

# Observational, Retrospective Study on the Evaluation of Direct and Indirect Costs Generated By Multiple Myeloma (MM) in Algeria

Poster EE475

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## BACKGROUND

- Multiple Myeloma (MM) is a rare and silent plasma cell malignancy.
- MM represents 1,3% of all cancers, the second most common hematologic malignancy worldwide (10% to 12% of hematological malignancies) with a significant economic burden.

## OBJECTIVE

The objective of this study is to evaluate the direct and indirect costs generated by the management of MM in Algerian patients

To define the care pathway and the medical resources consumed in the management of patients with MM.

Describe the characteristics of patients followed for MM in the main care centers in Algeria.

## METHODS

- Observational, multicenter, retrospective study conducted on patients with MM, with retrospective data collection based on medical records,
  - Study population:** Number of patients included: 108
  - Patient inclusion criteria:** Patient diagnosed with MM for at least 6 months.
- Availability of the patient's medical record, containing medical data and resources used by the patient during his or her management of MM.

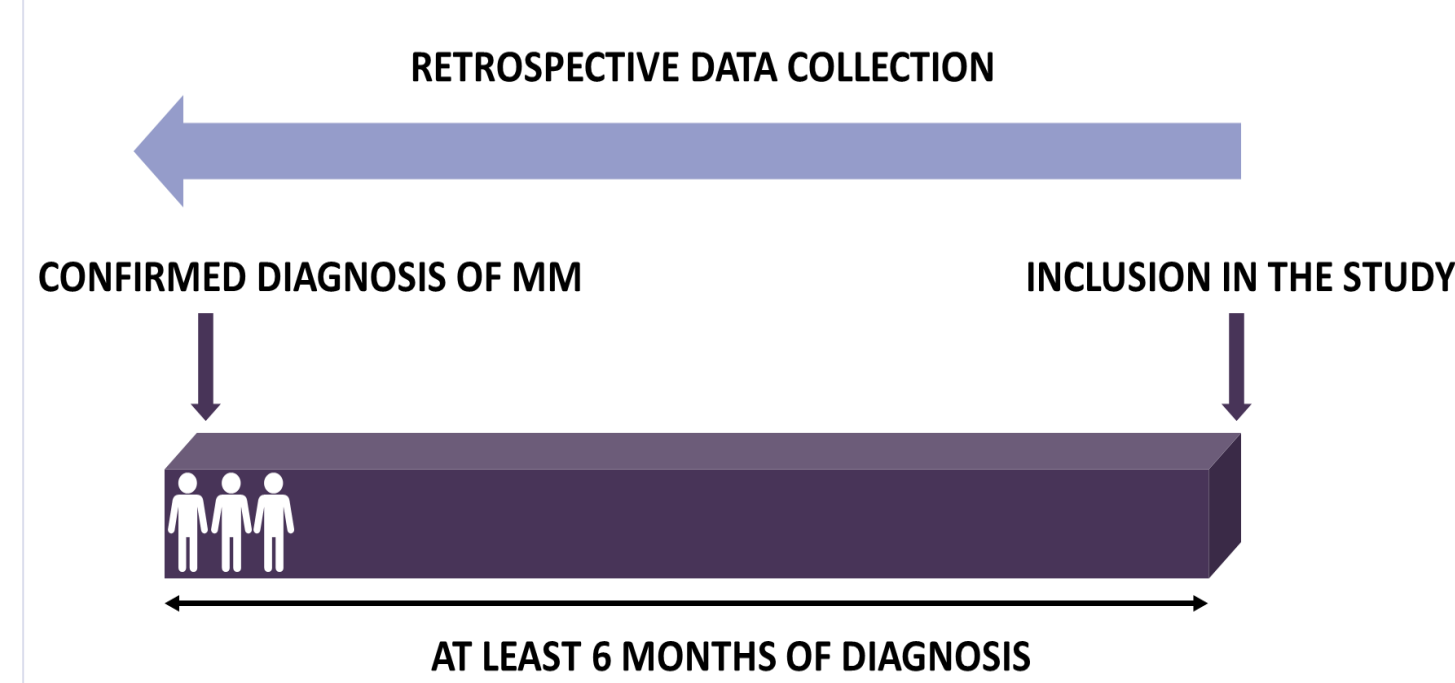
- Participating Centers:** 15 Main centers For the management of MM.  
CAC : CPMC, Batna, Blida, Setif, Tlemcen, CHU : Annaba, Batna, Beni Messous, Blida, Constantine, Oran, Tizi Ouzou, Tlemcen, EHU Oran, EPH Rouiba.

