INNOVATING FERTILITY PRESERVATION IN URUGUAY: DEVELOPMENT OF A HOME SPERM BANKING KIT WITH SPERM EXTENDER MEDIUM (FERTIPRO NV)

Barrera, Natalibeth[1, 2, 3,4]; Mariatti, Valeria;[3]; Surka, Carolina [3]; Alciaturi Jimena; [2], Faes Liesbeth[5]; Provoost, Sharen; [5]

[1] Research Division, The Lab Store, Montevideo, Uruguay; [2] IVF Laboratory, Centro de Esterilidad Montevideo, Uruguay ;[3] Reprovita (Lab & Biobank), Montevideo, Uruguay; [4] Faculty of Medicine, Department of Histology, Laboratory of Reproductive Molecular Biology, UDELAR, Uruguay; [5] FertiPro NV, Belgium.

INTRODUCTION

Access to fertility preservation services in Uruguay is largely centralized, creating barriers for individuals living outside the capital. The development of a home sperm banking kit incorporating a Fertipro extender medium validated under laboratory conditions offers a potential solution for remote semen collection and transport. The objective of this study was to evaluate the real-world usability of this kit and to assess the impact of transport conditions on semen quality after shipment.

MATERIALS AND METHODS

Eight semen samples were collected from donors across Uruguay using the kit, which included instructions and informed consent. Samples were transported by courier, and upon arrival, volume, concentration, motility, vitality, and morphology were analyzed. Transport conditions (time, distance, and temperature) were recorded. Motile sperm recovery (REM) was performed post-transport. Associations between transport parameters and semen quality were evaluated with Pearson correlation

RESULTS

Abstinence ranged from 2–48 days; longer intervals were linked to reduced concentration and motility. Transport distances varied between 12–500 km, mostly within 1–2 days. One sample transported for 6 days maintained viability (progressive motility 31%, vitality 67%), while the only failed sample (14 days) was associated with elevated temperature (14 °C). Mean values on arrival were concentration 28.3 M/ml, progressive motility 4.9%, total motility 36%, vitality 63%, and morphology 4.4% (Table 1).

Table I. Semen parameters of samples received at the laboratory transported using the pre-prototype Home Sperm Banking Kit.

Parameter	n	Minimum	Maximum	P25	Median	P75	Mean	SEM
Volume (mL)	8	1	8	2.5	3.5	5.9	4.28	0.92
Concentration (×10⁶/mL)	8	8	80	13.5	18.5	36.3	28.3	8
Motility Type A (%)	8	0	12	2.8	4	6	4.88	1.37
Motility Type B (%)	8	0	41	14.8	21.5	27.3	21.3	4.33
Motility Type C (%)	8	0	21	6.8	9.5	14	10.4	2.33
Motility Type D (%)	8	42	100	54.5	61.5	69.5	63.9	6.33
Vitality (%)	8	0	93	56.5	69.5	82	63	10.41
Morphology (%)	8	0	7	3.5	5	6	4.38	0.82

Temperature-Dependent Semen Quality After Transport

Samples maintained below 8 °C demonstrated significantly better progressive motility (39% vs 18%), total motility (52% vs 27%), and vitality (81% vs 49%) compared to ≥8 °C (Table 2). Temperature correlated negatively with motility (progressive r=−0.77; total r=−0.84). Distance showed moderate positive correlations (r≈0.4–0.5).

Table II. Semen parameters grouped by arrival temperature

Parameter	< 8 °C (Mean)	Range	≥ 8 °C (Mean)	Range
Progressive motility (%)	39	29 – 45	18.4	0 – 31
Total motility (%)	52.3	46 – 58	27	0 – 47
Vitality (%)	81.3	72 – 93	48.6	0 – 85
Morphology (%)	6	5 – 7	3.4	0 – 6

Post-Transport Motile Sperm Recovery (REM)

After REM processing by density gradient, sperm concentration decreased due to selective separation, but progressive motility markedly improved across all samples. Type A motility frequently exceeded 40–50% post-REM, while slow or immotile sperm (types C and D) were effectively eliminated (Table III) These findings confirm the kit's ability to preserve viable sperm suitable for selection and use after transport.

