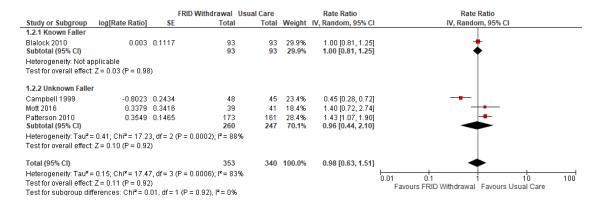
Supplementary Figure S1: OVID Medline Search Strategy

Database(s): OVID Medline Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily and Ovid MEDLINE(R) 1946 to Present Search Strategy:

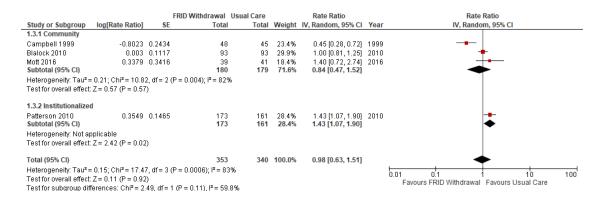
#	Searches
1	exp Accidental Falls/pc [Prevention & Control]
2	fall.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
3	falls.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
4	exp Deprescriptions/
5	((medicat* or drug*) adj3 (deprescrib* or withdraw* or cessat* or stop* or discontin*)).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
6	((antihypertensive* or diuretic* or beta-blocker* or sedative* or hypnotic* or neuroleptic* or antipsychotic* or antidepressant* or benzodiazepine* or narcotic* or opioid* or narcotic* or NSAID*) adj3 (deprescrib* or withdraw* or cessat* or stop* or discontin*)).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
7	fall-risk increasing drugs.mp.
8	FRID.mp.
9	((medicat* or drug*) adj3 (review* or improv* or program*)).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
10	exp "Drug-Related Side Effects and Adverse Reactions"/pc [Prevention & Control]
11	exp Medication Therapy Management/ or exp "Drug Utilization Review"/
12	4 or 5 or 6 or 7 or 8 or 9 or 10 or 11
13	1 or 2 or 3
14	12 and 13
15	remove duplicates from 14
16	exp Clinical Trial/
17	(randomized or randomised).ab,ti.
18	placebo.ab,ti.
19	randomly.ab,ti.
20	groups.ab,ti.
21	randomized controlled trial.pt.
22	controlled clinical trial.pt.
23	16 or 17 or 18 or 19 or 20 or 21 or 22
24	15 and 23

Supplementary Figure S2: Subgroup Analyses

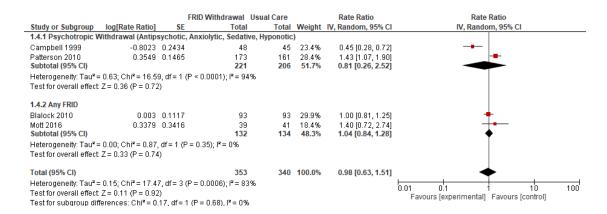
1.2 Falls Rate - Known vs. Unknown Faller



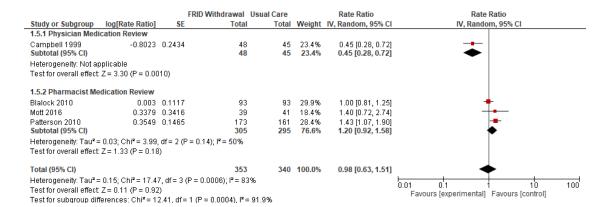
1.3 Falls Rate - Community vs. Institutionalized



1.4 Falls Rate - Psychotropic Withdrawal vs. Any FRID Withdrawal



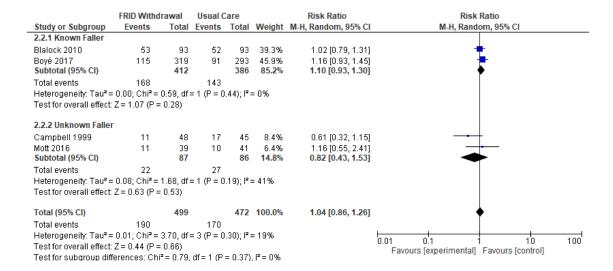
1.5 Falls Rate - Physician vs. Pharmacist Medication Review