CAC : Anti-Cancer Center EPH : Public Hospital Establishment  
CHU : University Hospital Center EHU: University Hospital Establishment

- Number and criteria of participating physicians:**

31 physicians, Haematologist from the public sector, with medical record of patients followed for MM.

Figure 1: Study design



## RESULTS

- The study population was 63% male with a mean age at inclusion and diagnosis of 60.2 - 58.3 years, respectively.
- 81.5% of the patients lived in urban areas and 41% of the patients in the study were unemployed. The monthly household income of 69.5% of the patients was less than 300€. According to a local study, the incidence of MM in Algeria is 1.1/10<sup>5</sup> (ONS 2020 ≈ 500 patients) with an overall mean age of 64 years<sup>1</sup>.
- This study allowed defining the care pathway and the medical resources consumed in the management of patients with MM.
- The direct cost represent 83% of total costs of management of MM, with an average cost of 19 889,68 € per patient/year, for which the average cost of targeted therapies represents the major part with 39% of these costs.
- The indirect cost represent 17% of total costs of management of MM, These costs generated by MM are manifested by a loss of productivity of the patients and in some cases of their families, this result remains an assumption since this costs are difficult to quantify.

## POSTER HIGHLIGHTS

Table 1: MEDICAL RESOURCES CONSUMED BY PATIENTS

MEDICAL RESOURCES	DETAILS
Consultations for Multiple Myeloma for the last 12 months	Consultation of a general physician
Hospitalizations for Multiple Myeloma for the last 12 months	Consultation of a hematologist
Biological tests due to Multiple Myeloma in the last 12 months	71 Patients hospitalized
X-ray, ultrasound, MRI and CT scans due to Multiple Myeloma in the last 12 months*	Blood count-EPP-Biochemistry-Total Serology-24H proteinuria-Calcium-Medullogram & Others
Surgery due to Multiple Myeloma	X-ray - MRI -CT Scan - ultrasound
Drug treatments used for Multiple Myeloma in the last 12 months	• Autotransplantation & Medullary Autotransplantation(85,20%) • Cementoplasty • Fracture & others
	VCD - VTD -VRD & Other Treatment

V: Velcade - C: Cyclophosphamide - D: dexamethasone - T: Thalidomid - R: Revlimid

