

P.-M. Chapon, F. Renard, B. Boudin, Using GPS tracking units to study the mobility of older people. Gerontechnology 2010;9(2):272; doi:10.4017/gt.2010.09.02.173.00

Purpose The study of the territorial behaviour of a population helps to specify their needs for local services, provision of care and commerce, and consequently to determine the most suitable location for the building of new dwellings¹. Unfortunately the methods proposed prove too subjective². GPS tracking units are relevant tools. The studies undertaken in Lyon and then in Nice use this technology to understand better the patterns of mobility of seniors living in different environments. **Method** The study conducted in Lyon in the autumn of 2008 focused on a sample of 24 women, over 80 years of age, living alone in two different residences. During one week they were equipped with GPS devices each time they went out. They also had to fill in a questionnaire at the end of each day, stating where they had gone, which means of transport they had used, and whether they were accompanied or not. The data are collected on an outside platform and then processed with the questionnaires the volunteers have filled in. The study has exploited 253 trips². The study currently being conducted in Nice is more complete as it includes screening tests (Mini Mental Score³, Geriatric Depression Scale⁴) in partnership with the Nice University Hospital. Its results will be made public. **Results & Discussion** The GPS tracking units prove to be powerful and objective tools to study the mobility of seniors. The collected data make it possible to map the density and intensity of the places elder people go to. However the tool is not sufficient in itself as it doesn't give all the necessary data, and also because it is not totally reliable technically (loss of signal, recharging of batteries). It could be coupled with the use of RFID chips (Radio Frequency Identification) in busy places. This possibility is being tested in partnership with Telecom Bretagne (Brest, France). However the protocol is complex to be used on the scale of a block and a fortiori of a whole town. For the present it remains essential to administer questionnaires to the volunteers in such studies.

References

1. Chapon PM, Renard F. Prise en Compte du vieillissement dans les documents d'urbanisme et de planification [Taking account of aging in city planning]. *Etudes Foncières* 2009;141:18,39-42
2. Chapon PM, Renard F. Construire des logements adaptés aux personnes âgées: une analyse par les territoires de vie à Lyon (France) [Optimal senior citizen residential planning by means of living space analysis in Lyon, (France)]. *Géographica Helvetica* 2009;3:164-174
3. Clément JP, Nassif RF, Léger J-M, Marchan F. Mise au point et contribution à la validation d'une version française brève de la Geriatric Depression Scale de Yesavage [Development and contribution to the validation of a brief French version of the Geriatric Depression Scale of Yesavage]. *L'Encéphale* 1997;23:91-99
4. Thomas P, Hazif-Thomas C. Dépression, présentation clinique et diagnostic chez la personne âgée [Clinical and diagnostic presentation of depression in the older adult] *Revue de Gériatrie* 2003;28(3):247-258

Keywords: GPS, RFID, mobility, seniors, daily trips

Address: Santé, Individu, Société and ICADE, Paris, France;

E: pierre-marie.chapon@icade.fr