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Appendix Table A. Search Strategies

Ovid

Database(s): Embase 1988 to 2012 Week 47, Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R) 1946 to Present, EBM Reviews - Cochrane Database of Systematic Reviews 2005 to November 2012
Search Strategy:

#	Searches
1	myocardial infarct*.mp.
2	heart attack*.mp.
3	exp Acute Coronary Syndrome/
4	acute coronary syndrome*.mp.
5	exp Myocardial Infarction/
6	exp heart infarction/
7	exp heart diseases/ and (emergency.mp. or exp emergency treatment/) [mp=ti, ab, sh, hw, tn, ot, dm, mf, dv, kw, nm, ps, rs, ui, tx, ct]
8	("cardiac infarct*" or "cardial infarct*" or ("coronary arter*" adj3 occlusion) or (heart adj2 infarct*) or "myocardium infarct*" or "premonitory infarction sign" or "subendocardial infarct*" or "myocardial stunning" or "cardiogenic shock" or "heart attack*").mp. [mp=ti, ab, sh, hw, tn, ot, dm, mf, dv, kw, nm, ps, rs, ui, tx, ct]
9	(heart or coronary).mp. and (emergency.mp. or exp emergency treatment/) [mp=ti, ab, sh, hw, tn, ot, dm, mf, dv, kw, nm, ps, rs, ui, tx, ct]
10	or/1-9
11	exp Stroke/
12	exp cerebrovascular accident/
13	(stroke or strokes or apoplexy or "cerebrovascular accident*" or ((cerebrovascular or cerebral or brain) adj3 (insult or insultus or accident* or "blood flow disturbance*")) or apoplexia or "brain ischemic attack*" or "brain ischaemic attack*" or "cerebral vascular insufficiency" or (cerebrovascular adj3 (insufficiency or arrest or failure or injur* or trauma)) or "cerebrum vascular accident*" or "ischemic seizure*" or "ischaemic seizure*" or "ischemic cerebral attack*" or "ischaemic cerebral attack*").mp. [mp=ti, ab, sh, hw, tn, ot, dm, mf, dv, kw, nm, ps, rs, ui, tx, ct]
14	or/11-13
15	10 or 14
16	exp After-Hours Care/
17	("after hours" or "after hour" or "off hour" or "off hours" or weekend* or "out of hours").mp. and ((care or admission* or admitted or admitting).mp. or time factors/) [mp=ti, ab, sh, hw, tn, ot, dm, mf, dv, kw, nm, ps, rs, ui, tx, ct]
18	from 16 keep 1470235-1471116
19	17 or 18
20	15 and 19
21	exp controlled study/
22	(control$ adj2 (study or studies or trial or trials)).mp. [mp=ti, ab, sh, hw, tn, ot, dm, mf, dv, kw, nm, ps, rs, ui, tx, ct]
23	meta analysis/
24	meta-analys$.mp.
25	exp "systematic review"/
26	(systematic* adj review$).mp.
27	exp Cohort Studies/

28 exp longitudinal study/

29 exp retrospective study/

30 exp prospective study/

31 exp comparative study/

32 exp clinical trial/

33 exp cross-sectional study/

34 crossover procedure/

35 exp cross-over studies/

36 ((clinical or comparative or cohort or longitudinal or retrospective or prospective or concurrent or "cross-sectional" or crossover or "cross-over" or multivariate or multivariable) adj (study or studies or survey or surveys or analysis or analyses or trial or trials)).mp.

37 ("crossover procedure" or "cross-over procedure" or study or "process analysis").mp. [mp=ti, ab, sh, hw, tn, ot, dm, mf, dv, kw, nm, ps, rs, ui, tx, ct]

38 or/21-37

39 20 and 38

40 from 20 keep 428-677

41 limit 40 to (clinical trial, all or clinical trial, phase i or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or clinical trial or comparative study or controlled clinical trial or meta analysis or multicenter study) [Limit not valid in Embase,CDSR; records were retained]

42 39 or 41

43 limit 42 to (book or book series or editorial or erratum or letter or note or addresses or autobiography or bibliography or biography or comment or dictionary or directory or interactive tutorial or interview or lectures or legal cases or legislation or news or newspaper article or overall or patient education handout or periodical index or portraits or published erratum or video-audio media or webcasts) [Limit not valid in Embase,Ovid MEDLINE(R),Ovid MEDLINE(R) In-Process,CDSR; records were retained]

44 42 not 43

45 from 20 keep 678-1296

46 44 or 45

47 remove duplicates from 46

48 from 47 keep 336-954

49 ((heart or coronary) and emergency).ti,ab,kw.

