Appendix D: Included studies- Consequences of Delirium

Risk factor: Incidence of Delirium

Consequence: Dementia: Cognitive impairment[MMSE<24] - at discharge

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Ely 2004; prospective cohort study; country USA; Total number of patients: 224; Funding: Grant- other	Mechanically ventilated patient admitted to medical or coronary ICUs.Patients with stroke syndrome or other neurologic disease, deaf or unable to speak or understand English, extubated prior to enrollment, previously enrolled in study, refused to participate were excluded	Age(range): 55 years (37 to 73); Number of patients with delirium: prevalent: 89/275 (32.4%); incident delirium: 183/224, of whom 123 were in coma; Delirium Assessment: Assessed with established tool; Assessment details: CAM-ICU; Cognitive impairment: Unclear or Not stated; Details on cognitive impairment: modified Blessed Dementia Rating Scale (range 0-17) - measures patient's baseline likelihood of dementia; Mean mBDRS 0.23(0.8):0.14(SD 0.6); Comorbidity/Severity of Illness: Severity of illness: assessed with APACHE II, most abnormal value during first 24h of ICU stay used to calculate severity of illness; 25.6 (SD8.1):23.2(9.6)	Setting: Hospital;Ward: ICU	Age at enrollment, Charlson Comorbidity Index, mBDRS score, APACHE II score, SOFA score, admitting diagnoses of sepsis or acute respiratory distress syndrome, sedative & analgesic medications (lorazepam, propofol,morphine,fentanyl), time-dependent coma variable

Appendix D: Included studies- Consequences of Delirium

Consequence: Dementia: Cognitive dysfunction - 7 days postop

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Rudolph 2008; prospective cohort study; country UK,USA,Denmark,Fr, Germany,Greece,Net herland,Spain; Total number of patients: 1218; Funding: Grant- other	Patients ≥ 60 years undergoing non-cardiac surgery. If score on MMSE ≤23, CNS disease including dementia or Parkinson's, previous neurpsychological testing, administration of tranquilisers or antidepressants prior to admission, cardiac or neuro surgery, severe hearing or visual disorder, life expectancy less than 3 mo, illiteracy & inabliity to understand the language of the test administration were excluded.	Age(range): 69 years(62.9 to 76.3); Number of patients with delirium: prevalent & incident: 99/1161 [85%]; Delirium Assessment: Assessed with established tool; Assessment details: DSM III; o□method of delirium assessment was not consistent: patients were assessed with MMSE and medical records until postoperative day 3 and from day 4 until discharge, evaluation was based on the medical and nurse chart; Cognitive impairment: Cognitive impairment deduced from scores; Details on cognitive impairment: MMSE. Scores given for those who completed delirium assessment or not. Range of scores: 26.2 to 29.6; Unlikely patients cognitviely impaired.; Comorbidity/Severity of Illness:	Setting: Hospital;Ward: Surgical; Type of anaesthesia: not stated; type of surgery: non cardiac	Age, education and duration of surgery

Consequence: Dementia: Cognitive dysfunction - 3 months postop

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Rudolph 2008; prospective cohort study; country Multinational [GB,USA,Dk,Fr,Ger,G reece,ND,Spain]; Total number of patients: 1218; Funding: Grant- other	Patients ≥ 60 years undergoing non-cardiac surgery. If score on MMSE ≤23, CNS disease including dementia or Parkinson's, previous neurpsychological testing, administration of tranquilisers or antidepressants prior to admission, cardiac or neuro surgery, severe hearing or visual disorder, life expectancy less than 3 mo, illiteracy & inabliity to understand the language of the test administration were excluded.	Age(range): 69 years(62.9 to 73.6); Number of patients with delirium: prevalent & incident: 99/1161(9%); Delirium Assessment: Assessed with established tool; Assessment details: DSM III; method of delirium assessment was not consistent: patients were assessed with MMSE and medical records until postoperative day 3 and from day 4 until discharge, evaluation was based on the medical and nurse chart; Cognitive impairment: Cognitive impairment deduced from scores; Details on cognitive impairment: MMSE. Scores given for those who completed delirium assessment or not. Range of scores: 26.2 to 29.6; Unlikely patients cognitviely impaired.; Comorbidity/Severity of Illness:	Setting: Hospital;Ward: Surgical; Type of anaesthesia: not stated; type of surgery: non cardiac	Age, education and duration of surgery

Appendix D: Included studies- Consequences of Delirium

Consequence: Dementia at 3 years

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Rockwood 1999; prospective cohort study; country Canada; Total number of patients: 164; Funding: Grant-other	Patients 65 y and older between Oct 1991 to Aug 1992; Exclusion criteria not stated	Age(range): 79 years; Number of patients with delirium: prevalent:6/164 (85%); Delirium Assessment: Assessed with established tool; Assessment details: DSM IV; using Delirium Rating Scale,; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Authors stated that dementia diagnosis conformed to the Candian Study of Health and Aging dementia protocol- which is DSMIII-R; Comorbidity/Severity of Illness: Reported comorbid illness: 2 levels: moderate and severe	Setting: Hospital;Ward: Medical	Age(years), gender, comorbid illness (two levels)

Appendix D: Included studies- Consequences of Delirium

Consequence: New admission to institution - discharge

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Balas 2009; prospective cohort study; country USA; Total number of patients: 114; Funding: Unclear/ Not stated	English speaking patients ≥65 years admitted to surgical critical care, availabe surrogate responder in contact (phone or in-person) exceeding 4h/wk over the previous 5 years.Both pt & surrogate needed to agree to participate w/in 24 to 48 h of admission. Patients with CNS injury within 1yr, current or past treatment for DSM-IV axis 1 psychotic disorders; blind or deaf, postoperative cognitive dysfunction associated with cardiopulmonary bypass or cardiothoracic surgery were excluded.	Age(range): 75.4 (SD 6.3); Number of patients with delirium: Patients with prevalent delirium excluded; incident: 29.8%: 34/114; Delirium Assessment: Assessed with established tool; Assessment details: CAM-ICU; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: IQCODE score ≥3.31: 21/114 (18.8%) ; Cut off score of 3.31 chosen for dementia based on sensitivity & specificity; Comorbidity/Severity of Illness: not reported	Setting: Hospital;Ward: ICU	MV: age,gender, hearing loss, pre-Katz ADL<5, IQCODE <3.31, mechanical ventilation use, complications, APACHE II, CCI, service [general,trauma,vascular,other; vascular= reference]
Bourdel-Marchasson 2004; prospective cohort study; country France; Total number of patients: 847; Funding: Grant- other	Patients older than 75 years were included; Patients whose stay was shorter than 3 days, or those usually living in an institution were excluded	Age(range): 85 years (78.4 to 92.4); Number of patients with delirium: incident: 15/427 (3.5%); Delirium Assessment: Assessed with established tool; Assessment details: CAM symptoms within 24h following admission; delirium within 4d of stay termed prevalent delirium; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: 322/427 (75%) patients; based on family interviews and physicans; check if existed with respect to DSM IV criteria; Comorbidity/Severity of Illness: comorbidities and other medications	Setting: Hospital;Ward: Medical	Age (for 1 year increase), gender, previously known cognitive impairment, dietary intake group[2 levels]; falls, stroke, haemoglobin; RFs for institutionalistion identified by UV analysis (p<0.1: ADL, weight, serum albumin,opiates)

Appendix D: Included studies- Consequences of Delirium

Consequence: New admission to institution - discharge

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Bourdel-Marchasson 2004; prospective cohort study; country France; Total number of patients: 847; Funding: Grant- other	Patients older than 75 years were included.; Patients whose stay was shorter than 3 days, usually living in an institution were excluded.	Age(range): 85 years (78.4 to 92.4); Number of patients with delirium: prevalent: 34/427 [8%]; Delirium Assessment: Assessed with established tool; Assessment details: CAM symptoms within 24h following admission; delirium within 4d of stay termed prevalent delirium; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: 322/427 (75%) patients; based on family interviews and physicans; check if existed with respect to DSM IV criteria; Comorbidity/Severity of Illness: comorbidities and other medications	Setting: Hospital;Ward: Medical	Age (for 1 year increase), gender, previously known cognitive impairment, dietary intake group[2 levels]; falls, stroke, haemoglobin; RFs for institutionalistion identified by UV analysis (p<0.1: ADL, weight, serum albumin,opiates)
Inouye 1998; prospective cohort study; country USA; Total number of patients: 727; Funding: Grant- other	All sites (Chicago,Cleveland, Yale) included medical patients; Chicago and Yale sites included surgical patients as well. All sites excluded terminally ill patients	Age(range): 78.9 years (72 to 85.8); Number of patients with delirium: prevalent: 88/727 (12%) [in text]; 90/727 [in table]; Delirium Assessment: Assessed with established tool; Assessment details: CAM; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Cognitive impairment:19% met criteria for dementia; assessed with MMSE; Mean MMSE(across the 3 sites): 23.5(SD5.4); Comorbidity/Severity of Illness: Severity of illness: APACHE II (admission); Mean across three study sites: 12.4 (SD 4.5)	Setting: Hospital;Ward: Mixed: Medical/Surgical	Age, gender, dementia, APACHE II, ADL score & IADL score

