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Patients' and family caregivers' experiences with a newly implemented hospital at home program in British Columbia, Canada: Preliminary results

Sean P. Spina BSc(Pharm), ACPR, PharmD, FCSHP

Island Health, UBC Faculty of Pharmaceutical Sciences, School of Health Information Science

Rounak Haddadi BSc, BHSc, PG Dip Sc

Island Health

Katy Mukai BA, MPA

Island Health

Michelle Riddle

Island Health

Beth Bourke BScN, RN

Patient Partner

See next page for additional authors

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Cover Page Footnote

Abbreviations: Hospital at Home (HaH), Family Caregivers (FCG), Alternatives to Traditional Hospital Care Offered in Monitored Environments (AT-HOME), Patient-Centred Care (PCC), Health Care Provider (HCP). This article is associated with the Innovation & Technology lens of The Beryl Institute Experience Framework (<https://www.theberylinstitute.org/ExperienceFramework>). You can access other resources related to this lens including additional PXJ articles here: http://bit.ly/PX_InnovTech

Authors

Sean P. Spina BSc(Pharm), ACPR, PharmD, FCSHP; Rounak Haddadi BSc, BHSc, PG Dip Sc; Katy Mukai BA, MPA; Michelle Riddle; Beth Bourke BScN, RN; Lisa Thompson BSc; Elizabeth Borycki RN, PhD, FACMI, FCAHS, FIAHSI; David Forbes BSc(Pharm), MPA, ACPR, BCPS, CTE; Taylor Hainstock BHSc, MA; Curtis K. Harder BSc(Pharm), ACPR, PharmD, FCSHP; Nancy Humber BSc, MD, CCFP, CFPC, MHA, FFRMS; Andre Kushniruk PhD, FACMI, FCAHS, FIAHSI; Tara McMillan BSc; Shauna Tierney MD, CCFP; and Melinda Zeron Mullins MD, PhD, CCFP

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Sean P. Spina, BSc(Pharm), ACPR, PharmD, FCSHP, *Island Health, UBC, University of Victoria*

Sean.Spina@islandhealth.ca

Rounak Haddadi, BSc, BHSc, PG Dip Sc, *Island Health*

Katy Mukai, BA, MPA, *Island Health*

Michelle Riddle, *Island Health*

Beth Bourke, BScN, RN, *Patient Partner*

Lisa Thompson, BSc, *Patient Partner*

Elizabeth Borycki, RN, PhD, FACMI, FCAHS, FIAHSI, *University of Victoria*

David Forbes, BSc(Pharm), MPA, ACPR, BCPS, CTE, *Island Health*

Taylor Hainstock, BHSc, MA, *Island Health*

Curtis K. Harder, BSc(Pharm), ACPR, PharmD, FCSHP, *Island Health*

Nancy Humber, BSc, MD, CCFP, CFPC, MHA, FFRMS, *Hospitalist*

Andre Kushniruk, PhD, FACMI, FCAHS, FIAHSI, *University of Victoria*

Tara McMillan, BSc, *Island Health*

Shauna Tierney, MD, CCFP, *Hospitalist*

Melinda Zeron Mullins, MD, PhD, CCFP, *Hospitalist*

Abstract

The Hospital at Home (HaH) model of care, which enables the provision of acute-level care in the patient's own home as an alternative to brick and mortar hospital admission, was introduced in British Columbia, Canada in November 2020, starting with 9 inpatient "beds" in the community. The AT-HOME research group applied a patient-oriented approach to evaluate the patients' and family caregivers' (FCGs) experiences with the program as it was implemented and expanded throughout Victoria, BC. In this paper, we discuss the development of the survey instruments, including process and timelines (three phases); and present preliminary findings of the observational research study (six months of patient and FCG feedback data). The preliminary results show that 100% of patients (n=75) and 95% of FCGs (n=57) had an overall positive experience with the program (rated 6-10 on a 10-point scale where 0 meant 'very poor' and 10 'very good'). 100% of these patients and 96% of these FCGs would recommend the program to their friends and family and 97% of these patients and 96% of these FCGs would choose the program again if faced with the same situation. The preliminary results on metrics pertaining to care quality; information sharing and experiences with the admission and discharge processes; FCG's roles, medication management, and more are discussed here. The final results of the patient and FCG experiences will be reported at the end of the data collection period. We can conclude that this new HaH program has been positively received by patients and FCGs thus far and they support program expansion

Keywords

Hospital at Home, patient, family caregiver, experience surveys

Introduction

Background

Hospital at Home (HaH) refers to an innovative care model that has been in practice for over 25 years in several countries around the world. The HaH model provides acute level care in the patient's own home and is distinct from community health care services in that it provides a level of care that would traditionally require a hospital admission. Initially it was conceived to alleviate pressures

on health care systems by increasing hospital capacity,^{1,2} however, over the years it has been recognized as a patient-centred care model that is preferred by many patients.^{3,4} Moreover, it has also been identified as a management strategy in response to the coronavirus (COVID-19) pandemic⁵ by surging hospital-bed capacity and potentially reducing the rate of nosocomial infections.

The HaH care model puts patients and their caregivers at the centre of care. By bringing the medical expertise,

therapeutics, technology, and personalized care to the patient's home, where familiar environments, the patient's own food and bed, support of family and caregivers, pets, and other home-comforts supplement the medical care. This is perceived to empower the patient, improve experiences and quality of life, and speed recovery.

Island Health, one of seven health authorities in British Columbia (BC), Canada, provides care to more than 850,000 people on Vancouver Island and surrounding communities. Island Health's HaH unit was first implemented in Victoria, BC on November 2020, in order to offer a safe alternative to in-hospital care and improve patient experiences. The *Alternatives to Traditional Hospital Care Offered in Monitored Environments (AT-HOME)* research team aimed to capture and report on the patients' and family caregivers' (FCGs) experiences with the newly implemented model of care, and to identify what is working well and where opportunities for improvement exist with respect to the design and implementation of the program.

