Data supplement: Gould et al. Interventions for reducing benzodiazepine use in older people: meta-analysis of randomised controlled trials. *Br J Psychiatry* 2014; **204**: 98–107.

Table DS1 PRISMA checklist

Section/topic	Checklist item	Page number/ Figure/Table
Title		
Title	Identify the report as a systematic review, meta-analysis, or both.	1
Abstract		
Structured summary	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	2
Introduction		
Rationale	Describe the rationale for the review in the context of what is already known.	4-5
Objectives	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	5
Methods		
Protocol and registration	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	N/A
Eligibility criteria	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	6
Information sources	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	5
Search	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	5-6

Study selection	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	7
Data collection process	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	7-8
Data items	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	Online Supplement Table 2
Risk of bias in individual studies	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	7, 9, Online Supplement Table 3
Summary measures	State the principal summary measures (e.g., risk ratio, difference in means).	7
Synthesis of results	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	7-8
Risk of bias across studies	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	9
Additional analyses	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	10
Results		
Study selection	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	11, Figure 1
Study characteristics	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	Online Supplement Table 2

Risk of bias within studies	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	Online Supplement Table 3
Results of individual studies	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	13-16, Figures 2-5
Synthesis of results	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	13-16, Figures 2-5
Risk of bias across studies	Present results of any assessment of risk of bias across studies (see Item 15).	15-16, Figures 2-5
Additional analysis	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	14-15, 16 Online Supplement Table 4
Discussion		
Summary of evidence	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	16-18
Limitations	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	19-20
Conclusions	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	18-22
Funding		
Funding	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	23

Table DS2 Characteristics of studies included in the meta-analyses

Study	Type of RCT (UoR)	Country	Setting (Tx aimed at)	Tx group (length of Tx period in months[6])	Comp group	Axs in months[6]	N after randomization		Mean age (min. age)	% female	% using BZs at baseline	Reasons for BZ use	Duration of BZ use in months criteria
							Tx	Comp					
Withdrawal studies													
Baillargeon et al. (2003)[63]	Non-cluster (PAT)	Canada	COM (PAT)	SGW with CBT (2)	SGW alone	0, 2, 5, 14	35 PAT	30 PAT	67 (50)	58	100 (Tx), 100 (Comp)	insomnia	3
Cardinali et al. (2002)[64]	Non-cluster (PAT)	Argentina	COM (PAT)	SGW with melatonin (1)	SGW with PP	0, 0.5*, 1*, 1.5	25 PAT	23 PAT	71 (60)	80	100 (Tx), 100 (Comp)	insomnia	N/R
Di Costanzo et al. (1992)[65]	Non-cluster (PAT)	Italy	Outpatient (PAT)	SGW with carbamazepine (1)	SGW with PP	0, 1, 2	18 PAT	18 PAT	N/R (60)	N/R	100 (Tx), 100 (Comp)	anxiety	6
Giblin et al. (1983)[66]	Non-cluster (PAT)	UK	COM (PAT)	SAW with RT & education (1)	SAW alone	0, 1, 2†, 3†, 4†	10 PAT	10 PAT	71 (56)	80	95 (not given for each group)	insomnia	6
Habraken et al. (1997)[67]	Non-cluster (PAT)	Belgium	CH (PAT)	SGW with initial switch to lorazepam & continued use of PP (12)	TAU (continued lorazepa-m)	0, 6*, 12	27 PAT	28 PAT	84 (65)	82	100 (Tx), 100 (Comp)	N/R	12