Appendix D: Included studies- Consequences of Delirium

Consequence: New admission to institution - discharge

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Levkoff 1992; prospective cohort study; country USA; Total number of patients: 325; Funding: Grant- other	Patients 65 years or older from both long-term care and the community admitted to hospital from Jul 1987 to June1989; patients were excluded if admitted from an ICU or psychiatric unit; or had severe language or hearing problems, or active tuberculosis.	Age(range): mean 81.4 (73.7 to 89.1); Number of patients with delirium: prevalent: 34/325 (11%) ; incident:91; Delirium Assessment: Assessed with established tool; Assessment details: DSI (has 7 symptom domains); examined within 48 hrs of hospital admission, and then daily for at least 14 days; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: 24% with preexisting cognitive impairment; assessment methods not reported (relied on medical chart review); Comorbidity/Severity of Illness: Sum of severity of scores assigned to 15 medical conditions to obtain a score based on presence &severity. Range:1(not likely to have any impact on the process of care) to 4(life threatening. Reviewed by internist/geriatrician	Setting: Hospital;Ward: Mixed: Medical/Surgical	age [<80 vs >80], sex, preexisting cognitive impairment (presence/absence), and illness severity

Consequence: New admission to institution - 3 months

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Inouye 1998; prospective cohort study; country USA; Total number of patients: 727; Funding: Grant- other	All sites (Chicago,Cleveland, Yale) included medical patients; Chicago and Yale sites included surgical patients as well. All sites excluded terminally ill patients	Age(range): 78.9 years (72 to 85.8); Number of patients with delirium: prevalent: 88/727 (12%) [in text]; 90/727 [in table]; Delirium Assessment: Assessed with established tool; Assessment details: CAM; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Cognitive impairment:19% met criteria for dementia; assessed with MMSE; Mean MMSE(across the 3 sites): 23.5(SD5.4); Comorbidity/Severity of Illness: Severity of illness: APACHE II (admission); Mean across three study sites: 12.4 (SD 4.5)	Setting: Hospital;Ward: Mixed: Medical/Surgical	Age, gender, dementia, APACHE II, ADL score & IADL score

Appendix D: Included studies- Consequences of Delirium

Consequence: New admission to institution - 6 months

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
O'Keeffe 1997; prospective cohort study; country UK; Total number of patients: 225; Funding: Unclear/ Not stated	Patients admitted to an acute care geriatric unit were included. Only the 1st admission over the 19mo study period included. Patients not admitted to the geriatric unit on the day of admission, patients admitted electively for investigations, rehabilitation or respite care, severely aphasic or deaf, expected to remain in hospital <48h or not assessed by a study doctor w/in 48h of admission were excluded.	Age(range): 82 years (76 to 88); Number of patients with delirium: 41/225 (18%) at admission; evaluated within 48hrs; incident: 53 patients; Delirium Assessment: Assessed with established tool; Assessment details: DSM III;Did not require criterion 5 of DSM-III criteria [aetiology]; diagnosis based solely on the mental status history and examination;At admission:report of primary caregiver or other informant to id symptoms that were new/had worsened within wk; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: 60/225(27%)with chronic cognitive impairment based on Blessed Dementia Rating score ≥4 or if cog impairment interfered with social fx of at least6mo; Comorbidity/Severity of Illness: Severity of illness[delirium vs no delirium]: Mild:23:50; Moderate:29:59; Severe:42:22; Severity rating made by study physician	Setting: Hospital;Ward: Medical	age, severity of illness[2 levels], comorbid disease, disability score, chronic cognitive impairment

Consequence: New admisson to institution - 2 years

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Pitkala 2005; prospective cohort study; country Finland; Total number of patients: 425; Funding: Grant- other	Patients in acute wards of geriatric hospitals and nursing homes were included. Patients less than 70 years and those in coma were excluded	Age(range): Age over 85 years: 59% [250/425]; Number of patients with delirium: prevalent:106/425 (24.9%); Delirium Assessment: Assessed with established tool; Assessment details: DSMIV; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Clinical Dementia Rating Scale & criteria of dementia according to DSM IV, prior diagnoses of dementia & medical records for consensus by geriatrician; Comorbidity/Severity of Illness:	Setting: Mixed;Ward: Other	age, gender, education, dementia, comorbidity and ADL dependence

Appendix D: Included studies- Consequences of Delirium

Consequence: Mortality - in hospital

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Inouye 1998; prospective cohort study; country USA; Total number of patients: 727; Funding: Grant- other	All sites (Chicago,Cleveland, Yale) included medical patients; Chicago and Yale sites included surgical patients as well. All sites excluded terminally ill patients	Age(range): 78.9 years (72 to 85.8); Number of patients with delirium: prevalent: 88/727 (12%) [in text]; 90/727 [in table 2]; Delirium Assessment: Assessed with established tool; Assessment details: CAM; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Cognitive impairment:138 patients [19%] met criteria for dementia; assessed with MMSE; Mean MMSE(across the 3 sites): 23.5(SD5.4); Comorbidity/Severity of Illness: Severity of illness: APACHE II (admission); Mean across three study sites: 12.4 (SD 4.5)	Setting: Hospital;Ward: Mixed: Medical/Surgical	Age, gender, dementia, APACHE II, ADL score & IADL score
O'Keeffe 1997; prospective cohort study; country UK; Total number of patients: 225; Funding: Unclear/ Not stated	Patients admitted to an acute care geriatric unit were included. Only the 1st admission over the 19mo study period included. Patients not admitted to the geriatric unit on the day of admission, patients admitted electively for investigations, rehabilitation or respite care, severely aphasic or deaf, expected to remain in hospital <48h or not assessed by a study doctor w/in 48h of admission were excluded.	Age(range): 82 years (76 to 88); Number of patients with delirium: 41/225 (18%) at admission; evaluated within 48hrs; incident: 53 /225 (24%); Delirium Assessment: Assessed with established tool; Assessment details: DSM III; The following criterion not required: 'evidence, from the history,physical exam, or lab tests of a specific organic factor judged to be aetiologically related to the disturbance'; Diagnosis based solely on mental status history and exam.; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: 60/225(27%)with chronic cognitive impairment based on Blessed Dementia Rating score ≥4 or if CI interfered with social functioning at least 6mo; Comorbidity/Severity of Illness: Severity of illness[delirium vs no delirium]: Mild:23:50; Moderate:29:59; Severe:42:22; Severity rating made by study physician	Setting: Hospital;Ward: Medical	age, severity of illness[2 levels], comorbid disease, disability score, dementia

Appendix D: Included studies- Consequences of Delirium

Consequence: Mortality - in ICU

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Lin 2004; prospective cohort study; country Taiwan; Total number of patients: 102; Funding: Unclear/ Not stated	Mechanically ventilated adult ICU patients. Patients with a history of chronic dementia, psychosis, mental retardation or other neurologic disease; patients receiving antipsychotics or high doses of morphine(>50mg/d) or midazolam (>0.09mg/kg/hr), patients under general anaesthesia or heavily sedated with neuromuscular blockin agents were excluded.	Age(range): 73.6 years (70 to 77); Number of patients with delirium: prevalent: 22/102 (22%); Delirium Assessment: Assessed with established tool; Assessment details: CAM-ICU (Chinese version) within first 5 days of ICU stay; Presence of categories: acute onset, inattention, disorganised thinking or altered leve of consciousness; assessment continued until patients became nondelirious for 2 consecutive days.; Cognitive impairment: No patients with cognitive impairment; Details on cognitive impairment: Patients with history of chronic dementia excluded; Comorbidity/Severity of Illness: APACHE III score rated by chart review ; data obtained within 24 hours of ICU admission;	Setting: Hospital;Ward: ICU	APACHE III score, delirium, diabetes mellitus, chronic airway disease, congestive heart failure, shock, elevated serum level of urea nitrogen; UV: Also included Age, Gender, disease (hypertension, stroke, ischemic heart disease, sepsis, arrhythmia), hypoxemia, hypercarpnia, hypoalbuminemia, hyponatremia, elevated serum level of creatinine, elevated serum level of bilirubin

