geriatric scale scores in elderly (70 years old and above) type 2 diabetic patients at inclusion in the GERODIAB cohort. *Diabetes Care* 2014;37:304-11.
526. Yiu KH, Lau KK, Zhao CT et al. Predictive value of high-sensitivity troponin-I for future adverse cardiovascular outcome in stable patients with type 2 diabetes mellitus. *Cardiovasc Diabetol* 2014;13:63.
527. Kishimoto I, Makino H, Ohata Y et al. Hemoglobin A1c predicts heart failure hospitalization independent of baseline cardiac function or B-type natriuretic peptide level. *Diabetes Res Clin Pract* 2014;104:257-65.
528. Yufu K, Okada N, Ebata Y et al. Plasma norepinephrine is an independent predictor of adverse cerebral and cardiovascular events in type 2 diabetic patients without structural heart disease. *J Cardiol* 2014;64:225-30.
529. Monesi L, Tettamanti M, Cortesi L et al. Elevated risk of death and major cardiovascular events in subjects with newly diagnosed diabetes: findings from an administrative database. *Nutr Metab Cardiovasc Dis* 2014;24:263-70.
530. Glogner S, Rosengren A, Olsson M, Gudbjornsdottir S, Svensson AM, Lind M. The association between BMI and hospitalization for heart failure in 83,021 persons with Type 2 diabetes: a population-based study from the Swedish National Diabetes Registry. *Diabet Med* 2014;31:586-94.
531. Li W, Katzmarzyk PT, Horswell R et al. Body mass index and heart failure among patients with type 2 diabetes mellitus. *Circ Heart Fail* 2015;8:455-63.
532. Chin MP, Wrolstad D, Bakris GL et al. Risk factors for heart failure in patients with type 2 diabetes mellitus and stage 4 chronic kidney disease treated with bardoxolone methyl. *J Card Fail* 2014;20:953-8.
533. Wells BJ, Roth R, Nowacki AS et al. Prediction of morbidity and mortality in patients with type 2 diabetes. *PeerJ* 2013;1:e87.
534. Pagano E, Gray A, Rosato R et al. Prediction of mortality and macrovascular complications in type 2 diabetes: validation of the UKPDS Outcomes Model in the Casale Monferrato Survey, Italy. *Diabetologia* 2013;56:1726-34.
535. Wong CK, Wong WC, Wan YF et al. Patient Empowerment Programme in primary care reduced all-cause mortality and cardiovascular diseases in patients with type 2 diabetes mellitus: a population-based propensity-matched cohort study. *Diabetes Obes Metab* 2015;17:128-35.

536. Udell JA, Bhatt DL, Braunwald E et al. Saxagliptin and cardiovascular outcomes in patients with type 2 diabetes and moderate or severe renal impairment: observations from the SAVOR-TIMI 53 Trial. *Diabetes Care* 2015;38:696-705.
537. Kannan S, Pantalone KM, Matsuda S, Wells BJ, Karafa M, Zimmerman RS. Risk of overall mortality and cardiovascular events in patients with type 2 diabetes on dual drug therapy including metformin: A large database study from the Cleveland Clinic. *J Diabetes* 2016;8:279-85.
538. Berl T, Hunsicker LG, Lewis JB et al. Cardiovascular outcomes in the Irbesartan Diabetic Nephropathy Trial of patients with type 2 diabetes and overt nephropathy. *Ann Intern Med* 2003;138:542-9.
539. Green JB, Bethel MA, Armstrong PW et al. Effect of Sitagliptin on Cardiovascular Outcomes in Type 2 Diabetes. *N Engl J Med* 2015;373:232-42.
540. Kuwahara M, Ishigami J, Shikuma S et al. Type II diabetes mellitus is a risk factor for heart failure in pre-dialysis patients. *Ther Apher Dial* 2012;16:541-7.
541. Seong JM, Choi NK, Shin JY et al. Differential cardiovascular outcomes after dipeptidyl peptidase-4 inhibitor, sulfonylurea, and pioglitazone therapy, all in combination with metformin, for type 2 diabetes: a population-based cohort study. *PLoS One* 2015;10:e0124287.
542. Tzoulaki I, Molokhia M, Curcin V et al. Risk of cardiovascular disease and all cause mortality among patients with type 2 diabetes prescribed oral antidiabetes drugs: retrospective cohort study using UK general practice research database. *BMJ* 2009;339:b4731.
543. Barzilay JI, Kronmal RA, Gottdiener JS et al. The association of fasting glucose levels with congestive heart failure in diabetic adults > or =65 years: the Cardiovascular Health Study. *J Am Coll Cardiol* 2004;43:2236-41.
544. Hippisley-Cox J, Coupland C. Development and validation of risk prediction equations to estimate future risk of heart failure in patients with diabetes: a prospective cohort study. *BMJ Open* 2015;5:e008503.
545. Fu AZ, Johnston SS, Ghannam A et al. Association Between Hospitalization for Heart Failure and Dipeptidyl Peptidase 4 Inhibitors in Patients With Type 2 Diabetes: An Observational Study. *Diabetes Care* 2016;39:726-34.
546. Komajda M, McMurray JJ, Beck-Nielsen H et al. Heart failure events with rosiglitazone in type 2 diabetes: data from the RECORD clinical trial. *Eur Heart J* 2010;31:824-31.
547. Shih CJ, Chen HT, Kuo SC, Ou SM, Chen YT. Cardiovascular Outcomes of Dipeptidyl Peptidase-4 Inhibitors in Elderly Patients With Type 2 Diabetes: A Nationwide Study. *J Am Med Dir Assoc* 2016;17:59-64.
548. Zhang Z, Chen X, Lu P et al. Incretin-based agents in type 2 diabetic patients at cardiovascular risk: compare the effect of GLP-1 agonists and DPP-4 inhibitors on cardiovascular and pancreatic outcomes. *Cardiovasc Diabetol* 2017;16:31.

549. Fung CS, Wan EY, Wong CK, Jiao F, Chan AK. Effect of metformin monotherapy on cardiovascular diseases and mortality: a retrospective cohort study on Chinese type 2 diabetes mellitus patients. *Cardiovasc Diabetol* 2015;14:137.
550. Cheng LJ, Chen JH, Lin MY et al. A competing risk analysis of sequential complication development in Asian type 2 diabetes mellitus patients. *Sci Rep* 2015;5:15687.
551. Kishimoto I, Makino H, Ohata Y et al. Intensity of statin therapy and new hospitalizations for heart failure in patients with type 2 diabetes. *BMJ Open Diabetes Res Care* 2015;3:e000137.
552. Zinman B, Wanner C, Lachin JM et al. Empagliflozin, Cardiovascular Outcomes, and Mortality in Type 2 Diabetes. *N Engl J Med* 2015;373:2117-28.
553. Fadini GP, Avogaro A, Degli EL et al. Risk of hospitalization for heart failure in patients with type 2 diabetes newly treated with DPP-4 inhibitors or other oral glucose-lowering medications: a retrospective registry study on 127,555 patients from the Nationwide OsMed Health-DB Database. *Eur Heart J* 2015;36:2454-62.
554. Hsieh HM, Lin TH, Lee IC, Huang CJ, Shin SJ, Chiu HC. The association between participation in a pay-for-performance program and macrovascular complications in patients with type 2 diabetes in Taiwan: A nationwide population-based cohort study. *Prev Med* 2016;85:53-9.
555. Cardiovascular and Other Outcomes Postintervention With Insulin Glargine and Omega-3 Fatty Acids (ORIGINALE). *Diabetes Care* 2016;39:709-16.
556. Kristensen SL, Preiss D, Jhund PS et al. Risk Related to Pre-Diabetes Mellitus and Diabetes Mellitus in Heart Failure With Reduced Ejection Fraction: Insights From Prospective Comparison of ARNI With ACEI to Determine Impact on Global Mortality and Morbidity in Heart Failure Trial. *Circ Heart Fail* 2016;9.
557. Bank IEM, Gijssberts CM, Teng TK et al. Prevalence and Clinical Significance of Diabetes in Asian Versus White Patients With Heart Failure. *JACC Heart Fail* 2017;5:14-24.
558. Boonman-de Winter LJ, Rutten FH, Cramer MJ et al. Early recognition of heart failure in patients with diabetes type 2 in primary care. A prospective diagnostic efficiency study. (UHFO-DM2). *BMC Public Health* 2009;9:479.
559. Kannel WB. Hazards, risks, and threats of heart disease from the early stages to symptomatic coronary heart disease and cardiac failure. *Cardiovascular Drugs and Therapy* 11 (SUPPL 1) (pp 199;1997).
560. Smith WM. Epidemiology of congestive heart failure. *Am J Cardiol* 1985;55:3A-8A.
561. Fein FS. Diabetic cardiomyopathy. *Diabetes Care* 1990;13:1169-79.
562. Kimmelstiel C, Goldberg RJ. Congestive heart failure in women: focus on heart failure due to coronary artery disease and diabetes. *Cardiology* 1990;77 Suppl 2:71-9.
563. Eriksson H, Wilhelmsen L, Caidahl K, Svardsudd K. Epidemiology and prognosis of heart failure. *Z Kardiol* 1991;80 Suppl 8:1-6.

564. Tighe D, Brest AN. Congestive heart failure in the elderly. *Cardiovasc Clin* 1992;22:127-38.
565. Kimmelstiel CD, Konstam MA. Heart failure in women. *Cardiology* 1995;86:304-9.
566. Raman M, Nesto RW. Heart disease in diabetes mellitus. *Endocrinol Metab Clin North Am* 1996;25:425-38.
567. Massie BM, Shah NB. Evolving trends in the epidemiologic factors of heart failure: rationale for preventive strategies and comprehensive disease management. *Am Heart J* 1997;133:703-12.
568. Sharpe N, Doughty R. Epidemiology of heart failure and ventricular dysfunction. *Lancet* 352 (SUPPL 1) (pp SI3-SI7), 1998;1998.
569. Aronow WS. Prevalence of heart disease in older women in a nursing home. *Journal of Women's Health* 7 (9) (pp 1105-1112), 1998;November.
570. Solang L, Malmberg K, Ryden L. Diabetes mellitus and congestive heart failure. Further knowledge needed. *Eur Heart J* 1999;20:789-95.
571. Kannel WB. Incidence and epidemiology of heart failure. *Heart Fail Rev* 2000;5:167-73.
572. Schocken DD. Epidemiology and risk factors for heart failure in the elderly. *Clin Geriatr Med* 2000;16:407-18.
573. Lloyd-Jones DM. The risk of congestive heart failure: sobering lessons from the Framingham Heart Study. *Curr Cardiol Rep* 2001;3:184-90.
574. Nicholls MG, Richards AM. Is hypertension a leading cause of heart failure in Chinese? *Clin Exp Pharmacol Physiol* 2002;29:850-1.
575. Chatterjee K. Primary diastolic heart failure. *Am J Geriatr Cardiol* 2002;11:178-87.
576. Giles TD. The patient with diabetes mellitus and heart failure: at-risk issues. *Am J Med* 2003;115 Suppl 8A:107S-10S.
577. Kirpichnikov D, McFarlane SI, Sowers JR. Heart failure in diabetic patients: utility of beta-blockade. *J Card Fail* 2003;9:333-44.
578. Lund LH, Mancini D. Heart failure in women. *Med Clin North Am* 2004;88:1321-45, xii.
579. Tang WH, Maroo A, Young JB. Ischemic heart disease and congestive heart failure in diabetic patients. *Med Clin North Am* 2004;88:1037-xii.
580. Tsao L, Gibson CM. Heart failure: an epidemic of the 21st century. *Crit Pathw Cardiol* 2004;3:194-204.
581. Bala C, Hancu N. Heart failure and diabetes. *Rom J Intern Med* 2004;42:267-75.
582. Langford MC. Type 2 diabetes and chronic systolic heart failure: clinical implications. *J Cardiovasc Nurs* 2004;19:S35-S44.

583. Kenchaiah S, Narula J, Vasan RS. Risk factors for heart failure. *Med Clin North Am* 2004;88:1145-72.
584. Fonarow GC. Managing the patient with diabetes mellitus and heart failure: issues and considerations. *Am J Med* 2004;116 Suppl 5A:76S-88S.
585. Piccini JP, Klein L, Gheorghiade M, Bonow RO. New insights into diastolic heart failure: role of diabetes mellitus. *Am J Med* 2004;116 Suppl 5A:64S-75S.
586. Cubillos-Garzon LA, Casas JP, Morillo CA, Bautista LE. Congestive heart failure in Latin America: the next epidemic. *Am Heart J* 2004;147:412-7.
587. Fonarow GC. An approach to heart failure and diabetes mellitus. *Am J Cardiol* 2005;96:47E-52E.
588. Desai AS, O'Gara PT. Diabetes and heart failure: epidemiology, pathophysiology and management. *Indian Heart J* 2005;57:295-303.
589. Bolton MM, Wilson BA. The influence of race on heart failure in African-American women. *Medsurg Nurs* 2005;14:8-15.
590. Vasudevan AR, Garber AJ. Diabetic dyslipidemia and the heart. *Heart Fail Clin* 2006;2:37-52.
591. Kamalesh M. Heart failure and diabetes: pathogenesis and management. *Minerva Med* 2006;97:231-9.
592. Bell DS. Heart failure in the diabetic patient. *Cardiol Clin* 2007;25:523-38.
593. Lago RM, Singh PP, Nesto RW. Congestive heart failure and cardiovascular death in patients with prediabetes and type 2 diabetes given thiazolidinediones: a meta-analysis of randomised clinical trials. *Lancet* 2007;370:1129-36.
594. Verny C. Congestive heart failure in the elderly diabetic. *Diabetes Metab* 2007;33 Suppl 1:S32-S39.
595. Skouri HN, Tang WH. The impact of diabetes on heart failure: opportunities for intervention. *Curr Heart Fail Rep* 2007;4:70-7.
596. Masoudi FA, Inzucchi SE. Diabetes mellitus and heart failure: epidemiology, mechanisms, and pharmacotherapy. *Am J Cardiol* 2007;99:113B-32B.
597. Kamalesh M. Heart failure in diabetes and related conditions. *J Card Fail* 2007;13:861-73.
598. Bell DS. Diabetes: a cardiac condition manifesting as hyperglycemia. *Endocr Pract* 2008;14:924-32.
599. Gary R, Davis L. Diastolic heart failure. *Heart Lung* 2008;37:405-16.
600. Artham SM, Lavie CJ, Patel HM, Ventura HO. Impact of obesity on the risk of heart failure and its prognosis. *J Cardiometab Syndr* 2008;3:155-61.

