

# Point-of-Care Testing for Urine Analysis of Microalbuminuria for Diabetic Patient Management

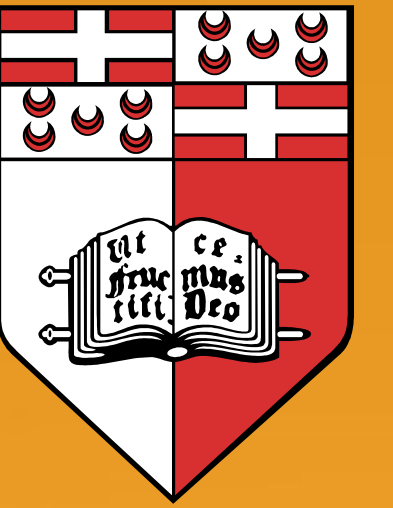
Shaun Ungaro, Lilian M. Azzopardi, Anthony Serracino-Inglott

Department of Pharmacy, Faculty of Medicine and Surgery, University of Malta, Msida, Malta

email: shaun.ungaro.08@um.edu.mt



Department of Pharmacy



University of Malta

## INTRODUCTION

Microalbuminuria is defined as the urinary albumin excretion (UAE) rate of  $30\text{-}300\mu\text{g mg}^{-1}$  if the concentration of albumin is measured in an albumin to creatinine ratio (ACR)<sup>1</sup>. The definition of point-of-care testing (POCT) is diagnostic testing performed outside of a central laboratory at the scene of patient care, such as a community pharmacy<sup>2</sup>.

## AIMS

- To implement point-of-care testing (POCT) in the community pharmacy setting for the urine analysis of microalbuminuria.
- To study accuracy and practicality of the service.

## METHOD

- Three community pharmacies were used to randomly recruit 25 type 1 or 2 diabetic adult patients who were over 18 years old.
- Each patient provided a urine sample which was analyzed using the Clinitek Status<sup>®</sup> Analyzer to yield results for the presence of microalbuminuria and glucose levels.
- Patients then underwent a finger prick test to determine blood glucose levels using the Bionime<sup>®</sup> GM550.

- Those patients who tested positive for microalbuminuria in the urine test underwent HbA1c testing using the DCA 2000+<sup>®</sup> Analyzer.
- A patient characteristics form containing questions relating to patient demographic information and current drug therapy was completed.
- Patients were also asked questions relating to the quality and usefulness of the service offered.

## RESULTS

Out of the 25 patients tested:

- Mean age was 62.2 years (Range: 23-84 years).
- Four had abnormal levels of HbA1c (9.5%). Of these four, two had BMI's in the obese category ( $>30\text{ kg/m}^2$ ) while three suffered from hypertension.
- Mean duration patients suffered from diabetes was seven years and 24 were type 2 diabetics.
- Eleven suffered from hypertension.
- The most common drug class taken were oral hypoglycaemics (n=21) followed by ACE inhibitors (n=9).
- Testing in pharmacies was deemed useful by 23 patients with easy accessibility the most common reason (n=18).

