

ESTIMATION OF THE ECONOMIC BURDEN OF RENAL COMPLICATIONS OF DIABETES IN ALGERIA

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INTRODUCTION

Diabetic nephropathy (DN) or diabetic kidney disease is a chronic renal complication of diabetes. It is a progressive condition categorized into five stages, requiring for its management an increasing resource use that weighs on the health systems. The present study is aimed to estimate through cost-of-illness method, the cost of management of DN from a societal perspective in Algeria.

METHODS

The study was conducted in a public hospital and a dialysis center located in Algiers using a 3-step approach.

- Clinical care data such as characteristics, medical tests and treatment profile were collected from diabetic patients' files followed-up for a year to record the resources used when receiving standard care. The patients' files were classified by stages of ND following Mogensen classification.
- The collection of the associated costs was carried out in the public center and when unavailable, at private centers in central, eastern and western Algiers to determine average costs.
- The data collected were combined and incorporated into an economic model following the cost-of-illness method to estimate the cost of management of DN by stage of evolution from a societal perspective.

RESULTS

Each stage of DN having its own clinical management, resource consumption differed in terms of imaging, biological monitoring, drugs and replacement therapy (dialysis) when necessary. The patients' files included in the study, were classified by stage of evolution of DN.

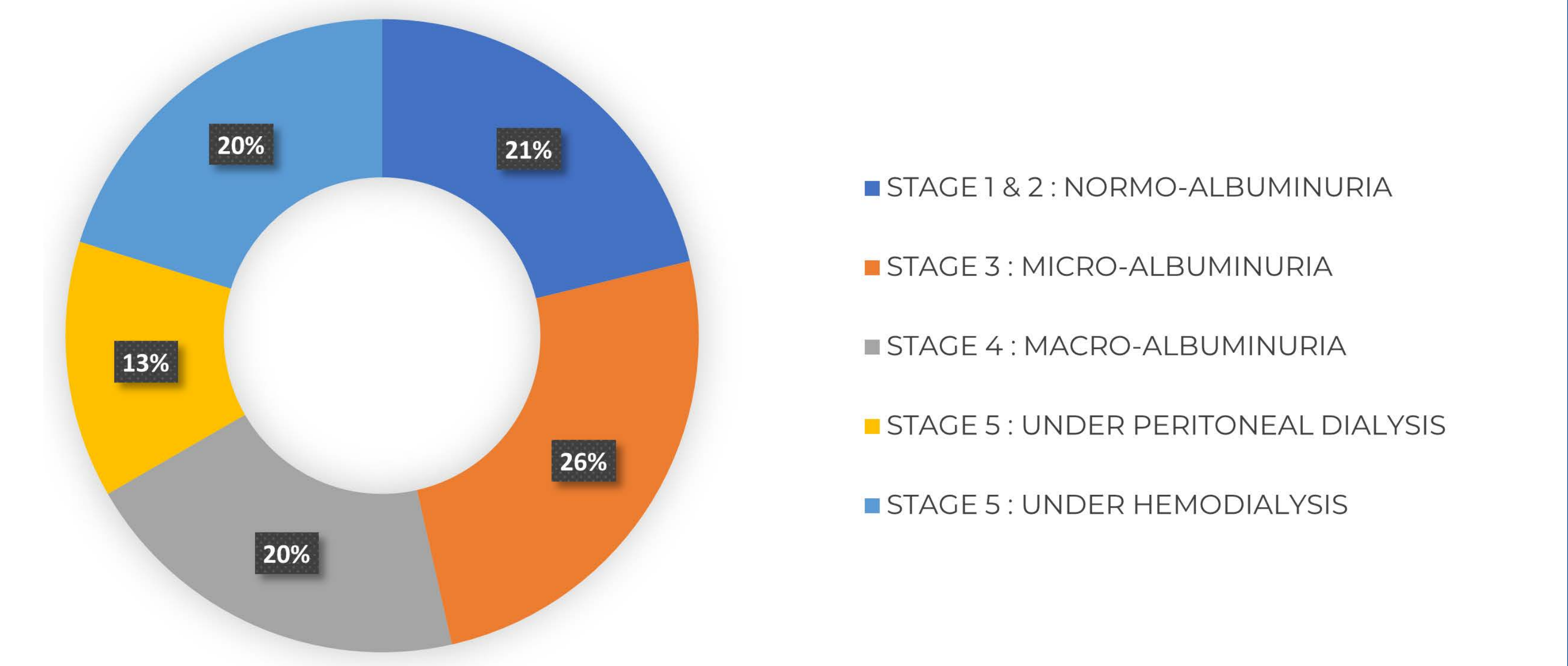


Figure 1. Pool of patients distributed by stage of DN.

The resources consumption increased with the disease progression. The cost of illness per patient per year for a diabetic patient with stage 1 or 2 of DN was estimated at €498, stage 3 at €818, stage 4 at €931 and for a diabetic patient in terminal stage under hemodialysis at €7,552 or under peritoneal dialysis at €5,927.

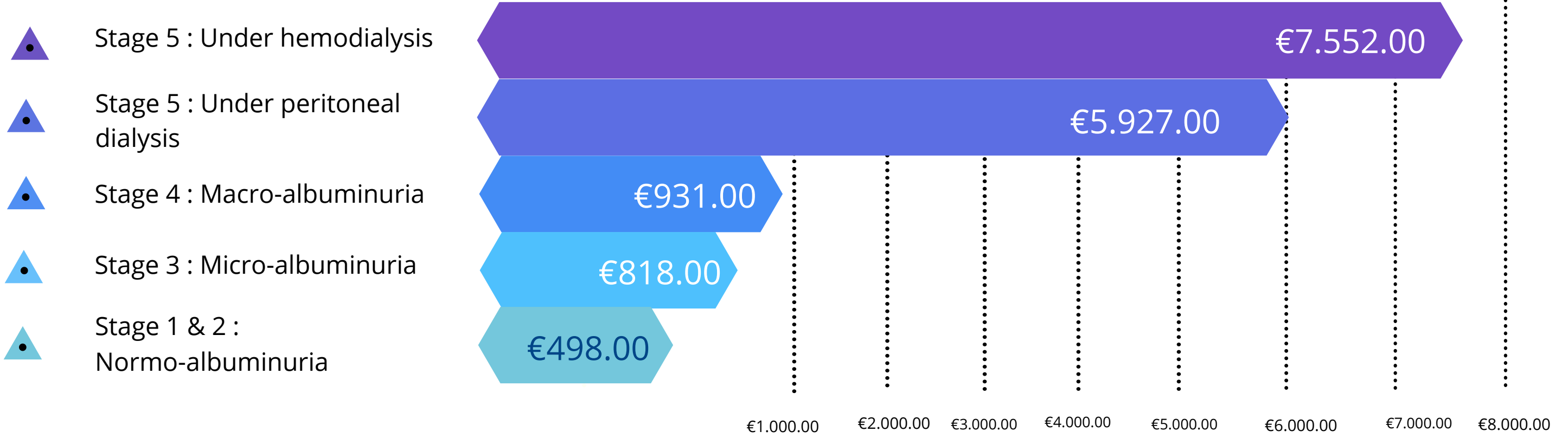


Figure 2. Average annual cost of management of DN per patient and per stage.

Most of the direct medical costs were spent on drugs for all stages except for the terminal stage, where replacement treatment expenses were more significant. In the stage 5 group, peritoneal dialysis expenses absorbed 71% of total costs, estimated at 4234€ per patient per year and hemodialysis absorbed 80% of total costs, estimated at 6039€ per patient per year.

Table 1. Direct medical costs per patient per stage of DN.

