



Prevalence and incidence of multiple sclerosis in Umbria, Italy: an epidemiological study

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INTRODUCTION AND AIM

Multiple sclerosis (MS) is an inflammatory and demyelinating disorder of the central nervous system (CNS) with a worldwide diffusion [1]. Typically, MS has a latitudinal distribution with a higher incidence and prevalence in the northern countries [1]. However, in the last 2 decades, epidemiological studies led to classify the Mediterranean region and, specifically, Italy, as a high-risk area for the development of MS [2].

The aim of this study was to assess the prevalence and the incidence of MS in Umbria, the only central Italy region with no coastline, that extends over an area of 8456 km² and includes 891.621 inhabitants [3].

PATIENTS AND METHODS

We performed an epidemiological, cross-sectional, observational study to identify patients with MS diagnosis according to the 2010 revised McDonald criteria [4].

- MS prevalence was evaluated on 31 December 2015 while annual incidence rate was defined between 1 January 2015 and 31 December 2015.
- Patients were initially identified through clinical records of MS centers and Rehabilitation centers of the region.
- The data obtained from clinical records were then integrated with the following administrative sources: (i) hospital discharges with the ICD-9 diagnosis codes 340, 341 and 377,3 and (ii) regional registry of subjects with the exemption codes 046.
- Data were collected through the P2Pdb software, an integrated and multi-platform database used for the management of clinical data.

RESULTS – Prevalence of MS in Umbria

- 1064 cases were identified (on a total population of 662.110 inhabitants).
- Crude prevalence rate was 167/100.000 (95% CI 158-177).
- Prevalence was higher in women (235/100.000, 95% CI 219-252) than in men (92/100.000, 95% CI 81-102) with a female to male ratio of 2.6.
- Standardized prevalence* was 156,1/100.000 (95% CI 146.6-165.6).
- Age group with higher prevalence rates were those between 25 and 54 years, with the maximum value in the 45-54 age group (297/100.000, 95% CI 264-330) (Figure 1).

