Home Health Monitoring

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Excellent health and care for everyone, everywhere, every time.

Objectives

Overview of HHM in BC

Evaluation Methodology

Findings

Conclusions & Recommendations

Next Steps for HHM in BC

HHM Overview

HHM is a self-management support service that aims to educate and empower clients living with chronic conditions.

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HHM Service Goals
for Heart Failure Population

- Promote patient self-management
- Assist with early detection and intervention for heart failure exacerbations
- Reduce hospital admissions
- Improve health outcomes
- Enhance quality of life

Value Drivers for HHM

PATIENTS

- I feel better able to manage my condition
- I don't have to travel as much (to the doctor, hospital, etc.)
- I can stay at home for longer
- Someone's there to help me

HEALTH AUTHORITIES

- Increased use of community care; reduced use of acute and residential care
- Enhanced patient care
- Extension of existing care delivery to improve access and timeliness

BRITISH COLUMBIA MINISTRY OF HEALTH

- Expanded capacity in community-based home health
- Service delivery excellence and lever to address requirements of expected demographic wave
- Aligned with current provincial strategies and service plans

TELUS | HEALTH

- Supports with transformation in healthcare
- Leverages information technology to deliver better health outcomes to Canadians
- Seeds growth opportunities and creates innovation

HHM Client Education

- Heart failure zones
- Recognizing heart failure symptoms and taking action:
  - Daily weight measurement
  - Fluid management
  - Medication management
  - Checking for swelling
  - Sodium restriction management
- Balancing activity, rest and exercise
- Advance directives
- Emergency planning

Home Health Monitoring Video


HOME

Evaluation Methodology

BC HHM Evaluation

Purpose

- To complete a fulsome evaluation of what was designed, developed, and implemented during the Limited Production Rollout (LPR).

- To inform continuous improvement and expansion of HHM in BC.

HHM Self-Management Care Model

HHM Service	↑ Self-Management Capacity & Activation	↑ Health Status & Quality of Life	↓ Health System Utilization
• Clients monitored by RNs • Monday-Friday, 8-4 • Daily BP, pulse, oxygen saturation, weight • Daily symptom questions • Periodic education messages • Telephone client education and self-management support	Disease knowledge Symptom management Coping skills Confidence	Self-Assessed Health Status & Quality of Life Client satisfaction	Inpatient Days/Costs ER Visits/Costs Physician /MSP costs

Evaluation Methodology

Component	Methods / Data Sources	Analysis / Indicators
Health Outcomes	PAM & PROMIS extracts (IHA; n=48) SCHFI (VIHA; n=75)	PAM & PROMIS scores at enrollment, discharge, and 6 months post SCHFI at enrollment and discharge.
Health System Utilization	HHMP & MSP extracts, HA clinical info ER and Acute extracts; n=192	Comparison of Pre-HHM, During-HHM, and Post-HMM Service • Utilization: Inpatient Days, Emergency visits, MSP billings • Costs: Inpatient, Emergency, MSP
Client & Clinician Experience	Client Interviews (n= 113) Clinician survey (n=20) and focus group (n=8)	Quantitative and qualitative analysis of clinician and client surveys Qualitative analysis of focus group (themes).
Clinical & Non-Clinical Activity	HHM Nurse time tracking HR and payroll data RPM Client volume, alerts generated and actions	Comparison of Activity tracking, client volumes, and alerts Care ratios achieved, Hours/client month, Cost /client.
Asset Management	HHMP extract TELUS SIMS data	Time to contact client, Time to schedule install, # of schedule Changes, Time to install equipment, time to retrieve equipment Kits returned incomplete, Connectivity problems.
Support Desk	Help desk Expert Automation Tool system, TELUS Call tracking, SharePoint, clinician surveys & focus groups	Call statistics, calls entered, abandoned, speed to answer # of P1, P2, & P3 Incidents, time to resolve by Priority.
Project Management & Delivery	VIHA Lessons learned document Project Team and Sponsor interviews	Qualitative Analysis to summarize feedback and recommendations re: repeatable deployment processes, and project management processes, structure, and documentation.