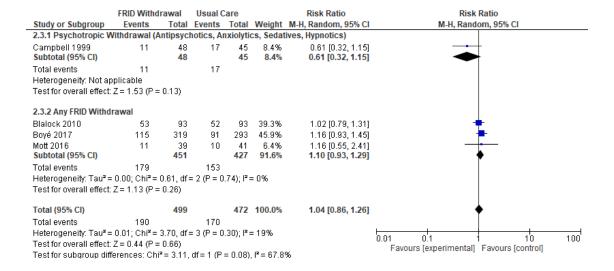
1.6 Falls Rate - Observed vs. Self-Reported Falls

	log[Rate Ratio]	SE	RID Withdrawal Total		Weight	Rate Ratio IV, Random, 95% CI	Rate Ratio IV, Random, 95% CI
1.6.1 Observed Falls Patterson 2010	0.3549	0.1465	173	161	28.4%	1.43 [1.07, 1.90]	<u>*</u>
Subtotal (95% CI) Heterogeneity: Not app Test for overall effect: 2))	173	161	28.4%	1.43 [1.07, 1.90]	•
1.6.2 Self-Reported Fa	•	.)					
Blalock 2010		0.1117	93	93	29.9%	1.00 [0.81, 1.25]	†
Campbell 1999	-0.8023		48	45	23.4%	0.45 [0.28, 0.72]	
Mott 2016 Subtotal (95% CI)	0.3379	0.3416	39 180	41 179	18.4% 71.6 %	1.40 [0.72, 2.74] 0.84 [0.47, 1.52]	•
Heterogeneity: Tau² = 1 Test for overall effect: 2			P = 0.004); I ² = 82%	·			
Total (95% CI) Heterogeneity: Tau² = 1 Test for overall effect: 2 Test for subgroup diffe	Z = 0.11 (P = 0.92	2)		%	100.0%	0.98 [0.63, 1.51]	0.01 0.1 10 100 Favours [experimental] Favours [control]

2.2 Falls Incidence - Known vs. Unknown Faller



2.3 Falls Incidence - Psychotropic Withdrawal vs. Any FRID Withdrawal



2.4 Falls Incidence - Physician vs. Pharmacist Medication Review

	FRID Withdi	awal	Usual C	are		Risk Ratio	Risk Ratio						
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI						
2.4.1 Physician Medic	cation Review	v											
Boyé 2017	115	319	91	293	45.9%	1.16 [0.93, 1.45]	-						
Campbell 1999 Subtotal (95% CI)	11	48 367	17	45 338	8.4% 54.2%	0.61 [0.32, 1.15] 0.90 [0.48, 1.68]	•						
Total events	126		108										
Heterogeneity: Tau² = Test for overall effect:			= 1 (P = 0	.06); l²:	= 72%								
2.4.2 Pharmacist Med	dication Revi	ew											
Blalock 2010	53	93	52	93	39.3%	1.02 [0.79, 1.31]	+						
Mott 2016 Subtotal (95% CI)	11	39 132	10	41 134	6.4% 45.8%	1.16 [0.55, 2.41] 1.03 [0.81, 1.31]	•						
Total events	64		62										
- '	Heterogeneity: Tau² = 0.00; Chi² = 0.11, df = 1 (P = 0.75); l² = 0% Test for overall effect: Z = 0.27 (P = 0.79)												
Total (95% CI)		499		472	100.0%	1.04 [0.86, 1.26]	•						
Total events Heterogeneity: Tau² = Test for overall effect: Test for subgroup diffe	Z = 0.44 (P =	0.66)	•				0.01 0.1 10 100 Favours [experimental] Favours [control]						

<u>Supplementary Table S1: Subgroup Credibility Assessment – Clinician Medication Review</u>