Morin et al. (2004)[68]	Non-cluster (PAT)	Canada	COM (PAT)	SGW with CBT (2.5)	SGW alone, CBT alone‡	0, 2.5, 5.5, 14.5	27 PAT	25 PAT, 24 PAT	63 (55)	50	100 (Tx), 100 (Comp1), 100 (Comp2)	insomnia	3
Petrovic et al. (2002)[69]	Non-cluster (PAT)	Belgium	Inpatient (PAT)	SGW with initial switch to 1 mg lormetazepam & PC (0.25)	SGW with PP & PC (0.25)	0, 0.11*, 0.25*, 0.5, 1, 13	20 PAT	20 PAT	82 (72)	68	100 (Tx), 100 (Comp)	insomnia & anxiety	3
Salonoja et al. (2010)[70]	Non-cluster (PAT)	Finland	COM (PAT)	EDU, MR, CONS & WP§ (12)	EDU control	0, 12	293 PAT	298 PAT	73 (65)	84	43 (Tx), 45 (Comp)	N/R	N/R
Tham et al. (1989)[71]	Non-cluster (PAT)	Ireland	Inpatient (PAT)	SGW with PP (0.36)	SAW with PP (0.36)	0, 0.36	18 PAT	18 PAT	82 (69)	84	100 (Tx), 100 (Comp)	insomnia	1
Velert Vila et al. (2011, 2012)[72-73]	Non-cluster (PAT)	Spain	COM (PHY & PAT)	EDU & MR, letter & WP§ (12)	TAU	0, 12	173 PAT	164 PAT	74 (65)	75	100 (Tx), 100 (Comp)	insomnia, anxiety & others	N/R
Prescribing studies													
Avorn et al. (1992)[74]	Cluster/MP‖ (CH)	US	CH (PHY & staff)	EDU (5)	TAU	0, 5	6 CH, 431 PAT	6 CH, 392 PAT	N/R (N/R)	N/R	24 (Tx), 25 (Comp)	N/R	N/R
Crotty et al. (2004b)[75]	Cluster/MP‖ (CH)	Australia	CH (PHY & staff)	EDU & audit/PF (7)	TAU	0, 7	10 CH, 381 PAT	10 CH, 334 PAT	84 (N/R)	84	45 (Tx), 44 (Comp)	N/R	N/R

Pit et al. (2007)[76]	Cluster[¶] (GP)	Australia	COM (PHY)	EDU, PF, MRA & MR (U/C)	MRA & PF control	0, 4[*], 12	10 GP, 452 PAT	7 GP, 397 PAT	N/R (65)	N/R	8 (Tx), 12 (Comp)	N/R	N/R
Rikala et al. (2011)[77]	Non-cluster (PAT)	Finland	COM (PAT)	MR[**] (U/C)	TAU	0, 12[*], 24[*], 36	361 PAT	339 PAT	81 (75)	69	19 (Tx), 13 (Comp)	N/R	N/R
Roberts et al. (2001)[78]	Cluster[‖] (CH)	Australia	CH (staff & PHY)	EDU, MR & SS (12)	TAU	0, 12, 22[††]	13 CH, 905 PAT	39 CH, 2325 PAT	N/R (N/R)	N/R	N/R	N/R	N/R
Salonoja et al. (2010)[79]	Non-cluster (PAT)	Finland	COM (PAT)	EDU, MR, CONS & WP[§] (12)	EDU control	0, 12	293 PAT	298 PAT	73 (65)	84	43 (Tx), 45 (Comp)	N/R	N/R
Strikwerda et al. (1994)[80]	Non-cluster (PHY/PAT)	Netherlan-ds	CH (PHY)	Tx1: MR[‡] (1), Tx2: PF[‡] (1)	TAU	0, 1	61 PAT, 65 PAT	70 PAT	85 (59)	75	39 (Tx1), 45 (Tx2), 41 (Comp)	N/R	N/R
Velert Vila et al. (2011, 2012)[72-73]	Non-cluster (PAT)	Spain	COM (PHY & PAT)	EDU & MR, letter & WP[§] (12)	TAU	0, 12	173 PAT	164 PAT	74 (65)	75	100 (Tx), 100 (Comp)	Insomnia, anxiety & others	N/R

Notes: Axs = assessments; CBT = Cognitive Behavioural Therapy; CH = care home; COM = community; CONS = consultation; Cont = control; EDU = education; FU = follow-up; GP = general practice; min. = minimum; MP = matched pairs; MR = medication review; MRA = medication risk assessment; N/R = not reported; PAT = patients; PC = psychological consulting; PF = prescribing feedback; PHY = physicians; PP = pill placebo; RT = relaxation training; SAW = supervised abrupt withdrawal; SGW = supervised gradual withdrawal; SS = staff support; TAU = treatment as usual; Tx = treatment; U/C = exact length of intervention was unclear and so the final follow-up assessment was used as the post-intervention assessment; UoR = unit of randomization; WP = withdrawal plan; [*]mid-intervention Ax period; [†]Ns summed in meta-analyses as there were multiple assessments for the 0.5-3 months follow-up assessment

period; [‡]Ns summed in meta-analyses as there were multiple Tx conditions; [§]WP developed for some but not all patients; [‖]odds ratio adjusted for clustering at the individual-level by current authors; [¶]odds ratio adjusted for clustering at the individual-level by original authors; [**]conducted as part of a comprehensive geriatric assessment which also involved a clinical examination and interventions to improve function and nutrition; [††]only survival rates were assessed at 22 months; [6]calculations based on a 28-day month.

