Caregiver-assisted Showering Pattern Identification

Why it matters: Bathing constitutes one of the basic activities of daily living (ADLs) important to maintaining independence. An individual's bathing habits offer insight into their health and safety. Bathing also represents an activity caregivers may assist with to support individuals bathing regularly and without incident. The Sovrinti system enables care providers to observe trends in client bathing patterns and ensure caregiving services are performed consistently.

Background: The Sovrinti system utilizes high temporal, spatial, and device use change detection to autonomously identify and quantify activities of specific individuals in a private residence or senior living facility. The examples shown are from an ongoing (2022-2023) pilot program with a large home care provider where the Sovrinti system is installed in the homes of clients. Goals of the pilot include understanding the value added by the system and how best to integrate it into the home care provider's workflow. The examples below represent around 5 months of showering data from a 59-year-old female client residing alone in a one-bedroom, one-bathroom apartment. The client receives 20 hours per week of assistance from a professional caregiver.

Example Data: Figure 1 shows time of day data from 11/12/22 – 4/15/23, with each ring of data representing one day on the face of a 24-hour clock. This plot includes starts (dark blue) and stops (light blue) of showering events for the client. It has been reported that the caregiver assists the client with showering weekly, which the Sovrinti system corroborates. The blue data points reflect a weekly shower most frequently on Mondays between 9:15am and 10am, with each shower event lasting 12 minutes on average. Figure 2 shows corresponding location data for the caregiver (green) that places them in the bathroom at the time of the client's weekly showers (orange circle).

While the majority (86.4%) of showers occurred on Mondays, 3 showers occurred on Tuesdays (Figure 1 orange arrows). In a more structured care context like an assisted living facility, this anomaly detection could prove crucial to identifying any gaps in care and improving operational efficiency. In this case, the shower data shows no gaps in care; the client has had a shower every week for the duration of the pilot program.

Summary: In these examples, an individualized showering pattern is identified for a female client receiving 20 hours of caregiving per week. Shower data reflects regular, caregiver-assisted showers that have remained consistent over time. This pattern provides relevant information for care providers looking to support clients' wellbeing and promote accountability with regards to caregiving service delivery.

For Further Analysis: Corresponding ambient light, sink, and attribution data is available for greater insight into bathing ADL performance. Additional analyses might investigate the duration of showering events over time, changes in caregiver assistance level (e.g., Is the client requiring more assistance over time?), and the activities of the client and caregiver at the times when a shower would usually have happened but did not take place (i.e., What were the client and caregiver doing on the Monday mornings when there were not showers?).

Figure 1
Shower Events

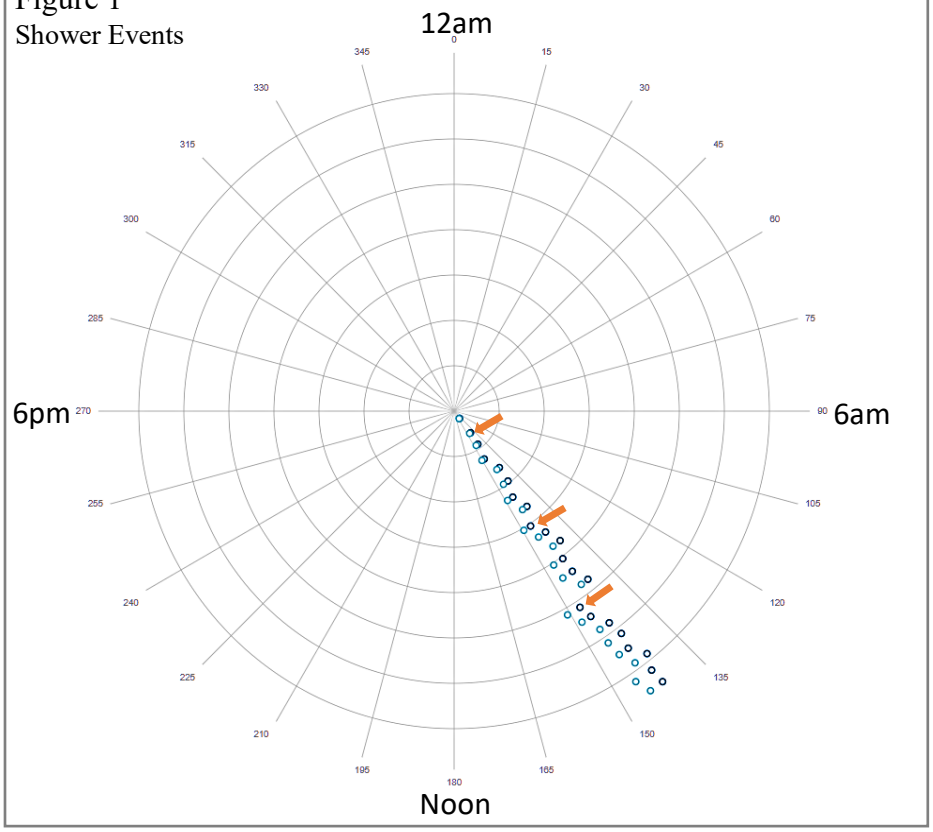

Figure 2
Caregiver Location -
Bathroom