601. Cohen-Solal A, Beauvais F, Logeart D. Heart failure and diabetes mellitus: epidemiology and management of an alarming association. *J Card Fail* 2008;14:615-25.
602. Ouzounian M, Lee DS, Liu PP. Diastolic heart failure: mechanisms and controversies. *Nat Clin Pract Cardiovasc Med* 2008;5:375-86.
603. MacDonald MR, Petrie MC, Hawkins NM et al. Diabetes, left ventricular systolic dysfunction, and chronic heart failure. *Eur Heart J* 2008;29:1224-40.
604. Choy CK, Rodgers JE, Nappi JM, Haines ST. Type 2 diabetes mellitus and heart failure. *Pharmacotherapy* 2008;28:170-92.
605. Arnlov J. Diminished renal function and the incidence of heart failure. *Curr Cardiol Rev* 2009;5:223-7.
606. Baliga V, Sapsford R. Review article: Diabetes mellitus and heart failure--an overview of epidemiology and management. *Diab Vasc Dis Res* 2009;6:164-71.
607. Bronzwaer JG, Paulus WJ. Diastolic and systolic heart failure: different stages or distinct phenotypes of the heart failure syndrome? *Curr Heart Fail Rep* 2009;6:281-6.
608. Artham SM, Lavie CJ, Milani RV, Ventura HO. Obesity and hypertension, heart failure, and coronary heart disease--risk factor, paradox, and recommendations for weight loss. *Ochsner J* 2009;9:124-32.
609. Zhou L, Deng W, Zhou L et al. Prevalence, incidence and risk factors of chronic heart failure in the type 2 diabetic population: systematic review. *Curr Diabetes Rev* 2009;5:171-84.
610. Franjic B, Marwick TH. The diabetic, hypertensive heart: epidemiology and mechanisms of a very high-risk situation. *J Hum Hypertens* 2009;23:709-17.
611. Heck PM, Dutka DP. Insulin resistance and heart failure. *Curr Heart Fail Rep* 2009;6:89-94.
612. Lavie CJ, Milani RV, Ventura HO. Obesity and cardiovascular disease: risk factor, paradox, and impact of weight loss. *J Am Coll Cardiol* 2009;53:1925-32.
613. Kamalesh M, Cleophas TJ. Heart failure due to systolic dysfunction and mortality in diabetes: pooled analysis of 39,505 subjects. *J Card Fail* 2009;15:305-9.
614. Asghar O, Al-Sunni A, Khavandi K et al. Diabetic cardiomyopathy. *Clin Sci (Lond)* 2009;116:741-60.
615. Vivo RP, Krim SR, Cevik C, Witteles RM. Heart failure in Hispanics. *J Am Coll Cardiol* 2009;53:1167-75.
616. Baliga V, Sapsford R. Diabetes mellitus and heart failure - An overview of epidemiology and management. *Diabetes and Vascular Disease Research* 6 (3) (pp 164-171), 2009;July.
617. Murarka S, Movahed MR. Diabetic cardiomyopathy. *J Card Fail* 2010;16:971-9.

618. Maund E, McKenna C, Sarowar M et al. Dronedarone for the treatment of atrial fibrillation and atrial flutter. *Health Technol Assess* 2010;14:55-62.
619. Young JB. Diabetes, obesity, and heart failure: the new pandemic. *Methodist Debaquey Cardiovasc J* 2010;6:20-6.
620. Zhang CY, Sun AJ, Zhang SN et al. Effects of intensive glucose control on incidence of cardiovascular events in patients with type 2 diabetes: a meta-analysis. *Ann Med* 2010;42:305-15.
621. Kuznetsova T, Herbots L, Jin Y, Stolarz-Skrzypek K, Staessen JA. Systolic and diastolic left ventricular dysfunction: from risk factors to overt heart failure. *Expert Rev Cardiovasc Ther* 2010;8:251-8.
622. Horwich TB, Fonarow GC. Glucose, obesity, metabolic syndrome, and diabetes relevance to incidence of heart failure. *J Am Coll Cardiol* 2010;55:283-93.
623. Huffman MD, Prabhakaran D. Heart failure: epidemiology and prevention in India. *Natl Med J India* 2010;23:283-8.
624. Boudina S, Abel ED. Diabetic cardiomyopathy, causes and effects. *Rev Endocr Metab Disord* 2010;11:31-9.
625. Stratmann B, Tschoepe D. The diabetic heart: sweet, fatty and stressed. *Expert Rev Cardiovasc Ther* 2011;9:1093-6.
626. Loke YK, Kwok CS, Singh S. Comparative cardiovascular effects of thiazolidinediones: systematic review and meta-analysis of observational studies. *BMJ* 2011;342:d1309.
627. Hernandez AV, Usmani A, Rajamanickam A, Moheet A. Thiazolidinediones and risk of heart failure in patients with or at high risk of type 2 diabetes mellitus: a meta-analysis and meta-regression analysis of placebo-controlled randomized clinical trials. *Am J Cardiovasc Drugs* 2011;11:115-28.
628. Gholap N, Davies M, Patel K, Sattar N, Khunti K. Type 2 diabetes and cardiovascular disease in South Asians. *Prim Care Diabetes* 2011;5:45-56.
629. Tarquini R, Lazzeri C, Pala L, Rotella CM, Gensini GF. The diabetic cardiomyopathy. *Acta Diabetol* 2011;48:173-81.
630. Syed IAA, Khan WA. Glycated haemoglobin - a marker and predictor of cardiovascular disease. *Journal of the Pakistan Medical Association* 61 (7) (pp 690-695), 2011;July.
631. Brouwers FP, Hillege HL, van Gilst WH, van Veldhuisen DJ. Comparing new onset heart failure with reduced ejection fraction and new onset heart failure with preserved ejection fraction: an epidemiologic perspective. *Curr Heart Fail Rep* 2012;9:363-8.
632. Hu SS, Kong LZ, Gao RL et al. Outline of the report on cardiovascular disease in China, 2010. *Biomed Environ Sci* 2012;25:251-6.

633. Mercer BN, Morais S, Cubbon RM, Kearney MT. Diabetes mellitus and the heart. *Int J Clin Pract* 2012;66:640-7.
634. Peterson LR, McKenzie CR, Schaffer JE. Diabetic cardiovascular disease: getting to the heart of the matter. *J Cardiovasc Transl Res* 2012;5:436-45.
635. Papanas N, Maltezos E, Mikhailidis DP. Metformin and heart failure: never say never again. *Expert Opin Pharmacother* 2012;13:1-8.
636. Dhingra R, Vasan RS. Diabetes and the risk of heart failure. *Heart Fail Clin* 2012;8:125-33.
637. Glover TL, Galvan E. Diabetes and heart failure. *Crit Care Nurs Clin North Am* 2013;25:93-9.
638. Standl E, Erbach M, Schnell O. Dipeptidyl-peptidase-4 Inhibitors and Heart Failure: Class Effect, Substance-Specific Effect, or Chance Effect? *Curr Treat Options Cardiovasc Med* 2014;16:353.
639. Archambault C, Arel R, Filion KB. Gestational diabetes and risk of cardiovascular disease: a scoping review. *Open Med* 2014;8:e1-e9.
640. Seferovic JP, Milinkovic I, Tesic M et al. The role of glycemia in acute heart failure patients. *Clin Chem Lab Med* 2014;52:1437-46.
641. Davidson MH. Potential impact of dipeptidyl peptidase-4 inhibitors on cardiovascular pathophysiology in type 2 diabetes mellitus. *Postgrad Med* 2014;126:56-65.
642. Guglin M, Villafranca A, Morrison A. Cardiogenic diabetes. *Heart Fail Rev* 2014;19:595-602.
643. Padwal R, McAlister FA, McMurray JJ et al. The obesity paradox in heart failure patients with preserved versus reduced ejection fraction: a meta-analysis of individual patient data. *Int J Obes (Lond)* 2014;38:1110-4.
644. Varas-Lorenzo C, Margulis AV, Pladevall M et al. The risk of heart failure associated with the use of noninsulin blood glucose-lowering drugs: systematic review and meta-analysis of published observational studies. *BMC Cardiovasc Disord* 2014;14:129.
645. McMurray JJ, Gerstein HC, Holman RR, Pfeffer MA. Heart failure: a cardiovascular outcome in diabetes that can no longer be ignored. *Lancet Diabetes Endocrinol* 2014;2:843-51.
646. Perrone-Filardi P, Paolillo S, Costanzo P, Savarese G, Trimarco B, Bonow RO. The role of metabolic syndrome in heart failure. *Eur Heart J* 2015;36:2630-4.
647. Dei CA, Fonarow GC, Gheorghide M, Butler J. Concomitant diabetes mellitus and heart failure. *Curr Probl Cardiol* 2015;40:7-43.
648. Ryan G. Dipeptidyl peptidase-4 inhibitor use in patients with type 2 diabetes and cardiovascular disease or risk factors. *Postgrad Med* 2015;127:842-54.
649. Simpson J, Castagno D, Doughty RN et al. Is heart rate a risk marker in patients with chronic heart failure and concomitant atrial fibrillation? Results from the MAGGIC meta-analysis. *Eur J Heart Fail* 2015;17:1182-91.



650. Pan A, Wang Y, Talaei M, Hu FB. Relation of Smoking With Total Mortality and Cardiovascular Events Among Patients With Diabetes Mellitus: A Meta-Analysis and Systematic Review. *Circulation* 2015;132:1795-804.
651. Kenchaiah S, Vasan RS. Heart Failure in Women--Insights from the Framingham Heart Study. *Cardiovasc Drugs Ther* 2015;29:377-90.
652. Kappel BA, Marx N, Federici M. Oral hypoglycemic agents and the heart failure conundrum: Lessons from and for outcome trials. *Nutr Metab Cardiovasc Dis* 2015;25:697-705.
653. Udell JA, Cavender MA, Bhatt DL, Chatterjee S, Farkouh ME, Scirica BM. Glucose-lowering drugs or strategies and cardiovascular outcomes in patients with or at risk for type 2 diabetes: a meta-analysis of randomised controlled trials. *Lancet Diabetes Endocrinol* 2015;3:356-66.
654. Wang Y, Negishi T, Negishi K, Marwick TH. Prediction of heart failure in patients with type 2 diabetes mellitus- a systematic review and meta-analysis. *Diabetes Res Clin Pract* 2015;108:55-66.
655. Dei CA, Khan SS, Butler J et al. Impact of diabetes on epidemiology, treatment, and outcomes of patients with heart failure. *JACC Heart Fail* 2015;3:136-45.
656. van der Wal HH, Grote BN, van Veldhuisen DJ, Voors AA, van der MP. Pharmacotherapy for comorbidities in chronic heart failure: a focus on hematinic deficiencies, diabetes mellitus and hyperkalemia. *Expert Opin Pharmacother* 2016;17:1527-38.
657. Holscher ME, Bode C, Bugger H. Diabetic Cardiomyopathy: Does the Type of Diabetes Matter? *Int J Mol Sci* 2016;17.
658. Fang X, Wang K, Han D et al. Dietary magnesium intake and the risk of cardiovascular disease, type 2 diabetes, and all-cause mortality: a dose-response meta-analysis of prospective cohort studies. *BMC Med* 2016;14:210.
659. Flory JH, Ukena JK, Floyd JS. Novel Anti-glycemic Drugs and Reduction of Cardiovascular Risk in Diabetes: Expectations Realized, Promises Unmet. *Curr Atheroscler Rep* 2016;18:79.
660. Bahtiyar G, Gutterman D, Lebovitz H. Heart Failure: a Major Cardiovascular Complication of Diabetes Mellitus. *Curr Diab Rep* 2016;16:116.
661. Jordan J, Toplak H, Grassi G et al. Joint statement of the European Association for the Study of Obesity and the European Society of Hypertension: obesity and heart failure. *J Hypertens* 2016;34:1678-88.
662. Lombardi C, Spigoni V, Gorga E, Dei CA. Novel insight into the dangerous connection between diabetes and heart failure. *Herz* 2016;41:201-7.
663. Silverman MG, Patel B, Blankstein R et al. Impact of Race, Ethnicity, and Multimodality Biomarkers on the Incidence of New-Onset Heart Failure With Preserved Ejection Fraction (from the Multi-Ethnic Study of Atherosclerosis). *Am J Cardiol* 2016;117:1474-81.

664. Fountain LB. Heart Failure Update: Chronic Disease Management Programs. *FP Essent* 2016;442:31-40.
665. Li J, Tong Y, Zhang Y et al. Effects on All-cause Mortality and Cardiovascular Outcomes in Patients With Type 2 Diabetes by Comparing Insulin With Oral Hypoglycemic Agent Therapy: A Meta-analysis of Randomized Controlled Trials. *Clin Ther* 2016;38:372-86.
666. Bando YK, Murohara T. Heart Failure as a Comorbidity of Diabetes: Role of Dipeptidyl Peptidase 4. *J Atheroscler Thromb* 2016;23:147-54.
667. Chrysant SG. The impact of coffee consumption on blood pressure, cardiovascular disease and diabetes mellitus. *Expert Rev Cardiovasc Ther* 2017;15:151-6.
668. Zhu XR, Zhang YP, Bai L, Zhang XL, Zhou JB, Yang JK. Prediction of risk of diabetic retinopathy for all-cause mortality, stroke and heart failure: Evidence from epidemiological observational studies. *Medicine (Baltimore)* 2017;96:e5894.
669. Sharma DC, Asirvatham A, Singh P. Dose Modification of Antidiabetic Agents in Patients with Type 2 Diabetes Mellitus and Heart Failure. *Indian J Endocrinol Metab* 2017;21:618-29.
670. Smit J. Community-acquired *Staphylococcus aureus* bacteremia: Studies of risk and prognosis with special attention to diabetes mellitus and chronic heart failure. *Dan Med J* 2017;64.
671. Lehrke M, Marx N. Diabetes Mellitus and Heart Failure. *Am J Med* 2017;130:S40-S50.
672. Murphy KM, Rosenthal JL. Progress in the Presence of Failure: Updates in Chronic Systolic Heart Failure Management. *Curr Treat Options Cardiovasc Med* 2017;19:50.
673. Rados DV, Pinto LC, Leitao CB, Gross JL. Screening for coronary artery disease in patients with type 2 diabetes: a meta-analysis and trial sequential analysis. *BMJ Open* 2017;7:e015089.
674. Verma S, Goldenberg RM, Bhatt DL et al. Dipeptidyl peptidase-4 inhibitors and the risk of heart failure: a systematic review and meta-analysis. *CMAJ Open* 2017;5:E152-E177.
675. Scheen AJ. Cardiovascular outcome studies with incretin-based therapies: Comparison between DPP-4 inhibitors and GLP-1 receptor agonists. *Diabetes Res Clin Pract* 2017;127:224-37.
676. Frati G, Schirone L, Chimenti I et al. An overview of the inflammatory signalling mechanisms in the myocardium underlying the development of diabetic cardiomyopathy. *Cardiovasc Res* 2017;113:378-88.
677. Youn JC, Han S, Ryu KH. Temporal Trends of Hospitalized Patients with Heart Failure in Korea. *Korean Circ J* 2017;47:16-24.
678. Liao HW, Saver JL, Wu YL, Chen TH, Lee M, Ovbiagele B. Pioglitazone and cardiovascular outcomes in patients with insulin resistance, pre-diabetes and type 2 diabetes: a systematic review and meta-analysis. *BMJ Open* 2017;7:e013927.

