

Bijlage 7

Verantwoording per uitgangsvraag

Uitgangsvraag 1 Preventie Delier

Relevante uitkomstmaten

De werkgroep achtte de incidentie van delier een voor de besluitvorming cruciale uitkomstmaat; en cognitieve en fysieke functionele veranderingen, ziekenhuisopname en overlijden in verband met acute medische aandoeningen voor de besluitvorming belangrijke uitkomstmaten.

Om de uitgangsvraag te kunnen beantwoorden is er een systematische literatuuranalyse verricht naar de volgende zoekvraag:

Welke preventieve interventies kunnen worden ingezet bij kwetsbare ouderen en volwassenen, met (al dan niet gediagnosticeerde) cognitieve problemen, die thuis wonen of in een verpleeghuis?

P: kwetsbare ouderen en volwassenen, met (al dan niet gediagnosticeerde) cognitieve problemen, die thuis wonen of in een verpleeghuis

I: preventieve interventies

C: afwezigheid van deze interventies

O: incidentie delier, duur van delier, ernst van delier, kans op delier, ziekenhuisopnames, cognitieve toestand, overlijden in verband met acute medische aandoeningen, nadelige effecten van de interventies

Selectiecriteria

Studies werden geselecteerd op grond van de volgende selectiecriteria:

- systematische reviews of origineel primair onderzoek
- Onderzoek naar verpleegkundige interventies ter preventie van een delier
- Patiëntpopulatie kwetsbare ouderen of volwassenen met (al dan niet gediagnosticeerde) cognitieve problemen, die thuis wonen of in een verpleeghuis.
- Gepubliceerd tussen 2012 – maart 2020
- Artikel full-tekst beschikbaar in het Engels of Nederlands

Op basis van titel en abstract werden in eerste instantie 31 studies voorgeselecteerd. Na raadpleging van de volledige tekst, werden vervolgens 28 studies geëxcludeerd, en drie studies definitief geselecteerd.

Zoekresultaten

In de databases Medline (via OVID) en Cinahl is op 4 maart 2020 met relevante zoektermen gezocht naar studies over preventieve verpleegkundige interventies voor een delier. De zoekverantwoording is weergegeven in de bijlage. De literatuurzoekactie leverde 454 treffers op. Voor de thuissituatie werd er één artikel geselecteerd en voor de verpleeghuissituatie drie.

Geïnccludeerde studies

Drie onderzoeken zijn opgenomen in de literatuuranalyse. De belangrijkste studiekarakteristieken en resultaten zijn opgenomen in de evidencetabellen. De beoordeling van de individuele studieopzet (risk of bias) is opgenomen in de risk-of-biastabellen.

Beoordelen van de kracht van het wetenschappelijke bewijs

De bewijskracht (GRADE-methodiek) is bepaald per vergelijking en uitkomstmaat. De bewijskracht is deels gebaseerd op resultaten uit gerandomiseerd onderzoek (Culp, 2003; Siddiqi, 2016) startend op GRADE hoog; deels op niet-gerandomiseerd onderzoek (Simpson, 2019), startend op GRADE Laag. Vervolgens is de bewijskracht verlaagd als er sprake was van relevante tekortkomingen op een of meerdere GRADE-domeinen: risk of bias, inconsistentie, indirectheid, imprecisie, publicatiebias (zie Werkwijze op het tabblad Verantwoording).

Setting Thuis

2.4 Uitkomstmaat incidentie delier in de thuissituatie – (Simpson, 2019)

Voor de uitkomstmaat incidentie delier in de thuissituatie begint de bewijskracht op GRADE laag (niet gerandomiseerd), en is verlaagd met 1 niveau vanwege imprecisie (passeren van de grens voor klinische relevantie, geringe patiëntaantallen, nog geen 300 patiënten); bewijskracht is ZEER LAAG.

1.2 Uitkomstmaat ziekenhuisopnames in de thuissituatie – (Simpson, 2019)

Voor de uitkomstmaat ziekenhuisopnames in de thuissituatie begint de bewijskracht op GRADE laag (niet gerandomiseerd), en is verlaagd met 1 niveau vanwege imprecisie (passeren van de grens voor klinische relevantie, geringe patiëntaantallen, nog geen 300 patiënten); bewijskracht is ZEER LAAG

1.3 Overige uitkomstmaten

De uitkomstmaten delier remissie, cognitieve en fysieke functieverandering, en overlijden in verband met acute medische aandoeningen in de thuissituatie konden niet beoordeeld worden vanwege een gebrek aan onderzoeksgegevens.

Setting Verpleeghuis

2.1 Uitkomstmaat Risico op delier na vochtintake – (Culp, 2003)

Voor de uitkomstmaat incidentie delier (of acute verwardheid) in de verpleeghuissituatie na een interventie gericht op optimale vochtintake begint de bewijskracht op GRADE hoog (RCT), en is verlaagd met 1 niveau vanwege risk of bias (problemen met randomisatie en blinding) en 2 niveaus vanwege imprecisie (zeer gering aantal patiënten en het passeren van de grens voor klinische relevantie); bewijskracht is ZEER LAAG

2.2 Uitkomstmaat Risico op delier na opleiden van zorgpersoneel – (Siddiqi, 2016)

Voor de uitkomstmaat incidentie delier in de verpleeghuissituatie na een interventie bestaande uit opleiding van het verpleeghuispersoneel begint de bewijskracht op GRADE hoog (RCT), en is verlaagd met 2 niveaus vanwege risk of bias (problemen met randomisatie – individuele patiënten zijn niet gerandomiseerd, alleen de behandellocaties zijn random toegewezen. Problemen met blinding) en 1 niveau vanwege imprecisie (geringe patiëntaantallen en het passeren van de grens van klinische relevantie); bewijskracht is ZEER LAAG

2.3 Uitkomstmaat Overlijden in verband met acute medische aandoening – (Culp, 2003)

Voor de uitkomstmaat overlijden in verband met acute medische aandoeningen in de verpleeghuissituatie na een interventie gericht op optimale vochtintake begint de bewijskracht op GRADE laag (RCT), en is verlaagd met 2 niveau vanwege risk of bias (problemen met randomisatie en blinding) en 2 niveaus vanwege imprecisie (zeer gering aantal patiënten en het passeren van de grens voor klinische relevantie); bewijskracht is ZEER LAAG

2.3 Uitkomstmaat Risico op delier na opleiden van zorgpersoneel – (Siddiqi, 2016)

Voor de uitkomstmaat risico delier na opleiden zorgpersoneel in de verpleeghuissituatie na een interventie bestaande uit opleiding van het verpleeghuispersoneel begint de bewijskracht op GRADE hoog (RCT), en is verlaagd met 2 niveaus vanwege risk of bias en 1 niveau vanwege imprecisie; bewijskracht is ZEER LAAG

2.4 Overige uitkomstmaten

De uitkomstmaten delier remissie, ziekenhuisopname, en cognitieve en fysieke functieverandering in de verpleeghuissituatie konden niet beoordeeld worden vanwege een gebrek aan onderzoeksgegevens.

Voor alle geïncludeerde studies geldt dat de controlegroep gebruikelijke zorg ontving, wat tot bias bij de inschatting van de effecten van de interventies op niet harde uitkomstmaten kan leiden.

Uitgangsvraag 1

- Evidence tabellen

Evidence table for intervention studies (randomized controlled trials and non-randomized observational studies [cohort studies, case-control studies, case series])¹

Study reference	Study characteristics	Patient characteristics ²	Intervention (I)	Comparison / control (C) ³	Follow-up	Outcome measures and effect size ⁴	Comments
Culp, 2003	Type of study: quasi-experimental cohort study Setting and country: 7 long term care homes, US Funding and conflicts of interest: National Institute for Nursing Research, R15NR04763, F31NR07254. No mention of conflicts of interest.	<u>Inclusion criteria:</u> - Resident in long term care facility - Informed consent from patient or family member if patient not independent <u>Exclusion criteria:</u> - Acute confusion at baseline - Terminal illness - Nasogastric or gastrostomy tube - Severe renal failure - Severe congestive heart failure - Urinary tract infection	Describe intervention (treatment/procedure/test): 4-week intervention, individual fluid intake goal calculated according to bodyweight (100 ml per kg for the first 10 kg of weight, 50 ml per kg for the next 10 kg of weight, and 15 ml per kg for the remaining kg of weight). 75% of fluids delivered with meals, 25% during non-meal times. Nursing staff were instructed on the treatment regimen.	Describe control (treatment/procedure/test): Usual care, no individual fluid intake goal.	<u>Length of follow-up:</u> 4 weeks <u>Loss-to-follow-up:</u> Intervention: N (%) Reasons (describe) Control: N (%) Reasons (describe) No information on loss to follow-up. No intention-to-treat analysis <u>Incomplete outcome data:</u> Intervention: N (%) Reasons (describe) Control: N (%) Reasons (describe)	Outcome measures: <i>Acute confusion</i> Assessed with NEECHAM, a score <25 was interpreted as acute confusion Outcome measures and effect size (include 95%CI and p-value if available): <u>Acute confusion, n (%)</u> I: 3 of 53 (6 %) C: 3 of 45 (7 %) Unadjusted RR 0.85 (95% CI 0.18;4.00)	"Treatment and control groups were determined randomly by facility rather than on an individual (participant) basis due to the community impact of the hydration intervention in the LTC facility. This is difficult to describe here, but the reader is encouraged to recall that this study was conducted in an LTC center and not a hospital. In essence, the intervention could not be double blinded, and it could not be randomly assigned to some residents and not others on the same unit as these elders live together and are familiar with

Study reference	Study characteristics	Patient characteristics ²	Intervention (I)	Comparison / control (C) ³	Follow-up	Outcome measures and effect size ⁴	Comments
		- Serum sodium > 135 mEq/L <u>N total at baseline</u>: 98 Intervention: 53 Control: 45 <u>Important prognostic factors</u>²: <u>Age</u> $\pm$ <u>SD</u>: I: 84 ± 9 C: 84 ± 8 <u>Sex</u>: I: 45 % M C: 47 % M <u>MMSE</u> $\pm$ <u>SD</u>: I: 23.5 ± 5.3 C: 23.3 ± 4.8 <u>NEECHAM</u> $\pm$ <u>SD</u>: I: 27.8 ± 2.6 C: 28.1 ± 2.0 Groups comparable at baseline? Yes					each other's care regimens. Not all nursing units within a facility were used, and it was not possible to do random selection of the unit. The nursing director in the facility made recommendations as to what unit would be used in the study but was not informed of either treatment or control assignment at the time of the unit selection."
Siddiqi, 2016	Type of study: Randomized controlled study (sites randomize)	<u>Inclusion criteria</u>: - Independent sector care homes providing	Describe intervention (treatment/procedure/test): A mental health nurse with expertise in delirium delivered	Describe control (treatment/procedure/test): No intervention/usual care	<u>Length of follow-up</u>: 16 months <u>Loss-to-follow-up</u>: Intervention: N 28 (27 %) Reasons (describe):	Outcome measures: <i>Delirium incidence</i> Measured using the Confusion Assessment Method (CAM, cut-off score not reported)	Author's conclusion: No conclusion about efficacy of intervention.

Study reference	Study characteristics	Patient characteristics ²	Intervention (I)	Comparison / control (C) ³	Follow-up	Outcome measures and effect size ⁴	Comments
	d, not individuals) Setting and country: PITSTOP study, 14 care homes for older people in one metropolitan district in the UK Funding and conflicts of interest: NIHR Research for Patient Benefit Programme PB-PG-0610-22068. Sponsored by Bradford District Care NHS Foundation Trust.	nursing or residential care for older people <u>Exclusion criteria:</u> - residents with severe communication difficulties/no English, or who were receiving end-of-life care <u>N total at baseline:</u> 215 residents in 14 care homes <u>Intervention:</u> 103 residents in 7 care homes <u>Control:</u> 112 residents in 7 care homes <u>Important prognostic factors²:</u> <u>Age ± SD:</u> I: 83 ± 8 C: 85 ± 8 <u>Sex:</u> I: 37 % M C: 16 % M	three educational sessions for care home staff, and facilitated working groups that identified targets for delirium prevention and developed solutions for each home		Consent withdrawn (n=1), transfer out of home (n=6), death (n=19), no longer eligible (n=1), missing (n=1) Control: N 27 (24 %) Reasons (describe): Transfer out of home (n=1), death (n=24), missing (n=2) <u>Incomplete outcome data:</u> Intervention: N 16 (16 %) Reasons (describe): Consent withdrawn (n=3), transferred out of home (n=3), no longer eligible (n=8), death (n=2) Control: N 11 (10 %) Reasons (describe): Consent withdrawn (n=1), transferred out of home (n=2), no longer eligible (n=4), death (n=4)	<i>Mortality</i> Death between baseline and follow-up or during follow-up Outcome measures and effect size (include 95%CI and p-value if available): <u>Delirium incidence, n (%)</u> I: 14 of 69 (20 %) C: 9 of 61 (15 %) Unadjusted RR intervention 1.4 (95 % CI 0.6-3.0) <u>Mortality, n (%)</u> I: 19 of 103 (18 %) C: 28 of 84 (25 %) Unadjusted RR: 0.74 (95% CI 0.44;1.24)	Interim analysis. High attrition rate. Baseline difference in dementia prevalence?

Study reference	Study characteristics	Patient characteristics ²	Intervention (I)	Comparison / control (C) ³	Follow-up	Outcome measures and effect size ⁴	Comments
	Authors declare they have no conflicts of interest.	<i>Dementia diagnosis:</i> I: 51 % C: 34 % Groups comparable at baseline? Unclear					
Simpson, 2019	Type of study: case-control study Setting and country: Home and hospital (2 medical-surgical units), US Funding and conflicts of interest: Funded by Bader Philanthropies. MM is a consultant for the Institute for Healthcare Improvement	<u>Inclusion criteria:</u> - patients with a hospital admission date between January 1, 2015, and September 30, 2017 - aged 65 years and older, - admitted to skilled home healthcare within 5 days of hospital discharge <u>Exclusion criteria:</u> - admitted to home health hospice or palliative care <u>N total at baseline:</u>	Describe intervention (treatment/procedure/test): The bundled HELP intervention includes therapeutic activities, early mobilization, feeding, hydration, vision/hearing, and sleep promotion. Patients who were hospitalized and discharged to home health with Bundled HELP exposure (May 1, 2016, to September 30, 2017) were defined as cases (n = 149)	Describe control (treatment/procedure/test): Patients who were hospitalized and discharged to home health care in the year before Bundled HELP was implemented (January 1, 2015, to April 30, 2016) were defined as controls (n = 617).	<u>Length of follow-up:</u> 30 days Patient demographic and health outcome data were retrospectively collected from an electronic medical record (EMR) healthcare system administrative data base (EPIC Systems software). <u>Loss-to-follow-up:</u> Intervention: N (%) Reasons (describe) Control: N (%) Reasons (describe) <u>Incomplete outcome data:</u> Intervention: N (%) Reasons (describe)	Outcome measures: <i>Delirium incidence</i> Measured using the Confusion Assessment Method (CAM, cut-off score not reported) <i>Hospital readmission</i> 30-day all-cause unplanned hospital readmissions Outcome measures and effect size (include 95%CI and p-value if available): <u>Delirium incidence, n (%)</u> I: 3 of 148 (2 %) C: 0 of 148 (0 %) Unadjusted RR intervention RR: 7.00 (95% CI 0.36;134.35) <u>Hospital readmission, n (%)</u> I: 25 of 148 (17 %) C: 42 of 148 (28 %) Unadjusted RR: 0.60 (95% CI 0.38;0.92)	Author's conclusions: "Our initial evaluation supports continued study of the Bundled HELP. This includes prospective studies in nonrural settings to confirm initial observations found, evaluation of the model on functional and delirium incidence outcomes posthospitalization, and model sustainability within an integrated and non-integrated system of care." No randomization

Study reference	Study characteristics	Patient characteristics ²	Intervention (I)	Comparison / control (C) ³	Follow-up	Outcome measures and effect size ⁴	Comments
	nt and has stocks in Abbott Labs/AbbVie.	Intervention: 148 Control: 148 <u>Important prognostic factors²:</u> Age 65-74: I: 45 % C: 27 % Age 75-89: I: 43 % C: 62 % Age ≥90: I: 12 % C: 12 % Sex: I: 36 % M C: 35 % M Groups comparable at baseline? Yes. No randomization.			Control: N (%) Reasons (describe)		

Notes:

1. Prognostic balance between treatment groups is usually guaranteed in randomized studies, but non-randomized (observational) studies require matching of patients between treatment groups (case-control studies) or multivariate adjustment for prognostic factors (confounders) (cohort studies); the evidence table should contain sufficient details on these procedures
2. Provide data per treatment group on the most important prognostic factors [(potential) confounders]
3. For case-control studies, provide sufficient detail on the procedure used to match cases and controls
4. For cohort studies, provide sufficient detail on the (multivariate) analyses used to adjust for (potential) confounders

Risk of bias table for intervention studies (randomized controlled trials)

Study reference (first author, publication year)	Describe method of randomisation ¹	Bias due to inadequate concealment of allocation? ² (unlikely/likely/unclear)	Bias due to inadequate blinding of participants to treatment allocation? ³ (unlikely/likely/unclear)	Bias due to inadequate blinding of care providers to treatment allocation? ³ (unlikely/likely/unclear)	Bias due to inadequate blinding of outcome assessors to treatment allocation? ³ (unlikely/likely/unclear)	Bias due to selective outcome reporting on basis of the results? ⁴ (unlikely/likely/unclear)	Bias due to loss to follow-up? ⁵ (unlikely/likely/unclear)	Bias due to violation of intention to treat analysis? ⁶ (unlikely/likely/unclear)
Culp, 2003	7 facilities were randomly assigned as treatment or control group. Unclear which method was used, and how many there were in each arm.	Likely ⁴	Likely ⁴	Likely ⁴	Likely ⁴	Unlikely ²	Unlikely ⁵	Likely ⁶
Siddiqi, 2016	Care homes were randomized (1:1) using a computer-generated minimization programme and stratified by no of residents and percentage with dementia, after recruitment baseline assessment.	Unlikely	Likely ⁴	Likely ⁴	Likely ⁴	Unlikely ²	Likely ⁹	Likely ⁹
Simpson, 2019	No randomization	Unclear ¹	Likely ¹	Likely ¹	Likely ¹	Unlikely ²	Unlikely ⁸	Unlikely ⁸

