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**Under-treatment of migrants with diabetes in a universalistic healthcare system: the ARNO Observatory**

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Table 1. Prevalence of diabetes by age group and migration status in Italy in 2010

Age groups (years)	Migrants			Italians		
	Total population (n)	With diabetes (n)	Prevalence (%)	Total population (n)	With diabetes (n)	Prevalence (%)
0-29	184,222	449	0.24	2,034,853	5,336	0.26
30-39	157,971	1,456	0.92	976,896	6,291	0.64
40-44	63,934	1,413	2.21	576,819	6,250	1.08
45-49	45,591	1,573	3.45	580,234	11,031	1.90
50-54	34,903	1,659	4.75	506,885	18,712	3.69
55-59	20,665	1,408	6.81	468,039	29,634	6.33
60-64	10,289	939	9.13	503,060	48,510	9.64
65-69	4,617	618	13.39	414,903	53,846	12.98
70-74	3,093	446	14.42	411,017	61,424	14.94
75-79	1,539	237	15.40	333,359	54,855	16.46
80-84	744	82	11.02	265,166	41,581	15.68
85-89	284	50	17.61	167,836	23,038	13.73
90+	113	6	5.31	89,316	8,288	9.28

Migrants are people of non-Italian citizenship, born in countries characterized by high migratory fluxes; Italians are people of Italian citizenship, born in Italy.

**Table 2.** Odds ratios (ORs), package use and cost per treated person-year of most commonly prescribed drugs in 10,336 migrants with drug-treated diabetes individually matched with 10,378 Italians, by age, sex and place of residence

ATC code	Type of drug	Italians		Migrants		OR (95% CI)	Package/person-year (%)			Cost/person-year (€)		
		N	%	N.	%		Italians	Migrants	Δ (%)	Italians	Migrants	Δ(%)
A10A	Insulin (all types)	3,339	32.2	2,865	27.7	0.81 (0.76-0.86)	10.8	9.3	-14.2***	521	440	-15.5***
A10AB01, A10AC01	Insulin (human, all types)	496	14.9 <sup>^</sup>	409	14.3 <sup>^</sup>	0.82 (0.72-0.94)	7.9	7.7	-2.4	206	191	-7.2*
A10AB04-6	Insulin analogues (fast-acting)	2,546	76.3 <sup>^</sup>	2,005	70.0 <sup>^</sup>	0.74 (0.69-0.79)	7.2	6.1	15.8***	174	209	-16.0**
A10AC04-5, A10AE04-5	Insulin analogues (long-acting/mix)	832	24.9 <sup>^</sup>	880	30.7 <sup>^</sup>	1.07 (0.97-1.18)	4.2	4.6	+10.0	220	242	+10.1
A10B	Other antidiabetic drugs	8,089	77.9	8,643	83.6	1.44 (1.35-1.55)	14.7	13.7	-7.2***	108	84	-21.7***
C10	Lipid-lowering	3,810	36.7	3,245	31.4	0.79 (0.74-0.84)	11.8	10.2	-13.3***	280	234	-16.4***
R03, R05	Respiratory system	1,356	13.1	1,087	10.5	0.78 (0.72-0.85)	5.0	5.5	9.5**	161	197	+22.3***
C01-09	Cardiovascular system	5,639	54.3	4,675	45.2	0.69 (0.66-0.73)	24.1	20.1	-16.5***	236	189	-20.1***
N02-06	Nervous system	2,252	21.7	1,539	14.9	0.63 (0.59-0.68)	14.1	8.0	-43.1***	250	124	-50.4***
B01	Antithrombotics	2,821	27.2	2,226	21.5	0.74 (0.69-0.78)	9.8	8.9	-8.7***	68	53	-22.1***
A02A-B	Antacids, proton pump inhibitors	3,024	29.1	3,081	29.8	1.03(0.97-1.10)	12.0	9.5	-20.8***	108	81	-24.7***
B01AC	Anti-platelet therapy	2,297	22.1	1,891	18.3	0.79 (0.74-0.84)	9.6	8.9	-7.4***	40	37	-8.5***
J01-02	Anti-infectives	5,018	48.4	4,652	45.0	0.87 (0.83-0.92)	4.2	3.6	-14.6	49	40	-19.1***
M01A	Non steroidal anti-inflammatory drugs	3,116	30.0	3,446	33.3	1.17 (1.10-1.24)	3.1	3.4	+9.0***	21	24	+14.7***
H02	Steroids	1,045	10.1	909	8.8	0.86 (0.78-0.95)	5.0	4.6	-6.9	20	19	-3.8
H03	Thyroid drugs	997	9.6	532	5.1	0.51 (0.46-0.57)	6.8	6.4	-6.1***	20	19	-3.9**

<sup>^</sup> Percent of total insulin treatment. \*P<0.05; \*\*P < 0.01; \*\*\*P < 0.001.

**Table 3.** Admission rates for the most relevant diseases in migrants and Italians with drug-treated diabetes, mean length of stay and cost per person-year.

ICD-9	Diagnosis	Admission rate/10,000 pts (number of cases)			Length-of-stay (days)			Cost/person-year (€)		
		Italians	Migrants	OR (95% CI)	Italians	Migrants	Δ%	Italians	Migrants	Δ%
250	Diabetes mellitus	276.2 (80)	246.2 (71)	0.89 (0.64-1.23)	4	7	+75.0*	1,127	1,632	+44.9*
410	Acute myocardial infarction	51.8 (15)	52.0 (15)	1.00 (0.49 - 2.06)	10	14	+40.0	7,851	7,254	-7.6
414	Other forms of chronic ischemic heart disease	20.7 (6)	20.8 (6)	1.00 (0.32 - 3.12)	5	22	+340.0**	4,536	10,156	+123.9
428	Heart failure	38.0 (11)	34.7 (10)	0.91 (0.39 - 3.49)	13	12	-7.7	3,648	4,073	+11.7
434	Occlusion of cerebral arteries	20.7 (6)	24.3 (7)	1.17 (0.39 - 3.49)	13	9	(30.8	4,200	3,489	-16.9
486	Pneumonia	0.0 (0)	20.8 (6)	-	-	-	-	-	4,600	
491	Chronic bronchitis	6.9 (2)	20.8 (6)	3.02 (0.61 - 14.96)	10	11	+10.0	2,271	3,667	+61.5
518	Other diseases of lung	34.5 (10)	38.1 (11)	1.10 (0.47 - 2.61)	17	16	-5.9	4,958	6,275	+26.6
574	Cholelithiasis	51.8 (15)	31.2 (9)	0.60 (0.26 - 1.38)	6	8	+33.3	2,604	3,404	+30.7
585	Chronic kidney disease	17.3 (5)	38.1 (11)	2.21 (0.77 - 6.38)	9	15	+66.7	5,770	5,709	-1.1
648	Other conditions in the mother classifiable elsewhere	48.3 (14)	58.9 (17)	1.22 (0.60 - 2.48)	6	9	+50.0	2,132	2,333	+9.4
250.1-3	Hyperglycemic acute complications	69.1 (20)	58.9 (17)	0.85 (0.45 - 1.63)	7	4	-46.8	1,704	1,047	-38.6
251.0	Hypoglycemic coma	6.9 (2)	6.9 (2)	1.00 (0.14 - 7.13)	5	4	+19.1	1,943	2,315	+19.1

\* P &lt; 0.05; \*\* P &lt; 0.01