679. Handelsman Y, Shapiro MD. TRIGLYCERIDES, ATHEROSCLEROSIS, AND CARDIOVASCULAR OUTCOME STUDIES: FOCUS ON OMEGA-3 FATTY ACIDS. *Endocr Pract* 2017;23:100-12.
680. Lehrke M, Marx N. Diabetes Mellitus and Heart Failure. *American Journal of Cardiology* 120 (1 Supplement) (pp S37-S47), 2017;01.
681. Vardarli I. In type 2 diabetes mellitus, think early of heart failure and PAOD: A cohort study on 1.9 million people. *Kardiologie* 9 (3) (pp 205;2015).
682. Aston G. A focus on heart failure. *Hosp Health Netw* 2013;87:40, 49-450, 1.
683. Biffi M, Bertini M, Boriani G, Martignani C, Branzi A. Heart failure after myocardial revascularization: Risk markers. *International Journal of Cardiology* 105 (1) (pp 11-14), 2005;20.
684. Sahle BW, Owen AJ, Wing LM, Nelson MR, Jennings GL, Reid CM. Prediction of 10-year Risk of Incident Heart Failure in Elderly Hypertensive Population: The ANBP2 Study. *Am J Hypertens* 2017;30:88-94.

Supplementary Table 2. Prospective studies of diabetes mellitus and heart failure in the general population

First author, publication year, country	Study name or description	Study period	Number of participants, number of cases	Type of diabetes mellitus, subgroup	Comparison	Relative risk (95% confidence interval)	Adjustment for confounders
Alexander M et al, 1995, USA	Northern California Kaiser Permanente Medical Care Program - Oakland, San Francisco	1978-1984 - 1991, 9.5 years follow-up	64877 men and women, age $\geq 40$ years: 1330 HF cases	Diabetes, uncontrolled, women age <60 years Diabetes, controlled Diabetes, unrecognized Diabetes, uncontrolled, men age <60 years Diabetes, controlled Diabetes, unrecognized Diabetes, age 60+ years Diabetes, controlled Diabetes, unrecognized	Yes vs. no  Yes vs. no Yes vs. no Yes vs. no  Yes vs. no Yes vs. no Yes vs. no Yes vs. no Yes vs. no	3.78 (2.05-7.04)  3.03 (1.79-5.14) 2.52 (0.77-6.60) 7.62 (4.60-12.71)  2.57 (1.57-4.22) 3.94 (1.89-8.22) 4.63 (3.31-6.42) 1.65 (1.25-2.18) 1.89 (0.91-3.93)	Age, sex, race/ethnicity, education, hypertension, smoking, MI, chest pain, total cholesterol, BMI, creatinine, uric acid, urine protein, left ventricular hypertrophy, alcohol
Aronow WS et al, 1999, USA	New York	NA-NA, 3.6 years follow-up	2893 men and women in health care facility, age 60-103 years: 794 CHF cases	Diabetes	Yes vs. no	1.55 (1.34-1.80)	Age, sex, race/ethnicity, hypertension, coronary artery disease
Chae CU et al, 1999, USA	East Boston Senior Health Project	1988-1989 - 1992, 3.8 years follow-up	1621 men and women, age $\geq 65$ years: 208 HF cases	Diabetes mellitus	Yes vs. no	1.66 (1.24-2.23)	Age, sex, pulse pressure, mean arterial pressure, valvular heart disease, atrial fibrillation, antihypertensive medication, coronary heart disease
He J et al, 2001, USA	National Health and Nutrition Examination Survey (NHANES 1) - Epidemiologic Follow-up Study	1971-1975 - 1992, 19 years follow-up	13643 men and women, age 25-74 years: 1382 HF cases	Diabetes, all Diabetes, men Diabetes, women	Yes vs. no Yes vs. no Yes vs. no	1.85 (1.51-2.28) 1.83 (1.27-2.63) 1.83 (1.38-2.41)	Age, sex, race/ethnicity, education, physical activity, smoking, alcohol, overweight, hypertension, valvular heart disease, coronary heart disease
Wilhelmsen L et al, 2001, Sweden	The Multifactor Primary Prevention Study	1970-1973 - 1996, 27 years follow-up	7495 men, age 55-79 years: 937 HF hospitalizations	Diabetes	Yes vs. no	2.47 (1.62-3.75)	Age, MI in brothers or sisters, smoking, chest pain, coffee, alcohol, high blood pressure or antihypertensive treatment, BMI

Williams SA et al, 2002, USA	Yale Health and Aging Project (YHAP) - Established Populations for Epidemiological Studies of the Elderly - New Haven	1982 - 1996, 14 years follow-up	2501 men and women, age $\geq 65$ years: 313 HF cases	Diabetes	Yes vs. no	2.73 (1.85-4.02)	Age, sex, depression CES-D score, pulse pressure, hypertension, functional limitations, myocardial infarction
Nichols GA et al, 2004, USA	Kaiser Permanente Northwest - Portland, Oregon	1997 - 2002, 6 years follow-up	8231 type 2 diabetes patients and 8845 non-diabetic patients, mean age 63.1/63.6 years: 1693 HF cases	Diabetes	Yes vs. no	2.5 (2.3-2.7)	Age, sex
Ingelsson E et al, 2006, Sweden	Uppsala Longitudinal Study of Adult Men (ULSAM) cohort	1970-1974 - 2002, 29.6 years follow-up	2314 men, age 50 years: 282 HF cases	Diabetes	Yes vs. no	1.58 (1.03-2.44)	Serum cholesterol, BMI, ECG-LVH, smoking, hypertension, hematocrit
Thrainsdottir IS, 2007, Iceland	Reykjavik Study	1967-1980 - 1997, 13 years follow-up	7060 men and women, age 33-84 years: 489 HF cases	Diabetes	Yes vs. no	1.2 (0.7-1.9)	Sex
Leung AA et al, 2009, Canada	Saskatchewan Health Databases	1991-1999, 5.2 years follow-up	12272 men and women with type 2 diabetes, mean age 63 years: 718 HF cases	Diabetes, all Diabetes, men Diabetes, women	Yes vs. no Yes vs. no Yes vs. no	2.9 (2.6-3.2) 3.3 (3.1-3.5) 2.5 (2.3-2.7)	Age, sex
De Simone G et al, 2010, USA	The Strong Heart Study	1989-1992 - NA, 11.9 years follow-up	2740 men and women, age 45-74 years: 291 HF cases	Diabetes	Yes vs. no	2.45 (1.56-3.86)	Age, sex, hypertension, antihypertensive therapy, obesity, central fat distribution, total cholesterol, GFR, urinary albumin/excretion ratio, atrial fibrillation, HbA1c, smoking, alcohol, education, physical activity, smoking, alcohol, education, physical activity, antihypertensive medications (diuretics, beta-blockers,

							ACE-inhibitors, CA-channel blockers, others)
Wang J et al, 2010, Finland	Kuopio	1986-1988 - 2008, 20.7 years follow-up	1032 men and women, age 65-74 years: 303 CHF cases	Fasting blood glucose $\geq$ 5.6 mmol/L	Yes vs. no	1.70 (1.30-2.23)	Age, sex, physical activity during leisure-time, smoking, alcohol, antihypertensive medications, total cholesterol, prevalent diabetes
Goyal A et al, 2010, USA	Kaiser Permanente Georgia	2000-2005, 2.8 years follow-up	359947 men and women, age $\geq$ 18 years: 4001 HF cases	Diabetes, men Diabetes, women	Yes vs. no Yes vs. no	1.71 (1.55-1.89) 2.03 (1.84-2.37)	Age, hypertension, coronary heart disease, atrial fibrillation, valvular heart disease
Seghieri C et al, 2012, Italy	Cardiology and Internal Medicine wards of hospitals in Tuscany	2002-2008, ~7 years follow-up	922164 men and women, age $\geq$ 30 years: 147585 HF cases	Diabetes, men, Internal Medicine Unit	Yes vs. no	1.37 (1.34-1.39)	Age
				Diabetes, women, Internal Medicine Unit	Yes vs. no	1.38 (1.36-1.41)	
				Diabetes, men, Cardiology Unit	Yes vs. no	1.43 (1.39-1.47)	
				Diabetes, women, Cardiology Unit	Yes vs. no	1.42 (1.37-1.48)	
Brouwers FP et al, 2013, Netherlands	Prevention of Renal and Vascular End-stage Disease (PREVEND)	1997-1998 - 2010, 11.5 years follow-up	8592 men and women, age 28-75 years: 374 HF cases	Diabetes	Yes vs. no	1.66 (0.99-2.78)	Age, sex, obesity, hypertension, smoking, MI, atrial fibrillation, hypercholesterolemia, cystatine, UAE, hs-CRP, NT-proBNP, hs-TnT
Deedwania P et al, 2013, USA	Cardiovascular Health Study	1989-1990, 1992-1993 - NA, 13 years follow-up	2157 men and women, age 65-100 years: 438 HF cases	Prediabetes	Yes vs. no	0.98 (0.85-1.14)	Age, sex, race/ethnicity, marital status, education, income, BMI, basic activities of daily living, instrumental activities of daily living, smoking, alcohol, self-reported health, social support score, depression score, MMSE, physical activity, walk >0.5 miles, CAD, hypertension, CKD, stroke, ankle arm index ratio, COPD, arthritis, cancer, pulse rate, SBP, DBP, ACE inhibitors, beta-blockers, CCBs, loop diuretics, thiazide diuretics, potassium sparing diuretics, hemoglobin, total cholesterol, albumin, uric acid, CRP, serum insulin, LVH, atrial fibrillation, bundle branch

							block, LV systolic dysfunction
Vimalananda VG et al, 2014, USA	Cardiovascular Health Study	1989-1990, 1992-1993 - NA, 12.5 years follow-up	4817 men and women, age 65-100 years: 1342 CHF cases	Diabetes, women, blacks Diabetes, men Diabetes, women, whites Diabetes, men	Yes vs. no Yes vs. no Yes vs. no Yes vs. no	2.04 (1.42-2.92) 1.14 (0.68-1.93) 1.84 (1.47-2.32) 1.86 (1.49-2.31)	Age, clinical site, education, smoking, alcohol, BMI, physical activity
Chang YT et al, 2014, Taiwan	Taiwan Longitudinal Health Insurance Database	1996-2000/1998 - 2009, 11.3 years follow-up	720248 men and women, age 18- $\geq$ 80 years: 8838 CHF cases	Diabetes/ESRD  De novo diabetes/ESRD	No/no Yes/no No/yes Yes/yes Yes/yes	1.00 1.52 (1.41-1.65) 3.72 (3.47-3.99) 4.12 (3.85-4.41) 2.25 (1.92-2.63)	Age, sex, liver disease, hypertension, anemia, hyperlipidemia, coronary artery disease, chronic obstructive pulmonary disease, gastrointestinal bleeding, peripheral vascular disease, cancer
Tuna M et al, 2014, Canada	Ottawa Hospital Database Warehouse	1996-2008 - 2009, 5 years follow-up	97283 men and women, mean age 59.5 years: 4686 CHF cases	Diabetes diagnosis/ medication	Yes vs. no	2.00 (1.90-2.11)	Age, sex, acuity of admission, primary condition, Charlson comorbidity score, laboratory-based acute physiology score, most responsible hospital service, number of previous inpatient admissions and emergency department visits in the previous 6 months
Rosengren A et al, 2015, Sweden	Swedish National Diabetes Registry	1998 - 2011, 8.2 years follow-up	33402 type 1 diabetes patients and 166228 controls, mean age 35 years: 2387 HF cases	Type 1 diabetes	Yes vs. no	4.69 (3.64-6.04)	Age, sex, time-updated diabetes duration, birth in Sweden, education, baseline comorbidity (AMI, CHD, atrial fibrillation, stroke, cancer)
Chahal A et al, 2015, USA	Multi-Ethnic Study of Atherosclerosis	2000-NA, 4.7 years follow-up	6814 men and women, mean age 62.1 years: 176 HF cases	Diabetes	Yes vs. no	2.34 (1.62-3.37)	Age, sex, ethnicity, BMI, SBP, heart rate, smoking status, total cholesterol, HDL cholesterol, creatine
Shah AD et al, 2015, England	The CALIBER Programme	1998-2010, 5.5 years follow-up	1921260 men and women, age $\geq$ 30 years: 13938 HF cases	Diabetes mellitus Diabetes, mellitus, age <60 years, men Diabetes, mellitus, age $\geq$ 60 years, men Diabetes, mellitus, age <60 years, women Diabetes, mellitus, age $\geq$ 60 years, women	Yes vs. no Yes vs. no  Yes vs. no  Yes vs. no  Yes vs. no	1.56 (1.45-1.69) 2.32 (1.79-3.01)  1.43 (1.28-1.60)  3.37 (2.41-4.73)  1.50 (1.35-1.67)	Age, sex, BMI, deprivation, HDL cholesterol, total cholesterol, SBP, smoking status, statin, antihypertensive drug prescriptions