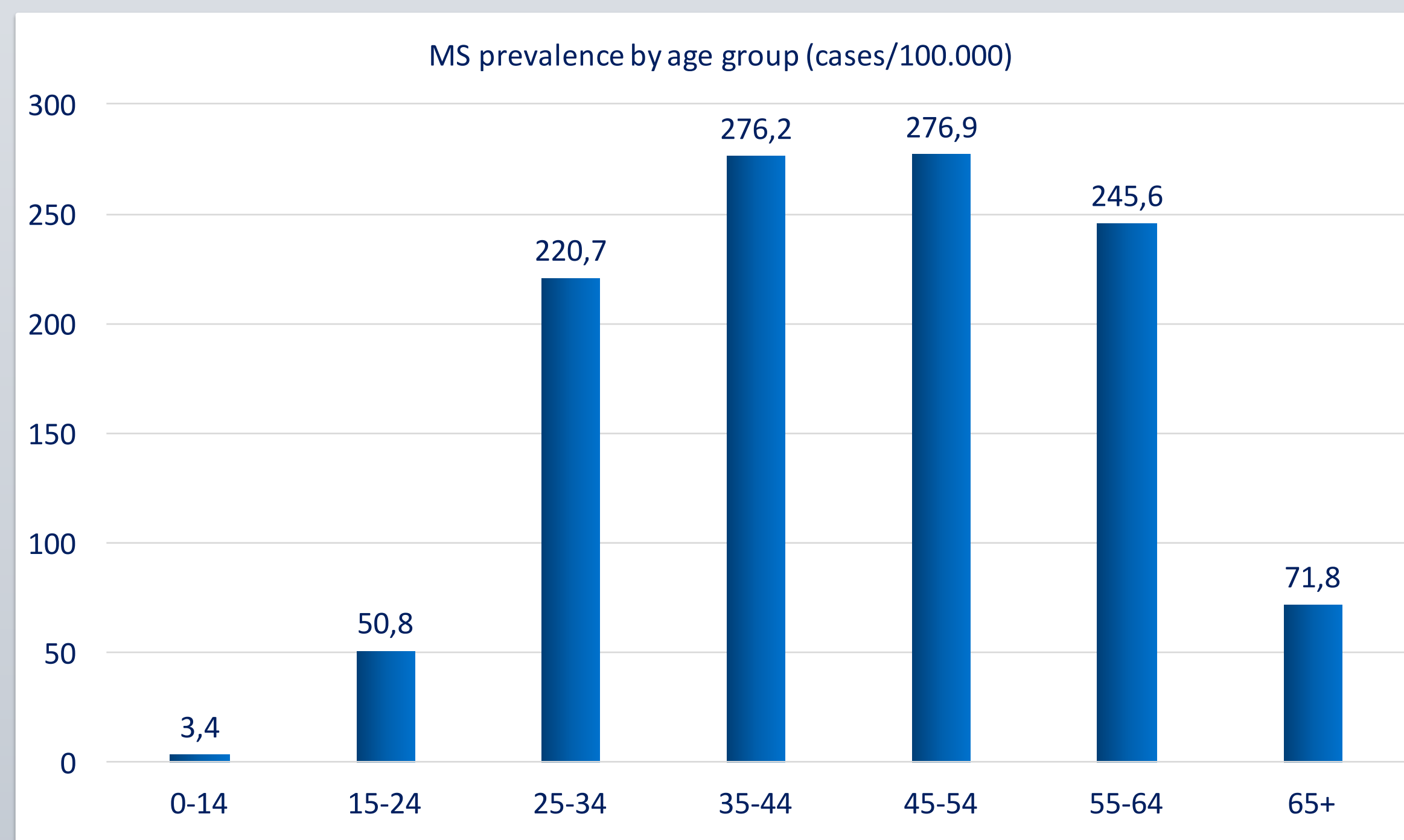


Figure 1

Table 1 shows the prevalence rates as divided by sanitary districts of the Umbria region.

District	Cases	Population	Prevalence	95% CI		Standardized rate	95% CI	
				Inf.	Sup		Inf.	Sup
Perugino	403	194191	207,7	187,5	228	197,7	177,9	217,4
Assisano	109	62234	174,9	142,1	207,7	167,1	135	199,2
Media Valle del Tevere	101	58289	173,9	140,1	207,8	169,2	135,9	202,6
Trasimeno	98	57966	169,4	135,9	202,9	167,6	134,3	200,9
Foligno	149	99500	150,2	126,1	174,2	149,6	125,6	173,6
Alto Chiascio	68	55277	123,6	94,3	152,8	121,9	92,8	151
Alto Tevere	86	77009	112,3	88,6	135,9	111,8	88,2	135,4
Valnerina	12	12078	97,2	41,6	152,8	102,7	45,6	159,9
Spoletto	36	47784	75,9	51,2	100,6	76	51,3	100,7
Total	1064	662110	160,7	151,1	170,3	156,1	146,6	165,6

Table 1

*Prevalence rate has been standardized to the European population.

RESULTS – Prevalence of MS in Umbria

Figure 2 shows the map of the region divided by the districts with the prevalence of each district represented by the colors used for Table 1.

