NKR delir PICO 2 Multikomponent hos patienter med risiko for delir

Review information

Authors

Sundhedsstyrelsen[1]

[1][Empty affiliation]

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Contact person

[Empty name]

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What's new

Date / Event	Description

History

Date / Event	Description

Characteristics of studies

Characteristics of included studies

Abizanda 2011

Methods	
Participants	
Interventions	
Outcomes	
Notes	For more information see: Siddiqi N, Harrison JK, Clegg A, Teale EA, Young J, Taylor J, Simpkins SA. Interventions for preventing delirium in hospitalised non-ICU patients. Cochrane Database of Systematic Reviews 2016, Issue 3

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	
Allocation concealment (selection bias)	Low risk	
Blinding of participants and personnel (performance bias)	High risk	
Blinding of outcome assessment (detection bias)	Low risk	
Incomplete outcome data (attrition bias)	Low risk	
Selective reporting (reporting bias)	Low risk	
Other bias	Low risk	

Avendano Cespedes 2016

Methods	**Study design:** Randomized controlled trial **Study grouping:** **Open Label:** **Cluster RCT:**
Participants	**Baseline Characteristics** Intervention ● *Age*: 85.8 (6.2) ● *Gender (male n/female n)*: 10/11 ● *Charlson's comorbidity score*: 2.1 (1.7) Control ● *Age*: 87.0 (4.9) ● *Gender (male n/female n)*: 16/13 ● *Charlson's comorbidity score*: 2.2 (1.3) **Included criteria:** Patientswithanageequalorolderthan65years,hospitalizedattheAGUoftheComplejoHospitalarioUniversitarioofAlbacetefrom October2013untilFebruary2014,withavalidsignedinformedconsentbythepatientorlegalrepresentative. **Excluded criteria:** Exclusion criteria were agonic situation, non-Spanish speaking, severe cognitive decline (Reisbergıs´ Global DeteriorationScale = 7), and patients sharing the same room with a previously included participant to avoid contamination bias (every room at the AGU has two beds). **Pretreatment:**
Interventions	**Intervention Characteristics** Intervention ● *Description*: Participants in the intervention group received theinitial interventionin the first 24 h from admission, and thereafter daily untilhospital discharge. Participants in the control group received usualmedical and nurse care during all the hospitalization process. Fig. 1presents the study flow diagram.The intervention was carried out exclusively by the “interventionnurses”, and was composed of two main parts, being the firstone a risk factor analysis, and the second one the interventionon the risk factors detected. Table 1 describes the interventionon each specific risk factor. Furthermore, the intervention nursesidentified the principal caregiver in the first 24 h from admission,and provided an informative booklet about strategies andrecommendations to prevent delirium incidence,

	including ambientstrategies, orientation abilities, and identification of alert signs Control ● *Description*: Usual care
Outcomes	*Delirium* ● **Outcome type**: DichotomousOutcome *Delirium severity* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Fully reported ● **Scale**: Delirium Rating Scale Revised 98 (DRS-R-98) ● **Range**: 0-39 pr day, result is summed up over the days with delirium ● **Direction**: Lower is better ● **Data value**: Endpoint *Duration of delirium* ● **Outcome type**: ContinuousOutcome ● **Unit of measure**: Days *Inpatient mortality* ● **Outcome type**: DichotomousOutcome *Length of admission* ● **Outcome type**: ContinuousOutcome ● **Unit of measure**: Days ● **Notes**: SD imputed from complete sample
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Quote: "Randomization was computer based, using computer- generated random numbers, with a proportion of 1:1 between control group and intervention group. The block size used for the computer generation of randomization codes was 874 par- ticipants, the complete sample size for the MID-Nurse Study. For this reason there was a discrepancy in the numbers between the two groups."
Allocation concealment (selection bias)	Low risk	Quote: "After randomization before participant allocation, opaque envelopes were used to store the data with sequential study numbers."
Blinding of participants and personnel (performance bias)	High risk	Quote: "Blinding of investigator and participants was not possible to perform due to the nature of the intervention."
Blinding of outcome assessment (detection bias)	Low risk	Quote: "Intervention and evaluation were always conducted by different study personnel, to avoid measurement biases. For these reason, we created the roles of “intervention nurse” and “evaluation nurse”. One of the strengths of this study is the blinding of the outcome assessor. Last, all statistical analyses were realized by study person- nel that did not take part in the evaluation or intervention process."
Incomplete outcome data (attrition bias)	Low risk	Judgement Comment: No drop out
Selective reporting (reporting bias)	Low risk	Judgement Comment: Match to protocol
Other bias	Low risk	Judgement Comment: No other apparent bias

Bonaventura 2007

Methods	
Participants	
Interventions	
Outcomes	
Notes	For more information see: Siddiqi N, Harrison JK, Clegg A, Teale EA, Young J, Taylor J, Simpkins SA. Interventions for preventing delirium in hospitalised non-ICU patients. Cochrane Database of Systematic Reviews 2016, Issue 3

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	High risk	
Allocation concealment (selection bias)	High risk	
Blinding of participants and personnel (performance bias)	High risk	
Blinding of outcome assessment (detection bias)	Unclear risk	Unclear
Incomplete outcome data (attrition bias)	Low risk	
Selective reporting (reporting bias)	Unclear risk	Unclear
Other bias	Low risk	

Guo 2016

Methods	**Study design:** Randomized controlled trial **Study grouping:** Parallel group **Open Label:** **Cluster RCT:**
Participants	**Baseline Characteristics** Intervention ● *Age*: 73.3 (6.1) ● *Gender (male n/female n)*: 31/50 ● *Charlson's comorbidity score*: 1.7 (0.9) Control ● *Age*: 73.7 (5.2) ● *Gender (male n/female n)*: 34/45 ● *Charlson's comorbidity score*: 1.6 (0.8) **Included criteria:** The inclusion criteria were as follows: ASA (American Society of Anesthesiologists) physical status I–III; age >-65 years and 80 years; and duration of postoperative stay in the SICU -3 days.

	Excluded criteria: The exclusion criteria were as follows: history of CNS disorders, such as brain injury, stroke, or neurosurgery; history of mental illness; MMSE (Mini-Mental State Examination) score 24 or dementia of various etiologies; history of endocrine and metabolic disorders; recent use of glucocorticoids; alcohol or drug dependence; secondary surgery or severe infectious complications (American College of Chest Physicians/Society of Critical Care Medicine, 1992); unwilling to complete the experiment or language barriers; severe hearing or visual impairment; and illiteracy **Pretreatment:** None detected
Interventions	**Intervention Characteristics** Intervention ● *Description*: Multicomponent, nonpharmacologic interventionsIn their SICU, Group I received MNI, which was based on the usual care. The MNI was designed to minimize the risk factors for PD. The MNI treatments are described below. First, all staff servicing Group Ireceived systematic psychological training and guidance by a geriatricspecialist. The preoperative health education was strengthened. Inaddition to providing psychological guidance to the patients, the staffinvited the patients to visit the SICU to become acquainted with theenvironment. Moreover, artificial trachea and other indwellingcatheters were introduced to the patients. Calendars, clocks, cellphones, radios, glasses, and hearing aids were repeatedly offered toaccomplish time, place and character orientation. These stimulatingcognitive activitieswereofferedto thepatients three timesperday.ACommunication card and WordPad were created for patients whounderwentindwelling endotracheal intubation or a tracheostomy toallowthem to effectivelycommunicate.As a result,the needs ofthesepatients were understood in a timely manner, and their substantiveissues were settled. Noise was decreased as much as possible. Forexample, various alerttones of the alarm systemwere modulated tobe gentler. Specific measures to maintain a good sleep-wake cyclewere adopted.Forexample, the roomwas illuminatedbynaturallightduring the day and by downy light at night. In addition, between23:00–5:00, allnursingprocedureswereminimized.Additionally, aneyeshade and acoustic earplugs were allocated. If the patient'scondition permitted, no restraint straps or indwelling catheters were applied. Patients were interviewed before surgery to determine their musical preferences. After surgery, bedside MP3 players wereprovided to play light music through headphones for one hour three times daily. If the patient's gastrointestinal function permitted, nasalfeeding was administered as soon as possible. Control ● *Description*: Usual careGroup U received the usual care at the other SICU. The usual careconsisted of standard hospital services provided by physicians,nurses, and support staff (e.g., physical therapists, pharmacists,and dietitians). The staff of the MNI team did not provide servicesto the patients assigned to the usual care group. Nevertheless, thesame attending and resident physicians provided treatments topatients in both groups.

