

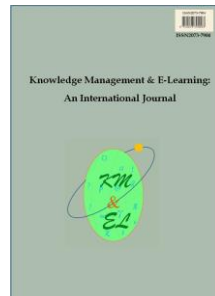
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**Innovative care: Using ‘A day in the life’ as a tool to explore opportunities for a tech-enabled home for older Canadians**

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## **Innovative care: Using ‘A day in the life’ as a tool to explore opportunities for a tech-enabled home for older Canadians**

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**Abstract:** Caregivers play a crucial role in providing physical and emotional support to family members or clients with various health conditions. As the number of older adult population and the potential need for caregiver support increases, innovative solutions are essential in supplementing care provided by caregivers. Many studies have been conducted to date to understand the extent to which technologies can be used to address health conditions and disabilities. Assured Living is a wellness monitoring solution by Best Buy Canada designed to provide caregivers insights on family member’s daily activities and provide alerts. To bring Assured Living into the Canadian market, an A Day in the Life was created as a tool to aid in identifying the needs of the caregivers to explore opportunities in the Canadian market. The knowledge for the A Day in the Life was gathered in multiple ways: 1) meetings with health organizations, 2) meetings with organizations serving caregivers and seniors, 3) conversations with family caregivers, 4) observations during walk-throughs with internal and external stakeholders of the Assured Living lab located in Best Buy Canada headquarters. Five themes gathered from the tool include: 1) Safety 2) Activities of daily living 3) Virtual care 4) Enjoyment of life and 5) Overarching concerns about support and communication. A Day in the Life supported in determining general concerns for caregivers, identifying areas of opportunity for the business, and making collaboration with stakeholders effective.

**Keywords:** Ethnographic study; Older adults; Caregiving; Smart home; AgeTech; Assistive technology; Ambient assisted living

**Biographical notes:** Rei Ahn is the Program Research and Experience Lead at Best Buy Canada - Health and an expert in implementation with a specific focus on using qualitative research to understand gaps, bottlenecks to identify solutions. Rei is an expert in utilizing research and co-creation methods to translate insights into commercial solutions. She has led initiatives on service design, program development, and knowledge translation to deliver customer excellence.

Sara Aghvami is the Director of Best Buy Canada - Health and has with more than 20 years’ experience in retail and leadership. She is an expert in technology commercialization, omnichannel logistics, service offerings, customer experience, and humanizing processes to gain customers for life.

During her time at Best Buy, Sara has led new service offerings such as trade-in programs in stores, established secondary retail markets, radically improved customer experiences including national home delivery, and delivered significant service transformations.

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## 1. Introduction

Best Buy Canada is Canada's largest and most successful omni-channel retailer, with over 175 stores coast-to-coast, and over 250 million visits in-store and on [bestbuy.ca](https://www.bestbuy.ca) each year. Over the past two years, Best Buy Canada has made a strategic investment in products and services to support tech-enabled care in our communities. This is in direct alignment with the vision to enhance our customers' lives through technology – anywhere, anytime – and is demonstrated through our recent Best Buy Health offerings here in Canada with the focus on older adults and caregivers, such as Assured Living.

Innovative solutions are essential to support caregivers, both formal and informal, in caring for older Canadians. Many studies have been conducted to date to understand the extent to which technologies can be used to “address several medical conditions and disabilities”. The studies that have provided the highest level of evidence in smart homes and monitoring technologies were used to monitor Activities of Daily Living, cognitive decline and mental health, and heart conditions in older adults with complex needs (Liu et al., 2016). According to a systematic review by Husebo et al. (2019), there is high validity of using “motion data to detect and track behavioural symptoms such as sleep disturbances, agitation, and wandering” for people with dementia. The monitoring of motion with sensor technology provides informal and formal caregivers more insight to be able to better manage behavioural changes and can support in delaying admission to long-term care facilities (Husebo et al., 2019).

Many monitoring systems exist but not all are readily available in the Canadian market. Assured Living is a wellness monitoring solution by Best Buy Canada designed to provide caregivers with insights on family member's daily activities and send alerts. This is enabled by sensors and smart devices which connect to a main panel. The devices are installed in various areas of the home, for example, in the hallway, on doorways, and on the toilet. Information about the sensor data is provided to the caregiver through one single interface – one app. Throughout the process from the beginning to the end, caregivers are supported by Geek Squad via consultation, installation, education, and maintenance of the system. Assured Living is unique as it combines product and service in a single offering.

