N. LAPIERRE, J. MEUNIER, J. FILIATRAULT, A. ST-ARNAUD, M-H. PAQUIN, C. DUCLOS, L. DUBREUCQ, H. MOFFET, M. MORIN, M-H. MILOT, C. DUMOULIN, J. ROUSSEAU. **A methodology of implementing a video monitoring system for community-dwelling elderly.** *Gerontechnology 2016; 15(suppl):87s*; doi:10.4017/gt.2016.15.s.809.00 **Purpose** Ambient technologies facilitate Aging-in-Place[1]. However, few were studied among community-dwelling elderly[2]. In our recent study about home-dwelling elderly at risk of fall, a video monitoring system (VS) was implemented at home to monitor walk, balance and person-environment interaction. The study aims to describe a methodology for implementing a VS at home of elderly women at risk of fall, to monitor night walks in situation of urinary urgency. **Method** Using a multiple case study design[3], the experiment included two parts: (i) pre-testing of the VS in an apartment-laboratory; and (ii) home implementation. The first part was a simulation of daily living situations, different settings and materials to test the VS and ensure it would fit to various contexts. Participants for the second part (women, ≥65 years old) were selected as it follows: (i) having experienced falls during the past year (≥1 fall); (ii) living alone; and (iii) walking to the toilet at night. Four women (mean age: 75 years old) participated (n=3 continent; n=1 incontinent). In a pre-implementation visit, home characteristics were collected (eg. sketches) and a semi-structured interview was performed to collect their habits and opinion regarding VS technologies. A multidisciplinary team (rehabilitation, computer sciences) discussed the setting of the VS based on this information. Then, the VS (*Figure 1*), wide angle cameras equipped with SD cards and fixed on tripods, was installed (7 nights) in the bedroom, the bathroom and the hallway to observe characteristics of the person (eg. balance), the environment (eg. carpet) and the person-environment interaction (eg. mobility at home). Cameras were programmed to record only when a movement was detected during a time window chosen by the participant (eg.11:00pm to 7:00am). Two visits were carried out to verify the VS functioning: the day after the implementation, and at mid-term. Daily phone calls permitted to check participants' well-being and the VS. The eighth day, the VS was collected and a semi-structured interview, similar to the first one, was performed. **Results & Discussion** Implementation was successful. The VS monitored walks seven nights, according to the time window chosen. It enabled to isolate elements impacting risk of fall (eg. night lamp). Most participants felt comfortable about it but they had requirements regarding its setting. Few difficulties related to the VS (eg. sensitivity), the home (eg. few outlets) or the person (eg. privacy) arose. The methodology developed for this study, facilitated the implementation, helped overcome difficulties (eg. complex setting)[4] and showed the need for a system adaptable to home diversity and preferences[1]. The study suggests a promising methodology to implement a VS for community-dwelling elderly.

References

1. Hoof J van, Kort HS, Rutten PG, Duijnstee MS.,. Ageing-in-place with the use of ambient intelligence technology: Perspectives of older users. International Journal of Medical informatics 2011;80(5):310-331; doi:10.1016/j.ijmedinf.2011.02.010
2. Chen K-Y, Harniss M, Patel S, Johnson K. Implementing technology-based embedded assessment in the home and community life of individuals aging with disabilities: a participatory research and development study. Disability and Rehabilitation: Assistive Technology 2014;9(2):112-120; doi:10.3109/17483107.2013.805824
3. Yin RK. Case Study Research: Design and Methods. Washington: SAGE; 2013
4. Reeder B, Meyer E, Lazar A, Chaudhuri S, Thompson HJ, Demiris G. Framing the evidence for health smart homes and home-based consumer health technologies as a public health intervention for independent aging: A systematic review. International Journal of Medical Informatics 2013;82(7):565-579; doi:10.1016/j.ijmedinf.2013.03.007

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Figure 1. Video monitoring system.