Outcomes	*Delirium* ● **Outcome type**: DichotomousOutcome ● **Reporting**: Fully reported *Delirium severity* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Not reported *Duration of delirium* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Fully reported ● **Unit of measure**: Hours ● **Data value**: Endpoint *Inpatient mortality* ● **Outcome type**: DichotomousOutcome ● **Reporting**: Not reported *Length of admission* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Not reported
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Quote: "the suitable patients were randomly divided into 2 groups (Group I or Group U) using a random table"
Allocation concealment (selection bias)	Low risk	Quote: "sealed envelope technique"
Blinding of participants and personnel (performance bias)	High risk	Judgement Comment: Not blinded

Blinding of outcome assessment (detection bias)	Low risk	Quote: "7) (Myles et al., 2000). These assessments were performed by the same investigator who was blinded to the patient's group assignment (Dr. Sun). 2.7. Statistical analyses"
Incomplete outcome data (attrition bias)	Low risk	Judgement Comment: low drop out rate
Selective reporting (reporting bias)	Unclear risk	Judgement Comment: OBS No reporting on mortality
Other bias	Low risk	Judgement Comment: No other apparent bias

Hempenius 2013

Methods	
Participants	
Interventions	
Outcomes	
Notes	For more information see: Siddiqi N, Harrison JK, Clegg A, Teale EA, Young J, Taylor J, Simpkins SA. Interventions for preventing delirium in hospitalised non-ICU patients. Cochrane Database of Systematic Reviews 2016, Issue 3

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	
Allocation concealment (selection bias)	Low risk	
Blinding of participants and personnel (performance bias)	High risk	
Blinding of outcome assessment (detection bias)	Low risk	
Incomplete outcome data (attrition bias)	Unclear risk	Unclear
Selective reporting (reporting bias)	Low risk	
Other bias	Low risk	

Jeffs 2013

Methods	
Participants	
Interventions	
Outcomes	
Notes	For more information see: Siddiqi N, Harrison JK, Clegg A, Teale EA, Young J, Taylor J, Simpkins SA. Interventions for preventing delirium in hospitalised non-ICU patients. Cochrane Database of Systematic Reviews 2016, Issue 3

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	
Allocation concealment (selection bias)	Unclear risk	Unclear
Blinding of participants and personnel (performance bias)	High risk	
Blinding of outcome assessment (detection bias)	Low risk	
Incomplete outcome data (attrition bias)	Low risk	
Selective reporting (reporting bias)	Low risk	
Other bias	Low risk	

Lundstrom 2007

Methods	
Participants	
Interventions	
Outcomes	

Notes	For more information see: Siddiqi N, Harrison JK, Clegg A, Teale EA, Young J, Taylor J, Simpkins SA. Interventions for preventing delirium in hospitalised non-ICU patients. Cochrane Database of Systematic Reviews 2016, Issue 3

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	
Allocation concealment (selection bias)	Unclear risk	Unclear
Blinding of participants and personnel (performance bias)	High risk	
Blinding of outcome assessment (detection bias)	High risk	
Incomplete outcome data (attrition bias)	Low risk	
Selective reporting (reporting bias)	Unclear risk	Unclear
Other bias	High risk	

Martinez 2012

Methods	
Participants	
Interventions	
Outcomes	
Notes	For more information see: Siddiqi N, Harrison JK, Clegg A, Teale EA, Young J, Taylor J, Simpkins SA. Interventions for preventing delirium in hospitalised non-ICU patients. Cochrane Database of Systematic Reviews 2016, Issue 3

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	
Allocation concealment (selection bias)	Low risk	
Blinding of participants and personnel (performance bias)	High risk	
Blinding of outcome assessment (detection bias)	High risk	
Incomplete outcome data (attrition bias)	Low risk	
Selective reporting (reporting bias)	Unclear risk	Unclear
Other bias	Low risk	

Moon 2015

Methods	**Study design:** Randomized controlled trial **Study grouping:** Parallel group **Open Label:** **Cluster RCT:**
Participants	**Baseline Characteristics** Intervention ● *Age*: 70.4 (13.8) ● *Gender (male n/female n)*: 30/30 ● *Charlson's comorbidity score*: Control ● *Age*: 69.0 (12.4) ● *Gender (male n/female n)*: 29/34 ● *Charlson's comorbidity score*: **Included criteria:** The inclusion criteria included (1) age >-18years, (2) ability to understand the study purpose and/or provide consent for participation independently or via a caregiver serving as a proxy, or (3) hospitalization for 48 h in the ICU. **Excluded criteria:** Theexclusion criteria were (1) a persistent score of 4 or 5 onthe Richmond Agitation and Sedation Scale (RASS), (2)severe visual and auditory problems that made ConfusionAssessment Method for the ICU

	measurement impossible,(3) serious psychiatric or neurologic diagnosis, (4) score of23 on the Mini-Mental State Examination-Korean version(MMSE-K), (5) admission to the isolation ward because ofinfection, (6) death or discharge on the day of admission, or(7) inability to conduct CAM-ICU measurement when apatient was in a very violent status with RASS +3 or +4. **Pretreatment:** None detected
Interventions	**Intervention Characteristics** Intervention ● *Description*: heriskfactorsofdeliriumwasbrieflyassessedfromthedateofICUadmissionbymonitoringchanges,afteradmissionorforthelast24h,incognitivefunctioning,sensoryabilities,physicalfunctioning,andsociability. Thecognitivechangeswereconsideredposi-tivewhenpatientsshoweddecreasedconcentration,slowresponse,orconfusion;positivesensorychangesincludedhearingandvisualimpairment;positivephysicalchangesincludedslowmobility,restless,agitation,lowappetite,orsleepdisturbance;andpositivesocialchangesincludedcommunicationdifficulties,moodchanges,andinabilitytocooperate. Whenthepatientsappeareddisoriented,theywereprovidedwithorientationtoplace,person,andtimeusingclocksandcalendarsandexplanationsofsuchmattersasthereasonwhytheywereintheICU.Fortheelderly,clocksandcalendarswithlargetypefacewereused.Bothverbalandnonverbalmeansofcommunication(i.e.,gestures,facialexpressions,andwritingonalargesheetofpaper)wereusedasnecessaryforpatientswhowereundergoingartificialrespiratorytreatmentorhadundergonetrache-ostomyorsedationtherapy. Toensuresensorycapacity,visualandauditoryabilitieswereassessed.Ifnecessary,personaleyeglassesorhearingaidswereusedandplacedonthebedsideforeasyaccesswhenneeded.Toimprovesleepingconditions,indirectlightwasprovidedthroughoutthenightand,ifpossible,thesamenurseinchargewasassignedthroughouthospitalization.Toreduceanxietyresultingfrom ICUenvironmentalfactors,bedmovementwithintheICUwasminimizedandvisitorswerepermittedtobringpatientitemstypicallyusedinthehome. Nutritionalbalancewasmaintainedandanyfluidorelectrolyteimbalancewascorrectedthroughconsultationwiththemedical team.Ambulationasearlyaspossiblewasencouraged.TheresearchersinstructedtheICUnursestobeawareoftheincreasedriskofdeliriumwhenadministeringmedications,suchasanti-cholinergic,narcotic,and/orsedativehypnoticdrugs,andtoconsultaphysicianiftheyhadanyquestionsregardingmedicationdosageortoreviewtheguidelinesregardingappropriatedosage.Thenurseswereguidedtocloselymonitorsignsofinfectionforearlydetectionandprovisionofpreventivecare,limitunnecessarycatheteruse,monitoroxygensaturationcloselytopreventhypoxemia,andcontrolpain. Control ● *Description*: The research team assessed cognitive function using theCAM-ICU but did not provide delirium

	prevention protocolto the control group. The ICU nurses provided the same(typical) nursing care as previously without monitoringand screening delirium risk to provide delirium preventivecare to the control group. Typical nursing care includedregular checking of consciousness and orientation withoutattempting to (1) provide any information to reorient thepatient; (2) communicate using nonverbal communicationskills, especially by using a device such as a large sheet ofpaper; (3) provide personal visual or hearing aids, evenwhen necessary; (4) assign the same nurse in chargethroughout hospitalization; (5) minimize bed movement;or (6) carefully use particular medications (e.g., anticholinergicagents and opiates). As they were accustomed tofollowing physician orders, the nurses did not focus onearly detection of delirium risk factors and provision ofearly therapeutic intervention
Outcomes	*Delirium* ● **Outcome type**: DichotomousOutcome *Delirium severity* ● **Outcome type**: ContinuousOutcome *Duration of delirium* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Not reported *Inpatient mortality* ● **Outcome type**: DichotomousOutcome *Length of admission* ● **Outcome type**: ContinuousOutcome ● **Scale**: ICU length of stay ● **Unit of measure**: Days
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Quote: "To ensure blind and random assignment, opaque assignment cards indicating assignment to the interven- tion group (70 cards) or control group (70 cards) were placed in a large envelope and shuffled before the envelope was sealed."
Allocation concealment (selection bias)	Low risk	Quote: "Then, the leader of the nursing team, who did not participate in the protocol application, drew a card from the envelope for each participant in the order of admission from the first day of the study. Once a card had been drawn, it was not placed back into the envelope."
Blinding of participants and personnel (performance bias)	High risk	Quote: "Application process 2.6.1. Intervention group The team consisting of 4 researchers and the ICU nurses applied the delirium prevention protocol to the interven- tion group during the first 7 days of ICU hospitalization. A small sticker was placed on the corner of the bedside of the patients in the intervention group to prevent confusion regarding group assignment. Training material consisting of general information on delirium, along with prevention and management of delirium, was prepared. The ICU nurses were provided training in 2 sessions (30 min for each session) using the training material so that patients could continue receiving preventive intervention. The research team visited the ICU every day for 2 h (9–11 AM or 5–7 PM) and spent 10–20 min with each patient. To build rapport with the"
Blinding of outcome assessment (detection bias)	Unclear risk	Judgement Comment: Not described
Incomplete outcome data (attrition bias)	Low risk	Judgement Comment: Low drop out
Selective reporting (reporting bias)	Low risk	Judgement Comment: None detected
Other bias	Low risk	Judgement Comment: No other apparent bias

