

Supplementary material

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Table S1. NFZ contract products of the study period relating to Polish programs for the use of drugs in the treatment of CD or UC.

Code for product	Name of product	Years
03.0001.332.02	Substancje czynne w programie lekowym „ <i>Leczenie choroby Leśniowskiego-Crohna</i> ”	2012-2020
03.0000.332.02	Program lekowy – „ <i>Leczenie choroby Leśniowskiego-Crohna</i> ”	2012-2020
03.0001.355.02	Substancje czynne programie lekowym „ <i>Leczenie pacjentów z wrzodziejącym zapaleniem jelita grubego</i> ”	2014-2020
03.0000.355.02	Program lekowy – „ <i>Leczenie pacjentów z wrzodziejącym zapaleniem jelita grubego</i> ”	2014-2020

Abbreviations: DRG = diagnosis-related group; CD = Crohn’s disease; UC = ulcerative colitis

Table S2. Active ingredients and trade names of supplied drugs taken as verifying status as an IBD patient^a.

Active ingredient	Trade names
Sulfasalazine	<i>Salazopyrin EN, Sulfasalazin</i>
Mesalazine	<i>Asamax, Crohnax, Pentasa, Salofalk</i>
Azathioprine	<i>Azathioprine, Imuran</i>
Mercaptopurine	<i>Mercaptopurinum</i>
Budesonide	<i>Cortiment MMX, Entocort</i>
Methylprednisolone	<i>Metypred</i>
Prednisone	<i>Encorton</i>

Abbreviation: IBD = inflammatory bowel disease

^a Biological drugs and new molecules are not prescription drugs in Poland: they are reimbursed through hospitals’ pharmacies and so are not included in the analysis. Metotrexate was not fully reimbursed in IBD in the years covered by the analysis, and the drug was not included.

Table S3. ICD-9 codes and names assigned to types of intestinal surgery taken as verifying status as an IBD patient.

ICD-9 Code	Description
45.61	Multiple segmental resection of small intestine
45.62	Other partial resection of small intestine
45.71	Open and other multiple segmental resection of large intestine
45.72	Open and other cecectomy
45.73	Open and other right hemicolectomy
45.75	Open and other left hemicolectomy
45.76	Open and other sigmoidectomy
45.79	Other and unspecified partial excision of large intestine
45.91	Small-to-small intestinal anastomosis
45.93	Other small-to-large intestinal anastomosis
45.92	Anastomosis of small intestine to rectal stump
46.01	Exteriorization of small intestine
46.02	Resection of exteriorized segment of small intestine
46.03	Exteriorization of large intestine
46.11	Temporary colostomy
46.13	Permanent colostomy
46.21	Temporary ileostomy
46.22	Continent ileostomy
46.23	Other permanent ileostomy
46.52	Closure of stoma of large intestine
46.93	Revision of anastomosis of small intestine
46.94	Revision of anastomosis of large intestine
48.82	Excision of perirectal tissue
48.93	Repair of perirectal fistula

Abbreviations: ICD-9 = International Classification of Diseases, Ninth Revision; IBD = inflammatory bowel disease

Table S4. Numbers of CD patients (and percentages of all such patients) of different age groups participating in Polish therapeutic programs in the years 2012-2020.