¹ No randomisation, control group received usual care² Outcomes in method section also reported in results section³ Participants who died during data collection were excluded⁴ No blinding⁵ No loss-to-follow-up reported⁶ Results reported not for initial group assignment but for more or less than 90 % compliance with hydration intake goal⁷ Blinding not mentioned, but participants were likely unaware of the intervention (no informed consent)⁸ All included patients analysed⁹ High attrition rate, no ITT analysis

Exclusietabel

Tabel Exclusie na het lezen van het volledige artikel

Auteur en jaartal	Redenen van exclusie
Beary 2013	het is een beschrijvend practice-based artikel; geeft veel adviezen, gebaseerd op adviezen NICE richtlijn 2010. Geen primair onderzoek.
Bockvar 2016	Niet vergelijkend onderzoek
Bond 2009	het is een beschrijvend practice-based artikel; geeft veel adviezen, gebaseerd op adviezen NICE richtlijn 2010. Geen primair onderzoek.
Eeles 2008	Voldoet niet aan PICO.
Featherstone 2010	Niet vergelijkend onderzoek
Gonzalez-Gil 2016	review interventions for preventing delirium, search tm 2013;
Halloway 2013	Voldoet niet aan PICO.
Heaven 2014	Protocol. Geen primair onderzoek.
Hsieh 2018	HELP review en meta-analyse; setting voornamelijk hospital; verwijst ook naar Bockvar 2016. Voldoet niet aan PICO.
Inouye 2018	verslag van een lecture 'my journey in geriatric medicine and delirium research'. Geen primair onderzoek.
Inouye 2000	Niet vergelijkend onderzoek, verkeerd studiedesign.
MacLulich 2019	overzicht van delier artikelen. Geen primair onderzoek.
Moon 2018	gaat niet over preventieve maatregelen. Voldoet niet aan PICO.
No authors listed	update van Cochrane review, interventies om delier te voorkomen in long-term care; wel beetje vreemd artikel, onderaan ook nieuwste versie Cochrane review. Geen primair onderzoek.
Oh-Park 2018	Methodologisch niet geschikte review. Niet juiste studiedesign.
Ouldred 2011	interpretatie van de NICE richtlijn 2010. Geen primair onderzoek.
Peacock 2011	perceptie door de zorgmedewerkers van delier; past bij UV2 of UV3. Voldoet niet aan PICO.
Reston 2013	review delirium interventions; hospital effective; other settings little research; studies thuis of verpleeghuis gevonden? 1 RCT Lapane 2011 interventie in verpleeghuis; in Cochrane opgenomen.
Rockwood 2014	Editorial. Geen primair onderzoek.
Saliba 2012	Minimum dataset in nursing homes; geen preventie. Voldoet niet aan PICO.
Siddiqi 2009	gaat niet over preventieve maatregelen. Voldoet niet aan PICO.
Siddiqi 2011	Wrong O: staff attitudes and practice, niet vergelijkend onderzoek
Traynor 2016	delirium care pathways. Voldoet niet aan PICO.
Verloo 2015	Subset of patients had delirium at baseline (table 3). Voldoet niet aan PICO.
Verloo 2016	Wrong Outcomes. Voldoet niet aan PICO.
Voyer 2012	Clinical changes voorafgaand aan delier. Voldoet niet aan PICO.
Voyer 2014	Development of prevention program. Niet vergelijkend onderzoek
Voyer 2019	predisposing factors delirium. Voldoet niet aan PICO.

Zoekverantwoording

Uitgangsvraag: Welke preventieve interventies kunnen een delier voorkomen, bij kwetsbare ouderen en volwassenen, met (al dan niet gediagnosticeerde) cognitieve problemen, die thuis wonen of in een verpleeghuis?	
Database(s): Medline, Cinahl	Datum: 04-03-2020
Periode: 2012-heden	Talen: E (MW)

Database	Zoektermen	Totaal
Medline (OVID)	1 exp Delirium/ or deliri*.ti,ab,kf. (17006)	454
2012-mrt 2020	9 exp Delirium/pc or preventi*.ti,ab,kf. (808632)	
Engels	10 exp Residential Facilities/ or home nursing/ or primary care nursing/ or Rehabilitation Centers/ or exp Primary Health Care/ or Independent Living/ or Patient Discharge/ or ("nursing home*" or "home care" or (rehabilitation adj (patient* or cent*)) or "care home*" or "primary care" or "day care" or "home nursing" or "Independent Living" or ((community or home) adj dwelling) or bedside or "after discharge").ti,ab,kf. (386278)	
	11 1 and 9 and 10 (241)	
	12 "Hospital Elder Life Program".ti,ab,kf. (53)	
	13 1 and 12 (41)	
	14 11 or 13 (274)	
	15 limit 14 to (english language and yr="2012 -Current") (164)	
	16 15 not (child* or p?ediatric or neonat*).ti. (161)	
	17 (meta-analysis/ or meta-analysis as topic/ or (metaanaly* or metanaly* or meta-analy*).ti,ab,kf. or ((systematic* or scoping or evidence based) adj3 (review* or overview*)),ti,kf. or ((evidence or research) adj3 synthesis).ti,kf. or systematic review.pt. or (prisma or (("structured literature" or comprehensive or "quantitative literature" or evidence-based) adj2 (search or review)) or "systematic search" or ((systemic or systematized) adj3 review) or "systematic research synthesis" or (review* adj3 independent*).ti,ab,kf. or (((quantitative or rapid or short or critical* or structured or comparative or comparitive or evidence or comprehensive) adj3 (review* or overview*)),ti. and search.ab.) or "Review Literature as Topic"/ or cochrane.jw. or (cochrane or embase or medline or cinahl or cinhal or cancerlit).ab. or (("selection criteria" or "data extraction").ab. and "review"/)) not (Comment/ or Editorial/ or Letter/ or (animals/ not humans/)) (355184)	
	18 16 and 17 (16)	
	19 (exp clinical trial/ or randomized controlled trial/ or exp clinical trials as topic/ or randomized controlled trials as topic/ or Random Allocation/ or Double-Blind Method/ or Single-Blind Method/ or (clinical trial, phase i or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or controlled clinical trial or randomized controlled trial or multicenter study or clinical trial).pt. or random*.ti,ab. or (clinic* adj trial*).tw. or ((singl* or doubl* or treb* or tripl*) adj (blind\$3 or mask\$3)).tw. or Placebos/ or placebo*.tw.) not (animals/ not humans/) (1952474)	
	20 16 and 19 (46)	
	21 18 or 20 (56) > 55 uniek	
	22 16 not 21 (105) > 104 uniek	
Cinahl (Ebsco)		312. academic journals > 280 > 241 uniek
	S26 S20 not S25	70 > 54 uniek
	S25 S22 OR S24	48
	S24 S20 AND S23	
	((MH "Randomized Controlled Trials+") or pt randomized controlled trial or TX random* or TI RCT OR AB RCT OR TI (((pragmatic or practical) n1 "clinical trial*")) OR AB (((pragmatic or practical) n1 "clinical trial*")) OR TI (((non-inferiority or noninferiority or superiority or equivalence) n3 trial*)) OR AB (((non-inferiority or noninferiority or superiority or equivalence) n3 trial*))	
	S23	
	S22 S20 AND S21	29
	(MH "Meta Analysis") or TX (meta-analy* or metanaly* or metaanaly* or meta analy*) or TX (systematic* N5 review*) or (evidence* N5 review*) or	142,601
	S21	

	(methodol* N5 review*) or (quantitativ* N5 review*) or TX (systematic* N5 overview*) or (evidence* N5 overview*) or (methodol* N5 overview*) or (quantitativ* N5 overview*) or TX (systematic* N5 survey*) or (evidence* N5 survey*) or (methodol* N5 survey*) or (quantitativ* N5 survey*) or TX (systematic* N5 overview*) or (evidence* N5 overview*) or (methodol* N5 overview*) or (quantitativ* N5 overview*) or TX (pool* N2 data) or (combined N2 data) or (combining N2 data) or (pool* N2 trials) or (combined N2 trials) or (combining N2 trials) or (pool* N2 studies) or (combined N2 studies) or (combining N2 studies) or (pool* N2 results) or (combined N2 results) or (combining N2 results)	
		382 Engels en vanaf 2012
S20	(S15 OR S17)	
S19	(S15 OR S17)	652
S18	(S15 OR S17)	662
S17	S1 AND S16	37
S16	TI "Hospital Elder Life Program" OR AB "Hospital Elder Life Program"	47
S15	S13 not S14	632
S14	TI child* or p?ediatric or neonat	274,086
S13	S7 AND S12	636
S12	S10 OR S11	238,957
	TI (("nursing home*" or "home care" or (rehabilitation N1 (patient* or cent*)) or "care home*" or "primary care" or "day care" or "home nursing" or "Independent Living" or ((community or home) N1 dwelling) or bedside or "after discharge" or discharged)) OR AB (("nursing home*" or "home care" or (rehabilitation N1 (patient* or cent*)) or "care home*" or "primary care" or "day care" or "home nursing" or "Independent Living" or ((community or home) N1 (living or dwelling)) or "after discharge" or discharged))	155,841
	(MH "Patient Discharge") or (MH "Community Living") or (MH "Primary Health Care") or (MH "Home Nursing") OR (MH "Nursing Home Personnel") OR (MH "Nursing Home Patients") OR (MH "Home Nursing, Professional") or (MH "Residential Facilities+") OR (MH "Rehabilitation Centers") or (MH "Community Living+") OR (MH "Patient Discharge")	146,304
	(MH "Meta Analysis") or TX (meta-analy* or metanaly* or metaanaly* or meta analy*) or TX (systematic* N5 review*) or (evidence* N5 review*) or (methodol* N5 review*) or (quantitativ* N5 review*) or TX (systematic* N5 overview*) or (evidence* N5 overview*) or (methodol* N5 overview*) or (quantitativ* N5 overview*) or TX (systematic* N5 survey*) or (evidence* N5 survey*) or (methodol* N5 survey*) or (quantitativ* N5 survey*) or TX	Display
S9		

	(systematic* N5 overview*) or (evidence* N5 overview*) or (methodol* N5 overview*) or (quantitativ* N5 overview*) or TX (pool* N2 data) or (combined N2 data) or (combining N2 data) or (pool* N2 trials) or (combined N2 trials) or (combining N2 trials) or (pool* N2 studies) or (combined N2 studies) or (combining N2 studies) or (pool* N2 results) or (combined N2 results) or (combining N2 results)	
S8	TI child* or p?ediatric or neonat	Display
S7	S5 NOT S6	Display
S6	(MH "Alcohol Withdrawal Delirium") OR (MH "Psychoses, Substance-Induced") OR (MH "Psychoses, Alcoholic")	Display
S5	(MH "Delirium") OR TI deliri* AND AB deliri*	Display
S4	S2 OR S3	Display
S3	TI preventi* OR AB preventi*	Display
S2	(MH "Delirium/PC")	Display
S1	(MH "Delirium") OR TI deliri* OR AB deliri*	Display

Uitgangsvraag 2 Herkenning van Delier

Relevante uitkomstmaten

De werkgroep achtte symptomen van delier, dementie en depressie voor de besluitvorming cruciale uitkomstmaten.

Om de uitgangsvraag te kunnen beantwoorden is er een systematische literatuuranalyse verricht naar de volgende zoekvraag:

Hoe kan de verpleegkundig specialist, verpleegkundige en verzorgende een eventueel delier herkennen en onderscheiden van dementie en/of depressie bij kwetsbare ouderen en volwassenen, met (al dan niet gediagnosticeerde) cognitieve problemen, die thuis of intramuraal wonen?

P: kwetsbare ouderen en volwassenen, met (al dan niet gediagnosticeerde) cognitieve problemen, die thuis wonen of in een verpleeghuis

I: signalen voor een delier of cognitieve problemen of depressie

C: afwezigheid symptomen voor delier of cognitieve problemen of depressie

O: aanwezigheid vastgestelde symptomen delier, depressie of cognitieve problemen

Selectiecriteria

Studies werden geselecteerd op grond van de volgende selectiecriteria:

- systematische reviews of origineel primair onderzoek
- Onderzoek naar signalen van delier en hoe te herkennen
- Patiëntpopulatie kwetsbare ouderen of volwassenen met (al dan niet gediagnosticeerde) cognitieve problemen, die thuis wonen of in een verpleeghuis.
- Gepubliceerd tussen 2000 – maart 2020
- Artikel full-tekst beschikbaar in het Engels of Nederlands

Op basis van titel en abstract werden in eerste instantie 27 studies voorgeselecteerd. Na raadpleging van de volledige tekst, werden vervolgens 26 studies geëxcludeerd (zie exclusietabel), en 1 studie definitief geselecteerd.

Zoekresultaten

In de databases Medline (via OVID) en Cinahl is op 5 maart 2020 met relevante zoektermen gezocht naar studies over preventieve verpleegkundige interventies voor een delier. De zoekverantwoording is weergegeven in de bijlage. De literatuurzoekactie leverde 593 treffers op.

Geïnccludeerde studies

Een onderzoek is opgenomen in de literatuuranalyse. De belangrijkste studiekarakteristieken en resultaten zijn opgenomen in de evidencetabellen. De beoordeling van de individuele studieopzet (risk of bias) is opgenomen in de risk-of-biastabellen.

Beoordelen van de kracht van het wetenschappelijke bewijs

1.1 Uitkomstmaat Symptomen delier – Voyer, 2012a

Voor de uitkomstmaat symptomen van een delier, herkenbaar voor de verpleegkundige begint de bewijskracht op GRADE laag (niet gerandomiseerd). De bewijskracht voor de uitkomstmaat is met 3 niveaus verlaagd tot zeer laag gezien risk of bias (de resultaten werden alleen in deze studiepopulatie gevonden en niet bevestigd in een andere populatie); en imprecisie (gering aantal cliënten).

Evidencetabellen

Evidence table for intervention studies (randomized controlled trials and non-randomized *observational* studies [cohort studies, case-control studies, case series])¹

Study reference	Study characteristics	Patient characteristics	Prognostic factor(s)	Follow-up	Estimates of prognostic effect	Comments
Voyer, 2012a	<u>Type of study:</u> Prospective observational study. <u>Setting and country:</u> Seven long-term care facilities in Montreal and Quebec City, Canada. <u>Funding and conflicts of interest:</u> The authors thank the Canadian Institute of Health Research and The Canadian Alzheimer Society for their financial support to this project. Funding for this paper was also through an Investigator Award to Philippe Voyer from the Quebec Health Research Funds (Fonds de la recherche en santé du Québec) and the Quebec Nursing Research Funds (Fonds de la	<u>Inclusion criteria:</u> All residents aged 65 and older admitted to long term care (not respite care) and able to communicate in English or French, were eligible for the study. <u>Exclusion criteria:</u> There were only 2 reasons for exclusions: bedside nurse (nurse providing the most direct care to the resident) or RA workload. If the bedside nurse already had 2 other residents recruited in the study, the third resident was excluded. If the RA's workload was heavy, a table of random numbers facilitated selection of a manageable number of residents to enroll. <u>N total at baseline:</u> N = 202 <u>Important prognostic factors²:</u> <i>age</i> $\pm$ <i>SD</i>: 84.6 $\pm$ 7.0 <i>Sex</i>: 114 (56.4%) female	Delirium as measured with the Confusion Assessment Method (CAM) was the outcome in this study. The tool assesses the 9 criteria for delirium specified in the revised third edition of the Diagnostic and Statistical Manual of Mental Disorders (similar to DSM-IV criteria): (1) acute onset and fluctuation of symptoms over the course of the day; (2) inattention; (3) disorganized thinking; (4) altered level of consciousness; (5) disorientation; (6) memory impairment; (7) perceptual disturbances; (8) psychomotor agitation or retardation; and (9) altered sleep-wake cycle. The presence of criteria 1 and 2 plus the presence of either criterion 3 or 4 is indicative of a definite delirium. For a diagnosis of probable delirium,⁵ the first criterion changes to acute onset or fluctuation of symptoms over the course	Residents were followed for 6 months or until death or transfer to another facility. 15 (7.4%) residents died during follow-up and 11 (5.5%) withdrew before study end.	The RAs (the reference standard) identified delirium in 84 paired assessments. Bedside nurses identified delirium in 51% of these cases. Alternatively, bedside nurses identified 655 of the 736 cases who were without delirium according to the RAs, representing a specificity of 90%. However, when bedside nurses evaluated the resident as delirious, they agreed with the RAs in only 35% of cases. Sensitivities ranged from 25% to 67%. One of the lowest sensitivities obtained was for one of the key features of delirium: fluctuation of symptoms throughout the day. Bedside nurses identified this feature in 28% of the cases identified by RAs. Other key symptoms of delirium, such as acute onset, disorganized thinking, inattention, and altered	

	recherche en sciences infirmières du Québec).		of the day and the remainder of the algorithm stays the same. In the present study, residents meeting the criteria for probable delirium were defined as having delirium. Bedside nurse ratings of delirium were compared with research assistant (RA) ratings of delirium, the reference standard.		level of consciousness, were identified in more than half the cases identified by RAs, with sensitivities of 53.5%, 57.8%, 62.9%, and 66.7%, respectively. The specificities for those key features were high, ranging from 80.8% to 94.0%, indicating that these symptoms were rarely identified by bedside nurses when evaluated as absent by RAs.	
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¹ Incremental predictive value is the predictive value beyond standard demographic factors and the established risk factors (e.g. smoking, blood pressure, lipid levels, diabetes, cancer stage, etc.), for example change in c-statistic

Risk of bias table for intervention studies (randomized controlled trials)

Study reference	Study participation ¹	Study Attrition ²	Prognostic factor measurement ³	Outcome measurement ³	Study confounding ⁴	Statistical Analysis and Reporting ⁵
(first author, year of publication)	Study sample represents the population of interest on key characteristics? (high/moderate/low risk of selection bias)	Loss to follow-up not associated with key characteristics (i.e., the study data adequately represent the sample)? (high/moderate/low risk of attrition bias)	Was the PF of interest defined and adequately measured? (high/moderate/low risk of measurement bias related to PF)	Was the outcome of interest defined and adequately measured? (high/moderate/low risk of measurement bias related to outcome)	Important potential confounders are appropriately accounted for? (high/moderate/low risk of bias due to confounding)	Statistical analysis appropriate for the design of the study? (high/moderate/low risk of bias due to statistical analysis)
Voyer, 2012a	Low risk of selection bias	Moderate risk of attrition bias (5.5% withdrawal without clear reasons)	Low risk of bias related to PF	Low risk of measurement bias related to outcome	Low risk of bias due to confounding	Low risk of bias due to statistical analysis

1. Randomisation: generation of allocation sequences have to be unpredictable, for example computer generated random-numbers or drawing lots or envelopes. Examples of inadequate procedures are generation of allocation sequences by alternation, according to case record number, date of birth or date of admission.