Footnotes

Characteristics of excluded studies

Bakker 2014

Reason for exclusion	Wrong study design

Barnes Daly 2015

Reason for exclusion	Wrong setting

Boockvar 2016

Reason for exclusion	Wrong study design

Brummel 2013

Reason for exclusion	Wrong outcomes

Deschodt 2012

Reason for exclusion	Wrong intervention

Fraser 2015

Reason for exclusion	Wrong study design

Gagnon 2012

Reason for exclusion	Wrong study design

Hempenius 2016

Reason for exclusion	Wrong outcomes

Kalisvaart 2013

Reason for exclusion	Wrong setting

Mansouri 2013

Reason for exclusion	Wrong outcomes

Marcantonio 2001

Reason for exclusion	Wrong intervention

Martinez 2012a

Reason for exclusion	Duplicate

Mattison 2014

Reason for exclusion	Wrong study design

Miles 2012

Reason for exclusion	Wrong intervention

Mudge 2013

Reason for exclusion	Wrong study design

Watne 2014

Reason for exclusion	Wrong intervention

Yoo 2013

Reason for exclusion	Wrong study design

Footnotes

Characteristics of studies awaiting classification

Footnotes

Characteristics of ongoing studies

Footnotes

Summary of findings tables

Additional tables

References to studies

Included studies

Abizanda 2011

[Empty]

Avendano Cespedes 2016

Avendano-Cespedes,Almudena; Garcia-Cantos,Nuria; Gonzalez-Teruel,Maria; Martinez-Garcia,Monica; Villarreal-Bocanegra,Elena; Oliver-Carbonell,Jose; Abizanda,Pedro. Pilot study of a preventive multicomponent nurse intervention to reduce the incidence and severity of delirium in hospitalized older adults: MID-Nurse-P. Maturitas 2016;86(Journal Article):86-94. [DOI:]

Bonaventura 2007

Published data only (unpublished sought but not used)

[Empty]

Guo 2016

Guo,Yong; Sun,Lulu; Li,Li; Jia,Peiyu; Zhang,Junfeng; Jiang,Hong; Jiang,Wei. Impact of multicomponent, nonpharmacologic interventions on perioperative cortisol and melatonin levels and postoperative delirium in elderly oral cancer patients. Archives of Gerontology and Geriatrics 2016;62(Journal Article):112-7. [DOI:]

Hempenius 2013

[Empty]

Jeffs 2013

[Empty]

Lundstrom 2007

[Empty]

Martinez 2012

[Empty]

Moon 2015

Moon,Kyoung-Ja; Lee,Sun-Mi. The effects of a tailored intensive care unit delirium prevention protocol: A randomized controlled trial. International journal of nursing studies 2015;52(9):1423-32. [DOI:]

Excluded studies

Bakker 2014

Bakker,Franka C.; Persoon,Anke; Bredie,Sebastian J. H.; van Haren-Willems,Jolanda; Leferink,Vincent J.; Noyez,Luc; Schoon,Yvonne; Olde Rikkert,Marcel,G.M.. The CareWell in Hospital program to improve the quality of care for frail elderly inpatients: results of a before-after study with focus on surgical patients. American Journal of Surgery 2014;208(5):735-46. [DOI:]

Barnes Daly 2015

Barnes-Daly M.A.; Phillips G.; Wesley,Ely E.. ICU liberation: Using the abcdef bundle to improve outcomes in 7 California community ICUS. Critical Care Medicine 2015;43(12):11. [DOI:]

Boockvar 2016

Boockvar,Kenneth S.; Teresi,Jeanne A.; Inouye,Sharon K.. Preliminary Data: An Adapted Hospital Elder Life Program to Prevent Delirium and Reduce Complications of Acute Illness in Long-Term Care Delivered by Certified Nursing Assistants. Journal of the American Geriatrics Society 2016;64(5):1108-13. [DOI:]

Brummel 2013

Brummel N.E.; Girard T.D.; Pandharipande P.P.; Jackson J.C.; Hughes C.; Pun B.T.; Boehm L.; Murphy E.; Work B.; Graves A.; Shintani A.K.; Ely E.W.. Efficacy of an early combined cognitive and physical rehabilitation program for cognitive and functional impairment following critical illness: Results of the activity and cognitive therapy in the ICU (ACT-ICU) trial. American Journal of Respiratory and Critical Care Medicine 2013;187(Web Page):no pagination. [DOI:]

Deschodt 2012

Deschodt,Mieke; Braes,Tom; Flamaing,Johan; Detroyer,Elke; Broos,Paul; Haentjens,Patrick; Boonen,Steven; Milisen,Koen. Preventing delirium in older adults with recent hip fracture through multidisciplinary geriatric consultation. Journal of the American Geriatrics Society 2012;60(4):733-9. [DOI:]

Fraser 2015

Fraser,Danielle; Spiva,LeeAnna; Forman,Wendy; Hallen,Caroline. Original Research: Implementation of an Early Mobility Program in an ICU. The American Journal of Nursing 2015;115(12):49-58. [DOI:]

Gagnon 2012

Gagnon,Pierre; Allard,Pierre; Gagnon,Bruno; Merette,Chantal; Tardif,Francois. Delirium prevention in terminal cancer: assessment of a multicomponent intervention. Psycho-oncology 2012;21(2):187-94. [DOI:]

Hempenius 2016

Hempenius,Liesbeth; Slaets,Joris P. J.; van Asselt,Dieneke; de Bock,Truuske,H.; Wiggers,Theo; van Leeuwen,Barbara,L.. Long Term Outcomes of a Geriatric Liaison Intervention in Frail Elderly Cancer Patients. PloS one 2016;11(2):e0143364. [DOI:]

Kalisvaart 2013

Kalisvaart K.J.; Vreeswijk R.; Baden M.; Tillemans M.; Roelof E.. Primary prevention of delirium. European Geriatric Medicine 2013;4(Web Page):S3. [DOI:]

Mansouri 2013

Mansouri,Parisa; Javadpour,Shohreh; Zand,Farid; Ghodsbin,Fariba; Sabetian,Golnar; Masjedi,Mansoor; Tabatabaee,Hamid Reza. Implementation of a protocol for integrated management of pain, agitation, and delirium can improve clinical outcomes in the intensive care unit: a randomized clinical trial. Journal of critical care 2013;28(6):918-22. [DOI:]

Marcantonio 2001

[Empty]

Martinez 2012a

Martinez,Felipe Tomas; Tobar,Catalina; Beddings,Carlos Ignacio; Vallejo,Gustavo; Fuentes,Paola. Preventing delirium in an acute hospital using a non-pharmacological intervention. Age and Ageing 2012;41(5):629-34. [DOI:]

Mattison 2014

Mattison,Melissa L. P.; Catic,Angela; Davis,Roger B.; Olveczky,Daniele; Moran,Julie; Yang,Julius; Aronson,Mark; Zeidel,Mark; Lipsitz,Lewis; Marcantonio,Edward R.. A standardized, bundled approach to providing geriatric-focused acute care. Journal of the American Geriatrics Society 2014;62(5):936-42. [DOI:]

Miles 2012

Miles M.; Hite R.D.. A randomized controlled trial of direct noise reduction in the ICU. Journal of Investigative Medicine 2012;60(1):455. [DOI:]

Mudge 2013

Mudge,A. M.; Maussen,C.; Duncan,J.; Denaro,C. P.. Improving quality of delirium care in a general medical service with established interdisciplinary care: a controlled trial. Internal Medicine Journal 2013;43(3):270-7. [DOI:]

Watne 2014

Watne,Leiv Otto; Torbergsen,Anne Cathrine; Conroy,Simon; Engedal,Knut; Frihagen,Frede; Hjorthaug,Geir Aasmund; Juliebo,Vibeke; Raeder,Johan; Saltvedt,Ingvild; Skovlund,Eva; Wyller,Torgeir Bruun. The effect of a pre- and postoperative orthogeriatric service on cognitive function in patients with hip fracture: randomized controlled trial (Oslo Orthogeriatric Trial). BMC medicine 2014;12(Journal Article):63. [DOI:]

Yoo 2013

Yoo,Ji Won; Nakagawa,Shunichi; Kim,Sulgi. Delirium and transition to a nursing home of hospitalized older adults: a controlled trial of assessing the interdisciplinary team-based "geriatric" care and care coordination by non-geriatrics specialist physicians. Geriatrics & gerontology international 2013;13(2):342-50. [DOI:]