Findings

Patient Reported Health Outcomes

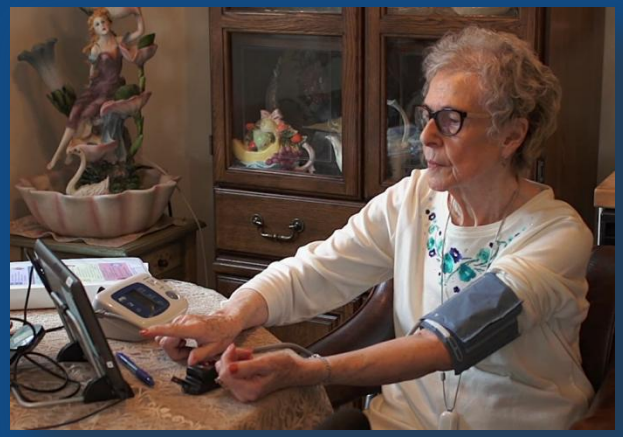
Self-Care of Heart Failure Index (Island Health)

Client management of symptoms improved

- 20% scored at a high level of self-care on enrolment
- 60% on discharge

Client self-care confidence improved

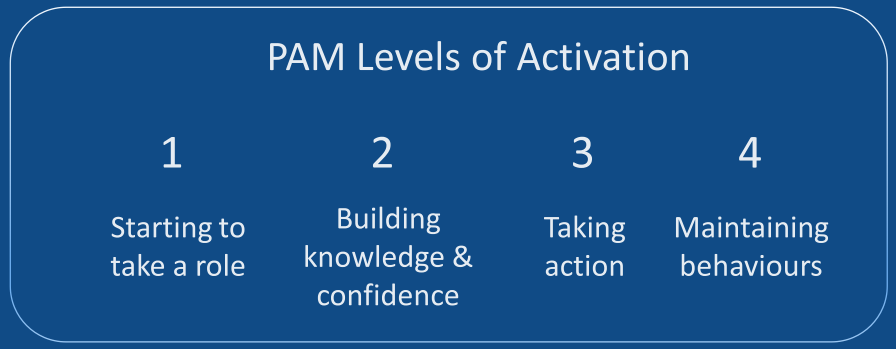
- 28% scored at a high level on enrolment
- 39% on discharge



Patient Activation Measure
(Interior Health)

Clients' self-care activation increased from enrolment to discharge

- 56% of clients at level 3 or 4 on enrolment
- 75% of clients at level 3 or 4 on discharge



PROMIS
(Interior Health)

Self-reported physical health improved

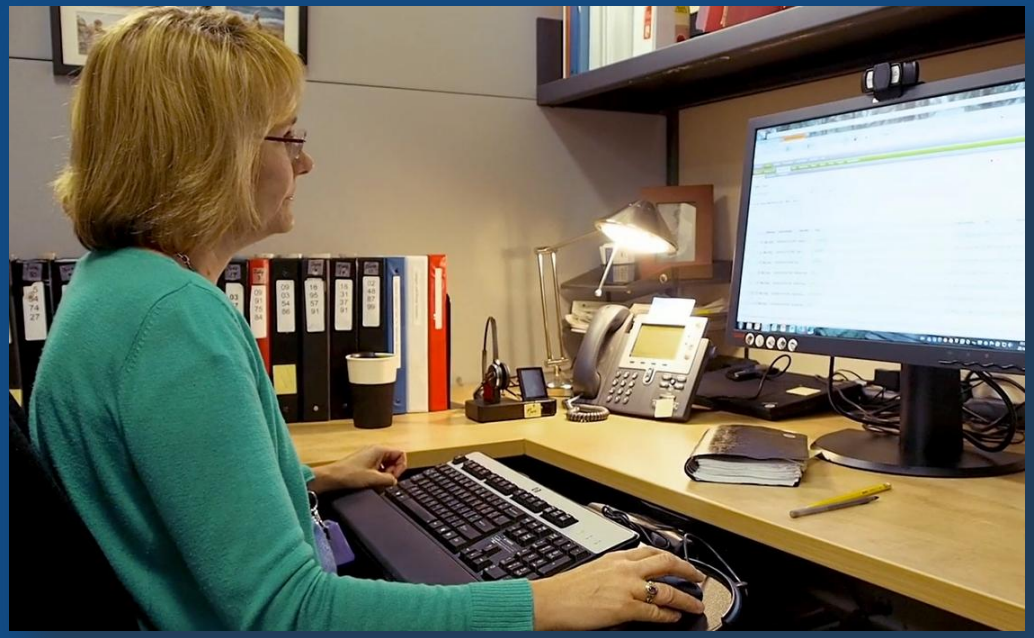
- 36% of clients had a T-score >50 on enrolment
- 72% on discharge