2. Allocation concealment: refers to the protection (blinding) of the randomisation process. Concealment of allocation sequences is adequate if patients and enrolling investigators cannot foresee assignment, for example central randomisation (performed at a site remote from trial location) or sequentially numbered, sealed, opaque envelopes. Inadequate procedures are all procedures based on inadequate randomisation procedures or open allocation schedules.

3. Blinding: neither the patient nor the care provider (attending physician) knows which patient is getting the special treatment. Blinding is sometimes impossible, for example when comparing surgical with non-surgical treatments. The outcome assessor records the study results. Blinding of those assessing outcomes prevents that the knowledge of

- patient assignment influences the process of outcome assessment (detection or information bias). If a study has hard (objective) outcome measures, like death, blinding of outcome assessment is not necessary. If a study has "soft" (subjective) outcome measures, like the assessment of an X-ray, blinding of outcome assessment is necessary.
4. Results of all predefined outcome measures should be reported; if the protocol is available, then outcomes in the protocol and published report can be compared; if not, then outcomes listed in the methods section of an article can be compared with those whose results are reported.
 5. If the percentage of patients lost to follow-up is large, or differs between treatment groups, or the reasons for loss to follow-up differ between treatment groups, bias is likely. If the number of patients lost to follow-up, or the reasons why, are not reported, the risk of bias is unclear
 6. Participants included in the analysis are exactly those who were randomized into the trial. If the numbers randomized into each intervention group are not clearly reported, the risk of bias is unclear; an ITT analysis implies that (a) participants are kept in the intervention groups to which they were randomized, regardless of the intervention they actually received, (b) outcome data are measured on all participants, and (c) all randomized participants are included in the analysis.

Exclusietabel

Tabel Exclusie na het lezen van het volledige artikel

Auteur en jaartal	Redenen van exclusie
Abbatiello, 2013	Voldoet niet aan PICO Te weinig specifiek, gaat niet over delier
Beary, 2013	Clinical review, geen primair onderzoek
Bellelli 2010	Signalen van delier worden niet in het artikel vermeld; motor performance test
Bohlken, 2017	Prevalentie en risicofactoren delier bij een huisarts in Duitsland
Bond, 2009	Heel algemeen beschrijvend artikel, geen primair onderzoek
Cheun, 2018	Risicofactoren voor de ontwikkeling van een delier in een verpleeghuis
Cole 2011	Subsyndroomaal delier risicofactoren
Cole 2013	De aanwezigheid van CAM kernsymptomen als voorspeller delier ontwikkeling
Culp 2001	Voldoet niet aan PICO Minimum dataset
Dosa 2007	Voldoet niet aan PICOMinimum dataset en de NHCAM
Fick 2015	Twee item screeningstest
Flanagan 2015	Voldoet niet aan PICO, CAM, famcam en DSM IV
Franco 2019	Voldoet niet aan PICO, beschrijft verschil delier en dementie
Gordon 2013	Voldoet niet aan PICO, Bedside coaching
Halloway 2013	Family approach review met zeer brede insteek, geen primair onderzoek
Holttta 2011	Signalen van delier worden niet in het artikel vermeld
Landreville 2013	Voldoet niet aan PICO, beschrijft verschil delier en dementie
Lixouriotis 2011	Short communication over de delier incidentie in 1 huisartsenpraktijk in Griekenland, geen primair onderzoek
MacLulich 2019	Algemeen overzichtsartikel, geen primair onderzoek
Mattison 2014	Voldoet niet aan PICO. Studie in academisch ziekenhuis, voldoet niet aan setting.
Ohanlon, 2012	Geen onderzoek, een overzichtsartikel
Peacock, 2012	Kwalitatieve studie, geen data over signalen van delier. Geen primair onderzoek.
Salawu 2009	Algemeen overzichtsartikel, niet bruikbaar
Sepulveda 2017	Voldoet niet aan PICO, beschrijft verschil delier en dementie.
Siddiqi, 2009	Zeer algemene review, niet bruikbaar
Voyer 2012b	Voldoet niet aan PICO. Klinische veranderingen voorafgaand aan een delier
Voyer 2008	Voldoet niet aan PICO, beschrijft verschil delier, dementie en depressie

Zoekverantwoording

Uitgangsvraag: Hoe kan de verpleegkundig specialist, verpleegkundige en verzorgende een eventueel delier herkennen en onderscheiden van dementie en/of depressie bij kwetsbare ouderen en volwassenen, met (al dan niet gediagnosticeerde) cognitieve problemen, die thuis of intramuraal wonen?		
Database(s): Medline, Cinahl	Datum: 05-03-2020	
Periode: 2000-heden	Talen: E (MW)	

Database	Zoektermen	Totaal
Medline (OVID)	1 exp Delirium/ or deliri*.ti,ab,kf. (17009)	593
	2 (sign* or symptom* or recogn*).ti,ab,kf. (8179627)	
	3 exp Delirium/di [Diagnosis] (2912)	
2000-mrt 2020	4 2 or 3 (8181239)	
	5 1 and 4 (8931)	
Engels	6 exp Residential Facilities/ or home nursing/ or primary care nursing/ or Rehabilitation Centers/ or exp Primary Health Care/ or Independent Living/ or Patient Discharge/ or ("nursing home*" or "home care" or (rehabilitation adj (patient* or cent*)) or "care home*" or "primary care" or "day care" or "home nursing" or "Independent Living" or ((community or home) adj dwelling) or bedside or "after discharge").ti,ab,kf. (386347)	
	7 5 and 6 (838)	
	8 7 not (child* or p?ediatric or neonat*).ti. (822)	
	9 limit 8 to (english language and yr="2000 -Current") (671)	

	10 (meta-analysis/ or meta-analysis as topic/ or (metaanaly* or metanaly* or meta-analy*).ti,ab,kf. or ((systematic* or scoping or evidence based) adj3 (review* or overview*).ti,kf. or ((evidence or research) adj3 synthesis).ti,kf. or systematic review.pt. or (prisma or ((("structured literature" or comprehensive or "quantitative literature" or evidence-based) adj2 (search or review)) or "systematic search" or ((systemic or systematized) adj3 review) or "systematic research synthesis" or (review* adj3 independent*).ti,ab,kf. or (((quantitative or rapid or short or critical* or structured or comparative or comparative or evidence or comprehensive) adj3 (review* or overview*).ti. and search.ab.) or "Review Literature as Topic"/ or cochrane.jw. or (cochrane or embase or medline or cinahl or cinhal or cancerlit).ab. or (("selection criteria" or "data extraction").ab. and "review"/)) not (Comment/ or Editorial/ or Letter/ or (animals/ not humans/)) (355138) 11 9 and 10 (33) > 32 uniek 12 (exp clinical trial/ or randomized controlled trial/ or exp clinical trials as topic/ or randomized controlled trials as topic/ or Random Allocation/ or Double-Blind Method/ or Single-Blind Method/ or (clinical trial, phase i or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or controlled clinical trial or randomized controlled trial or multicenter study or clinical trial).pt. or random*.ti,ab. or (clinic* adj trial*).tw. or ((singl* or doubl* or treb* or tripl*) adj (blind\$3 or mask\$3)).tw. or Placebos/ or placebo*.tw.) not (animals/ not humans/) (1952535) 13 9 and 12 (134) 14 Epidemiologic studies/ or case control studies/ or exp cohort studies/ or Controlled Before-After Studies/ or Case control.tw. or (cohort adj (study or studies)).tw. or Cohort analy\$.tw. or (Follow up adj (study or studies)).tw. or (observational adj (study or studies)).tw. or Longitudinal.tw. or Retrospective*.tw. or prospective*.tw. or consecutive*.tw. or Cross sectional.tw. or Cross-sectional studies/ or historically controlled study/ or interrupted time series analysis/ [Onder exp cohort studies vallen ook longitudinale, prospectieve en retrospectieve studies] (3374940) 15 9 and 14 (358) 16 13 or 15 (418) 17 16 not 11 (399)	
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Uitgangsvraag 3 Onderscheid delier, dementie, depressie

Relevante uitkomstmaten

De werkgroep achtte verschil tussen symptomen van delier, dementie en depressie voor de besluitvorming cruciale uitkomstmaten.

Om de uitgangsvraag te kunnen beantwoorden is er een systematische literatuuranalyse verricht naar de volgende zoekvraag:

Hoe kan de verpleegkundig specialist, verpleegkundige en verzorgende een eventueel delier onderscheiden van dementie en/of depressie bij kwetsbare ouderen en volwassenen, met (al dan niet gediagnosticeerde) cognitieve problemen, die thuis of intramuraal wonen?

P: kwetsbare ouderen en volwassenen, met (al dan niet gediagnosticeerde) cognitieve problemen, die thuis wonen of in een verpleeghuis

I: signalen voor een delier of cognitieve problemen of depressie

C: afwezigheid signalen voor delier of cognitieve problemen of depressie

O: aanwezigheid vastgesteld delier, depressie of cognitieve problemen, verschil tussen symptomen delier, dementie en depressie

Selectiecriteria

Studies werden geselecteerd op grond van de volgende selectiecriteria:

- Systematische reviews of origineel primair onderzoek
- Onderzoek naar signalen van delier, depressie of cognitieve problemen
- Patiëntpopulatie kwetsbare ouderen of volwassenen met (al dan niet gediagnosticeerde) cognitieve problemen, die thuis wonen of in een verpleeghuis.
- Gepubliceerd tussen 2000 - maart 2020
- Artikel full-tekst beschikbaar in het Engels of Nederlands

Selectiecriteria

Studies werden geselecteerd op grond van de volgende selectiecriteria: systematische reviews of origineel onderzoek naar verpleegkundige interventies ter preventie van een delier. Op basis van titel en abstract werden in eerste instantie 28 studies voorgeselecteerd. Na raadpleging van de volledige tekst, werden vervolgens 24 studies geëxcludeerd (zie exclusietabel), en vier studies definitief geselecteerd.

Zoekresultaten

In de databases Medline (via OVID) en Cinahl is op 5 maart 2020 met relevante zoektermen gezocht naar studies over preventieve verpleegkundige interventies voor een delier. De zoekverantwoording is weergegeven in de bijlage. De literatuurzoekactie leverde 593 treffers op.

Geïnccludeerde studies

4 onderzoeken zijn opgenomen in de literatuuranalyse. De belangrijkste studiekarakteristieken en resultaten zijn opgenomen in de evidencetabellen. De beoordeling van de individuele studieopzet (risk of bias) is opgenomen in de risk-of-biastabellen.

Beoordelen van de kracht van het wetenschappelijke bewijs

Setting Verpleeghuissituatie

1.1 Uitkomstmaat verschil delier en dementie - (Franco 2019, Landreville 2013, Sepulveda 2017, Voyer, 2008)

Voor de uitkomstmaat onderscheid tussen delier en dementie begint de bewijskracht op GRADE hoog (gerandomiseerd). De bewijskracht voor de uitkomstmaat is met 2 niveaus verlaagd tot laag gezien risk of bias (de verschillende studies ontwikkelden elk een eigen model dat niet in een andere populatie kon worden bevestigd (risk of bias); en imprecisie (geringe aantal cliënten).1.2 Overige uitkomstmaten

De uitkomstmaten verschil tussen delier en een depressie en tussen depressie en cognitieve problemen in de thuissituatie konden niet worden beschreven vanwege een gebrek aan onderzoeksgegevens.

Setting Thuissituatie

2.1 Overige uitkomstmaten

De uitkomstmaten verschil delier, depressie of cognitieve problemen in de thuissituatie konden niet worden beschreven vanwege een gebrek aan onderzoeksgegevens.

Evidencetabellen

Evidence table for intervention studies (randomized controlled trials and non-randomized *observational* studies [cohort studies, case-control studies, case series])¹

Study reference	Study characteristics	Patient characteristics	Prognostic factor(s)	Follow-up	Estimates of prognostic effect	Comments
Franco, 2019	<u>Type of study:</u> Cross-sectional study <u>Setting and country:</u> Skilled nursing facility (SNF) in Catalunya, Spain. <u>Funding and conflicts of interest:</u> This research did not receive any specific funding. Dr Trzepacz holds the copyright for the DRS-R98 but does not charge a fee for a not-for-profit use. Dr Trzepacz is President and CEO of conXiome LLC, a privately held biotech consulting company that is without a direct relationship to this research. The other authors declare that they have no competing interests.	<u>Inclusion criteria:</u> Consecutive patients admitted to the SNF for convalescence of medical-surgical conditions from home, assisted living-senior community, or general hospital <u>Exclusion criteria:</u> Those who refused to participate, were unable to speak Spanish, or were in coma were excluded. <u>N total at baseline:</u> N = 200 <u>Important prognostic factors²:</u> <i>age</i> ± <i>SD</i>: No MCI-DEM NDEL (n = 67): 74.24 ± 12.41 No MCI-DEM DEL (n = 16): 82.31 ± 6.45 MCI-DEM NDEL (n = 79): 79.29 ± 7.80 MCI-DEM DEL (n = 38): 81.92 ± 7.43 <i>Sex:</i>	Delirium characteristics were measured with the Spanish version of the Delirium Rating Scale Revised-98 (DRS-R98). A delirium research expert evaluated DSM-5 criteria for delirium, and a second trained psychiatrist administered the Spanish DRS-R98.	No follow-up	The discriminant analysis modelled three items: attention, language, and sleep-wake cycle	

		No MCI-DEM NDEL (n = 67): 32 (47.8%) female No MCI-DEM DEL (n = 16): 6 (37.5%) female MCI-DEM NDEL (n = 79): 48 (60.7%) female MCI-DEM DEL (n = 38): 17 (44.7%) female				
Landreville, 2013	<u>Type of study:</u> Observational study <u>Setting and country:</u> Three long-term care facilities and one long-term care unit of a large regional hospital in Canada. <u>Funding and conflicts of interest:</u> This study was made possible by the financial support of the Quebec Health Research Funds, the Quebec Nursing Research Funds, and Saint-Sacrement Hospital Foundation. The authors thank Lise Doucet, Christine Danjou, Sophie Dufort, Christine Noebert, and Marie-Pierre Poulin for their dedicated work. Conflicts of interest: none.	<u>Inclusion criteria:</u> All residents aged 65 years and older with a diagnosis of dementia in their medical chart and no history of psychiatric illness (psychotic disorders, bipolar disorders, and major depressive disorders with psychotic features) <u>Exclusion criteria:</u> Not reported <u>N total at baseline:</u> N = 155 <u>Important prognostic factors²:</u> <i>age ± SD:</i> 86.3 ± 6.9 <i>Sex:</i> 73.5% women	Each resident was observed over a seven-hour period by two trained research nurses, both of whom collected different information at different times during the day. A first research nurse was responsible for assessing the presence of delirium with the Confusion Assessment Method (CAM) as well as the severity of dementia using the Hierarchic Dementia Scale (HDS). In order to complete the CAM, she used various data sources (chart, family members, nursing staff, and a baseline cognitive assessment of the resident conducted seven days prior to the evaluation of delirium). In addition, three structured assessments of symptoms of delirium had to be performed over the seven-hour observation	No follow-up	Mean total BSD scores for participants with and without delirium: participants with delirium present significantly more BSD, $p < 0.0001$ Participants with delirium present significantly more of most types of BSD. - Aggressive/uncooperative behavior, $p < 0.001$ - Wandering/trying to leave, $p < 0.001$ - Irrational behavior, $p < 0.001$ - Agitation, $p < 0.01$	

			period prior to completing the CAM. A second research nurse assessed behavioral symptoms of Dementia (BSD) (last three days before CAM) as well as insomnia, depression, and pain (last seven days before CAM).			
Sepulveda, 2017	<u>Type of study:</u> Cross-sectional study <u>Setting and country:</u> a university teaching hospital in Sligo (Ireland) and a skilled nursing home (NH) in Reus (Spain) <u>Funding and conflicts of interest:</u> This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. Conflicts of Interest: P.T.T. holds the copyright for the Delirium Rating Scale-Revised-98 but does not charge a fee for a not-for-profit use. The authors declare that they have no conflicts of interests.	<u>Inclusion criteria:</u> All patients aged 70 years and older newly admitted to the general hospital (GH) were asked to participate in the study within the first 72 hours after admission. All patients admitted to the NH were assessed during the first 24 to 48 hours. <u>Exclusion criteria:</u> Patients were excluded if they (1) had been studied on a previous admission, or (2) had severe communicative problems or did not speak the respective native language (English or Spanish) <u>N total at baseline:</u> N = 400 <u>Important prognostic factors²:</u> <i>age</i> $\pm$ <i>SD</i>: 79.7 $\pm$ 8.5 <i>Sex:</i>	Patients who met DSM-5 criteria for delirium by the clinical research staff were classified as having delirium. Symptom profiles were assessed using the Delirium Rating Scale-Revised-98 (DRS-R98).	No follow-up	The two delirium groups were distinguished from the two nondelirium groups by nearly every item except that psychotic items (2 and 3) and memory items (11 and 12) generally did not. 1. Sleep-wake cycle disturbance 2. Perceptions and hallucinations 3. Delusions 4. Liability of affect 5. Language 6. Thought process abnormalities 7. Motor agitation 8. Motor retardation 9. Orientation 10. Attention 11. Short-term memory 12. Long-term memory 13. Visuospatial ability 14. Temporal onset of symptoms	