Studies awaiting classification

Ongoing studies

Other references

Additional references

Other published versions of this review

Data and analyses

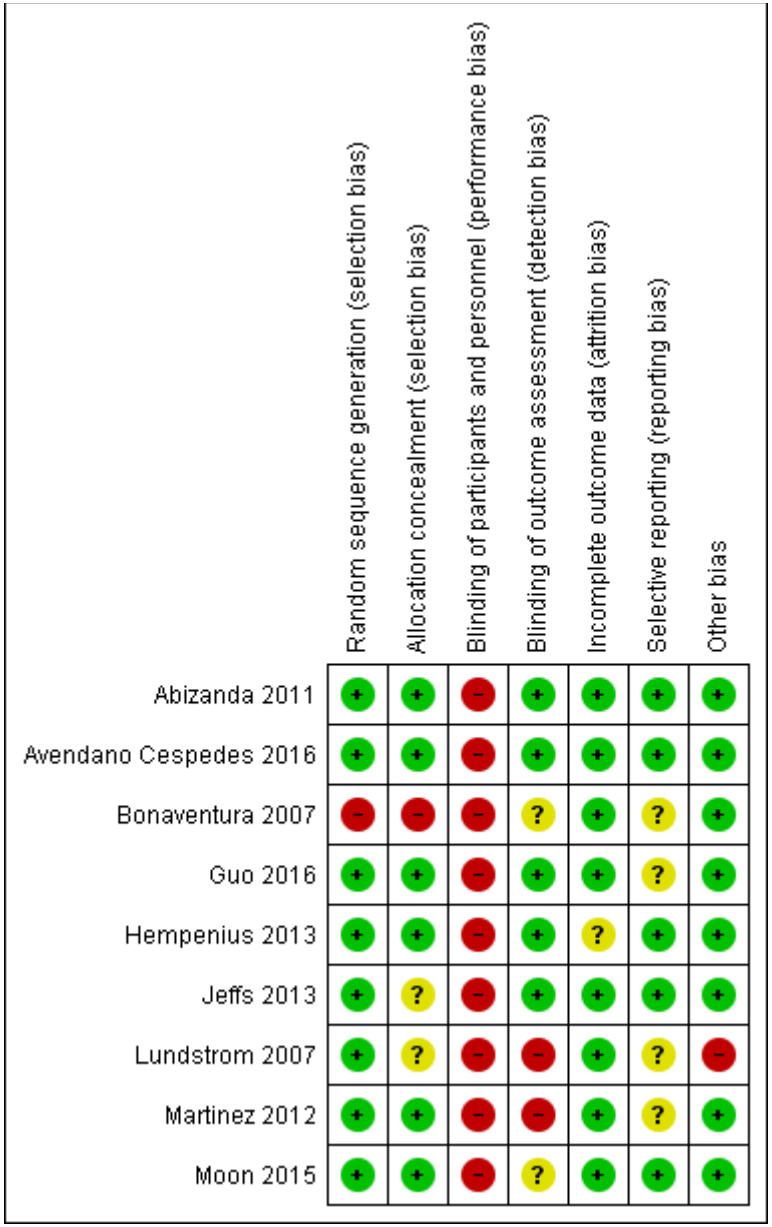
1 Multi-component delirium prevention intervention (MCI) versus usual care

Outcome or Subgroup	Studies	Participants	Statistical Method	Effect Estimate
1.1 Incident delirium	9	2157	Risk Ratio (M-H, Random, 95% CI)	0.64 [0.53, 0.77]
1.1.1 Time	9	2157	Risk Ratio (M-H, Random, 95% CI)	0.64 [0.53, 0.77]
1.2 Readmission	0	0	Risk Ratio (M-H, Fixed, 95% CI)	Not estimable
1.3 Duration of delirium (days)	5	402	Mean Difference (IV, Random, 95% CI)	-1.47 [-2.10, -0.85]
1.3.1 Time	5	402	Mean Difference (IV, Random, 95% CI)	-1.47 [-2.10, -0.85]
1.4 Severity of delirium	3	117	Std. Mean Difference (IV, Random, 95% CI)	-0.93 [-1.32, -0.54]
1.4.1 Time	3	117	Std. Mean Difference (IV, Random, 95% CI)	-0.93 [-1.32, -0.54]
1.5 Length of admission	5	1794	Mean Difference (IV, Random, 95% CI)	0.01 [-0.68, 0.70]
1.5.1 Time	5	1794	Mean Difference (IV, Random, 95% CI)	0.01 [-0.68, 0.70]
1.6 Improvement in Activities of Daily Living	1	341	Risk Ratio (M-H, Fixed, 95% CI)	1.15 [0.91, 1.47]
1.6.1 Time	1	341	Risk Ratio (M-H, Fixed, 95% CI)	1.15 [0.91, 1.47]

1.7 Return to independent living	3	990	Risk Ratio (M-H, Random, 95% CI)	0.95 [0.85, 1.07]
1.7.1 Time	3	990	Risk Ratio (M-H, Random, 95% CI)	0.95 [0.85, 1.07]
1.8 Falls	3	746	Risk Ratio (M-H, Random, 95% CI)	0.57 [0.16, 2.01]
1.8.1 Time	3	746	Risk Ratio (M-H, Random, 95% CI)	0.57 [0.16, 2.01]
1.9 Pressure ulcers	2	457	Risk Ratio (M-H, Random, 95% CI)	0.48 [0.26, 0.89]
1.9.1 Time	2	457	Risk Ratio (M-H, Random, 95% CI)	0.48 [0.26, 0.89]
1.10 Inpatient mortality	5	1032	Risk Ratio (M-H, Fixed, 95% CI)	0.78 [0.52, 1.16]
1.10.1 Time	5	1032	Risk Ratio (M-H, Fixed, 95% CI)	0.78 [0.52, 1.16]
1.11 12 month mortality	1	199	Risk Ratio (M-H, Random, 95% CI)	0.85 [0.46, 1.56]
1.11.1 Time	1	199	Risk Ratio (M-H, Random, 95% CI)	0.85 [0.46, 1.56]
1.12 Cardiovascular complication	1	260	Risk Ratio (M-H, Fixed, 95% CI)	1.13 [0.78, 1.65]
1.13 Urinary tract infection	1	260	Risk Ratio (M-H, Fixed, 95% CI)	1.20 [0.45, 3.20]

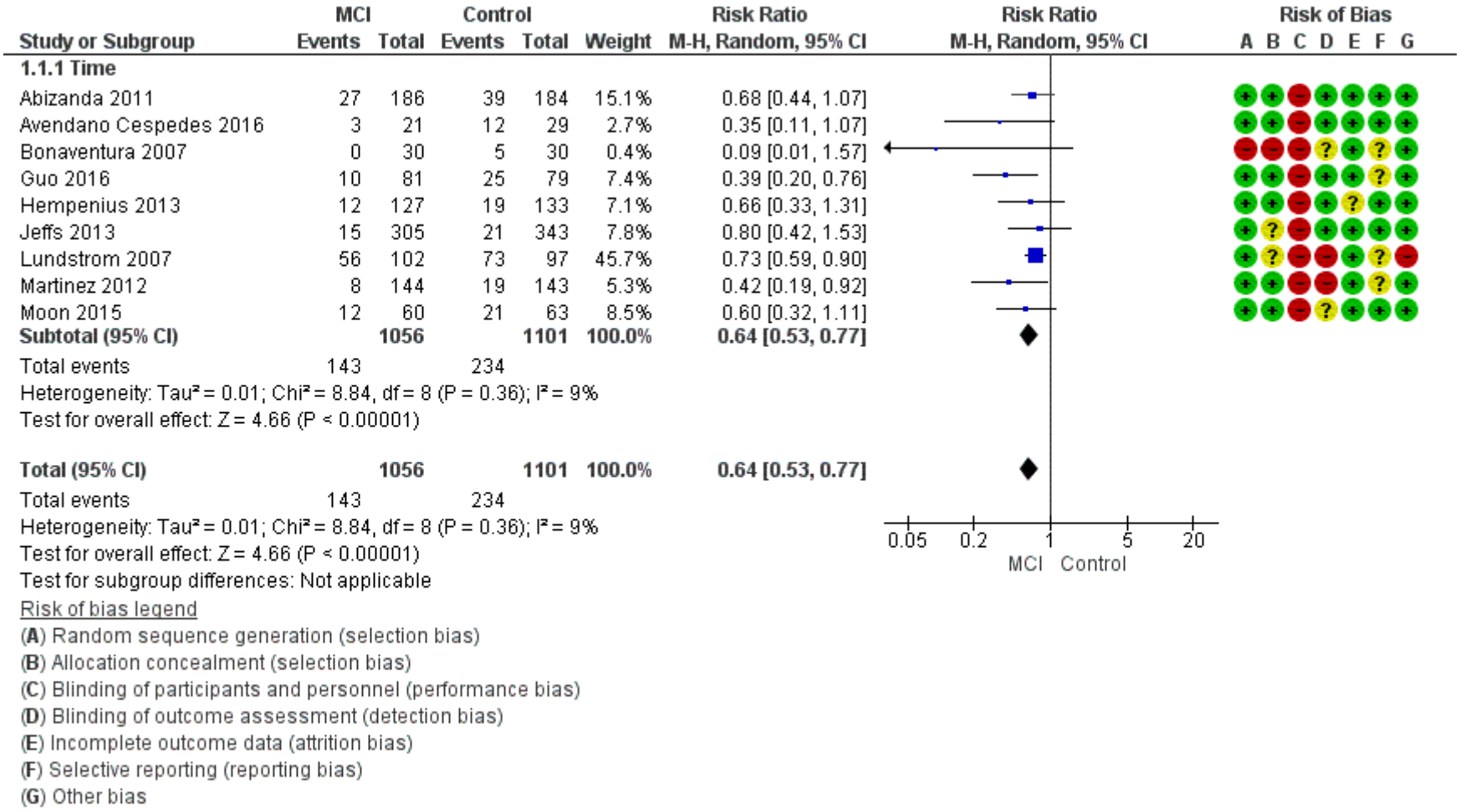
Figures

Figure 1


Random sequence generation (selection bias)
Allocation concealment (selection bias)
Blinding of participants and personnel (performance bias)
Blinding of outcome assessment (detection bias)
Incomplete outcome data (attrition bias)
Selective reporting (reporting bias)
Other bias
Abizanda 2011
Avendano Cespedes 2016
Bonaventura 2007
Guo 2016
Hempenius 2013
Jeffs 2013
Lundstrom 2007
Martinez 2012
Moon 2015

