

# Haemoglobin Point-of-Care Testing

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## INTRODUCTION

This study seeks to evaluate the efficacy of point-of-care testing (POCT) in the monitoring of haemoglobin (Hb) in patients suffering from chronic diseases such as diabetes and chronic kidney disease (CKD), using two devices namely Stat-Site M Hgb and Diaspect Tm.

## AIMS

- To determine and compare performance characteristics of the two Hb POCT devices against standard laboratory testing
- To evaluate patients' and pharmacists' perception on introducing this service in a community pharmacy

## METHOD

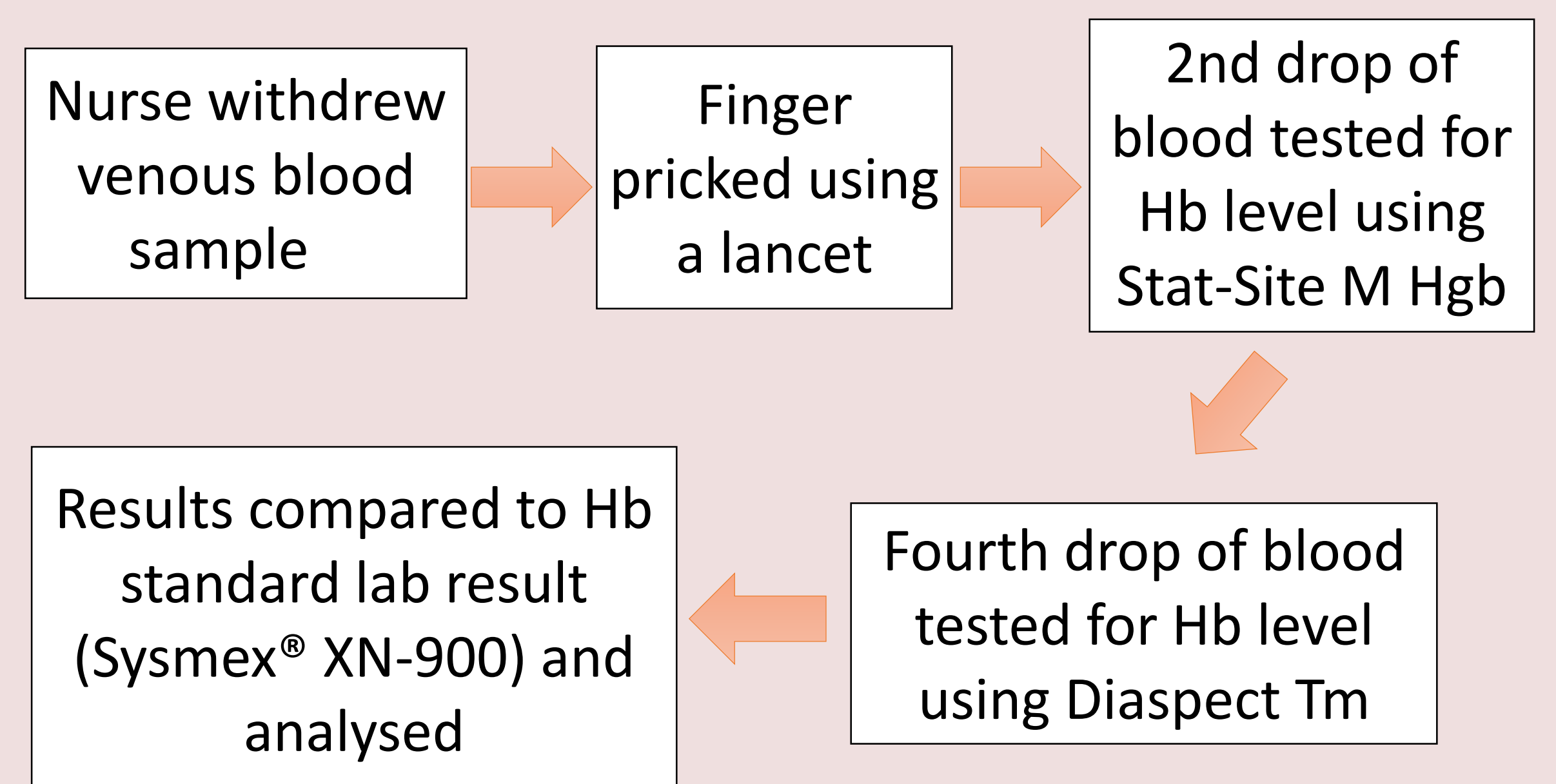
### Part 1

- 72 subjects recruited and tested using both devices.
- Subjects were suffering from CKD (n=24), diabetes (n=24) or were otherwise healthy (control) (n=24).

### Part 2

- 20 subjects from each patient group (n=60) were recruited and tested once using Diaspect Tm only.
- Patient perception (n=60) and pharmacist perception (n=25) were measured through a questionnaire.

