

## Supplementary

Supplementary tables and figures

**Table 1s.** Distribution of T2DM patients by multimorbidity status across the three study cohorts

**Table IIIs.** Type of treatment for subjects without comorbidities

**Table IIIIs.** Description of mean costs for healthcare services provided to subjects with heart failure.

**Table IVIs.** Description of mean costs for healthcare services provided to subjects with chronic kidney disease.

**Table VIs.** Description of mean costs for healthcare services provided to subjects with hypertension.

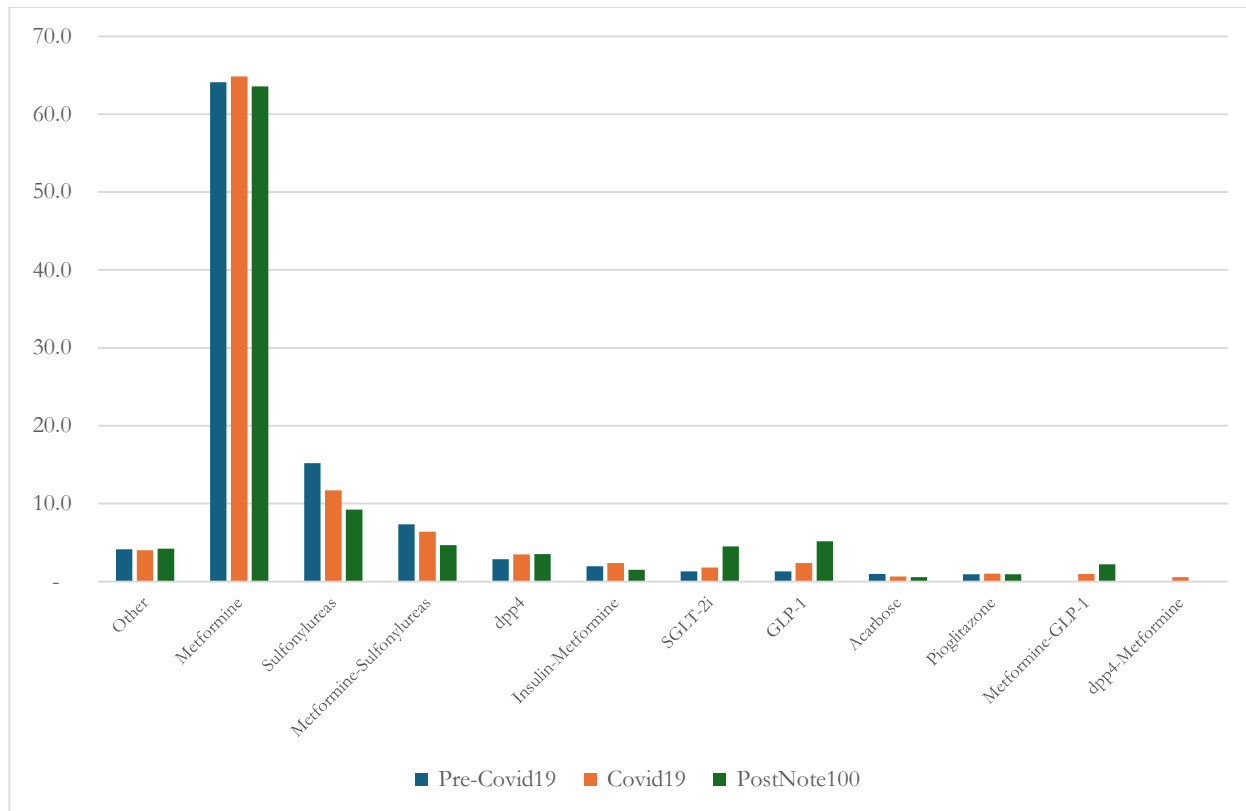
**Figure -1s.** Distribution of subjects included in the three cohorts according to glucose-lowering treatment at the index date

**Figure 2s.** Description of mean costs for healthcare services provided to subjects with heart failure.

**Figure 3s.** Description of mean costs for healthcare services provided to subjects with chronic kidney disease.

**Figure 4s.** Description of mean costs for healthcare services provided to subjects with hypertension.

**Figure 1s. Distribution of subjects included in the three cohorts according to glucose-lowering treatment at the index date.**