50 (myocardial infarct* or heart attack* or acute coronary syndrome* or ("cardiac infarct*" or "cardial infarct*" or ("coronary arter*" adj3 occlusion) or (heart adj2 infarct*) or "myocardium infarct*" or "premonitory infarction sign" or "subendocardial infarct*" or "myocardial stunning" or "cardiogenic shock" or "heart attack*") or (stroke or strokes or apoplexy or "cerebrovascular accident*" or ((cerebrovascular or cerebral or brain) adj3 (insult or insultus or accident* or "blood flow disturbance*")) or apoplexia or "brain ischemic attack*" or "brain ischaemic attack*" or "cerebral vascular insufficiency" or (cerebrovascular adj3 (insufficiency or arrest or failure or injur* or trauma)) or "cerebrum vascular accident*" or "ischemic seizure*" or "ischaemic seizure*" or "ischemic cerebral attack*" or "ischaemic cerebral attack*")).ti,ab,kw.

51 48 and (49 or 50)

52 ("after hours" or "after hour" or "off hour" or "off hours" or weekend* or "out of hours").ti,ab,kw.

53 51 and 52

54 47 not 48

55 53 or 54

Scopus

1 TITLE-ABS-KEY("cardiac infarct*" or "cardial infarct*" or ("coronary arter*" W/3 occlusion) or (heart W/2 infarct*) or "myocardium infarct*" or "premonitory infarction sign" or "subendocardial infarct*" or "myocardial stunning" or "cardiogenic shock" or "heart attack*" or (heart and emergency) or (coronary and emergency))

2 TITLE-ABS-KEY(stroke or strokes or apoplexy or "cerebrovascular accident*" or (cerebrovascular W/3 insult) or (cerebrovascular W/3 insultus) or (cerebrovascular W/3 accident*) or (cerebrovascular W/3 "blood flow disturbance*") or (cerebral W/3 insult) or (cerebral W/3 insultus) or (cerebral W/3 accident*) or (cerebral W/3 "blood flow disturbance*") or (brain W/3 insult) or (brain W/3 insultus) or (brain W/3 accident*) or (brain W/3 "blood flow disturbance*") or apoplexia or "brain ischemic attack*" or "brain ischaemic attack*" or "cerebral vascular insufficiency" or (cerebrovascular W/3 insufficiency) or (cerebrovascular W/3 arrest) or (cerebrovascular W/3 failure) or (cerebrovascular W/3 injur*) or (cerebrovascular W/3 trauma) or "cerebrum vascular accident*" or "ischemic seizure*" or "ischaemic seizure*" or "ischemic cerebral attack*" or "ischaemic cerebral attack*")

3 1 or 2

4 TITLE-ABS-KEY(("after hours" or "after hour" or "off hour" or "off hours" or weekend* or "out of hours") and (care or admission* or admitted or admitting))

5 TITLE-ABS-KEY((meta W/1 analys*) OR (systematic* W/2 review*) OR (control* W/2 stud*) OR "comparative stud*" OR "comparative survey*" OR "comparative analys*" OR "cohort stud*" OR "cohort survey*" OR "cohort analys*" OR "longitudinal stud*" OR "longitudinal survey*" OR "longitudinal analys*" OR "retrospective stud*" OR "retrospective survey*" OR "retrospective analys*" or "prospective stud*" OR "prospective survey*" OR "prospective analys*" or "concurrent stud*" OR "concurrent survey*" OR "concurrent analys*" or "clinical stud*" OR "clinical trial*" or "cross-sectional stud*" or "cross-sectional analys*" or "cross-over stud*" or "cross-over analys*" or "cross-over procedure" or "crossover stud*" or "crossover analys*" or "crossover procedure" or "multivariate analys*" or "multivariate stud*" or "multivariable analys*" or "multivariable stud*" or study or “process analysis”)