Geek Squad is a subsidiary of Best Buy. Geek Squad diagnoses issues, repairs, and installs all consumer electronics in-store, on-site and over the internet using remote access for residential and commercial customers. Geek Squad Home Membership provides support for all technology whether the customer bought it from Best Buy or not. With over 1300 Agents across Canada and 2 Geek Squad City National Repair centres, Geek Squad provides national coverage.

In development of the Assured Living service in Canada, “rigorous evaluation of the consumers' needs” was essential as “optimizing design...require a many-faceted picture of the customer and their needs” (Dray & Mrazek, 1996; Baker et al., 2014). Since health is a new strategic area for Best Buy Canada, identifying key opportunities and development of company knowledge base around the needs of caregivers (primary

customer) caring for their older family member/care recipient (secondary customer) was one of the first steps in developing the service.

There are many tools and methods that can be used when designing a service. Examples of commonly used tools include empathy map, experience map, customer journey map and service blueprint. Empathy maps dive into understanding another's perspective through the visualization of what he or she says, does, sees and hears (Cairns et al., 2020). Experience maps offer the entire end-to-end experience for an average person when accomplishing a goal whereas customer journey maps are used to visually depict the story of a customer and the touchpoints with the organization (Gibson, 2017; Thurgood et al., 2016). Lastly, service blueprints allow for visualization and conceptualization of the whole service process and can be used as a tool to analyze service processes, customer behaviours (Bitner et al., 2008; Nam et al., 2018). Additional to the tools, design practice involves a range of activities including observations, workshops, interviews, and experiments to develop insights about a specific problem to be solved. The information gathered is fundamental to discovering a solution and assessing the viability of the design (Thurgood et al., 2016).

To explore key opportunities, the journey of understanding the caregivers' needs focused on creation of A Day in the Life. A Day in the Life is an ethnographic method which offers a way to overcome limitations that focuses solely on interview data by triangulating collections of observations, interviews, and documentary data (Reeves et al., 2013). The purpose of 'A Day in the Life' is to identify routine or typical activities of a user to gather insight into the needs, and behaviours as well as allow testing of prototypes to explore opportunities to find a solution for a problem (Think Design, 2020).

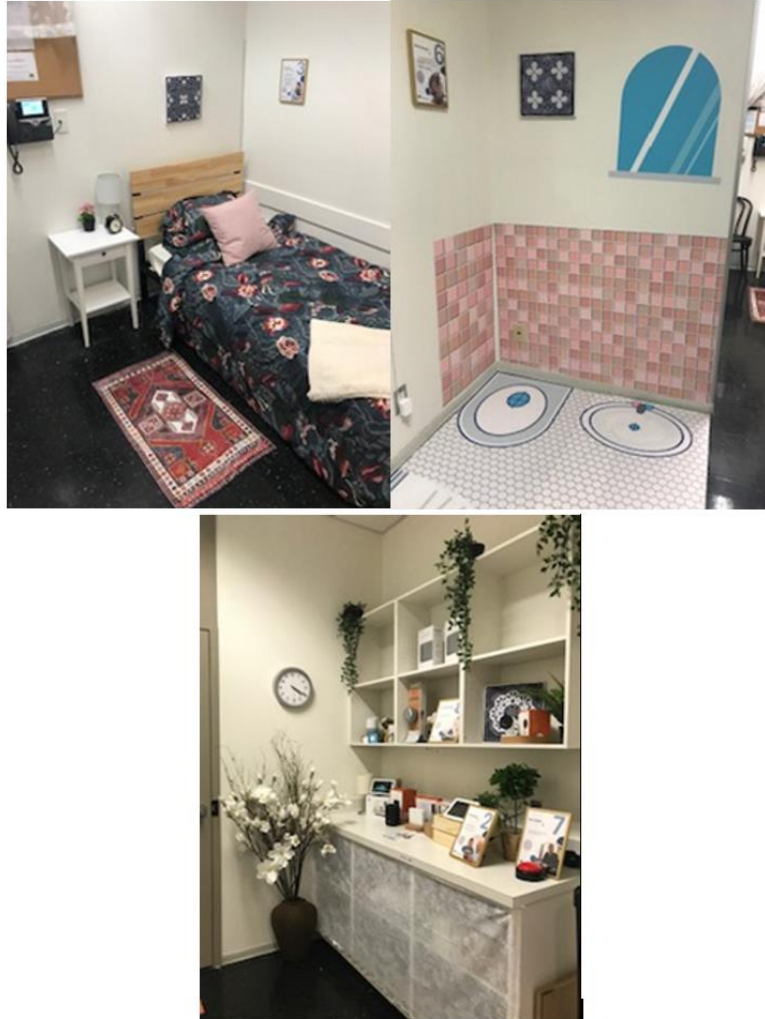
A Day in the Life was created with the goal to understand caregivers' concerns or gaps when providing care. The care recipients' concerns were identified through the eyes of caregivers. The aim of this paper is to offer the process and usage for the resulting caregiver 'A Day in the Life', to understand the concerns of caregivers supporting their older family member to live at home, and explore opportunities for Best Buy Canada services like Assured Living, in creating a tech-enabled home for older Canadians.