	2012	2013	2014	2015	2016	2017	2018	2019	2020
<10 years									
No. treated	5	7	10	8	9	14	13	6	7
CD prevalence	164	184	187	189	193	179	171	166	138
Rate (%)	3	3.8	5.3	4.2	4.7	7.8	7.6	3.6	5.1
10-19									
No. treated	133	171	203	205	218	255	327	344	345
CD prevalence	1123	1229	1381	1481	1586	1654	1689	1708	1592
Rate (%)	11.8	13.9	14.7	13.8	13.7	15.4	19.4	20.1	21.7
20-29									
No. treated	281	309	393	440	427	456	493	536	537
CD prevalence	2625	3024	3373	3644	3915	4152	4355	4450	4422
Rate (%)	10.7	10.2	11.7	12.1	10.9	11	11.3	12	12.1
30-39									
No. treated	191	223	284	335	357	404	473	489	497
CD prevalence	2521	3040	3515	3989	4377	4740	5153	5463	5618
Rate (%)	7.6	7.3	8.1	8.4	8.2	8.5	9.2	9	8.8
40-49									
No. treated	83	92	111	148	174	200	225	284	282
CD prevalence	1526	1802	2106	2455	2827	3235	3628	4065	4314
Rate (%)	5.4	5.1	5.3	6	6.2	6.2	6.2	7	6.5
50-59									
No. treated	40	46	55	71	89	85	83	102	124
CD prevalence	1457	1659	1873	2021	2152	2317	2443	2565	2682
Rate (%)	2.7	2.8	2.9	3.5	4.1	3.7	3.4	4	4.6
60-69									
No. treated	17	15	25	30	35	36	44	52	55
CD prevalence	1062	1324	1615	1944	2185	2406	2629	2768	2786
Rate (%)	1.6	1.1	1.5	1.5	1.6	1.5	1.7	1.9	2
>70 years									
No. treated	1	0	3	2	3	4	5	10	16
CD prevalence	629	760	903	1061	1242	1442	1644	1873	2022
Rate (%)	0.2	0	0.3	0.2	0.2	0.3	0.3	0.5	0.8

Abbreviations: CD = Crohn's disease, No. = Number of

Table S5. Numbers of CD patients (and percentages of all such patients) in different Polish voivodeships participating in therapeutic programs.

	2012	2013	2014	2015	2016	2017	2018	2019	2020
Dolnośląskie									
No. treated	35	30	39	50	54	71	83	96	91
CD prevalence	895	1029	1193	1318	1440	1547	1651	1731	1767
Rate (%)	3.9	2.9	3.3	3.8	3.8	4.6	5	5.5	5.1
Kujawsko-Pomorskie									
No. treated	74	88	94	112	113	100	110	129	155
CD prevalence	757	890	1007	1141	1237	1346	1452	1515	1556
Rate (%)	9.8	9.9	9.3	9.8	9.1	7.4	7.6	8.5	10
Lubelskie									
No. treated	36	34	53	65	64	75	73	93	102
CD prevalence	644	678	866	969	1072	1168	1253	1340	1370

Rate (%)	5.6	4.4	6.1	6.7	6	6.4	5.8	6.9	7.4
Lubuskie									
No. treated	3	2	10	27	55	62	59	48	5
CD prevalence	179	215	266	299	333	373	4000	422	431
Rate (%)	1.7	0.9	3.8	9	16.5	16.6	14.8	11.4	1.2
Łódzkie									
No. treated	87	98	102	82	66	68	76	92	104
CD prevalence	660	774	876	960	1061	1145	1235	1322	1341
Rate (%)	13.2	12.7	11.6	8.5	6.2	5.9	6.2	7	7.8
Małopolskie									
No. treated	49	68	87	91	86	97	131	150	160
CD prevalence	1108	1327	1525	1720	1915	2099	2270	2432	2518
Rate (%)	4.4	5.1	5.7	5.3	4.5	4.6	5.8	6.2	6.4
Mazowieckie									
No. treated	208	225	284	322	357	437	470	469	499
CD prevalence	1844	2128	2426	2699	2934	3172	3369	3578	3623
Rate (%)	11.3	10.6	11.7	11.9	12.2	13.8	14	13.1	13.8
Opolskie									
No. treated	11	15	21	28	29	31	38	25	17
CD prevalence	187	228	265	302	338	373	401	432	450
Rate (%)	5.9	6.6	7.9	9.3	8.6	8.3	9.5	5.8	3.8
Podkarpackie									
No. treated	29	33	57	70	84	90	113	132	148
CD prevalence	487	579	701	819	910	1022	1125	1214	1246
Rate (%)	6	5.7	8.1	8.5	9.2	8.8	10	10.9	11.9
Podlaskie									
No. treated	14	14	15	23	26	32	43	54	53
CD prevalence	315	373	428	462	510	558	606	623	631
Rate (%)	4.4	3.8	3.5	5	5.1	5.7	7.1	8.7	8.4
Pomorskie									
No. treated	16	16	43	58	56	74	93	107	103
CD prevalence	580	687	782	865	953	1050	1156	1223	1251
Rate (%)	2.8	2.3	5.5	6.7	5.9	7	8	8.7	8.2
Śląskie									
No. treated	89	109	116	123	129	135	143	164	138
CD prevalence	1426	1642	1859	2071	2249	2437	2580	2711	2776
Rate (%)	6.2	6.6	5.9	5.7	5.5	5.5	5.5	6	5
Świętokrzyskie									
No. treated	10	22	28	33	35	26	26	27	28
CD prevalence	280	331	380	448	498	536	578	623	635
Rate (%)	3.6	6.6	7.4	7.4	7	4.9	4.5	4.3	4.4
Warmińsko-Mazurskie									
No. treated	18	20	28	25	23	23	28	26	28
CD prevalence	389	473	551	619	688	752	813	852	861
Rate (%)	4.6	4.2	5.1	4	3.3	3.1	3.4	3.1	3.3
Wielkopolskie									
No. treated	60	71	75	91	94	88	119	156	184
CD prevalence	873	1030	1186	1354	1513	1657	1834	1976	2036
Rate (%)	6.9	6.9	6.3	6.7	6.2	5.3	6.5	7.9	9
Zachodniopomorskie									
No. treated	12	18	32	39	41	45	58	55	48
CD prevalence	483	548	642	738	826	890	989	1064	1082
Rate (%)	2.5	3.3	5	5.3	5	5.1	5.9	5.2	4.4