6 3 and 4 and 5

7 PMID(0*) OR PMID(1*) OR PMID(2*) OR PMID(3*) OR PMID(4*) OR PMID(5*) OR PMID(6*) OR PMID(7*) OR PMID(8*) OR PMID(9*)

8 6 and not 7

9 DOCTYPE(le) OR DOCTYPE(ed) OR DOCTYPE(bk) OR DOCTYPE(er) OR DOCTYPE(no) OR DOCTYPE(sh)

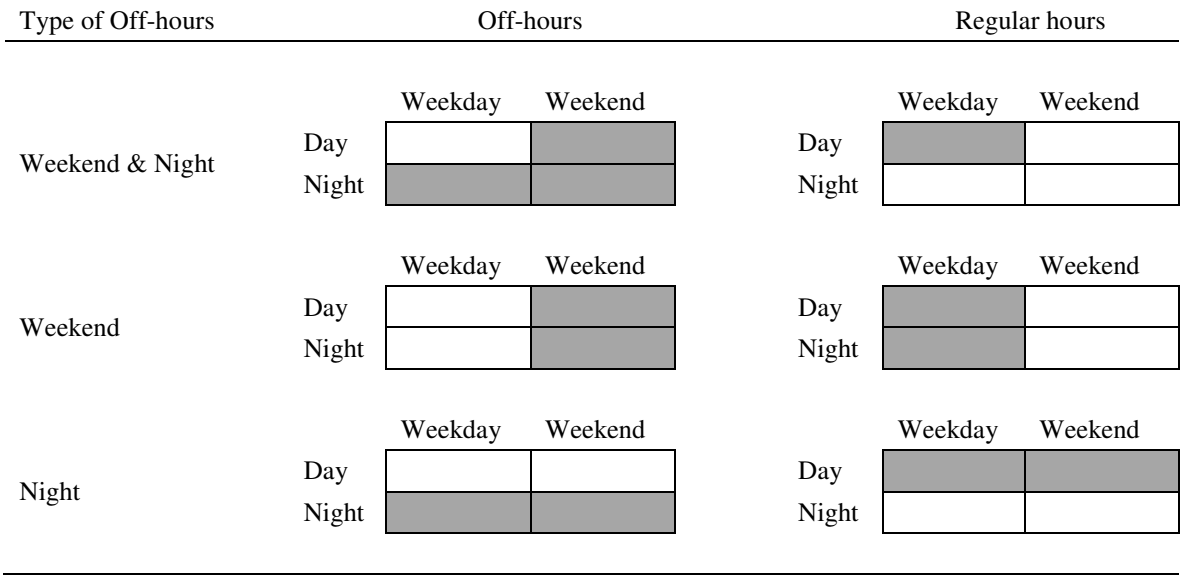
10 8 and not 9

Appendix Table B. Quality Assessment of the Eligible Cohort Studies

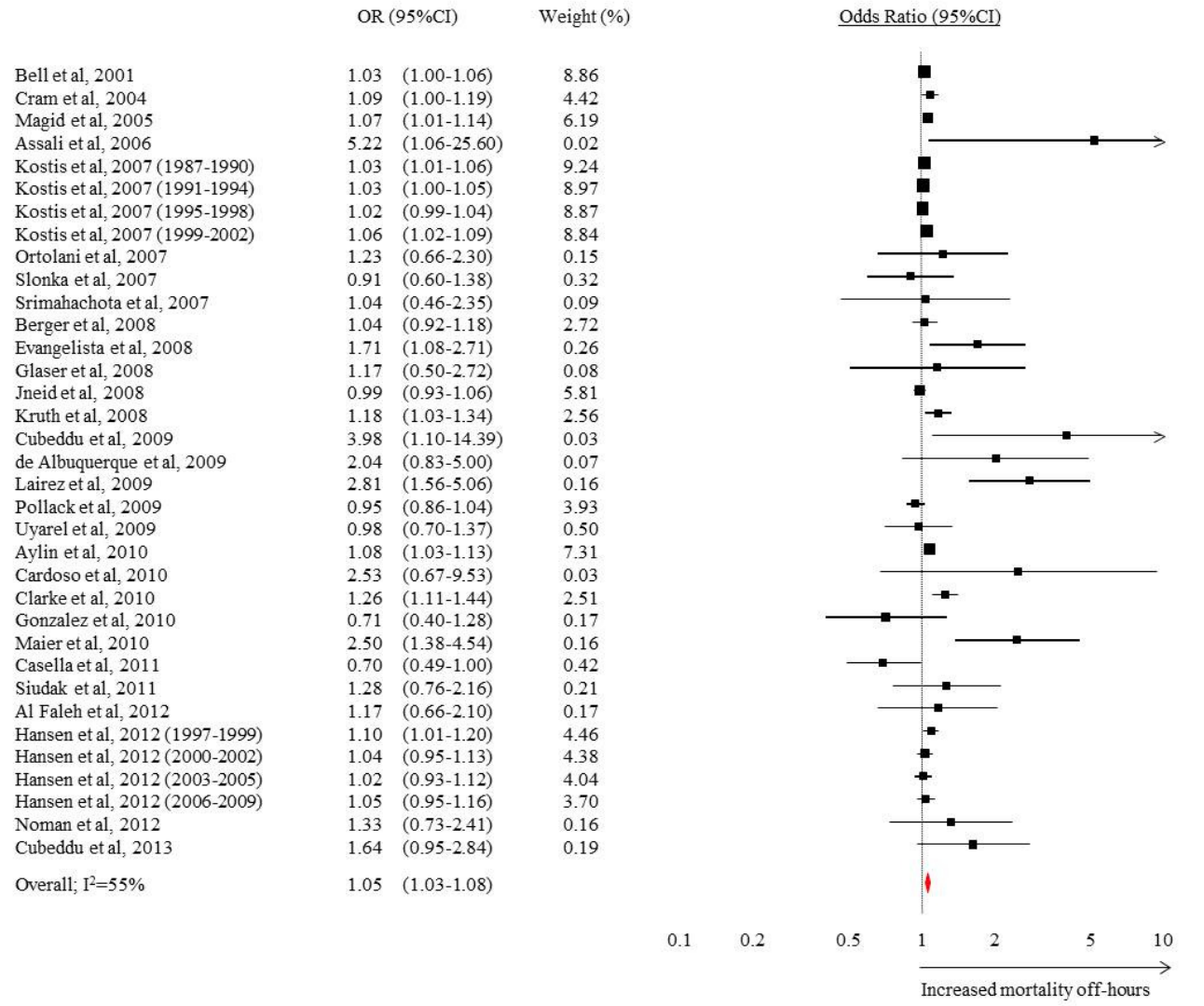
	Cohort Selection				Comparability		Outcome		
Author	Exposed group represents average in community	Nonexposed represents the same community as exposed	Ascertain exposure through records or structured interviews	Demonstration that outcomes not present at start of study	Adjusted by pre-hospital delay	Adjusted by any other factors	Confirm outcome via secure record	Follow-up long enough for outcome to occur	Loss to follow-up <10%
Abi Rafeh et al, 2009	✓	✓	✓	✓			✓	✓	✓
Afolabi et al, 2007	✓	✓	✓	✓			✓	✓	✓
Ahmar et al, 2008	✓	✓	✓	✓			✓	✓	✓