Eaton CB et al, 2016, USA	Women's Health Initiative	1993-1998 - 2015, 13.2 years follow-up	42170 postmenopausal women, age 50-79 years: 1952 HF cases	Diabetes, HFpEF Diabetes, HFrEF	Yes vs. no Yes vs. no	1.84 (1.41-2.39) 2.16 (1.49-3.14)	Age, study component, race/ ethnicity, income, education, hypertension, heart rate, MI, CHD other than MI, stroke, smoking, dyslipidemia, oophorectomy, cancer, BMI, smoking, physical activity, chronic lung disease, anemia, atrial fibrillation, beta-blocker use, aspirin use, hormone therapy, alcohol, insurance, interim CHD - not MI, interim DM, interim cancer
Ho JE et al, 2016, USA	Framingham Heart Study original and Offspring cohorts, Cardiovascular Health Study, The Prevention of Renal and Vascular Endstage Disease (PREVEND), and Multi-Ethnic Study of Atherosclerosis	1979-1982/ 1995-1998 - 1979-1983/1995-1998 - 1989-1990/1992-1993 - 1997-1998 2000-2002 - 12 years follow-up	28820 men and women, mean age 59.4 years: 982 HFpEF cases 909 HFrEF cases	Diabetes mellitus, HFpEF Diabetes mellitus, HFrEF	Yes vs. no Yes vs. no	1.42 (1.17-1.72) 1.58 (1.32-1.90)	Age, sex, systolic blood pressure, BMI, antihypertensive treatment, smoking status, previous myocardial infarction, left ventricular hypertrophy, left bundle branch block
Ahmad FS et al, 2016, USA	Framingham Heart Study, Framingham Offspring Study, Chicago Heart Association Detection Project in Industry, Atherosclerosis Risk in Communities	1948 - 2008, NA 1971 - 2008, NA 1987-1989 - 2007, NA 1967-1973 - 2008, NA Mean 23.6 years follow-up	19249 men and women, age 45 years: 1677 HF cases 23915 men and women, age 55 years: 2976 HF cases	Diabetes mellitus, men, age 45 years Diabetes mellitus, women Diabetes mellitus, blacks Diabetes mellitus, whites Diabetes mellitus, men, age 55 years Diabetes mellitus, women Diabetes mellitus, blacks Diabetes mellitus, whites	Yes vs. no  Yes vs. no Yes vs. no Yes vs. no  Yes vs. no Yes vs. no Yes vs. no	2.63 (2.04-3.45)  2.50 (1.85-3.33) 3.33 (2.33-4.76) 2.38 (1.85-3.03) 2.27 (1.92-2.63)  3.03 (2.63-3.57) 3.57 (2.94-4.17) 2.33 (2.04-2.63)	Age, race, sex, education, smoking status, hypertension, obesity
Agarwal V et al, 2017, USA	California Healthcare Cost	2005-2009, 5 years	16722086 men and women, age >18	Diabetes mellitus	Yes vs. no	2.73 (2.71-2.75)	Age, sex, race, ventricular premature complexes, hypertension, coronary artery



	and Utilization Project	follow-up	years: 198818 systolic HF cases				disease, atrial fibrillation, income
Ballotari P et al, 2017, Italy	Reggio Emilia province	2011-2014, 3 years follow-up	356191 men and women, age 30-84 years: 2321 HF cases	Diabetes mellitus, men Diabetes mellitus, women	Yes vs. no Yes vs. no	2.78 (2.48-3.12) 2.59 (2.27-2.97)	Age
Spahillari A et al, 2017, USA	Jackson Heart Study	2000-2004 - 2013, 9.9 years follow-up	3858 African Americans, men and women, age $\geq 21$ years: 239 HF cases	Fasting plasma glucose	$\geq 100$ mg/dl, HbA <sub>1c</sub> $\geq 5.7\%$ or treated vs. $< 100$ mg/dl or HbA <sub>1c</sub> $< 5.7\%$	1.76 (1.34-2.29)	Age, sex, smoking, BMI, nutrition, physical activity, blood pressure, total cholesterol
Larsson SC et al, 2018, Sweden	Swedish Mammography Cohort Study and Cohort of Swedish Men	1997 - 2014, 28.1 years follow-up	71483 men and women, mean age 58.9/61.1 years: 4268 heart failure cases	Type 1 diabetes mellitus Type 2 diabetes mellitus	Yes vs. no Yes vs. no	2.68 (1.76-4.09) 1.69 (1.50-1.90)	Age, sex, BMI, education, FH - MI, smoking status, pack-years of smoking, aspirin use, exercise, walking/bicycling, hypertension, hypercholesterolemia, alcohol, total energy, DASH diet score
Mazza A et al, 2005, Italy	The Cardiovascular Study in the Elderly (CASTEL)	NA-NA, 12 years follow-up	3282 men and women, age 65-91 years: CHF mortality	Diabetes	Yes vs. no	1.35 (1.02-1.78)	Age, sex, history of coronary heart disease, pulse pressure, heart rate, vital capacity, FEV <sub>1</sub> , atrial fibrillation, left ventricular hypertrophy, sodium

ACE=angiotensin converting enzyme, AMI=acute myocardial infarction, BMI=body mass index, CA=calcium, CAD=coronary artery disease, CCB=calcium channel blocker, CES-D=Center for Epidemiological Studies Depression scale, CHD=coronary heart disease, CKD=chronic kidney disease, COPD=chronic obstructive pulmonary disease, CRP=C-reactive protein, DASH=dietary approaches to stop hypertension, DBP=diastolic blood pressure, ECG=electrocardiography, FEV<sub>1</sub>=forced expiratory volume in one second, GFR=glomerular filtration rate, HbA<sub>1c</sub>=glycosylated hemoglobin, HDL=high-density lipoprotein, HF=heart failure, HFpEF=heart failure with preserved ejection fraction, HFrEF=heart failure with reduced ejection fraction, hs-CRP=high sensitivity C-reactive protein, hs-TnT=high sensitivity troponin T, LV=left ventricular, LVH=left ventricular hypertrophy, MI=myocardial infarction, MMSE=mini mental state examination, NA=not available, NT-proBNP=N-terminal B-type natriuretic peptide, SBP=systolic blood pressure, UAE=urinary albumin excretion

Supplementary Table 3. Prospective studies of blood glucose and heart failure in the general population

First author, publication year, country	Study name or description	Study period	Number of participants, number of cases	Exposure, subgroup	Comparison	Relative risk (95% confidence interval)	Adjustment for confounders
Gerstein HC et al, 2005, International	The HOPE study	NA-NA, 4.5 years follow-up	1937 non-diabetic and 1013 diabetic men and women, mean age 65.4 years: NA	Fasting plasma glucose	Per 1 mmol/L	1.14 (1.04-1.24)	Age, sex, SBP, DBP, WHR, cholesterol, HDL cholesterol, triglycerides, ramipril
Ingelsson E et al, 2005, Sweden	Uppsala Longitudinal Study of Adult Men (ULSAM) cohort	1990-1995 - 2002, 8.9 years follow-up	1187 men, age $\geq 70$ years: 104 HF cases	Fasting plasma glucose	Per 26.1 mg/dl	1.24 (0.89-1.72)	Myocardial infarction, hypertension, diabetes, electrocardiographic left ventricular hypertrophy, cigarette smoking, serum cholesterol
Nielson C et al, 2005, USA	Veterans Affairs medical centers	1994-2003, 3.45 years follow-up	20810 men and women, mean age 58.7 years: 916 HF cases	Fasting plasma glucose (predominantly)	<90 mg/dl 90-99 100-109 110-125	1.00 1.25 (1.00-1.55) 1.46 (1.17-1.81) 1.55 (1.23-1.96)	Age, sex, BMI, creatinine, blood pressure, hypertension, coronary artery disease, smoking, LDL cholesterol, HDL cholesterol, triglycerides, thiazide diuretics, hydroxymethylglutaryl-CoA reductase inhibitor, ACE inhibitor, angiotensin receptor, beta-blockers
Thrainsdottir IS, 2007, Iceland	Reykjavik Study	1967-1980 - 1997, 13 years follow-up	7060 men and women, age 33-84 years: 489 HF cases	Fasting glucose	Per 1 mmol/L	1.14 (1.00-1.29)	BMI, hypertension, IHD, cholesterol, smoking
Butler J et al, 2008, USA	The Health, Ageing and Body Composition Study	1997-1998 - NA, 6.5 years follow-up	2935 men and women, age 70-79 years: 258 HF cases	Fasting glucose	Per 1 mg/dl	1.005 (1.002-1.008)	Age, CHD, SBP, smoking status, creatinine, heart rate, albumin, LVH
Nichols GA et al, 2009, USA	Kaiser Permanente Northwest medical records	1997-1998 - 2005, 6.6 years follow-up	20226 men and women, age $\geq 50$ years: 1870 HF cases	Fasting plasma glucose	Per 10 mg/dl	1.08 (1.03-1.13)	Age, sex, BMI, smoking, CVD, total cholesterol, blood pressure, eGFR, use of ACE/ARBs, beta-blockers, statins, HCTZ use

Matsushita K et al, 2010, USA	Atherosclerosis Risk in Communities (ARIC) Study	1990-1992 - 2006, 14.1 years follow-up	11057 men and women, age 48-67 years: 841 HF cases	Fasting glucose	<5.0 mmol/L 5.0-5.5 5.6-6.0 6.1-6.9	1.51 (1.14-2.00) 1.00 1.04 (0.87-1.24) 1.19 (0.98-1.45)	Age, sex, race, education, carotid atherosclerosis, SBP, antihypertensive medication, smoking, alcohol intake, BMI, LDL cholesterol, HDL cholesterol, coronary heart disease history, eGFR
Khan H et al, 2014, United Kingdom	Kuopio Ischemic Heart Disease Risk Factor Study	1984-1989 - 2011, 20.4 years follow-up	1740 men, age 42-61 years: 146 HF cases	Fasting plasma glucose	Per 1 mmol/L	1.27 (1.14-1.42)	Age, BMI, systolic blood pressure, heart rate, creatinine, history of coronary heart disease, smoking, left ventricular hypertrophy, medication use - antihypertensive agents, lipid lowering drugs, and beta-blockers, triglycerides, HDL cholesterol
Mongraw-Chaffin M et al, 2017, USA	Women's Health Initiative	1993-1998 - 2014, 13.6 years follow-up	17287 women, age 50-79 years: 458 HF cases	Fasting glucose	<80 mg/dl 80-99 100-125 ≥126	1.46 (0.91-2.32) 1.00 1.47 (1.15-1.88) 2.91 (2.28-3.73)	Age, race, income, education, total cholesterol, blood pressure, BMI, smoking
Ogunmoroti O et al, 2017, USA	Multi-Ethnic Study of Atherosclerosis	2000-2002 - NA, 12.2 years follow-up	6506 men and women, age 45-84 years: 262 HF cases	Blood glucose	≥126 mg/dl 100-125 <100	1.00 0.53 (0.36-0.76) 0.36 (0.26-0.48)	Age, sex, race/ethnicity, education, income, health insurance

ACE=angiotensin converting enzyme, ARB=angiotensin 2 receptor blocker, BMI=body mass index, CHD=coronary heart disease, CoA=coenzyme A, COPD=chronic obstructive pulmonary disease, CVD=cardiovascular disease, DBP=diastolic blood pressure, eGFR=estimated glomerular filtration rate, HCTZ=triamterene/hydrochlorothiazide, HDL=high-density lipoprotein, IHD=ischemic heart disease, LDL=low-density lipoprotein, LVH=left ventricular hypertrophy, SBP=systolic blood pressure, VA=Veterans Affairs, WHR=waist-to-hip ratio

Supplementary Table 4. Prospective studies of diabetes mellitus and heart failure in patient populations

First author, publication year, country	Study name or description	Study period	Number of participants, number of cases	Type of diabetes mellitus, subgroup	Comparison	Relative risk (95% confidence interval)	Adjustment for confounders
Kanaya AM et al, 2005, USA	Heart and Estrogen/ Progestin Replacement Study (HERS)	1993-1994 - NA, 6.8 years follow-up	2763 postmenopausal women with coronary heart disease, mean age 67.2 years: 348 CHF cases	Diabetes	Yes vs. no	2.19 (1.69-2.85)	Age, current smoking, physical activity, alcohol, BMI, overall health status, use of statins, diuretics, angiotensin-converting enzyme inhibitor, HRT assignment, race/ethnicity, education, previous percutaneous transluminal coronary angioplasty, CABG, sign of CHF, >1 previous MI, stratified by clinical center
Aboufakher R et al, 2005, USA	Blue Cross Blue Shield of Michigan Cardiovascular Consortium (BMC2)	2001-2003 - NA, NA	37315 percutaneous coronary intervention, men and women, mean age 63.1 years: 537 inhospital HF cases	Diabetes	Yes vs. no	1.55 (1.26-1.90)	Age, sex, maximum contrast dose exceeded, prior heart failure, valvular heart disease, prior gastrointestinal bleed, prior gastrointestinal bleed, chronic obstructive pulmonary disease, creatinine >2 mg/dl, ACC type B2, but not type C lesion, ACC type C lesion, atrial fibrillation, emergency PCI, ejection fraction, myocardial infarction within 7 days, cardiogenic shock, repeat angiography
Sato T et al, 2012, Japan	Department of Cardiology, Japanese Red Cross, Okayama	2004-2006 - NA, 5 years follow-up	197 percutaneous coronary intervention patients, men and women, mean age 68.8 years: 23 CHF cases	Diabetes mellitus	Yes vs. no	4.72 (1.74-12.76)	Smoking, hypertension, multivessel disease
Lewis EF et al, 2009, USA	PEACE Study	NA-NA, 4.8 years	8290 stable CAD patients, men and	Diabetes	Yes vs. no	2.16 (1.67-2.79)	Age, BMI, MI, CABG surgery, hypertension, angina, stroke or TIA,

		follow-up	women, mean age 64 years: 268 HF cases				current smoking, LVEF, calcium channel blocker, lipid lowering use, diuretic, digitalis, anti-arrhythmic medication use, randomization to trandolapril
Van Melle JP et al, 2010, Netherlands	The Heart and Soul Study	2000-2002 - NA, 4.1 years follow-up	839 coronary artery disease patients, mean age 67 years: 77 HF cases	Diabetes	Yes vs. no	2.65 (1.61-4.36)	Age, sex, race, smoking, BMI, physical inactivity, LDL cholesterol, systolic blood pressure
Aronson D et al, 2010, Israel	Rambam Medical Center, Haifa	2000-2008, 1.4 years follow-up	1513 AMI patients, men and women, mean age 60.1 years: 135 HF cases	Diabetes	Yes vs. no	1.65 (1.13-2.41)	Age, sex, previous infarction, hypertension, anterior infarction, ST-elevation infarction, coronary revascularization, Killip class, mild mitral regurgitation, left ventricular hypertrophy, restrictive filling pattern
Lewis EF et al, 2003, USA	The Cholesterol and Recurrent Events (CARE) trial	1989-1991 - NA, 5 years follow-up	3860 stable MI patients, men and women, mean age 58.3 years: 243 HF cases	Diabetes	Yes vs. no	1.42 (1.04-1.94)	Age, LVEF, heart rate, hypertension, previous MI, moderate exercise, Killip class
Wylie JV et al, 2004, USA	Orbofiban in Patients With Unstable Coronary Syndromes - Thrombolysis in Myocardial Infarction (OPUS-TIMI 16) trial	1997-1998, 0.8 years follow-up	4681 patients with unstable coronary syndromes or non-ST-elevation myocardial infarction, men and women, age $\geq 19$ years (mean age 60 years): 221 HF cases	Diabetes	Yes vs. no	1.51 (1.33-2.00)	Age, heart rate, lateral ECG changes, angiographically confirmed CAD, BNP
Macchia A et al, 2005, Italy	GISSI-Prevenzione trial	NA-NA, 3.5 years follow-up	8415 low-risk patients (NYHA class $\leq 2$ ) with recent ( $< 3$ months) MI, men and women, mean age 58.4 years: 192 late-onset HF cases	Diabetes	Yes vs. no	1.62 (1.17-2.24)	Age, high blood pressure, intermittent claudication, recurrent AMI, ejection fraction, heart rate, leukocyte count