Appendix D: Included studies- Consequences of Delirium

Consequence: Mortality- in ICU & hospital

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Lin 2008; prospective cohort study; country Taiwan; Total number of patients: 143; Funding: Unclear/ Not stated	Mechanically ventilated adult ICU patients. Patients with a history of chronic dementia, psychosis, mental retardation or other neurologic disease; patients receiving antipsychotics or high doses of morphine(>50mg/d) or midazolam (>0.09mg/kg/hr); patients under general anaesthesia recovering from surgery or heavily sedated with neuromuscular agents were excluded	Age(range): 76 years (IQR 64 to 85.5); Number of patients with delirium: prevalent: 31/143 (22%); Delirium Assessment: Assessed with established tool; Assessment details: CAM-ICU (Chinese version) within first 5 days of ICU stay; Presence of categories: acute onset, inattention, disorganised thinking or altered leve of consciousness; assessment continued until patients became nondelirious for 2 consecutive days.; Cognitive impairment: No patients with cognitive impairment; Details on cognitive impairment: Patients with history of chronic dementia excluded; Comorbidity/Severity of Illness:	Setting: Hospital;Ward: ICU	MV: Age, gender, mean arterial pressure, arterial pH value, PaO2/FiO2, white blood cell count, preexisting medical conditions, sepsis and shock.
Thomason 2005; prospective cohort study; country USA; Total number of patients: 261; Funding: Grant- other	Patients aged 18 years or older admitted for more than 24 h to the medical ICU and did not require invasive mechanical ventialiton	Age(range): 52.5 years (32 to74); Number of patients with delirium: 125/261 (48%) at least 1 episode [not all at baseline]; Delirium Assessment: Assessed with established tool; Assessment details: CAM ICU; Patients scoring positive at any time whilst in ICU categorised as delirious;; Cognitive impairment: Unclear or Not stated; Details on cognitive impairment: Not stated; Comorbidity/Severity of Illness: Charlson comorbidity: median (IQR): 4(2-7): 3 (1-6); APACHE II [range 0 to 71; 0=best]score: 15 (10-21): 11(6-16)	Setting: Hospital;Ward: ICU	Age, gender, race, APACHE II score, Charlson co-morbidity index, coma status, delirium; For the mortality analysis: age, gender,race,APACHE II score and Charlson was pooled using principal component analysis

Appendix D: Included studies- Consequences of Delirium

Consequence: Mortality - 1 month

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Marcantonio 2000; prospective cohort study; country USA; Total number of patients: 126; Funding: Grant- other	Patients admitted to for surgical repair of hip fractures. Patients with presence of metastatic cancer or other comorbid illnesses likely to reduce life expectancy to under 6mo, inability to obtain informed consent w/24h surgery or 48h admission were reasons for exclusion.Patients were part of an RCT; intervention:proactive acute geriatrics consultaion and prevention of delirium after hip fracture	Age(range): 79 years (71 to 87); Number of patients with delirium: reported as incident delirium: 52/126 (41%); Delirium Assessment: Assessed with established tool; Assessment details: CAM; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: 50/126(40%) with cognitive impairment; based on proxy interview using Blessed score of >= 4 [range 0 to 28); Mean: (5 SD5);; Comorbidity/Severity of Illness: Charlson comorbidity: 0-1: 29% (29/126); 2-3: 41% (52/126); 4 or more: 36% (45/126)	Setting: Hospital;Ward: Surgical; Type of anaesthesia: not stated; type of surgery: orthopaedic	Age, baseline cognitive impairment, ADL functional impairment, medical comorbidity [1 level]

Consequence: Mortality - 6 weeks

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Drame 2008; prospective cohort study; country France; Total number of patients: 1306; Funding: Grant- other	Patients over 75 years or older hospitalised in a medical ward in the same hospital as the emergency unit to which they were initally admitted to. Patients who were hospitalised into intensive care or surgery, or if admission did not occur after emergency admission were excluded	Age(range): 85.0 years (75 to 103); Number of patients with delirium: prevalent: 261/1296 (20%); Delirium Assessment: Assessed with established tool; Assessment details: By geriatrician according to DSM-IV critiera :disturbance of consciousness, change in cognition as defined by an MMSE score ≤24 and development over a short period of time; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: 589/1296 (45%); presence of a diagnosis of dementia in medical records or by assessment of senior practitioner; Comorbidity/Severity of Illness: Charlson index used to define three levels of comorbidity (low:0 to 1; medium 2 to 4; high 5)	Setting: Hospital;Ward: Medical	Age, gender, ADL [moderately dependent vs independent, severly dependent vs independent], malnutrition risk, dementia, delirium

Appendix D: Included studies- Consequences of Delirium

Consequence: Mortality - 3 months

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Inouye 1998; prospective cohort study; country USA; Total number of patients: 727; Funding: Grant- other	All sites (Chicago,Cleveland, Yale) included medical patients; Chicago and Yale sites included surgical patients as well. All sites excluded terminally ill patients	Age(range): 78.9 years (72 to 85.8); Number of patients with delirium: prevalent: 88/727 (12%) [in text]; 90/727 [in table 2]; Delirium Assessment: Assessed with established tool; Assessment details: CAM; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Cognitive impairment:19% met criteria for dementia; assessed with MMSE; Mean MMSE(across the 3 sites): 23.5(SD5.4); Comorbidity/Severity of Illness: Severity of illness: APACHE II (admission); Mean across three study sites: 12.4 (SD 4.5)	Setting: Hospital;Ward: Mixed: Medical/Surgical	Age, gender, dementia, APACHE II, ADL score & IADL score

Appendix D: Included studies- Consequences of Delirium

Consequence: Mortality - 6 months

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Ely 2004; prospective cohort study; country USA; Total number of patients: 224; Funding: Grant- other	Mechanically ventilated patient admitted to medical or coronary ICUs.Patients with stroke syndrome or other neurologic disease, deaf or unable to speak or understand English,extubated prior to enrollment, previously enrolled in study, or refused to participate were excluded.	Age(range): 55 years (37 to 73); Number of patients with delirium: prevalent: 89/275 (32.4%); incident : 183/224, of whom 123 were in coma; Delirium Assessment: Assessed with established tool; Assessment details: CAM-ICU; Cognitive impairment: Cognitive impairment deduced from scores; Details on cognitive impairment: modified Blessed Dementia Rating Scale (range 0-17) - measures patient's baseline likelihood of dementia; Mean mBDRS 0.23(0.8):0.14(SD 0.6); Comorbidity/Severity of Illness: Severity of illness: assessed with APACHE II, most abnormal value during first 24h of ICU stay used to calculate severity of illness; 25.6 (SD8.1):23.2(9.6) for the delirious and non delirious groups, respectively	Setting: Hospital;Ward: ICU	Age at enrollment, Charlson Comorbidity Index, mBDRS score, APACHE II score, SOFA score, admitting diagnoses of sepsis or acute respiratory distress syndrome, sedative & analgesic medications (lorazepam, propofol,morphine,fentanyl), time-dependent coma variable
Francis 1990; prospective cohort study; country USA; Total number of patients: 229; Funding: Grant- other	Patients 70 years or older, admitted directly to the medical ward from thecommunity. Excluded patients admitted from nursing homes; admissions for terminal care or for treatment of metastatic cancer, overnight admission for invasive procedures, currently under psychiatric treatment, blind,deaf,aphasic or unable to speak English	Age(range): 78 years; Number of patients with delirium: prevalent:36/229 (16%) incident: 14/229 (15%);; Delirium Assessment: Assessed with established tool; Assessment details: Information on entire hospital stay was used to assign a diagnosis of delirium using criteria from DSM-IIIR; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Blessed's Dementia Rating Scale ≥4 indicating significant chronic cognitive impairment): 33/226; Comorbidity/Severity of Illness: Reported: 'house-staff severity rating': mild: 74/226; moderate: 101/226; severe: 15/226	Setting: Hospital;Ward: Medical	ADL status, illness severity [2 levels], prior cognitive impairment and fever ; Unclear what factors adjusted for in the MV analysis for mortality, therefore factors for reported for length of stay was used.