## **2. Method**

A Day in the Life was created by gathering information in multiple ways: 1) meetings with health organizations, 2) meetings with organizations serving caregivers and seniors, 3) conversations with family caregivers 4) observations during live walk-throughs with internal and external stakeholders of the Assured Living lab (Fig. 1), located at Best Buy Canada headquarters, and gathered feedback. The lab was designed to depict a real-life home of an older adult with Assured Living with sensors and smart devices installed throughout. As a prototype, the lab showcased how the technology and service can be used in real life, in an average older person's home. When people walked through the lab, they were provided with a story of an older adult and a caregiver and got to experience how they interacted with Assured Living.

After the walkthrough, lab visitors were given the time to think about how the system can work for their parents, patients, or clients. From this interaction, many questions were posed to Best Buy Canada about the capabilities of the system. Additionally, the challenges visitors were experiencing in caregiving were uncovered through the discussions. The meetings with health organizations, and bodies that served

caregivers or seniors focused on understanding challenges in serving their clients at home and identifying synergies to solve them.



**Fig. 1.** Assured living lab

A Day in the Life of a caregiver and care recipient was the focus of the discussions. From Best Buy Canada's Health team's collective experiences and observations in the meetings, notes, and shared stories of caregiving, a generic A Day in the Life was developed that focused on the caregivers' experiences, and concerns. From A Day in the Life, patterns of concerns were identified and put into themes. The documented concerns include the following: 1) Safety 2) Activities of daily living 3) Virtual Care 4) Enjoyment of life and 5) Overarching concerns about how the caregivers can support and stay in communication with their older family member.

### 3. A Day in the Life

Though every day is unique, the aim of the A Day in the Life (Fig. 2) was to depict common concerns in caregiving instead of capturing changes as the older family member experiences developmental changes over time. The care recipients' concerns were identified through the eyes of the caregiver.

