

Appendix 1: Supplementary data

Drug prescription patterns, polypharmacy and potentially inappropriate medication in Swiss nursing homes: a descriptive analysis based on claims data

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Table S1: The 15 most frequent drugs and the prevalence of their use in the RG (individuals aged ≥65 years insured with Helsana, excluding NHR) compared to NHR, ranked by number of drug claims, year 2016.

Active agent	ATC code	Number of drug claims in RG	Rank	Number of drug claims in NHR	Rank	Prevalence of use in the RG (%)	Prevalence of use in NHR (%)
Acetylsalicylic acid	B01AC06	1,220,562	1	93,777	11	29.4	32.1
Paracetamol	N02BE01	1,202,864	2	260,221	1	34.6	54.4
Electrolyte solutions	B05BB01	1,052,306	3	41,012	30	24.1	15.7
Pantoprazole	A02BC02	963,136	4	130,073	5	26.3	35.6
Artificial tear fluid	S01XA20	932,207	5	106,754	9	22.1	22.7
Atorvastatin	C10AA05	651,701	6	32,126	45	17.1	10.6
Colecalciferol	A11CC05	640,780	7	128,905	7	17.8	32.0
Calcium + vitamin D	A12AX	614,066	8	84,489	12	17.6	25.7
Zolpidem	N05CF02	588,007	9	72,538	15	8.4	13.0
Diclofenac (topical)	M02AA15	552,445	10	94,657	10	16.7	30.0
Metformin	A10BA02	517,148	11	36,659	37	8.3	6.5
Torasemide	C03CA04	511,162	12	143,192	3	11.7	38.3
Metamizole	N02BB02	506,310	13	260,221	2	14.0	32.0
Metoprolol	C07AB02	499,367	14	43,162	27	10.8	13.3
Lorazepam	N05BA06	427,467	15	72,715	14	7.9	19.9

ATC = Anatomical Therapeutic Chemical classification system; NHR = nursing home residents; RG = reference group

Table S2: The 15 most frequent PIMs and the prevalence of their use in NHR according to the 2015 Beers criteria and PRISCUS list, ranked by total number of recipients, stratified by sex, year 2016.

Rank total	PIM active agent	ATC code	List: Beers (B) or PRISCUS (P)	No of female NHR with claim	Prevalence of use among female NHR (%)	No of male NHR with claim	Prevalence of use among male NHR (%)
1	Quetiapine	N05AH04	B	13,728	21.0	6,657	25.9
2	Lorazepam	N05BA06	B/P	13,826	21.1	4,884	19.0
3	Zolpidem	N05CF02	B/P	8783	13.4	3023	11.8
4	Paraffin oil	A06AA01	P	7906	12.1	6950	27.1
5	Risperidone	N05AX08	B	6215	9.5	2534	9.9
6	Pipamperone	N05AD05	B	5434	8.3	2376	9.3
7	Haloperidol	N05AD01	B/P	5122	7.8	2091	8.2
8	Ibuprofen	M01AE01	B	5159	7.9	1620	6.3
9	Oxazepam	N05BA04	B/P	4691	7.2	1266	4.9
10	Metoclopramide	A03FA01	B	4263	6.5	1135	4.4
11	Belladonna alkaloids*	A03B	B	4590	7.0	4484	17.5
12	Diclofenac p.o.	M01AB05	B	2979	4.5	1184	4.6
13	Nitrofurantoin	J01XE01	B/P	3196	4.9	535	2.1
14	Estriol	G03CA04	B	2807	4.3	-	-
15	Hydroxyzine	N05BB01	B/P	1972	3.0	812	3.2
Total PIM Beers and PRISCUS			B/P	52,554	80.2	19,561	76.3
Total PIM Beers			B	49,197	75.1	18,293	71.3
Total PIM PRISCUS			P	40,229	61.4	14,024	54.7
ATC = Anatomical Therapeutic Chemical Classification System; NHR = nursing home residents; No = number; PIM = potentially inappropriate medication; p.o. = peroral * Including derivatives such as butylscopolamine (antispasmodic agent)							

Table S3: NHR with ≥ 1 PIM claim according to the 2015 Beers criteria and PRISCUS list, stratified by canton of residence, ranked by prevalence of PIM use, year 2016.