Patient-Centred Care

Patient-centred care (PCC) is identified by the Institute of Medicine (IOM) as one of the pillars to providing quality health care.⁶ The BC Health System's provincial strategic plan (2014),⁷ prioritizes the provision of PCC as the first of eight priorities. PCC is defined by the IOM as care that is respectful of and responsive to individual patient preferences, needs, and values and ensures that the patient's values guide all clinical decisions.⁶ The BC PCC framework defines PCC as care that puts patients at the forefront of their healthcare, ensures control over own choices, aids in making informed decisions and supports a partnership between individuals, families and health care service providers.⁸ The BC PCC framework guides that PCC should incorporate key components of self-management, shared and informed decision-making, advancement of prevention and health promotion activities, to improve information and understanding and enhance experience of health care.⁸ The provision of PCC is also a top priority of Island Health's five-year strategic plan.⁹ Hospital at home builds on patient centered care to truly engage patients as partners in their care in this voluntary hospital at home model.

International Approach and Evaluations

There are established frameworks for evaluating the quality of healthcare models, such as the Donabedian model, the World Health Organization (WHO)-Recommended Quality of Care Framework, or the Bamako Initiative. Indicators from these frameworks such as length of stay, re-admission rates, and rates of adverse events have been applied to evaluate the efficacy and safety of the HaH models of care around the world.^{10,11} However, HaH is a novel model of care in BC, Canada and in evaluating the experiences of the stakeholders and

to capture the priorities and local needs within the context of the model, the AT-HOME research team took a patient-oriented approach to engage with the community and stakeholders to understand what is important from their perspective in measuring the success of the program.¹² Patients and FCGs are best positioned to determine whether the care they receive is patient-centred and aligns with their values and priorities.¹³ Continued participation in research, through experience surveys, enriches the ongoing knowledge, understanding and evaluations of stakeholder experiences.

Understanding and incorporating patient and FCG experiences to inform and improve the quality of the program is particularly important, when the program is implemented in a new setting. During the early implementation phase, opportunities for continuous feedback support a rapid-learning environment, where strengths and weaknesses can be identified in a timely manner to inform ongoing program development. The continuity of receiving real-time data and feedback supports quality maintenance and identifies trends, which can be used to respond, and adapt to internal and external influences and changes. In addition to informing program design and delivery, engaging in continuous program improvement provides a strong foundation for securing leadership buy-in and operational funding to support program longevity and sustainability. Having adequate and dedicated resources (e.g., staff and budget) is imperative in enabling the provision of quality, patient-centred care as the program matures and expands.

Further, while there are studies that report on the HaH patient and FCG experiences using satisfaction surveys,¹⁴⁻¹⁷ there are gaps in the literature with respect to patient and FCG experience with the HaH model, in particular within the Canadian context. This paper serves to fill this gap by formally capturing experiences of those receiving care in a Canadian HaH service model.

Capturing and understanding the FCGs' experiences is not only crucial as they can be a pivotal part of a patient's care journey with HaH, but this is commonly missed in evaluations of patients' health outcomes. Metrics used to measure the efficacy and safety of the program through patients' health outcomes do not take into account the FCGs' experiences and indirect impacts on their quality of life. This study also contributes to the HaH literature with respect to experiences with the different types of HaH interventions and staffing composition – for example, Lemelin et.al, 2007 reports on a Canadian HaH program that is nurse-practitioner led. There is also a scarcity of reports assessing cultural competency specifically within the HaH model, but also within the Canadian health care system more broadly.¹⁸

Island Health HaH Program

Island Health Hospital at Home program aimed to develop a patient-centred model of care, by collaborating with patient partners and multidisciplinary stakeholders. The unit was implemented in November 2020 starting with nine inpatient “beds” registered at the Victoria General Hospital. The program was expanded to another Island Health site, the Royal Jubilee Hospital, in March 2021 by adding another nine “beds.” The model was initiated by physicians and provides acute care to patients while they remain in their homes. The medical services are provided by a team comprised of two family-medicine hospitalist physicians, two clinical nurse leaders, two clinical pharmacists and six registered nurses. After the first few months of implementation, an occupational therapist and rehabilitation assistant were also added to the team. 24-hour care coverage is provided, including scheduled and unscheduled in-person visits. The use of technology, including a mobile tablet computer (e.g., iPad), blood pressure monitor and cuff, pulse oximeter, temporal thermometer and weight scale (optional), enable the patients to take their vital signs at home and the HaH team to remotely monitor the patient. Blood samples are collected by nurses in the home, and they are taken to the hospital laboratory for processing. Patients have priority access to onsite diagnostics such as medical imaging. The program provides transport services from hospital to home as needed.

For the first six months of the program, the presence of an FCG at home and their consent in assisting the patient was a requirement for program enrollment. Ongoing reviews of the enrollment criteria were made as the program grew and one of the adjustments made was to waive the requirement of an FCG at home for certain patients. The scope of the FCGs’ roles includes assisting the patient with their care needs, taking vital sign measurements, administering medications, assisting with intravenous care, communicating with the health care providers (HCPs), driving the patient to appointments if required, and assisting with daily living activities, if these were not already part of their usual living arrangements.

The AT-HOME Research Aims

The overarching aim of the AT-HOME research team was to use a mix of quality improvement approaches and research methodology to capture and report on the experiences of the patients and FCGs at the centre of this care model. The research team sought to create a rapid-learning environment where patient and FCG experiences with HaH are continuously captured and findings are fed back into the model of care to inform program developments and improvements. This approach enables effective utilization of real-time data to feed a rapid-learning environment for a more responsive system, to improve health care delivery and outcomes.

While the perspectives of all stakeholders involved and intersecting with the HaH model of care are important, this study focuses on reporting the development of methods and tools to capture the HaH patient and FCG experiences; and to share the preliminary findings.

Objectives

The objectives of this paper are to: I) Outline three phases of work completed within this study: 1) *Stakeholder Engagement*; 2) *Initial Data Collection for Program Improvement*; and 3) *Ongoing Data Collection for Observational Research and Program Improvement*. II) Discuss the methods used to capture patient and FCG experiences with HaH and present 6-months of preliminary findings. The final and full-set of results and analysis of the patient and FCG study will be presented in a subsequent paper.

Process and Timelines

The AT-HOME team’s efforts to better understand, capture and utilize patients’ and FCGs’ experiences with the HaH program can be divided into three phases that are summarized in Figure 1 and outlined in more detail below. Phases 1 and 2 contributed to and informed continuous cycles of quality improvement, which carried on into Phase 3. Phase 3 also marked the start of the observational research study.