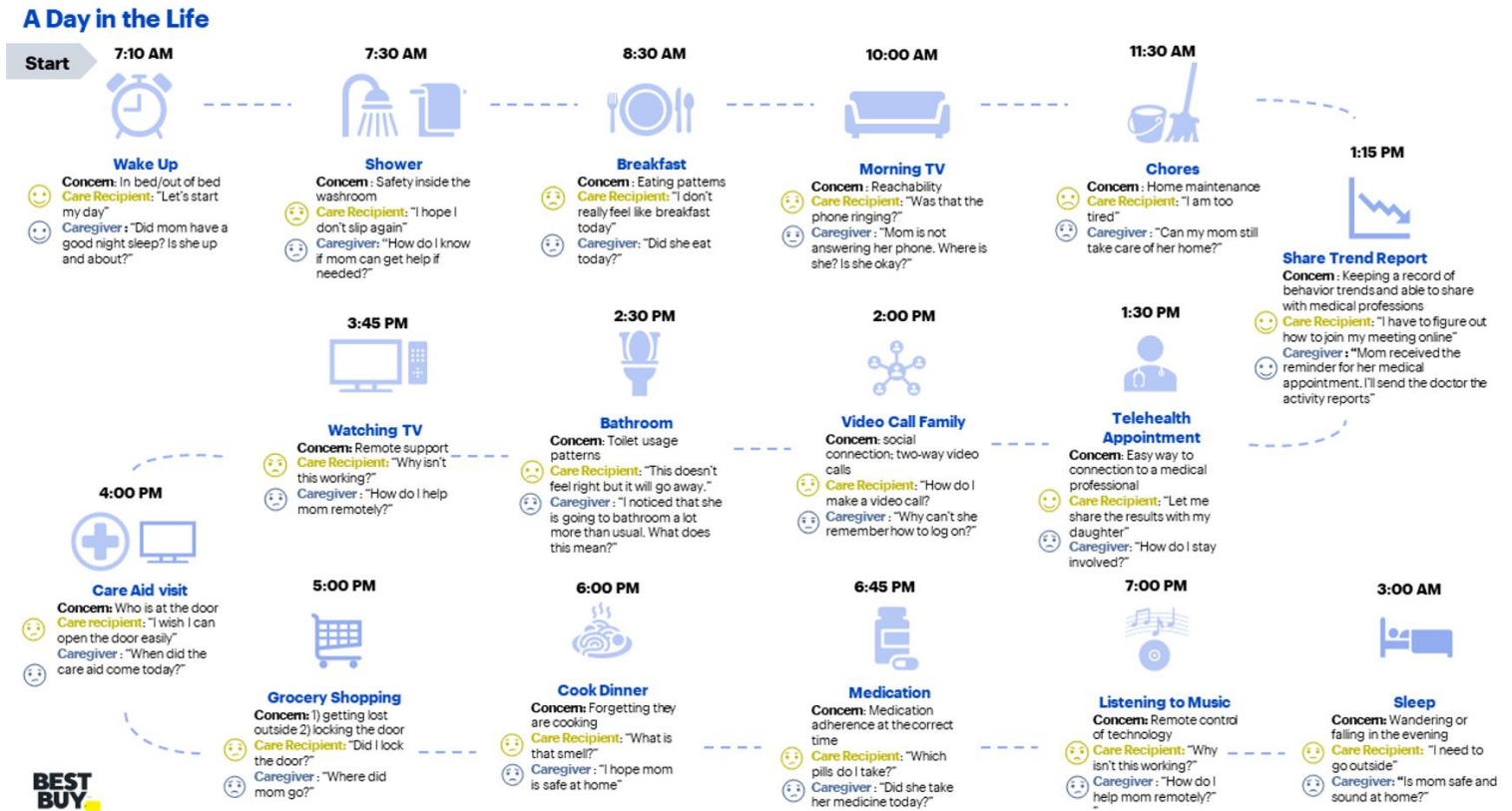


Fig. 2. A Day in the Life

#### 3.1. Safety

Throughout the day there were concerns about safety. The concerns focused on potential falls, strangers' access to the home, risks associated with cooking and any exceptional events (out of routine). For falls, many expressed concerns of falls happening in the bathroom and also outside of the home. In case of a fall, caregivers were looking for a solution that can support the care recipients to request for immediate support, to someone that can come and help, when needed. Keeping the family member safe at home also meant that the home had to be kept safe. Caregivers wanted to understand who was coming in and out of the home and at what time. This was important so caregivers know when care aids or personal support workers (PSWs) arrived and left the home and be aware of any door-to-door fraudulent activities targeting older adults. There were also concerns related to the door not being locked throughout the day, especially at night.

### *3.2. Activities of daily living*

For activities throughout the day, there were concerns related to how their family member slept and whether they are up and about. Other concerns throughout the day included the ability to maintain hygiene, continue to do chores, cook, eat their meals, and also take their medications on time. For any of the activities, change in behaviour was a concern and there was a desire to be able to readily recognize the changes to get further support. For example, if the fridge was being accessed frequently but the contents of the fridge is not being consumed, this was potentially alarming to caregivers. Additionally, medication adherence was frequently mentioned as a challenge, and there was no commonly known solution.

### *3.3. Virtual care*

Caregivers expressed the importance of access to virtual care with some having concerns related to transportation to get to the sheer number of appointments. There was also a sense of being in the dark as caregivers were not able to understand nor recognize the small changes that accumulate over time to their older family member. Longitudinal record of patterns to understand baseline and identify changes in the care recipient was discussed as a potential useful tool to supplement the care plan. Data points collected over time was seen as valuable and many saw this as a potential opportunity to enrich the information medical professionals receive about the patient.