Al Faleh et al, 2012	✓	✓	✓	✓			✓	✓	✓
Assali et al, 2006	✓	✓	✓	✓	✓	✓	✓	✓	✓
Aylin et al, 2010	✓	✓	✓	✓		✓	✓	✓	✓
Becker et al, 2009	✓	✓	✓	✓		✓	✓	✓	✓
Becker et al, 2007		✓	✓	✓			✓	✓	✓
Bell et al, 2001	✓	✓	✓	✓		✓	✓	✓	✓
Beohar et al, 2001	✓	✓	✓	✓			✓	✓	✓
Berger et al, 2008	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cardoso et al, 2010	✓	✓	✓	✓			✓	✓	✓
Casella et al, 2011	✓	✓	✓	✓		✓	✓	✓	✓
Clarke et al, 2010	✓	✓	✓	✓		✓	✓	✓	✓
Cram et al, 2004	✓	✓	✓	✓		✓	✓	✓	✓
Cubeddu et al, 2013	✓	✓	✓	✓		✓	✓	✓	✓
Cubeddu et al, 2009	✓	✓	✓	✓		✓	✓	✓	✓
de Albuquerque et al, 2009	✓	✓	✓	✓			✓	✓	✓
de Boer et al, 2012	✓	✓	✓	✓		✓	✓	✓	✓
Evangelista et al, 2008	✓	✓	✓	✓		✓	✓	✓	✓
Garceau et al, 2007	✓	✓	✓	✓			✓	✓	✓
Glaser et al, 2008	✓	✓	✓	✓	✓	✓	✓	✓	✓
Gonzalez et al, 2010	✓	✓	✓	✓			✓	✓	✓
Graham et al, 2011	✓	✓	✓	✓		✓	✓	✓	✓
Hansen et al, 2012	✓	✓	✓	✓		✓	✓	✓	✓
Henriques et al, 2003	✓	✓	✓	✓			✓	✓	✓
Holmes et al, 2008	✓	✓	✓	✓			✓	✓	✓
Hong et al, 2010	✓	✓	✓	✓		✓	✓	✓	✓
Horst et al, 2012	✓	✓	✓	✓		✓	✓	✓	✓