Appendix D: Included studies- Consequences of Delirium

Consequence: Mortality - 6 months

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Holmes 2000; prospective cohort study; country UK; Total number of patients: 731; Funding: Grant- other	All patients 65 years or more admitted to an orthopaedic ward in 2 hospitals in Leeds and subsequently undergone surgery for hip fracture were included. Patients with severe deafness, dysphasia, no English language,too physically unwell to undergo psychiatric interview,or no consent were excluded	Age(range): 82.1 years (65 to 99); Number of patients with delirium: prevalent:108/731 (15%); Delirium Assessment: Assessed with established tool; Assessment details: Dementia Rating Scale; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Study reported 402/731 (55%) had cognitive impairment of which 40.2% was dementia [assessed with MMSE] and 14.8% delirium; Comorbidity/Severity of Illness: Physical illness assessed on the Burkill scale; (range:0 to 6, with 0 representing no physical illness and 6 representing severe chronic physical illness).none: 146/731; mild:322/731; moderate 232/731; severe: 31/731	Setting: Hospital;Ward: Surgical; Type of anaesthesia: not stated; type of surgery: hip fracture	Age, gender, fracture [3 types] vs intertrochanteric, living arrangements [3 levels:family, residential,other] vs alone, social deprivation [3 levels:medium,high,unknown] vs low, physical illness [3 levels:mild,moderate,severe] vs none, physical drugs [2 levels:1to3,>3] vs none, albumin [normal or low] vs not done, psychiatric diagnosis [4 levels: dementia, delirium,depression,other] vs none
Levkoff 1992; prospective cohort study; country USA; Total number of patients: 325; Funding: Grant- other	Patients 65 years or older from both long-term care and the community admitted to hospital from Jul 1987 to June1989; Patients were excluded if admitted from an ICU or psychiatric unit; or had severe language or hearing problems, or active tuberculosis.	Age(range): 81.4 years (73.7 to 89.1); Number of patients with delirium: prevalent: 34/325 (11%); incident:91/325 (28%); Delirium Assessment: Assessed with established tool; Assessment details: DSI (has 7 symptom domains); examined within 48 hrs of hospital admission, and then daily for at least 14 days; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: 24% with preexisting cognitive impairment; assessment methods not reported (relied on medical chart review); Comorbidity/Severity of Illness: Sum of severity of scores assigned to 15 medical conditions to obtain a score based on presence &severity. Range:1(not likely to have any impact on the process of care) to 4 (life threatening). Reviewed by internist/geriatrician	Setting: Hospital;Ward: Mixed: Medical/Surgical	age [<80 vs >80], gender, preexisting cognitive impairment (presence/absence), and illness severity

Appendix D: Included studies- Consequences of Delirium

Consequence: Mortality - 6 months

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Marcantonio 2000; prospective cohort study; country USA; Total number of patients: 126; Funding: Grant- other	Patients admitted to for surgical repair of hip fractures. Patients with presence of metastatic cancer or other comorbid illnesses likely to reduce life expectancy to under 6mo, inability to obtain informed consent w/24h surgery or 48h admission were reasons for exclusion.Patients were part of an RCT; intervention:proactive acute geriatrics consultaion and prevention of delirium after hip fracture	Age(range): 79 years (71-87); Number of patients with delirium: incident: 52/126 (41%); Delirium Assessment: Assessed with established tool; Assessment details: CAM; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: 50/126(40%) with cognitive impairment ; based on proxy interview using Blessed score of ≥ 4; Mean: (5 SD5); Comorbidity/Severity of Illness: Charlson comorbidity: 0-1: 29% (29/126); 2-3: 41% (52/126); 4 or more: 36% (45/126)	Setting: Hospital;Ward: Surgical; Type of anaesthesia: not stated; type of surgery: orthopaedic	MV: Age (<80 vs ≥ 80 years), baseline cognitive impairment, ADL functional impairment, medical comorbidity [1 level: e.g. <3 vs ≥ 4 OR 2 levels: 0-1 vs 4; 2-3 vs 4]- treating as 1 level
O'Keeffe 1997; prospective cohort study; country UK; Total number of patients: 225; Funding: Unclear/ Not stated	Patients admitted to an acute care geriatric unit were included. Only the 1st admission over the 19mo study period included. Patients not admitted to the geriatric unit on the day of admission, patients admitted electively for investigations, rehabilitation or respite care, severely aphasic or deaf, expected to remain in hospital <48h or not assessed by a study doctor w/in 48h of admission were excluded.	Age(range): 82 years (76 to 88); Number of patients with delirium: prevalent: 41/225 (18%) evaluated within 48hrs; incident: 53 patients; Delirium Assessment: Assessed with established tool; Assessment details: DSM III; Did not require criterion 5 of DSM-III criteria[aetiology]; diagnosis based solely on the mental status history and examination; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: 60/225(27%)with chronic cognitive impairment based on Blessed Dementia Rating score ≥4 or if cog impairment interfered with social fx of at least6mo; Comorbidity/Severity of Illness: Severity of illness[delirium vs no delirium]: Mild:23:50; Moderate:29:59; Severe:42:22; Severity rating made by study physician	Setting: Hospital;Ward: Medical	age, severity of illness[2 levels], comorbid disease, disability score, dementia

Appendix D: Included studies- Consequences of Delirium

Consequence: Mortality - 1 year

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Leslie 2005; prospective cohort study; country USA; Total number of patients: 919; Funding: Grant- other	Patient were included if 70 years or older, admitted to non-intensive care general medical units, no evidence of delirium at admission, at intermediate/high risk for delirium based on previously developed risk model. Pts with profound dementia, language barrier, profound aphasia,intubation,coma, respitory isolation, terminal illness, had a hospital stay of 48h or less, or prior enrollment in the study were excluded	Age(range): 80 years (73.5 to 86.5); Number of patients with delirium: incident: 115/919 [13%]; Delirium Assessment: not stated; Assessment details: CAM; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Assessed with MMSE (<24) 44%: [406/919] and Blessed Score; Comorbidity/Severity of Illness: Charlson comorbidity index socre of >1: 643/919;	Setting: Hospital;Ward: Medical	Age, male, delirium, ADL impairment, Charlson comorbidity index score [2 levels]
Pitkala 2005; prospective cohort study; country Finland; Total number of patients: 425; Funding: Grant- other	Patients in acute wards of geriatric hospitals and nursing homes were included. Patients less than 70 years and those in coma were excluded	Age(range): Age over 85 years: 59% [250/425]; Number of patients with delirium: prevalent: 106/425 (24.9%); Delirium Assessment: Assessed with established tool; Assessment details: DSMIV; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Clinical Dementia Rating Scale & criteria of dementia according to DSM IV, prior diagnoses of dementia & medical records for consensus by geriatrician; Comorbidity/Severity of Illness: Charlson Comorbidity index: 2.3 (SD 1.6): 2.2(SD 1.5) for the delirious and non delirious groups, respectively.	Setting: Mixed;Ward: Other	age, gender, education, dementia, comorbidity and ADL dependence