Physician vs. Pharmacist Medication Review Subgroup for Falls Rate

Design	Criteria Met?
Is the subgroup variable a characteristic measured at baseline or after randomization?	Yes – Variable determined at baseline
Is the effect suggested by comparisons within rather between studies?	No – Comparison between studies
Was the hypothesis specified a priori?	Yes
Was the direction of the subgroup effect specified a priori?	No
Was the subgroup effect one of a small number of hypothesized effects tested?	Yes – 1 of 5 analyses
Analysis	
Does the interaction test suggest a low likelihood that chance explains the apparent subgroup effect?	Yes - p = 0.0004
Is the significant subgroup effect independent?	Yes
Context	
Is the size of the subgroup effect large?	Yes – RaR 0.45 vs. 1.20
Is the interaction consistent across studies?	No
Is the interaction consistent across closely related outcomes within the study?	No – Subgroup interaction was not seen for incidence of falls
Is there indirect evidence that supports the hypothesized interaction (biological rationale)?	No - No compelling external evidence supporting subgroup hypothesis

<u>Supplementary Table S2: Subgroup Credibility Assessment – FRID Withdrawal Type</u>

Antipsychotic vs. Any FRID Withdrawal for Falls Incidence

Design	Criteria Met?					
Is the subgroup variable a characteristic measured at baseline or after randomization?	Yes – Variable determined at baseline					
Is the effect suggested by comparisons within rather between studies?	No – Comparison between studies					
Was the hypothesis specified a priori?	Yes					
Was the direction of the subgroup effect specified a priori?	No					
Was the subgroup effect one of a small number of hypothesized effects tested?	Yes – 1 of 3 analyses					
Analysis						
Does the interaction test suggest a low likelihood that chance explains the apparent subgroup effect?	Yes - p=0.06					
Is the significant subgroup effect independent?	No					
Context						
Is the size of the subgroup effect large?	Yes – RR 0.61 vs. 1.14					
Is the interaction consistent across studies?	No					
Is the interaction consistent across closely related outcomes within the study?	No – Subgroup interaction was not seen for rate of falls					
Is there indirect evidence that supports the hypothesized interaction (biological rationale)?	Yes – Antipsychotics associated with one of highest risks of falls. The withdrawal of any FRID may involve withdrawal of those with lower risks and limit potential benefit.					

Supplementary Figure S3: Sensitivity Analyses

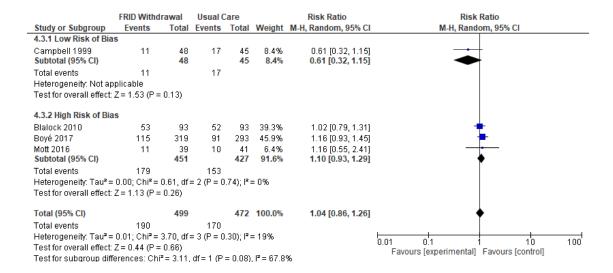
4.1 Falls Rate - Low vs. High Risk of Bias due to Blinding

			FRID Withdrawal U	Usual Care		Rate Ratio	Rate Ratio
Study or Subgroup	log[Rate Ratio]	SE	Total	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
4.1.1 Low Risk of Bia	as						
Campbell 1999	-0.8023	0.2434	48	45	23.4%	0.45 [0.28, 0.72]	
Subtotal (95% CI)			48	45	23.4%	0.45 [0.28, 0.72]	•
Heterogeneity: Not ap	pplicable						
Test for overall effect	: Z= 3.30 (P = 0.00	110)					
4.1.2 High Risk of Bia	as						
Blalock 2010	0.003	0.1117	93	93	29.9%	1.00 [0.81, 1.25]	+
Mott 2016	0.3379	0.3416	39	41	18.4%	1.40 [0.72, 2.74]	
Patterson 2010	0.3549	0.1465	173	161	28.4%	1.43 [1.07, 1.90]	. •
Subtotal (95% CI)			305	295	76.6%	1.20 [0.92, 1.58]	◆
Heterogeneity: Tau ² =	= 0.03; Chi² = 3.99	df = 2 (F	° = 0.14); I² = 50%				
Test for overall effect	: Z= 1.33 (P = 0.18	3)					
Total (95% CI)			353	340	100.0%	0.98 [0.63, 1.51]	*
Heterogeneity: Tau ² =	= 0.15; Chi ² = 17.4	7, df = 3 ($(P = 0.0006); I^2 = 839$	%			0.01 0.1 1.00
Test for overall effect	Z = 0.11 (P = 0.92	2)					0.01 0.1 1 10 100 Favours [experimental] Favours [control]
Test for subgroup dif	ferences: Chi ² = 1	2.41. df=	1 (P = 0.0004), P = 1	91.9%			r avours [experimental] i avours [control]