Tajik AA et al, 2017, Norway	The High-Risk MI Database (VALIANT, EPHEBUS, OPTIMAAL, CAPRICORN)	NA-NA, 1.9 years follow-up	28771 MI patients, men and women, mean age 65 years: 4114 HF deaths or hospitalizations	Diabetes	Yes vs. no	1.48 (1.38-1.59)	Age, sex, race, smoking status, BMI, SBP, heart rate, eGFR, Kilip class, angina, hypertension, dyslipidaemia, renal insufficiency, peripheral vascular disease, atrial fibrillation, cerebrovascular accident, previous HF hospitalization, previous MI, PCI, CABG, beta-blockers, diuretics, digoxin, statin, aspirin
Gho JMIH et al, 2018, United Kingdom	The CALIBER programme	1998-2010 - 2010, 3.7 years follow-up	24479 MI patients, age $\geq 18$ years (mean age 68.1 years): 5775 HF cases	Diabetes	Yes vs. no	1.45 (1.35-1.56)	Age, sex, Index of Multiple Deprivation, hypertension, atrial fibrillation, type of MI - STEMI, history of peripheral arterial disease, history of COPD, prescribed ACE inhibitor before MI, prescribed angiotensin receptor blocker before MI, prescribed beta-blocker before MI
Kannel WB et al, 1999, USA	The Framingham Heart Study	NA-NA, 38 years follow-up	NA patients with coronary heart disease, hypertension or valvular heart disease, age 45-94 years: 486 HF cases	Diabetes, men Diabetes, women	Yes vs. no Yes vs. no	1.25 (0.89-1.76) 4.00 (2.78-5.74)	Age, left ventricular hypertrophy, systolic blood pressure, coronary heart disease, valve disease + women only: BMI, valve disease x diabetes
Zornoff LAM et al, 2002, USA	The SAVE trial	NA-NA, 2.6 years follow-up	416 patients with right ventricular dysfunction, men and women, age 21-80 years: 82 HF cases	Diabetes	Yes vs. no	1.78 (1.09-2.91)	Age, sex, hypertension, previous MI, current smoking, infarct segment length, treatment - captopril, thrombolytic use, left ventricular ejection fraction, left ventricular area change, right ventricular dysfunction

Zhang L et al, 2017, USA	Montefiore Medical Center, Bronx	2003-2008 - 2013, 5.9 years follow-up	7878 patients with preclinical diastolic dysfunction, men and women, mean age 68 years: 146 HFrEF cases 635 HFpEF cases	Diabetes mellitus, HFrEF Diabetes mellitus, HFpEF	Yes vs. no Yes vs. no	1.75 (1.22-2.50) 1.88 (1.59-2.23)	Age, sex, SES, race/ethnicity, hypertension, myocardial infarction, peripheral vascular disease, cerebrovascular accident, pulmonary disease, renal disease, malignancy, beta-blocker, ACE inhibitor or angiotensin receptor blocker, calcium channel blocker, statin, hemoglobin, sodium, potassium, blood urea nitrogen, creatinine, left ventricular ejection fraction
Cavender MA et al, 2015, USA	The Reduction of Atherothrombosis for Continued Health (REACH) registry	2003-2004 - 2008, 4 years follow-up	45227 patients at high risk of atherothrombosis or with established atherothrombosis, age $\geq$ 45 years: 3358 HF hospitalizations	Diabetes mellitus	Yes vs. no	1.33 (1.18-1.50)	Age, sex, geographic region, smoking status, BMI, ischemic event, hypercholesterolemia, hypertension, renal dysfunction, vascular disease status, congestive heart failure, atrial fibrillation, statins, aspirin, blood pressure treatment, antihyperglycemic agents
Fukuda T et al, 2007, Japan	The Cardiovascular Institute Hospital, Roppongi	1995-2003 - 2005, 49.7 months follow-up	248 atrial fibrillation patients, mean age 63.6 years: 16 CHF cases	Diabetes mellitus	Yes vs. no	1.28 (0.34-4.90)	Age, sex, persistent atrial fibrillation, hypertension, structural heart disease, left ventricular hypertrophy, echocardiographic parameters
Potpara TS et al, 2013, Serbia	Belgrade Atrial Fibrillation Study	1992-2003 - 2007, 11.2 years follow-up	842 atrial fibrillation patients, men and women, age 18-84 years: 83 HF cases	Diabetes mellitus	Yes vs. no	2.0 (1.1-4.0)	Left atrial diameter, left ventricular ejection fraction, arterial hypertension
Suzuki S et al, 2012, Japan	The Shinken Database	2004-2010 - 2010, 2.1 years follow-up	1942 atrial fibrillation patients, men and women, mean age 66 years: 147 HF cases	Diabetes mellitus	Yes vs. no	1.83 (1.18-2.82)	Heart diseases, anemia, renal dysfunction, diuretics
Schnabel RB et al, 2013, USA	Framingham Heart Study	1960-1999 - 2009, 10 years follow-up	725 atrial fibrillation patients, men and women, mean age 73.3	Diabetes	Yes vs. no	1.88 (1.31-2.71)	Age, BMI, left ventricular hypertrophy, significant murmur, prevalent MI, age x prevalent MI interaction

			years: 161 HF cases				
Chatterjee NA et al, 2017, USA	Women's Health Study	1993-1998 - 2014, 20.6 years follow-up	1495 new-onset atrial fibrillation patients, women, mean age 69 years: 226 HF cases	Diabetes mellitus	Yes vs. no	1.57 (1.07-2.32)	Age, race/ ethnicity, smoking status, BMI, SBP, physical activity, alcohol, hyperlipidemia, history of MI at AF diagnosis, vitamin E, aspirin, HRT, statins, antihypertensive medication use, chronic kidney disease, incident coronary heart disease
Eggimann L et al, 2018, Switzerland	The Basel Atrial Fibrillation Cohort Study	2010-2014 - 2017, 3.7 years follow-up	951 atrial fibrillation patients, men and women, mean age 68.1 years: 60 HF cases	Diabetes mellitus	Yes vs. no	2.72 (1.57-4.71)	Age, BMI, history of valve surgery, history of arrhythmia intervention, QTc interval, BNP
Krum H et al, 2009, USA	The MEDAL program	2002-2006 - NA, NA	34701 men and women with arthritis, age $\geq$ 50 years: 102 HF cases	Diabetes	Yes vs. no	1.83 (1.15-2.94)	Age, history of CHF, hypertension, Etoricoxib 90 mg vs. diclofenac 150 mg, prior systematic corticosteroid use, creatinine clearance, Etoricoxib 90 mg vs. Diclofenac 150 mg (RA), Etoricoxib 90 mg vs. Diclofenac 150 mg (OA), Etoricoxib 60 mg vs. Diclofenac 150 mg (OA)
He J et al, 2017, USA	Chronic Renal Insufficiency Cohort (CRIC) Study	2003-2008 - 2012, 6.3 years follow-up	3557 men and women with chronic kidney disease, age 21-74 years: 452 HF cases	Diabetes mellitus	Yes vs. no	1.71 (1.35-2.16)	Age, sex, education, CVD, waist circumference, SBP, cystatin, urine albumin
Rigatto C et al, 2002, Italy	University of Manitoba	1969-1999, 7.2 years follow-up	638 kidney transplant patients, age >18 years: 63 HF cases	Diabetes	Yes vs. no	2.30 (1.43-3.69)	Age, hemoglobin, serum albumin, SBP, cadavaric donor
Harnett JD et al, 1995, Canada	Royal Victoria Hospital in Montreal, Quebec	1982-1991 - NA, 3.4 years follow-up	299 dialysis patients, men and women, mean age 51 years: 133 CHF cases	Diabetes mellitus	Yes vs. no	1.63 (0.92-2.90)	Age, ischemic heart disease, systolic dysfunction, hemoglobin, serum albumin, diastolic blood pressure, left ventricular mass index



Ito S et al, 2007, Japan	Nagoya City Moriyama Municipal Hospital	NA-NA, 4.7 years follow-up	100 hemodialysis patients, men and women, age : 6 CHF cases	Diabetes mellitus	Yes vs. no	10.96 (1.49-80.44)	Dichotomous hemoglobin
Aksnes TA et al, 2007, multinational	Valsartan Antihypertensive Long-Term Use Evaluation (VALUE) Trial Population	NA-NA, 4.2 years follow-up	15245 hypertension patients, men and women, mean age 67 years: 754 HF cases	New-onset diabetes mellitus Baseline diabetes mellitus	Yes vs. no Yes vs. no	1.41 (1.06-1.87) 2.79 (2.40-3.25)	Age, LVH, CHD, randomized study treatment (valsartan and amlodipine)
Abramson J et al, 2001, USA	Systolic Hypertension in the Elderly Program (SHEP)	NA-NA, 4.5 years follow-up	4538 hypertension patients, men and women, age ≥60 years: 156 HF cases	Diabetes	Yes vs. no	1.92 (1.26-2.94)	Age, sex, depression score, race/ethnicity, MI, angina, SBP, DBP, total cholesterol, HDL cholesterol, ECG abnormality, current smoking, any ADL disability, active treatment
Sahle BW et al, 2016, Australia	Second Australian National Blood Pressure Study (ANBP2)	1995-2001 - NA, 10.8 years follow-up	6083 hypertension patients, age 65-84 years: 373 HF cases	Diabetes	Yes vs. no	1.56 (1.11-2.19)	Age, sex, systolic blood pressure, history of cardiovascular disease, eGFR, smoking status, low HDL cholesterol, BMI
Miao F et al, 2014, USA	Multi-parameter Intelligent Monitoring in Intensive Care (MIMIC 2) clinical database	2001-2008, 1 year follow-up	3048 intensive care unit patients, men and women, mean age 66.3/56.6 years: 555 HF cases	Diabetes	Yes vs. no	1.34 (1.10-1.63)	Age, cardiac arrhythmias, pulmonary circulation diseases, peripheral vascular disease, hypertension, chronic pulmonary disease, hypothyroidism, renal failure, liver disease, AIDS, obesity, weight loss, electrolyte and fluid disorders
Jacobs L et al, 2017, USA, Italy, Scandinavia, United Kingdom, Scotland, Ireland, Netherlands	The Heart "OMics" in AGEing (HOMAGE) study (The Health Aging and Body Composition Study, The PREDICTOR Study, PROSPER)	1997-1998 2007-2010 1997-1999 3.5 years follow-up	10236 men and women, mean age 74.5 years: 470 HF cases	Diabetes mellitus	Yes vs. no	1.41 (1.12-1.79)	Age, sex, BMI, smoking, CAD, antihypertensive medication, SBP, heart rate, serum creatinine
Armenian SH et	City of Hope,	1988-	1327 autologous	Diabetes mellitus/HD-	No/no	1.0	Age, year of hematopoietic cell

al, 2011, USA	Duarte	2002, 5.3 years follow-up	hematopoietic cell transplantation patients, mean age 43.5 years: nested case-control study 88 CHF cases 218 controls	anthracycline treatment	Yes/no No/yes Yes/yes	6.2 (0.86-43.82) 5.1 (2.34-10.93) 26.8 (4.34-165.2)	transplantation, duration of follow-up, sex, diagnosis, pre-transplantation exposure to chest radiation, individual pre-transplantation comorbidity
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ACC=American College of Cardiology, ACE=angiotensin-converting enzyme, ADL=activities of daily living, AF=atrial fibrillation, AIDS=acquired immunodeficiency syndrome, AMI=acute myocardial infarction, BMI=body mass index, BNP=B-type natriuretic peptide, CABG=coronary artery bypass graft, CAD=coronary artery disease, CHD=coronary heart disease, CHF=congestive heart failure, CVD=cardiovascular disease, COPD=chronic obstructive pulmonary disease, DBP=diastolic blood pressure, ECG=electrocardiography, eGFR=estimated glomerular filtration rate, HDL=high-density lipoprotein, HF=heart failure, HFpEF=heart failure with preserved ejection fraction, HFrEF=heart failure with reduced ejection fraction, HRT=hormone replacement therapy, LDL=low-density lipoprotein, LVEF=left ventricular ejection fraction, LVH=left ventricular hypertrophy, MI=myocardial infarction, NA=not available, PCI=percutaneous coronary intervention, QTc interval=corrected QT interval, SBP=systolic blood pressure, SES=socioeconomic status, STEMI=ST-elevated myocardial infarction

Supplementary Table 5. Prospective studies of blood glucose and heart failure in patient populations