Figure 1. The three phases of the patient and FCG experience survey development and data collection



Phase 1 – Stakeholder Engagement (April 2020 – December 2020)

In Phase 1, commencing April 2020, the AT-HOME research team carried out a large-scale stakeholder engagement initiative,¹² led by an external consulting firm. The purpose of this initiative was to engage with stakeholders, including the public and HCPs residing on Vancouver Island, in order to understand their priorities with respect to the proposed HaH program. The feedback gathered through a public survey, focus groups and interviews was used to inform the development of the surveys used in the next phase and to inform program design, delivery and evaluation.

During this phase, two surveys were developed, leveraging the feedback collected from the engagement initiative and these instruments were used to capture patients' and FCGs' experiences with the HaH program during its initial implementation phase (Phase 2).

Phase 2 – Initial Data Collection for Program Improvement (December 2020 – September 2021)

Phase 2 aligned with the launch of the HaH program and marked the start of the initial data collection with patients and FCGs following their participation in the program. Data gathered during this period enabled the team to provide rapid feedback on patient and FCG experiences with the HaH program through bi-weekly reporting to the program leadership.

The surveys used in this phase were more qualitative in nature, in order to allow for an in-depth and thorough understanding of patient and FCG perspectives of the program. When data saturation was observed in the qualitative responses from both surveys, the instruments were refined and the second iteration of the surveys were developed for use in Phase 3.

Phase 3 – Ongoing Data Collection for Observational Research and Program Improvement (October 2021 - ongoing)

The second iteration of the survey instruments ([Linked here in supplemental materials Appendix 1 and 2](#)) consisted predominantly of quantitative questions, but also included a limited number of qualitative questions. These revised survey tools were launched October 1, 2021 and marked the start of the data collection phase for this research study.

This phase of the research study is observational, as participants are not randomized and there is no control group. All consenting participants are included in the study to yield maximum sample size.

Methods

Recruitment

All patients who met the HaH program criteria, as set by the program's clinical operations and were admitted to HaH and their FCGs (when applicable), were eligible to participate in an experience survey following their discharge from the program. Table 1 provides an overview of the program's initial inclusion and exclusion criteria. Patients and FCGs (when applicable) were informed about the survey during their admission to the program, and if they were willing to participate, they provided their permission to be contacted following discharge from the program. Patients and FCGs (when applicable) who gave consent to being contacted for the survey provided a phone number and/or email address and were contacted approximately one-week post-discharge. As data collected from October 2021 onwards (Phase 3: Ongoing Data Collection for Observational Research & Program Improvement) is being used for research purposes, the project required Human Research Ethics approval which was granted by the Health Research Ethics Board on behalf of Island Health. Patients and FCGs were provided with a hard copy informed consent form at the time they consented to be contacted.

Setting

Island Health provides health care across a widely varied geographic area including urban, rural and remote communities of Vancouver Island, the Gulf and Discovery Islands, and part of the mainland opposite northern Vancouver Island. Island Health has over 150 facilities, 2,406 medical staff, and provides 1,681 acute care and rehab beds. Island Health's HaH unit, registered at two hospitals in Victoria, (capital of BC) provides acute care to patients living within a catchment of 30-minute drive from these two hospitals.

Data collection

The initial data collected for program improvement that aligned with initial implementation of the HaH program (phase 2; commencing in December 2020) and the first six months of data collected for research and program improvement (phase 3; commencing in October 2021) was collected by a member of the AT-HOME team. Data was entered, by the respondent if completing the online survey or by the interviewer if completing the survey by phone, directly into Research Electronic Data Capture (REDCap) with data stored directly on Island Health servers. An independent research firm was contracted to continue the data collection from March 19, 2022 onwards.

Patients and FCGs who gave permission, were contacted approximately one week post discharge from HaH. As previously stated, participants had the option of providing a phone number and /or an email address. Participants who provided a phone number were interviewed by

Table 1. HaH Program inclusion and exclusion criteria*

HaH Program Inclusion Criteria	HaH Program Exclusion Criteria
Demographics <input checked="" type="checkbox"/> At least 19 years old <input checked="" type="checkbox"/> Living within geographic catchment area <input checked="" type="checkbox"/> Caregiver in home <input checked="" type="checkbox"/> Safe home environment <input checked="" type="checkbox"/> Phone and refrigerator in home Clinical Characteristics <input checked="" type="checkbox"/> Requiring hospital-level care <input checked="" type="checkbox"/> Known diagnosis <input checked="" type="checkbox"/> Clinically stable <input checked="" type="checkbox"/> Expected length of stay less than 10 days <input checked="" type="checkbox"/> Unlikely to require multiple in-hospital tests, treatments or consultations <input checked="" type="checkbox"/> Ambulatory to bathroom <input checked="" type="checkbox"/> Able to provide self-care <input checked="" type="checkbox"/> No community-based services in place <input checked="" type="checkbox"/> No pain crisis <input checked="" type="checkbox"/> No acute stroke <input checked="" type="checkbox"/> No active psychiatric disorder <input checked="" type="checkbox"/> No active substance use disorder Consent <input checked="" type="checkbox"/> Patient/Substitute Decision Maker consent <input checked="" type="checkbox"/> Caregiver consent	<input checked="" type="checkbox"/> Pain crisis <input checked="" type="checkbox"/> Acute stroke <input checked="" type="checkbox"/> Active psychiatric disorder <input checked="" type="checkbox"/> Active substance use disorder Consent <input checked="" type="checkbox"/> No consent to participate in program

*This table outlines the initial program eligibility criteria, revisions were made as the program grew to waive the requirement for an FCG at home (for certain patients meeting criteria) and allow inclusion of patients under the care of Community Health Services. Resources (fridge and phones) have also been added to the program to enable the inclusion of eligible patients without these amenities at home.

