Patients' homes transformed into virtual hospital wards

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Home care upgraded for elderly patients newly discharged from hospital

Welcome to Serena Gottlieb's JGH ward: Straight ahead is a large table that's topped with a crisp linen cloth and ringed by half a dozen chairs with cushy upholstery. A little to the right, a jungle-like tangle of flowers and greenery greets the sunlight that streams in through a broad, floor-to-ceiling window. And adorning every wall are the gilt-edged portraits of family and friends.

Yes, this really is Serena Gottlieb's ward—and, yes, it's also the dining room of her tidy, little apartment.

What makes it a ward—or, to be precise, a virtual ward—is the breadth and depth of Mrs. Gottlieb's care, which is similar to what she would receive if she were still in a bed in the Jewish General Hospital. The big difference is that her health and well-being are monitored in the safety and comfort of her home.

When someone from the JGH comes knocking, it's for more than a mere house call. The Virtual Ward—believed to be the first program of its kind in Quebec—is carefully designed to tend to the needs of a select group of patients who have recently been discharged from the JGH and still face multiple medical problems, often complicated by advanced age and frailty.

Their condition has improved to the point where hospitalization is no longer necessary. But because they are still at high risk for re-admission or a visit to the Emergency Department, significant steps are taken by a multi-disciplinary team to support their continuing recovery at arm's length from the hospital.

Clearly, this type of customized care can be labour-intensive and time-consuming. However, the program's backers in the Goldman Herzl Family Practice Centre at the JGH believe it will ultimately reduce the number of re-admissions, cut the length of stay for those who do need to be re-admitted, lower the odds of a patient picking up an infection, minimize the need for frail patients to travel, and generally improve the patient experience.

Hence, the transformation of Mrs. Gottlieb's home into a *de facto* ward.

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In the Goldman Herzl Family Practice Centre, the care of patients in the Virtual Ward program is regularly discussed by its team members, (from left) Social Worker Rebecca Puterman, Nurse Practitioner Jacquie Bocking, Pharmacist Silvia Duong, Herzl staff physician Dr. Bernardo Kremer, Nurse Clinician Francine Aguilar, and Herzl staff physician Dr. Georgia Vriniotis.

It's here that she is seen by a doctor or nurse who can supplement her care by requesting visits from a pharmacist, social worker or other appropriate professional from the JGH or the local CLSC.

"Come, come," says Mrs. Gottlieb with a smile, as she opens her front door and greets Dr. Bernardo Kremer, head of the Virtual Ward program, on a crisp February afternoon. Following close behind are a pair of pharmacists who plan to review Mrs. Gottlieb's medications, while conducting research into the way she uses and stores her prescribed drugs. A little later, Francine Aguilar, the Virtual Ward's Nurse Clinician, will join them in this modest four-plex, a couple of blocks east of Côte-des-Neiges, not far from the JGH.

At first, Mrs. Gottlieb seems a little overwhelmed by all of the visitors, but she soon regains her composure and makes them comfortable around her dining room table. Neatly dressed in a blue and red striped dress, gray vest and white kerchief, she takes a seat beside Dr. Kremer, who speaks with her in a gentle, yet probing, tone.

Foremost in his thoughts is his concern not just about Mrs. Gottlieb's medical condition, but her living arrangements. On one hand, he wonders whether it's wise for her to be on her own at the age of 94. On the other, he can't help but admire the strength of will and the steely determination of this widowed Holocaust

survivor to remain independent, despite her physical and emotional difficulties.

Although Dr. Kremer knows that a housekeeper comes in regularly to clean and cook, he asks Mrs. Gottlieb whether she might be better off accepting an invitation to move in with her daughter in Toronto or her other daughter in Winnipeg.

"No," is her blunt reply. "I cannot travel any more. Also, I don't want to bother them." She goes on to explain that her daughters already have enough on their hands with their own families. Besides, she says, she's frightened by the prospect of a strenuous five- to six-hour drive to Toronto, let alone a trip to Winnipeg.

Just to be sure, Dr. Kremer asks again, "So you want to continue to be alone here?"

This time, his words hit a chord. Mrs. Gottlieb sighs, then says, "I don't mind to be alone." Pause. "I am used to it." And she begins to cry softly. "I am alone with God. He takes care of me."

Despite her desire for self-sufficiency, Mrs. Gottlieb admits she is deeply affected by her near-isolation. "My friends are old like me," she says through tears, "and slowly they are dying away. I'm losing them. I have a neighbour and she cannot talk so good any more. She used to come to me and I went to her, but now we cannot go to each other any more. In the morning, I phone, and in the night, she phones me.