Appendix D: Included studies- Consequences of Delirium

Consequence: Mortality - 2 years

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Dolan 2000; prospective cohort study; country USA; Total number of patients: 682; Funding: Grant- other	Hip fracture patients aged 65years or older recruited from hospitals. All patients were community dwelling at time of fracture. Excl:Patients presenting with pathological fractures or resided in nursing homes, hospital, or extended care facility at time of fracture.	Age(range): 82 years (72.6 to 87.4); Number of patients with delirium: prevalent: 92/682 (13.5%); Delirium Assessment: Assessed with established tool; Assessment details: Review of medical chart notes and/or proxy interview using CAM; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: 15% [n=122] identified were cognitively impaired based on medical chart notation of preexisting dementia; at follow-up: MMSE; patients excluded; Comorbidity/Severity of Illness: Modified Charlson comorbidity index1 point for MI,CHF, DV,peripheral vascular disease, dementia,COPD2:Ca/strk;3:cirrhosis;Score range 0 to 15. Comorbidities (mean (SD)): 2.3 (1.6): 1.6(1.5), for the delirium and no delirium groups, respectivley [p<0.001]	Setting: Hospital;Ward: Medical	Age, delirium at admission, gender (male), race (white), comorbidity, prefracture ADL impairment
Francis 1992; prospective cohort study; country USA; Total number of patients: 229; Funding: Grant- other	Patients 70 years or older, admitted directly to the medical ward from thecommunity. Excluded patients admitted from nursing homes; patients with severe dementia [requireing continual assistance in ADL) and aphasic, deaf,blind or unable to speak.	Age(range): 78 years (72 to 85); Number of patients with delirium: prevalent:36/229 (16%) incident: 14/229 (15%);; Delirium Assessment: Assessed with established tool; Assessment details: Information on entire hospital stay was used to assign a diagnosis of delirium using criteria from DSM-IIIR; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Blessed's Dementia Rating Scale(>=4indicating significant chronic cognitive impairment): 33/226; Comorbidity/Severity of Illness: Severity of illness-clinician based rating scale (1=not ill to 9=moribund) on how severly ill patient is on admission; (%): mild: 24:60; moderate:67:37; sever 9:3;	Setting: Hospital;Ward: Medical	initial cognitive impairment (DRS score), baseline ADL, cancer; [age, gender, race,marital stauts and severity of illness univariate only]

Appendix D: Included studies- Consequences of Delirium

Consequence: Mortality - 2 years

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Nightingale 2001; prospective cohort study; country UK; Total number of patients: 731; Funding: Grant- other	All patients 65 years or more admitted to an orthopaedic ward in 2 hospitals in Leeds and subsequently undergone surgery for hip fracture were included. Patients with severe deafness, dysphasia, no English language,too physically unwell to undergo psychiatric interview,no consent were excluded	Age(range): 82.1 years; Number of patients with delirium: prevalent:108/731 (15%); Delirium Assessment: Assessed with established tool; Assessment details: Dementia Rating Scale; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Study reported 402/731 (55%) had cog impariment of which 40.2% was dementia [assessed with MMSE] and 14.8% delirium; Comorbidity/Severity of Illness: Physical illness recorded with Burvill scale	Setting: Hospital;Ward: Surgical; Type of anaesthesia: not stated; type of surgery: hip fracture	Age, gender, hospital,Daily activities (per unit increase), physical illness (3 levels: mild, moderate, severe vs none], psychiatirc diagnosis [3 levels: dementia, delirium, depression vs well]
Pitkala 2005; prospective cohort study; country Finland; Total number of patients: 425; Funding: Grant- other	Patients in acute wards of geriatric hospitals and nursing homes were included. Patients less than 70 years and those in coma were excluded	Age(range): Age over 85 years: 59% [250/425]; Number of patients with delirium: prevalent: 106/425 (24.9%); Delirium Assessment: Assessed with established tool; Assessment details: DSMIV; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Clinical Dementia Rating Scale & criteria of dementia according to DSM IV, prior diagnoses of dementia & medical records for consensus by geriatrician; Comorbidity/Severity of Illness: Severity: Charlson Comorbidity index: 2.3 (SD 1.6): 2.2(SD 1.5) for the delirious and non delirious groups, respectively.	Setting: Mixed;Ward: Other	age, gender, education, dementia, comorbidity and ADL dependence

Appendix D: Included studies- Consequences of Delirium

Consequence: Mortality - 3 years

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Rockwood 1999; prospective cohort study; country Canada; Total number of patients: 164; Funding: Grant-other	Patients 65 years and older were included between Oct 1991 to Aug 1992; Exclusion criteria not stated	Age(range): 79 years; Number of patients with delirium: prevalent: 16 [delirium/no dementia]; 22 [delirium & dementia]; Delirium Assessment: Assessed with established tool; Assessment details: DSM IV; using Delirium Rating scale,; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Authors stated that dementia diagnosis conformed to the Candian Study of Health and Aging dementia protocol- which is DSMIII-R; Comorbidity/Severity of Illness: Reported comorbid illness: 2 levels: moderate and severe	Setting: Hospital;Ward: Medical	Age(years), gender, comorbid illness (two levels), frailty, dementia, marital status, living arrangements

Consequence: Length of stay-hospital [early discharge]

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Holmes 2000; prospective cohort study; country UK; Total number of patients: 731; Funding: Grant- other	I:All patients 65 years or more admitted to an orthopaedic ward in 2 hospitals in Leeds and subsequently undergone surgery for hip fracture.E:severe deafness, dysphasia, no English language,too physically unwell to undergo psychiatric interview,no consent	Age(range): 82.1 years (65 to 99); Number of patients with delirium: prevalent:108/731 (15%); Delirium Assessment: Assessed with established tool; Assessment details: Dementia Rating Scale; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Study reported 402/731 (55%) had cognitive impairment of which 40.2% was dementia [assessed with MMSE] and 14.8% delirium; Comorbidity/Severity of Illness: Burvill physical illness : (range:0 to 6, with 0 representing no physical illness and 6 representing severe chronic physical illness).none: 146/731; mild:322/731; moderate 232/731; severe: 31/731	Setting: Hospital;Ward: Surgical; Type of anaesthesia: not stated; type of surgery: hip fracture	Age, gender, fracture [3 types] vs intertrochanteric, living arrangements [3 levels:family, residential,other] vs alone, social deprivation [3 levels:medium,high,unknown] vs low, physical illness [3 levels:mild,moderate,severe] vs none, physical drugs [2 levels:1to3,>3] vs none, albumin [normal or low] vs not done, psychiatric diagnosis [4 levels: dementia, delirium,depression,other] vs none

Appendix D: Included studies- Consequences of Delirium

Consequence: Length of stay- hospital

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Ely 2004; prospective cohort study; country USA; Total number of patients: 275; Funding: Grant- other	Mechanically ventialted patinet admitted to medical or coronary ICUs. Patients with stroke syndrome or other neurologic disease, deaf or unable to speak or understand English, extubated prior to enrollment, previously enrolled in study, refused to participate were excluded	Age(range): 55 years (37 to 73); Number of patients with delirium: prevalent: 89/275 (32.4%); incident delirium: 183/224, of whom 123 were in coma; Delirium Assessment: Assessed with established tool; Assessment details: CAM-ICU; Cognitive impairment: Unclear or Not stated; Details on cognitive impairment: modified Blessed Dementia Rating Scale (range 0-17) - measures patient's baseline likelihood of dementia; Mean mBDRS 0.23(0.8):0.14(SD 0.6); Comorbidity/Severity of Illness: Severity of illness: assessed with APACHE II, most abnormal value during first 24h of ICU stay used to calculate severity of illness; 25.6 (SD8.1):23.2(9.6); Comorbidity: Charlson comorbidity index: Mean(SD): 3.2 (SD2.8)	Setting: Hospital;Ward: ICU	Age at enrollment, Charlson Comorbidity Index, mBDRS score, APACHE II score, SOFA score, admitting diagnoses of sepsis or acute respiratory distress syndrome, sedative & analgesic medications (lorazepam, propofol,morphine,fentanyl), time-dependent coma variable
Francis 1990; prospective cohort study; country USA; Total number of patients: 229; Funding: Grant- other	Patients 70 years or older, admitted directly to the medical ward from thecommunity. Excluded patients admitted from nursing homes; admissions for terminal care or for treatment of metastatic cancer, overnight admission for invasive procedures, currently under psychiatric treatment, blind,deaf,aphasic or unable to speak English	Age(range): 78 years; Number of patients with delirium: prevalent:36/229 (16%) incident: 14/229 (15%);; Delirium Assessment: Assessed with established tool; Assessment details: Information on entire hospital stay was used to assign a diagnosis of delirium using criteria from DSM-IIIR; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Blessed's Dementia Rating Scale ≥4 indicating significant chronic cognitive impairment): 33/226; Comorbidity/Severity of Illness: Reported: 'house-staff severity rating': mild: 74/226; moderate: 101/226; severe: 15/226	Setting: Hospital;Ward: Medical	ADL status, illness severity [2 levels], prior cognitive impairment and fever ;