Table 1A. Study Inclusion Criteria

Patient Inclusion Criteria for the Study	FCG Inclusion Criteria for the Study
<input checked="" type="checkbox"/> Patient must have provided consent to receive care in the HaH program <input checked="" type="checkbox"/> Patient must have provided consent to contact for the survey when admitted to the program <input checked="" type="checkbox"/> When contacted to participate post-discharge, the patient must have provided their informed consent to participate in the study	<input checked="" type="checkbox"/> FCG must have agreed to be an FCG for a patient admitted to HaH <input checked="" type="checkbox"/> FCG must have provided consent to contact for the survey when the patient was admitted to the program <input checked="" type="checkbox"/> When contacted to participate after the patient was discharged, the FCG must have provided their informed consent to participate in the study

telephone; those who provided an email address only were sent an invite to complete the survey online. As data would be used for research, those admitted on or after October 2021 were required to provide their informed consent to participate in the survey (whether by phone or online). A hard copy of the consent form was provided at program admission and a PDF copy was available at the start of the online survey.

The survey instruments to capture patient and FCG experiences with the HaH program were developed based on findings from the engagement initiative, a literature review, and the program evaluation objectives, to ensure the data collected would address the evaluation questions.

The instruments leveraged questions from the Emergency Department Patient Experience with Care Survey¹⁹ and “Made-in-BC” modules developed or adapted by the British Columbia Patient Centred Measurement Working Group.²⁰ The surveys aim to capture patients’ and FCGs’ experiences with the admission process, quality of care, medication management, use of technology, perception of infection control procedures, medication reconciliation, the discharge process, FCGs’ roles and responsibilities and any added burden on the FCGs’ quality of life, as well as overall experiences with the program.

Data Analysis

De-identified survey data, collected for this period only, were analyzed and themed by the research team. Quantitative data pertaining to the 4-point and binary (yes/no) questions were analyzed using descriptive statistics. Inductive content analysis was used to identify themes in the qualitative survey responses. No prior themes were assumed for the open-ended responses; once the themes were identified, responses were coded. The interviews were non-directive and responses were read back to the participant for validation.

Results

Data presented herein is the data collected during the first six months of the ongoing data collection for research and program improvement, collected between October 3, 2021 and March 18, 2022. During this period, 247 patients were discharged from the HaH program and 157 patients and 93 FCGs gave permission to be contacted for research and evaluation purposes. Of those who consented to be contacted, 75 patients and 57 FCGs completed a survey yielding 48% and 61% survey completion rates, respectively.

Table 2 provides a summary of selected quantitative metrics grouped by domains/themes and the preliminary results. The metrics used to elicit responses associated with the themes and the results are discussed in detail below. Table 3 presents a sample of the responses to the open-ended questions, in which participants were able to express their experiences with aspects of the program they liked the most, and suggestions for improvements, as well as the option to share any other comments about the program.

Respondent Profile

Despite the HaH program admitting patients from both the emergency department and wards, most of the patients admitted during this period were ‘early discharge’ patients, meaning they were referred to HaH from an in-patient ward and spent some time in the brick-and-mortar hospital before being admitted to the HaH program. The majority of the patients surveyed in this period self-identified as white (North American, European, etc.) (90%) and were 70 years of age or older (57%) which reflects the demographic of the population we serve, but we understand that these results do not capture a full range of experience given the homogeneity of this population.

When asked about the presence of an FCG at home, most of the patients, 78% (56), reported to have had an FCG at home who was able to assist them with their care needs. 46% (33) of the patients reported having a ‘formal’ FCG, who signed a consent form with the program to assist the patient while 32% (23) of the patients reported that they had no ‘formal’ FCG but had someone living with them

who was able to help with care needs. 22% (16) of the patients did not have a formal FCG or one living with them. These patients are referred to as ‘independent patients’* in Table 2 and were asked about their experience without a caregiver (See questions 5,6 and 7 on Appendix 1: [Linked here in supplemental materials](#)). Of the FCGs surveyed, the majority reported to be the patient’s spouse (65%), 70 years of age or older (47%) and identified as white (North American, European, etc.) (88%).

Overall experiences and acceptability of program

Using the following three metrics: (1) overall experience rating, (2) whether patients/FCG would recommend the program to family and friends and (3) if faced with the same situation again, would they choose HaH instead of care in a hospital building, it is clear that the majority of patients and FCG had a positive experience and were satisfied with HaH. Overall experience with the HaH program was ranked on a 10-point scale, where 0 meant ‘very poor’ and 10 ‘very good’ (Table 2). As shown in Table 2, 100% of the patients, and 95% of FCGs, had an overall positive (6-10 rating) experience. The majority would choose HaH instead of receiving care in a hospital building. Similarly 96% of FCGs would agree to be a of patients (99%) and FCGs (89%) rated their experience as 8 or higher. Furthermore, 100% of patients and 96% of FCGs would recommend the program to their friends and family. Lastly, nearly all patients (97%) indicated that, if faced with the same situation again in the future (had a condition that met the criteria for HaH), they would choose HaH instead of receiving care in a hospital building. Similarly 96% of FCGs would agree to be a caregiver again for their family member receiving care through the program.

Responsiveness

To measure how responsive the program is to patient and FCG concerns, questions and care needs, the following metrics were used and the preliminary results suggest the program has been responsive. 100% of patients and 97% of FCGs reported that they were ‘always’ or ‘usually’ able to reach a HCP when they had a question or concern. Of patients who tried to contact the HCPs, (n=36), 89% were able to connect in under 10 minutes and 100% were satisfied with the average length of time it took to make contact. Furthermore, 97% of patients and 93% of FCGs reported that the HCPs ‘always’ or ‘usually’ arrived within the scheduled time for the house visits. On the first day of admission to the program, 99% of patients and 96% of FCGs reported that the nurse’s first visit to the home to deliver the equipment and medications was within the expected timeframe.