Table DS3 Quality ratings for studies included in the meta-analyses*

Study	Randomization: Sequence generation (A)	Randomization: Allocation concealment (B)	Blinding of outcome assessors (C)†	Incomplete outcome data (D)	Selective reporting of outcome data (E)	No. of inadequate/ unclear ratings	Reasons for quality ratings
Withdrawal studies							
Baillargeon et al. (2003)[63]	adequate	inadequate/ unclear	adequate	adequate	adequate	1	No information about B
Cardinali et al. (2002)[64]	inadequate/ unclear	inadequate/ unclear	inadequate/ unclear	partially adequate	adequate	3	No information about A, B or C; no reasons for dropouts
Di Costanzo et al. (1992)[65]	inadequate/ unclear	inadequate/ unclear	inadequate/ unclear	adequate	partially adequate	3	No information about A, B or C; SAs not pre-specified in Methods
Giblin et al. (1983)[66]	inadequate/ unclear	inadequate/ unclear	inadequate/ unclear	adequate	partially adequate	3	No information about A, B or C; SAs not pre-specified in Methods
Habraken et al. (1997)[67]	inadequate/ unclear	inadequate/ unclear	inadequate/ unclear	adequate	inadequate/ unclear	4	No information about A, B or C; SAs were not performed for some OMs reported in Methods
Morin et al. (2004)[68]	inadequate/ unclear	inadequate/ unclear	inadequate/ unclear	adequate	inadequate/ unclear	4	No information about A, B or C (only reported for sleep technician); some OMs reported in Methods were not reported in Results
Petrovic et al. (2002)[69]	inadequate/ unclear	inadequate/ unclear	inadequate/ unclear	adequate	adequate	3	No information about A, B or C
Salonoja et al.	inadequate/	adequate	inadequate/	adequate	partially	2	No information about A or C; some OMs not reported for

(2010)[70]	unclear		unclear		adequate		comparison group
Tham et al. (1989)[71]	inadequate/ unclear	inadequate/ unclear	inadequate/ unclear	partially adequate	adequate	3	No information about A, B or C
Velert Vila et al. (2011, 2012)[72-73]	adequate	inadequate/ unclear	inadequate/ unclear	adequate	partially adequate	2	No information about B or C; no reasons for reported Ns differing between Velert Vila et al. (2011) and Velert Vila et al. (2012)
Prescribing studies							
Avorn et al. (1992)[74]	inadequate/ unclear	inadequate/ unclear	adequate	partially adequate	partially adequate	2	No information about A or B; no reasons for dropouts; SAs not pre-specified in Methods
Crotty et al. (2004b)[75]	adequate	inadequate/ unclear	partially adequate	inadequate/ unclear	inadequate/ unclear	3	No information about B or C (beyond baseline Ax); no dropout rates for each condition; some OMs reported in Methods were not reported in Results; some SAs not pre-specified in Methods
Pit et al. (2007)[76]	adequate	inadequate/ unclear	adequate	adequate	partially adequate	1	No information about B; some OMs not pre-specified in Methods
Rikala et al. (2011)[77]	inadequate/ unclear	inadequate/ unclear	inadequate/ unclear	adequate	partially adequate	3	No information about A, B or C; some SAs not pre-specified in Methods
Roberts et al. (2001)[78]	adequate	inadequate/ unclear	inadequate/ unclear	adequate	partially adequate	2	No information about B or C; some OMs not pre-specified in Methods
Salonoja et al. (2010)[79]	See above						
Strikwerda et al. (1994)[80]	inadequate/ unclear	inadequate/ unclear	inadequate/ unclear	inadequate/ unclear	adequate	4	No information about A, B or C; no numbers or reasons for dropouts

Velert Vila et al. (2011, 2012)[72-73]	See above

Notes: ITT = intention to treat; Ax = assessment; OM = outcome measure; SAs = statistical analyses; Tx = treatment; *quality ratings were completed after additional data had been sought from authors, where necessary; †blinding of participants and therapists is not included as a potential source of bias since it is difficult to ensure this in RCTs involving interventions such as consultations and psychotherapy.