"It is not a good old age for me," she adds quietly. "It is not good to be alone. I have such bad dreams every night. I dream about dead people."

Yet, in the months to come, Mrs. Gottlieb's physical health and emotional composure improve considerably. At a family meeting in spring, Dr. Kremer and Mrs. Gottlieb's daughters decide that, with regular monitoring and support, she still has the capacity to retain her autonomy. And by late summer, Mrs. Gottlieb is doing fine.

"I saw how she opened the fridge, how she answered the phone, how she absorbed information. These kinds of things are most obvious in the home."
Even during the February visit, her dark moods fade as quickly as they appear. She goes on to respond to Dr. Kremer's questions about her breathing, possible chest pain, and numbness in one hand.

As well, she grumbles that too much blood was drawn during a recent visit by a CLSC nurse, and she wonders whether she needs an adjustment to one of her medications. When Dr. Kremer proposes a physical examination in the privacy of her bedroom, she promptly agrees.

For the most part, her frame of mind is upbeat. As everyone prepares to pack up and head for the door, Mrs. Gottlieb suddenly remembers a previous visit, when Dr. Kremer brought along his two young daughters to cheer her up.

"How come you don't bring me the girls today?" she asks.

With a chuckle, Dr. Kremer replies, "When I do another home visit on Sunday, I will bring my kids. They always remember your candies."

"Yes, yes, come," she encourages him. "I love children. Bring them for me."

As the visitors depart, Mrs. Gottlieb calls out to them, "I wish for you good luck, for everybody. We need luck."

In the course of his 15- minute walk back to the JGH, Dr. Kremer explains how much he has gained by watching Mrs. Gottlieb getting around in her own home. "I'm able now to evaluate much better how she functions, how she walks, how she passes through doors.

"When I went with her to the kitchen and the other rooms, I saw how she opened the fridge, how she answered the phone, how she absorbed information, whether she really understood how to take her medications. These kinds of things are most obvious in the home."

They're also what has made the Virtual Ward such a stand-out since it was introduced as a pilot project in mid-2014 under the auspices of the Goldman Herzl Family Practice Centre. By late summer 2016, the program had followed and assisted a total of just over 100 patients, working with up to 20 individuals at any one time.

While the average patient is around 85 years old, they've ranged in age from 65 to 102, with many of them coping with two or more illnesses simultaneously—heart failure, chronic obstructive pulmonary disease, gastrointestinal bleeding, dementia, diabetes, cellulitis and chronic bronchitis, among others.

Given this focus on the needs of the elderly who are chronically ill, the Virtual Ward is right in tune with some key

objectives of West-Central Montreal Health, the healthcare network to which the JGH belongs. According to Barbra Gold, Director of the network's Support Program for the Autonomy of Seniors, "the Virtual Ward is the way to go," since it offers top-quality care, while enabling the elderly to maintain as much independence as possible.

"This is the way of the future. Prevention is becoming an even more crucial element of health care, whether it's the prevention of illness or the prevention of hospitalization."
Ms. Gold adds that the ability to provide these sorts of services will become even more essential, as the proportion of seniors in society continues to rise. "Keeping the elderly out of hospital, where appropriate, is good not only for the patients," she says, "but for the hospital, since it helps to free up beds and take some of the load off the Emergency Department."

"This is the way of the future," agrees Christine Touchette, who has special responsibility for home care in her role as Associate Director of the Support Program for the Autonomy of Seniors. "Prevention is becoming an even more crucial element of health care, whether it's the prevention of illness or the prevention of hospitalization."

To determine who should become a patient of the Virtual Ward, the Nurse Clinician of the Ward's healthcare team, Francine Aguilar, first reviews the list of hospitalized JGH patients who are close to being discharged. Then she determines each patient's LACE score—that is, the seriousness of his or her condition, based on:

- **L**ength of stay (how long they have spent in the hospital)
- **A**cuity of admission (whether an emergency caused the patient to be hospitalized)
- **C**o-morbidities (what types of medical problems the patient has)
- **E**mergency visits (how many times the patient had to come to the ER in the six months before being admitted)

Once a patient is discharged from the JGH and joins the Virtual Ward, he or she receives a phone call within three days from the case manager. Together, they make sure that no new problems have arisen, and that the patient is comfortable and is following the post-discharge instructions.