Awareness

To gauge patients’ and FCGs’ awareness of how the program worked, the processes of transfer to home and the scope of their responsibilities, the following metrics were used. To date, patients’ experiences with the

Table 2. A selection of the preliminary results from patient and FCG experience surveys

Domain/Themes	Metrics	Patients (n = 75), unless specified	Caregivers (n = 57), unless specified
Program acceptability/overall care experience	Overall experience 0-10 (very poor to very good)	100% (<i>Positive: 6-10</i>)	95%, (n=56) (<i>Positive: 6-10</i>)
	Would choose the program again if faced with same situation	97% (<i>Definitely/Probably</i>) 100%	96%, (n=56) (<i>Definitely/Probably</i>)
	Would recommend the program to others	(<i>Definitely/Probably</i>)	96% (<i>Definitely/Probably</i>)
Awareness of program and understanding of how it works	Before agreeing to be a patient/caregiver, program was clearly explained	91% (<i>Yes, Completely/Quite</i>)	79% (<i>Yes, Completely/Quite</i>)
	Patient and Caregiver roles and expectations explained prior to admission	92%, (n=73) (<i>Yes, Completely/Quite</i>)	79%, (n=56) (<i>Yes, Completely/Quite</i>)
	Transfer to home process clearly explained	93%, (n=74) (<i>Yes, Completely/Quite</i>)	80%, (n=56) (<i>Yes, Completely/Quite</i>)
Program responsiveness	Ability to reach a HCP when needed (i.e. had a question/concern)	100%, (n=41) (<i>Always/Usually</i>)	97%, (n=39) (<i>Always/Usually</i>)
	HCPs arrived within scheduled time	97% (<i>Always/Usually</i>)	93% (<i>Always/Usually</i>)
	Satisfaction with average amount of time to contact a HCP (when needed)	100%, (n=36) (<i>Very Satisfied/Satisfied</i>)	-
	Nurse's first visit to home within expected timeframe	99% (<i>Yes</i>)	96% (<i>Yes</i>)
Quality of care	Feeling safe receiving /having family member receive care	99% (<i>Completely/Quite</i>)	100% (<i>Completely/Quite</i>)
	Pain was well controlled (if present)	98%, (n=49) (<i>Always/Usually</i>)	N/A
	When HCPs changed, the next seemed up-to-date with care	97%, (n=74) (<i>Always/Usually</i>)	N/A
	HCPs explained things in a way easily understood by patient	99%, (n=74) (<i>Always/Usually</i>)	95% (<i>Always/Usually</i>)
	Felt adequately prepared for discharge	89% (<i>Completely/Quite</i>)	98%, (n=56) (<i>Completely/Quite</i>)
Quality of care – Medication management	Clear understanding of which medications expected to take while in HaH	93%, (n=73) (<i>Completely/Quite</i>)	89%, (n=56) (<i>Completely/Quite</i>)
	Clear understanding of what each medication prescribed was for	94%, (n=72) (<i>Completely/Quite</i>)	80%, (n=56) (<i>Completely/Quite</i>)
	Clear understanding of the dosage of each medication	99%, (n=72) (<i>Completely/Quite</i>)	95%, (n=56) (<i>Completely/Quite</i>)
	Clear understanding of how to document medications taken	100%,(n=68) (<i>Completely/Quite</i>)	96%, (n=55) (<i>Completely/Quite</i>)

Table 2. A selection of the preliminary results from patient and FCG experience surveys (cont'd.)

Domain/Themes	Metrics	Patients (n=75), unless specified	Caregivers (n=57), unless specified
Quality of information sharing/training provided – Technology	Information on the transfer process from hospital to home	93%, (n=74) <i>(Completely/Quite)</i>	80%, (n=56) <i>(Completely/Quite)</i>
	Overall ease following instructions from HCPs	-	93%, (n=54) <i>(Very/Somewhat easy)</i>
	Tablet – received information/training needed	92%, (n=65) <i>(Completely/Quite)</i>	96%, (n=49) <i>(Completely/Quite)</i>
	Thermometer – received information/training needed	96%, (n=71) <i>(Completely/Quite)</i>	94%, (n=52) <i>(Completely/Quite)</i>
	Blood Pressure / Heart Rate Monitor - received information/training needed	99%, (n=72) <i>(Completely/Quite)</i>	96%, (n=52) <i>(Completely/Quite)</i>
	Weight Scale - received information/training needed	92%, (n=24) <i>(Completely/Quite)</i>	95%, (n=20) <i>(Completely/Quite)</i>
	Oxygen Saturation Monitor - received information/training needed	99%, (n=70) <i>(Completely/Quite)</i>	96%, (n=52) <i>(Completely/Quite)</i>
	Patients' ability to submit vital sign measurements twice daily	97%, (n=72) <i>(Always/sometimes)</i>	100%, (n=56) <i>(Always/sometimes)</i>
– Discharge (Medication reconciliation)	Discussed how to treat pain after discharge	68%, (n=34) <i>(Yes)</i>	N/A
	HCP reviewed medications (which to continue or stop or information about new medications) before discharge	89%, (n=70) <i>(Yes)</i>	N/A
	Received written info about medications prior to discharge	50%, (n=64) <i>(Yes)</i>	N/A
	Written information about medication was easy to understand	97%, (n=31) <i>(Completely/Quite)</i>	
	HCP reviewed what medications were for before discharge	100%, (n=61) <i>(Yes definitely, Yes, somewhat)</i>	N/A
	HCP clearly described possible side effects from medication	64%, (n=55) <i>(Completely/Quite)</i>	N/A
	Clear understanding about prescribed medications before discharge	87%, (n=71) <i>(Completely/Quite)</i>	N/A
– Discharge	Received online/written information about symptoms or health problems before discharge	23%, (n=61) <i>(Yes)</i>	N/A
	Told when to resume usual activities	44%, (n=70) <i>(Completely/Quite)</i>	N/A
	Told who to contact after discharge with questions/concerns about condition/treatment	91% (n=65) <i>(Yes)</i>	N/A
	HCPs discussed fears and anxieties before discharge (if present)	81%, (n=43) <i>(Always/Usually)</i>	94%, (n=34) <i>(Always/Usually)</i>
	Before discharge had a good understanding of responsibilities to manage health	94%, (n=68) <i>(Completely/Quite)</i>	N/A
	HCPs gave adequate information to family caregiver to help with care needs	81%, (n=52) <i>(Completely/Quite)</i>	98%, (n=50) <i>(Completely/Quite)</i>
	Discussed whether follow up care was needed	86%, (n=59) <i>(Yes)</i>	N/A
	HCPs gave adequate information about follow up care (appointments and tests)	82%, (n=51) <i>(Completely/Quite)</i>	N/A

Table 2. A selection of the preliminary results from patient and FCG experience surveys (cont'd.)