Jneid et al, 2008	✓	✓	✓	✓		✓	✓	✓	✓
Khot et al, 2007	✓	✓	✓	✓			✓	✓	✓
Kostis et al, 2007	✓	✓	✓	✓		✓	✓	✓	✓
Kruth et al, 2008	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lairez et al, 2009	✓	✓	✓	✓		✓	✓	✓	✓
Magid et al, 2005	✓	✓	✓	✓	✓	✓	✓	✓	✓
Maier et al, 2010	✓	✓	✓	✓		✓	✓	✓	✓
Nakamura et al, 2013	✓	✓	✓	✓			✓	✓	✓
Noman et al, 2012	✓	✓	✓	✓		✓	✓	✓	✓
Ortolani et al, 2007	✓	✓	✓	✓		✓	✓	✓	✓
Parikh et al, 2008	✓	✓	✓	✓		✓	✓	✓	✓
Pedersen et al, 2009	✓	✓	✓	✓		✓	✓	✓	✓
Pollack et al, 2009		✓	✓	✓		✓	✓	✓	✓
Rodriguez-Leor et al, 2011	✓	✓	✓	✓			✓	✓	✓
Sadeghi et al, 2004	✓	✓	✓	✓	✓	✓	✓	✓	✓
Siudak et al, 2011	✓	✓	✓	✓			✓	✓	✓
Slonka et al, 2007	✓	✓	✓	✓			✓	✓	✓
Srimahachota et al, 2007	✓	✓	✓	✓	✓	✓	✓	✓	✓
Uyarel et al, 2009	✓	✓	✓	✓		✓	✓	✓	✓