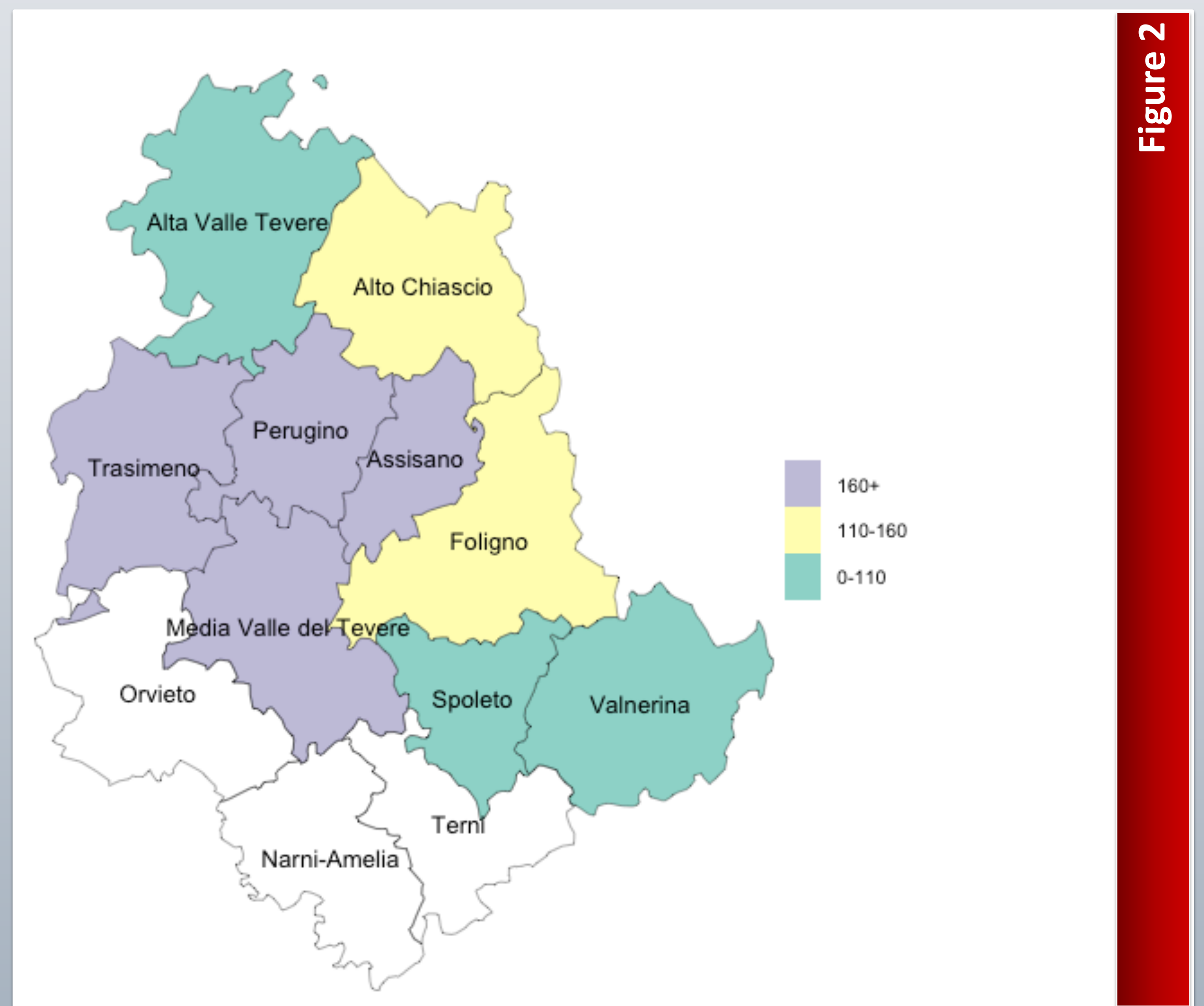


Figure 2

RESULTS – Incidence of MS in Umbria

- The crude mean annual incidence rate was 7/100.000 (95% CI 5-9).
- Higher values were reported in women (11/100.000, 95% CI 7-14) than in men (3/100.000, 95% CI 1-5).

CONCLUSIONS

- The province of Perugia is a high-risk area for MS with a crude prevalence of 167/100.000.
- We found a midway prevalence between 2 neighboring regions: Toscana (188/100.000) [4] and Lazio (131/100.000) [5] (Figure 3).
- Prevalence is higher (>160/100.000) in the central-west areas and lower (≤ 110/100.000) in the northern and south-eastern areas of the region.
- Data need to be collected from the province of Terni.
- Data need to be integrated with the administrative registries from the pharmaceutical distribution.

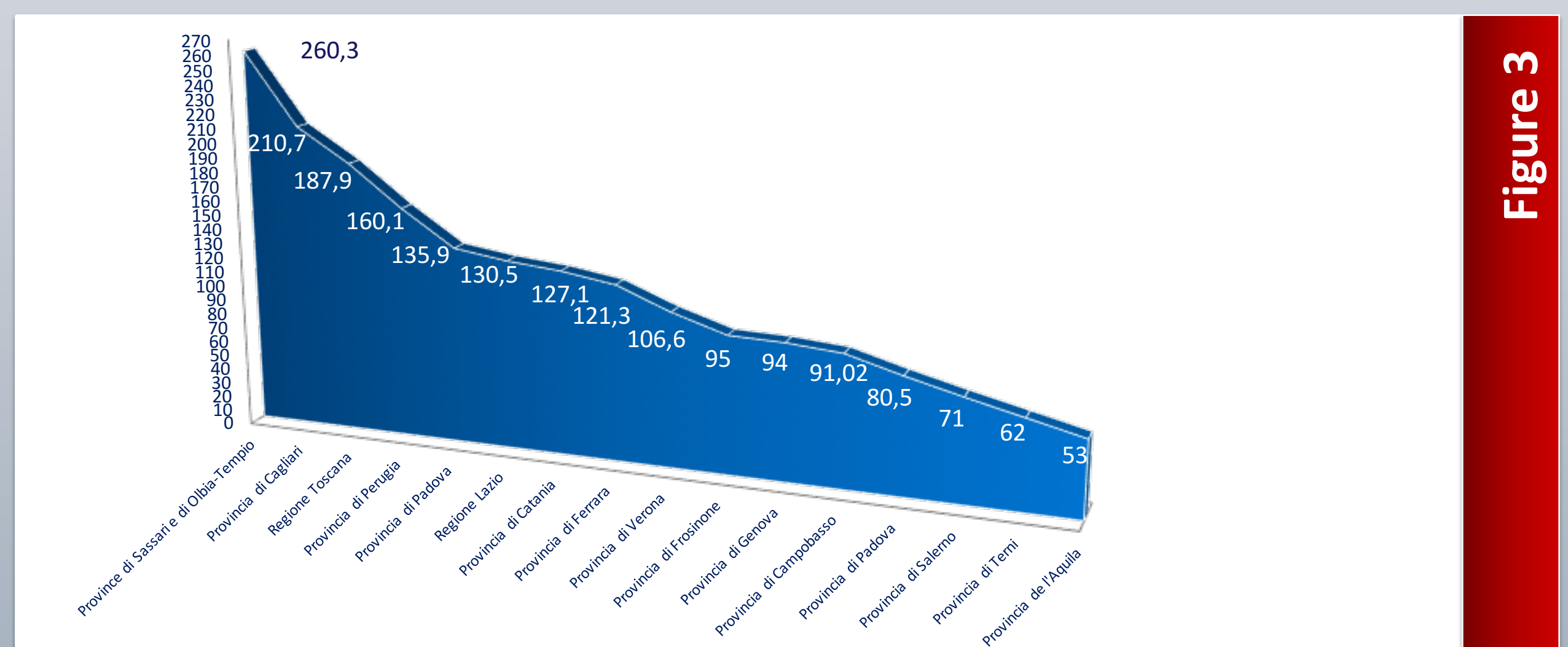


Figure 3

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