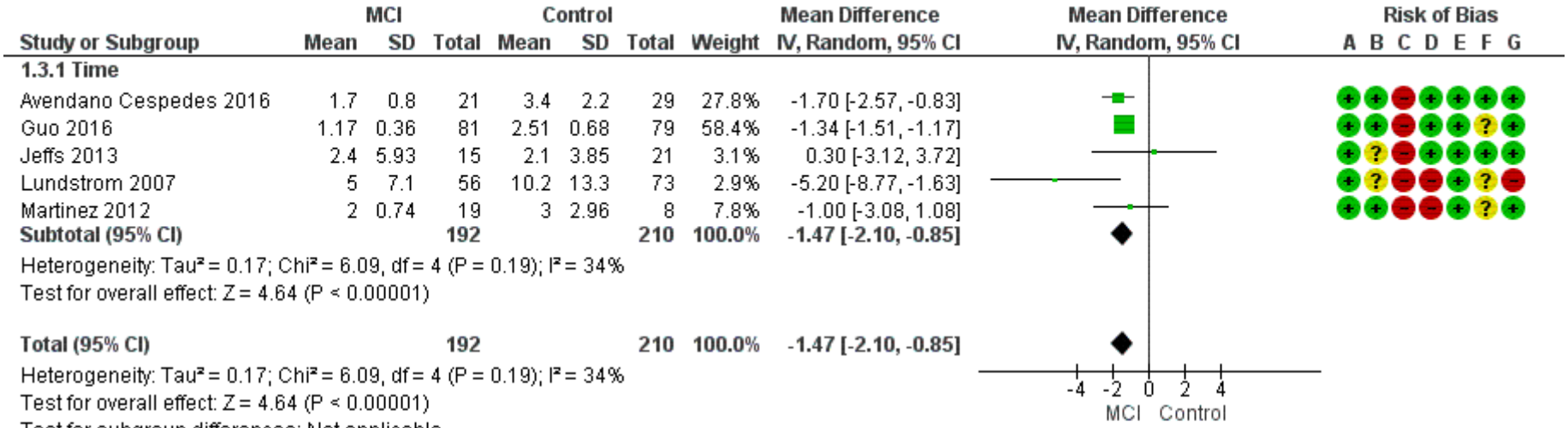
Risk of bias summary: review authors' judgements about each risk of bias item for each included study.

Figure 2 (Analysis 1.1)



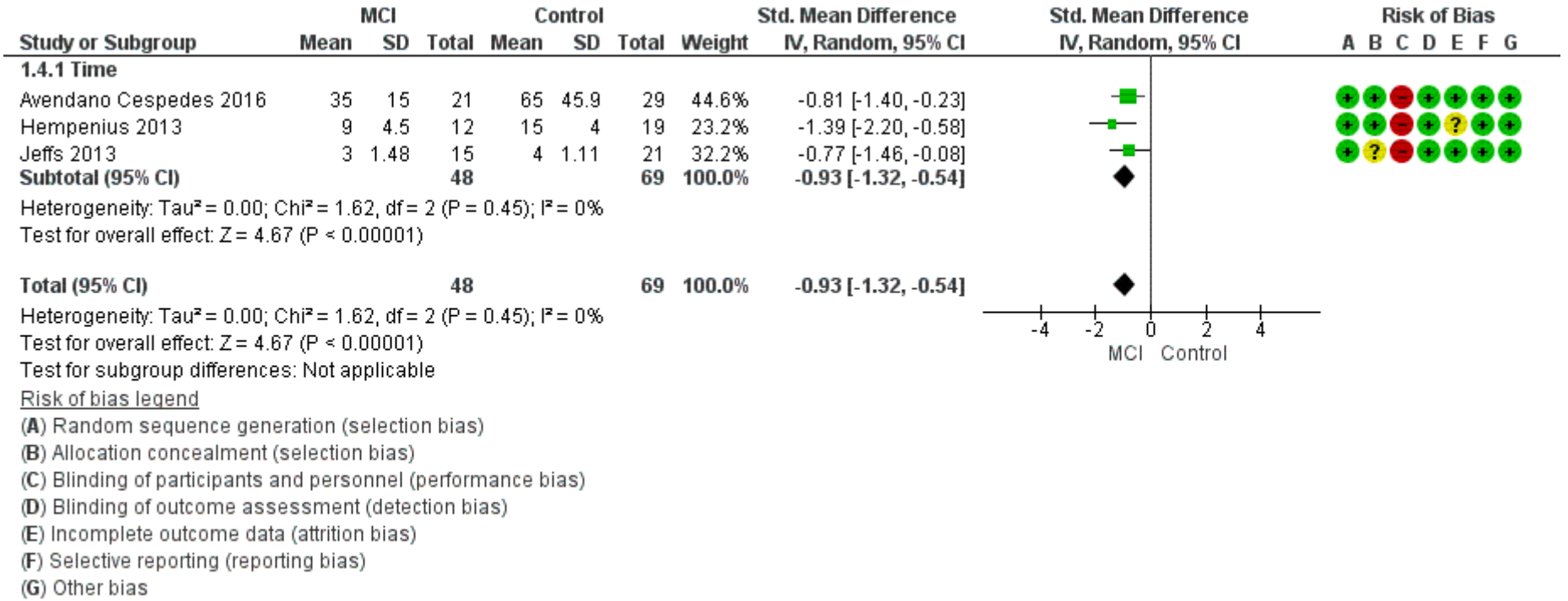
Forest plot of comparison: 1 Multi-component delirium prevention intervention (MCI) versus usual care, outcome: 1.1 Incident delirium.

Figure 3 (Analysis 1.3)



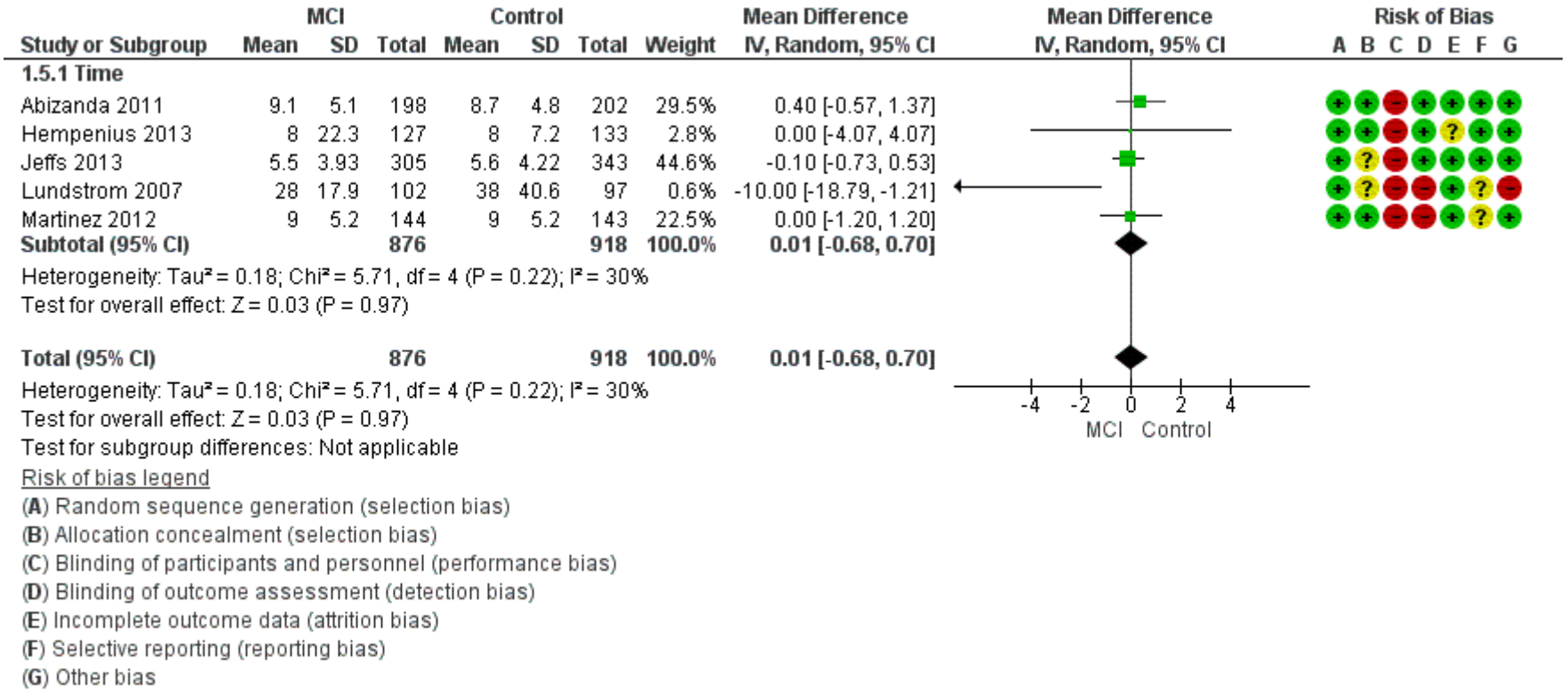
Forest plot of comparison: 1 Multi-component delirium prevention intervention (MCI) versus usual care, outcome: 1.3 Duration of delirium (days).

