Integrated Heart Failure (HF) CoP Webinar:

Home IV Diuretic Administration for Heart Failure Management

2025-12-04

Ontario Health

Housekeeping

- Please keep yourself on mute unless you are speaking.

- We encourage you to type your questions or comments in the chat box. The chat box is monitored throughout the webinar. Questions will be addressed directly in the chat box or in the discussion following the presentations.

- We also encourage you to share any suggestions/topics for future webinars.

- This meeting **will be recorded.** Supplemental Materials will be available on the virtual CoP shared space shortly.

Land Acknowledgement

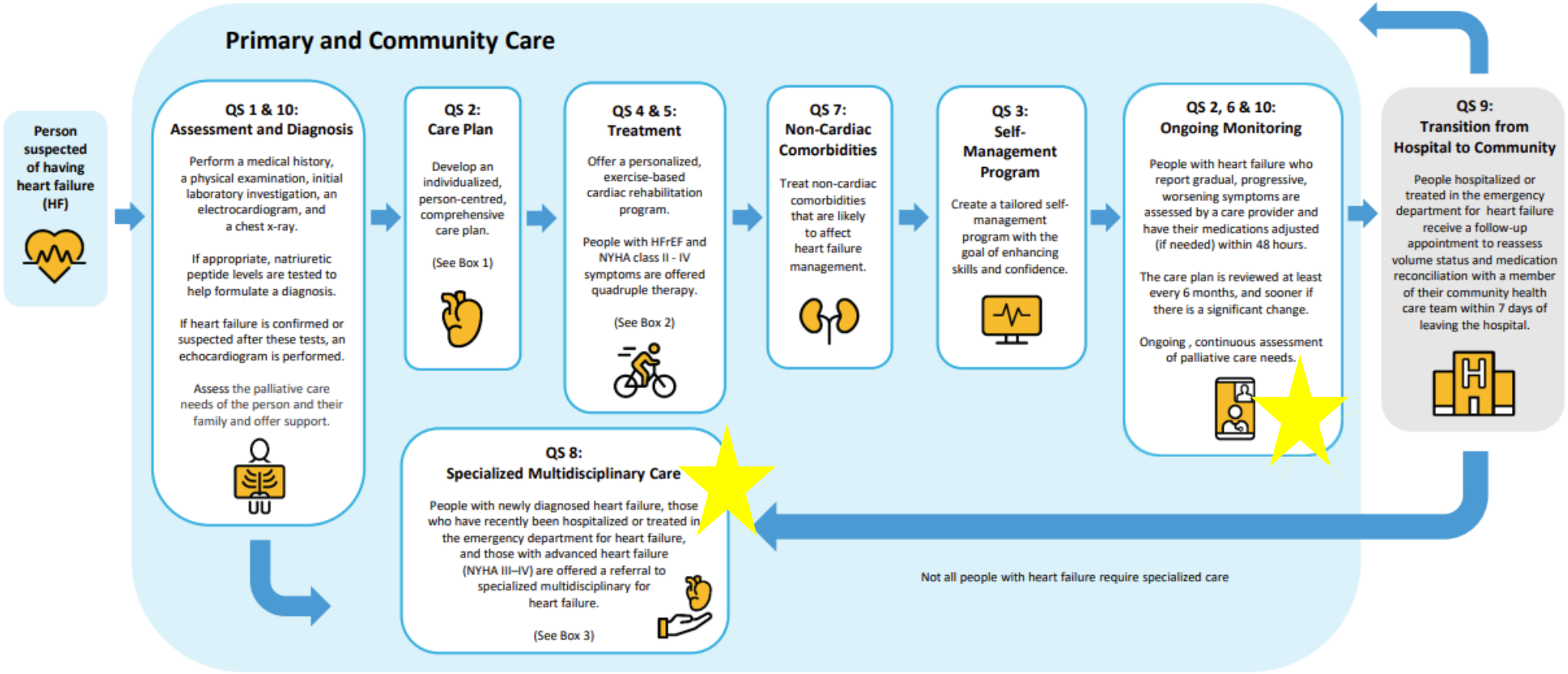
Agenda

TIME	TOPIC	NAME
8:00 am	Welcome & Introductions Land Acknowledgement	Colleen Lackey
8:10 am	Home Administration of Intravenous Diuretics in Heart Failure: Qualitative Study	Morgan Krauter
8:30 am	OHT Spotlight: Huron Perth and Area OHT	Lori Vermeersch & Travis Coyle
8:45 am	Questions & Discussion	All
8:55 am	Wrap Up	Colleen Lackey