First author, publication year, country	Study name or description	Study period	Number of participants, number of cases	Exposure, subgroup	Comparison	Relative risk (95% confidence interval)	Adjustment for confounders
Kanaya AM et al, 2005, USA	Heart and Estrogen/progestin Replacement Study (HERS)	1993-1994 - NA, 6.8 years follow-up	2763 postmenopausal women with coronary heart disease, mean age 67 years: 348 CHF cases	Fasting glucose	<5.6 mmol/L 5.6-6.0 6.1-6.9 ≥7.0	1.00 0.95 (0.69-1.30) 0.93 (0.64-1.35) 2.19 (1.69-2.85)	Age, current smoking, physical activity, alcohol, BMI, overall health status, use of statins, diuretics, angiotensin-converting enzyme inhibitor, HRT assignment, race/ethnicity, education, previous percutaneous transluminal coronary angioplasty, CABG, sign of CHF, >1 previous MI, stratified by clinical center
Held C et al, 2007, Sweden	Ongoing Telmisartan Alone and in Combination with Ramipril Global Endpoint Trial (ONTARGET)/ Telmisartan Randomized Assessment Study in ACE Intolerant Subjects With Cardiovascular Disease (TRANSCEND)	NA-NA, 2.4 years follow-up	31546 high-risk patients, age ≥55 years: 668 HF cases	Glucose	Per 1 mmol/L	1.05 (1.02-1.08)	Age, sex, smoking, previous MI, hypertension, creatinine, waist-to-hip ratio, aspirin, beta-blockers, statins

BMI=body mass index, CABG=coronary artery bypass graft, CHF=congestive heart failure, HF=heart failure, MI=myocardial infarction, NA=not available

Supplementary Table 6. Relative risks and 95% confidence intervals for the association  
between blood glucose and heart failure

Blood glucose concentration	Relative risks (95% CIs)
70 mg/dl (3.89 mmol/l)	1.40 (1.00-1.95)
80 (4.44)	1.08 (0.96-1.22)
90 (5.00)	1.00
100 (5.55)	1.04 (0.98-1.11)
110 (6.11)	1.19 (1.09-1.29)
120 (6.66)	1.46 (1.32-1.60)
130 (7.22)	1.89 (1.70-2.10)
140 (7.77)	2.56 (2.23-2.94)
150 (8.33)	3.61 (2.94-4.45)
160 (8.88)	5.26 (3.85-7.20)

Supplementary Table 7. Subgroup analyses of diabetes mellitus and heart failure in population-based studies

	<b>Diabetes mellitus and heart failure</b>				
	<i>n</i>	Relative risk (95% CI)	<i>I</i> <sup>2</sup> (%)	<i>P</i> <sub>h</sub> <sup>1</sup>	<i>P</i> <sub>h</sub> <sup>2</sup>
All studies	24	1.99 (1.66-2.38)	99.8	<0.0001	
Sex					
Men	10	2.10 (1.55-2.83)	99.0	<0.0001	0.64/
Women	9	2.03 (1.63-2.52)	97.4	<0.0001	0.82
Men & women	13	1.97 (1.65-2.36)	98.4	<0.0001	
Heart failure subtype					
Preserved ejection fraction	2	1.59 (1.24-2.05)	58.6	0.12	0.66
Reduced ejection fraction	2	1.77 (1.32-2.37)	54.2	0.14	
Follow-up					
<10 years	12	2.08 (1.61-2.69)	99.9	<0.0001	0.43
≥10 years	12	1.89 (1.59-2.26)	91.2	<0.0001	
Geographic location					
Europe	8	1.73 (1.38-2.17)	97.1	<0.0001	0.42
America	15	2.18 (1.94-2.46)	96.3	<0.0001	
Asia	1	1.44 (1.36-1.53)			
Number of cases					
Cases <500	7	1.90 (1.52-2.37)	46.0	0.09	0.74
Cases <500-<1000	3	2.11 (1.18-3.80)	96.9	<0.0001	
Cases ≥1000	14	2.01 (1.60-2.54)	99.9	<0.0001	
Study quality					
0-3 stars	0				0.86
4-6 stars	2	1.94 (1.02-3.70)	99.5	<0.0001	
7-9 stars	22	2.00 (1.75-2.29)	98.0	<0.0001	
Adjustment for confounding factors <sup>5</sup>					

Age	Yes	23	2.02 (1.68-2.43)	99.8	<0.0001	0.16
	No	1	1.20 (0.70-1.90)			
Alcohol	Yes	6	1.83 (1.68-1.98)	10.1	0.35	0.84
	No	18	1.99 (1.61-2.45)	99.8	<0.0001	
Smoking	Yes	12	2.03 (1.73-2.39)	89.8	<0.0001	0.80
	No	12	1.96 (1.51-2.53)	99.9	<0.0001	
BMI or obesity	Yes	13	2.00 (1.71-2.33)	89.0	<0.0001	0.99
	No	11	1.98 (1.52-2.60)	99.9	<0.0001	
Physical activity	Yes	4	1.78 (1.64-1.93)	0	0.42	0.64
	No	20	2.00 (1.64-2.45)	99.8	<0.0001	
Resting heart rate	Yes	2	2.03 (1.69-2.45)	0	0.39	0.80
	No	22	1.98 (1.63-2.39)	99.8	<0.0001	
Adjustment for potentially mediating factors						
Hypertension	Yes	15	1.98 (1.63-2.39)	98.4	<0.0001	0.82
	No	9	2.01 (1.58-2.56)	98.9	<0.0001	
Systolic blood pressure	Yes	2	1.83 (1.24-2.71)	77.8	0.03	0.67
	No	22	2.00 (1.65-2.42)	99.8	<0.0001	
Diastolic blood pressure	Yes	0				NC
	No	24	1.99 (1.66-2.38)	99.8	<0.0001	
Cholesterol	Yes	8	1.87 (1.55-2.24)	91.2	<0.0001	0.47
	No	16	2.04 (1.63-2.55)	99.9	<0.0001	
Coronary heart disease	Yes	12	1.94 (1.54-2.44)	98.3	<0.0001	0.67
	No	12	2.04 (1.68-2.48)	98.8	<0.0001	
Valvular heart disease	Yes	3	1.68 (1.39-2.03)	92.3	<0.0001	0.23
	No	21	2.04 (1.67-2.48)	99.8	<0.0001	
Atrial fibrillation	Yes	5	2.11 (1.62-2.77)	96.6	<0.0001	0.63
	No	19	1.97 (1.70-2.27)	98.2	<0.0001	
Left ventricular hypertrophy	Yes	2	2.14 (1.02-4.52)	80.4	<0.0001	0.44

	No	22	1.97 (1.63-2.38)	99.8	<0.0001	
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*n* denotes the number of risk estimates

<sup>1</sup>P for heterogeneity within each subgroup

<sup>2</sup> P for heterogeneity between subgroups with meta-regression analysis

<sup>2</sup> P for heterogeneity between men and women (excluding studies with both genders) with meta-regression analysis

BMI, body mass index

NC, not calculable because no studies were present in one of the subgroups.

Supplementary Table 8. Subgroup analyses of diabetes mellitus and heart failure in patient populations

	<b>Diabetes mellitus and heart failure</b>				
	<i>n</i>	Relative risk (95% CI)	<i>I</i> <sup>2</sup> (%)	<i>P</i> <sub>h</sub> <sup>1</sup>	<i>P</i> <sub>h</sub> <sup>2</sup>
All studies	32	1.74 (1.61-1.90)	70.8	<0.0001	
Sex					
Men	0				0.51
Women	2	1.91 (1.39-2.64)	48.8	0.16	
Men & women	29	1.71 (1.57-1.87)	70.4	<0.0001	
Follow-up					
<10 years	24	1.73 (1.57-1.90)	75.6	<0.0001	0.65
≥10 years`	5	1.86 (1.59-2.17)	0	0.53	
Not available	3	1.91 (1.25-2.92)	58.5	0.09	
Patient group					
Arthritis	1	1.83 (1.15-2.94)			0.89
Atherothrombosis	1	1.33 (1.18-1.50)			
Atrial fibrillation	6	1.87 (1.53-2.27)	0	0.71	
Chronic kidney disease	1	1.71 (1.35-2.16)			
Coronary heart disease	12	1.70 (1.54-1.89)	68.1	<0.0001	
Dialysis	2	3.29 (0.54-19.98)	69.1	0.07	
Hematopoietic cell transplants	1	5.71 (1.42-22.98)			
Hypertension	3	2.00 (1.50-2.67)	66.1	0.05	
Hypertension, high-CVD risk	1	1.41 (1.12-1.79)			
Intensive care unit	1	1.34 (1.10-1.63)			
Kidney transplants	1	2.30 (1.43-3.69)			
Ventricular dysfunction	2	1.85 (1.60-2.14)	0	0.87	
Geographic location					
Europe	7	1.63 (1.44-1.84)	58.9	0.02	0.58



America	17	1.70 (1.54-1.89)	58.4	0.001		
Asia	4	2.66 (1.28-5.52)	50.5	0.11		
Middle East	1	1.65 (1.13-2.41)				
Australia	1	1.56 (1.11-2.19)				
International	2	1.86 (1.10-3.13)	93.3	<0.0001		
Number of cases						
Cases <200	16	1.95 (1.72-2.21)	0	0.48	0.04	
Cases <200-<500	9	1.73 (1.52-1.96)	49.4	0.05		
Cases ≥500	7	1.60 (1.39-1.84)	90.0	<0.0001		
Study quality						
0-3 stars	0				0.30	
4-6 stars	14	1.66 (1.45-1.89)	71.3	<0.0001		
7-9 stars	18	1.83 (1.63-2.06)	72.0	<0.0001		
Adjustment for confounding factors <sup>3</sup>						
Age	Yes	28	1.72 (1.58-1.87)	72.2	<0.0001	0.17
	No	4	2.54 (1.48-4.36)	45.6	0.14	
Alcohol	Yes	3	2.04 (1.71-2.43)	10.3	0.33	0.24
	No	29	1.71 (1.57-1.87)	70.5	<0.0001	
Smoking	Yes	11	1.71 (1.50-1.96)	68.5	<0.0001	0.76
	No	21	1.77 (1.58-1.98)	71.0	<0.0001	
BMI or obesity	Yes	12	1.71 (1.51-1.93)	72.4	<0.0001	0.66
	No	20	1.78 (1.58-2.01)	69.0	<0.0001	
Physical activity	Yes	5	1.93 (1.57-2.37)	50.0	0.09	0.30
	No	27	1.71 (1.56-1.87)	71.2	<0.0001	
Resting heart rate	Yes	5	1.48 (1.39-1.57)	0	0.97	0.04
	No	27	1.84 (1.66-2.05)	73.2	<0.0001	
Hypertension	Yes	15	1.50 (1.41-1.61)	34.1	0.10	0.001
	No	19	1.97 (1.75-2.21)	52.7	0.006	

Systolic blood pressure	Yes	9	1.72 (1.50-1.96)	55.0	0.02	0.94
	No	23	1.76 (1.58-1.97)	74.8	<0.0001	
Diastolic blood pressure	Yes	2	1.81 (1.29-2.55)	0	0.65	0.88
	No	30	1.74 (1.60-1.90)	72.5	<0.0001	
Cholesterol	Yes	3	1.79 (1.18-2.74)	78.1	0.01	0.69
	No	29	1.75 (1.61-1.91)	69.6	<0.0001	
Coronary heart disease	Yes	21	1.72 (1.56-1.89)	72.5	<0.0001	0.45
	No	11	1.98 (1.58-2.47)	65.2	0.001	
Valvular heart disease	Yes	3	1.96 (1.45-2.66)	67.7	0.05	0.41
	No	29	1.72 (1.58-1.88)	71.1	<0.0001	
Atrial fibrillation	Yes	5	1.45 (1.38-1.52)	0	0.60	0.006
	No	27	1.85 (1.68-2.03)	55.4	<0.0001	
Left ventricular hypertrophy	Yes	5	2.15 (1.86-2.48)	22.7	0.27	0.04
	No	27	1.66 (1.54-1.79)	56.1	<0.0001	

*n* denotes the number of risk estimates

<sup>1</sup>P for heterogeneity within each subgroup

<sup>2</sup> P for heterogeneity between subgroups with meta-regression analysis

BMI, body mass index

NC, not calculable because no studies were present in one of the subgroups.



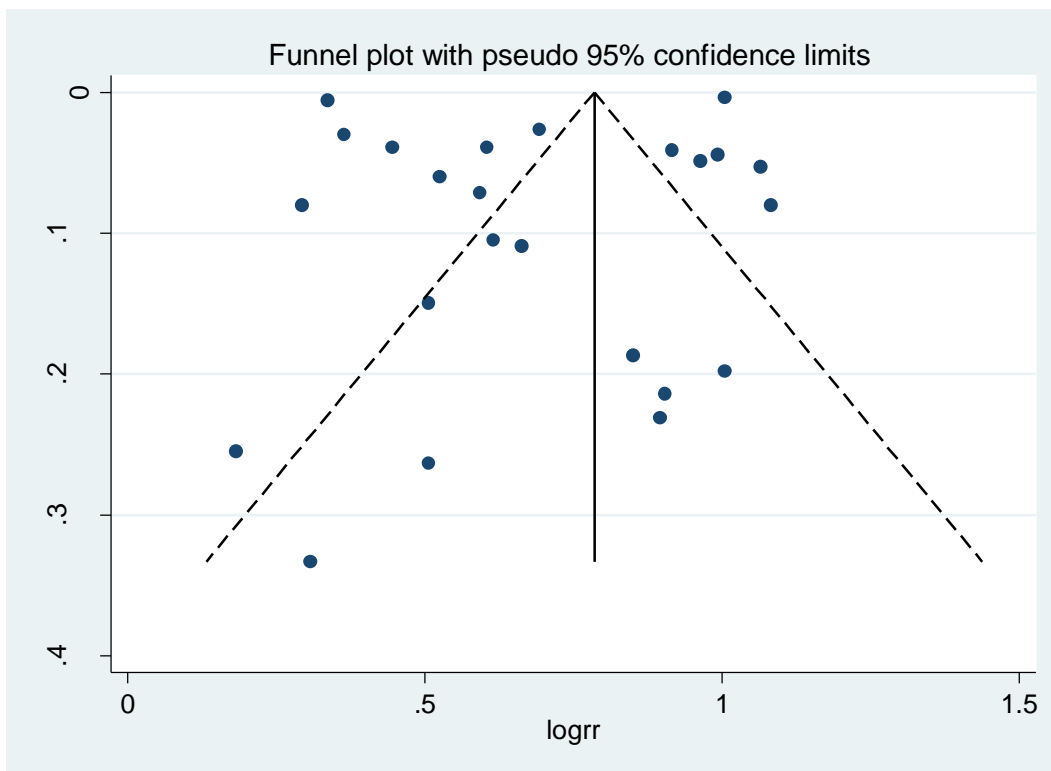
Tuna, 2014	1	0	1	0	1	1	1	1	0	7
Vimalananda, 2014	1	0	1	1	1	1	1	1	1	9
Chahal, 2015	1	0	0	1	1	1	1	1	1	8
Shah, 2015	1	0	1	1	1	1	1	1	0	8
Eaton, 2016	1	0	0	1	1	1	1	1	0	7
Ahmad, 2016	1	0	1	1	1	1	1	1	0	8
Agarwal, 2017	1	0	1	1	1	1	0	1	0	7
Ballotari, 2017	1	0	1	0	1	0	1	1	0	6
Larsson, 2018	1	1	0	1	1	1	1	1	0	7