**Table Is. Distribution of T2DM patients by multimorbidity status across the three study cohorts**

	Pre-Covid19		Covid19		PostNote100	
	nr	%	nr	%	nr	%
No comorbidities	16,403	27.1%	15,514	25.2%	16,878	25.3%
1 comorbidity	43,039	71.1%	44,911	73.1%	48,372	72.4%
2 comorbidities	1,007	1.7%	977	1.6%	1,412	2.1%
3 comorbidities	110	0.2%	70	0.1%	126	0.2%

**Table IIs. Type of treatment for subjects without comorbidities**

(Note: in accordance with the provisions of WP29 Opinion 05/2024 on anonymization techniques, also referenced by the EDPB—the European Data Protection Board—the principle of k-anonymity was applied; therefore, group sizes with fewer than 6 subjects are not reported.)Type of treatment for subjects without comorbidities

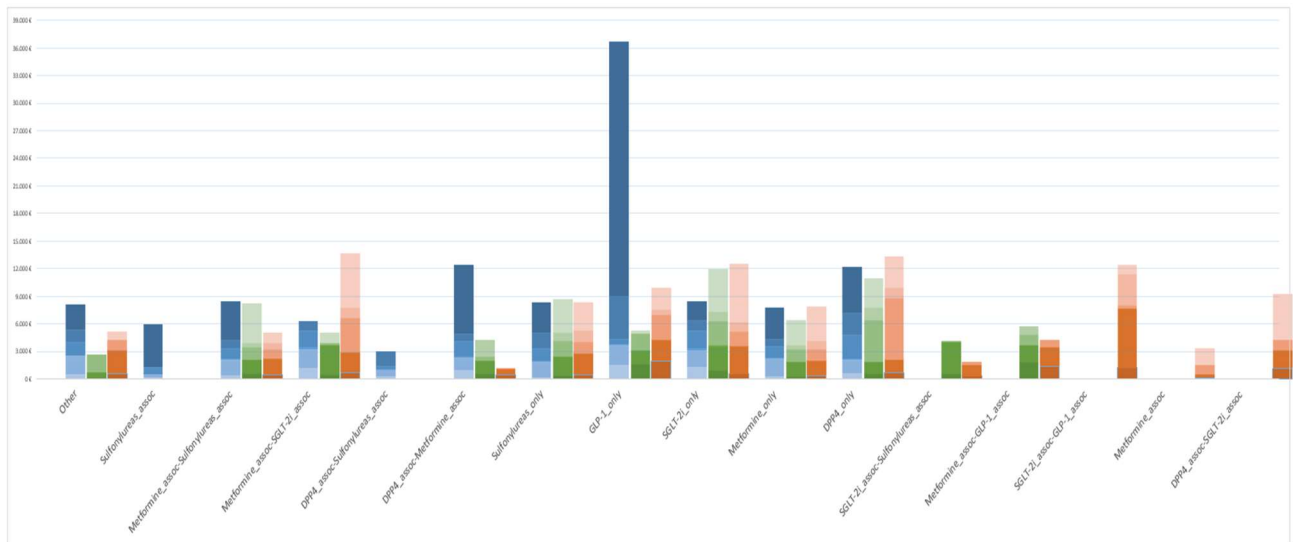
Comorbidity : None					
Pre-Covid19		Covid19		Post Note100	
Nr.	%	Nr.	%	Nr.	%