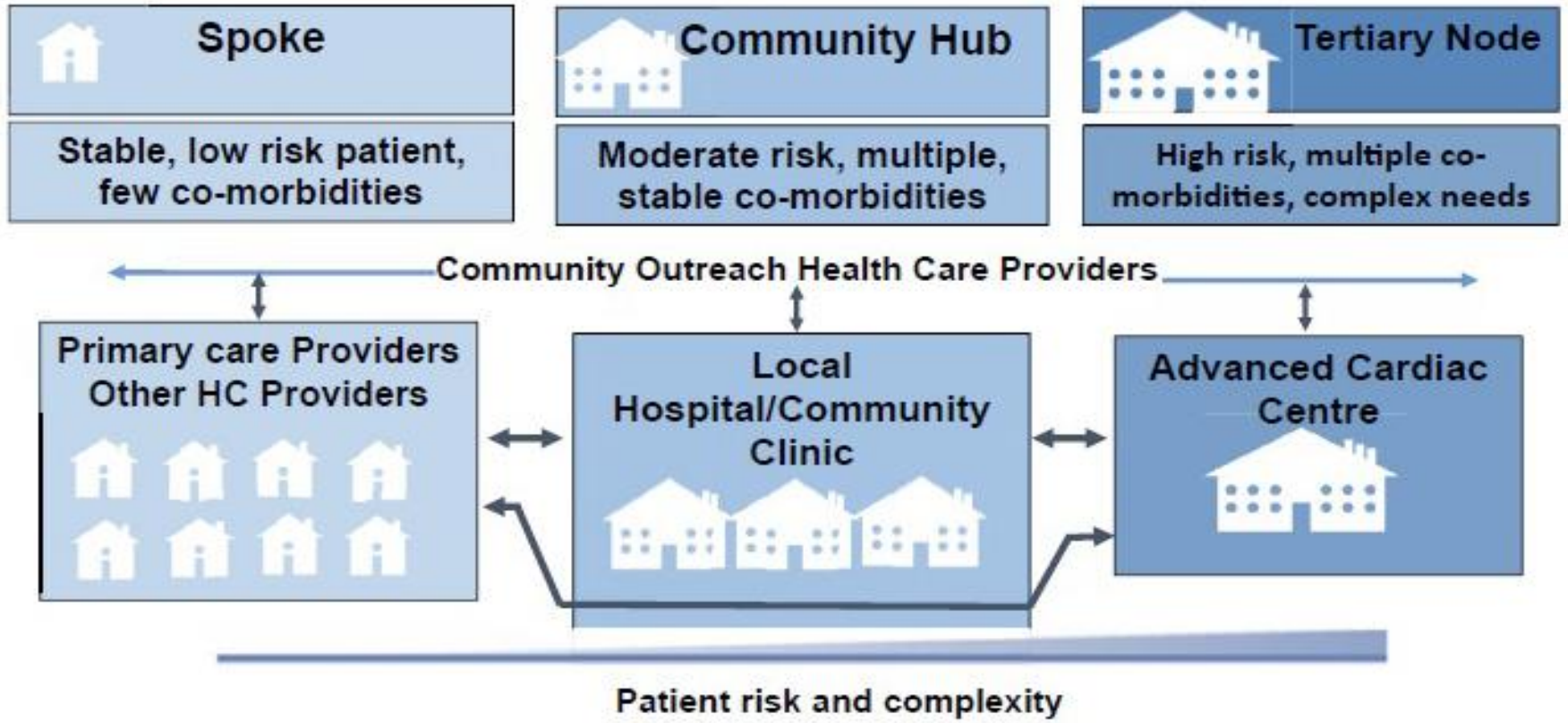
Heart Failure: Care in the Community for Adults