Abbreviations: CD = Crohn's disease; No. = Number of;

Table S6. Numbers of UC patients (and percentages of all such patients) of different age groups participating in Polish therapeutic programs in the years 2014-2020.

	2014	2015	2016	2017	2018	2019	2020
<10 years							
No. treated	0	0	0	3	6	9	8
UC prevalence	212	225	236	240	238	242	196
Rate (%)	0	0	0	1.2	2.5	3.7	4.1
10-19							
No. treated	8	5	7	30	83	114	121
UC prevalence	1581	1697	1734	1807	1853	1931	1868
Rate (%)	0.5	0.3	0.4	1.7	4.5	5.9	6.5
20-29							
No. treated	54	83	83	106	159	253	292
UC prevalence	6150	6518	6843	7149	7307	7313	6930
Rate (%)	0.9	1.3	1.2	1.5	2.2	3.5	4.2
30-39							
No. treated	55	89	71	115	185	279	327
UC prevalence	9307	10388	11379	12095	12787	13275	13332
Rate (%)	0.6	0.9	0.6	1	1.4	2.1	2.5
40-49							
No. treated	33	63	35	67	124	201	220
UC prevalence	7869	8869	9766	10712	11639	12610	13296
Rate (%)	0.4	0.7	0.4	0.6	1.1	1.6	1.7
50-59							
No. treated	36	35	35	45	73	80	106
UC prevalence	9255	9756	10263	10602	10907	11066	11125
Rate (%)	0.4	0.4	0.3	0.4	0.7	0.7	1
60-69							
No. treated	20	21	16	34	51	72	75
UC prevalence	9355	10724	11784	12763	13568	14242	14261
Rate (%)	0.2	0.2	0.1	0.3	0.4	0.5	0.5
>70 years							
No. treated	1	2	4	7	11	13	25
UC prevalence	6049	6828	7919	9100	10247	11401	12227
Rate (%)	0	0	0.1	0.1	0.1	0.1	0.2

Abbreviations: No, Number of; UC, ulcerative colitis

Table S7. Numbers of UC patients (and percentages of all such patients) in different Polish voivodeships participating in therapeutic programs, 2014-2020.

	2014	2015	2016	2017	2018	2019	2020
Dolnośląskie							
No. treated	10	9	8	14	30	51	61
UC prevalence	4015	4375	4706	4992	5204	5422	5475
Rate (%)	0.2	0.2	0.2	0.3	0.6	0.9	1.1
Kujawsko-Pomorskie							
No. treated	9	13	18	20	38	49	62
UC prevalence	2989	3282	3557	3813	4030	4221	4289
Rate (%)	0.3	0.4	0.5	0.5	0.9	1.2	1.4
Lubelskie							
No. treated	18	32	24	30	32	43	58
UC prevalence	2777	3073	3341	3572	3800	3992	4071
Rate (%)	0.6	1	0.7	0.8	0.8	1.1	1.4