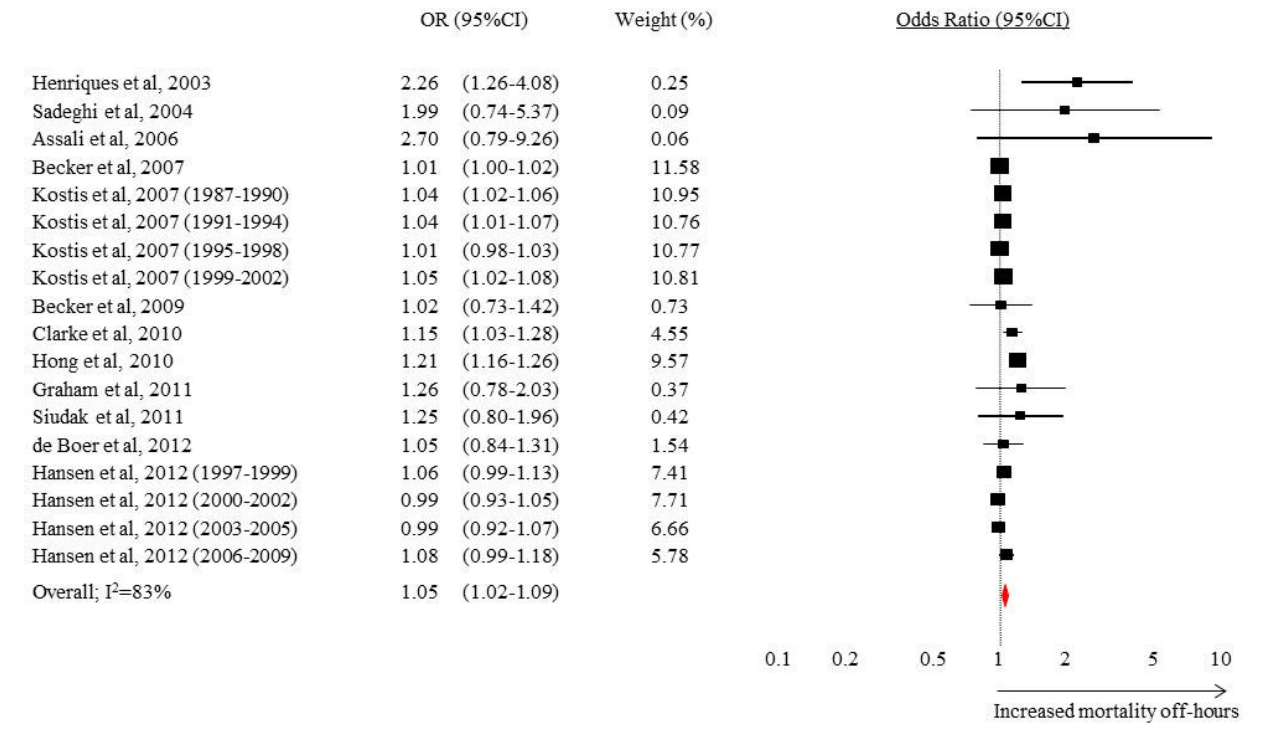
Appendix Figure A. Type of Off-hours



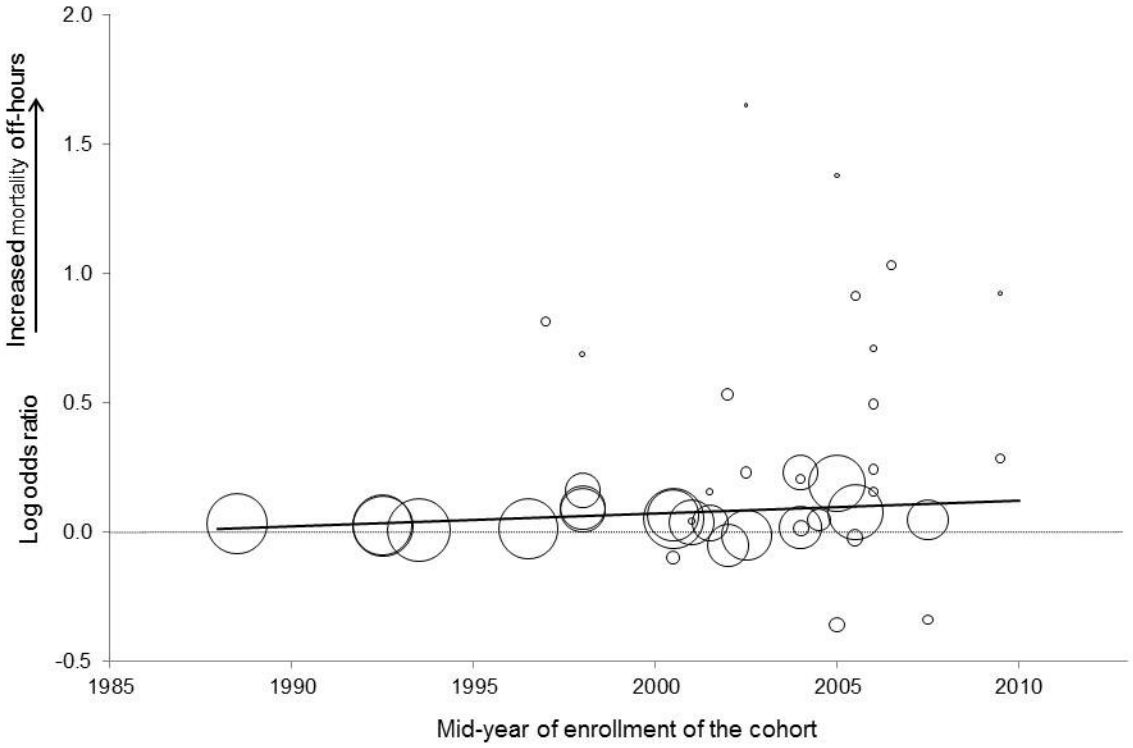
Appendix Figure B. Odds Ratio for In-hospital AMI Mortality during Off-hours vs. Regular Hours