4.2 Falls Rate - Low vs. High Risk of Bias due to Attritional Bias

			FRID Withdrawal	Usual Care		Rate Ratio	Rate Ratio
Study or Subgroup Id	og[Rate Ratio]	SE	Total	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
4.2.1 Low Risk of Bias							
Mott 2016	0.3379	0.3416	39	41	18.4%	1.40 [0.72, 2.74]	
Patterson 2010	0.3549	0.1465	173	161	28.4%	1.43 [1.07, 1.90]	-
Subtotal (95% CI)			212	202	46.8%	1.42 [1.09, 1.85]	◆
Heterogeneity: Tau ² = 0.	.00; Chi ² = 0.00 ,	df = 1 (P	'= 0.96); I ² = 0%				
Test for overall effect: Z =	= 2.62 (P = 0.00	9)					
4.2.2 High Risk of Bias							
Blalock 2010	0.003	0.1117	93	93	29.9%	1.00 [0.81, 1.25]	+
Campbell 1999	-0.8023	0.2434	48	45	23.4%	0.45 [0.28, 0.72]	
Subtotal (95% CI)			141	138	53.2%	0.69 [0.31, 1.52]	◆
Heterogeneity: Tau ² = 0.	.29; Chi² = 9.04,	df = 1 (P	$' = 0.003$); $I^2 = 89\%$				
Test for overall effect: Z =	= 0.92 (P = 0.36)					
Total (95% CI)			353	340	100.0%	0.98 [0.63, 1.51]	*
Heterogeneity: Tau ² = 0.	.15; Chi² = 17.43	7, df = 3 ((P = 0.0006); P = 83	%			
Test for overall effect: Z =	= 0.11 (P = 0.92)					0.01 0.1 1 10 100 Favours [experimental] Favours [control]
Test for subgroup differe	ences: Chi² = 2.	91. df = 1	I(P = 0.09), P = 65.	7%			ravours (experimental) ravours (control)

4.3 Falls Incidence - Low vs. High Risk of Bias due to Blinding



4.4 Falls Incidence - Low vs. High Risk of Bias due to Attrition Bias

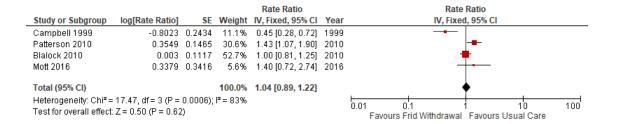
	FRID Withd	rawal	Usual C	Care	Risk Ratio		Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% CI	M-H, Random, 95% CI
4.4.1 Low Risk of Bia	S						
Mott 2016	11	39	10	41	6.4%	1.16 [0.55, 2.41]	
Subtotal (95% CI)		39		41	6.4%	1.16 [0.55, 2.41]	•
Total events	11		10				
Heterogeneity: Not ap	plicable						
Test for overall effect:	Z= 0.39 (P=	0.70)					
4.4.2 High Risk of Bia	s						
Blalock 2010	53	93	52	93	39.3%	1.02 [0.79, 1.31]	+
Boyé 2017	115	319	91	293	45.9%	1.16 [0.93, 1.45]	+
Campbell 1999	11	48	17	45	8.4%	0.61 [0.32, 1.15]	-
Subtotal (95% CI)		460		431	93.6%	1.02 [0.80, 1.30]	•
Total events	179		160				
Heterogeneity: Tau² =			= 2 (P = 0	l.16); l² :	= 45%		
Test for overall effect:	Z= 0.13 (P=	0.90)					
Total (95% CI)		499		472	100.0%	1.04 [0.86, 1.26]	+
Total events	190		170				
Heterogeneity: Tau² =	0.01; Chi ² =	3.70, df:	= 3 (P = 0)	i.30); l² :	= 19%		0.01 0.1 1 10 100
Test for overall effect:	Z = 0.44 (P =	0.66)					Favours [experimental] Favours [control]
Test for subgroup diff	erences: Chi	$^{2} = 0.11$	df = 1 (P	= 0.74)	, I² = 0%		ratouro (experimental) Tavouro (control)