### *3.4. Enjoyment of life*

The ability to support older family members' key activities like staying connected and daily entertainment (e.g. watching TV and listening to music), were also discussed. With the ongoing COVID-19 pandemic making it difficult for older adults to participate in their regular day-to-day activities, there were concerns related to isolation and emphasis on the importance of social connection. As for entertainment, caregivers wanted to support family members to focus on enjoyment of life away from their health conditions and upcoming appointments. Caregivers shared their experiences of remote technology troubleshooting so the family member can continue with their daily routines of watching TV and listening to music. They also expressed that sometimes their family member required a lot of help and if they do not have the time, the family member will have to wait longer periods until they are able to support.

### *3.5. Overarching concerns about support and communication*

Any activities or incidents that were out of the ordinary was important and caregivers wanted to be alerted to identify the right support for their family member, whether that was an ambulance or additional PSW hours. This did not mean that they wanted to be aware of everything that is going on at home. Ultimately, caregivers wanted their older family member to stay at home for as long as possible and to do that caregivers wanted to be informed of any alarming concerns that they needed to act on. These concerns can be separated into immediate or exploratory. Concerns such as falls are immediate, and caregivers want to ensure that their family member can get help right away via emergency response. Exploratory concerns refer to change in pattern or behavior that need additional deep dive into what the problem may be to find the solution, for example, when family member has been in bed a lot longer than usual in the last week. Additionally, when the family member does not pick up their phone or the caregiver is

not able to reach them, concerns are both immediate and exploratory since caregivers do not have the full picture of what may be happening to their family member so they have to explore further to understand how to react.

#### **4. Discussion**

A Day in the Life was developed to serve the following purposes: 1) determine general concerns for caregivers, 2) identify areas of opportunity, and 3) make the collaboration with stakeholders effective.

When designing a service, A Day in the Life can be a useful visual tool to understand customers' typical day. For our purposes, we wanted to understand the needs through their everyday concerns about supporting their family member. The five main themes showed areas where technology was already providing support, areas where technology can potentially be used to supplement caregiving and areas where technology cannot support and will need to integrate other services. The concerns highlighted potential opportunities in the current wellness or sensor based remote monitoring ecosystems, and how additional products and services are supporting to fill these gaps. It was evident that there is no complete solution that can address many of the challenges and concerns experienced by caregivers. This finding opens up opportunities to further ideate and design potential future services and develop partnerships to close the gaps and bring the solution close to being holistic.

A Day in the Life also served as a collaboration tool between internal and external stakeholders. When working with internal teams that have no experience with the caregiver demographic, it was an effective tool to introduce customers' needs by focusing on the concerns experienced by many caregivers in a concise and visual manner. Through A Day in the Life, other tools such as the empathy map was developed to further dive into understanding the caregiver's perspective and to build a customer profile. A Day in the Life was also used as a starting point to brainstorm with industry groups with the same objective of identifying ways to support older Canadians to age at home with AgeTech. For this purpose, A Day in the Life acted as a guide to keep everyone from deviating from the path when ideating.

In learning about A Day in the Life of caregivers, it was evident that technology was not front and center when problem solving how one can address concerns related to caregiving. The knowledge level of industry, caregivers, and older adults for wellness or sensor-based monitoring system was low, and this specific finding shined a light on the importance of understanding the caregiver's and also their older family member's technology readiness level. According to Liu et al. (2016), the technology readiness level among older adults for smart home and sensor-based technology for remote monitoring is still low. The low technology readiness level among older adults adds a complexity for implementation since many may consider a monitoring system as a "big brother". With this in-mind, identifying a strategy for adoption is essential.

Furthermore, it is important to recognize that Fig. 2 shows the caregivers' general concerns, and these concerns may not be applicable to all caregivers. A Day in the Life also does not demonstrate the older family member's developmental change and caregiver's changing concerns over time. Another important aspect of A Day in the Life is that care recipients' concerns are listed but identified from the point of view of the caregiver-related groups. The care recipients' concerns were predicted to provide a generic idea of what one may be thinking. To create a customer-centric service, a



comprehensive understanding of the interaction between care recipients' and caregivers' desires and concerns is essential - an area of interest for further exploration.

### Author Statement

The authors of this article are employees of Best Buy Canada.

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