

L Ault, A Kachala, F Knoefel, A Frank, B Wallace, J Kaye, C Trudel, N Thomas. *Developing a Caregiver Feedback Response System using a Home-based Sensor Platform. Gerontechnology 2020;19(Suppl.):<page>*.

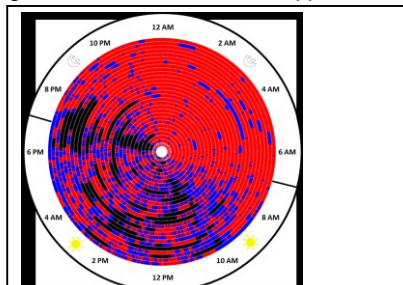
**Background:** As the aging population increases, more individuals with dementia will be cared for by spouses and family members. The role of care partner is associated with higher levels of stress<sup>1</sup>, depression, and reduced sleep quality, factors that are associated with higher caregiver burden<sup>2</sup>. Current caregiver assessment includes diaries, which can create added stress<sup>3</sup>, and other forms of self-report questionnaires<sup>4</sup> that can be affected by inaccuracies in self reporting. Home-based, technology-assisted assessment platforms could provide a novel approach to measure time and effort related to caregiving tasks<sup>5</sup>. For this information to help care partners identify higher levels of stress and respond early, methods for providing feedback on sensor-based outcome measures related to a care partner's health and daily activities need to be developed. **Methods:** A pilot study enrolling individuals with cognitive impairment living with a care partner is already collecting data on health and activity measures using the Collaborative Aging Research Using Technology (CART) sensor platform. Sensor data from the system provides information on daily activity level, sleep measures and time spent together. Through surveys and focus groups we aim to determine the information on daily activities and burden derived from the system that is most relevant to care partners. The second aim is to ascertain the best method to summarize and provide this information to care partners. Surveys were initially collected from care partners of individuals seen at the Bruyère Memory Program. Focus groups and surveys are now being completed online due to current physical distancing measures. Relevant themes extracted from the focus group sessions and survey data will inform development of a preliminary version of a feedback system for caregivers. **Results:** The sensor system is currently installed in the homes of 3 care dyads and collecting data continuously on daily functional activities. The care partner's average age is 61.7 years and sensor data has been collected for a total of 18,768 hours. Care partner opinions have been collected from online focus groups (n=5) with further sessions scheduled. Survey responses have been obtained (n=4) and collection is ongoing. Initial responses from the surveys and focus groups indicate that access to this information could be helpful in identifying stress levels, and could also be relevant to share with their physician. **Discussion:** Objective information obtained from the sensor system could help to more accurately identify stress and burden experienced by care partners. Providing feedback information to care partners directly could help them to identify changes in their level of caregiving activities and seek assistance from health care or community supports earlier.

## References

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**Key Words:** sensor technology, caregiver, cognitive impairment, digital health

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**Figure 1:** Plot of sensor data illustrating the time spent together (red), apart (blue) and out of the home (black) for one house for one month.