

# Lessons from the South East Toronto Family Health Team Virtual Ward

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# Abstract

The Virtual Ward (VW) is a program focusing on transitioning care from hospital to home through effective systems integration. The South East Toronto Family Health Team (SETFHT) implemented a VW in June 2010; this report presents the first extensive evaluation of the VW in use by the South East Toronto Family Health Team. The evaluation team used mixed-methods to capture various indicators of success. Quantitative data analysis summarized and described patients' demographics and hospital admissions in the 365 days prior to and during VW enrolment. Observations and interviews were conducted with VW staff and patients to explore processes of care and determine perceptions of the VW. A framework approach to qualitative analysis was conducted. Results describe an established and fluid VW process, and defined multidisciplinary roles that support each step of this process. Demographic data show that VW patients are over 70 years of age, with chronic primary diagnoses and some with serious chronic secondary diagnoses. VW staff perceived that integrated care through collaboration and communication with external partners; strong team dynamics including scope of roles, team quality and collective motivation; and a model that puts patients first were the VW's markers of excellence. VW patients expressed an enhanced experience interfacing with the health care system, and continuity of care. Findings demonstrate that annual re-hospitalization rates were significantly reduced from a mean of  $3.06 \pm 2.46$  to  $2.11 \pm 3.38$  re-admissions per year ( $P= 0.046$ ). Our results show that with the presence of basic elements, the VW program has potential for scalability and sustainability in primary health care across Ontario.

# Executive Summary

The Virtual Ward (VW) is a model of care focusing on the most complex of patients who are at highest risk of re-hospitalization. VWs were designed to effectively improve health outcomes in these vulnerable patients by enhancing collaboration between care providers and intensifying follow-up and monitoring post-hospitalization at home and in the community. **This report delivers the findings of an evaluation of the South East Toronto Family Health Team VW (hereafter the VW).** Both qualitative and quantitative methods were used to determine experiences and perceptions of those involved in the VW (including patients and staff), and improvements in re-hospitalization rates, which is the primary goal of the VW.

Patients enrolled in the VW are elderly, with a typical mean age of over 70 years. VW patients have serious primary diagnoses, including congestive heart failure (CHF), chronic obstructive pulmonary disease (COPD), urosepsis, diabetes mellitus (DM), asthma, coronary artery disease (CAD) and stroke, among others. Moreover, many patients have a serious secondary diagnosis. VW patients tend to have a long history of poor health and hospitalization, and many are unattached to a primary care physician. These patients were all enrolled to a physician at the Family Health Team after discharge from the VW.

**Objective:** *Reduce the number of unattached complex patients.*

**Result:** **28 (58%) patients did not have a family physician prior to VW enrolment. Hence the VW program resulted in the enrolment of 28 complex patients with the Family Health Team physicians.**

The VW is operated by a number of dedicated personnel, most of whom were part of the Family Health Team prior to the implementation of the VW, including family physicians, a registered nurse, a nurse practitioner, an administrative assistant, and other interprofessional health providers. All VW activities are centrally coordinated by a specially-hired physician assistant (PA). These care providers make up the core VW team. External partners crucial to integrating hospital and community services into VW operations include the Toronto East General Hospital (TEGH) and Community Care Access Centres (CCAC).

Patients flow through the VW in an organized and coordinated process involving the core team and external partners. Patients are typically identified in hospital using an algorithm—the LACE score—that computes patient risk for re-hospitalization. After patients are enrolled, VW staff liaises with TEGH and CCAC to engage in hospital discharge planning and secure community resources upon the patient's return home. VW patients are assessed and monitored daily by VW core clinical staff over the phone, and select patients are set up with telemetry equipment via the Ontario Telemedicine Network (OTN) to submit clinical measures such as blood pressure, heart rate and

oxygen saturation directly to the VW team from the comfort of their own homes. Patients unable to attend in-person clinic appointments are also eligible for home visit. This may lead to a reduction in visits to the emergency department. After 12 weeks of stable health, VW patients are discharged from the VW and released back into the care of their primary care physicians.

**Objective:** Reduce ED visits and readmission through home visits.

**Result:** VW team provided home visits an average of  $1.06 \pm 1.27$  times per patient during enrolment, compared with 0.085 times per patient of a similar age group by their primary care provider in Ontario.

Several markers of excellence were identified by VW patients and staff, and by hospital admission data. First and foremost, VW staff noted an improvement in **integrated care**, where communication and collaboration between health systems (i.e. the VW, TEGH and CCAC) were developed and enhanced, transition of patients between these systems was ameliorated, and partnerships were strengthened. Factors relating specifically to VW staff were described, including **motivation and willingness** at both the individual and organizational levels to care for highly complex patients; the presence of a **dedicated point person** with time and effort devoted to VW operations who could ensure care continuity and coordination of activities; **team quality** that was enhanced by frequent and open formal and informal communication, interdisciplinary collaboration, and collective motivation; and the **dynamic scope of roles**, including the flexibility of roles and beneficial redundancy between roles to ensure that VW operations ran smoothly. The novel use of OTN **technology** and the resultant **flexible provision of care** were viewed by VW staff as outstanding strides in patient follow-up and monitoring. Overall, the VW processes and team were perceived to have resulted in a program that **puts patients first**, by enabling VW staff to provide consistent care and support, and develop rapport with VW patients.

Patients also reported highly positive experiences within the VW. They perceived that their **patient experience was enhanced** compared to other encounters in the health care system due to increased support from and rapport with the VW team. Patients described increased **continuity of care** through daily follow up and OTN monitoring, and increased access to clinicians and required services.

**Objective:** Enhance patient and provider experience.

**Result:** Results from qualitative research.

Both patients and VW staff perceived the VW to be successful in preventing re-hospitalization; this perception is supported by hospital admissions data showing that annual re-hospitalization rates were significantly reduced from a mean of  $3.06 \pm 2.46$  to  $2.11 \pm 3.38$  re-admissions per year ( $P=0.046$ ).

**Objective:** Reduce readmission rate for COPD/CHF patients.

**Result:** Annual re-hospitalization rates were significantly reduced from a mean of  $3.06 \pm 2.46$  to  $2.11 \pm 3.38$  re-admissions per year (P=

Our findings demonstrate that the VW model can be scalable to other jurisdictions through various mechanisms. Implementation of a VW requires **basic readiness**: human resources capacity, secured funding for dedicated personnel, visionary leadership and the establishment of external organizational networks are imperative to the operation of the VW. Certain **markers of excellence** inherent to the VW core team are also considered pre-conditions of successful VW implementation. These include forming a team that is well-functioning and has strong communication processes in place. The VW team must consist of staff members that are willing to care for complex patients and to be flexible with their time and roles. Staff must also possess a collective belief that the team is able to perform well and meet the VW's goals.

Sustainability of the VW in Ontario's health care system may be possible through the **integration of the VW** within the existing structure of primary care, particularly family health teams; the operation of a VW by a **motivated and interprofessional team** to ensure continued care and collaboration; the presence of a **dedicated point person** that will coordinate VW activities despite the workload of other staff with less committed time to the VW; allocation of time for staff to work on the VW to dissipate the burden of any added workload; and continued marketing both externally and internally to increase buy-in and longevity of the program.

Overall, the VW was designed as a program that fosters collaboration, care integration and effective transition. The VW is the first in Canada to originate from primary care. Since its implementation, it has shown great promise for ameliorating health outcomes and quality of care for the most complex patients.