Rank	Canton of residence	Number of NHR	Number of NHR with ≥ 1 PIM claim	Prevalence of PIM use in NHR (%)	Deviation from average prevalence of PIM use in NHR (%)*
1	NW	529	464	87.6	+10.8
2	BS	3241	2775	85.6	+8.2
3	NE	2456	2091	85.1	+7.6
4	VS	3843	3230	84.0	+6.2
5	GE	5915	4937	83.5	+5.5
6	BL	3638	3006	82.6	+4.5
7	TG	3234	2669	82.5	+4.3
8	JU	702	576	82.1	+3.7
9	SO	3363	2723	81.0	+2.4
10	AI	232	188	80.9	+2.3
11	SZ	2006	1604	79.9	+1.1
12	GR	2815	2246	79.8	+0.9
13	AG	5433	4287	78.9	-0.3
14	SG	7354	5797	78.8	-0.3
15	GL	781	615	78.7	-0.5
16	LU	4161	3266	78.5	-0.8
17	UR	603	473	78.5	-0.8
18	ZH	18,866	14,620	77.5	-2.0
19	VD	7249	5550	76.6	-3.2
20	BE	10,459	7,915	75.7	-4.3
21	AR	1108	820	74.0	-6.4
22	ZG	1064	786	73.8	-6.7
23	SH	1539	1076	69.9	-11.6
24	OW	444	298	67.2	-15.1

AG = Aargau; AI = Appenzell Innerrhoden; AR = Appenzell Ausserrhoden; BE = Bern; BL = Basel-Landschaft; BS = Basel-Stadt; FR = Freiburg; GE = Genf; GL = Glarus; GR = Graubünden; JU = Jura; LU = Luzern; NE = Neuenburg; NW = Nidwalden; OW = Obwalden; SG = St. Gallen; SH = Schaffhausen; SO = Solothurn; SZ = Schwyz; TG = Thurgau; TI = Tessin; UR = Uri; VD = Waadt; VS = Wallis; ZG = Zug; ZH = Zürich
 *average prevalence of NHR with ≥ 1 PIM claim: 79.1%
 FR, TI: not applicable (invoices for nursing care based on lump sums)

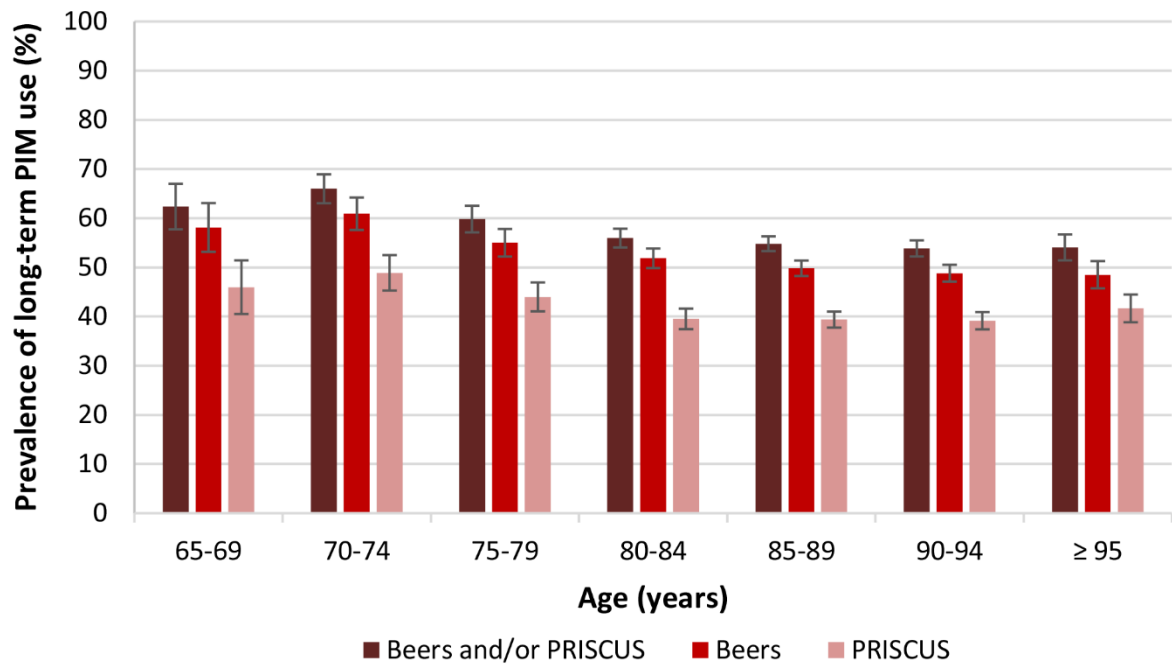


Figure S1: Prevalence of long-term use of PIM (%) with 95% confidence intervals in NHR across different age groups, stratified by criteria used (Beers criteria, Priscus list), or a combination of both, year 2016.