Self-reported mental health improved

- 47% of clients had a T-score >50 on enrolment
- 66% on discharge

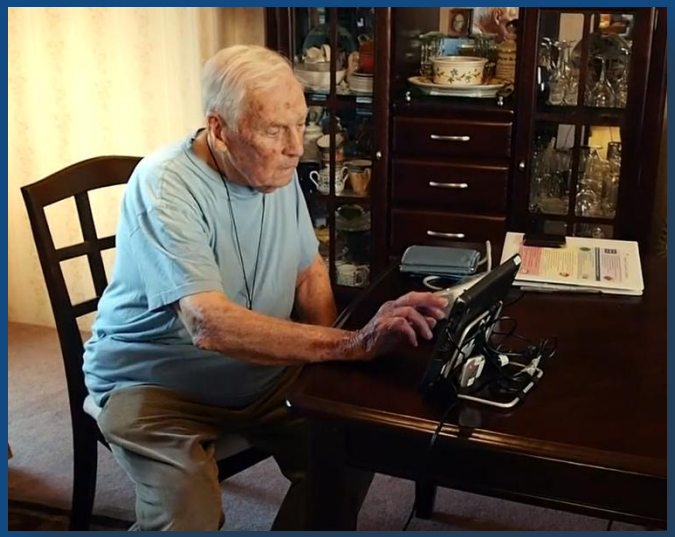
PROMIS Global Health Short Form
- 10 questions
- Physical and mental health dimensions
- T scores > 50 associated with a healthy population

Client and Clinician Experience



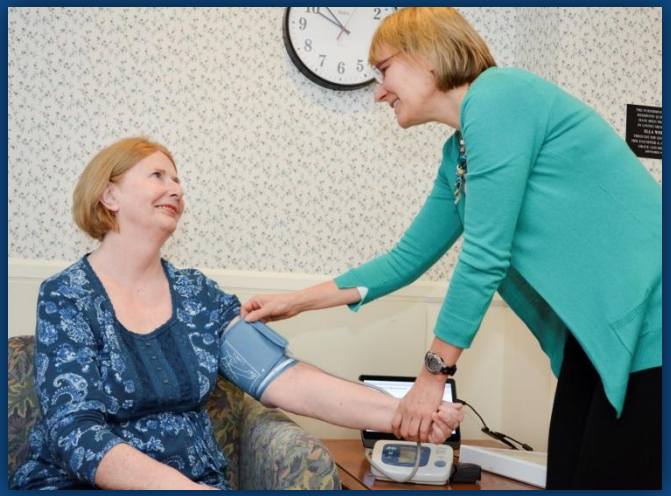
Client Satisfaction

- 98% overall satisfaction with service
- 100% would recommend service
- Areas of dissatisfaction:
  - Physician awareness
  - Length of time on service
  - Equipment issues



Clinician Satisfaction

- Overall satisfaction
  - 100% at Island Health (n=3)
  - 80% at Interior Health (n=5)
- 100% agreement that HHM supports client self-management
- Requested improvements:
  - Client ease of use
  - Clinician and Patient Station functionality
  - Device Kit delivery and retrieval delays



"The monitoring system makes you feel supported and like you have a team behind you. You don't feel abandoned. They help you with your condition and monitor you on a daily basis"

Nanaimo HHM Client

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"The monitoring system was a Godsend. I felt much more in control and could know each day whether or not I was in the 'safe zone', by weighing, (measuring) BP and oxygen level."