Table DS4 Subgroup analyses

Subgroup analyses	**No. of studies**	**N in Tx/ control condition**	**Pooled odds ratio (95% CI)**	**Overall effect: Z (P value)**	**Heterogeneity: I^2 %[#] (P value)**	**Prediction interval: 95% CI**	**Publication bias: BC (P value)**	**Subgroup differences: I^2 %[†] (P value)**
Withdrawal studies (N = 10)								
Post-Tx: Intervention								84.30 (0.002,
Withdrawal with prescribing	2	451/441	1.43 (1.02 to 2.02)	2.05 (0.04)	0.00 (0.64)	N/A	UC	sig.[§])
Withdrawal with psychotherapy	4	119/109	5.06 (2.68 to 9.57)	4.99 (<0.00001)	0.00 (0.44)	N/A	0.18 (0.92)	
Withdrawal with pharmacotherapy	3	95/98	1.31 (0.68 to 2.53)	0.81 (0.42)	0.00 (0.75)	N/A	0.36 (0.84)	
Post-Tx: Underlying pathology								87.30 (0.005,
Insomnia	5	149/141	3.88 (2.02 to 7.45)	4.07 (<0.0001)	24.00 (0.26)	0.81 to 18.50	0.52 (0.80)	sig.[§])
Anxiety/mixed/not reported	5	516/507	1.37 (1.00 to 1.88)	1.95 (0.05)	0.00 (0.88)	N/A	-0.07 (0.89)	
Post-Tx: Setting								65.40 (0.09,
Community/outpatient	7	600/582	2.63 (1.44 to 4.80)	3.16 (0.002)	59.00 (0.02)	0.48 to 14.31	1.84 (0.08)	n.s.[§])
Care home/inpatient	3	65/66	1.06 (0.45 to 2.51)	0.13 (0.89)	0.00 (0.75)	N/A	1.67 (0.003)	
0.5-3 months FU: Intervention								0.00 (0.98,
Withdrawal with psychotherapy	4	139/129	3.90 (1.94 to 7.82)	3.83 (0.0001)	36.00 (0.20)	0.36 to 42.16	3.87 (0.17)	n.s.[§])
Withdrawal with pharmacotherapy	1	18/18	4.00 (0.68 to 23.41)	1.54 (0.12)	N/A	N/A	UC	
0.5-3 months FU: Underlying pathology								0.00 (0.98,
Insomnia	3	119/109	4.08 (1.62 to 10.31)	2.98 (0.003)	57.00 (0.10)	0.0002 to 79115.10	5.76 (0.12)	n.s.[§])
Anxiety/mixed/not reported	2	38/38	4.00 (1.33 to 12.00)	2.47 (0.01)	0.00 (1.00)	N/A	UC	

0.5-3 months FU: Setting								0.00 (0.98,
Community/outpatient	4	137/127	3.91 (1.89 to 8.09)	3.68 (0.0002)	36.00 (0.20)	0.32 to 47.65	2.67 (0.31)	n.s.[§])
Care home/inpatient	1	20/20	4.00 (0.98 to 16.27)	1.94 (0.05)	N/A	N/A	UC	
12 months FU: Intervention								N/A
Withdrawal with psychotherapy	3	109/99	3.00 (1.43 to 6.28)	2.92 (0.004)	32.00 (0.23)	0.004 to 2557.04	2.16 (0.66)	
Prescribing studies (N = 8)								
Post-Tx: Intervention								86.10 (0.007,
Multi-faceted	5	1660/1934	1.37 (1.10 to 1.72)	2.76 (0.006)	0.00 (0.94)	N/A	1.03 (0.07)	sig.[‖])
Single-faceted	3	1426/1578	0.87 (0.68 to 1.11)	1.10 (0.27)	0.00 (0.73)	N/A	1.52 (0.19)	
Post-Tx: Setting								62.10 (0.10,
Care home	4	2004/2505	0.99 (0.78 to 1.25)	0.12 (0.90)	6.00 (0.36)	0.59 to 1.65	2.54 (0.22)	n.s.[‖])
Community	4	1082/1007	1.31 (1.02 to 1.67)	2.12 (0.03)	0.00 (0.48)	N/A	0.71 (0.71)	

Notes: UC = unable to calculate; BC = bias coefficient; FU = follow up; [#]describes the percentage of variability in treatment effects between studies due to heterogeneity rather than sampling error or chance; [†]describes the percentage of variability in treatment effects due to subgroup differences rather than sampling error or chance; [§]Bonferroni-corrected alpha level of 0.017, adjusted for the number of subgroup analyses at each time point; [‖]Bonferroni-corrected alpha level of 0.025, adjusted for the number of subgroup analyses at each time point.