Other	243	1.5	214	1.4	199	1.2
DPP4_assoc	NA	0.0	NA	0.0	8	0.0
DPP4_assoc-GLP-1_assoc			NA	0.0		
DPP4_assoc-Metformine_assoc	72	0.4	81	0.5	77	0.5
DPP4_assoc-Metformine_assoc-SGLT-2i_assoc					NA	0.0
DPP4_assoc-Metformine_assoc-SGLT-2i_assoc-GLP-1_assoc	NA	0.0				
DPP4_assoc-Metformine_assoc-Sulfonylureas_assoc	16	0.1	15	0.1	9	0.1
DPP4_assoc-SGLT-2i_assoc			NA	0.0	NA	0.0
DPP4_assoc-Sulfonylureas_assoc	23	0.1	17	0.1	17	0.1
DPP4_only	234	1.4	312	2.0	348	2.1
GLP-1_assoc	NA	0.0	NA	0.0	11	0.1
GLP-1_assoc-Sulfonylureas_assoc	NA	0.0	11	0.1	19	0.1
GLP-1_only	157	1.0	311	2.0	683	4.0
Metformine_assoc	105	0.6	104	0.7	82	0.5
Metformine_assoc-GLP-1_assoc	57	0.3	151	1.0	362	2.1
Metformine_assoc-GLP-1_assoc-Sulfonylureas_assoc	16	0.1	33	0.2	40	0.2
Metformine_assoc-SGLT-2i_assoc	68	0.4	50	0.3	70	0.4
Metformine_assoc-SGLT-2i_assoc-GLP-1_assoc	NA	0.0			11	0.1
Metformine_assoc-SGLT-2i_assoc-Sulfonylureas_assoc	NA	0.0	NA	0.0	NA	0.0
Metformine_assoc-sulfonylureas_assoc	1,304	8.0	1,139	7.3	906	5.4
Metformine_only	10,323	62.9	9,913	63.9	11,072	65.6
SGLT-2i_assoc	NA	0.0			NA	0.0
SGLT-2i_assoc-GLP-1_assoc	NA	0.0	NA	0.0	15	0.1
SGLT-2i_assoc-Sulfonylureas_assoc	NA	0.0	NA	0.0	NA	0.0
SGLT-2i_only	175	1.1	226	1.5	296	1.8
Sulfonylureas_assoc	33	0.2	31	0.2	35	0.2
Sulfonylureas_only	1,838	11.2	1,417	9.1	1,214	7.2

**Table IIIs. Description of mean costs for healthcare services provided to subjects with heart failure.**

	Comorbidities: Heart failure																			
	Pre-Covid19							Covid19							Post Note 100					
	No. of subjects	Antidiabetic drugs	Other drugs	Outpatient services (diabetics-related)	Outpatient services (non-diabetics-related)	Hospitalizations (non-diabetics-related)	Hospitalizations (diabetics-related)	No. of subjects	Antidiabetic drugs	Other drugs	Outpatient services (diabetics-related)	Outpatient services (non-diabetics-related)	Hospitalizations (diabetics-related)	Hospitalizations (non-diabetics-related)	No. of subjects	Antidiabetic drugs	Other drugs	Outpatient services (diabetics-related)	Outpatient services (non-diabetics-related)	Hospitalizations (diabetics-related)
Other Sulfonylureas_assoc - Metformine_assoc - Sulfonylureas_assoc - Metformine_assoc	15	531.82	1,971.27	90.73	1,483.82	1,298.73	2,733.00	7	143.60	558.60	-	1,920.60	-	-	627.00	2,560.00	2.50	1,136.75	-	883.00
NA	177.50	355.00	13.50	711.00	-	4,695.50														
40	357.90	1,715.37	110.43	1,119.387	868.83	4,188.27	17	612.85	1,446.54	-	1,366.31	516.23	4,289.31	16	509.83	1,759.00	0.92	1,023.25	669.33	1,095.58
NA	1,164.00	2,118.67	153.00	1,817.00	1,095.00	-	NA	487.00	3,204.00	-	212.00	-	1,194.00	11	744.00	2,219.88	-	3,670.88	1,224.63	5,901.50





Pre-Covid19: Antidiab. drugs (light blue), Other drugs (medium blue), Outpatient (diab.-related) (dark blue), Outpatient (non-diab.-related) (medium-dark blue), Hosp. (diab.-related) (darkest blue)

Covid19: Antidiab. drugs (light green), Other drugs (medium green), Outpatient (diab.-related) (dark green), Outpatient (non-diab.-related) (medium-dark green), Hosp. (diab.-related) (darkest green)

Post Note 100: Antidiab. drugs (light orange), Other drugs (medium orange), Outpatient (diab.-related) (dark orange), Outpatient (non-diab.-related) (medium-dark orange), Hosp. (diab.-related) (darkest orange)