Next comes an in-depth, in-person check-up that lasts 45 to 60 minutes and takes place one week after the patient has left the hospital. It's followed by a similar check-up three weeks later, with additional checks scheduled as often as the healthcare team thinks is necessary.

These examinations are usually conducted in the home. However, patients who are able to travel to the hospital are checked in the clinic at Herzl. Regardless of the location, the degree of attention and the amount of time devoted to each patient is the same.

After six to 12 weeks in the Virtual Ward, the patient may be ready to return to the care of a family physician. At this point, the healthcare team thoroughly reviews the patient's progress, which is discussed with the patient's family doctor in Herzl.

The family doctor also receives a detailed report, explaining what was done for the patient in the Virtual Ward, which medications the patient must continue to take, whether the patient should see a particular specialist, and any similar matters.

It was Dr. Michael Malus, Chief of Family Medicine and Director of the Goldman Herzl Family Practice Centre, who initiated the program at the JGH, having given this concept a great deal of serious thought in the late 2000s after taking a management course in Montreal.

One feature of the course was a trip to London, England, where Dr. Malus was able to examine a Virtual Ward-like program that was run by the National Health Service. Not long afterward, he learned that something similar had been organized in Toronto, where six university hospitals were pooling their resources to provide a high level of care to non-hospitalized patients with serious medical problems.

"What distinguishes our Virtual Ward is that we maintain contact with the family doctor while we're caring for the patient. Then, when the patient is ready to return to the care of the family doctor, the doctor is already completely familiar with what we've done."
However, when Dr. Malus later examined studies that evaluated the performance of the programs in London and Toronto, he found that, despite some significant benefits to patients, the long-term results were disappointing. "The reason for that," he says, "was the lack of a solid connection with the patients' family doctors. The healthcare teams did a good job of keeping tabs on the patients, but when their work was done, that's where everything ended.

"What distinguishes our Virtual Ward, I believe, is that we maintain contact with the family doctor while we're

caring for the patient. Then, when the patient is ready to return to the care of the family doctor, the doctor is already completely familiar with what we've done. This process works especially well for us, because the Virtual Ward's patients have family doctors who are already on staff in Herzl."

Dr. Malus says he also takes great pride in the multi-disciplinary range of the Virtual Ward team, since the patients' needs can be assessed from so many relevant perspectives. Once a week, team members come together in Herzl to discuss each case in detail, sometimes devoting as much as 10 or 15 minutes to a single patient.

Joining Dr. Kremer and Francine Aguilar at these weekly rounds are Social Worker Rebecca Puterman, Nurse Practitioner Jacquie Bocking, Pharmacist Silvia Duong, Herzl staff physician Dr. Georgia Vriniotis, Herzl Head Nurse Mina Ladores and Coordinator Genevieve Gray.

For example, at a typical meeting in mid-February, the team reviewed the progress of an 86-year-old woman with neuralgia, who had recently been hospitalized for severe pain in her knee. The Virtual Ward team agreed that when the patient was discharged, the proper medication had been prescribed. They were also happy to note that the patient had a round-the-clock caregiver, as well as family support from a husband and daughter.

Nevertheless, a red flag went up. Three people were helping with the medication, but none of them was sure which drugs the others had given to the patient. This raised the very real possibility that the patient might be double-dosing. As a solution, the team decided to have one of its nurses ask the family to designate a single person to administer the drugs, as well as keep a diary of any medications that had been provided.

As the program evolves, Dr. Kremer is also heartened by the arrival of telemedicine, which was introduced last February, with support from McGill University. Each patient or caregiver receives an iPad or similar tablet, which is pre-programmed to transmit information to the coordinator of the Virtual Ward. At least once a day, the patient's weight and vital signs are measured at home (usually by the caregiver), and these updated figures are added to the patient's medical record.

"These are patients whose information we need every day," explains Dr. Kremer. "Because of their condition, it's not enough for us to receive the patients' vital signs in a fax once a week from the CLSC. In the same way that we need to weigh a patient and take vital signs every day in a ward in the hospital, we have to do the same thing in the Virtual Ward at home."

Looking ahead, Dr. Kremer hopes to keep strengthening the program by incorporating other useful forms of digital technology. He would also like to improve the interaction between the team and the CLSCs, and, ideally, to add more administrative and nursing support.

"In general, we're happy with our progress," he says. "There's a lot of evidence that elderly people don't want to go to the hospital, even when they need to. We have a lot of difficulty bringing them to the hospital, because they simply refuse. So the natural question to ask is, 'Can we do better at home?' And the answer is, 'Definitely, yes!'"

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