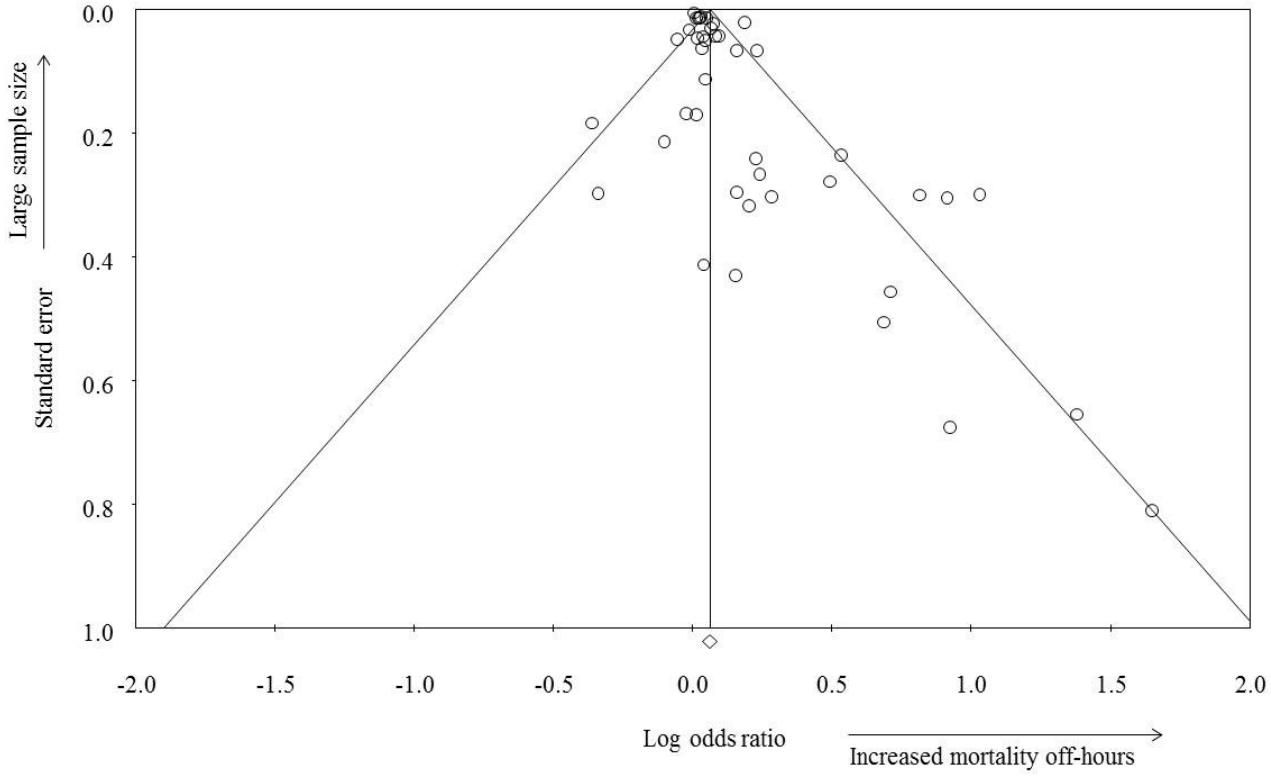
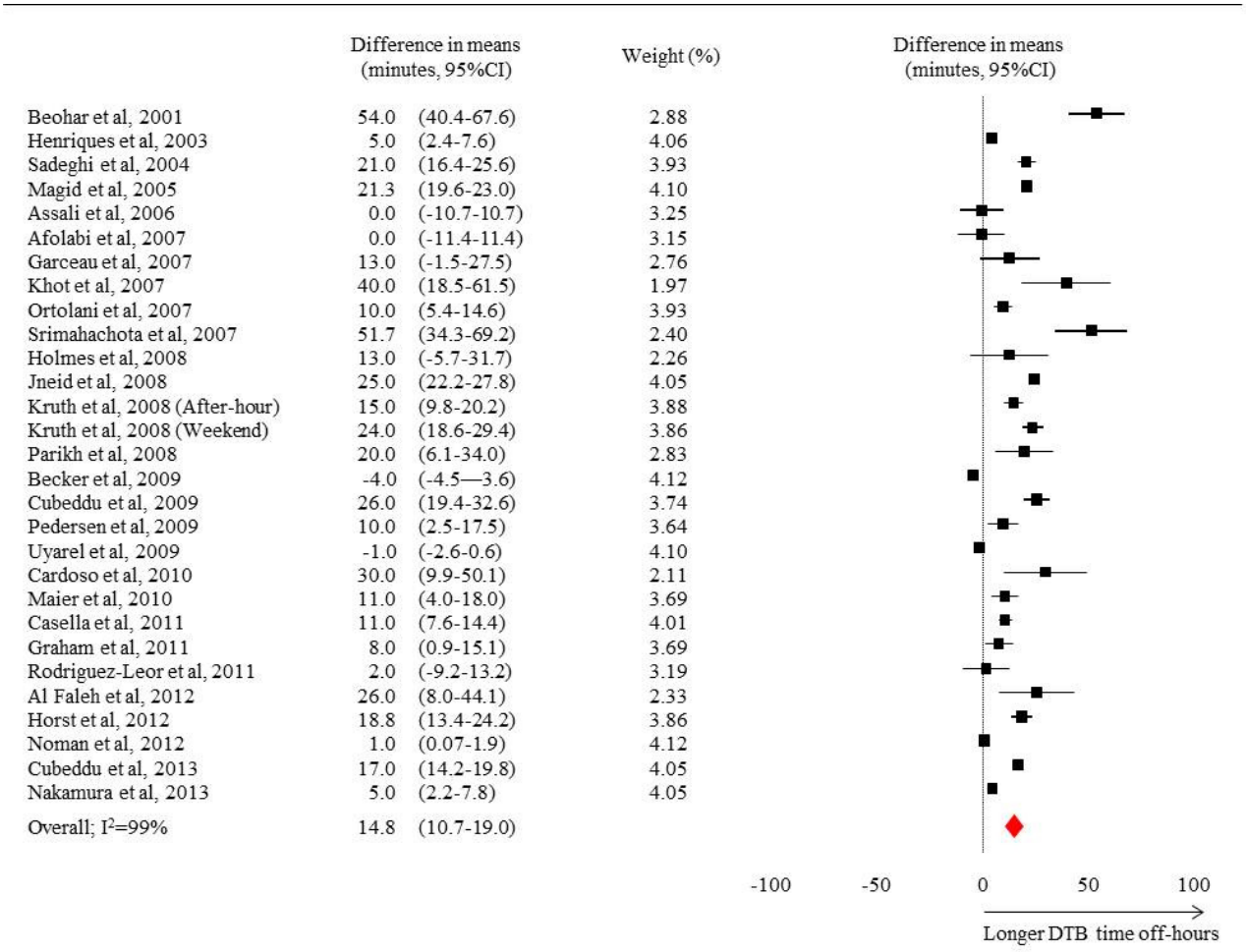
Appendix Figure C. Odds Ratio for 30-day AMI Mortality during Off-hours vs. Regular Hours



Appendix Figure D. Meta-regression for In-hospital or 30-day mortality



Appendix Figure E. Funnel Plot for In-hospital or 30-day Mortality



Appendix Figure F. Mean Difference for Door-to-balloon Times for STEMI Patients during Off-hours vs. Regular Hours