	Stage 1 & 2 : Normo-albuminuria	Stage 3 : Micro-albuminuria	Stage 4 : Macro-albuminuria	Stage 5 : Under peritoneal dialysis	Stage 5 : Under hemodialysis
Imaging	€ 35,61	€ 36,08	€ 32,85	€ 65,78	€ 91,25
Biological monitoring	€ 80,98	€ 119,51	€ 155,26	€ 167,77	€ 210,83
Drugs	€ 380,98	€ 662,51	€ 742,80	€ 1 211,76	€ 929,77
Replacement therapy (Dialysis)				€ 4 233,93	€ 6 039,21
Surgery associated with dialysis				€ 248,25	€ 281,35

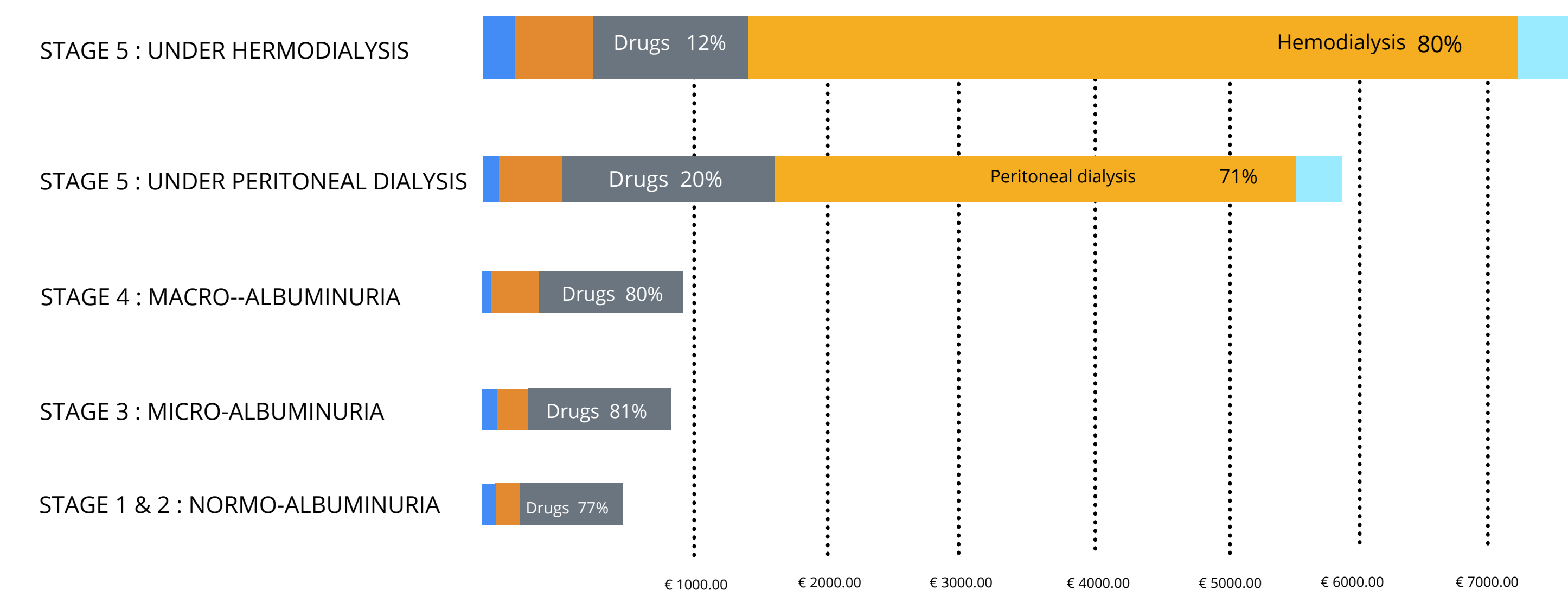


Figure 3. Total annual cost per patient per stage of DN, breakdown by cost category.

From a clinical as well as economic perspective the interest is to slow the progression towards stage 5, also called end-stage kidney disease where the condition is life-threatening and replacement therapy and associated cost is heavy.

CONCLUSION :

The cost associated with the management of the renal complications of diabetes is heavy on the Algerian health system. Hence, strategies should be implemented to reduce this burden, such as a focus on prevention, awareness and the introduction of innovative therapies for better outcomes for both patients and the health system.