Ontario Health

A collaborative and community-based pathway outlining high-quality care based on the Ontario Health *Heart Failure* quality standard



Best Practice for Heart Failure Care



Specialized Heart Failure Care is Provided in the Hub and Node

The Spoke-Hub-and-Node Model of Integrated Heart Failure Care
Huitema, Ashlay A. et al.
Canadian Journal of Cardiology, Volume 34, Issue 7, 863 - 87

CorHealth Ontario. (2017). *The Spoke-Hub-Node model of heart failure care*

Presenter:

Morgan Krauter

Doctor of Nursing, MN-NP (Adult)

Nurse Practitioner-Lead, Heart Function Program

Royal Victoria Regional Health Centre

HAVEN-HF
Home Administration of intraVENous diuretics in Heart Failure Qualitative Study

Dr. Morgan Krauter, DN, MN-NP (Adult)
Nurse Practitioner Lead, Royal Victoria Regional Health Centre, Barrie, ON
Adjunct Faculty, Lawrence S. Bloomberg Faculty of Nursing, University of Toronto

Acknowledgement

With deep gratitude, I acknowledge my supervisory committee, teachers and mentors who have guided me.

Most importantly, I honour the **patients and families** I have had the privilege to care for, including those who are with us and those who have passed on.

May their legacy include the lessons they have so generously taught me. Their courage, resilience, and stories continue to guide how I care for others beyond them.

Home Intravenous Diuretics

Emerging Role: Home IV diuretics for patients with chronic HF refractory to oral diuretics.[1-6]

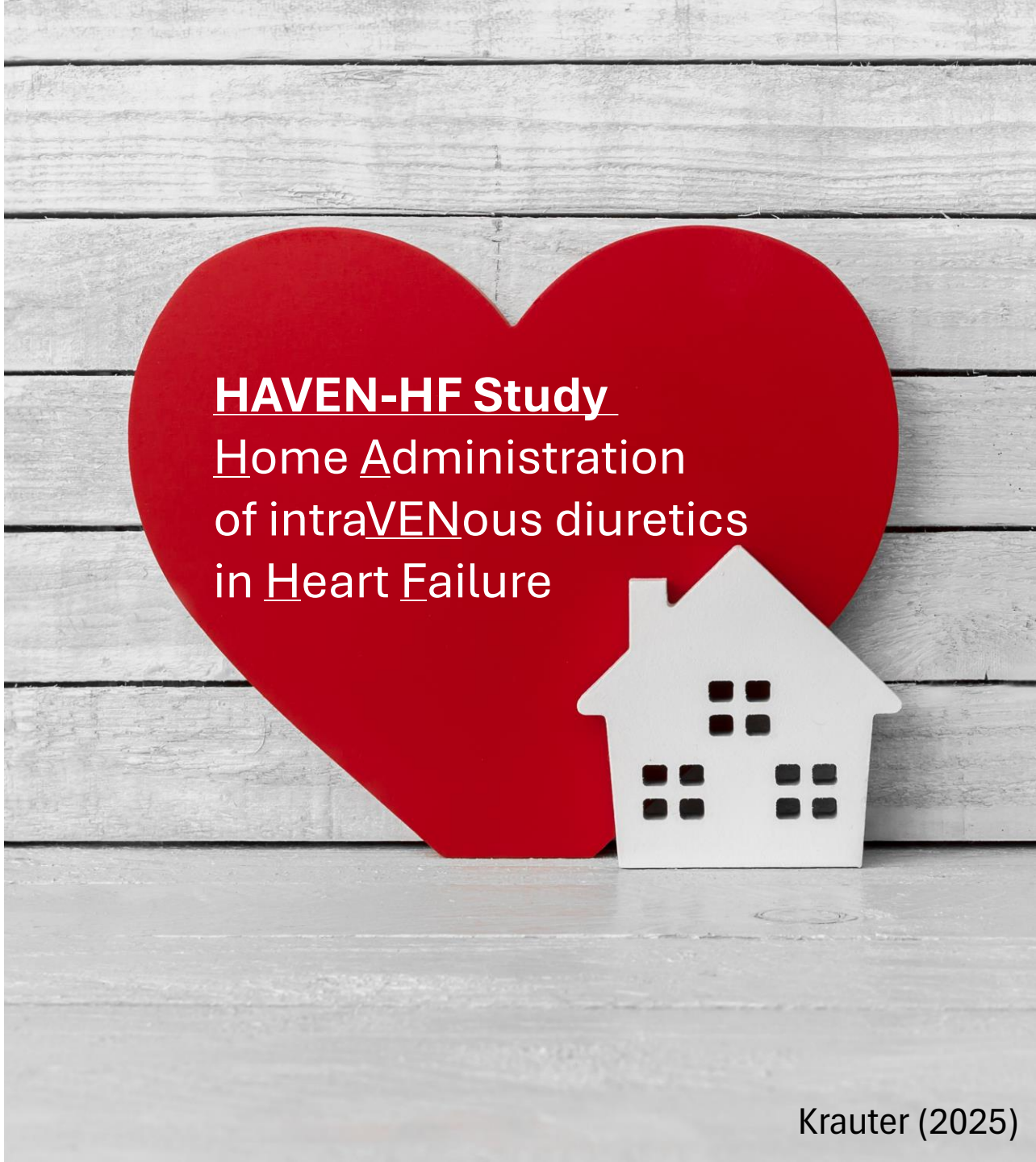
Key Stakeholders: Collaboration between prescribers, homecare, and patients and informal caregivers.[7]