Victoria HHM Client

Clinical & Non-clinical Activity

Two Models of Care

Factor	Home & Community Care Island Health	Specialty Heart Function Clinic Interior Health
Average Age of Client (yrs)	78.5	67.3
Suitability Assessment	By phone, post referral	In-person, prior to referral
Average Time from Referral to HHM Start (days)	31 (2013), 19 (2014)	15 (2013/14)
Home Visits	Yes, by exception	No
Nursing Scope of Practice	Home Community Care RN with generalized scope	Nursing specialist, certified cardio-vascular Medication Titration
Work Assignment & Staffing	Care Management (1 primary nurse to many clients) 100% time allocated to HHM Admin staff register clients	Shared Care (many clinicians to many clients) 20% time allocated to HHM Nurse performs all HHM tasks
No. HHM Nurses/ FTEs	3 / 2.16	5 / 0.86
Cumulative No. Patients Monitored (Oct'13-Jul'14)	131	58

Service Delivery & Costs

Activities & Costs	VIHA	IHA	Notes
Average Monitoring Duration (weeks)	11.5	12.9	1st data transmission to last data transmission.
Care Ratio Achieved	29:1	37:1	No. of client's concurrently served by a single clinician (clients : clinician)
% Nurse Time on indirect Care	26%	4.7%	Indirect care e.g: meetings related to HHM
Cancelled Clients	18%	5%	
Hours per client month [1]	4.91	3.60	
Cost per client month to deliver HHM Services	$320	$240	Inpatient cost per day: $1167 ER Visit per Day: $535
Cost per client to deliver HHM services	~$960	~$720	

Limitations

All HHM costs related to Telus (platform, device-kits, field-services) are excluded from analysis.

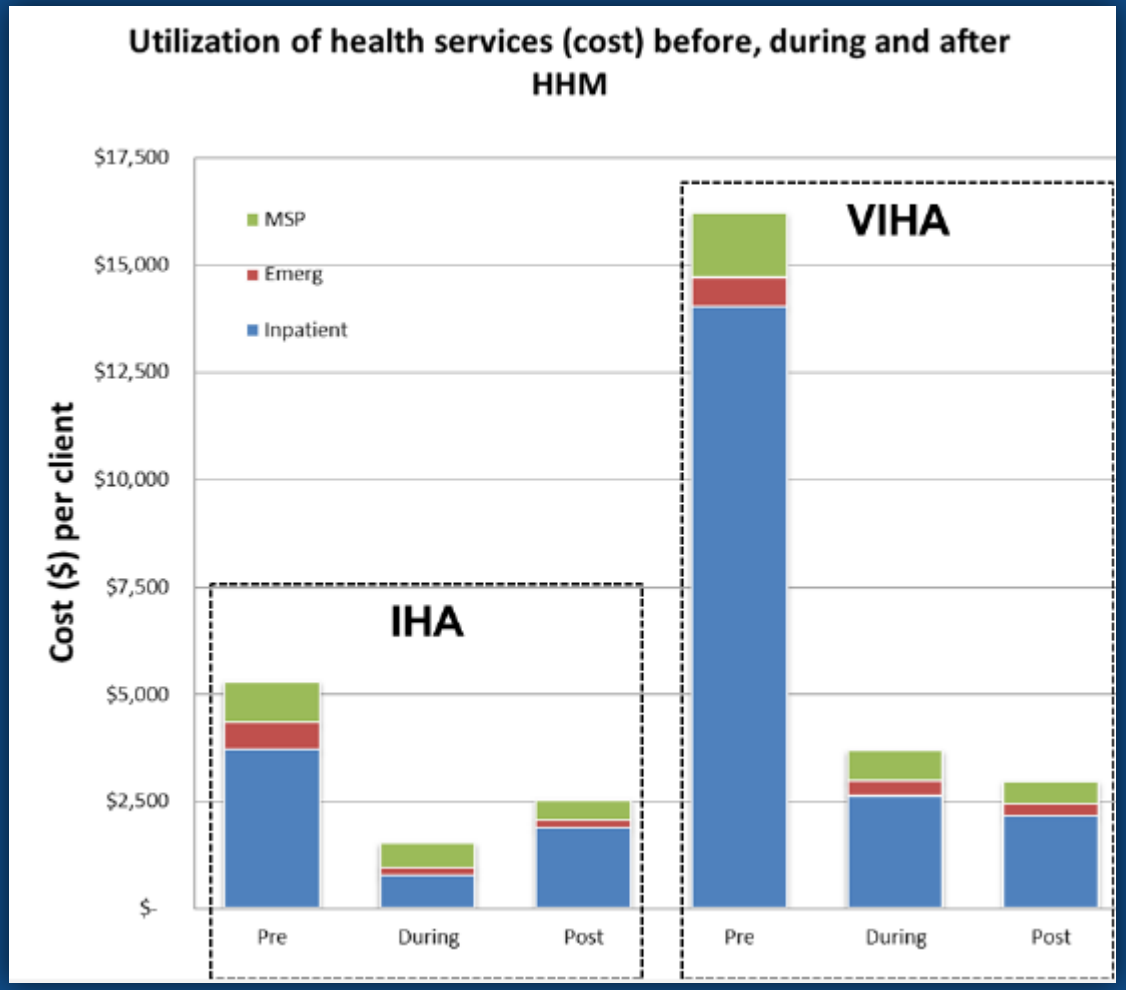
IHA & VIHA staffing s methods for tracking hours varied but not materially