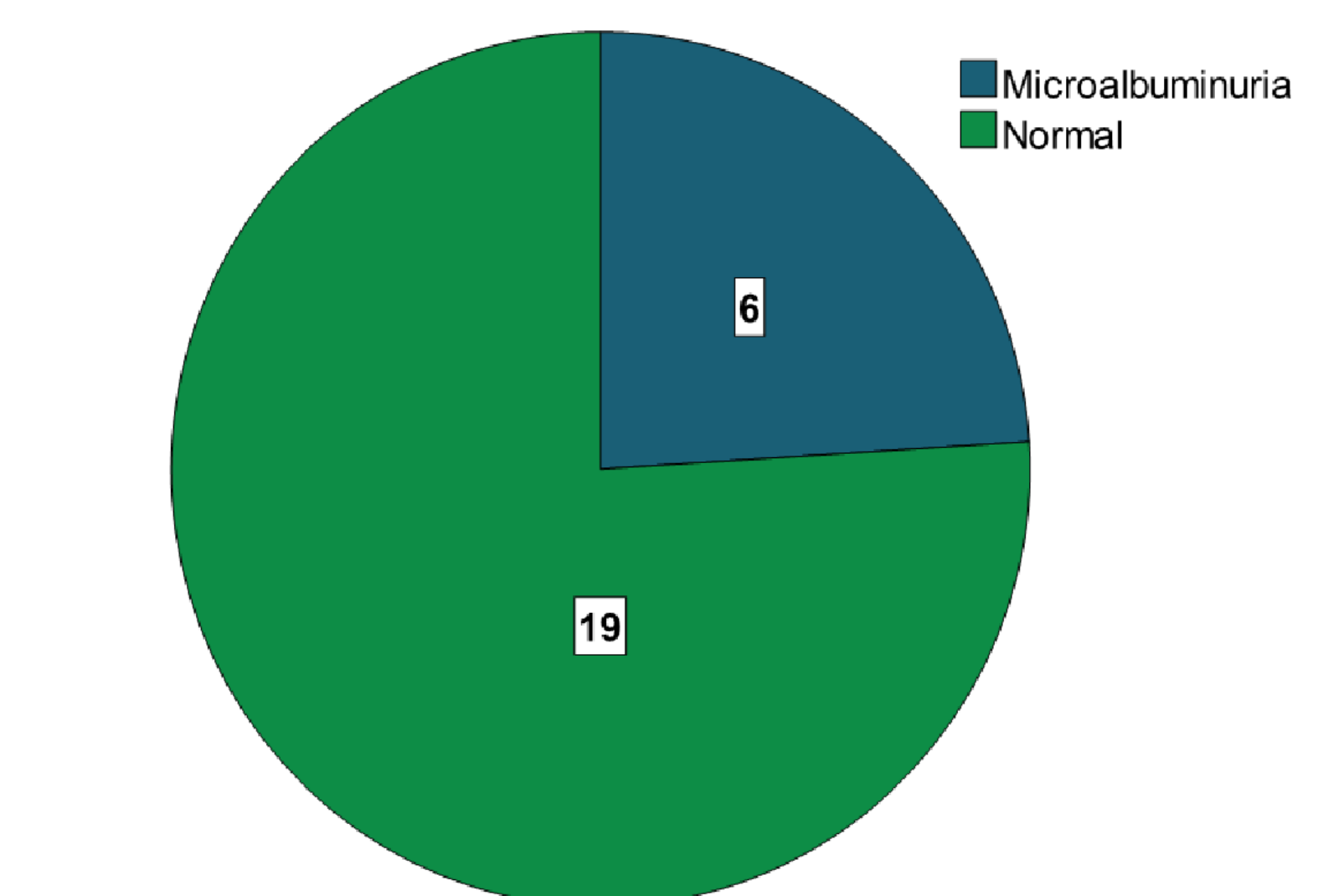


Figure 1 Occurrence of microalbuminuria (N=25)

Twenty two would use the service with the most common fee cited between €4.00 - €6.00 for the strip test.