Appendix D: Included studies- Consequences of Delirium

Consequence: Length of stay- hospital

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Levkoff 1992; prospective cohort study; country USA; Total number of patients: 325; Funding: Grant- other	Patients 65 years or older from both long-term care and the community admitted to hospital from Jul 1987 to June1989; patients were excluded if admitted from an ICU or psychiatric unit; or had severe language or hearing problems, or active tuberculosis.	Age(range): mean 81.4 (73.7 to 89.1); Number of patients with delirium: prevalent: 34/325 (11%) ; incident:91; Delirium Assessment: Assessed with established tool; Assessment details: DSI (has 7 symptom domains); examined within 48 hrs of hospital admission, and then daily for at least 14 days; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: 24% with preexisting cognitive impairment; assessment methods not reported (relied on medical chart review); Comorbidity/Severity of Illness: Sum of severity of scores assigned to 15 medical conditions to obtain a score based on presence &severity. Range:1(not likely to have any impact on the process of care) to 4(life threatening. Reviewed by internist/geriatrician	Setting: Hospital;Ward: Mixed: Medical/Surgical	age [<80 vs >80], sex, preexisting cognitive impairment (presence/absence), and illness severity
O'Keeffe 1997; prospective cohort study; country UK; Total number of patients: 225; Funding: Unclear/ Not stated	Patients admitted to an acute care geriatric unit were included. Only the 1st admission over the 19mo study period included. Patients not admitted to the geriatric unit on the day of admission, patients admitted electively for investigations, rehabilitation or respite care, severely aphasic or deaf, expected to remain in hospital <48h or not assessed by a study doctor w/in 48h of admission were excluded.	Age(range): 82 years (76 to 88); Number of patients with delirium: 41/225 (18%) at admission; evaluated within 48hrs; incident: 53 patients; Delirium Assessment: Assessed with established tool; Assessment details: DSM III;Did not require criterion 5 of DSM-III criteria [aetiology]; diagnosis based solely on the mental status history and examination;At admission:report of primary caregiver or other informant to id symptoms that were new/had worsened within wk; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: 60/225(27%)with chronic cognitive impairment based on Blessed Dementia Rating score ≥4 or if cog impairment interfered with social fx of at least6mo; Comorbidity/Severity of Illness: Severity of illness[delirium vs no delirium]: Mild:23:50; Moderate:29:59; Severe:42:22; Severity rating made by study physician; Charlson Comorbidity index: 2.1 (SD 1.8): 1.8(SD 1.8) for the delirious & non delirious groups, respectively	Setting: Hospital;Ward: Medical	age, severity of illness[2 levels], comorbid disease, disability score, dementia

Appendix D: Included studies- Consequences of Delirium

Consequence: Length of stay- hospital

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Thomason 2005; prospective cohort study; country USA; Total number of patients: 261; Funding: Grant- other	Patients aged 18 years or older admitted for more than 24 h to the medical ICU and did not require invasive mechanical ventialiton	Age(range): 52.5 years (32 to74); Number of patients with delirium: 125/261 (48%) at least 1 episode [not all at baseline]; Delirium Assessment: Assessed with established tool; Assessment details: CAM ICU; Patients scoring positive at any time whilst in ICU categorised as delirious; Cognitive impairment: Unclear or Not stated; Details on cognitive impairment: Not stated; Comorbidity/Severity of Illness: Charlson comorbidity: median (IQR): 4(2-7): 3 (1-6); APACHE II score: 15 (10-21): 11(6-16)	Setting: Hospital;Ward: ICU	Age, gender, race, APACHE II score, Charlson co-morbidity index, coma status, delirium

Consequence: Length of stay - ICU

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Thomason 2005; prospective cohort study; country USA; Total number of patients: 261; Funding: Grant- other	Patients aged 18 years or older admitted for more than 24 h to the medical ICU and did not require invasive mechanical ventialiton were included	Age(range): 52.5 years(32 to74); Number of patients with delirium: 125/260(48%) at least 1 episode [not all at baseline]; Delirium Assessment: Assessed with established tool; Assessment details: CAM ICU; Patients scoring positive at any time whilst in ICU categorised as delirious; Cognitive impairment: Unclear or Not stated; Details on cognitive impairment: Not stated; Comorbidity/Severity of Illness: Charlson comorbidity: median (IQR): 4(2-7): 3 (1-6); APACHE II score: 15 (10-21): 11(6-16)	Setting: Hospital;Ward: ICU	Age, gender, race, APACHE II score, Charlson co-morbidity index, coma status, delirium

Appendix D: Included studies- Consequences of Delirium

Consequence: Length of stay - post ICU

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Ely 2004; prospective cohort study; country USA; Total number of patients: 275; Funding: Grant- other	Mechanically ventilated patient admitted to medical or coronary ICUs.Patients with stroke syndrome or other neurologic disease, deaf or unable to speak or understand English, extubated prior to enrollment, previously enrolled in study, refused to participate were excluded.	Age(range): 55 years (37 to 73); Number of patients with delirium: prevalent:89/275 (32.4%); incident delirium: 183/224, of whom 123 were in coma; Delirium Assessment: Assessed with established tool; Assessment details: CAM-ICU; Cognitive impairment: Unclear or Not stated; Details on cognitive impairment: modified Blessed Dementia Rating Scale (range 0-17) - measures patient's baseline likelihood of dementia; Mean mBDRS 0.23(0.8):0.14(SD 0.6); Comorbidity/Severity of Illness: Severity of illness: assessed with APACHE II, most abnormal value during first 24h of ICU stay used to calculate severity of illness; 25.6 (SD8.1):23.2(9.6); Comorbidity: Charlson comorbidity index: Mean(SD): 3.2 (SD2.8)	Setting: Hospital;Ward: ICU	Age at enrollment, Charlson Comorbidity Index, mBDRS score, APACHE II score, SOFA score, admitting diagnoses of sepsis or acute respiratory distress syndrome, sedative & analgesic medications (lorazepam, propofol,morphine,fentanyl), time-dependent coma variable

Consequence: Hospital acquired complications

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
O'Keeffe 1997; prospective cohort study; country UK; Total number of patients: 225; Funding: Unclear/ Not stated	Patients admitted to an acute care geriatric unit were included. Only the 1st admission over the 19mo study period included. Patients not admitted to the geriatric unit on the day of admission, patients admitted electively for investigations, rehabilitation or respite care, severely aphasic or deaf, expected to remain in hospital <48h or not assessed by a study doctor w/in 48h of admission were excluded.	Age(range): 82 years (76 to 88); Number of patients with delirium: 41/225 (18%) at admission; evaluated within 48hrs; incident: 53 patients; Delirium Assessment: Assessed with established tool; Assessment details: DSM III; The following criterion not required: 'evidence, from the history,physical exam, or lab tests of a specific organic factor judged to be aetiologically related to the disturbance'; Diagnosis based solely on mental status history and exam.; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: 60/225(27%)with chronic cognitive impairment based on Blessed Dementia Rating score ≥4 or if cog impairment interfered with social fx of at least6mo; Comorbidity/Severity of Illness: Severity of illness[deliriumvs no delirium]: Mild:23:50; Moderate:29:59; Severe:42:22; Severity rating made by study physician	Setting: Hospital;Ward: Medical	age, severity of illness[2 levels], comorbid disease, disability score, chronic cognitive impairment, length of stay

Appendix D: Included studies- Consequences of Delirium

Consequence: Mortality or new admission to institution - discharge

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Inouye 1998; prospective cohort study; country USA; Total number of patients: 727; Funding: Grant- other	All sites (Chicago,Cleveland, Yale) included medical patients; Chicago and Yale sites incl surgical pts as well. All sites excluded terminally ill patients	Age(range): 78.9 years (72 to 85.8); Number of patients with delirium: Prevalent:88/727 (12%) [in text]; 90/727 [in table]; Delirium Assessment: Assessed with established tool; Assessment details: CAM; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Cognitive impairment:19% met criteria for dementia; assessed with MMSE; Mean MMSE(across the 3 sites): 23.5(SD5.4); Comorbidity/Severity of Illness: Severity of illness: APACHE II (admission); Mean across three study sites: 12.4 (SD 4.5)	Setting: Hospital;Ward: Mixed: Medical/Surgical	Age, gender, dementia, APACHE II, ADL score & IADL score

