

Supplementary material 2: AMG output results

Table S1 Distribution of the population by adjusted morbidity groups, province and gender (% , year 2021)

Groups	PROVINCE															TOTAL		
	AN			AP			FM			MC			PU			M	F	Tot
	M	F	Tot	M	F	Tot	M	F	Tot	M	F	Tot	M	F	Tot			
Healthy	54.7	53.6	54.2	57.9	55.7	56.8	60.6	58.0	59.2	59.7	57.1	58.4	57.9	55.9	56.8	57.6	55.7	56.6
Acute	7.4	5.8	6.6	6.3	4.7	5.5	6.0	4.7	5.3	7.3	5.5	6.4	7.3	5.6	6.4	7.1	5.4	6.2
Pregnancy and childbirth	0.0	1.6	.8	0.0	1.4	.7	0.0	1.3	.7	0.0	1.5	.8	0.0	1.4	.7	0.0	1.5	.7
Chronic diseases in 1 system	20.5	21.3	20.9	19.4	20.9	20.2	18.4	20.7	19.6	18.3	20.5	19.4	19.2	21.0	20.1	19.4	20.9	20.2
Chronic pathologies in 2-3 systems	12.1	12.8	12.4	11.9	12.8	12.4	10.5	11.3	11.0	10.6	11.5	11.1	11.4	12.1	11.7	11.4	12.2	11.8
Chronic diseases in >3 systems	3.3	3.2	3.2	2.8	2.8	2.8	2.6	2.4	2.5	2.3	2.3	2.3	2.6	2.6	2.6	2.8	2.7	2.7
Active neoplasms ^a	1.9	1.7	1.8	1.8	1.6	1.7	1.8	1.6	1.7	1.8	1.6	1.7	1.7	1.6	1.6	1.8	1.6	1.7

^a if there is any grouping of diagnostic codes associated with a diagnosis of malignancy with a diagnosis date in the analysis period or one year earlier.

Figure S1: Average number of chronic diseases by gender and age group (year 2021).

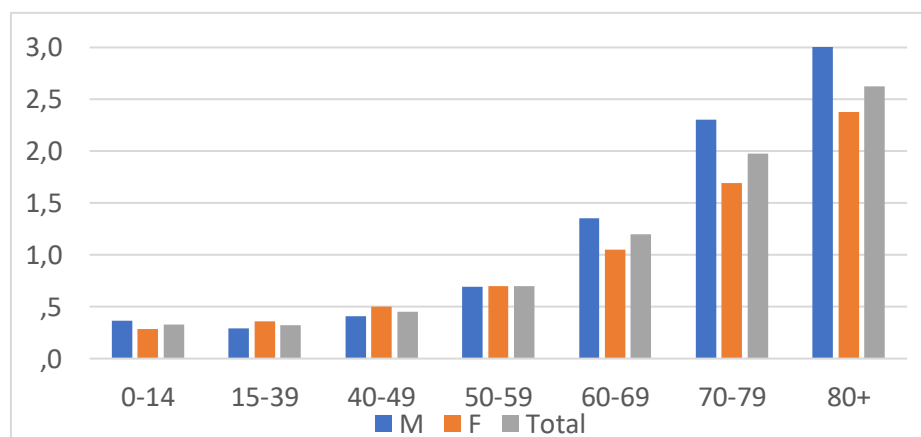


Table S2 Distribution of the population by risk level (complexity) and province (year 2021).

Pyramid layer	Province					Total
	AN	AP	FM	MC	PU	
Very low risk	54.2%	56.8%	59.2%	58.4%	56.8%	56.6%
Low risk	25.2%	22.4%	21.9%	22.8%	22.9%	23.4%
Moderate risk	15.3%	15.6%	14.0%	14.4%	15.2%	15.0%
High risk	4.1%	4.3%	3.9%	3.6%	4.1%	4.0%
Very high risk	1.2%	1.0%	.9%	.8%	1.0%	1.0%

Table S3 Main characteristics of the population by risk level (year 2021).

Pyramid layer	% F	Age	No. of chronic diseases	No. of affected anatomical systems
		Mean (SD)	Mean (SD)	Mean (SD)
Very low risk	50.3%	41.8 (21.9)	0.0 (0.0)	0.0 (0.0)
Low risk	54.4%	44.7 (23.2)	0.9 (0.6)	0.8 (0.6)
Moderate risk	51.1%	62.2 (20.8)	2.5 (1.3)	1.9 (1.0)
High risk	46.5%	74.3 (14.5)	5.9 (1.9)	3.3 (1.3)
Very high risk	42.6%	78.5 (11.6)	10.1 (3.1)	4.8 (1.5)

Table S4 Prevalence of chronic diseases by province (descending order, year 2021)