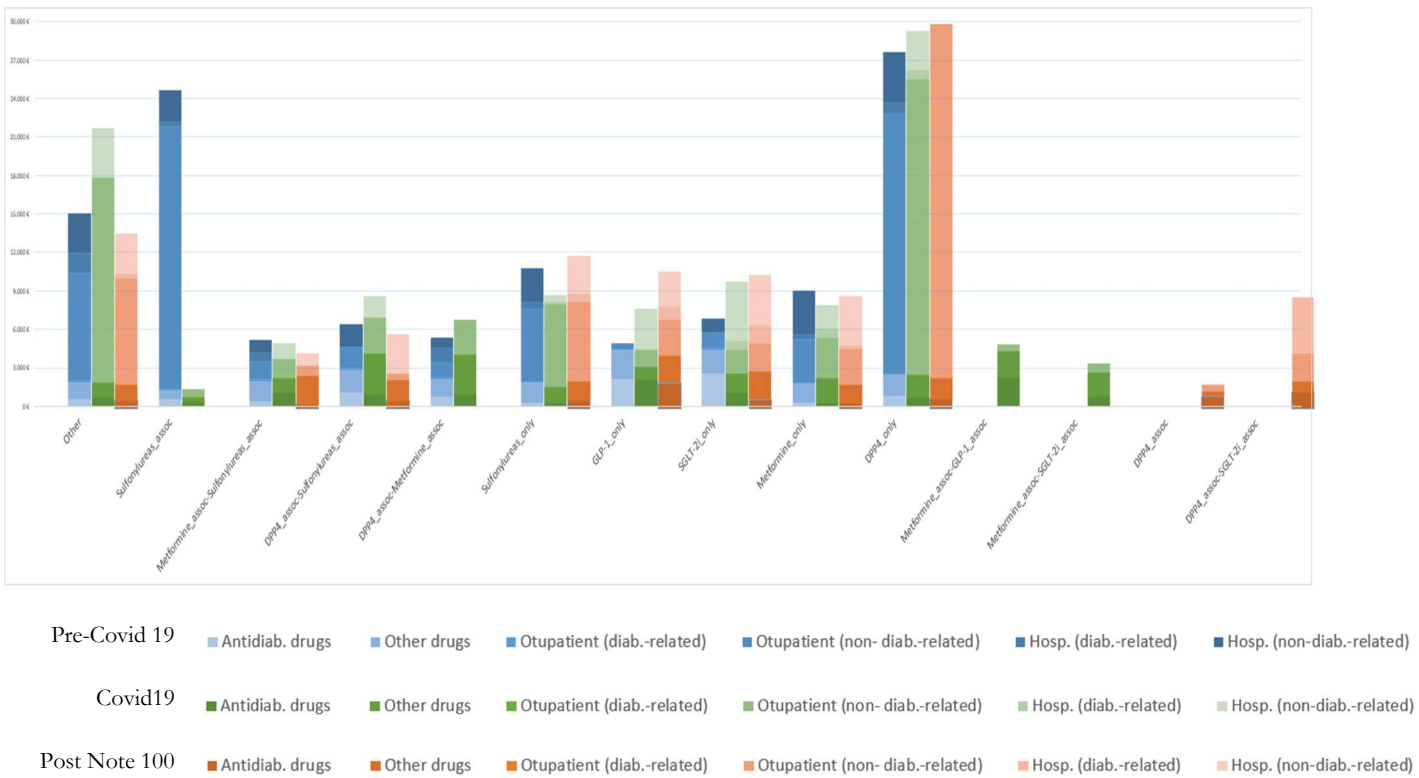
**Table IVs. Description of mean costs for healthcare services provided to subjects with chronic kidney disease.**