Appendix D: Included studies- Consequences of Delirium

Consequence: Mortality or new admisson to institution - 1 month

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Givens 2008; prospective cohort study; country USA; Total number of patients: 126; Funding: Unclear/ Not stated	Patients admitted for surgical repair of hip fractures. Patients with presence of metastatic cancer or other comorbid illnesses likely to reduce life expectancy to under 6mo, inability to obtain informed consent w/24h surgery or 48h admission were excluded. Patients were part of an RCT; intervention:proactive acute geriatrics consultaion and prevention of delirium after hip fracture.	Age(range): 79 years (71 to 87); Number of patients with delirium: Incident:52/126 (41%); Delirium Assessment: Assessed with established tool; Assessment details: CAM; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: 50/126(40%) with cognitive impairment; based on proxy interview using Blessed score of ≥ 4 [range 0 to 28); Mean: (5 SD5); Comorbidity/Severity of Illness: Charlson comorbidity: 0-1: 29% (29/126); 2-3: 41% (52/126); 4 or more: 36% (45/126)	Setting: Hospital;Ward: Surgical; Type of anaesthesia: not stated; type of surgery: orthopaedic	Age, gender, race intervention status, number of medical comorbidities, ADL
Marcantonio 2000; prospective cohort study; country USA; Total number of patients: 126; Funding: Grant- other	Patients admitted to for surgical repair of hip fractures. Patients were part of an RCT; intervention:proactive acute geriatrics consultaion and prevention of delirium after hip fracturePatients with presence of metastatic cancer or other comorbid illnesses likely to reduce life expectancy to under 6mo, inability to obtain informed consent w/24h surgery or 48h admission were reasons for exclusion.Patients were part of an RCT; intervention:proactive acute geriatrics consultaion and prevention of delirium after hip fracture	Age(range): 79 years (71 to 87); Number of patients with delirium: Incident:52/126 (41%); Delirium Assessment: Assessed with established tool; Assessment details: CAM; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: 50/126(40%) with cognitive impairment; based on proxy interview using Blessed score of >= 4 [range 0 to 28); Mean: (5 SD5);; Comorbidity/Severity of Illness: Charlson comorbidity: 0-1: 29% (29/126); 2-3: 41% (52/126); 4 or more: 36% (45/126)	Setting: Hospital;Ward: Surgical; Type of anaesthesia: not stated; type of surgery: orthopaedic	Age, baseline cognitive impairment, ADL functional impairment, medical comorbidity [1 level]

Appendix D: Included studies- Consequences of Delirium

Consequence: Mortality or new admission to institution - 3 months

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Inouye 1998; prospective cohort study; country USA; Total number of patients: 727; Funding: Grant- other	All sites (Chicago,Cleveland, Yale) included medical patients; Chicago and Yale sites incl surgical pts as well. All sites excluded terminally ill patients	Age(range): 78.9 years(72 to 85.8); Number of patients with delirium: Prevalent:88/727 (12%) [in text]; 90/727 [in table]; Delirium Assessment: Assessed with established tool; Assessment details: CAM; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Cognitive impairment:19% met criteria for dementia; assessed with MMSE; Mean MMSE(across the 3 sites): 23.5(SD5.4); Comorbidity/Severity of Illness: Severity of illness: APACHE II (admission); Mean across three study sites: 12.4 (SD 4.5)	Setting: Hospital;Ward: Mixed: Medical/Surgical	Age, gender, dementia, APACHE II, ADL score & IADL score

Appendix D: Included studies- Consequences of Delirium

Consequence: Mortality or new admission to institution - 6 month

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Givens 2008; prospective cohort study; country USA; Total number of patients: 126; Funding: Unclear/ Not stated	Patients admitted for surgical repair of hip fractures. Patients with presence of metastatic cancer or other comorbid illnesses likely to reduce life expectancy to under 6mo, inability to obtain informed consent w/24h surgery or 48h admission were excluded. Patients were part of an RCT; intervention:proactive acute geriatrics consultaion and prevention of delirium after hip fracture.	Age(range): 79 years (71 to 87); Number of patients with delirium: Incident:52/126 (41%); Delirium Assessment: Assessed with established tool; Assessment details: CAM; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: 50/126(40%) with cognitive impairment; based on proxy interview using Blessed score of ≥ 4 [range 0 to 28); Mean: 5 (SD5); Comorbidity/Severity of Illness: Charlson comorbidity: 0-1: 29% (29/126); 2-3: 41% (52/126); 4 or more: 36% (45/126)	Setting: Hospital;Ward: Surgical; Type of anaesthesia: not stated; type of surgery: orthopaedic	Age, gender, race intervention status, number of medical comorbidities, ADL
Marcantonio 2000; prospective cohort study; country USA; Total number of patients: 126; Funding: Grant- other	Patients admitted to for surgical repair of hip fractures. Patients with presence of metastatic cancer or other comorbid illnesses likely to reduce life expectancy to under 6mo, inability to obtain informed consent w/24h surgery or 48h admission were reasons for exclusion.Patients were part of an RCT; intervention:proactive acute geriatrics consultaion and prevention of delirium after hip fracture	Age(range): 79 years (71 to 87); Number of patients with delirium: Incident:52/126 (41%); Delirium Assessment: Assessed with established tool; Assessment details: CAM; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: 50/126(40%) with cognitive impairment; based on proxy interview using Blessed score of >= 4 [range 0 to 28); Mean: (5 SD5);; Comorbidity/Severity of Illness: Charlson comorbidity: 0-1: 29% (29/126); 2-3: 41% (52/126); 4 or more: 36% (45/126)	Setting: Hospital;Ward: Surgical; Type of anaesthesia: not stated; type of surgery: orthopaedic	Age, baseline cognitive impairment, ADL functional impairment, medical comorbidity [1 level]

Appendix D: Included studies- Consequences of Delirium

Consequence: Mortality or new admission to institution -1 year

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
McAvay 2006; prospective cohort study; country USA; Total number of patients: 637; Funding: Grant- other	Patients 70 years or older admitted to general medicine service (nonintensive care) Patients with profound dementia, aphasia, intubation were excluded because of inablility to participate [exclusion criteria?]Patients from nursing home excl	Age(range): 80 years (70 to 99); Number of patients with delirium: incident: 339/1874 (18.1%); Delirium(discharge): 24/433; Delirium Assessment: Assessed with established tool; Assessment details: CAM; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: 12.2% (53/433)Patients with profound dementia excluded; MMSE <24: 189/433 (44%).; Comorbidity/Severity of Illness: Charlson comorbidity index (n): 0: 50; 1: 90; ≥2:293	Setting: Hospital;Ward: Medical	Age (continuous), marital status, dementia, Geriatric Depression Scale score ≥7, any activity of daily living impairment, Charlson Comorbidity Index[2 levels:0 vs 1; 0 vs 2], delirium [2 levels]

Consequence: Mortality or residing in institution- 2 years

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Pitkala 2005; prospective cohort study; country Finland; Total number of patients: 425; Funding: Grant- other	Patients in acute wards of geriatric hospitals and nursing homes were included. Patients less than 70 years and those in coma were excluded	Age(range): Age over 85 years: 59% [250/425]; Number of patients with delirium: prevalent: 106/425 (24.9%); Delirium Assessment: Assessed with established tool; Assessment details: DSMIV; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Clinical Dementia Rating Scale & criteria of dementia according to DSM IV, prior diagnoses of dementia & medical records for consensus by geriatrician; Comorbidity/Severity of Illness: Severity: Charlson Comorbidity index: 2.3 (SD 1.6): 2.2(SD 1.5)	Setting: Mixed;Ward: Other	age, gender, education, dementia, comorbidity and ADL dependence

Appendix D: Included studies- Consequences of Delirium

Risk factor: Duration of delirium

Consequence: Mortality - 6 months

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Ely 2004; prospective cohort study; country USA; Total number of patients: 224; Funding: Grant- other	Mechanically ventilated patient admitted to medical or coronary ICUs.Patients with stroke syndrome or other neurologic disease, deaf or unable to speak or understand English, extubated prior to enrollment, previously enrolled in study, refused to participate were excluded	Age(range): 55 years (37 to 73); Number of patients with delirium: Duration of delirium: not report89/275 (32.4%); incident delirium: 183/224, of whom 123 were in coma; Delirium Assessment: Assessed with established tool; Assessment details: CAM-ICU; Cognitive impairment: Unclear or Not stated; Details on cognitive impairment: modified Blessed Dementia Rating Scale (range 0-17) - measures patient's baseline likelihood of dementia; Mean mBDRS 0.23(0.8):0.14(SD 0.6); Comorbidity/Severity of Illness: Severity of illness: assessed with APACHE II, most abnormal value during first 24h of ICU stay used to calculate severity of illness; 25.6 (SD8.1):23.2(9.6)	Setting: Hospital;Ward: ICU	Age at enrollment, Charlson Comorbidity Index, mBDRS score, APACHE II score, SOFA score, admitting diagnoses of sepsis or acute respiratory distress syndrome, sedative & analgesic medications (lorazepam, propofol,morphine,fentanyl), time-dependent coma variable