[1] Referral to Discharge , Nurse VIHA

Excludes cancelled cases and non-client activities

Health System Utilization

Health Utilization (3 month time periods)



Differences in patient populations at IHA and VIHA

- Age, frailty, comorbidities
- Patient referral sources
- Service delivery model

Limitations

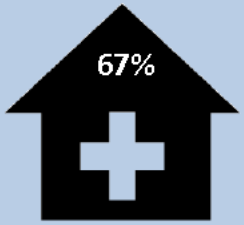
- Decreasing N after 3 months post HHM Discharge
- Utilization for ER, Acute and MSP is based on 'all causes'
- Sustained longer –term utilization impact unknown

Additional Island Health

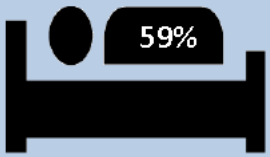
Impact of Home Health Monitoring

(Spring 2015)

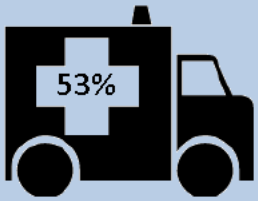
→ Reduces Hospital Admissions



→ Reduces Hospital Length of Stay



→ Reduces Emergency Department Visits



Conclusions

Despite challenges with patient station devices and clinical station software, clients reported satisfaction with the HHM service and reduction in health system utilization was observed.

Triple aim outcomes were very positive.

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Recommendations

- Improve software functionality and integration options in order to increase adoption, scalability, HHM service optimization and data analytics capacity
- Improve device-kit components and fit to population in need of service (underway)
- Optimize scheduling process related to device-kit (integration)
- Implement wireless (3G) and new tablets
- Improve asset management service delivery capacity in rural/remote settings
- Standardize suitability assessment and other assessment instruments, build into TELUS RPM
- Expand target population and service delivery model to maximize ROI