	Comorbidities: Ckd																				
	Pre-Covid19							Covid19							Post Note100						
	No. of subjects	Anti diabetic drugs	Other drugs	Outpatient (diabetic-related)	Outpatient (non-diabetic-related)	Hospitalizations (non-diabetic-related)	Hospitalizations (diabetic-related)	No. of subjects	Anti diabetic drugs	Other drugs	Outpatient (diabetic-related)	Outpatient (non-diabetic-related)	Hospitalizations (non-diabetic-related)	Hospitalizations (diabetic-related)	No. of subjects	Anti diabetic drugs	Other drugs	Outpatient (diabetic-related)	Outpatient (non-diabetic-related)	Hospitalizations (non-diabetic-related)	Hospitalizations (diabetic-related)
Other	12	590.33	1,312.78	129.67	8,417.00	1,587.33	3,006.11	15	698.45	1,153.18	0.82	15,985.36	49.64	3,784.55	9	608.43	1,253.00	0.43	8,305.86	386.29	3,161.71
Sulfon ylureas _assoc	NA	603.75	622.75	91.75	20,527.25	337.25	2,492.50	NA	400.00	366.00	-	552.00	-	-	-	-	-	-	-	-	-
Metfo rmine _assoc	7	346.00	1,636.00	158.60	1,429.40	676.80	961.40	7	1,048.60	1,139.60	-	1,490.60	-	1,226.20	NA	347.25	2,275.00	-	755.25	-	928.25
Sulfon ylureas _assoc - DPP4 _assoc	9	1,086.43	1,787.00	166.57	1,637.71	-	1,724.71	NA	1,033.00	3,103.00	-	2,792.00	-	1,657.00	NA	611.50	1,616.50	-	543.50	-	3,071.50
Metfo rmine _assoc	NA	780.00	1,333.33	205.00	1,139.67	1,128.00	800.00	NA	974.00	3,037.00	-	2,768.00	-	-	-	-	-	-	-	-	-
Sulfon ylureas _only	76	326.60	1,530.84	89.63	5,710.98	510.54	2,633.98	32	312.33	1,211.33	-	6,488.38	186.46	513.42	50	712.16	1,448.34	1.55	6,195.03	574.32	3,038.34

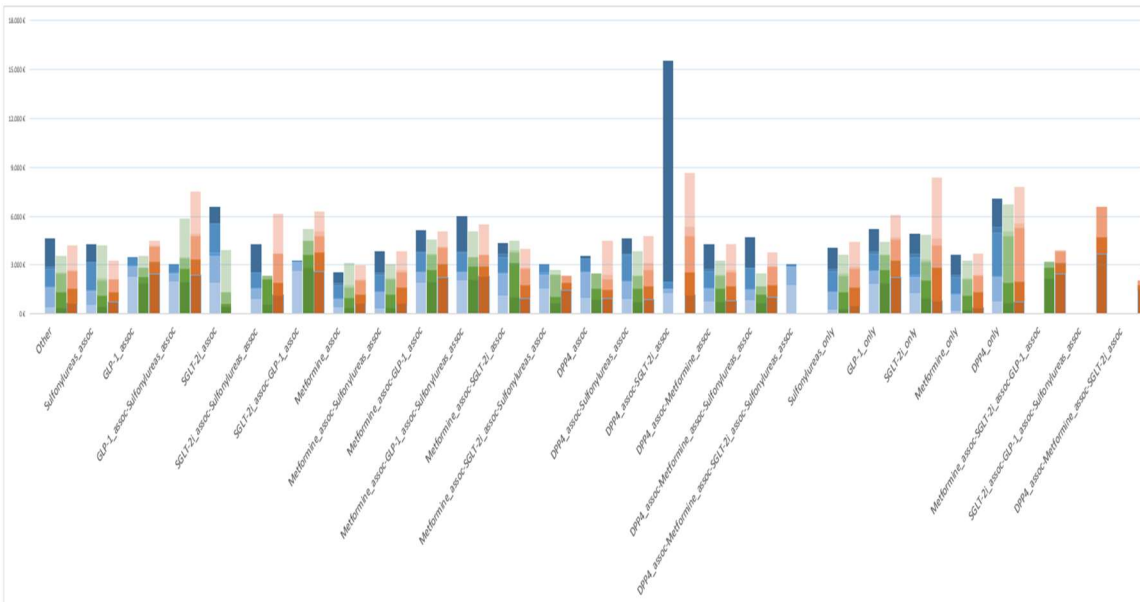
GLP-1_only - SGLT - 2i_only - Metformine_only	N A	2,14 6.00	2,29 2.25	51.7 5	416. 75	-	-	15	2,11 9.82	976. 18	4.27	1,28 7.55	126.4 5	3,119 .55	40	2,06 9.87	2,05 8.30	1.67	2,87 6.53	983.8 0	2,769 .70
Metformine_only	N A	2,59 5.50	1,79 8.50	143. 50	1,28 1.50	-	1,029 .50	13	1,11 2.90	1,47 4.40	0.50	1,82 0.10	681.4 0	4,618 .60	93	757. 97	2,17 1.84	1.69	2,15 7.86	1,422 .96	3,962 .44
DPP4_only - Metformine_assoc - GLP-1_assoc - Metformine_assoc - SGLT - 2i_assoc	96	336. 03	1,45 9.46	90.4 9	3,40 3.57	379.1 7	3,372 .31	121	337. 31	1,89 9.97	0.86	3,09 2.76	743.9 7	1,848 .67	78	456. 58	1,46 9.29	1.36	2,73 5.97	268.7 8	3,826 .12
DPP4_only - Metformine_assoc - GLP-1_assoc - Metformine_assoc - SGLT - 2i_assoc	96	806. 99	1,67 5.14	116. 50	20,2 00.7 6	863.8 9	3,964 .44	127	773. 03	1,73 1.25	0.17	23,0 28.8 1	710.7 8	3,021 .96	134	782. 53	1,66 3.94	3.48	29,5 42.5 6	1,150 .99	5,067 .29
DPP4_only - Metformine_assoc - SGLT - 2i_assoc								NA	2,34 4.67	1,92 8.00	-	585. 33	-	-							
DPP4_only - Metformine_assoc - SGLT - 2i_assoc								NA	813. 00	1,80 6.00	-	748. 00	-	-							
DPP4_only - Metformine_assoc - SGLT - 2i_assoc															NA	1,01 7.00	380. 00	-	518. 00	-	-
DPP4_only - Metformine_assoc - SGLT - 2i_assoc															NA	1,32 5.00	831. 00	-	2,17 1.00	4,347 .00	-