4.5 Falls Rate – Random vs. Effects Model

Random Effects Model

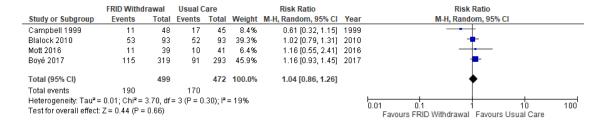
			FRID Withdrawal	Usual Care		Rate Ratio		Rate Ratio
Study or Subgroup	log[Rate Ratio]	SE	Total	Total	Weight	IV, Random, 95% CI	Year	IV, Random, 95% CI
Campbell 1999	-0.8023	0.2434	48	45	23.4%	0.45 [0.28, 0.72]	1999	
Patterson 2010	0.3549	0.1465	173	161	28.4%	1.43 [1.07, 1.90]	2010	<u>+</u> -
Blalock 2010	0.003	0.1117	93	93	29.9%	1.00 [0.81, 1.25]	2010	*
Mott 2016	0.3379	0.3416	39	41	18.4%	1.40 [0.72, 2.74]	2016	+-
Total (95% CI)			353	340	100.0%	0.98 [0.63, 1.51]		+
Heterogeneity: Tau ² = Test for overall effect:		(P = 0.0006); I ² = 83	1%				0.001 0.1 1 10 1000	
restroi overali ellect.	2-0.11 (1-0.32	7				Favours Frid Withdrawal Favours Usual Care		

Fixed Effects Model



4.6 Falls Incidence - Random vs. Fixed Effects Model

Random Effects Model



	FRID Withd	rawal	Usual C	Care		Risk Ratio		Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% CI	Year	M-H, Fixed, 95% CI
Campbell 1999	11	48	17	45	10.3%	0.61 [0.32, 1.15]	1999	_
Blalock 2010	53	93	52	93	30.5%	1.02 [0.79, 1.31]	2010	+
Mott 2016	11	39	10	41	5.7%	1.16 [0.55, 2.41]	2016	
Boyé 2017	115	308	91	308	53.4%	1.26 [1.01, 1.58]	2017	•
Total (95% CI)		488		487	100.0%	1.12 [0.95, 1.31]		•
Total events	190		170					
Heterogeneity: Chi²=	5.16, df = 3 (P = 0.16); I ² = 429	6				0.01 0.1 1 10 100
Test for overall effect:	Z=1.32 (P=	0.19)						Favours FRID Withdrawal Favours Usual Care

Fixed Effects Model

	FRID Withd	rawal	Usual C	are		Risk Ratio		Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% CI	Year	M-H, Fixed, 95% CI
Campbell 1999	11	48	17	45	10.1%	0.61 [0.32, 1.15]	1999	
Blalock 2010	53	93	52	93	29.9%	1.02 [0.79, 1.31]	2010	+
Mott 2016	11	39	10	41	5.6%	1.16 [0.55, 2.41]	2016	
Boyé 2017	115	319	91	293	54.5%	1.16 [0.93, 1.45]	2017	-
Total (95% CI)		499		472	100.0%	1.06 [0.90, 1.25]		•
Total events	190		170					
Heterogeneity: Chi²=	3.70, df = 3 (P = 0.30); I ^z = 19%	6				0.01 0.1 1 10 100
Test for overall effect:	Z= 0.74 (P=	0.46)						Favours FRID Withdrawal Favours Usual Care