Figure 4 (Analysis 1.4)



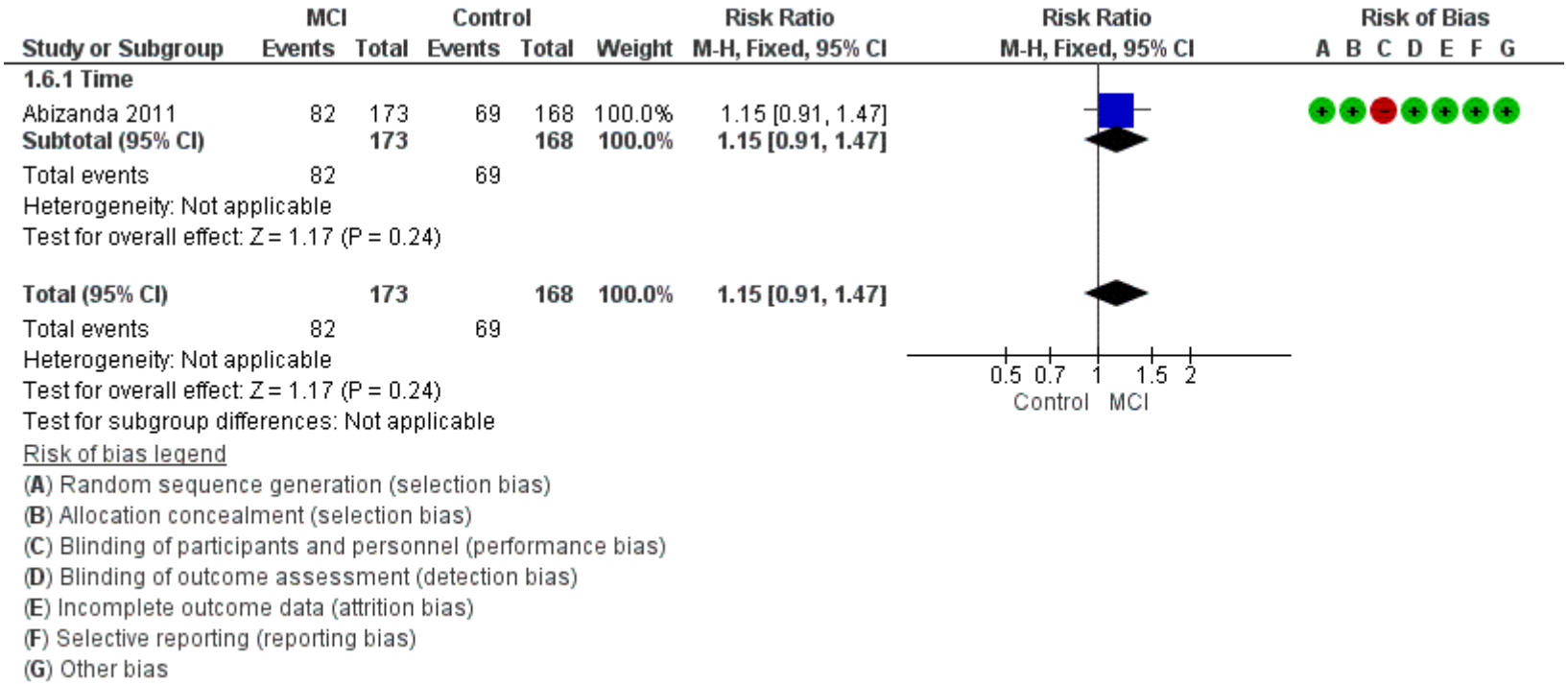
Forest plot of comparison: 1 Multi-component delirium prevention intervention (MCI) versus usual care, outcome: 1.4 Severity of delirium.

Figure 5 (Analysis 1.5)



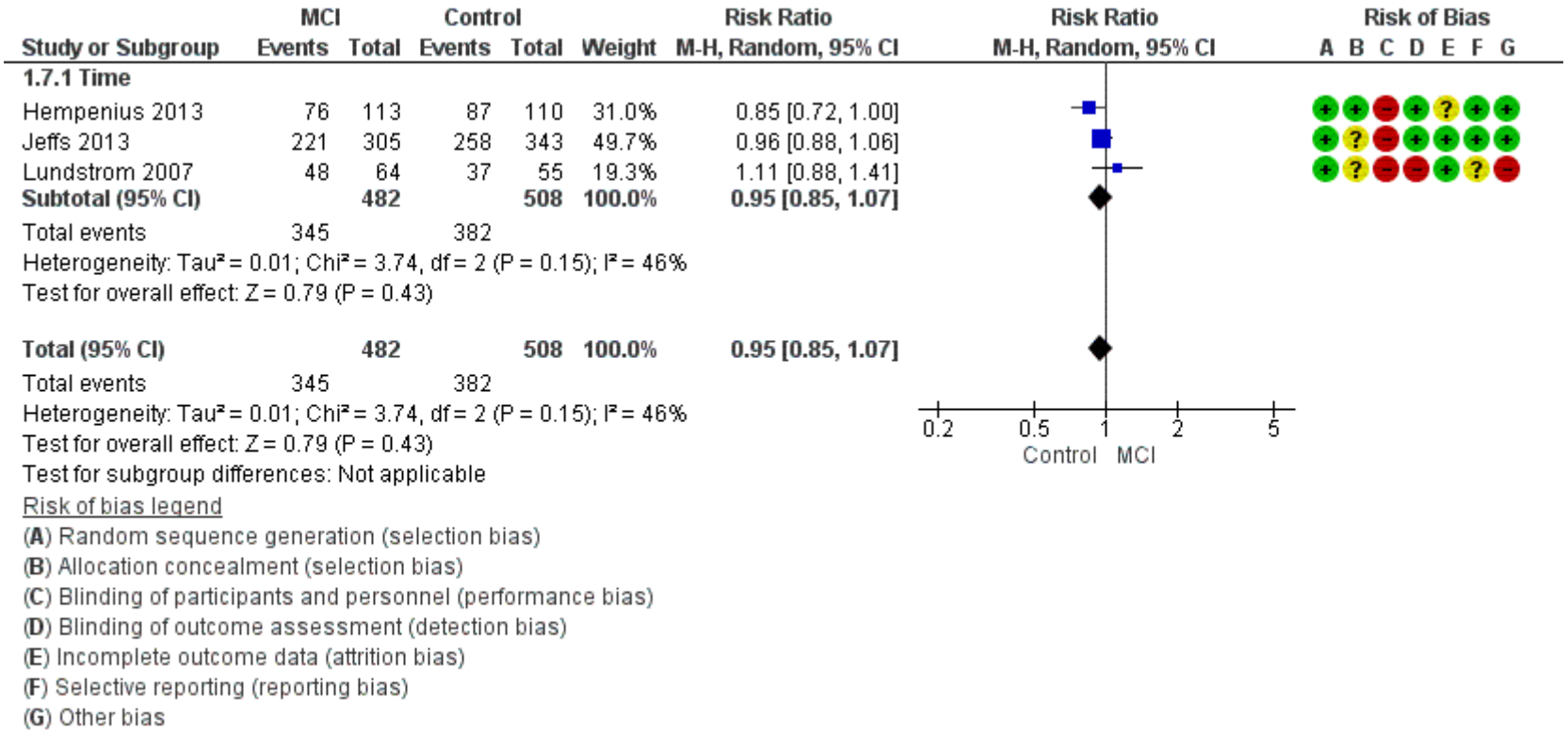
Forest plot of comparison: 1 Multi-component delirium prevention intervention (MCI) versus usual care, outcome: 1.5 Length of admission.