(Note: in accordance with WP29 Opinion 05/2024 on anonymization techniques, also referenced by the EDPB (European Data Protection Board), the principle of k-anonymity was applied; therefore, group sizes with fewer than 6 subjects are not reported.)

**Figure 3s. Description of mean costs for healthcare services provided to subjects with chronic kidney disease.**



**Figure 4s. Description of mean costs for healthcare services provided to subjects with hypertension.**



**Table Vs. Description of mean costs for healthcare services provided to subjects with hypertension.**

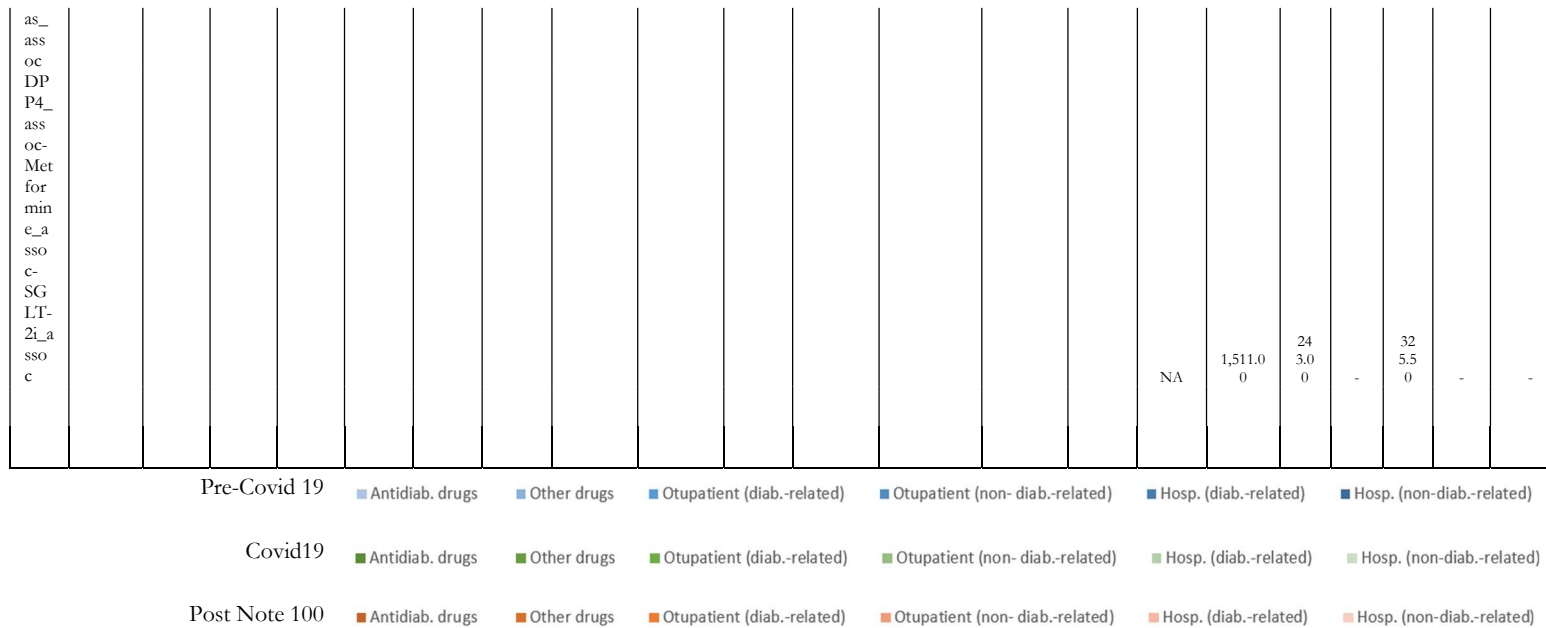
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**Comorbidity: Hypertension**