Chronic pathologies	Province					Total
	AN	AP	FM	MC	PU	
Hypertension	10,7%	11,5%	8,4%	8,8%	9,6%	9.9%
Diabetes	4,8%	4,9%	4,3%	4,4%	4,9%	4.7%
Chronic ischaemic heart disease	2,8%	3,2%	3,4%	2,9%	3,3%	3.1%
Stroke	2,9%	2,9%	2,8%	2,5%	3,1%	2.9%
Arthrosis	3,0%	2,7%	2,5%	2,5%	2,7%	2.7%
Heart failure	2,0%	1,8%	1,7%	1,8%	2,0%	1.9%
Chronic renal failure	1,6%	1,4%	1,2%	1,1%	1,4%	1.4%
COPD	1,2%	1,1%	1,0%	1,2%	1,0%	1.1%
Arthritis	1,1%	1,0%	0,7%	1,0%	0,8%	0.9%
Dementia	0,9%	0,8%	0,7%	0,6%	0,7%	0.8%
Depression	0,8%	0,7%	0,9%	0,6%	0,7%	0.7%
Chronic pain	0,3%	0,2%	0,2%	1,2%	0,1%	0.4%
Osteoporosis	0,4%	0,2%	0,2%	0,2%	0,2%	0.2%
Cirrhosis	0,2%	0,1%	0,1%	0,1%	0,2%	0.2%
HIV	0,1%	0,1%	0,1%	0,1%	0,1%	0.1%

Table S5: Prevalence of chronic diseases by gender (% , descending order, year 2021)

Chronic pathologies	Male	Female	Total
Hypertension	10.3	9.51	9.91
Diabetes	5.2	4.16	4.69
Chronic ischaemic heart disease	4.29	1.90	3.07
Stroke	2.96	2.75	2.85
Arthrosis	2.36	3.07	2.73
Heart failure	1.98	1.84	1.91
Chronic renal failure	1.66	1.14	1.40
COPD	1.32	0.927	1.12
Arthritis	0.829	1.04	0.940
Dementia	0.509	0.992	0.756
Depression	0.538	0.927	0.737
Chronic pain	0.410	0.429	0.419
Osteoporosis	0.0534	0.437	0.250
Cirrhosis	0.197	0.109	0.152
HIV	0.108	0.0725	0.0900

Table S6. Health-related indicators proposed for the dashboard.

Area	Indicator	Definition of indicator	Unit	Data source
Socio-demographic, morbidity and mortality	• Mean age of the population	Sum of ages/N. of users ^a	Mean	Regional Health Service Registry
	• Prevalence of women (%)	N. of female users/N. of users	Rate (x 100)	Regional Health Service Registry
	• Population size age ≥ 65 years (%)	N. of users ≥ 65 years/N. of users	Rate (x 100)	Regional Health Service Registry
	• Mortality rate (%)	N. deaths/N. of users	Rate (x 100)	Regional Health Service Registry
	• Mean n. of exemptions (per user)	N. of exemptions/ N. of users	Mean	Exemptions from healthcare co-payment ('Esenzioni')
Hospital care	• Hospital rate (%)	N. of hospitalizations/N. of users	Rate (x 100)	Hospital discharge records (SDO)
	• Emergency Room visits (%)	N. of emergency departments accesses ^b /N. of users	Rate (x 100)	Emergency and Urgency care (EMUR)
	• Long stay users (%)	N. of patients with long-term hospitalizations ^c /N. of users	Rate (x 100)	Hospital discharge records (SDO)
Community, residential and home care	• N. of specialist visits (%)	N. of specialist visits/N. of users	Rate (x 100)	Specialist visits (File C)
	• Homecare users (%)	N. of patients with homecare assistance/N. of users	Rate (x 100)	Home care (SIAD)
	• N. of patients >75 years assisted in residential facilities per 1,000 users	N. of patients >75 years assisted in residential facilities /N. of users >75 years	Rate	Residential and semi residential care (FAR)
	• N. of patients >75 years assisted in semi-residential facilities per 1,000 users	N. of patients >75 years assisted in semi-residential facilities /N. of users >75 years	Rate	Residential and semi residential care (FAR)
	• Hospital rate (per 100,000 users) in patients ≥18 years for complications (short- and long-term) for diabetes, COPD, and heart failure.	N. of hospitalizations of patients ≥18 years for complications (short- and long-term) for diabetes, COPD, and heart failure/N. of users ≥18 years	Rate	Hospital discharge records (SDO)

Area	Indicator	Definition of indicator	Unit	Data source
Mental health	Prevalence of patients ≥ 18 years assisted by Mental Health services per 1,000 users	N. of patients ≥ 18 years assisted by Mental Health services (community, semi residential, residential)/N. of users ≥ 18 years	Rate	Mental health services (SISM)
Pharmaceutics	Mean number of drugs (per user)	N. of different ATC ^d by patient	Mean	Pharmaceutics (File F - File D)
	Pharmaceutical expense (mean per user/yearly)	Expense (price x quantity) for drugs by patient, yearly	Mean	Pharmaceutics (File F - File D)

Note: ^a number of users (source: Health Registry of citizens living in the Marche region).). ^b Only emergency departments accesses coded as light blue (deferrable urgency), orange (urgency), and red (emergency) during the triage are considered. ^c Hospitalizations in long-term wards (hospital discipline code n. 60). ^d Anatomical Therapeutic Chemical Classification System for drugs.