Figure 6 (Analysis 1.6)



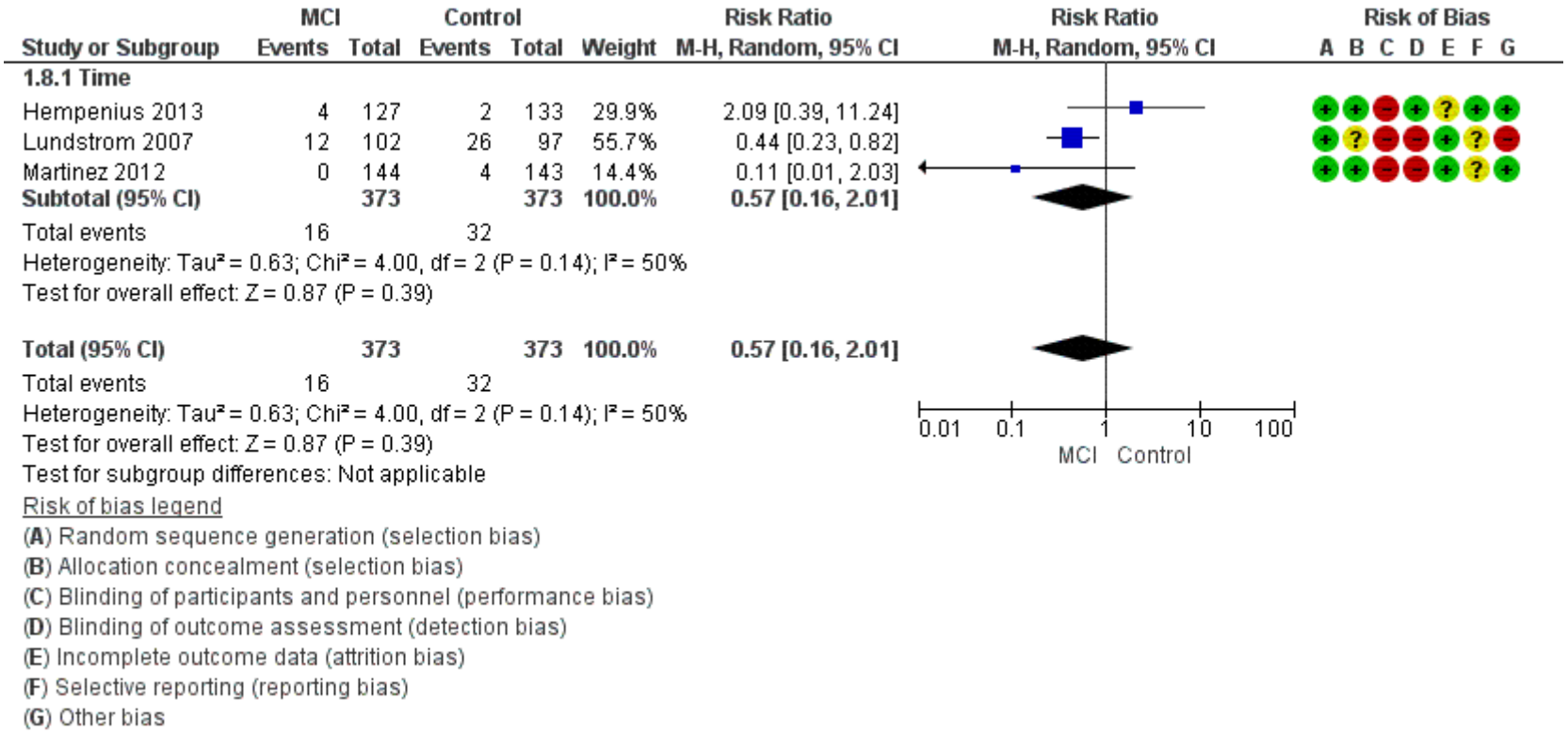
Forest plot of comparison: 1 Multi-component delirium prevention intervention (MCI) versus usual care, outcome: 1.6 Improvement in Activities of Daily Living.

Figure 7 (Analysis 1.7)



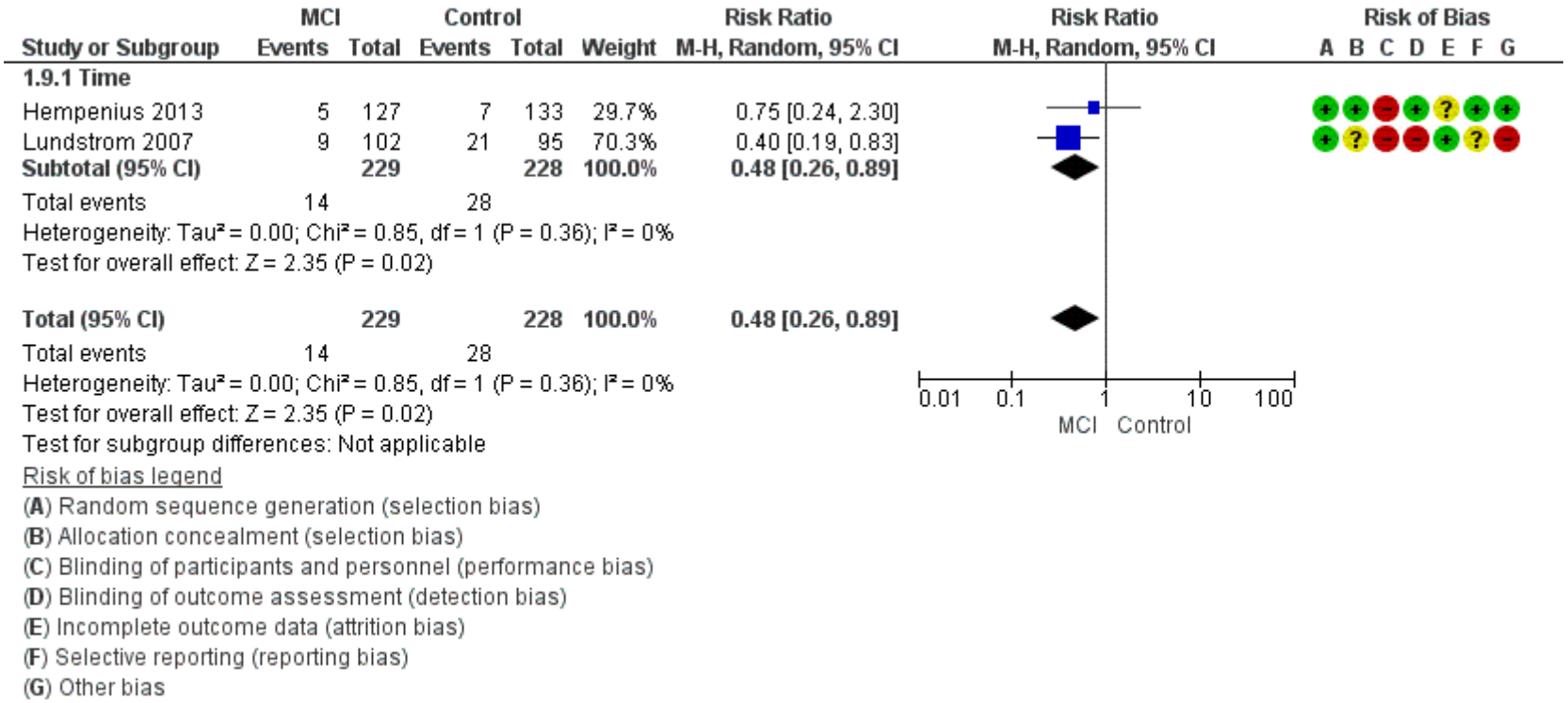
Forest plot of comparison: 1 Multi-component delirium prevention intervention (MCI) versus usual care, outcome: 1.7 Return to independent living.

Figure 8 (Analysis 1.8)