	Pre-Covid19							Covid19							PostNote100						
	No, of subjects	Anti diabetic drugs	Other Drug s	Outpatient services (diabetes-related)	Outpatient services (non-diabetes-related)	Hospitalizations (diabetes-related)	Hospitalizations (non-diabetes-related)	No, of subjects	Antidiabetic drugs	Other Drug s	Outpatient services (diabetes-related)	Outpatient services (non-diabetes-related)	Hospitalizations (diabetes-related)	Hospitalizations (non-diabetes-related)	No, of subjects	Antidiabetic drugs	Other Drug s	Outpatient services (diabetes-related)	Outpatient services (non-diabetes-related)	Hospitalizations (diabetes-related)	Hospitalizations (non-diabetes-related)
Other Sulfonylureas_GLP-1asso c-GLP-1asso c-Sulfonylureas_SG LT-2iasso c-SG LT-2iasso c-Sulfonylureas_SG LT-2iasso c-Sulfonylureas_SG LT-2iasso c-Metformine_asso c-Metformine_asso c-Sulfonylureas_asso c	798	435.21	1,192.08	79.13	1,051.52	145.49	1,751.14	710	415.52	952.51	0.77	1,142.20	90.89	967.68	730	638.38	94.26	0.79	32.43	119.60	1.497.05
153	530.92	902.36	91.00	1,681.26	13.92	1,086.90	139	520.82	611.95	0.86	919.29	123.40	2,014.88	88	772.00	57.05	0.18	76.09	-	1.204.64	
NA	2,267.67	647.33	100.00	490.33	-	-	20	1,945.27	329.40	-	571.00	-	756.67	29	2,491.14	74.50	0.95	88.26	115.86	273.82	
24	2,029.72	445.28	88.17	473.89	-	-	57	1,977.63	791.63	2.07	691.51	2.98	2,436.98	93	2,414.67	93.38	0.29	1.45	168.30	2.548.63	
NA	1,940.00	1,651.50	179.50	1,779.00	-	1,007.50	NA	477.00	168.00	-	707.00	-	2,552.00	NA	NA	NA	NA	NA	NA	NA	
9	952.00	621.86	90.57	897.14	-	1,758.29	NA	655.00	1,456.67	-	267.33	-	-	8	1,146.00	78.40	-	1.803.33	-	2.424.33	
NA	2,625.00	554.00	37.00	46.00	-	-	NA	2,888.75	764.00	-	884.00	-	656.25	37	2,629.32	1.164	0.61	1.006.68	265.75	1.243.61	
178	445.04	464.84	74.94	831.00	116.14	604.86	215	428.43	529.60	1.31	687.63	107.62	1,378.83	190	648.62	56.48	0.73	84.95	43.54	897.05	
2,828	334.22	996.41	74.66	1,030.63	99.63	1,302.01	2,671	389.74	823.21	0.72	913.92	51.11	874.81	2,159	640.53	1.009	0.71	94.46	94.44	1.205.42	