		197 (49.3%) male			15. Fluctuation of symptom severity 16. Physical disorder	
Voyer, 2008	<u>Type of study:</u> Prospective study <u>Setting and country:</u> Three long-term care (LTC) facilities and one LTC unit of a large regional hospital, all located in the Quebec City area, Canada. <u>Funding and conflicts of interest:</u> This work was supported through an Investigator Award to Philippe Voyer from the Quebec Health Research Funds (Fonds de la recherche en santé du Québec) and the Quebec Nursing Research Funds (Fonds de la recherche en sciences infirmières du Québec). Financial support was also received from the Saint-Sacrement Hospital Foundation. The author(s) declare that they have no competing interests.	<u>Inclusion criteria:</u> Residents with the diagnosis of dementia, aged 65 years and more, and with no history of psychiatric illness <u>Exclusion criteria:</u> Not reported <u>N total at baseline:</u> N = 156 <u>Important prognostic factors²:</u> <i>age ± SD:</i> 86.3 ± 6.9 <i>Sex:</i> <i>73.7% female</i>	At T1, RA-1 (Research Assistant 1) assessed the presence of delirium (using the Confusion Assessment Method [CAM]) and delirium symptoms (using 6 items of the Minimum Data Set-2 [MDS-2]). These measures were considered as the reference standard in analyses on sensitivity and specificity. During the seven-hour observation period, RA-1 had to perform at least three formal assessments of symptoms of delirium (e.g. attention, level of consciousness) by interviewing residents; this before going on to complete the CAM at the end of observation period. At the end of the day, RA-2 (Research Assistant 2) then interviewed the bedside nurse and asked this latter to rate evidence of: 1) delirium (using one question) and 2) delirium symptoms (using the same 6 MDS-2 items), based on	2 repeated measurements at a time interval of 7 days (T1 and T2). Following enrolment, three residents died before the first evaluation and one was transferred, leaving a total of 156 participants at T1. One resident was hospitalized at T2 and was therefore excluded from the analyses.	At T1, sensitivities ranged from 32.4% to 58.1%, indicating an overall under-recognition of delirium symptoms by bedside nurses compared to the RA-1 ratings for these same symptoms. Nevertheless, 3 symptoms were detected more easily by the bedside nurses: disorganized speech (58.1%), easily distracted (53.4%) and mental function varies during the course of the day (45.8%). The following symptoms were more difficult for the bedside nurses to detect: periods of altered perception (39.1%), periods of lethargy (34.9%) and periods of restlessness (32.4%). At T2, sensitivities and specificities ranged from 28.4% to 62.4% and 62.5% to 82.6% respectively. Despite some differences in the sensitivities and specificities recorded for T2 compared to those of T1, the interpretation of the results	

			clinical judgment and observation made throughout the day.		remains the same as that described for T1.	
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¹ Incremental predictive value is the predictive value beyond standard demographic factors and the established risk factors (e.g. smoking, blood pressure, lipid levels, diabetes, cancer stage, etc.), for example change in c-statistic

Risk of bias table for intervention studies (randomized controlled trials)

Study reference	Study participation ¹	Study Attrition ²	Prognostic factor measurement ³	Outcome measurement ³	Study confounding ⁴	Statistical Analysis and Reporting ⁵
(first author, year of publication)	Study sample represents the population of interest on key characteristics? (high/moderate/low risk of selection bias)	Loss to follow-up not associated with key characteristics (i.e., the study data adequately represent the sample)? (high/moderate/low risk of attrition bias)	Was the PF of interest defined and adequately measured? (high/moderate/low risk of measurement bias related to PF)	Was the outcome of interest defined and adequately measured? (high/moderate/low risk of measurement bias related to outcome)	Important potential confounders are appropriately accounted for? (high/moderate/low risk of bias due to confounding)	Statistical analysis appropriate for the design of the study? (high/moderate/low risk of bias due to statistical analysis)
Voyer, 2012a	Low risk of selection bias	Moderate risk of attrition bias (5.5% withdrawal without clear reasons)	Low risk of bias related to PF	Low risk of measurement bias related to outcome	Low risk of bias due to confounding	Low risk of bias due to statistical analysis

1. Randomisation: generation of allocation sequences have to be unpredictable, for example computer generated random-numbers or drawing lots or envelopes. Examples of inadequate procedures are generation of allocation sequences by alternation, according to case record number, date of birth or date of admission.
2. Allocation concealment: refers to the protection (blinding) of the randomisation process. Concealment of allocation sequences is adequate if patients and enrolling investigators cannot foresee assignment, for example central randomisation (performed at a site remote from trial location) or sequentially numbered, sealed, opaque envelopes. Inadequate procedures are all procedures based on inadequate randomisation procedures or open allocation schedules..
3. Blinding: neither the patient nor the care provider (attending physician) knows which patient is getting the special treatment. Blinding is sometimes impossible, for example when comparing surgical with non-surgical treatments. The outcome assessor records the study results. Blinding of those assessing outcomes prevents that the knowledge of patient assignment influences the process of outcome assessment (detection or information bias). If a study has hard (objective) outcome measures, like death, blinding of outcome assessment is not necessary. If a study has "soft" (subjective) outcome measures, like the assessment of an X-ray, blinding of outcome assessment is necessary.
4. Results of all predefined outcome measures should be reported; if the protocol is available, then outcomes in the protocol and published report can be compared; if not, then outcomes listed in the methods section of an article can be compared with those whose results are reported.
5. If the percentage of patients lost to follow-up is large, or differs between treatment groups, or the reasons for loss to follow-up differ between treatment groups, bias is likely. If the number of patients lost to follow-up, or the reasons why, are not reported, the risk of bias is unclear
6. Participants included in the analysis are exactly those who were randomized into the trial. If the numbers randomized into each intervention group are not clearly reported, the risk of bias is unclear; an ITT analysis implies that (a) participants are kept in the intervention groups to which they were randomized, regardless of the intervention they actually received, (b) outcome data are measured on all participants, and (c) all randomized participants are included in the analysis.

Exclusietabel

Tabel Exclusie na het lezen van het volledige artikel

Auteur en jaartal	Redenen van exclusie
Abbatiello, 2013	Voldoet niet aan PICO Te weinig specifiek, gaat niet over delier
Beary, 2013	Clinical review, geen primair onderzoek
Bellelli 2010	Signalen van delier worden niet in het artikel vermeld; motor performance test
Bohlken, 2017	Prevalentie en risicofactoren delier bij een huisarts in Duitsland
Bond, 2009	Heel algemeen beschrijvend artikel, geen primair onderzoek
Cheun, 2018	Risicofactoren voor de ontwikkeling van een delier in een verpleeghuis
Cole 2011	Subsyndroomaal delier risicofactoren
Cole 2013	De aanwezigheid van CAM kernsymptomen als voorspeller delier ontwikkeling
Culp 2001	Voldoet niet aan PICO Minimum dataset
Dosa 2007	Voldoet niet aan PICOMinimum dataset en de NHCAM
Fick 2015	Twee item screeningstest
Flanagan 2015	Voldoet niet aan PICO, CAM, famcam en DSM IV
Gordon 2013	Voldoet niet aan PICO, Bedside coaching
Halloway 2013	Family approach review met zeer brede insteek, geen primair onderzoek
Holtta 2011	Signalen van delier worden niet in het artikel vermeld
Lixouriotis 2011	Short communication over de delier incidentie in 1 huisartsenpraktijk in Griekenland, geen primair onderzoek
MacLulich 2019	Algemeen overzichtsartikel, geen primair onderzoek
Mattison 2014	Voldoet niet aan PICO. Studie in academisch ziekenhuis, voldoet niet aan setting.
Ohanlon, 2012	Geen onderzoek, een overzichtsartikel
Peacock, 2012	Kwalitatieve studie, geen data over signalen van delier. Geen primair onderzoek.
Salawu 2009	Algemeen overzichtsartikel, niet bruikbaar
Siddiqi, 2009	Zeer algemene review, niet bruikbaar
Voyer 2012b	Voldoet niet aan PICO. Klinische veranderingen voorafgaand aan een delier
Voyer 2012a	Beschrijft niet het verschil tussen delier, dementie en depressie.

Zoekverantwoording

Uitgangsvraag: Hoe kan de verpleegkundig specialist, verpleegkundige en verzorgende een eventueel delier herkennen en onderscheiden van dementie en/of depressie bij kwetsbare ouderen en volwassenen, met (al dan niet gediagnosticeerde) cognitieve problemen, die thuis of intramuraal wonen?	
Database(s): Medline, Cinahl	Datum: 05-03-2020
Periode: 2000-heden	Talen: E (MW)

Database	Zoektermen	Totaal
Medline (OVID)	1 exp Delirium/ or deliri*.ti,ab,kf. (17009)	593
	2 (sign* or symptom* or recogn*).ti,ab,kf. (8179627)	
	3 exp Delirium/di [Diagnosis] (2912)	
2000-mrt 2020	4 2 or 3 (8181239)	
	5 1 and 4 (8931)	
Engels	6 exp Residential Facilities/ or home nursing/ or primary care nursing/ or Rehabilitation Centers/ or exp Primary Health Care/ or Independent Living/ or Patient Discharge/ or ("nursing home*" or "home care" or (rehabilitation adj (patient* or cent*)) or "care home*" or "primary care" or "day care" or "home nursing" or "Independent Living" or ((community or home) adj dwelling) or bedside or "after discharge").ti,ab,kf. (386347)	
	7 5 and 6 (838)	
	8 7 not (child* or p?ediatric or neonat*).ti. (822)	
	9 limit 8 to (english language and yr="2000 -Current") (671)	
	10 (meta-analysis/ or meta-analysis as topic/ or (metaanaly* or metanaly* or meta-analy*).ti,ab,kf. or ((systematic* or scoping or evidence based) adj3 (review* or overview*).ti,kf. or ((evidence or research) adj3 synthesis).ti,kf. or systematic review.pt. or (prisma or ("structured literature" or comprehensive or "quantitative literature" or evidence-	

	based) adj2 (search or review)) or "systematic search" or ((systemic or systematized) adj3 review) or "systematic research synthesis" or (review* adj3 independent*),ti,ab,kf. or (((quantitative or rapid or short or critical* or structured or comparative or comparative or evidence or comprehensive) adj3 (review* or overview*),ti. and search.ab.) or "Review Literature as Topic"/ or cochrane.jw. or (cochrane or embase or medline or cinahl or cinhal or cancerlit).ab. or (("selection criteria" or "data extraction").ab. and "review"/)) not (Comment/ or Editorial/ or Letter/ or (animals/ not humans/)) (355138) 11 9 and 10 (33) > 32 uniek 12 (exp clinical trial/ or randomized controlled trial/ or exp clinical trials as topic/ or randomized controlled trials as topic/ or Random Allocation/ or Double-Blind Method/ or Single-Blind Method/ or (clinical trial, phase i or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or controlled clinical trial or randomized controlled trial or multicenter study or clinical trial).pt. or random*.ti,ab. or (clinic* adj trial*).tw. or ((singl* or doubl* or treb* or tripl*) adj (blind\$3 or mask\$3)).tw. or Placebos/ or placebo*.tw.) not (animals/ not humans/) (1952535) 13 9 and 12 (134) 14 Epidemiologic studies/ or case control studies/ or exp cohort studies/ or Controlled Before-After Studies/ or Case control.tw. or (cohort adj (study or studies)).tw. or Cohort analy\$.tw. or (Follow up adj (study or studies)).tw. or (observational adj (study or studies)).tw. or Longitudinal.tw. or Retrospective*.tw. or prospective*.tw. or consecutive*.tw. or Cross sectional.tw. or Cross-sectional studies/ or historically controlled study/ or interrupted time series analysis/ [Onder exp cohort studies vallen ook longitudinale, prospectieve en retrospectieve studies] (3374940) 15 9 and 14 (358) 16 13 or 15 (418) 17 16 not 11 (399)	
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Verantwoording uitgangsvraag 3 Diagnostiek van delier

De uitgangsvraag en uitkomstmaten

Relevante uitkomstmaten

De werkgroep achtte de sensitiviteit en specificiteit van de screeningsinstrumenten voor de besluitvorming cruciale uitkomstmaten.

Om de uitgangsvraag te kunnen beantwoorden is er een systematische literatuuranalyse verricht naar de volgende zoekvraag:

Wat is de diagnostische accuratesse van (nader te specificeren screenende, diagnostische (ernst-) instrumenten) voor het diagnosticeren van een delier intramuraal bij ouderen?

P: kwetsbare ouderen, volwassenen, met (al dan niet gediagnosticeerde) cognitieve problemen, die thuis of intramuraal wonen.

I: screenende en (ernst)instrumenten geschikt voor gebruik door een verpleegkundig specialisten, verpleegkundigen

C: klinische diagnose delier door een arts conform DSM of CAM

O: sensitiviteit, specificiteit, fout-positief, fout-negatief, positive predictive value, negative predictive value, area under the ROC curve

Selectiecriteria

Studies werden geselecteerd op grond van de volgende selectiecriteria:

- Onderzoek naar de validiteit van diagnostische instrumenten gebruikt thuis of in de lange-termijn zorg.
- Artikel gepubliceerd tussen 2010 en feb 2020
- Artikel full-tekst beschikbaar in Engels of Nederlands
- Primair onderzoek

Op basis van titel en abstract werden in eerste instantie 46 studies voorgeselecteerd. Na raadpleging van de volledige tekst, werden vervolgens 42 studies geëxcludeerd (zie exclusietabel), en 4 studies definitief geselecteerd.

Zoekresultaten

In de databases Medline (via OVID) en CINAHL is op 27 februari 2020 met relevante zoektermen gezocht naar studies over delier diagnostische meetinstrumenten die voor gebruik in de thuissituatie of in een verpleeghuis werden gevalideerd. De zoekverantwoording wordt hieronder weergegeven. De literatuurzoekactie leverde 508 treffers op.

Geïnccludeerde studies

Vier onderzoeken zijn opgenomen in de literatuuranalyse. De belangrijkste studiekarakteristieken en resultaten zijn opgenomen in de evidencetabellen. De beoordeling van de individuele studieopzet (risk of bias) is opgenomen in de risk-of-biastabellen.

Beoordelen van de kracht van het wetenschappelijke bewijs

Setting Thuissituatie

Uitkomstmaat 1.1 Delirium (Caregiver Questionnaire - Luijendijk, 2019)

Voor de uitkomstmaat diagnostische accuratesse van de Delirium Caregiver Questionnaire begint de bewijskracht op GRADE hoog.

De bewijskracht is met twee niveaus verlaagd vanwege indirectheid (beperkingen in de extrapoleerbaarheid; settings komt niet helemaal overeen); en imprecisie (gering aantal cliënten). De uiteindelijke bewijskracht komt uit op laag.

Setting Verpleeghuissituatie

Uitkomstmaat 2.1 DOSS - (Teale, 2018)

Voor de uitkomstmaat diagnostische accuratesse DOSS begint de bewijskracht op GRADE hoog. De bewijskracht is met twee niveaus verlaagd vanwege indirectheid (beperkingen in de extrapoleerbaarheid; settings komt niet helemaal overeen); en imprecisie (gering aantal cliënten). De uiteindelijke bewijskracht komt uit op laag.

Uitkomstmaat 2.2 MOTYB - (Quispel-Aggenbach, 2018; Voyer 2016)

Voor de uitkomstmaat diagnostische accuratesse MOTYB begint de bewijskracht op GRADE hoog. De bewijskracht is met drie niveaus verlaagd vanwege indirectheid (beperkingen in de extrapoleerbaarheid; settings komt niet helemaal overeen); imprecisie (gering aantal cliënten) en inconsistentie (heterogene cliëntengroep, zowel ziekenhuispatiënten als verpleeghuiscliënten). De uiteindelijke bewijskracht komt uit op zeer laag.