Domain/Themes	Metrics	Patients (n=75), unless specified	Caregivers (n=57), unless specified
Patient-centredness	HCPs listened carefully	100%, (n=74) (<i>Always/Usually</i>)	100%, (n=74) (<i>Always/Usually</i>)
	Fears / anxieties were discussed (if present)	96% (n=51) (<i>Always/Usually</i>)	96% (n=51) (<i>Always/Usually</i>)
	Treated with courtesy and respect	99% (<i>Always/Usually</i>)	99% (<i>Always/Usually</i>)
	Treated with compassion	99% (<i>Always/Usually</i>)	99% (<i>Always/Usually</i>)
	Cultural values and practices were respected	100%, (n=62) (<i>Always/Usually</i>)	100%, (n=62) (<i>Always/Usually</i>)
HCPs were respectful of home	HCPs were respectful of home	100% (<i>Always/Usually</i>)	100% (<i>Always/Usually</i>)
	Felt comfortable and safe without an FCG (Independent patient)*	94%, (n=16) (<i>Strongly agree/agree</i>)	94%, (n=16) (<i>Strongly agree/agree</i>)
Caregiver strain (responsibilities and quality of life)	Confidence level as a caregiver	N/A	100% (<i>Completely/Quite</i>)
	Ease in supporting the patient with meal preparation	-	91% (n=53) (<i>Very easy/Somewhat easy</i>)
	Ease in supporting the patient with taking vital signs	-	100% (n=54) (<i>Very easy/Somewhat easy</i>)
	Ease in supporting the patient taking their medication	-	93%, (n=55) (<i>Very easy/Somewhat easy</i>)
	Managing loss of privacy/personal time	-	95% (n=44) (<i>Completely/Somewhat manageable</i>)
	Managing sleep disruptions	-	95% (n=37) (<i>Completely/Somewhat manageable</i>)
	Managing the strain between responsibilities (work and family)	-	88%, (n=34) (<i>Completely/Somewhat manageable</i>)
	Feeling completely overwhelmed (Never – always)	-	95%, (n=56) (<i>Never/Sometimes</i>)

*Independent patient: Refers to patients who did not have a formal FCG or one living with them.

admission process have been positive, with 91% of patients reporting that the program was well explained to them before they agreed to participate. FCGs' experiences with this aspect, although mostly positive, were less so, with 79% of FCGs reporting that they received adequate information about how the program worked prior to patient admission. Similarly, 92% of patients and 79% of FCGs reported that they had a clear understanding of their roles and what was expected of them in participating in the program.

Care quality and information sharing

The quality of the care, from the patients' and FCGs' perspectives, was measured by reporting on feelings of safety, pain management, discharge preparedness, and the quality and level of information sharing and training provided. 99% of patients reported that they felt safe receiving care and 100% of FCGs reported that the care

their family member received through the program was safe. Almost all patients (98%) reported that their pain was well controlled and 89% reported they were adequately prepared for discharge from the program. With regards to medication management, both patients and FCGs reported to have a clear understanding of the medication they took or assisted their family member in taking throughout the HaH admission period. As shown in Table 2, patients' understanding of which medications to take and why; how much and when; in addition to documentation of these details was rated in the 90th percentile. On the other hand, FCGs' understanding of these aspects of the medication and how to assist the patient, ranged from 80% - 96%, (Table 2).

Table 2 shows the positive ratings with respect to information sharing between HCP, patients, and FCGs and the training provided to the patients and FCGs by the

HCPs. Nearly all patients (97%) reported that HCPs seemed up-to-date with their care when change-over occurred. In receiving the information and training needed to utilize the technology in the program, almost all patients (92 - 97%) and FCGs (94 - 100%) reported that they had an adequate level of information and training to use the different technological tools. Furthermore, 94% of patients reported that they were 'always' (87%) or 'sometimes' (7%) able to complete their twice daily vital sign measurements on time. All FCGs (100%), reported that assisting the patient with their vital sign measurements was 'very easy' or 'somewhat easy'. A high proportion of patients (81%) and FCGs (98%) also reported that the information that was given to the caregiver to help care for the patient before discharge was adequate.

Patients reported that the level of written information given to the patients regarding their medication and some aspects of post-discharge care, are areas where improvements can be made. While 87% of patients reported that they had a clear understanding of all of their medications before discharge, only 50% reported to have received written information about their medications prior to discharge and only 23% reported to have received written information about potential symptoms or health concerns that may arise post-discharge. The proportion of patients who reported to have had a discussion about potential medication side effects before discharge from the program or how to treat pain after discharge were also low (64% and 68% respectively). Furthermore, less than half of patients (44%) had had a discussion about when to resume usual activities as part of their discharge plan.

Patient-Centredness

To assess how patient-centred the HaH program is from the patients' and FCGs' perspectives, the preliminary findings illustrate that 99% of patients felt respected and treated with courtesy and compassion; 100% felt that HCPs listened carefully; and 100% felt their homes, cultural values and practices were respected. Additionally, 96% reported that HCPs discussed with patients if they had any fears or anxieties about their condition or treatment during their admission period. 82% of patients reported to have been adequately involved in decisions about their discharge plan. Similarly, FCGs reported in high proportions to have felt respected and treated with compassion (98%), to have been listened to carefully by HCPs (96%), to have had a discussion about any fears or anxieties (88%) and that their home and cultural values and practices were respected (98% and 97% respectively).

Caregiver Burden (Roles and Responsibilities)

All 57 FCGs who completed a survey reported that they felt confident in their roles and with their responsibilities. With regards to routine daily activities (e.g., preparing meals, following instructions from the HCPs, assisting the patient with their medications and vital sign

measurements) most FCGs rated their experience and overall level of difficulty as 'very easy' or 'easy' (91%, 93%, 93% and 100% respectively). FCGs were asked to assess their own quality of life and how they managed the impact of participating in the HaH program and providing care for their family member. The majority (88-95%) reported the 'loss of privacy/personal time', 'disturbed sleep', and 'feeling strained between responsibilities' (work, family, etc.) as being manageable. When asked if they ever felt 'completely overwhelmed' as a result of their caregiver responsibilities during the HaH admission, 54% said 'never', 41% said 'sometimes', 5% said 'usually' and 0% said 'always'. Despite 41% reporting to have 'sometimes' felt overwhelmed, as stated earlier, 96% of the FCGs indicated that they would agree to be a caregiver for a family member if they faced the same situation in the future.