Supplementary Table 10. Study quality of studies included in the analysis of diabetes mellitus and heart failure in the patient populations

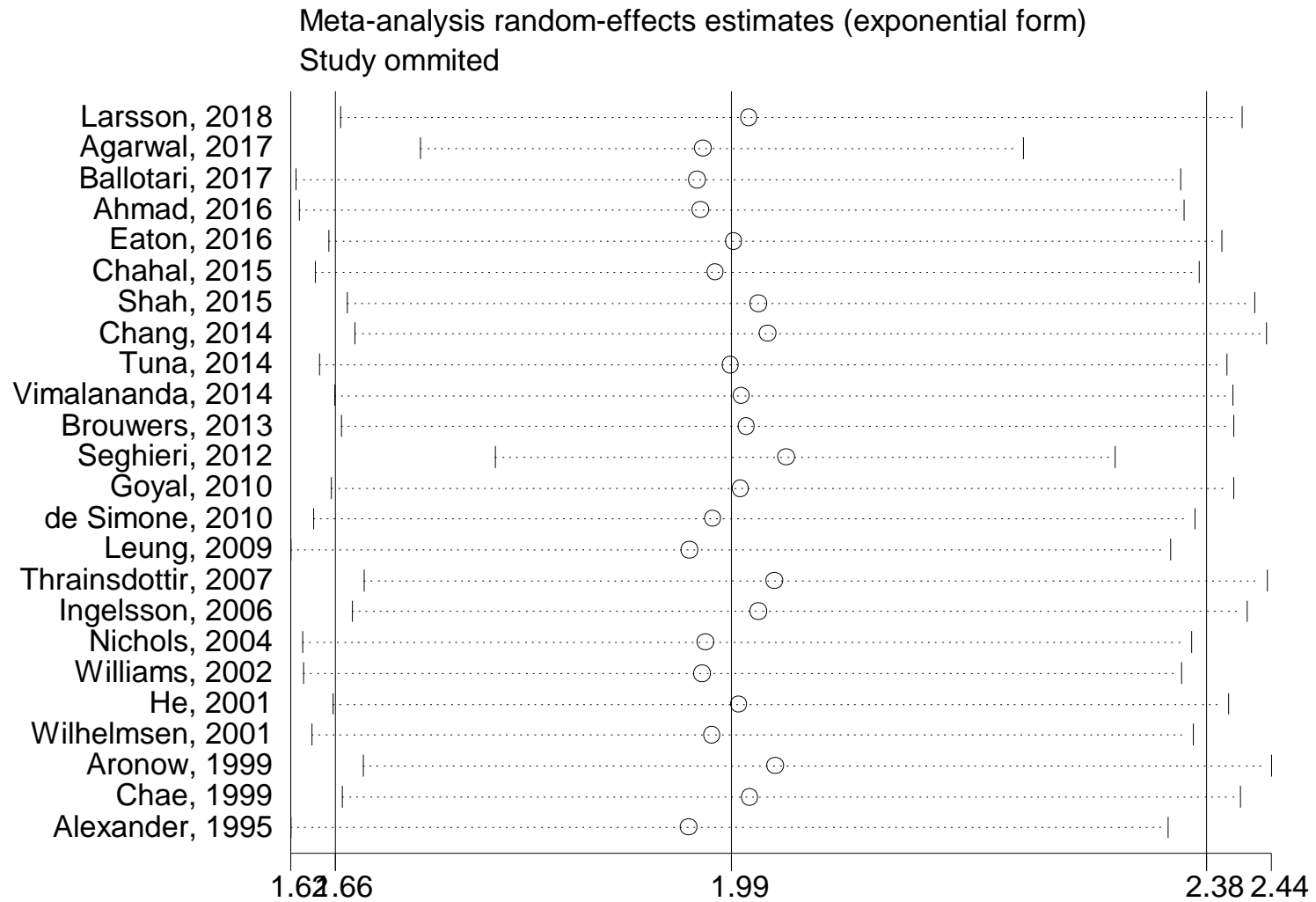
Author, publication year	Representativeness	Selection of non-exposed cohort	Exposure ascertainment	Demonstration of outcome not present at start	Adjustment for age	Adjustment for one more confounder	Assessment of outcome	Long enough follow-up for cases to occur	Adequacy of follow-up	Total score
Lewis, 2003	1	1	0	1	1	1	1	1	0	7
Wylie, 2004	1	1	0	1	1	1	1	0	0	6
Macchia, 2005	1	1	0	1	1	1	0	1	0	6
Kanaya, 2005	1	1	1	0	1	1	1	1	1	8
Aboufakher, 2005	1	1	0	1	1	1	1	0	0	6
Lewis, 2009	1	1	0	1	1	1	1	1	0	7
Aronson, 2010	1	1	0	0	1	1	1	0	0	5
Van Melle, 2010	1	1	0	1	1	1	1	1	1	8
Sato, 2012	1	1	1	0	1	1	1	1	0	7
Tajik, 2017	1	1	0	0	1	1	1	0	0	5
Gho, 2018	1	1	1	1	1	1	1	1	0	8
Kannel, 1999	1	1	1	1	1	1	1	1	0	8
Zornoff, 2002	1	1	0	1	1	1	1	0	0	6
Zhang, 2017	1	1	1	1	1	1	1	1	0	8
Cavender, 2015	1	1	1	0	1	1	1	1	0	7



Supplementary Figure 1. Funnel plot of diabetes mellitus and heart failure in population-based studies



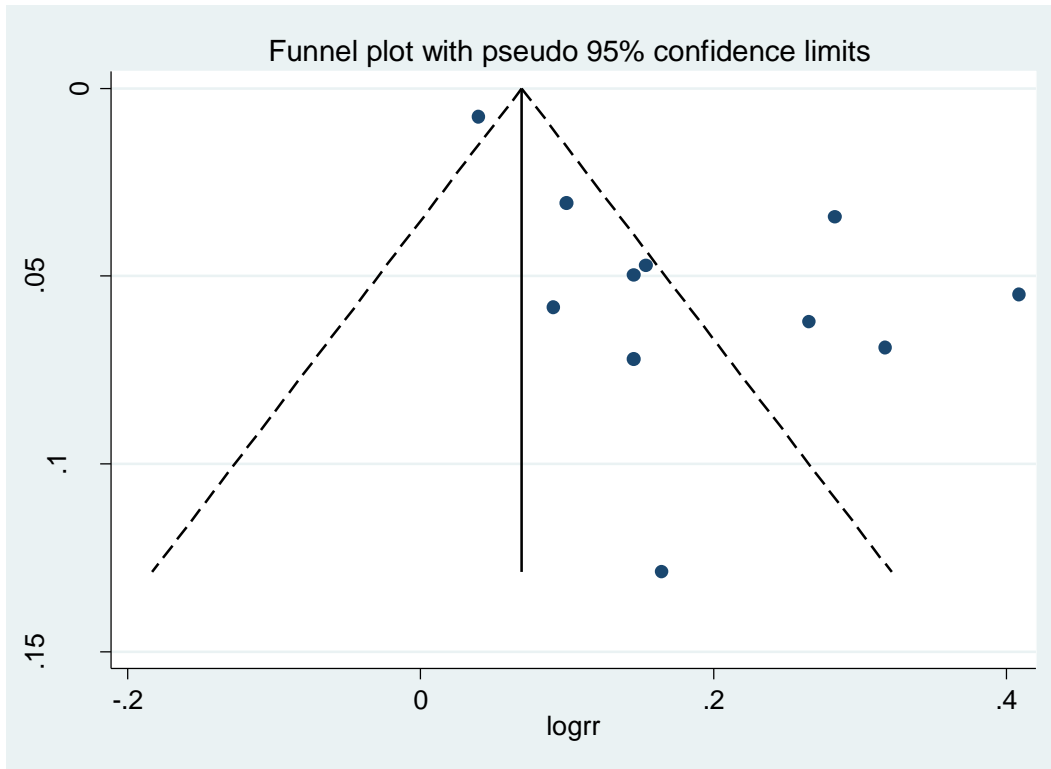
Supplementary Figure 2. Influence analysis of diabetes mellitus and heart failure in population-based studies



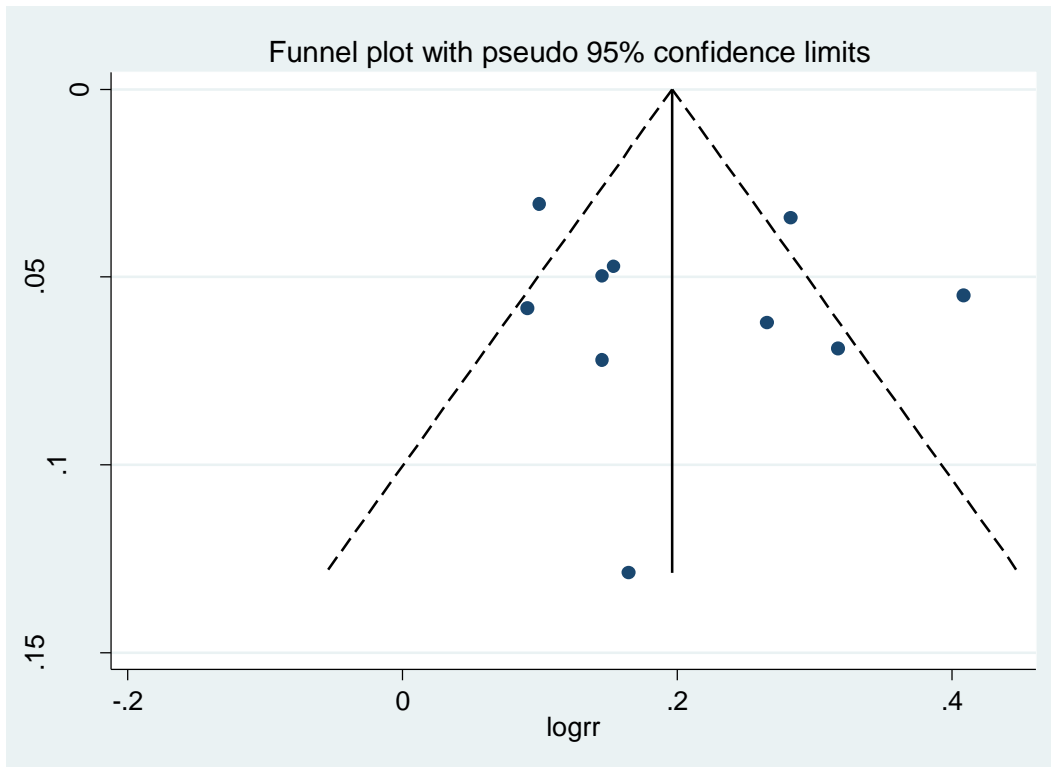


Study omitted	e <sup>coef.</sup>	[95% Conf. Interval]	
Larsson, 2018	2.0023124	1.6611966	2.4134743
Agarwal, 2017	1.963207	1.7278632	2.2306058
Ballotari, 2017	1.958639	1.6240646	2.3621392
Ahmad, 2016	1.9614838	1.6266441	2.3652494
Eaton, 2016	1.9893792	1.6512625	2.3967295
Chahal, 2015	1.9743103	1.6396446	2.377284
Shah, 2015	2.0100257	1.6668193	2.4239001
Chang, 2014	2.01774	1.6730831	2.4333968
Tuna, 2014	1.9863063	1.6433154	2.4008858
Vimalananda, 2014	1.9958447	1.6560329	2.4053848
Brouwers, 2013	1.9996232	1.6615525	2.4064801
Seghieri, 2012	2.0326166	1.7904385	2.3075519
Goyal, 2010	1.9948649	1.6535044	2.4066982
de Simone, 2010	1.9719924	1.6382207	2.3737669
Leung, 2009	1.9522402	1.6194379	2.353435
Thrainsdottir, 2007	2.0227649	1.6807446	2.4343839
Ingelsson, 2006	2.0096686	1.6706682	2.4174564
Nichols, 2004	1.9656956	1.6293976	2.3714037
Williams, 2002	1.9626653	1.6301132	2.3630598
He, 2001	1.9936411	1.6547613	2.4019203
Wilhelmsen, 2001	1.9708743	1.6371012	2.3726971
Aronow, 1999	2.0236595	1.6797389	2.4379966
Chae, 1999	2.0024846	1.6626621	2.4117613
Alexander, 1995	1.9513997	1.619441	2.3514044
Combined	1.9872592	1.6564793	2.3840921

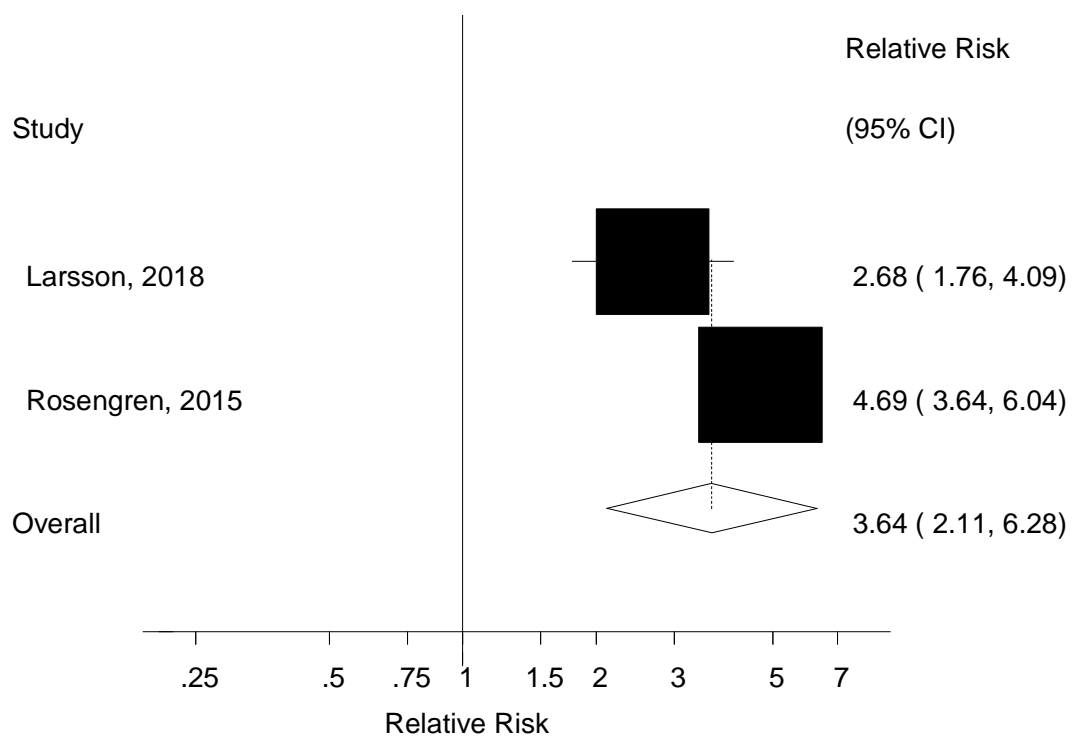
Supplementary Figure 3. Funnel plot of blood glucose and heart failure in population-based studies