Evidencetabellen

Evidencetable for systematic reviews of diagnostic test accuracy studies

Study reference	Study characteristics	Patient characteristics	Index test (test of interest)	Reference test	Follow-up	Outcome measures and effect size	Comments
Quispel-Aggenbach, 2018 Results of Voyer, 2015 & Voyer, 2016 are described in separate evidence tables.	SR and meta-analysis A: Teale, 2018 B: Voyer, 2015 C: Voyer, 2016	A: Teale, 2018 Patient characteristics 66% female Numer of patients: 216 Age (average) 84.9 years % with delirium: 33% Setting elderly care facility	DOSS	CAM cut-off 5 or greater		Sens 61 (39-80) Spec 71 (70-73) Inter Rater ?K = 0.80	

*comparator test equals the C of the PICO; two or more index/ comparator tests may be compared; note that a comparator test is not the same as a reference test (golden standard)

Evidence table for diagnostic test accuracy studies

Study reference	Study characteristics	Patient characteristics	Index test (test of interest)	Reference test	Follow-up	Outcome measures and effect size	Comments
Luijendijk, 2019	Type of study¹: Two phase study: in first phase extended pilot questionnaire was tested to develop the short final DCQ; in second phase test the diagnostic accuracy was tested in daily practice Setting at home; The Netherlands Funding and conflicts of interest: Parnassia Stimuleringsfonds, an internal fund of first and last authors' employer, stimulates research in the organization. Stichting Coolsingel, a non-profit organization, supports projects	Inclusion criteria: patients resided in or nearby Rotterdam and were referred by their general practitioner or geriatrician for dementia screening; cognitive disorders with psychological or behavioural; disorders that required counselling or treatment Exclusion criteria: hospitalized or institutionalised patient Phase 1 N=107 caregivers Patients mean age: 82.0 Sex: 67% female Prevalence: 21% delirium 82% dementia; 18% dementia and delirium	Describe index test (pilot phase): Delirium caregiver questionnaire (DCQ), administered by telephone by a psychiatric nurse or secretary of the memory clinic with seven items: emergency visit required, sleeping disorder, fluctuating course, hallucinations, suspicious thoughts, previous delirium, and recent discharge from hospital Validation phase: Questionnaire was administered by psychiatric nurse or doctor Cut-off point(s): ?	Describe reference test²: Psychiatric assessment by a registered psychiatric nurse and a geriatrician. At least two visits were made in case of regular referrals, usually at the patient's home in the presence of the caregiver Patients, family, and nurse assistants were interviewed about the nature, severity, onset, and course of current and recent symptoms. This would include cognitive impairments and neuropsychiatric symptoms. In addition, the patient received a psychiatric examination. Cognitive functioning was tested with the mini-mental state examination and the clock drawing test. During phase I, the Delirium Rating	Time between the index test and reference test: For how many participants were no complete outcome data available? N (%) Reasons for incomplete outcome data described?	Outcome measures and effect size (include 95%CI and p-value if available)⁴: Test accuracy Sensitivity 73.5% (95% CI [58.9 - 85.1]) Specificity 73.5% (95%CI [66.5 - 79.7]) PPV: 42.4% (95% CI [35.5% - 49.7%]) NPV 91.2% (95% CI [86.6% - 94.4%])	Administered within 2 minutes Time between referral and first assessment visit Before 31.6 (SD 28.6) After 11.2 (SD 13.1)

¹ In geval van een case-control design moeten de patiëntkarakteristieken per groep (cases en controls) worden uitgewerkt. NB; case control studies zullen de accuratesse overschatten (Lijmer et al., 1999)

² De referentiestandaard is de test waarmee definitief wordt aangetoond of iemand al dan niet ziek is. Idealiter is de referentiestandaard de Gouden standaard (100% sensitief en 100% specifiek). Let op! dit is niet de "comparison test/index 2".

⁴ Beschrijf de statistische parameters voor de vergelijking van de indextest(en) met de referentietest, en voor de vergelijking tussen de indextesten onderling (als er twee of meer indextesten worden vergeleken).

Study reference	Study characteristics	Patient characteristics	Index test (test of interest)	Reference test	Follow-up	Outcome measures and effect size	Comments
	in and for residents of Rotterdam. The sponsors did not have a role in the formulation of research question, choice of study design, data collection, data analysis, and decision to publish. No conflicts of interest declared	Phase 2 N=234 (minus 35 emergency visit and 19 delirium) → 199 Mean age: 78.7 ± 16.2 Sex: not reported Prevalence: 21% delirium 89% dementia 18% both dementia and delirium		Scalerevised-98 (DRS-R-98) was used to support the systematic assessment of delirium. Although the use of DRS-R-98 was not compulsory anymore during phase II, the rate of identified probable delirium was comparable to that in phase I (22% in phase I and 19% in phase II). Psychiatric diagnoses were made according to DSM-IV-TR criteria. Cut-off point(s): A probable (definite) diagnosis of delirium was made if all criteria for delirium were met. A possible diagnosis was made if all criteria but one were met.			
Voyer, 2015	Type of study: validation study Setting and country: hospital and long-term care facilities Funding and conflicts of interest: This work was supported by a grant from the Canadian	Inclusion criteria: Patients (ACH)/residents (LTC) with, or without a medical diagnosis of dementia in their medical chart were included in the study if they were aged 65 years or over and were given medication on at least two occasions during the day	Describe index test: RADAR RADAR scale used in this validation study consists of three items: "When you gave the patient his/her medication... 1) Was the patient drowsy?; 2) Did the patient have trouble following your instructions?;	Describe reference test: DSM-IV-TR delirium CAM Cut-off point(s): ?	Time between the index test and reference test: at maximum 12 hours For how many participants were no complete outcome data available? N (%)	Outcome measures and effect size (include 95%CI and p-value if available): Sensitivity: 73% Specificity: 67%	

Study reference	Study characteristics	Patient characteristics	Index test (test of interest)	Reference test	Follow-up	Outcome measures and effect size	Comments
	Institutes of Health Research (#221803) and the Réseau Québécois de Recherche sur le Vieillissement. Financial support was also received from the Saint-Sacrement Hospital Foundation and no conflicts of interest were declared	Exclusion criteria: a history of psychiatric illness (specifically psychotic disorders, bipolar disorders and major depressive disorders with psychotic features) and those with intellectual disabilities N= 51 residents and 142 hospitalized patients Prevalence: 12% Mean age (residents) $\pm$ SD: 85.5 ± 7.5 Mean age (patients) 79.1 ± 7.3 Sex (residents): 78% F Sex (patients): 53.5% F Other important characteristics: 19% had a high level of comorbidity (≥ 8 Charlson comorbidity index)	3) Were the patient's movements slowed down? Cut-off point(s): RADAR screening is considered positive when at least one item is checked "Yes".		Reasons for incomplete outcome data described?		
Voyer 2016	Type of study: secondary analyses of Voyer 2015, see above Setting and country: hospital and long-term care facilities	Inclusion criteria: Patients (ACH) and residents (LTC), with or without a medical diagnosis of dementia in their medical chart, were included in the study if they were aged 65 years or over and	Describe index test: 10 attention tests: Serial Sevens Subtraction; Serial Threes Subtraction; MOTYB; Days of the Week Backward;	Describe reference test: CAM Cut-off point(s):	Time between the index test en reference test: For how many participants were no complete	Outcome measures and effect size (include 95%CI and p-value if available): The majority of the participants (n = 155, 81%) were able to Recite the days of the week	

Study reference	Study characteristics	Patient characteristics	Index test (test of interest)	Reference test	Follow-up	Outcome measures and effect size	Comments
	Funding and conflicts of interest: This work was supported by a grant from the Canadian Institutes of Health Research (#221803) and the Réseau Québécois de Recherche sur le Vieillissement. Financial support was also received from the Saint-Sacrement Hospital Foundation and no conflicts of interest were declared	were receiving medication at least twice a day Exclusion criteria: history of psychiatric illness (specifically psychotic disorders, bipolar disorders, and major depressive disorders with psychotic features). N= 51 residents and 142 hospitalized patients Prevalence: Mean age $\pm$ SD: Sex: % M / % F Other important characteristics:	Counting 93 to 85; Counting 10 to 1; Months of the Year Forward Days of the Week Forward; Counting 1 to 10.		outcome data available? N (%) Reasons for incomplete outcome data described?	backward, and slightly more than half (n = 109, 57%) could name the MOTYB. Only 13% (n = 24) successfully completed the most difficult test of the subscale (Serial Sevens Subtraction), while 8% (n = 15) failed all test items. Subgroup analyses comparing the performance of participants with delirium with those participants without delirium, revealed a statistically significant difference ($p < 0.01$) between groups for four test items (Serial Threes Subtraction, MOTYB, Days of the Week Backward, and Counting from 93 to 85). Participants without delirium were 33% to 46% more likely to succeed in these particular items than the participants with delirium.	

Risk of bias assessment diagnostic accuracy studies (QUADAS II, 2011)

Study reference	Patient selection	Index test	Reference standard	Flow and timing	Comments with respect to applicability
Luijendijk, 2019	<u>Was a consecutive or random sample of patients enrolled?</u> Yes <u>Was a case-control design avoided?</u> Yes <u>Did the study avoid inappropriate exclusions?</u> Yes	<u>Were the index test results interpreted without knowledge of the results of the reference standard?</u> Yes <u>If a threshold was used, was it pre-specified?</u> No?	<u>Is the reference standard likely to correctly classify the target condition?</u> Yes <u>Were the reference standard results interpreted without knowledge of the results of the index test?</u> Yes	<u>Was there an appropriate interval between index test(s) and reference standard?</u> Yes <u>Did all patients receive a reference standard?</u> Yes <u>Did patients receive the same reference standard?</u> Yes <u>Were all patients included in the analysis?</u> Yes	<u>Are there concerns that the included patients do not match the review question?</u> No <u>Are there concerns that the index test, its conduct, or interpretation differ from the review question?</u> No <u>Are there concerns that the target condition as defined by the reference standard does not match the review question?</u> No
	CONCLUSION: <u>Could the selection of patients have introduced bias?</u> RISK: LOW	CONCLUSION: <u>Could the conduct or interpretation of the index test have introduced bias?</u> RISK: UNCLEAR	CONCLUSION: <u>Could the reference standard, its conduct, or its interpretation have introduced bias?</u> RISK: LOW	CONCLUSION <u>Could the patient flow have introduced bias?</u> RISK: LOW	
Voyer 2015; 2016	<u>Was a consecutive or random sample of patients enrolled?</u> Yes <u>Was a case-control design avoided?</u> Yes <u>Did the study avoid inappropriate exclusions?</u> Yes	<u>Were the index test results interpreted without knowledge of the results of the reference standard?</u> Yes <u>If a threshold was used, was it pre-specified?</u> Yes	<u>Is the reference standard likely to correctly classify the target condition?</u> Yes <u>Were the reference standard results interpreted without knowledge of the results of the index test?</u> Unclear	<u>Was there an appropriate interval between index test(s) and reference standard?</u> Yes/No/Unclear <u>Did all patients receive a reference standard?</u> Yes <u>Did patients receive the same reference standard?</u> Yes <u>Were all patients included in the analysis?</u> Yes	<u>Are there concerns that the included patients do not match the review question?</u> No <u>Are there concerns that the index test, its conduct, or interpretation differ from the review question?</u> No <u>Are there concerns that the target condition as defined by the reference standard does not match the review question?</u> No

Study reference	Patient selection	Index test	Reference standard	Flow and timing	Comments with respect to applicability
Teale, 2018	CONCLUSION: <u>Could the selection of patients have introduced bias?</u> RISK: LOW	CONCLUSION: <u>Could the conduct or interpretation of the index test have introduced bias?</u> RISK: LOW	CONCLUSION: <u>Could the reference standard, its conduct, or its interpretation have introduced bias?</u> RISK: UNCLEAR	CONCLUSION <u>Could the patient flow have introduced bias?</u> RISK: LOW	
	<u>Was a consecutive or random sample of patients enrolled?</u> Yes <u>Was a case-control design avoided?</u> Yes <u>Did the study avoid inappropriate exclusions?</u> Yes	<u>Were the index test results interpreted without knowledge of the results of the reference standard?</u> Yes <u>If a threshold was used, was it pre-specified?</u> Yes	<u>Is the reference standard likely to correctly classify the target condition?</u> Yes <u>Were the reference standard results interpreted without knowledge of the results of the index test?</u> Unclear	<u>Was there an appropriate interval between index test(s) and reference standard?</u> Yes/No/Unclear <u>Did all patients receive a reference standard?</u> Yes <u>Did patients receive the same reference standard?</u> Yes <u>Were all patients included in the analysis?</u> Yes	<u>Are there concerns that the included patients do not match the review question?</u> Yes <u>Are there concerns that the index test, its conduct, or interpretation differ from the review question?</u> No <u>Are there concerns that the target condition as defined by the reference standard does not match the review question?</u> No
	CONCLUSION: <u>Could the selection of patients have introduced bias?</u> RISK: LOW	CONCLUSION: <u>Could the conduct or interpretation of the index test have introduced bias?</u> RISK: LOW	CONCLUSION: <u>Could the reference standard, its conduct, or its interpretation have introduced bias?</u> RISK: UNCLEAR	CONCLUSION <u>Could the patient flow have introduced bias?</u> RISK: LOW	

Auteur en jaartal	Redenen van exclusie
Brich 2019	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Bedard 2019	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Cinar 2019	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Hasemann 019	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Heinrich 2019	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Jones 2019	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
MacLulich 2019	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Maldonado 2020	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Outen 2019	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Steensma 2019	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Wilson 2019	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Yadiv 2019	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Adamis 2016	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Mitchell	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
O'Regan 2017	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Bellelli 2014	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Chester 2012	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
De 2015	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Fitzgerald 2016	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Han 2013	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Han 2015	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Hargrave 2017	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Hasemann 2018	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Hendry 2016	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Lees 2013	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Leonard 2016	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Leung 2011	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Marcantonio 2014	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Neufeld 2013	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
O'Regan 2014	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Richardson 2017	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Thomas 2012	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Tieges 2013	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Oh 2017	Voldoet niet aan PICO, exclusie vanwege design
Powers 2013	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Rosgen 2018	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Saczynski 2014	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Shulman 2016	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Slor 2014	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Swart 2017	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Vasulinashorn 2017	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)
Whittamore 2014	Voldoet niet aan PICO, exclusie vanwege setting.(ziekenhuis)

Zoekverantwoording

Uitgangsvraag: Met welke screenende en diagnostische (ernst)instrumenten kan een delier bij kwetsbare ouderen, volwassenen met (al dan niet gediagnosticeerde) cognitieve problemen gediagnosticeerd worden? En welke is geschikt voor gebruik in de thuissituatie?	
Database(s): Medline, Clnahl	Datum: 27-02-2020
Periode: 2010-heden, voor bredere vraag vanaf 2019 (Update van NVKG delier)	Talen: E - MW

Database	Zoektermen	Totaal
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Medline (OVID)	1 exp Delirium/ or deliri*.ti,ab,kf. (16967)	336 + 172 (update)
	2 *psychoses, alcoholic/ or *alcohol withdrawal delirium/ or *substance withdrawal syndrome/ (15192)	
2010-feb. 2020	3 1 not 2 (15675)	
2019-feb. 2020	4 3 not (child* or p?ediatric or neonat*).ti. (15091)	
voor brede search NVKG richtlijn	5 exp Neuropsychological Tests/ or Psychological Tests/ or (neuropsychologic* adj test*).ti,ab,kf. or ((screen* or evaluat* or assess* or diagnos* or rating or rate or measur* or "case finding") adj5 (index or test* or instrument* or inventor* or batter* or tool* or scale* or checklist* or schedule*)).ti,ab,kf. or ("Pediatric Confusion Assessment Method" or "Paediatric Confusion Assessment Method" or pCAM-ICU or "Cornell Assessment of Pediatric Delirium" or CAP-D or "Pediatric Anesthesia Emergence Delirium" or PAED or "Sophia Observation withdrawal Symptoms scale" or SOS-PD or "Observation withdrawal Symptoms-Pediatric Delirium scale" or "Sophia Ontwenningsverschijnselen Scorelijst-Pediatrisch Delirium").ti,ab,kf. (1081015)	
	6 4 and 5 (2904)	
	7 exp Delirium/cl, di (2965)	
	8 6 or 7 (4727)	
	9 limit 8 to (dutch or english) (4242)	
	10 limit 9 to yr="2010 -Current" (2643)	
	11 exp "Sensitivity and Specificity"/ or (Sensitiv* or Specific*).ti,ab. or (predict* or ROC-curve or receiver-operator*).ti,ab. or (likelihood or LR*).ti,ab. or exp Diagnostic Errors/ or (inter-observer or intra-observer or interobserver or intraobserver or validity or kappa or reliability).ti,ab. or reproducibility.ti,ab. or (test adj2 (re-test or retest)).ti,ab. or "Reproducibility of Results"/ or accuracy.ti,ab. or Diagnosis, Differential/ or Validation Study/ or psychometric*.ti,ab. or ((pre-test or pretest or post-test) adj probability).ti,ab. (6405881)	
	12 10 and 11 (1186)	
	13 (meta-analysis/ or meta-analysis as topic/ or (metaanaly* or metanaly* or meta-analy*).ti,ab,kf. or ((systematic* or scoping or evidence based) adj3 (review* or overview*).ti,kf. or ((evidence or research) adj3 synthesis).ti,kf. or systematic review.pt. or (prisma or ("structured literature" or comprehensive or "quantitative literature" or evidence-based) adj2 (search or review)) or "systematic search" or ((systemic or systematized) adj3 review) or "systematic research synthesis" or (review* adj3 independent*).ti,ab,kf. or (((quantitative or rapid or short or critical* or structured or comparative or comparative or evidence or comprehensive) adj3 (review* or overview*).ti. and search.ab.) or "Review Literature as Topic"/ or cochrane.jw. or (cochrane or embase or medline or cinahl or cinhal or cancerlit).ab. or (("selection criteria" or "data extraction").ab. and "review"/)) not (Comment/ or Editorial/ or Letter/ or (animals/ not humans/)) (354048)	
	14 12 and 13 (106) > 104 uniek	
	20 exp Residential Facilities/ or home nursing/ or primary care nursing/ or Rehabilitation Centers/ or exp Primary Health Care/ or Independent Living/ or Patient Discharge/ or ("nursing home*" or "home care" or (rehabilitation adj (patient* or cent*)) or "care home*" or "primary care" or "day care" or "home nursing" or "Independent Living" or ((community or home) adj dwelling) or bedside or "after discharge" or discharged).ti,ab,kf. (441207)	
	21 12 and 20 (181)	
	22 21 not 14 (172) > 169 uniek	
	23 14 or 22 (278)	
	25 limit 9 to ez=20190410-20200227 (201)	
	26 11 and 25 (112)	
	27 limit 9 to yr="2019 -Current" (359)	
	28 11 and 27 (180)	
	29 26 or 28 (181)	
	30 29 not 23 (142) - update NVKG-RL, exclusie nieuwe search >141 uniek	

Verantwoording uitgangsvraag 4 Begeleiding delier

De uitgangsvraag en uitkomstmaten

Relevante uitkomstmaten

Het optreden (verloop/verhelpen) van een delier is als uitkomstmaat gekozen.