BC HHM Next Steps

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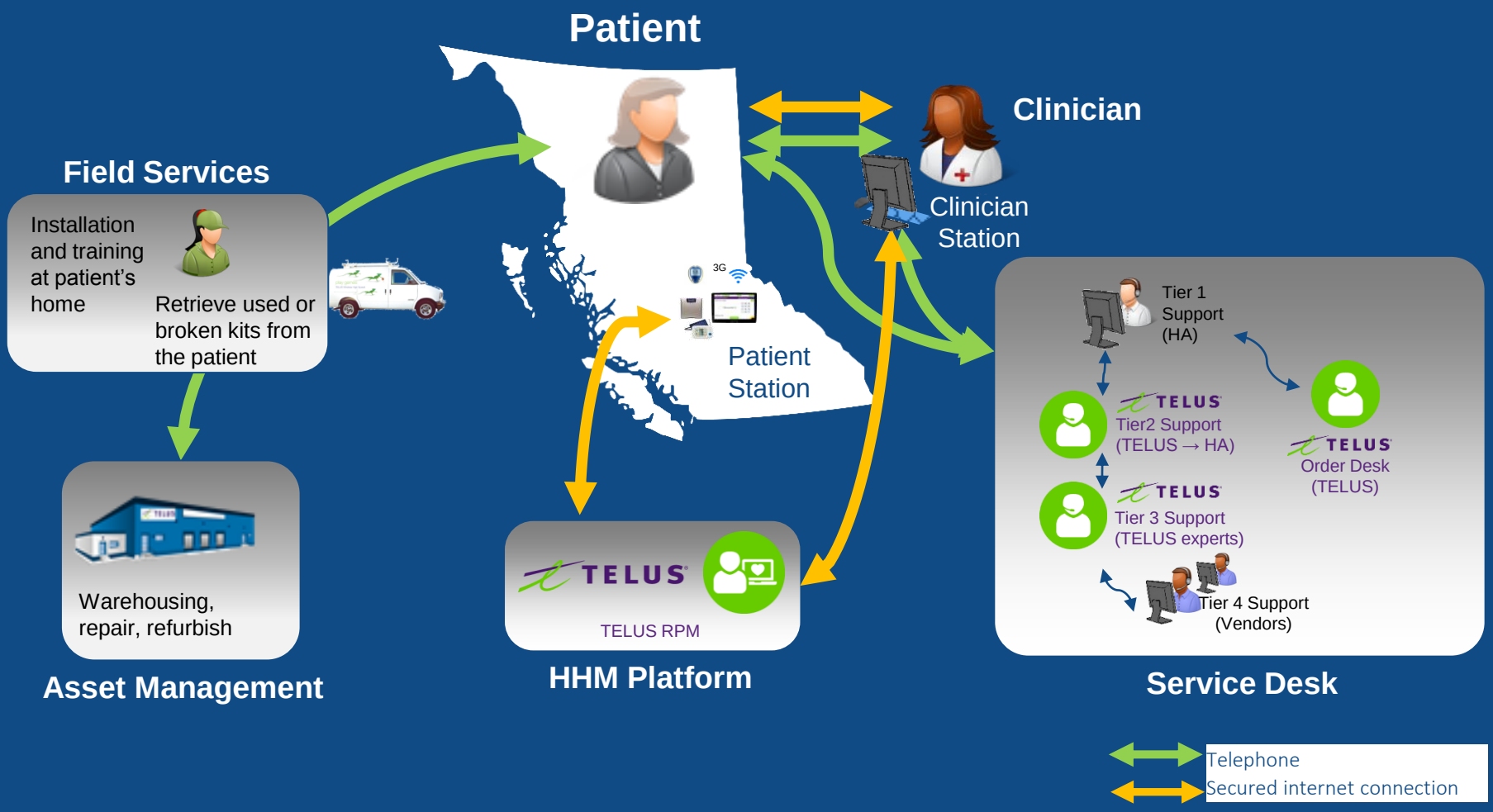
Managed Services

HHM Managed Service



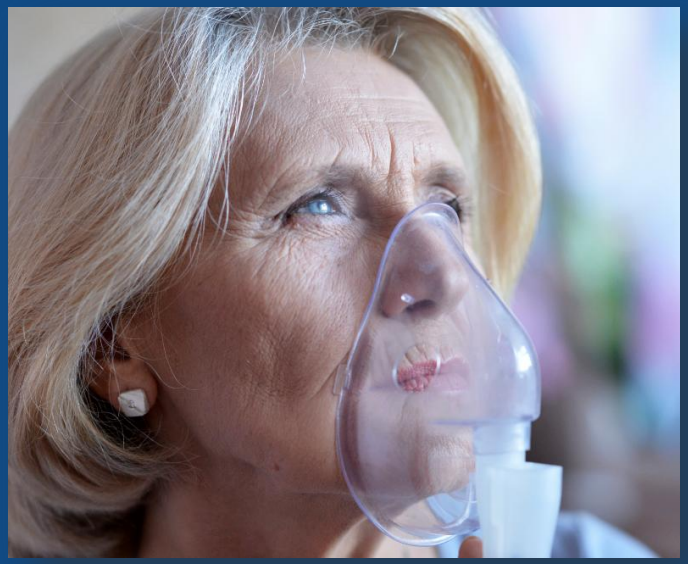
Providence Health Care & Vancouver Coastal Health

TEC4Home research study (CIHR eHIPP)