Met for min e_a sso c- GL P- 1_a sso c	133	1,892.87	683.34	94.95	1,121.67	81.29	1,276.81	427	1,974.75	723.20	0.75	963.78	50.82	889.12	1,023	2,272.02	829.39	0.87	985.04	57.71	951.19
Met for min e_a sso c- GL P- 1_a sso c- Sulf ony lure as_ ass oc	23	2,084.18	494.88	85.18	1,154.47	28.12	2,166.47	69	2,133.10	765.54	-	619.60	-	1,547.77	96	2,292.19	599.46	0.14	729.75	-	1,897.82
Met for min e_a sso c- SG LT- 2i_a sso c	139	1,142.71	1,337.36	84.33	912.39	242.88	665.25	142	1,053.21	2,123.44	1.80	627.84	113.16	561.13	187	962.44	837.01	0.78	1,006.89	52.12	1,133.16
Met for min e_a sso c- SG LT- 2i_a sso c- Sulf ony lure as_ ass oc DP P4_ ass oc	NA	1,538.00	903.20	119.00	528.80	-	-	NA	706.25	357.25	1.25	1,356.00	-	306.25	12	1,481.56	415.44	-	442.56	-	-
DP P4_ ass oc- Sulf ony lure as_ ass oc	12	960.56	1,607.44	95.67	800.33	-	88.56	11	913.63	655.00	0.63	933.88	-	-	17	979.00	497.85	2.38	671.38	265.38	2,103.08
DP P4_ ass oc- SG LT- 2i_a sso c	101	884.99	1,105.47	110.96	1,513.66	76.41	986.09	117	781.30	753.50	0.90	798.75	46.50	1,504.85	84	893.38	802.57	1.11	1,039.60	398.46	1,636.32
DP P4_ ass oc- Met for min e_a sso c	NA	1,263.00	292.00	28.00	391.00	-	13,602.00								9	1,143.29	1,457.86	-	2,129.29	621.00	3,257.14
	149	750.79	829.75	84.89	985.19	123.98	1,548.01	232	750.14	819.66	1.05	774.06	100.49	854.61	186	839.69	866.56	0.92	848.77	176.09	1,555.07





(Note: in accordance with WP29 Opinion 05/2024 on anonymization techniques, also referenced by the EDPB (European Data Protection Board), the principle of k-anonymity was applied; therefore, group sizes with fewer than 6 subjects are not reported.)

## Supplementary Material – Identification of Comorbidities

### Cardiovascular Comorbidities

The presence of cardiovascular comorbidities was assessed during the 365-day characterization period prior to the index date. Patients were classified as having a history of cardiovascular disease based on the following conditions:

Heart failure: identified by the presence of at least one hospitalization during the characterization period with the following ICD-9-CM codes in any discharge diagnosis (primary or secondary): 428, 402.01, 402.11, 402.91. Alternatively, patients were identified through exemption code 021.

Arterial hypertension: identified by the presence of at least one hospitalization with ICD-9-CM codes 401, 402, 403, 404 in any discharge diagnosis, or by exemption codes 031 or A31. In addition, patients were classified as hypertensive if they had at least two prescriptions on different dates for antihypertensive drugs (ATC codes: C02, C03, C07, C08, C09) during the characterization period.

### Chronic Kidney Disease

The presence of chronic kidney disease (CKD) was assessed during the 365-day characterization period prior to the index date. Patients were classified as having CKD if any of the following criteria were met:

At least one hospitalization with ICD-9-CM codes: 250.40, 403, 404, 585, 582, 583.81, 586 (in any discharge diagnosis);

Presence of Diagnosis-Related Group (DRG) codes: 316 or 317;

Presence of exemption codes: 023 or 061;

Evidence of dialysis procedures identified through outpatient services with the following procedure codes: 39.95, 54.98, V45.11, V56.