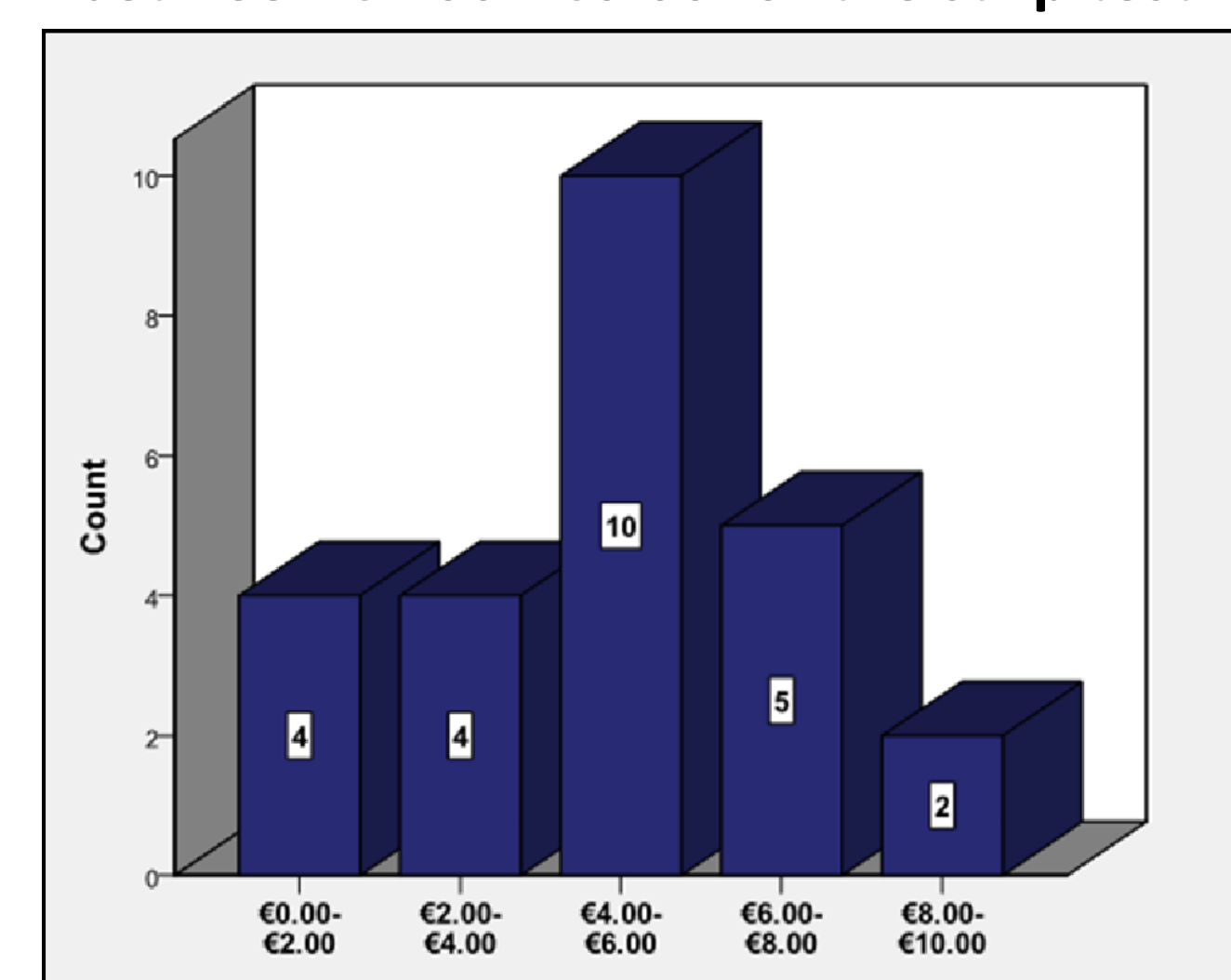


Figure 2 Fee patients would consider reasonable for the service offered (N=25)

## CONCLUSION

The cost per strip needed to conduct the test is €1.60 which is well within the range patients expect to pay. The initial outlay for the acquisition of the Clinitek Status<sup>®</sup> Analyzer may be hard to recover unless testing occurs at a steady rate for a long period of time. Despite this the charge that can be asked for the service offered will be more than sufficient to cover the cost of the consumables and time taken to perform the test.

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**References:**

1. Zamora CR, Cubeddu LX. Microalbuminuria: do we need a new threshold? *Journal of Human Hypertension*. 2009; 23: 146-149.
2. Parikh CR. A point-of-care device for acute kidney injury: a fantastic, futuristic, or frivolous 'measure'? *International Society of Nephrology*. 2009; 76: 8-10.