Literatuursearch en selectie

Om de uitgangsvraag te kunnen beantwoorden is er een systematische literatuuranalyse verricht naar de volgende zoekvraag:

Welke behandelregimes dragen bij aan het herstel van een delier?

P: kwetsbare ouderen, volwassenen met een delier (met al dan niet gediagnosticeerde) cognitieve problemen in de langdurige zorg die intramuraal wonen

I: verpleegkundige en verzorgende behandelregimes die kunnen helpen bij het herstel van een delier.

C: standaard behandeling, geen rekening houdend met een delier, afwezigheid van bovengenoemde factoren

O: het verloop van het delier, incidentie delier

Zoektermen

Selectiecriteria

Studies werden geselecteerd op grond van de volgende selectiecriteria:

- onderzoek naar de begeleiding tijdens een delier.
- Setting: thuissituatie of verpleeghuisinstelling
- Artikel gepubliceerd tussen 2012 en feb 2020
- Artikel full-tekst beschikbaar in Engels of Nederlands
- Primair onderzoek (SR, RCT of observationeel onderzoek).

Op basis van titel en abstract werden in eerste instantie 17 studies voorgeselecteerd. Na raadpleging van de volledige tekst, werden vervolgens 16 studies geëxcludeerd (zie exclusietabel), en 1 studie definitief geselecteerd.

Zoekresultaten

In de databases Medline (via OVID) & Cinahl is op 2-12-2020 met relevante zoektermen gezocht naar studies die de begeleiding van een delier beschreven. De zoekverantwoording is weergegeven onder het tabblad Verantwoording. De literatuurzoekactie leverde 108 treffers op.

Geïnccludeerde studies

Een onderzoek is opgenomen in de literatuuranalyse. De belangrijkste studiekarakteristieken en resultaten zijn opgenomen in de evidencetabellen. De beoordeling van de individuele studieopzet (risk of bias) is opgenomen in de risk-of-biastabellen.

Beoordelen van de kracht van het wetenschappelijke bewijs

Setting Thuissituatie

1.1 uitkomstmaat optreden delier in thuissituatie – Simpson, 2019

Voor de uitkomstmaat optreden delier in thuissituatie begint de bewijskracht vanwege het studiedesign op GRADE laag. De bewijskracht voor de uitkomstmaat delier is met één niveau verlaagd gezien beperkingen in de onderzoeksopzet (problemen met de blindering) en imprecisie

(gering aantal cliënten en passeren van de grens voor klinische besluitvorming). De uiteindelijke bewijskracht komt uit op zeer laag.

Study reference	Study characteristics	Patient characteristics ²	Intervention (I)	Comparison / control (C) ³	Follow-up	Outcome measures and effect size ⁴	Comments
Simpson, 2019	Type of study: case-control study Setting and country: Home and hospital (2 medical-surgical units), US Funding and conflicts of interest: Funded by Bader Philanthropies. MM is a consultant for the Institute for Healthcare Improvement and has stocks in Abbott Labs/AbbVie.	<u>Inclusion criteria:</u> - patients with a hospital admission date between January 1, 2015, and September 30, 2017 - aged 65 years and older, - admitted to skilled home healthcare within 5 days of hospital discharge <u>Exclusion criteria:</u> - admitted to home health hospice or palliative care <u>N total at baseline:</u> Intervention: 148 Control: 148 <u>Important prognostic factors²:</u> <u>Age 65-74:</u> I: 45 % C: 27 % <u>Age 75-89:</u> I: 43 % C: 62 % <u>Age ≥90:</u> I: 12 % C: 12 % <u>Sex:</u> I: 36 % M C: 35 % M Groups comparable at baseline? Yes. No randomization.	Describe intervention (treatment/procedure/test): The bundled HELP intervention includes therapeutic activities, early mobilization, feeding, hydration, vision/hearing, and sleep promotion. Patients who were hospitalized and discharged to home health with Bundled HELP exposure (May 1, 2016, to September 30, 2017) were defined as cases (n = 149)	Describe control (treatment/procedure/test): Patients who were hospitalized and discharged to home health care in the year before Bundled HELP was implemented (January 1, 2015, to April 30, 2016) were defined as controls (n = 617).	<u>Length of follow-up:</u> 30 days Patient demographic and health outcome data were retrospectively collected from an electronic medical record (EMR) healthcare system administrative data base (EPIC Systems software). <u>Loss-to-follow-up:</u> Intervention: N (%) Reasons (describe) Control: N (%) Reasons (describe) <u>Incomplete outcome data:</u> Intervention: N (%) Reasons (describe) Control: N (%) Reasons (describe)	Outcome measures: <i>Delirium incidence</i> Measured using the Confusion Assessment Method (CAM, cut-off score not reported) <i>Hospital readmission</i> 30-day all-cause unplanned hospital readmissions Outcome measures and effect size (include 95%CI and p-value if available): <u>Delirium incidence, n (%)</u> I: 3 of 148 (2 %) C: 0 of 148 (0 %) Unadjusted RR intervention RR: 7.00 (95% CI 0.36;134.35) <u>Hospital readmission, n (%)</u> I: 25 of 148 (17 %) C: 42 of 148 (28 %) Unadjusted RR: 0.60 (95% CI 0.38;0.92)	Author's conclusions: "Our initial evaluation supports continued study of the Bundled HELP. This includes prospective studies in nonrural settings to confirm initial observations found, evaluation of the model on functional and delirium incidence outcomes posthospitalization, and model sustainability within an integrated and non-integrated system of care." No randomization

Risk of bias table for intervention studies (randomized controlled trials)

Study reference (first author, publication year)	Describe method of randomisation ¹	Bias due to inadequate concealment of allocation? ² (unlikely/likely/unclear)	Bias due to inadequate blinding of participants to treatment allocation? ³ (unlikely/likely/unclear)	Bias due to inadequate blinding of care providers to treatment allocation? ³ (unlikely/likely/unclear)	Bias due to inadequate blinding of outcome assessors to treatment allocation? ³ (unlikely/likely/unclear)	Bias due to selective outcome reporting on basis of the results? ⁴ (unlikely/likely/unclear)	Bias due to loss to follow-up? ⁵ (unlikely/likely/unclear)	Bias due to violation of intention to treat analysis? ⁶ (unlikely/likely/unclear)
Simpson, 2019	No randomization	Unclear ¹	Likely ¹	Likely ¹	Likely ¹	Unlikely ²	Unlikely ⁸	Unlikely ⁸

¹ No randomisation, control group received usual care² Outcomes in method section also reported in results section³ Participants who died during data collection were excluded⁴ No blinding⁵ No loss-to-follow-up reported⁶ Results reported not for initial group assignment but for more or less than 90 % compliance with hydration intake goal⁷ Blinding not mentioned, but participants were likely unaware of the intervention (no informed consent)⁸ All included patients analysed⁹ High attrition rate, no ITT analysis

Exclusietabel

Tabel Exclusie na het lezen van het volledige artikel

Auteur en jaartal	Redenen van exclusie
Bergmann, 2005	Beschrijft een model, geen primair onderzoek.
Cullen, 2017	Meer editorial letter, geen primair onderzoek.
Duane, 2015	Kwalitatief onderzoek, niet juiste studiedesign.
Gillis, 2006	Case study, niet juiste studiedesign.
Harrison, 2017	Verkeerde setting, ziekenhuis
Hilleren-Listerud, 2014	Studieboek, geen primair onderzoek.
Instenes, 2019	Exploratieve kwalitatieve studie, niet juiste studiedesign
Kristiansen, 2018	Verkeerde setting, ziekenhuis
Lee-Steere, 2020	kwalitatieve studie, niet juiste studiedesign
Lieow, 2019	Verkeerde setting, ziekenhuis
Mailhot, 2017	Geen vergelijkend onderzoek
Mailhot, 2014	Verkeerde setting, ziekenhuis
Middle, 2015	Verkeerde setting, ziekenhuis
Verloo, 2015	Beschrijft geen interventie
Wand, 2014	Verkeerde setting, ziekenhuis
Yebckak, 2017	Verkeerde setting, ziekenhuis

Zoekverantwoording

Richtlijn: VVN ZonMW Delier Verpleegkunde	
Uitgangsvraag: Op welke manier moet de verzorging, verpleging en begeleiding geboden worden aan kwetsbare ouderen en volwassenen, met (al dan niet gediagnosticeerde) cognitieve problemen, met een delier die thuis wonen of in een verpleeghuis?	
Database(s): Cinahl, Ovid/Medline	Datum: 2-12-2020
Periode: 2012-	Talen: nvt
BMI zoekblokken: voor verschillende opdrachten wordt (deels) gebruik gemaakt van de zoekblokken van BMI-Online https://blocks.bmi-online.nl/ . Bij gebruikmaking van een volledig zoekblok zal naar de betreffende link op de website worden verwezen.	

Ovid/Medline

#	Searches	Results
20	9 not 17 not 15 not 14 = overige	44
19	17 not 15 not 14 = OBS	14
18	15 not 14 = RCT	20
17	9 and 16	24
16	Epidemiologic studies/ or case control studies/ or exp cohort studies/ or Controlled Before-After Studies/ or Case control.tw. or (cohort adj (study or studies)).tw. or Cohort analy\$.tw. or (Follow up adj (study or studies)).tw. or (observational adj (study or studies)).tw. or Longitudinal.tw. or Retrospective*.tw. or prospective*.tw. or consecutive*.tw. or Cross sectional.tw. or Cross-sectional studies/ or historically controlled study/ or interrupted time series analysis/ [Onder exp cohort studies vallen ook longitudinale, prospectieve en retrospectieve studies]	3583224
15	9 and 4	20
14	9 and 3 = SR	1
13	9 and 12	3
12	7 or 10 or 11	3
11	(The Bundled Hospital Elder Life Program-HELP and HELP in Home Care-and Its Association With Clinical Outcomes Among Older Adults Discharged to Home Healthcare).ti.	1
10	(an explorative study on how delirious octogenarian patients experience their interactions with healthcare professionals and relatives after aortic valve therapy).ti.	1
9	6 and 8	79
8	exp Nursing Care/ or exp Professional-Patient Relations/ or (nursing adj (care or intervention*)).ti,ab,kf. or nurse patient relation*.ti,ab,kf. or bundled hospital elder life program*.ti,ab,kf.	288907

7	Estimation of an Innovative Nursing Intervention to Improve Delirium among Home-Dwelling Older Adults: A Randomized Controlled Pilot Trial.ti.	1
6	limit 5 to yr="2012 -Current"	1260
5	1 and 2	2157
4	(exp clinical trial/ or randomized controlled trial/ or exp clinical trials as topic/ or randomized controlled trials as topic/ or Random Allocation/ or Double-Blind Method/ or Single-Blind Method/ or (clinical trial, phase i or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or controlled clinical trial or randomized controlled trial or multicenter study or clinical trial).pt. or random*.ti,ab. or (clinic* adj trial*).tw. or ((singl* or doubl* or treb* or tripl*) adj (blind\$3 or mask\$3)).tw. or Placebos/ or placebo*.tw.) not (animals/ not humans/)	2055075
3	(meta-analysis/ or meta-analysis as topic/ or (metaanaly* or metanaly* or meta-analy*).ti,ab,kf. or ((systematic* or scoping or evidence based) adj3 (review* or overview*).ti,kf. or ((evidence or research) adj3 synthesis).ti,kf. or systematic review.pt. or (prisma or (("structured literature" or comprehensive or "quantitative literature" or evidence-based) adj2 (search or review)) or "systematic search" or ((systemic or systematized) adj3 review) or "systematic research synthesis" or (review* adj3 independent*).ti,ab,kf. or (((quantitative or rapid or short or critical* or structured or comparative or comparative or evidence or comprehensive) adj3 (review* or overview*).ti. and search.ab.) or "Review Literature as Topic"/ or cochrane.jw. or (cochrane or embase or medline or cinahl or cinhal or cancerlit).ab. or (("selection criteria" or "data extraction").ab. and "review"/)) not (Comment/ or Editorial/ or Letter/ or (animals/ not humans/))	395143
2	exp Family/ or exp Residential Facilities/ or home nursing/ or primary care nursing/ or Rehabilitation Centers/ or exp Primary Health Care/ or Independent Living/ or ("nursing home*" or "home care" or (rehabilitation adj (patient* or cent*)) or "care home*" or "primary care" or "day care" or "home nursing" or "Independent Living" or ((community or home) adj dwelling) or bedside).ti,ab,kf. or relative*.ti,ab,kf.	2088336
1	exp Delirium/ or deliri*.ti,ab,kf.	18407

Cinahl

Search ID#	Search Terms
S15	S9 NOT S12 NOT S13 = overige
S14	S13 NOT S12 = RCT
S13	S9 AND S11
S12	S9 AND S10 = SR
S11	((MH "Randomized Controlled Trials+") or pt randomized controlled trial or TX random* or TI RCT OR AB RCT OR TI (((pragmatic or practical) n1 "clinical trial*") OR AB (((pragmatic or practical) n1 "clinical trial*") OR TI (((non-inferiority or noninferiority or superiority or equivalence) n3 trial*) OR AB (((non-inferiority or noninferiority or superiority or equivalence) n3 trial*))
S10	(MH "Meta Analysis") or TX (meta-analy* or metanaly* or metaanaly* or meta analy*) or TX (systematic* N5 review*) or (evidence* N5 review*) or (methodol* N5 review*) or (quantitativ* N5 review*) or TX (systematic* N5 overview*) or (evidence* N5 overview*) or (methodol* N5 overview*) or (quantitativ* N5 overview*) or TX (systematic* N5 survey*) or (evidence* N5 survey*) or (methodol* N5 survey*) or (quantitativ* N5 survey*) or TX (systematic* N5 overview*) or (evidence* N5 overview*) or (methodol ...
S9	S5 AND S8
S8	S6 OR S7
S7	TI ("nurse patient relation*") OR ("bundled hospital elder life program*") OR AB ("nurse patient relation*") OR ("bundled hospital elder life program*")
S6	((MH "Nursing Interventions") OR TI ("nursing intervention*" OR "nursing care") OR AB ("nursing intervention*" OR "nursing care") OR (MH "Saba Clinical Care Nursing Interventions") OR (MH "Nursing Care Plans"))
S5	S1 AND S4
S4	S2 OR S3

S3	(MH "Patient Discharge") or (MH "Community Living") or (MH "Primary Health Care") or (MH "Home Nursing") OR (MH "Nursing Home Personnel") OR (MH "Nursing Home Patients") OR (MH "Home Nursing, Professional") or (MH "Residential Facilities+") OR (MH "Rehabilitation Centers") or (MH "Community Living+") OR (MH "Patient Discharge")
S2	TI (("nursing home*" or "home care" or (rehabilitation N1 (patient* or cent*)) or "care home*" or "primary care" or "day care" or "home nursing" or "Independent Living" or ((community or home) N1 dwelling) or bedside or "after discharge" or discharged)) OR AB (("nursing home*" or "home care" or (rehabilitation N1 (patient* or cent*)) or "care home*" or "primary care" or "day care" or "home nursing" or "Independent Living" or ((community or home) N1 (living or dwelling)) or "after discharge" o ...
S1	(MH "Delirium") OR TI deliri* OR AB deliri*

Meervoudig interventie programma

Meervoudige interventies ter preventie van delier, toegepast in een op maat gemaakt individueel zorgplan gebaseerd op een risicoassessment

Informeer en betrek de naaste/familie hierin: zij kennen de voorkeuren van de client.

Behandel cognitieve stoornissen en/of desoriëntatie door:

- bieden van goede verlichting en duidelijke en zichtbare bewegwijzering, een klok en een kalender;
- heroriënteren van de cliënt door (telkens weer) uit te leggen waar hij is, wie er in de kamer is, wat uw rol is en wat de cliënt heeft of waarvoor de cliënt is opgenomen;
- invoeren van cognitief stimulerende activiteiten (bijvoorbeeld vertrouwde spullen van thuis);
- faciliteren van regelmatige bezoeken van familie en vrienden.

Behandel uitdroging en/of obstipatie door:

- zorgen voor voldoende vochtinname om uitdroging te voorkomen door het stimuleren om te drinken (overweeg om subcutaan of intraveneus vocht toe te dienen, indien nodig);
- (indien nodig) bijhouden van de vochtbalans en/of dagelijks wegen bij mensen met comorbiditeit (bijvoorbeeld hartfalen of chronische nierziekte);
- laagdrempelig laxeren.

Beoordeel hypoxie en optimaliseer zuurstofverzadiging, indien nodig, waar dat klinisch aangewezen is.

Behandel infectie door:

- op zoek gaan naar en behandeling van infecties;
- het vermijden van onnodige katheterisatie en onnodig lang intraveneuze behandeling.

Behandel immobiliteit of een beperkte mobiliteit door middel van de volgende acties.

Moedig mensen aan:

- snel te mobiliseren na de operatie;
- te wandelen (bied passende loop hulpmiddelen indien nodig - deze moeten altijd toegankelijk zijn);
- actieve range-of-motion oefeningen uit te voeren (inclusief de mensen die niet kunnen lopen).