- Dr. Kendall Ho and team, including representation from:
  - Patient Partners
  - VCH-PHC Emergency Medicine
  - Vancouver Division of Family Practice
  - Cardiac Services BC
  - Ministry of Health
- Studying HHM in the transition of heart failure patients from ED/acute to home
- Feasibility study followed by 3 year provincial, randomized trial and evaluation

Island Health

- Optimize current service delivery resources
- Enroll clients in HHM for COPD
- Expand HHM services to other geographies in Island Health



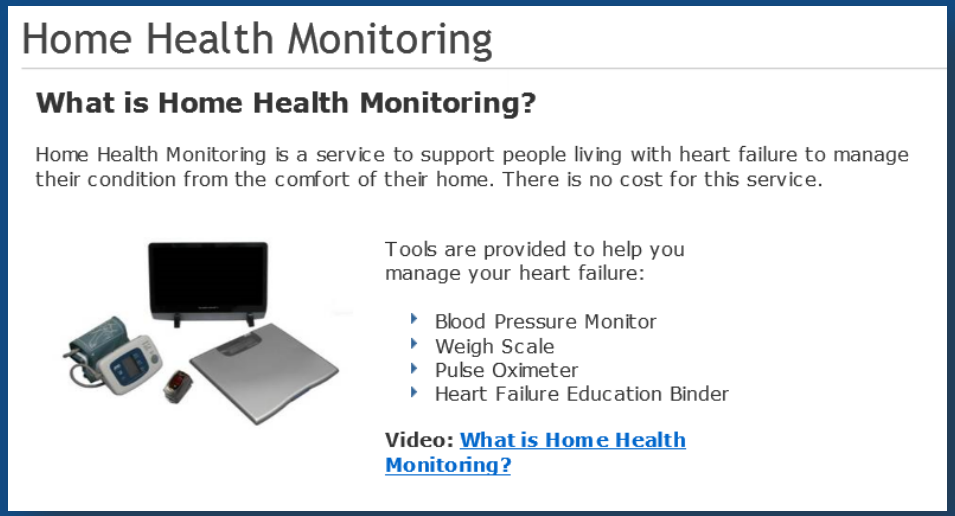
Island Health Evaluation

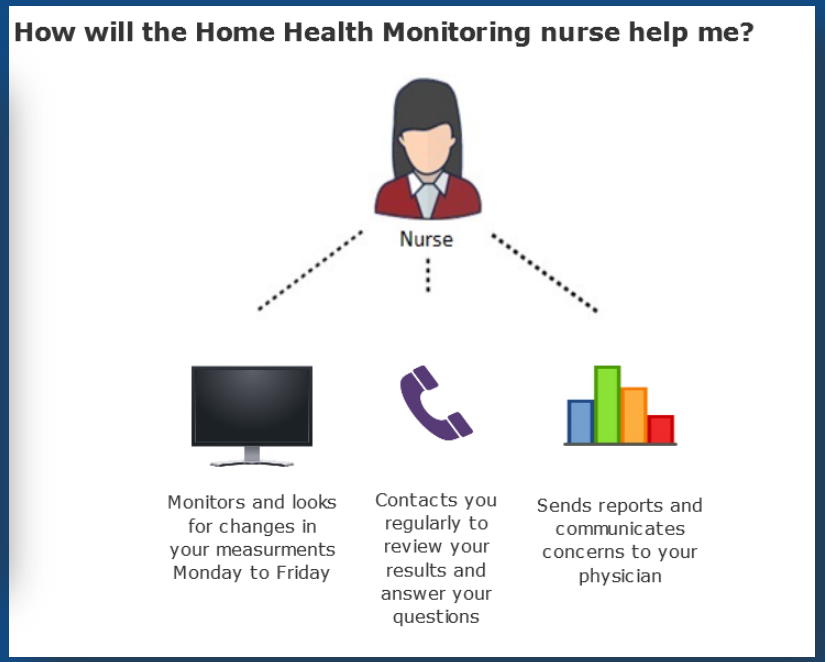
- Health outcomes
- Health system utilization
- Client satisfaction
- Longitudinal self-management evaluation

More Information

Visit the Island Health Home Health Monitoring Website:

http://www.viha.ca/hcc/services/home_health_monitoring.htm





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