Table III. Semen parameters of transported samples after REM

Parameter	Mean	Median	SEM	Min	P25	P75	Max
Concentration post-REM (×10⁶/mL)	14.41	6.75	17.9	3	5.25	13.12	50
Type A motility post-REM (%)	32	30.5	21.48	10	12.75	50.5	57
Type B motility post-REM (%)	34.16	31	13.68	19	26.5	38.5	58
Total motility post-REM (%)	72.5	82.5	22.24	32	66	87	89
Progressive motility recovery rate (%)	53.31	53.45	13.64	33.33	46.98	59.34	73.52
Total motility recovery rate (%)	41.22	44.41	13.52	18.75	35.11	50.55	55.17

Usability Survey of the Home Sperm Banking Kit

A post-use survey was conducted via WhatsApp to assess user experience, logistics, and comfort when using the Home Sperm Banking Kit (see figure 1)

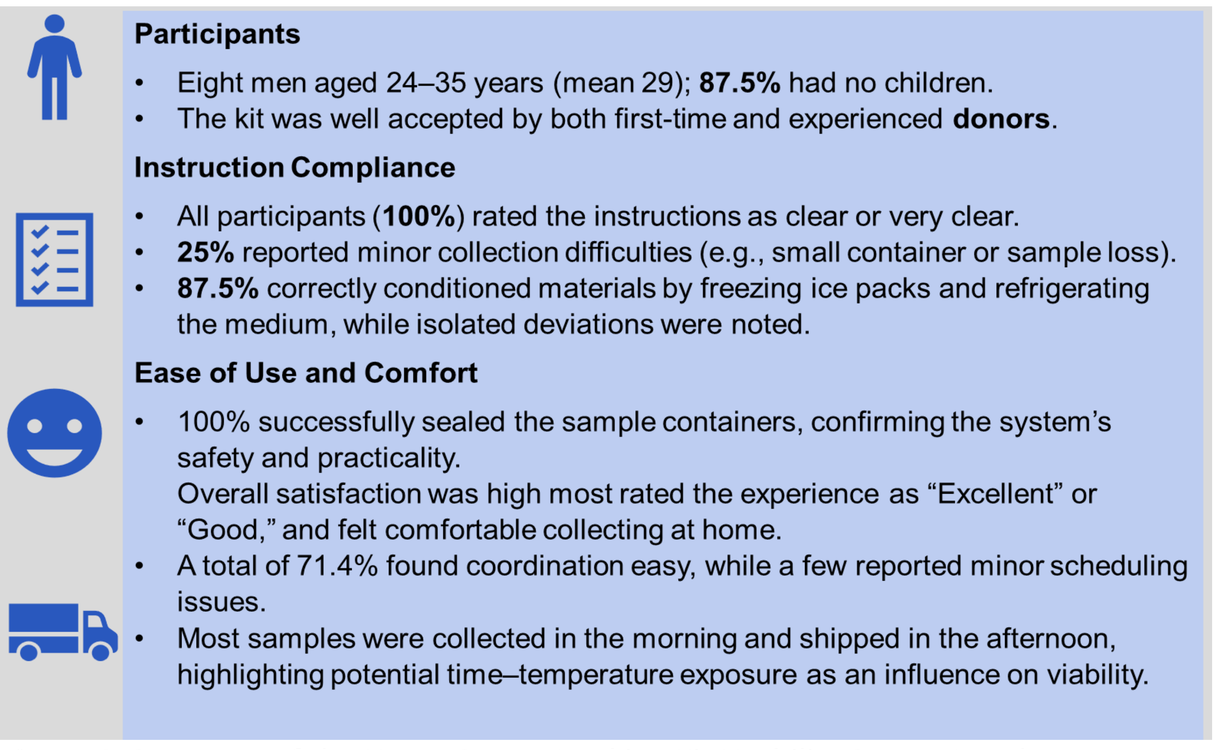

Figure 1. Summary of the Home Sperm Banking Kit Usability Survey Results.

CONCLUSIONS

This locally developed kit allowed safe semen transport when kept ≤8 °C and ≤48 h, with viability maintained up to 6 days. Failures were linked to temperature rather than distance. Post-REM recovery restored motility, confirming usability.

REFERENCES

ACKNOWLEDGMENTS AND CONTACT

The authors would like to thank to the National Agency for Research and Innovation (ANII, Uruguay) for its financial support, which made the development and validation of the Home Sperm Banking Kit possible. For more information please contact: natalibeth@thelabstore.com.uy

https://rm2030.cme-congresses.com/