Home health care (HHC) has become popular and attracted substantial attention from researchers and practitioners due to its major advantages over traditional ways of treatment. One of the primary advantages of HHC is the quality of care. In HHC, a patient receives one-on-one attention, whereas in a typical health unit, a single staff is usually responsible for caring multiple patients. Another advantage of HHC is the cost. For example, cost to care terminally ill patients in an acute-care hospital is estimated to be 40% more expensive than cost of the same care in a hospital-based palliative-care unit and over 10 times more expensive than HHC. In 2012, over 2.2 million Canadians received some levels of HHC services. HHC has become a pressing issue for healthcare policy makers both in Canada and around the world, especially with an aging population. Providing a HHC service comes with many challenges. For example, caregivers travel times are significant as reports show that caregivers in the US have travelled twice the distance of UPS delivery drivers in 2010. One of the biggest challenges in HHC is to match caregivers and patients and come up with a good scheduled that is feasible, cost efficient and acceptable for medical and patient needs. One way to overcome these challenges is to use mathematical modelling and generate least costly schedules that will determine caregiver to patient assignments and routing of caregivers by considering constraints of the system. In this talk, we will describe the challenges and present of some of our projects in HHC scheduling.

This talk is based on joint works with Bahman Naderi, Gregory S. Zaric and Vahid Roshanaei.

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