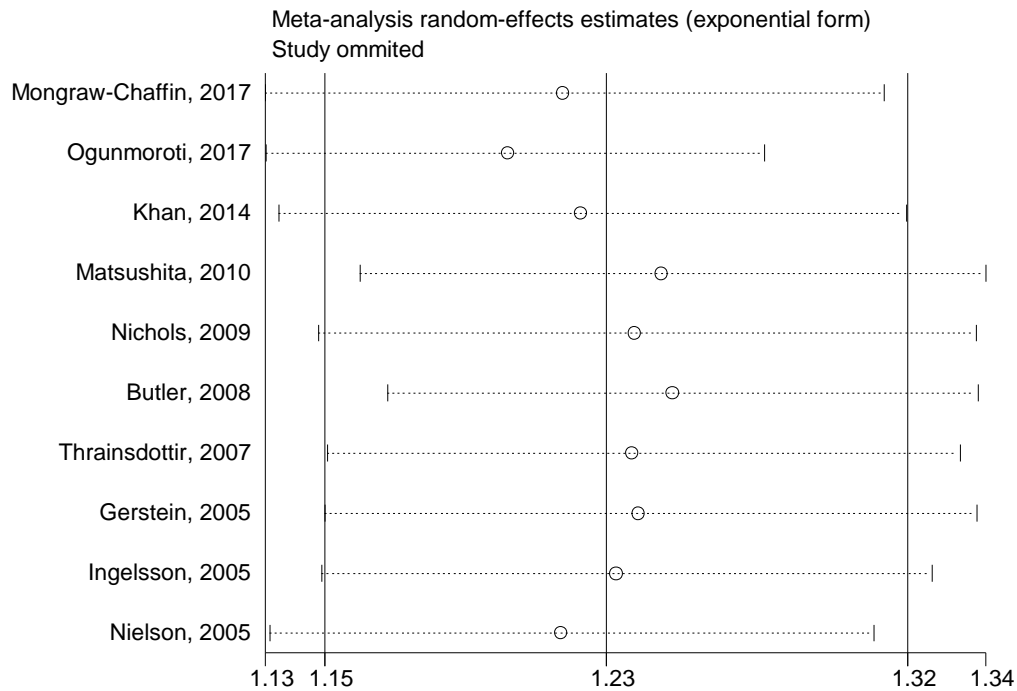
Supplementary Figure 4. Funnel plot of blood glucose and heart failure in population-based studies (excluding Jackson et al, 2017)



Supplementary Figure 5. Type 1 diabetes and heart failure.

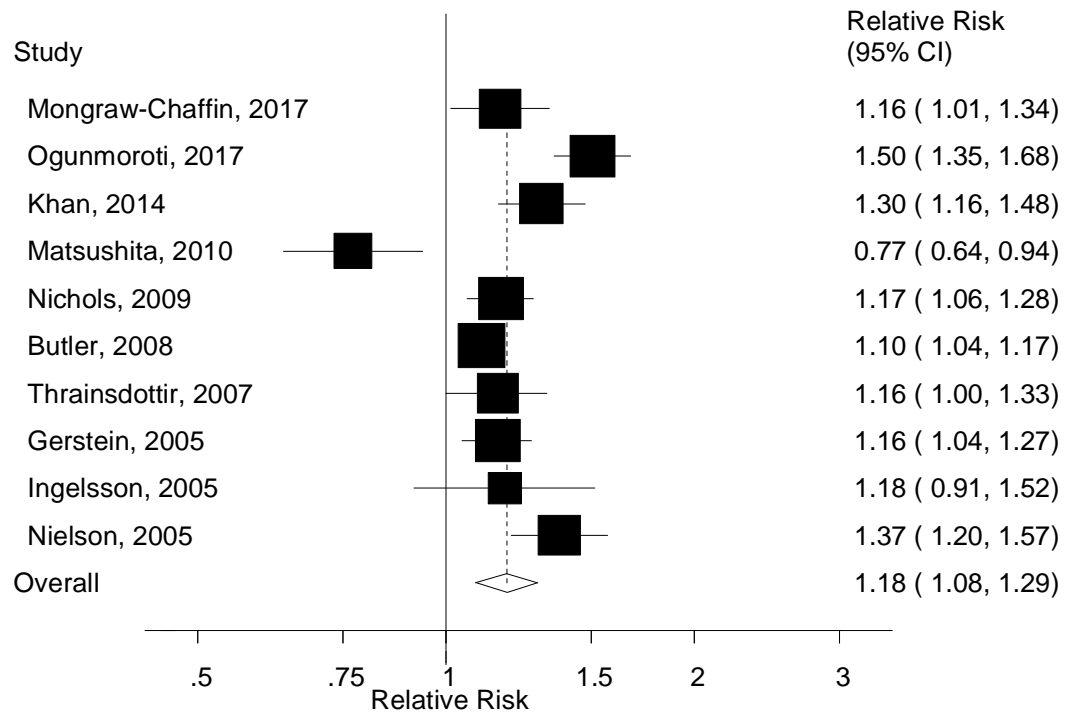


Supplementary Figure 6. Influence analysis of blood glucose and heart failure in population-based studies

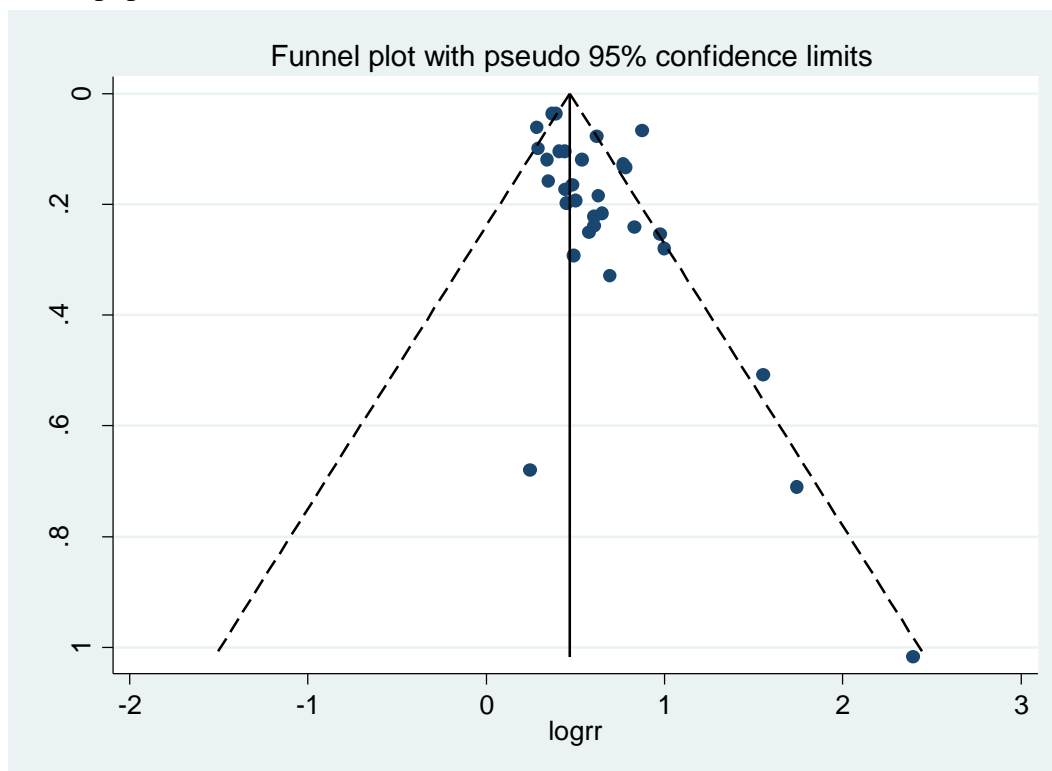


Study omitted	e <sup>coef.</sup>	[95% Conf. Interval]
Mongraw-Chaffin, 2017	1.2180294	1.1298121 1.3131347
Ogunmoroti, 2017	1.2016188	1.1301496 1.2776076
Khan, 2014	1.2232267	1.133868 1.3196276
Matsushita, 2010	1.2470987	1.1578467 1.3432307
Nichols, 2009	1.2392032	1.1455979 1.3404568
Butler, 2008	1.2504381	1.1659923 1.3409998
Thrainsdottir, 2007	1.2384132	1.1482694 1.3356335
Gerstein, 2005	1.2402946	1.1474578 1.3406425
Ingelsson, 2005	1.233657	1.1465827 1.3273438
Nielson, 2005	1.2173316	1.1311973 1.3100246
Combined	1.2308026	1.1475562 1.320088

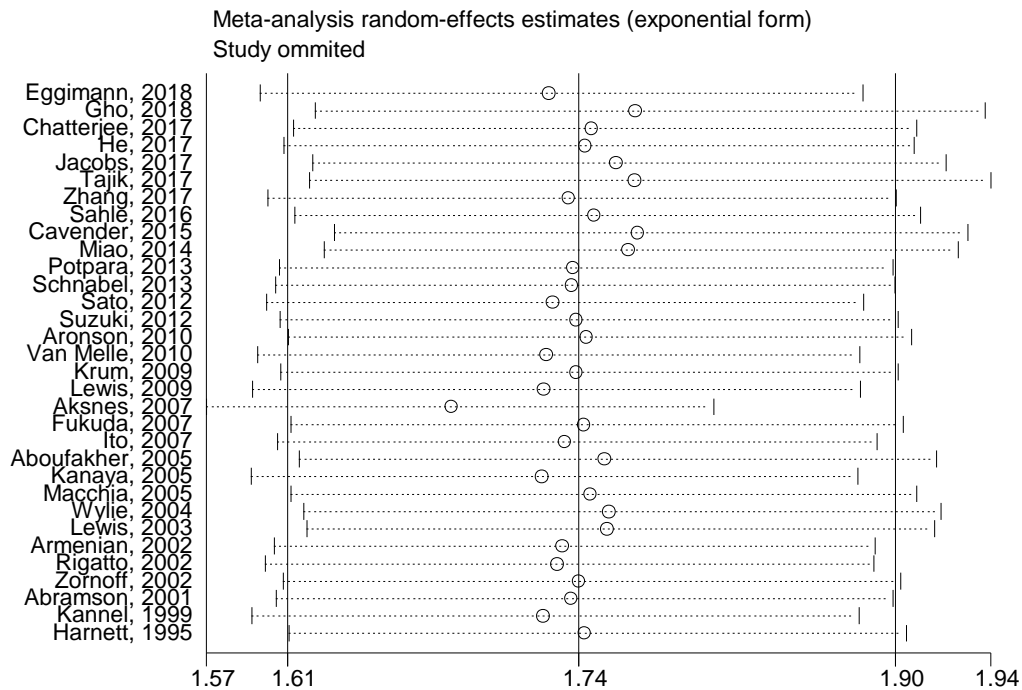
Supplementary Figure 7. Blood glucose and heart failure in population-based studies, per 20 mg/dl (sensitivity analysis using converted relative risks)



Supplementary Figure 8. Funnel plot of diabetes mellitus and heart failure in patient populations



Supplementary Figure 8. Influence analysis of diabetes mellitus and heart failure in patient populations



Study omitted	e <sup>coef.</sup>	[95% Conf. Interval]
Eggimann, 2018	1.7304927	1.5922481 - 1.8807402
Gho, 2018	1.7717284	1.6185817 - 1.9393654
Chatterjee, 2017	1.7509364	1.608041 - 1.9065299
He, 2017	1.7479905	1.6036103 - 1.90537
Jacobs, 2017	1.76255	1.6174217 - 1.9207004
Tajik, 2017	1.7715257	1.6158965 - 1.9421438
Zhang, 2017	1.7399068	1.5958908 - 1.8969191
Sahle, 2016	1.7522321	1.6088064 - 1.9084444
Cavender, 2015	1.7729313	1.6277233 - 1.9310932
Miao, 2014	1.768273	1.6230104 - 1.926537
Potpara, 2013	1.7420681	1.6014053 - 1.8950862
Schnabel, 2013	1.7415847	1.5996906 - 1.8960649
Sato, 2012	1.7322638	1.5952741 - 1.8810172
Suzuki, 2012	1.7435274	1.6017972 - 1.8977982
Aronson, 2010	1.7486017	1.6058396 - 1.9040555
Van Melle, 2010	1.729219	1.5910664 - 1.8793675
Krum, 2009	1.7436928	1.6021211 - 1.8977745
Lewis, 2009	1.7280228	1.5886208 - 1.8796573
Aksnes, 2007	1.683676	1.5665799 - 1.8095247
Fukuda, 2007	1.7473474	1.6068377 - 1.9001437
Ito, 2007	1.7381235	1.6004683 - 1.8876185
Aboufakher, 2005	1.7569152	1.6109982 - 1.9160489
Kanaya, 2005	1.7270709	1.587994 - 1.8783283

Macchia, 2005		1.7503735	1.6069318	1.9066193
Wylie, 2004		1.7590735	1.6130688	1.9182936
Lewis, 2003		1.7583961	1.614467	1.9151566
Armenian, 2002		1.7367648	1.5988806	1.8865399
Rigatto, 2002		1.7342359	1.5945762	1.8861276
Zornoff, 2002		1.7448311	1.6032044	1.8989692
Abramson, 2001		1.7412163	1.5997961	1.8951379
Kannel, 1999		1.7275889	1.588285	1.8791108
Harnett, 1995		1.7474886	1.6058998	1.901561
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Combined		1.7448275	1.6053087	1.8964719
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