ANALYSIS OF THE PERFORMANCE OF THE *Neo*MAP® 4PLEX AT KIT FOR SIMULTANEOUS DETECTION OF TOTAL ANTIBODIES AGAINST SYPHILIS, CHAGAS, HTLV ½ AND HEPATITIS C.

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INTRODUCTION

Serological diagnosis in prenatal screening is crucial for preventing diseases. Detecting various types of antibodies against infectious diseases helps avoid infants developing long-lasting and hidden illnesses that can reduce their lifespan and overall well-being. Advances in disease screening have led to the use of new technologies, like the xMAP® multiplex platform from Luminex Corporation. This multiplex assay enables efficient sample utilization and reduces result turnaround time by testing multiple factors simultaneously.

OBJECTIVE: to evaluate the performance of the *Neo*MAP® 4plex AT multiplex kit for prenatal screening of total antibodies against Syphilis, Chagas, HTLV 1/2 and Hepatitis C (HCV).

METHODS

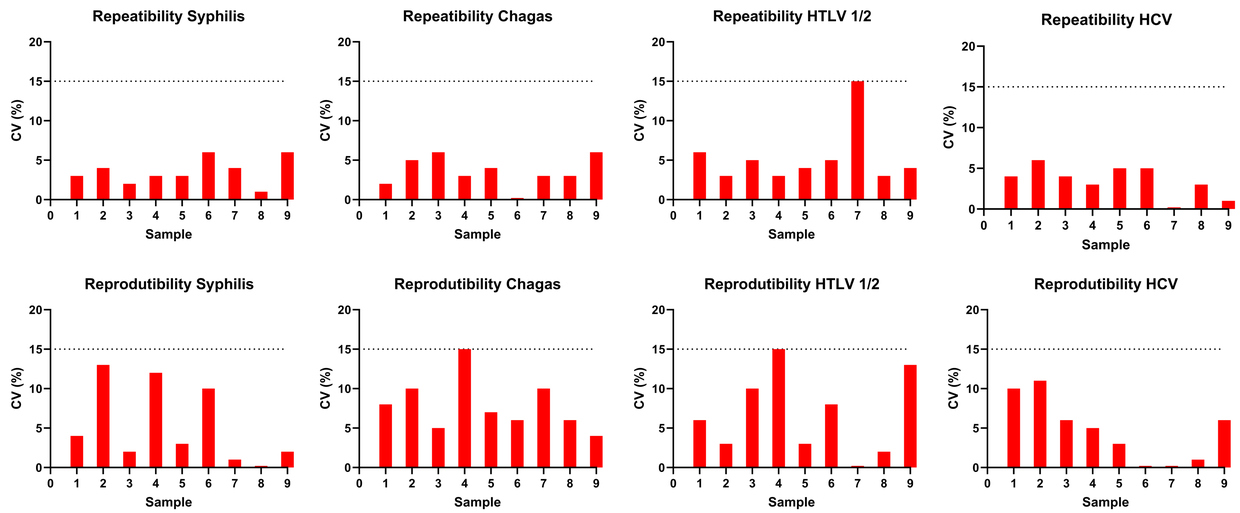
- Samples in dried blood spot (DBS) with previous characterization was used from a reference method, on presence or absence of the antibodies against the studied conditions.
- The samples were tested with a multiplex kit that uses a bead-based technology (Luminex corporation) and the resulting data is expressed in Medium Fluorescence Intensity (MFI) produced in the MAGPIX® equipment.
- ROC analysis was performed in the R software to obtain sensitivity, specificity, AUC, cutoff, and confidence interval (95% CI) values.
- Precision (repeatability and reproducibility) was verified with the formula CV=Std.dev/mediam*100.

RESULTS

Figure 1: ROC Analysis.

ROC	SYPHILIS	CHAGAS	HTLV 1/2	HCV
Specificity	98	98	94	98
Sensitivity	95	100	100	100
Cutoff	652	6447	1100	871
AUC	98.7%	100.0%	98.4%	99.8%
95% IC	97.9% -99.4%	99.9%-100%	96.5% -100%	99.2% -100%

Figure 2: Precision.



CONCLUSION

The fundamental criteria for assessing the performance of the *Neo*MAP® 4PLEX AT multiplex kit in prenatal screening using DBS, demonstrated strong sensitivity and specificity in detecting total antibodies related to the four specified parameters (Syphilis, Chagas, HTLV ½ and HCV), while maintaining low levels of imprecision.

REFERENCES

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