Figure 2: Patient Data Description - All Patients

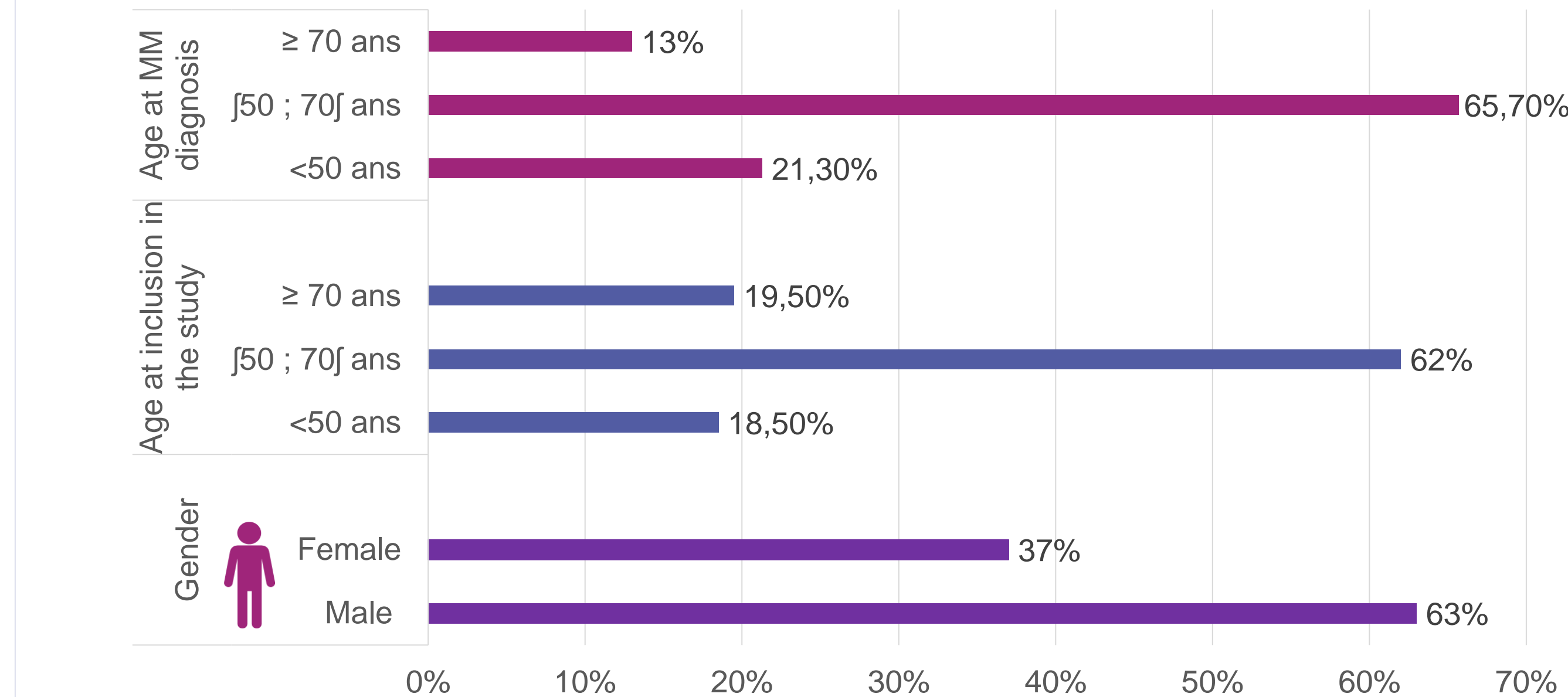


Table 2: Description of Indirect Costs of Multiple Myeloma

INDIRECT COSTS DUE TO MULTIPLE MYELOMA		Number of patients by type of leave	
Productivity Loss	For Total patient (N = 108)		
<b>Number of patients by type of leave</b>		Number of patient	96
N	96	Total absence	31
Total absence	31 (32,3)	Partial absence	21
Partial absence	21 (21,9)		
<b>Partial absence : Number of days of absence per month</b>			
Average (SD)	9.2 (4.7)		
<b>Presence of a third person to help</b>			
YES	54 (51,9)		
<b>Monthly average wage in Algeria</b>			
ONS 2019*	261,25 €		
<b>Average Indirect costs Per year (DZD)**</b>	<b>1839,2 €</b>		

\*ONS: National Office of Statistic

\*\*The annual indirect cost generated by this loss of productivity due to MM (weighted average) : (Average net monthly salary in Algeria) \* (Average number of days of absence per month) \* 12  
Rate: 1€ = 160 DZD

Table 3: Description of Direct Costs of Multiple Myeloma

DIRECT COSTS DUE TO MULTIPLE MYELOMA*		
Costs Type	Total patient (N = 108)	weighted Average €
Consultation	108	328,13 €
Hospitalization	71	1 001,89 €
Radiology Exams	102	349,12 €
Biological testing	108	699,07 €
Therapeutic protocol 1**	101	10 134,97 €
Therapeutic protocol 2***	9	6 366,02 €
Specific therapy****	40	14 884,99 €
Concomitant treatments	97	313,84 €
Premedications	92	909,69 €
Surgery costs	24	2 875,00 €
<b>Total Direct Costs</b>	<b>108</b>	<b>19 889,69 €</b>

\* Data IQVIA-Algeria \*\* VCD (35,2%) - VTD (32,4%)-VRD (9,3%)- Others (23,1%) \*\*\*VCD (11,1%), VRD (11,1%), VTD (22,2%), Others (55,6%) \*\*\*\* Velcade, Thalidomid, Revlimid & Denosumab