Vraag fysiotherapeut en/ of ergotherapeut in consult:

- voor de beoordeling van het veilig lopen;
- voor het advies over het juiste loop hulpmiddel;
- voor het verbeteren van de loopbalans.

Behandel pijn door:

- het voortdurend beoordelen van de pijn;
- het blijvend observeren van non-verbale tekenen van pijn, vooral bij cliënten met communicatiebeperkingen;
- het starten en beoordelen van geschikte pijnbehandeling.

Rapporteer de medicatie bij mensen die meerdere geneesmiddelen gebruiken, rekening houdend met zowel het type als het aantal van de medicijnen.

- observatie inname medicatie.

Behandel slechte voedingstoestand of voedselinname door:

- bijhouden van voedingslijst;
- starten van bijvoeding;
- consulteer de diëtiste;
- controleer of eventuele protheses goed passen;
- inspectie van de mond (infectie/schimmel);
- stimuleer gebruik huiskamer/eetkamer;
- schakel naaste/familie in voor participatie bij maaltijden.

Behandel de zintuiglijke beperkingen door:

- zorgen voor eigen bril en/of gehoorapparaat.

Bevorder een goed slaappatroon en slaaphygiëne door:

- het vermijden van verpleegkundige of medische procedures tijdens het slapen, ook bij kamergenoten; het verminderen van geluid tot een minimum tijdens de slaaperioden.

Bij tekenen van delier is het aan te bevelen dat de verpleegkundige interventies gericht zijn op het verzamelen van informatie om onderstaande aspecten aan te tonen of uit te sluiten.

Dehydratie:

- bijhouden van vochtbalans/ vochtlijst.
- wegen van cliënt

Urineretentie:

- bladderscan;
- urineproductie bijhouden.

Traumatische afwijkingen (fracturen):

- is cliënt recent gevallen?

Ontstekingen (luchtwegen/ longen en urinewegen):

- observatie verslikken;
- hoesten;
- benauwdheid;
- frequent urineren/ incontinentie.

Neurologische incidenten:

- afhangende mondhoek;
- moeilijker kunnen spreken;
- krachtsverlies.
- trekkingen
- bewustzijnsdalingen

Cardiopulmonale problematiek:

- oedeem;
- klachten pijn/ drukkend gevoel op de borst;
- kortademigheid.

Anemie:

- klachten van moeheid;
- bleek zien;
- benauwdheid;
- spierzwakte.

Pijn:

- observatie non verbale tekenen van pijn.
- Pijnscore starten

Infectie:

- koorts, koude rillingen, ondertemperatuur;
- tachycardie.

Meervoudige interventie in de behandeling van delier

De zorgvragen van cliënten met delier zijn niet altijd dezelfde. Een cliënt met een hyperactief delier heeft andere zorgvragen dan een cliënt met een hypoactief delier. Enerzijds is de verpleegkundige zorg gericht op symptoomreductie van:

- gestoord bewustzijn;
- gestoorde aandacht;
- gestoorde oriëntatie en geheugen;
- gestoorde waarneming;
- gestoorde prikkelverwerking;
- angst.

anderzijds heeft zij betrekking op het herstellen en handhaven van de fysiologische stabiliteit door:

- reductie van risicofactoren;
- zorgen voor voldoende vocht en voeding;
- goede uitscheiding;
- voldoende mobiliteit;
- optimaliseren van visus en gehoor;
- veiligheid;
- zorg voor naaste/familie.

Betrek naaste/familie bij zowel symptoomreductie als bewerkstelligen van fysiologische stabiliteit.

Verantwoording uitgangsvraag 5 Nazorg na delier

De uitgangsvraag en uitkomstmaten

Relevante uitkomstmaten

De werkgroep achtte functioneren na een delier voor de besluitvorming cruciale uitkomstmaten; en residueel of aanhoudend delier voor de besluitvorming belangrijke uitkomstmaten.

De werkgroep definieerde de uitkomstmaten als volgt: slecht herstel was gedefinieerd als mortaliteit, langere verblijfsduur, verminderde functie of institutionalisering.

Literatuursearch en selectie

Om de uitgangsvraag te kunnen beantwoorden is er een systematische literatuuranalyse verricht naar de volgende zoekvraag:

Welke nazorg kan thuis worden geboden aan cliënten die een delier hebben doorgemaakt?

P: Cliënten die een delier hebben doorgemaakt

I: prognostische factoren die het beloop van een delier bepalen

C: afwezigheid van deze factoren

O: residueel of aanhoudend delier; slecht herstel na delier het verloop van het delier (mortaliteit, langere verblijfsduur, verminderde functie en opname)

Selectiecriteria

Studies werden geselecteerd op grond van de volgende selectiecriteria:

- prognostische studies over het beloop van het delier
- Studiedesign systematische reviews of origineel onderzoek
- Onderzoek naar verpleegkundige interventies ter preventie van een delier.
- Setting: thuissituatie of verpleeghuisinstelling
- Artikel gepubliceerd tussen 2012 en mei 2020
- Artikel full-tekst beschikbaar in Engels of Nederlands
-

Op basis van titel en abstract werden in eerste instantie tien studies voorgeselecteerd. Na raadpleging van de volledige tekst, werden vervolgens drie studies geëxcludeerd (zie exclusietabel), en zeven studies definitief geselecteerd.

Zoekresultaten

In de databases Medline (via OVID) en Cinahl is op 6 mei 2020 met relevante zoektermen gezocht naar studies over nazorg na een delier. De zoekverantwoording is weergegeven in de bijlage. De literatuurzoekactie leverde 777 treffers op.

Geïnccludeerde studies

Zeven aantal onderzoeken zijn opgenomen in de literatuuranalyse. De belangrijkste studiekarakteristieken en resultaten zijn opgenomen in de evidencetabellen. De beoordeling van de individuele studieopzet (risk of bias) is opgenomen in de risk-of-biastabellen.

Beoordelen van de kracht van het wetenschappelijke bewijs

Uitkomstmaat 1.1 Functioneren na delier – (Abelha, 2013; Koster, 2009)

Het startpunt van de bewijskracht is vanwege de studiedesign 'laag'. Er waren geen redenen om de bewijskracht verder te verlagen. De uiteindelijke bewijskracht komt uit op 'laag'

Uitkomstmaat 1.2 Voorspellers aanhoudend delier - Chew 2017; Cole 2015; Lam 2014; von Gunten, 2013

Het startpunt van de bewijskracht is vanwege de studiedesign 'laag'. Er waren geen redenen om de bewijskracht verder te verlagen. De uiteindelijke bewijskracht komt uit op 'laag'

Uitkomstmaat 1.3 Voorspellers slecht herstel van delier - (Jackson, 2016)

Het startpunt van de bewijskracht is vanwege de studiedesign 'laag'. Er waren geen redenen om de bewijskracht verder te verlagen. De uiteindelijke bewijskracht komt uit op 'laag'

Het startpunt van de bewijskracht is vanwege de studiedesign 'laag'. Er waren geen redenen om de bewijskracht verder te verlagen. De uiteindelijke bewijskracht komt uit op 'laag'

Evidencetabellen

Evidence table for prognostic factor studies

Study reference	Study characteristics	Patient characteristics	Prognostic factor(s)	Follow-up	Estimates of prognostic effect	Comments
Abelha, 2013	Type of study: cohort study Setting and country: surgical intensive care unit, Portugal Funding and conflicts of interest: The authors did not use funds for the research and have no conflicts of interest.	<u>Inclusion criteria:</u> All of the scheduled postoperative patients considered eligible for the study were Portuguese-speaking adults who were admitted to the SICU for major noncardiac and non-neurological surgeries requiring anaesthesia and a postoperative hospital stay of more than 48 hours <u>Exclusion criteria:</u> Emergency surgery or no informed consent <u>N total at baseline:</u> 562 <u>Important prognostic factors²:</u> <i>Age (median): 66 (IQR 54-74)</i> <i>Sex: 63 % M</i> Delirium: 16% <u>Potential confounders or effect modifiers:</u> Dementia not reported	Describe prognostic factor(s) and method of measurement: Mortality Dependence	Duration or endpoint of follow-up: 6 months For how many participants were no complete outcome data available? N (%):% 130(27%) alive but not filling in the questionnaire Reasons for incomplete outcome data described? 74 died	(Adjusted) Factor-outcome associations (include SEs or 95%CI and p-value if available): Mortality Delirium was an independent risk factor for mortality at the 6-month follow-up (OR = 2.562, P <0.001) and also for hospital mortality (OR = 2.673, P <0.001). Dependence Delirium was also an independent risk factor for becoming dependent for personal ADL (P-ADL) after SICU discharge (OR = 2.188, P <0.046). Moreover, patients who experienced postoperative delirium showed a greater decline in SF-36 domains after discharge, particularly in physical function, vitality, and social function, as compared to patients	

					without postoperative delirium.	
Chew, 2017	Type of study: cohort study Setting and country: Geriatric Monitoring Unit, Tan Tock Seng Hospital, Singapore Funding and conflicts of interest: Funded by FY2010 Ministry of Health Quality of Improvement Funding; no conflicts of interest declared:	<u>Inclusion criteria:</u> Individuals aged >65 years admitted to the geriatric medicine department whose primary geriatrician determined that they had definite delirium (CAM) on admission or incident delirium during their hospital stay; considered for admission to the GMU <u>Exclusion criteria:</u> medical illnesses necessitating special monitoring; respiratory or contact precautions; if they were deemed to be dangerously ill or in a coma or to have a terminal illness; behaved combatively with a high risk of harm; had conditions contra-indicating the use of bright light therapy; or if they/family members/physician refused GMU stau <u>N total at baseline:</u> 234 <u>Important prognostic factors²:</u> <i>Age ± SD:</i> 84.1 ± 7.4 <i>Sex:</i>	Describe prognostic factor(s) and method of measurement: Cognitive status with Chinese version of MMSE (CMMSE) Comorbidity: Charlson Comorbidity Index Frailty: using a 20-item frailty index (Selection of items to be included for the frailty index was guided by previously specified criteria, and comprised medical comorbidities, premorbid functional performance in activities of daily living before onset of the acute illness, presence of sensory and swallowing impairment, and laboratory markers (serum albumin and hemoglobin levels at admission) Frailty was defined by FI of ≥ 0.25. Functional recovery: modified Barthel Index	Duration or endpoint of follow-up: 12 months For how many participants were no complete outcome data available? N (%): 29% Reasons for incomplete outcome data described? 35 had died (15%) and 67 (34%) did not consent to follow-up	(Adjusted) Factor-outcome associations (include SEs or 95%CI and p-value if available): Incremental predictive value¹: Residual subsyndromal delirium: Frailty (117 (73.6%)) vs no frailty (28 (37.3%)): OR (adjusted for age, sex and severity of illness): 4.1 (95% CI [2.1 – 8.2]) Functional recovery at 12 months (modified Barthel Index change scores): Frailty 6.0 ± 33.9 Not frail: 17.8 ± 31.6 Multiple linear regression: Frailty status beta: -13.4 (95% CI - 24.9 to -1.8) Pre-existing dementia beta: -12.9 (95% CI -25.0 to --0.9)	

		43.6: % M Delirium: 100% <u>Potential confounders or effect modifiers:</u> 67.9% were classified as frail using the FI cut-off of 0.25 Dementia 74.4%				
Cole, 2015	Type of study: cohort study Setting and country: hospital; Canada Funding and conflicts of interest: Canadian Institutes of Health Research Operating Grant FRN-102523; no financial or any other conflicts of interest associated with this paper	<u>Inclusion criteria:</u> patients aged 65 and older admitted to the medical and surgical services of a primary acute-care hospital. Within 24 hours of admission, a research assistant determined whether the individual was eligible for the study; <u>Exclusion criteria:</u> not speaking English or French, not residing in Montreal, or too sick to be assessed <u>N total at baseline:</u> 278 <u>Important prognostic factors²:</u> <i>Age n(%)</i> 65-74: 22 (7.9%) 75-84: 89 (32.0%) 85-89 71 (25.5%) >90 96 (34.5%) <i>Sex:</i> 76% F Institutionalised: 136 (48.9%)	Describe prognostic factor(s) and method of measurement: Delirium assessed by CAM Recovery of delirium assessed by CAM and face-to-face administered MMSE; Possible outcomes: full recovery; partial recovery or no recovery Dementia status assessed by research clinician specific to diagnosis of dementia, mild cognitive impairment, Lewy Body Dementia, Cerebrovascular Disease, history of depression and substance use; diagnoses were based on accepted criteria and made together with study investigators	Duration or endpoint of follow-up: 3 months For how many participants were no complete outcome data available? N (%): <5% missing data 35 (13%) lost to follow-up Reasons for incomplete outcome data described?	(Adjusted) Factor-outcome associations (include SEs or 95%CI and p-value if available): Incremental predictive value¹: <u>Delirium persistence:</u> Chart diagnosis of dementia: OR 2.51 (95% CI 1.38 – 4.56) Presence of any malignancy OR 5.79 (95% CI [1.51; 22.19]) Greater severity of delirium: OR 9.39 [95% CI 3.95 – 22.35])	

		Prevalent delirium: 211 (75.9%) Incident delirium: 67 (24.1%)	Comorbidity abstracted from hospital chart and databases <i>Participants with dementia</i>, frequencies of Full recovery: 7.9% Partial recovery: 15.1% No recovery: 57.6% Death: 19.4% <i>Participants without dementia</i> Full recovery: 19.2% Partial recovery: 20.2%, No recovery: 31.7% Death: 28.8%			
Dasgupta, 2014	Type of study: cohort study Setting and country: department of general medicine, Canada Funding and conflicts of interest: Physicians' Services Incorporated	<u>Inclusion criteria</u>: patients 70 years of age or older, admitted to the general medicine in-patient teaching units at London Health Sciences Centre (LHSC), in London, Ontario, were approached within 3 days of admission, by the investigators for possible study inclusion <u>Exclusion criteria</u>: (i) lack of a willing caregiver or substitute decision maker; (ii) transfer to another non-medical service (e.g., intensive care unit or surgical service) within 7 days of admission; (iii) admission for palliative or long-term	Describe prognostic factor(s) and method of measurement: Poor recovery (death, long-term institutionalisation or functional decline (decreased activities of daily living) Derivation/validation sample: two thirds of participants were used for derivation sample and one third validation sample (randomly selected)	Duration or endpoint of follow-up: median 97 days For how many participants were no complete outcome data available? N (%): Reasons for incomplete outcome data described?	(Adjusted) Factor-outcome associations (include SEs or 95%CI and p-value if available): Incremental predictive value¹: Deceased: 54 (15%) Poor recovery 67% Permanently institutionalised: 86 (4%) from hospital directly and 50 after discharge Functional decline 46 Poor recovery multivariable model; derivation sample:	

		institutionalization purposes only; (iv) inability to speak English; (v) presence of a known pre-terminal medical condition (expected life expectancy <6 months); (vi) severe hearing impairment or communication difficulties; (vii) pre-hospitalization residence in a nursing home (NH) or complete dependence for ADLs; (viii) direct transfers from other in-patient units; and (ix) enrolment in other interventional studies <u>N total at baseline:</u> 1235 <u>Important prognostic factors</u>²: <i>age ± SD:</i> 82.6 ± <i>Sex:</i> 42% M <i>Delirium 355 (29%) (only delirious patients included in the final study sample)</i>			advanced age: 1.14 (1.01; 1.20) lower baseline function (ADL): 0.88 (0.78; 0.99) hypoxia 2.28 (1.12; 4.64) higher delirium severity score (MDAS): 1.16 (1.06; 1.26) acute renal failure 2.69 (1.10; 6.58) Poor recovery multivariable model; validation sample: advanced age: 1.12 (1.04; 1.21) lower baseline function (ADL): 0.97 (0.83; 1.15) hypoxia 0.85 (0.31; 2.36) higher delirium severity score (MDAS): 1.03 (0.92; 1.14) acute renal failure 2.64 (0.67; 10.42) area under the curve for the derivation model was 0.80 (95% confidence interval: 0.74–0.85) and in the validation cohort was 0.68 (95% confidence interval: 0.57–0.79)	
Lam, 2014	Type of study: prospective cohort study	Inclusion criteria: Individuals aged 65 and older admitted to the geriatric medicine department whose primary	Describe prognostic factor(s) and method of measurement:	Duration or endpoint of follow-up: For how many participants were no	(Adjusted) Factor-outcome associations (include SEs or 95%CI and p-value if available):	