Lubuskie								
No. treated	7	13	11	27	36	43	4	
UC prevalence	1303	1470	1612	1752	1861	1958	1993	
Rate (%)	0.5	0.9	0.7	1.5	1.9	2.2	0.2	
Łódzkie								
No. treated	21	28	22	46	65	79	91	
UC prevalence	2878	3229	3519	3819	4088	4267	4327	
Rate (%)	0.7	0.9	0.6	1.2	1.6	1.9	2.1	
Małopolskie								
No. treated	9	19	14	14	27	47	47	
UC prevalence	4122	4599	5005	5390	5722	6065	6181	
Rate (%)	0.2	0.4	0.3	0.3	0.5	0.8	0.8	
Mazowieckie								
No. treated	58	64	54	102	172	260	283	
UC prevalence	6415	7049	7639	8262	8774	9277	9415	
Rate (%)	0.9	0.9	0.7	1.2	2	2.8	3	
Opolskie								
No. treated	8	13	11	12	18	16	12	
UC prevalence	1426	1558	1689	1779	1877	1974	2014	
Rate (%)	0.6	0.8	0.7	0.7	1	0.8	0.6	
Podkarpackie								
No. treated	12	28	24	46	53	70	82	
UC prevalence	2699	3009	3335	3626	3869	4066	4147	
Rate (%)	0.4	0.9	0.7	1.3	1.4	1.7	2	
Podlaskie								
No. treated	3	4	5	6	24	39	40	
UC prevalence	1406	1546	1726	1885	2014	2119	2152	
Rate (%)	0.2	0.3	0.3	0.3	1.2	1.8	1.9	
Pomorskie								
No. treated	12	23	9	27	57	77	87	
UC prevalence	3632	3957	4238	4537	4805	5018	5074	
Rate (%)	0.3	0.6	0.2	0.6	1.2	1.5	1.7	
Śląskie								
No. treated	12	10	19	24	51	66	86	
UC prevalence	6576	7216	7799	8320	8868	9287	9404	
Rate (%)	0.2	0.1	0.2	0.3	0.6	0.7	0.9	
Świętokrzyskie								
No. treated	10	12	12	13	23	51	65	
UC prevalence	1410	1586	1727	1848	1952	2055	2079	
Rate (%)	0.7	0.8	0.7	0.7	1.2	2.5	3.1	
Warmińsko-Mazurskie								
No. treated	2	1	0	2	3	3	5	
UC prevalence	1709	1908	2082	2255	2428	2565	2614	
Rate (%)	0.1	0.1	0	0.1	0.1	0.1	0.2	
Wielkopolskie								
No. treated	8	10	8	10	31	91	148	
UC prevalence	4211	4690	5203	5634	6037	6355	6498	
Rate (%)	0.2	0.2	0.2	0.2	0.2	0.5	1.4	
Zachodniopomorskie								
No. treated	8	19	12	14	32	36	43	
UC prevalence	2185	2453	2741	2979	3212	3423	3497	
Rate (%)	0.4	0.8	0.4	0.5	1	1.1	1.2	

Abbreviations: No. = Number of; UC = ulcerative colitis

Table S8. Absolute numbers of gastroenterologists, numbers of gastroenterologists per 100,000 in the population and numbers per 100 IBD patients, by voivodeship as of 2020

Voivodeship	Absolute no. of gastroenterologists	Gastroenterologists per 100k population	Gastroenterologists per 100 IBD prevalent cases
Dolnośląskie	87	3.0	1.2
Kujawsko-Pomorskie	54	2.6	0.9
Lubelskie	79	3.8	1.5
Lubuskie	17	1.7	0.7
Łódzkie	87	3.6	1.5
Małopolskie	81	2.4	0.9
Mazowieckie	226	4.2	1.7
Opolskie	22	2.3	0.9
Podkarpackie	49	2.3	0.9
Podlaskie	49	4.2	1.8
Pomorskie	82	3.5	1.3
Śląskie	120	2.7	1.0
Świętokrzyskie	19	1.6	0.7
Warmińsko-Mazurskie	34	2.4	1.0
Wielkopolskie	65	1.9	0.8
Zachodniopomorskie	65	3.9	1.4

Abbreviations: IBD = inflammatory bowel disease; No. = Number of