Figure 3: Direct Costs Due to Multiple Myeloma

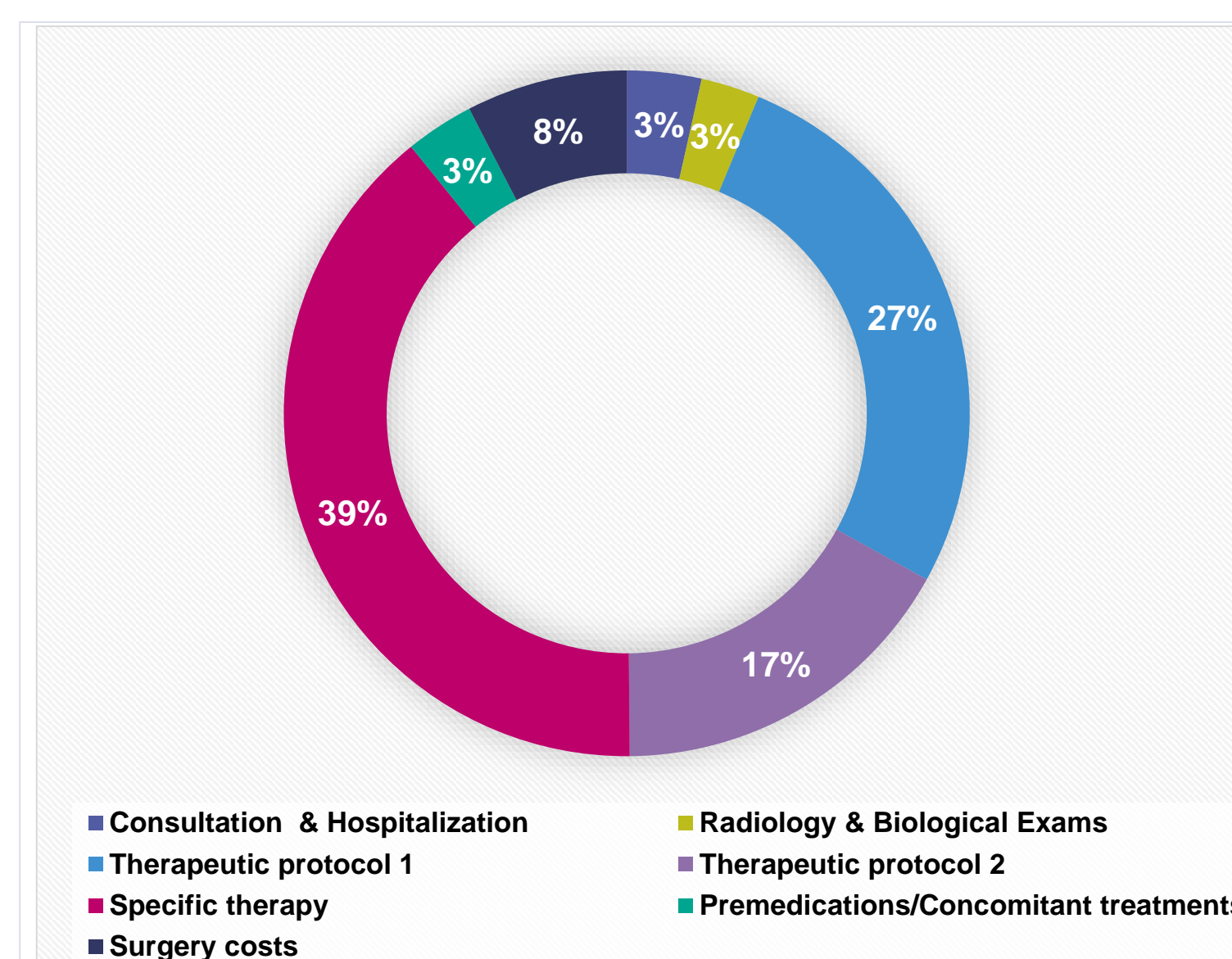
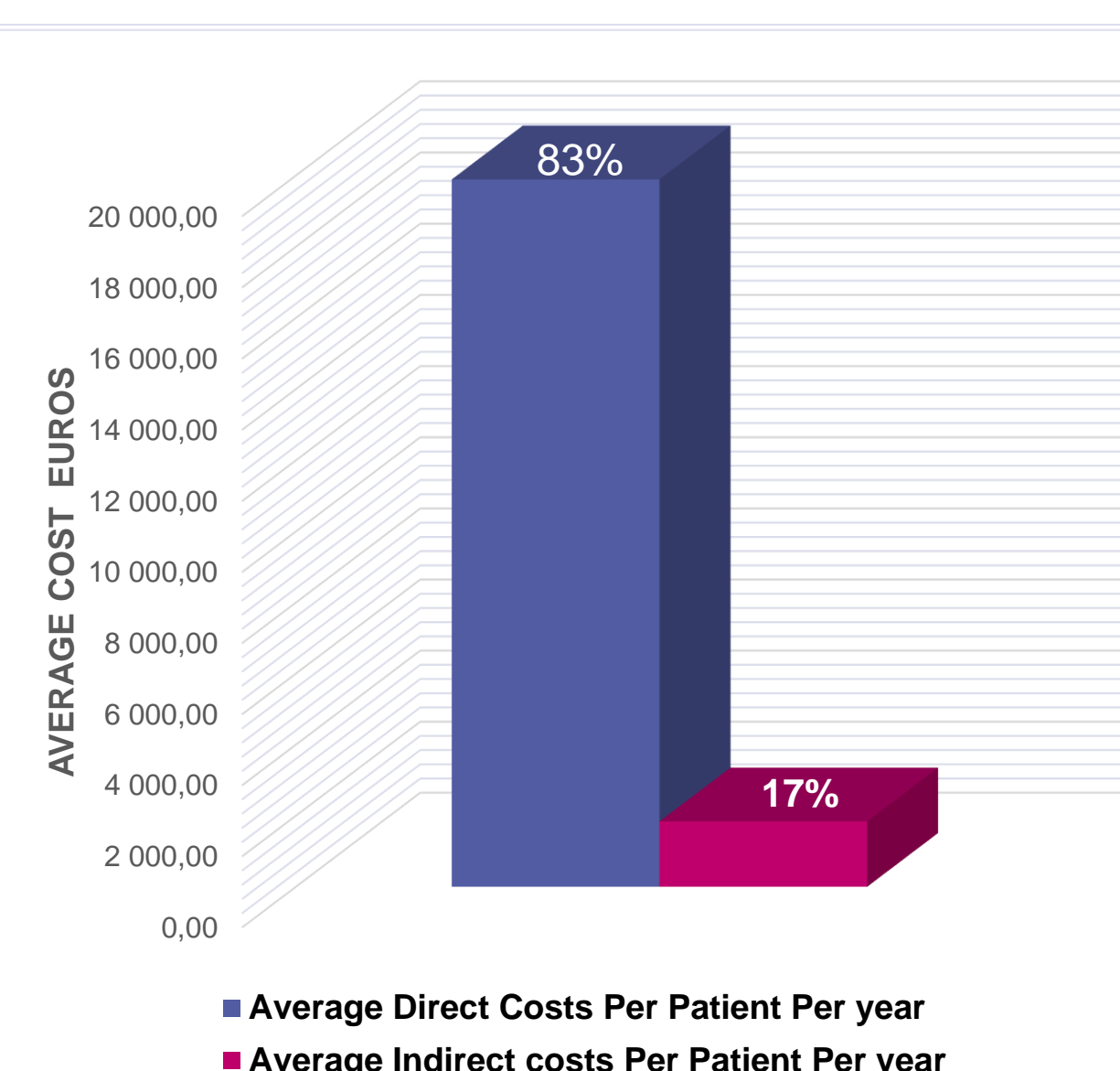