Qualitative Feedback

Two open-ended questions were included in each survey to gauge patients' and FCGs' perspectives on what they 'liked most about the HaH program' and 'how it could be improved'. The top themes that emerged are discussed below and a small sample of these responses are presented in Table 3.

What Patients and FCGs Liked Most About HaH

After content analysis and coding of responses, it was found that the top three most prominent themes from patients' view for this question were 'being at home', followed by the 'care and quality' and aspects of the program related to 'safety, professionalism of the team and instilling confidence' in patients. The top most prominent themes that emerged from FCGs' perspective, included 'having the patient at home' / 'not having the patient at the hospital', and similarly the aspects of the program that related to 'safety/professionalism and instilling confidence' for the FCGs. Other themes that emerged included but were not limited to; 'the staff' (referring to their friendliness and caring manner), 'more time and attention from HCPs', the 'convenience and control' (referring to the freedom to do normal daily activities), 'better mental health and recovery', presence of 'family and visitors', and 'freeing-up beds at the hospital' for those who needed them more.

How HaH Could Be Improved

When asked about recommendations for program improvements, almost two-thirds of patients (62%) and FCGs (64%) said 'nothing needs to be improved' and the program is 'good/perfect' as is. Amongst the patients (n=26) and FCGs (n=18), who did provide suggestions, the top themes noted were similar to those observed in the quantitative data. Patients noted recommendations with aspects of 'medication organization', and FCGs cited 'discussions to prepare for discharge' as top areas for improvement. Other themes included but were not

Table 3. A sample of direct quotes in response to two open-ended questions

What did you like most about the program?	
Patients:	Caregivers:
<p>Themes: Care Team Professionalism and Receiving Care at Home <i>The professionals who treated me with respect, they explained everything well, they were knowledgeable, calm, factual and respectful made so much sense I was so much happier at home. Freed up a bed at hospital for someone else.”</i></p>	<p>Themes: Care Team Professionalism, Quality of Care, Receiving Care at Home and Patient Empowerment <i>“Compassion caring and friendly staff, the confidence and the concern showed, no judgement very professional, really helped the patients healing it was faster. Not having the patient at the hospital as they had a bad experience at the hospital. Personal care was amazing. The patient was involved in their care progress and that helped them heal faster by doing his own healing by understanding their condition better. Patient felt empowered.”</i></p>
<p>Themes: Quality of Care and Receiving Care at Home <i>“Being able to recover at home sooner while still feeling completely supported by a very competent care team genuinely interested in my continued recovery. Seamless support services.”</i></p>	<p>Themes: Receiving Care at Home, Caregiver Convenience Safety, Quality of Care, Patient Safety, Quality of Care, Caregiver Support <i>“It made all the difference to have my husband at home where I could cook for him, and he could be comfortable and in his bed, and surrounded by his books, and able to see into the garden. No hospital noises, meals served on plastic, or extra risk of Covid! Most importantly, we felt the care from the Hospital at Home team was as good as if he had been in hospital. It was very important to us to be able to call the doctor or nurse directly, and know that they will be calling us twice a day.”</i></p>
<p>Theme: Quality of Care <i>Every connection and moment and gentleness, incredible patients, the staff. I have never seen anything like it, the dedication and care, their empathy and professionalism. I got the best care, they were really watching and listening. Quality of information and care. The ease to use all the tools I was given. It was magical.”</i></p>	<p>Themes: Receiving Care at Home, Caregiver Convenience Safety, Quality of Care, Patient Safety, Quality of Care, Caregiver Support <i>“So much better having the patient at home, prepare food the patient likes, so much more comfort and patient heals better because of having own food, built up strength, so much more at peace here. Hospitals are loud and nurses breeze by as busy, but here the patient was in a safe familiar environment and the nurses have more time, felt a lot more personalized. Care quality was better as the nurses had focused attention on the patient, I felt very supported too, they came in the middle night and supported me too. I was very happy to take part and best for my mom, less exposure to illnesses too.”</i></p>
<p>Theme: Overall Patient Satisfaction <i>“This is an excellent program with a committed staff. I very much hope it continues on after the pandemic.”</i></p>	<p>Themes: Receiving Care at Home, Safety, Communication <i>“I liked having the patient at home, me not having to go to the hospital to visit because of COVID. I like the whole program, we felt confident, I liked the binder, all the information was provided, the visits by the HCP, the ease and confidence with the program. I liked that they were with us the whole way for example when we went for a scan.”</i></p>
How can the program improve?	
Patients:	Caregivers:
<p>Theme: Discharge planning and communication <i>“The discharge felt a bit abrupt and I didn’t feel as if I could contact anyone if the meds stopped working, I would have liked a follow up. They thought I was ready and I agreed but I would have liked the option of follow up if needed it’s a good program but would be better.”</i></p>	<p>Theme: Caregiver Onboarding <i>“At start (enrolment) they did not include me in the conversation. They did not teach me how to use the equipment and just left it. I had to figure it out myself. There is a lot of stress on the caregiver at the start, I was quite stressed at the start. By the second day I was fine. But initially more information to the caregiver to ease the stress.”</i></p>
<p>Theme: Follow-up post-discharge <i>“The only thing I could add is after discharge a follow up call to check on and find out if the tests and appointments have been followed up.”</i></p>	<p>Themes: Medication management and discharge planning and communication <i>“Give written info about medication after discharge. Other than that it is great”</i></p>
<p>Theme: Medication management <i>“Medication common names were not on the bottle to match the paper work. Or they are too small on the pill bottle. It’s a good program.”</i></p>	<p>Themes: Medication management and staff training <i>“The patient was admitted to RJH but pharmacy was VGH there was a delay about where the meds were coming from so making sure the meds are on time. We also observed a fairly large ability difference in doing IV. Some were excellent at IV and some struggled. Having them trained or having the most competent to do the more difficult cases.”</i></p>
<p>Theme: Medication management and staff composition <i>“Nothing it was good. More information about the medication, what it is for and side effects, and add physiotherapy.”</i></p>	<p>Theme: Program expansion <i>“I don’t see any need for improvement - except for expanding the program around the country!”</i></p>

so it is available in other geographic areas and even beyond the COVID-19 pandemic), 'more information at enrolment to FCGs', 'follow up call / better handover to GP', and 'more support for the FCG'.