Table DS5 Sensitivity analyses

Subgroup analyses	No. of studies	N in Tx/ control condition	Pooled odds ratio (95% CI)	Overall effect: Z (P value)	Heterogeneity: I^2 %[#] (P value)	Prediction interval: 95% CI	Publication bias: BC (P value)	Subgroup differences: I^2 %[†] (P value)
Withdrawal studies								
Post-Tx: Underlying pathology								90.40 (0.001,
Insomnia[*]	5	149/141	3.88 (2.25 to 6.70)	4.87 ((<0.00001)	24.00 (0.26)	N/A	0.52 (0.80)	sig.[‖])
Anxiety/mixed/not reported[*]	5	516/507	1.37 (1.00 to 1.88)	1.95 (0.05)	0.00 (0.88)	N/A	-0.07 (0.89)	
Post-Tx: Setting								36.30 (0.21,
Community/outpatient[*]	7	600/582	1.89 (1.42 to 2.53)	4.32 (<0.0001)	59.00 (0.02)	N/A	1.84 (0.08)	n.s.[‖])
Care home/inpatient[*]	3	65/66	1.06 (0.45 to 2.51)	0.13 (0.89)	0.00 (0.75)	N/A	1.67 (0.003)	
0.5-3 months FU: Intervention								0.00 (0.90,
Withdrawal with psychotherapy[*]	4	139/129	3.57 (2.09 to 6.10)	4.67 (<0.00001)	36.00 (0.20)	N/A	3.87 (0.17)	n.s.[§])
Withdrawal with pharmacotherapy[*]	1	18/18	4.00 (0.68 to 23.41)	1.54 (0.12)	N/A	N/A	UC	
0.5-3 months FU: Underlying pathology								0.00 (0.83,
Insomnia[*]	3	119/109	3.50 (1.97 to 6.25)	4.25 (<0.0001)	57.00 (0.10)	N/A	5.76 (0.12)	n.s.[§])
Anxiety/mixed/not reported[*]	2	38/38	4.00 (1.33 to 12.00)	2.47 (0.01)	0.00 (1.00)	N/A	UC	
0.5-3 months FU: Setting								0.00 (0.88,
Community/outpatient[*]	4	137/127	3.55 (2.05 to 6.15)	4.52 (<0.00001)	36.00 (0.20)	N/A	2.67 (0.31)	n.s.[§])
	1	20/20	4.00 (0.98 to 16.27)	1.94 (0.05)	N/A	N/A	UC	

Care home/inpatient[*]								
12 months FU: Intervention								N/A
Withdrawal with psychotherapy[*]	3	109/99	2.85 (1.59 to 5.10)	3.53 (0.0004)	32.00 (0.23)	N/A	2.16 (0.66)	
Prescribing studies								
Post-Tx: Setting								65.60 (0.09,
Care home[*]	4	2004/2505	0.98 (0.78 to 1.22)	0.20 (0.84)	6.00 (0.36)	N/A	2.54 (0.22)	n.s.[§])
Community[*]	4	1082/1007	1.31 (1.02 to 1.67)	2.12 (0.03)	0.00 (0.48)	N/A	0.71 (0.71)	
Post-Tx: Intervention								86.60 (0.006,
Multi-faceted[¶]	5	1660/1934	1.31 (1.12 to 1.53)	3.37 (0.0008)	0.00 (0.88)	N/A	1.03 (0.07)	sig.[§])
Single-faceted[¶]	3	1426/1578	0.91 (0.74 to 1.12)	0.88 (0.38)	0.00 (0.58)	N/A	1.42 (0.75)	
Post-Tx: Setting								27.20 (0.24,
Care home[¶]	4	2004/2505	1.08 (0.88 to 1.32)	0.72 (0.47)	48.00 (0.12)	0.51 to 2.29	-6.28 (0.29)	n.s.[§])
Community[¶]	4	1082/1007	1.31 (1.02 to 1.67)	2.12 (0.03)	0.00 (0.48)	N/A	0.71 (0.71)	

Notes: UC = unable to calculate; BC = bias coefficient; [*]fixed effects analyses when I^2 was greater than 0 in random effects analyses (as the results of random and fixed effects analyses are the same if $I^2 = 0$); prediction intervals are not applicable in fixed effects analyses; [¶]without adjustments for clustering; [#]describes the percentage of variability in treatment effects between studies due to heterogeneity rather than sampling error or chance; [†]describes the percentage of variability in treatment effects due to subgroup differences rather than sampling error or chance; [§]Bonferroni-corrected alpha level of 0.017, adjusted for the number of subgroup analyses at each time point; [‖]Bonferroni-corrected alpha level of 0.025, adjusted for the number of subgroup analyses at each time point, indicates statistical significance.