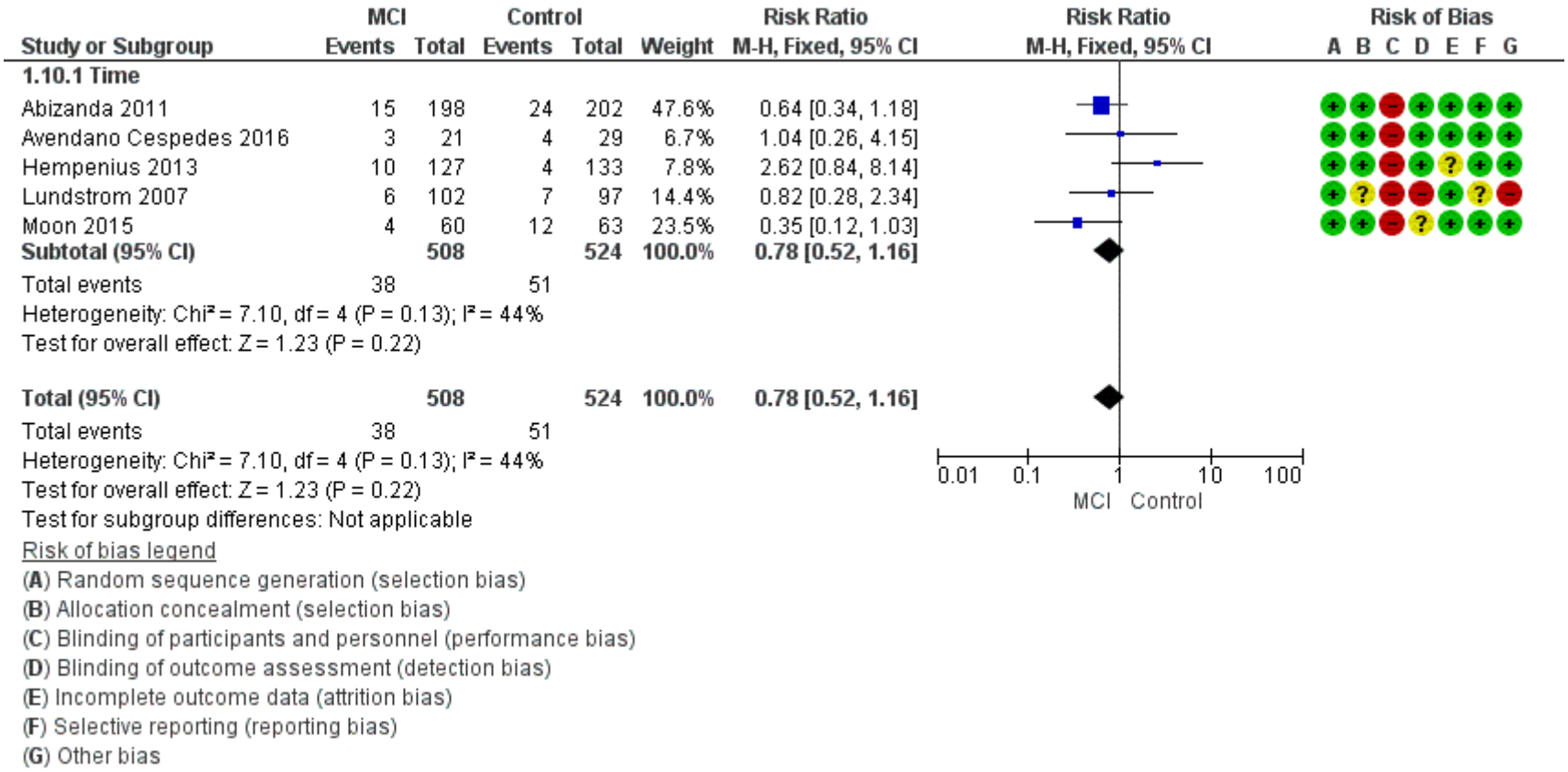
Forest plot of comparison: 1 Multi-component delirium prevention intervention (MCI) versus usual care, outcome: 1.8 Falls.

Figure 9 (Analysis 1.9)



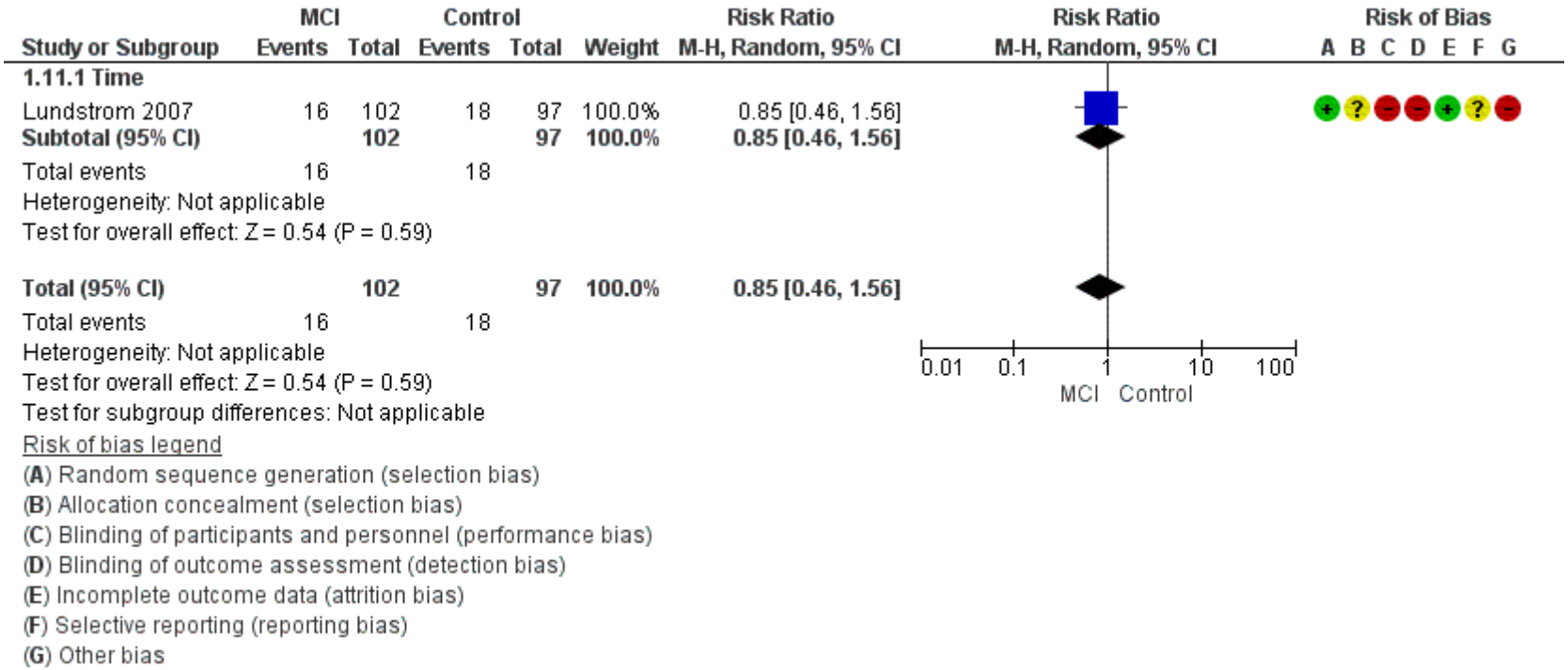
Forest plot of comparison: 1 Multi-component delirium prevention intervention (MCI) versus usual care, outcome: 1.9 Pressure ulcers.

Figure 10 (Analysis 1.10)



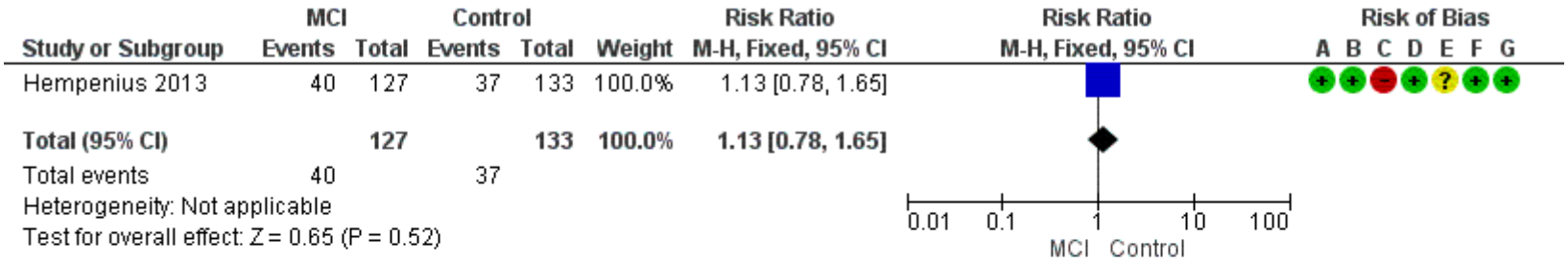
Forest plot of comparison: 1 Multi-component delirium prevention intervention (MCI) versus usual care, outcome: 1.10 Inpatient mortality.

Figure 11 (Analysis 1.11)



Forest plot of comparison: 1 Multi-component delirium prevention intervention (MCI) versus usual care, outcome: 1.11 12 month mortality.

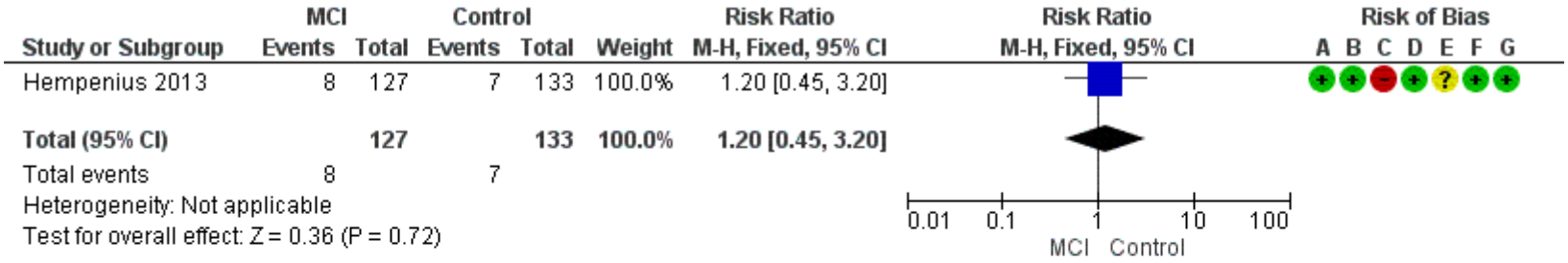
Figure 12 (Analysis 1.12)



Risk of bias legend
(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

Forest plot of comparison: 1 Multi-component delirium prevention intervention (MCI) versus usual care, outcome: 1.12 Cardiovascular complication.

Figure 13 (Analysis 1.13)



Risk of bias legend
(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

Forest plot of comparison: 1 Multi-component delirium prevention intervention (MCI) versus usual care, outcome: 1.13 Urinary tract infection.