### Testing procedure



## RESULTS

Specificity was higher for Diaspect Tm (51%) than for Stat-Site (16%). Improvement in all performance characteristics of Diaspect Tm in part 2: sensitivity of 100%, specificity of 75%, Positive predictive value (PPV) 38%, Negative predictive value (NPV) of 100% and accuracy of 78%

|        | Result          | Mean Diaspect result in g/dl | Mean standard result in g/dl | P-value      |
|--------|-----------------|------------------------------|------------------------------|--------------|
| Part 1 | Healthy (n=24)  | 13.5                         | 14.7                         | <0.001       |
|        | Diabetic (n=24) | 12.2                         | 13.4                         | <0.001       |
|        | CKD (n=24)      | 12.0                         | 12.9                         | 0.007        |
| Part 2 | Healthy (n=20)  | 13.7                         | 15.3                         | 0.001        |
|        | Diabetic (n=20) | 12.9                         | 13.9                         | <0.001       |
|        | CKD (n=20)      | 11.8                         | 12.5                         | <b>0.117</b> |

Table 1: Comparison of mean Diaspect Hb value with mean lab standard value

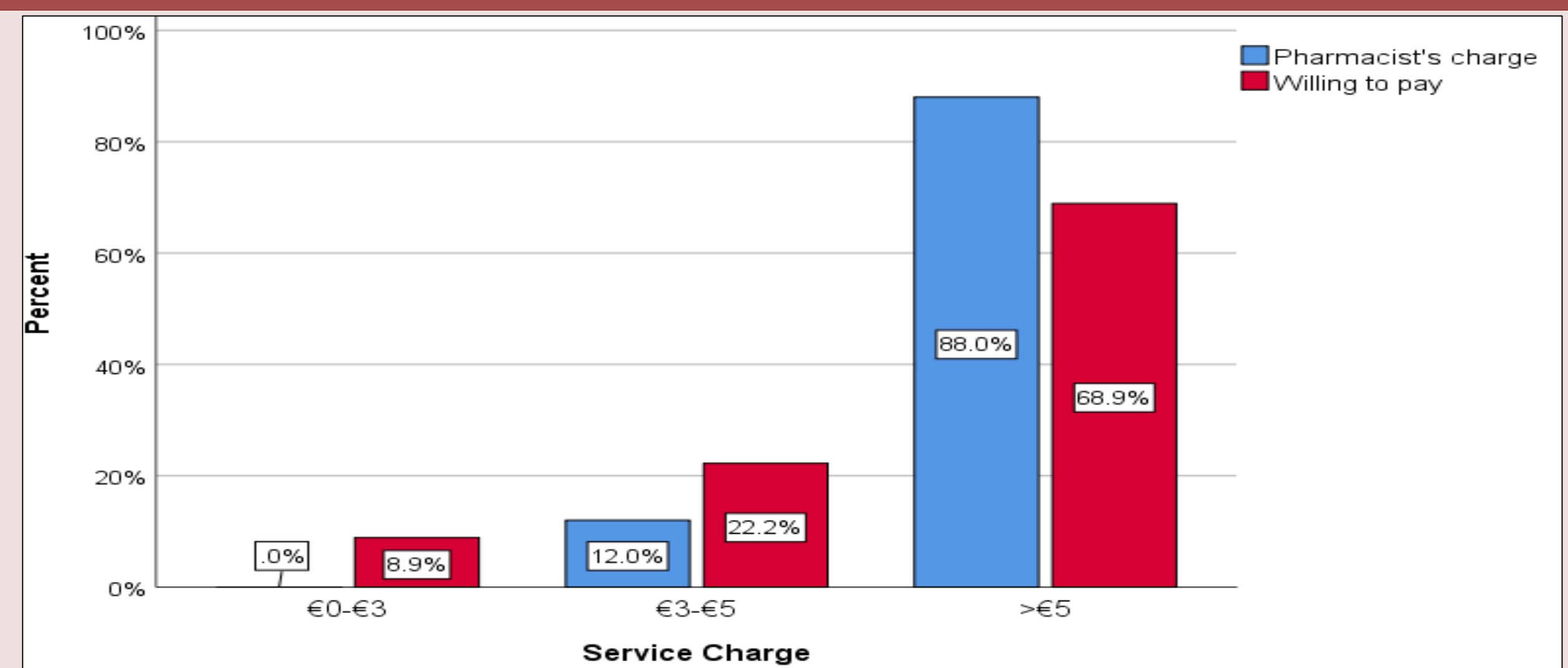


Figure 1: Association between pharmacists' charge (n=25) and the charge willing to be paid by patients (n=60)

- All patients (n=60) were willing to undergo this test again and 75% (n=45) were willing to pay for a POCT Hb test.
- 64% (n=16) of pharmacists were willing to invest in such a device to offer this service. There is an association between the amount willing to be paid by patient and the pharmacist's charge.

## CONCLUSION

The better performance characteristics, the rapidity and the ease of use of Diaspect Tm render it a better Hb POCT device compared to STAT-Site MHgb. Results were in accordance with the standard at Hb concentrations ranging from 10.4 to 13.9 g/dL in CKD patients (p=0.117). Statistically significant differences were observed at higher Hb concentrations with mean differences ranging from 0.91 to 1.57g/dL. POCT for haemoglobin may be offered from community pharmacies as a screening method to support patient monitoring. Diaspect Tm was shown to be especially useful in patients who are known to be anaemic.

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