Figure 4 : Costs comparison – Direct Vs indirect Costs



## DISCUSSION

- With the increase in the prevalence of MM in recent years, and the increase in costs of innovative treatments, this study showed that the average total cost of MM management in Algeria is 19 889,68 € per patient/year and the costs of targeted therapies represent the major part with 40%.
- This results illustrate the impact of the cost of MM management in Algeria. These costs are higher than the average cost of 16 149 € per patient/year reported by the CoMiM study in Italy<sup>2</sup>. This difference can be explained mainly by the fact that the CoMiM study was conducted in 2008, when most products for the treatment of MM were not yet widely available. However, these costs are lower than the average cost of 31 449 € per patient/year reported by a study on direct costs of MM in Portugal<sup>3</sup>. This costs difference can be attributed to a broader use of expensive therapies in Portugal compared to Algeria.
- A study conducted in China to estimate the direct medical costs associated with MM revealed that costs varied considerably with treatments, complications, and comorbidities. The socioeconomic status has a substantial impact on the use of public health resources in Chinese patients with MM<sup>4</sup>. Other recent studies have also shown that outpatient visits, hospitalizations and medications were identified as factors associated with the observed increase in costs of MM<sup>5-6</sup>.

## CONCLUSION :

- This study is a first one that had estimated the economic burden of MM management and from societal perspective in Algeria and MENA region.
- The direct and indirect costs of MM in Algeria represent a real economic and societal burden for patients and health authorities. These results will help raise awareness of the disease and stimulate further scientific research and investment in MM health care management, resource optimization, and improved quality of life for patients.

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