Inconsistent Standards: No universal approach to patient selection, dosing, monitoring or delivery methods.[5,7]

Study Focus

- Purpose: generate in-depth understanding of system- and provider-level factors influencing home IV diuretic delivery.

- Objectives:
  1. Describe current practices and processes supporting home IV diuretic administration to patients with HF in Ontario.
  2. Identify and explore key barriers and facilitators impacting implementation from healthcare provider perspectives.



Krauter (2025)

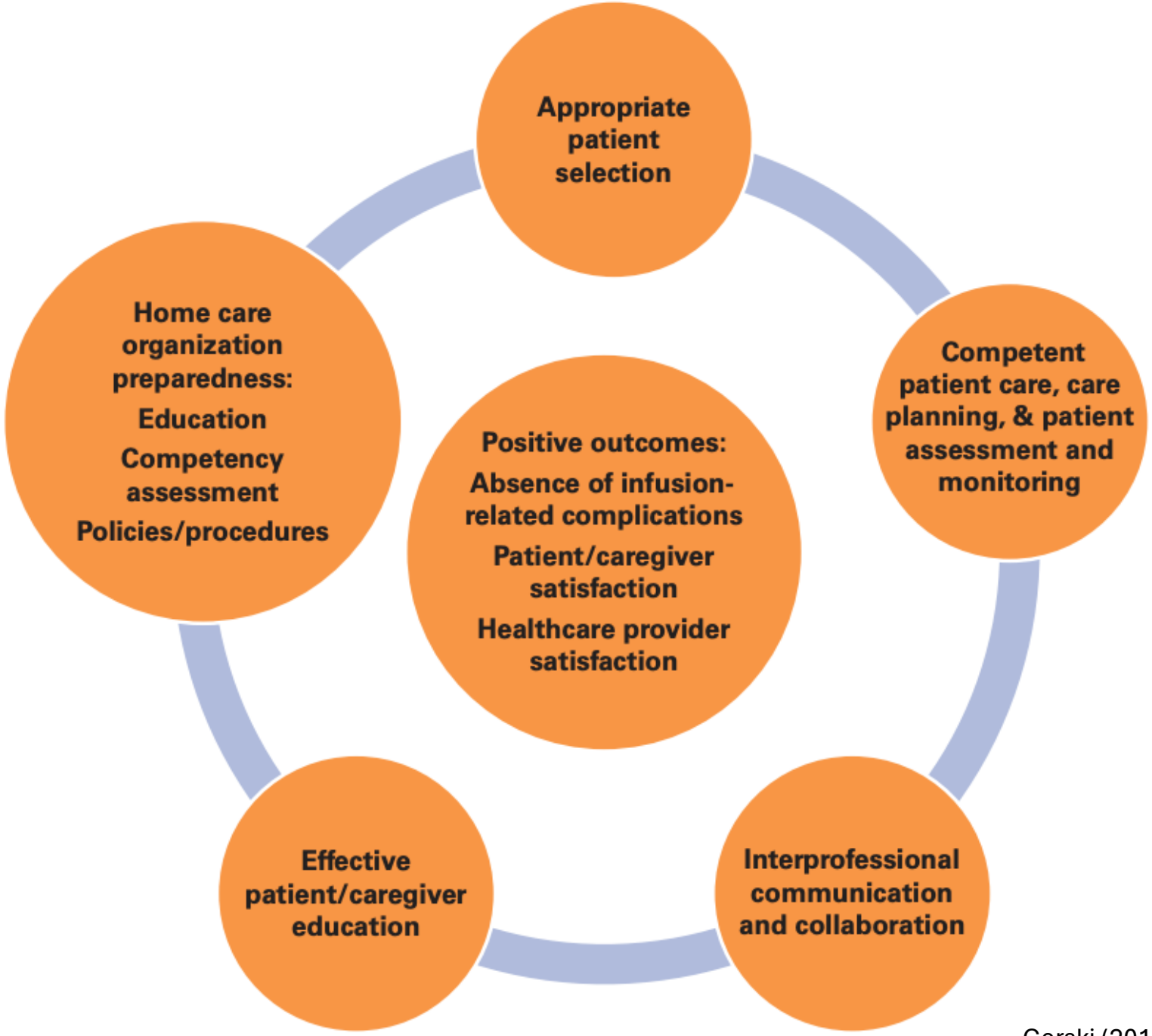
Scoping Review on Home IV Diuretics for Heart Failure

Key Findings	Barriers	Facilitators	Implications for Research
11 publications; mostly small-scale and observational.	Inconsistent patient selection criteria.	Structured protocols for dose titration.	Need for standardized protocols.
Varied models of care and provider roles.	Variable provider skills in IV access and monitoring.	Involvement of community paramedics or specialized nurses.	Further study on patient eligibility criteria and care models