While not stated directly by FCGs, we infer from the discrepancies in responses between patients and FCGs regarding information about medication purposes, transfer process, and care responsibilities of FCGs that there is an opportunity to redesign processes to improve FCG understanding and experience in the program.

Table 3 presents a sample of the responses to the open-ended questions, in which participants were able to express their experiences with aspects of the program they liked the most, and suggestions for improvements, as well as the option to share any other comments about the program.

Discussion

These six months of preliminary results show that the Island Health HaH program, newly implemented in BC, is being well received by patients and their FCGs and has improved not only patients' but also FCGs' experiences in the first 15 months of service. Patients and FCGs alike have found the program responsive, safe, patient-centred, well-organized and the HCPs, professional, friendly and caring. The data obtained from the quantitative metrics are reflected in the direct quotes from the participants.

Patients, in almost all instances of measures, have rated the program in the top 20th percentile, citing the quality of care to be comparable and sometimes better than that received at the hospital – with 99% of patients citing the care they received safe and 97% stating that they would choose the program instead of a stay in hospital for a similar condition. Through the qualitative feedback, it was observed that patients perceived to have a faster recovery through a synergy of home-comforts, love and support of family, pets, better sleep, more time with HCPs and feeling empowered and more knowledgeable about their condition.

FCGs, while acknowledging the time-commitments and the impact on their own quality of life, recognized the benefits, for the patients' health, recovery and comfort, and also the advantages the program provided them. FCGs noted that by having the patients at home and not having to make trips to the hospital, their own experiences as a caregiver were improved as they were not being exposed to the elements; including the weather and the threat of COVID-19, and they would choose the program again instead of having the patient at the hospital for a similar condition and also even beyond the COVID-19 pandemic. Although the majority (79%) reported that the program was clearly explained to them, it is important to

acknowledge that FCGs' experiences with receiving information about the program and before the admission were less ideal compared to those of the patients. This highlights the fact that patients and FCG have different roles within the HaH care model; therefore, their understanding and interpretation of the information provided is different. From this data, we surmise that while our current approach to sharing information on admission to the program is working well for patients, FCGs have different information needs and the approach should be tailored accordingly. This sheds light on the importance of ensuring both patients and FCGs are included in the discussions at every point of the process and are empowered to make an informed choice. FCGs who noted feeling 'sometimes overwhelmed', also acknowledged that this was mainly in the first day or two, while still learning about the program and their roles, and that once a routine was established, they felt confident. This is reflected in the 'confidence level as a caregiver' metric, open-answers, as well as the metric regarding if they would agree to be a caregiver again. Nonetheless, there were a couple of FCGs whom the program did not suit, demonstrating the importance of consultations and informed decision making. Feedback around the steep learning curve during transition to home has already changed the education and support for patients and FCG to improve this experience in response to real time patient and FCG feedback.

Patients and FCGs also noted challenges associated with traditional hospital stays including disturbed sleep; lack of privacy; inability to eat their preferred food; busy, rushing HCPs; and lack of visitors during the COVID-19 pandemic. It is important to note that hospital stays can pose substantial physical, mental, and social challenges for certain populations. Indigenous people who have experienced historic trauma through their experiences with the residential schools and ongoing systemic racism, reported negative past experiences with their hospital stays.²¹ Having the option of hospital care provided in their home and comfort zone, where their space, values, and cultural practices are acknowledged and respected, can empower patients and their FCGs and minimize perceived power imbalances between those receiving and providing care. Health care service delivered in a relevant and culturally safe manner is critical and a need that the HaH model of care fulfills. Asking patients if they feel "safe" measures and monitors this broad lens of safety from patient and FCG perspectives.

Other challenges with the traditional brick-and-mortar hospitals include a growing elderly population and the pressures that this poses on the availability of acute care beds. Creating capacity within the hospitals; "*by freeing up beds*" is another benefit of HaH and was also noted by both patients and FCGs.

The overall evaluation of the Island Health HaH program relies on and benefits from the collaboration of many stakeholders; including patient partners, HCPs, researchers, academics, quality improvement evaluators and administrators. Developing a health service delivery program with continuous knowledge generation and integration processes supports continual health system improvement. This approach aligns with the concept of a learning health system where internal data and experience are systematically integrated with external evidence. It leverages both quality improvement and research methodology to enable real-time, rapid improvements to health services, improves patient-centred care, and generates opportunities for integrated knowledge translation.

While this paper reports the preliminary results, we can conclude that *to date* the program has been well received; the processes of admission, care provision, communication and discharge are working well; and the expansion of the program is supported from both patients' and FCGs' perspectives. This is not only evident by the quantitative data, but also through direct quotes from patients and FCGs. Based on and validated by our preliminary findings, the program has identified several areas for improvement. Some of the changes that have been implemented as a result of the findings include a refined discharge process, such as written discharge sheets; the creation of printed materials to improve education about the program prior to admission; addition of allied health services such as occupational therapy; and participation in training required for phlebotomy. Additional areas for improvement have been identified, (e.g., methods to streamline medication reconciliation); and ongoing data collection will help identify trends over time and inform additional process improvements.

The data so far demonstrates that the scope of work performed by FCGs is appropriate and does not adversely affect their quality of life. Ensuring FCGs are not overburdened by providing the support in the care of their family member will help with future program sustainability. The majority of the patients included in this study had the assistance of an FCG, demonstrating the vital role caregivers play in this patient-centred model of care and the importance of their recognition and support. Over the course of the full data collection period, as efforts to improve efficiencies are made, data will continue to be reviewed and the program evaluated to ensure that not only does the quality of the care provided remain high, but that the support of and for FCGs in the program stays intact.

It is interesting to note that despite program expansion to double capacity, there has been no significant changes in the patient and FCG feedback. This suggests that the model itself is flexible and adaptable to be able to meet

patient and family needs as well as its ability to respond in real time to ensure patient experience of care continues to be excellent.

Conclusion

The newly implemented HaH program in BC Canada is positively received by patients and FCGs to date and they support program expansion as evident by the quantitative data as well as direct quotes. This paper outlines the development of the patient and FCG survey instruments, including reference to previous work completed to support this development and contributes to the growing global Hospital at Home literature.

Next Steps

A complete summary of the findings of patient and family caregiver experiences with HaH will be published following the conclusion of the data collection period.

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