	Setting and country: Geriatric Monitoring Unit, Hong Kong, China Funding and conflicts of interest: FY2010 Ministry of Health Quality of Improvement Funding (MOH HQIF) "Optimising Acute Delirium Care in Tan Tock Seng Hospital" (HQIF 2010/17). CMS is supported by the National Healthcare Group Clinician Scientist Career Scheme 2012/12002; None of the authors have any financial conflict of interest	geriatrician determined that they had definite delirium (established in accordance with the Confusion Assessment Method (CAM))²³ on admission or incident delirium during their hospital stay were considered for admission to the GMU Exclusion criteria: medical illnesses necessitating special monitoring (e.g., telemetry for arrhythmias or acute myocardial infarction), respiratory precautions, or contact precautions. Individuals were also excluded from the GMU if they were deemed to be dangerously ill or in a coma or to have a terminal illness, were uncommunicative or severely aphasic, behaved combatively with high risk of harm, had conditions contraindicating the use of bright light therapy (e.g., mania, severe eye disorders, or use of photosensitizing medications), or if they, their family members, or their physician in charge refused a GMU stay; or if they were prematurely transferred from the GMU.	Delirium severity: using DRS-R-98 severity assessed daily by GMU coordinator and nurse Cognition: Chinese MMSE and assessed by consulting geriatrician with subspecialty interest in cognition and memory disorders. A family member or other designated caregiver was routinely interviewed to establish the participant's cognitive functioning before the current admission. The medical records of all participants were reviewed to ascertain whether a diagnosis of dementia had been previously established. Functional status: modified Barthel Index Residual Subsyndromal delirium: participants discharged from the GMU were categorized as having residual SSD or not, defining residual SSD as a DRS-R98 severity score of 13 or	complete outcome data available? N (%): 43 (16%) (41 were prematurely transferred out of the GMU; 1 family member requested transfer out of the GMU; 1 transferred because of extremely combative behavior 19 (8%) patients discharged back to nursing home; were they resided before admission Reasons for incomplete outcome data described?	155 (66%) had residual subsyndromal delirium Incremental predictive value¹: Residual subsyndromal delirium: Underlying dementia OR: 2.35 (95% CI [1.06 - 5.22]) Severity on admission: OR 1.20 (95% CI [1.07 - 1.34]) DRS-R98 severity on Day 1 minus Day 3 of GMU stay (OR 0.81 (95% CI [0.74 - 0.88])	
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		N= 234 Mean age $\pm$ SD: 84.1 $\pm$ 7.4 Sex: 43.6 % M Potential confounders or effect modifiers: Chinese ethnicity 87.6% 74.4% diagnosis dementia	greater at resolution from full syndromal delirium because this score corresponds to the 75th percentile of individuals with baseline SSD in a previous study.²¹ In addition, the analyses showed that a DRS-R98 severity score greater than 13 represented an intermediate state between the two extreme cut-off values of 8 and 15 for SSD as arbitrarily defined in previous studies			
Koster, 2009	Type of study: prospective cohort study Setting and country: elective cardiac surgery at thoracic surgery department The Netherlands Funding and conflicts of interest: not reported	<u>Inclusion criteria:</u> patients, of 45 years and older, who underwent elective cardiac surgery at the Department of Thoracic Surgery <u>Exclusion criteria:</u> - <u>N total at baseline:</u> 112 <u>Important prognostic factors</u>²: <i>Age and sex not reported</i> Delirium: 21% <u>Potential confounders or effect modifiers:</u> Dementia %	Describe prognostic factor(s) and method of measurement:	Duration or endpoint of follow-up: 1 to 1,5 years after cardiac surgery For how many participants were no complete outcome data available? N (%):? Reasons for incomplete outcome data described? -	(Adjusted) Factor-outcome associations (include SEs or 95%CI and p-value if available): Mortality Delirium: 12,5% No delirium: 4,5% Dysfunction in memory: Delirium: 31.6% No delirium: 22.6% Concentration problems: Delirium: 36.8% No Delirium: 20.2% Sleep problems	

					Delirium: 47.4% No delirium: 23.8%	
Von Gunten, 2013	Type of study: Post-hoc analysis of prospective cohort study Setting and country: 90 nursing homes in Switzerland Funding and conflicts of interest: Swiss Alzheimer Society as well as Swiss Society for Old Age and Psychiatry (SGAP-SPPA)	Inclusion criteria: All NH residents in the three Swiss cantons Aargau, Basel-City, and Solothurn (corresponding to 13.5% of the total Swiss population) 17 receive a Resident Assessment Instrument Minimum Data Set (RAI-MDS) assessment at 6-month intervals. Only residents with at least two CAM assessments were included	Describe prognostic factor(s) and method of measurement: Levels determined using the NHCAM Level 1 subsyndromal delirium: 1 of 4 features present Level 2 subsyndromal delirium: 2 of 4 features present Level 3 full delirium: features 1 and 2 are present in conjunction with 3 or 4 or both	Duration or endpoint of follow-up: assessments carried out every 6 months For how many participants were no complete outcome data available? N (%): Reasons for incomplete outcome data described?	(Adjusted) Factor-outcome associations (include SEs or 95%CI and p-value if available): Incremental predictive value¹: 49% Predictors delirium trajectories: Among the independent variables considered in this study, 10 variables selected according to the Bayesian information criterion were significant predictors according to decreasing importance: CPS, depression, gender, age, continence, the number of drugs, BMI, the number of diseases, and the number of newly and recently prescribed drugs.	

¹ Incremental predictive value is the predictive value beyond standard demographic factors and the established risk factors (e.g. smoking, blood pressure, lipid levels, diabetes, cancer stage, etc.), for example change in c-statistic

Evidence table for systematic review of RCTs and observational studies (intervention studies)

Study reference	Study characteristics	Patient characteristics	Intervention (I)	Comparison / control (C)	Follow-up	Outcome measures and effect size	Comments
Jackson, 2016 PS., study characteristics and results are extracted from the SR (unless stated otherwise)	Comprehensive literature review <i>Literature search up to 2 November 2014; from 1980 onwards</i> 27 studies were included in the review <u>Study design:</u> RCT [parallel / cross-over], cohort [prospective / retrospective], case-control <u>Setting and Country:</u> <u>Source of funding and conflicts of interest:</u> There are no disclosures to report	Inclusion criteria SR: studies that evaluated variables with recognised outcomes in patients with delirium; (1) Included patients with delirium, diagnosed using a recognised and validated method (2) Included clearly defined outcomes; death, institutionalisation, length of stay and cognitive change; (3) Variables used as predictors were clearly defined with appropriate statistical analysis. (4) Included patients in the general hospital, rehabilitation facilities or care homes, but not in the intensive care setting or community; Exclusion criteria SR: non-English language papers and non-human studies <i>27 studies included</i> 13 acute and general medical ward 6 hip fracture patients 4 post-acute and rehabilitation units 2 palliative care 1 emergency department	Review of cohort studies	Review of cohort studies	<u>End-point of follow-up:</u> Not reported <u>For how many participants were no complete outcome data available? (intervention/control)</u> Not reported	<u>Outcome measure-1</u> Four broad themes of predictor were identified; five delirium related predictors; two co-morbid psychiatric illness related predictors, eight patient related predictors and three biomarker related predictors. The most numerous described and clinically important appear to be the duration of the delirium episode, a hypoactive motor subtype, delirium severity and pre-existing psychiatric morbidity with dementia or depression. These are all associated with poorer delirium outcomes.	<u>Facultative:</u> Brief description of author's conclusion Personal remarks on study quality, conclusions, and other issues (potentially) relevant to the research question Level of evidence: GRADE (per comparison and outcome measure) including reasons for down/upgrading Sensitivity analyses (excluding small studies; excluding studies with short follow-up; excluding low quality studies; relevant subgroup-analyses); mention only analyses which are of potential importance to the research question Heterogeneity: clinical and statistical heterogeneity; explained versus unexplained (subgroup analysis)

Table of quality assessment – prognostic factor (PF) studies*Based on: QUIPSA (Haydn, 2006; Haydn 2013)*

Study reference (first author, year of publication)	Study participation¹ Study sample represents the population of interest on key characteristics? (high/moderate/low risk of selection bias)	Study Attrition² Loss to follow-up not associated with key characteristics (i.e., the study data adequately represent the sample)? (high/moderate/low risk of attrition bias)	Prognostic factor measurement³ Was the PF of interest defined and adequately measured? (high/moderate/low risk of measurement bias related to PF)	Outcome measurement³ Was the outcome of interest defined and adequately measured? (high/moderate/low risk of measurement bias related to outcome)	Study confounding⁴ Important potential confounders are appropriately accounted for? (high/moderate/low risk of bias due to confounding)	Statistical Analysis and Reporting⁵ Statistical analysis appropriate for the design of the study? (high/moderate/low risk of bias due to statistical analysis)
Abelha, 2013	Not completely as they are hospitalised; low risk of selection bias	Low risk of attrition bias	Low risk of measurement bias	Low risk of measurement bias	Low risk of bias due to confounding	Low risk of bias due to statistical analysis
Avelina-Silva 2018	Not completely as they are hospitalised; low risk of selection bias	Low risk of attrition bias	Low risk of measurement bias	Low risk of measurement bias	Low risk of bias due to confounding	Low risk of bias due to statistical analysis
Chew, 2017	Not completely as they are hospitalised; low risk of selection bias	Low risk of attrition bias	Low risk of measurement bias	Low risk of measurement bias	Low risk of bias due to confounding	Low risk of bias due to statistical analysis
Cole, 2015	Not completely as they are hospitalised; low risk of selection bias	Low risk of attrition bias	Moderate risk of measurement bias	Low risk of measurement bias	Low risk of bias due to confounding	Low risk of bias due to statistical analysis
Cole, 2017	Not completely as they are hospitalised; low risk of selection bias	Low risk of attrition bias	Moderate risk of measurement bias	Low risk of measurement bias	Low risk of bias due to confounding	Low risk of bias due to statistical analysis
Dasgupta, 2014	Not completely as they are hospitalised; low risk of selection bias	Low risk of attrition bias	Moderate risk of measurement bias	Low risk of measurement bias	Low risk of bias due to confounding	Low risk of bias due to statistical analysis

Lam, 2014	Not completely as they are hospitalised; low risk of selection bias	Low risk of attrition bias	Moderate risk of measurement bias	Low risk of measurement bias	Low risk of bias due to confounding	Low risk of bias due to statistical analysis
Koster, 2009	Not completely as they are hospitalised; low risk of selection bias	Low risk of attrition bias	Moderate risk of measurement bias	Low risk of measurement bias	Low risk of bias due to confounding	Low risk of bias due to statistical analysis
Von Gunten, 2013	Low risk of selection bias	Low risk of attrition bias	Moderate risk of measurement bias	Moderate risk of measurement bias	Low risk of bias due to confounding	Moderate risk of bias due to statistical analysis

^A <https://methods.cochrane.org/sites/methods.cochrane.org.prognosis/files/public/uploads/QUIPS%20tool.pdf>

¹ Adequate description of: source population or population of interest, sampling and recruitment, period and place of recruitment, in- and exclusion criteria, study participation, baseline characteristics.

² Adequate response rate, information on drop-outs and loss to follow-up, no differences between participants who completed the study and those lost to follow-up.

³ Method of measurement is valid, reliable, setting of measurement is the same for all participants.

⁴ Important confounders are listed (including treatments), method of measurement is valid, reliable, setting of measurement is the same for all participants, important confounders are accounted for in the design (matching, stratification, initial assembly of comparable groups), or analysis (appropriate adjustment)

⁵ Enough data are presented to assess adequacy of the analysis, strategy of model building is appropriate and based on conceptual framework, no selective reporting.

Exclusietabel

Tabel Exclusie na het lezen van het volledige artikel

Auteur en jaartal	Redenen van exclusie
Cole 2017	Sluit niet aan bij de PICO
Dasgupta 2014	Werd al meegenomen in review Jackson 2016
Rosgen 2020	Sluit niet aan bij de PICO, focus op gevolgen van ernstig delier

Zoekverantwoording

Richtlijn: Delier (V&VN)	
Uitgangsvraag: Welke nazorg kan thuis worden geboden aan cliënten die een delier hebben doorgemaakt?	
Database(s): Medline, CINAHL	Datum: 6-5-2020
Periode: 2010 – mei 2020	Talen: Engels

Database	Zoektermen
Medline (OVID)	1 exp *Delirium/ or deliri*.ti,ab,kf. (16290) 2 exp Follow-Up Studies/ or (long-term or follow-up or longterm or followup or 'follow up').ti,ab,kf. or Aftercare/ or ("after care" or aftercare).ti,ab,kf. or Rehabilitation/ or Convalescence/ or (Rehabilitation or Convalescence).ti,ab,kf. or exp "Quality of Life"/ or "quality of life".ti,ab,kf. or (psycholog* or depress* or cogniti* or distress).ti,ab,kf. (3187122) 3 exp Residential Facilities/ or Rehabilitation Centers/ or Independent Living/ or Patient Discharge/ or ("nursing home*" or "home care" or (rehabilitation adj (patient* or cent*)) or "Independent Living" or ((community or home) adj dwelling) or "after discharge" or discharged).ti,ab,kf. or ((nursing or intervention*) adj10 home).ti,ab,kf. or case management/ or "continuity of patient care"/ or "case management".ti,ab,kf. or home nursing/ or primary care nursing/ or exp Primary Health Care/ or ((primary or day or home) adj3 care).ti,ab,kf. or homecare.ti,ab,kf. or (survivor* adj5 deliri*).ti,ab. (464720) 4 1 and 2 and 3 (890) 5 limit 4 to (english language and yr="2010 -Current") (554) 17 (meta-analysis/ or meta-analysis as topic/ or (meta adj analy\$).tw. or ((systematic* or literature) adj2 review\$1).tw. or (systematic adj overview\$1).tw. or exp "Review Literature as Topic"/ or cochrane.ab. or cochrane.jw. or embase.ab. or medline.ab. or (psychlit or psyclit).ab. or (cinahl or cinhal).ab. or cancerlit.ab. or ((selection criteria or data extraction).ab. and "review"/)) not (Comment/ or Editorial/ or Letter/ or (animals/ not humans/)) (443980) 18 (exp clinical trial/ or randomized controlled trial/ or exp clinical trials as topic/ or randomized controlled trials as topic/ or Random Allocation/ or Double-Blind Method/ or Single-Blind Method/ or (clinical trial, phase i or clinical trial, phase ii or clinical trial, phase iii or clinical trial, phase iv or controlled clinical trial or randomized controlled trial or multicenter study or clinical trial).pt. or random*.ti,ab. or (clinic* adj trial*).tw. or ((singl* or doubl* or treb* or tripl*) adj (blind\$3 or mask\$3)).tw. or Placebos/ or placebo*.tw.) not (animals/ not humans/)) (1977664) 19 Epidemiologic studies/ or case control studies/ or exp cohort studies/ or Controlled Before-After Studies/ or Case control.tw. or (cohort adj (study or studies)).tw. or Cohort analy\$.tw. or (Follow up adj (study or studies)).tw. or (observational adj (study or studies)).tw. or Longitudinal.tw. or Retrospective*.tw. or prospective*.tw. or consecutive*.tw. or Cross sectional.tw. or Cross-sectional studies/ or historically controlled study/ or interrupted time series analysis/ [Onder exp cohort studies vallen ook longitudinale, prospectieve en retrospectieve studies] (3423240) 20 5 and 17 (33) 21 (5 and 18) not 20 (119) 22 (5 and 19) not (20 or 21) (259) 23 5 not (20 or 21 or 22) (143) 24 20 or 21 or 22 or 23 (554)

CINAHL	#	Query	Results
	S10	S5 NOT (S8 OR S9)	486
	S9	S5 AND S7 NOT S8	90
	S8	S5 AND S6	42
	S7	((MH "Randomized Controlled Trials+") or pt randomized controlled trial or TX random* or TI RCT OR AB RCT OR TI (((pragmatic or practical) n1 "clinical trial*")) OR AB (((pragmatic or practical) n1 "clinical trial*")) OR TI (((non-inferiority or noninferiority or superiority or equivalence) n3 trial*) OR AB (((non-inferiority or noninferiority or superiority or equivalence) n3 trial*))	326,195
	S6	((MH "Meta Analysis") or TX (meta-analy* or metanaly* or metaanaly* or meta analy*) or TX (systematic* N5 review*) or (evidence* N5 review*) or (methodol* N5 review*) or (quantitativ* N5 review*) or TX (systematic* N5 overview*) or (evidence* N5 overview*) or (methodol* N5 overview*) or (quantitativ* N5 overview*) or TX (systematic* N5 survey*) or (evidence* N5 survey*) or (methodol* N5 survey*) or (quantitativ* N5 survey*) or TX (systematic* N5 overview*) or (evidence* N5 overview*) or (methodol* N5 overview*) or (quantitativ* N5 overview*) or TX (pool* N2 data) or (combined N2 data) or (combining N2 data) or (pool* N2 trials) or (combined N2 trials) or (combining N2 trials) or (pool* N2 studies) or (combined N2 studies) or (combining N2 studies) or (pool* N2 results) or (combined N2 results) or (combining N2 results)	193,874
	S5	S1 AND S2 AND S3	618
	S4	S1 AND S2 AND S3	829
	S3	((MH "Residential Facilities+") OR (MH "Residential Care+") OR (MH "Community Living+") OR (MH "Patient Discharge+") OR (MH "Case Management") OR (MH "Continuity of Patient Care+") OR (MH "Primary Health Care") OR (MH "Home Nursing") OR (TI ("nursing home*" OR "home care" OR (rehabilitation n1 (patient* or cent*)) OR "Independent Living" OR ((community or home) n1 dwelling) OR "after discharge" OR discharged OR ((nursing or intervention*) n10 home) OR "case management" OR ((primary or day or home) n3 care) OR homecare OR (survivor* n5 deliri*)) OR (AB ("nursing home*" OR "home care" OR (rehabilitation n1 (patient* or cent*)) OR "Independent Living" OR ((community or home) n1 dwelling) OR "after discharge" OR discharged OR ((nursing or intervention*) n10 home) OR "case management" OR ((primary or day or home) n3 care) OR homecare OR (survivor* n5 deliri*))	320,825
	S2	((MH "After Care") OR (MH "Prospective Studies+") OR (MH "Rehabilitation+") OR (MH "Recovery") OR (MH "Quality of Life+") OR (MH "Psychological Well-Being") OR (TI (long-term OR follow-up OR longterm OR followup OR 'follow up' OR "after care" OR aftercare OR Rehabilitation OR Convalescence OR "quality of life" OR psycholog* OR depress* OR cogniti* OR distress) OR (AB (long-term OR follow-up OR longterm OR followup OR 'follow up' OR "after care" OR aftercare OR Rehabilitation OR Convalescence OR "quality of life" OR psycholog* OR depress* OR cogniti* OR distress)	1,502,934
	S1	((MH "Delirium") OR (TI deliri*) OR (AB deliri*))	10,095