Colli-Pee™

Co-creation and human factors engineering to drive the design and development of a next generation Colli-Pee™ home-based first-void urine collection.

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BACKGROUND & OBJECTIVES

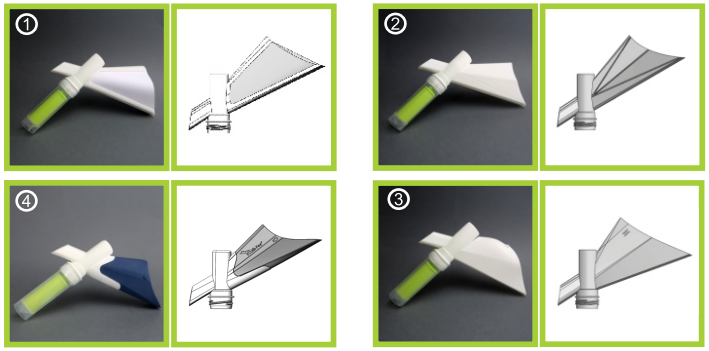
Home-based urine sampling offers a solution to reach more women and increase participation rates in cervical cancer screening and vaccination programs populations. The aim of the study was to design and develop a next-generation Colli-Pee™ allowing for standardized and guaranteed collection of first-void urine that is optimally suited for postal delivery and home-based collection. The Colli-Pee™ offers a solution for both men and women.

METHODS

As part of an EU Grant (INTERREG; Crosscare), two co-creation sessions were organized in collaboration with living labs Happy Aging (BE) and EIZT (NL). A total of 20 healthy volunteers evaluated and scored new designs (prototypes) of the urine collection device. Additionally, insights were gathered on home-based collection and internet offerings.

A distinct choice was made for the prototype that scored best for time of sampling (8.3), user-friendliness (8.3), and choice of material (8.6). Hygiene, no chance for leakage/spilling, ergonomics and user-friendliness were the characteristics that were rated most important to implement in the next generation of the Colli-Pee™. We did not see differences in preference between the Netherlands and Belgium with regard to the design.

Next, a larger usability study was conducted to provide insights into the entire process of home-based sampling: from the online order and receiving the Colli-Pee™ with a flexible and comfortable funnel to the actual collection of urine and returning of the sample to the lab. During this study, no analyses were performed on the urine sample. The returned samples were checked for leakage, the collected volume and the condition of the returned box was evaluated.



Best scoring Colli-Pee prototype with a flexible and comfortable funnel

The final design of the Colli-Pee™ for postal delivery and home-based collection contains a flexible and comfortable funnel and is combined with a standardized 10 ml tube to ensure compatibility with commercial carriers for sample processing. The Colli-Pee™ is delivered in a postal box, which includes a safety bag with absorbing tissues, closing stickers, a retoursticker and a card with personal code.

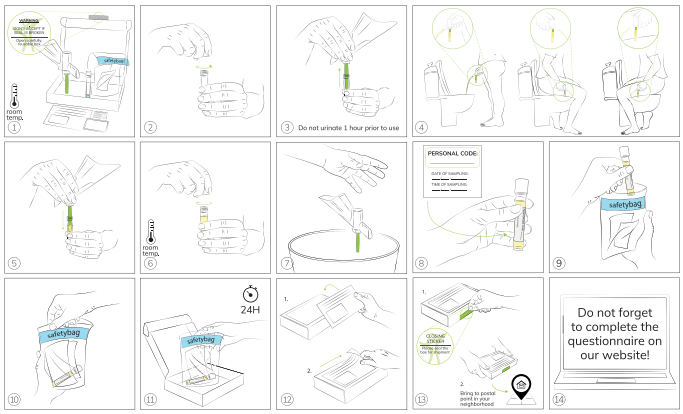
RESULTS & CONCLUSIONS

RECRUITMENT

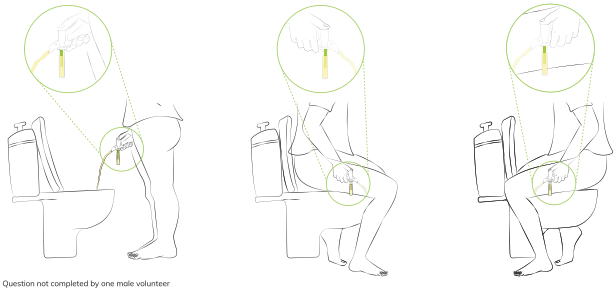
18-24 years:	20	♂ 22
25-34 years:	21	♀ 37
35-44 years:	18	

CURRENT PARTICIPATION (Belgium)

18-24 years:	11	♂ 13
25-34 years:	15	♀ 25
35-44 years:	12	



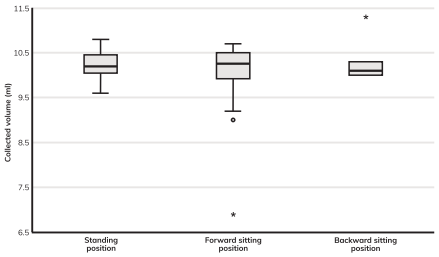
21% of the volunteers mention that they did not use the instructions to assemble the Colli-Pee, indicating that the device is easy to assemble and self-explanatory. There was also no link between using the instructions and the satisfaction about the Colli-Pee assembly.



* Question not completed by one male volunteer

STANDING POSITION	FORWARD SITTING POSITION	BACKWARD SITTING POSITION
♂ 11 ♀ 1	♂ 1 ♀ 19	♂ 0 ♀ 5
0 cases of spillage	8 cases of spillage	3 cases of spillage

A positive correlation between the pee position of the volunteer and the chances of spillage during urine collection was observed (p=0.003 and r=0.469, Spearman's rho test). The forward sitting position caused most spillage (8 out of 25; 32%), followed by the backward sitting position (3 out of 25, 12%), while the standing position did not cause spillage. In men, spillage was not reported.



There was no difference between collected volume for the different pee positions used (p=0.996, Kruskal Wallis Test; mean (SD): 10.21 (0.34), 10.00 (0.86), 10.34 (0.55), respectively).

89% would recommend Colli-Pee to others

100% of packages were intact upon arrival

86% prefers postal delivery for future Colli-Pee usage

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Come and see us at booth 21 for more information

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