Appendix D: Included studies- Consequences of Delirium

Consequence: Length of stay- hospital

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Ely 2004; prospective cohort study; country USA; Total number of patients: 224; Funding: Grant- other	Mechanically ventilated patient admitted to medical or coronary ICUs.Patients with stroke syndrome or other neurologic disease, deaf or unable to speak or understand English, extubated prior to enrollment, previously enrolled in study, refused to participate were excluded	Age(range): 55 years (37 to 73); Number of patients with delirium: Prevalent89/275 (32.4%); incident delirium: 183/224, of whom 123 were in coma; Delirium Assessment: Assessed with established tool; Assessment details: CAM-ICU; Cognitive impairment: Unclear or Not stated; Details on cognitive impairment: modified Blessed Dementia Rating Scale (range 0-17) - measures patient's baseline likelihood of dementia; Mean mBDRS 0.23(0.8):0.14(SD 0.6); Comorbidity/Severity of Illness: Severity of illness: assessed with APACHE II, most abnormal value during first 24h of ICU stay used to calculate severity of illness; 25.6 (SD8.1):23.2(9.6)	Setting: Hospital;Ward: ICU	Age at enrollment, Charlson Comorbidity Index, mBDRS score, APACHE II score, SOFA score, admitting diagnoses of sepsis or acute respiratory distress syndrome, sedative & analgesic medications (lorazepam, propofol,morphine,fentanyl), time-dependent coma variable

Consequence: Length of stay - post ICU

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Ely 2004; prospective cohort study; country USA; Total number of patients: 224; Funding: Grant- other	Mechanically ventilated patient admitted to medical or coronary ICUs.Patients with stroke syndrome or other neurologic disease, deaf or unable to speak or understand English, extubated prior to enrollment, previously enrolled in study, refused to participate	Age(range): 55 years (37 to 73); Number of patients with delirium: Prevalent:89/275 (32.4%); incident delirium: 183/224, of whom 123 were in coma; Delirium Assessment: Assessed with established tool; Assessment details: CAM-ICU; Cognitive impairment: Unclear or Not stated; Details on cognitive impairment: modified Blessed Dementia Rating Scale (range 0-17) - measures patient's baseline likelihood of dementia; Mean mBDRS 0.23(0.8):0.14(SD 0.6); Comorbidity/Severity of Illness: Severity of illness: assessed with APACHE II, most abnormal value during first 24h of ICU stay used to calculate severity of illness; 25.6 (SD8.1):23.2(9.6)	Setting: Hospital;Ward: ICU	Age at enrollment, Charlson Comorbidity Index, mBDRS score, APACHE II score, SOFA score, admitting diagnoses of sepsis or acute respiratory distress syndrome, sedative & analgesic medications (lorazepam, propofol,morphine,fentanyl), time-dependent coma variable

Appendix D: Included studies- Consequences of Delirium

Consequence: Mortality or functional decline- discharge

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Andrew 2005; prospective cohort study; country Canada; Total number of patients: 77; Funding: No funding	Patients in tertiary care medical,surgical and geriatric ward settings.	Age(range): 78.5 years (64 to 93); Number of patients with delirium: 100%; Duration of delirium:6.3 days(SD6.1);Cause of delirium was due to meds/alcohol:39%; Delirium Assessment: Assessed with established tool; Assessment details: DSMIII-R criteria; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Dementia assessed with DSM III criteria;/ cognitive status:medical record; Comorbidity/Severity of Illness:	Setting: Mixed;Ward: Mixed: Medical/Surgical	Age, sex, frailty (Geriatric Status Score)

Consequence: Mortality or functional decline- 6 months

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Andrew 2005; prospective cohort study; country Canada; Total number of patients: 77; Funding: No funding	Patients in tertiary care medical,surgical and geriatric ward settings. In 30/77 (39%) patients cause of delirium was medications or alcohol	Age(range): 78.5 years (64 to 93); Number of patients with delirium: 77/77 (100%); Duration of delirium:6.3days(SD 6.1); Delirium Assessment: Assessed with established tool; Assessment details: DSMIII-R criteria; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Dementia assessed with DSM III criteria; cognitive status:medical record; Comorbidity/Severity of Illness:	Setting: Mixed;Ward: Mixed: Medical/Surgical	Age, sex, frailty (Geriatric Status Score)

Appendix D: Included studies- Consequences of Delirium

Risk factor: Severity of delirium

Consequence: Mortality - 1 year

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Leslie 2005; prospective cohort study; country USA; Total number of patients: 919; Funding: Grant- other	Patient were included if 70 years or older, admitted to non-intensive care general medical units, no evidence of delirium at admission, at intermediate/high risk for delirium based on previously developed risk model. Pts with profound dementia, language barrier, profound aphasia,intubation,coma, respitory isolation, terminal illness, had a hospital stay of 48h or less, or prior enrollment in the study were excluded	Age(range): 80 years (73.5 to 86.5); Number of patients with delirium: incident: 115/919 [13%]; Delirium Assessment: not stated; Assessment details: CAM; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: Assessed with MMSE (<24) 44%: [406/919] and Blessed Score; Comorbidity/Severity of Illness: Charlson comorbidity index socre of >1: 643/919;	Setting: Hospital;Ward: Medical	Age, male, delirium[2 levels], ADL impairment, Charlson comorbidity index score [2 levels]

Appendix D: Included studies- Consequences of Delirium

Consequence: Mortality or new admisson to institution - 1 month

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Marcantonio 2002; prospective cohort study; country USA; Total number of patients: 122; Funding: Unclear/ Not stated	Patients admitted for acute hip fracture surgery. Patients were part of a RCT; intervention:proactive acute geriatrics consultaion and prevention of delirium after hip fractureExcluded patients with pathological hip fractures caused by metastatic cancer, patients for whom informed consent was not obtained either directly or via proxy w/in 24h of surgery or 48h of admission.	Age(range): 79 years (71 to 87); Number of patients with delirium: incident: 49/126 (40%); Delirium Assessment: Assessed with established tool; Assessment details: CAM (DSM IIIR criteria). Severity: MDAS- 12.44 cutoff between mild and severe delirium; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: 31/49 (63%) with cognitive impairment in the mild and severe delirium groups ; based on proxy interview using Blessed score of ≥4; Mean: 5 (SD5); Comorbidity/Severity of Illness: Charlson comorbidity: 0-1: 29% (29/126); 2-3: 41% (52/126); 4 or more: 36% (45/126)	Setting: Hospital;Ward: Surgical; Type of anaesthesia: not stated; type of surgery: orthopaedic	ADL, cognitive impairment

Consequence: Mortality or new admission to institution - 6mo

Study details	*Inclusion/Exclusion*	*Patient details*	*Setting*	*Factors adjusted for*
Marcantonio 2002; prospective cohort study; country USA; Total number of patients: 122; Funding: Unclear/ Not stated	Patients admitted for acute hip fracture surgery. Patients were part of an RCT; intervention:proactive acute geriatrics consultaion and prevention of delirium after hip fractureExcluded patients with pathological hip fractures caused by metastatic cancer, patients for whom informed consent was not obtained either directly or via proxy w/in 24h of surgery or 48h of admission.	Age(range): 79 years (71 to 87); Number of patients with delirium: incident:49/126 (40%); Delirium Assessment: Assessed with established tool; Assessment details: CAM (DSM IIIR criteria). Severity: MDAS- 12.44 cutoff between mild and severe delirium; Cognitive impairment: Some patients with cognitive impairment; Details on cognitive impairment: 31/49 (63%) with cognitive impairment in the mild and severe delirium groups ; based on proxy interview using Blessed score of ≥4; Mean: 5 (SD5);; Comorbidity/Severity of Illness: Charlson comorbidity: 0-1: 29% (29/126); 2-3: 41% (52/126); 4 or more: 36% (45/126)	Setting: Hospital;Ward: Surgical; Type of anaesthesia: ----; type of surgery: orthopaedic	ADL, cognitive impairment