Differences in dosing, infusion methods, and duration.	Coordination challenges across multidisciplinary teams and settings.	Use of telemonitoring and home documentation systems.	Development of consensus-based guidance to inform clinical decision-making & policy.

Krauter et al. (2025)

The Gorski Model for Safe Home Infusion

Guiding our Understanding



Gorski (2017)

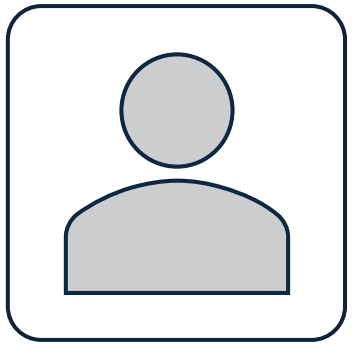
Study Design

Descriptive Qualitative

- To explore healthcare professionals' experiences in prescribing, organizing and administering home IV furosemide to patients with HF in Ontario.

Study Setting

- 36 heart failure clinics (HFCs) across Ontario
- Embedded in home and community care (HCC) services, including primary care and palliative care settings.



Participants

- Prescribers: nurse practitioners and physicians
- Coordinators: hospital, clinic or HCC nurses
- Medication Injectors: nurses, community paramedics

Krauter (2025)

Methods

Demographic Questionnaire

- Three-part survey to capture:
  - Participant demographics
  - Work setting details
  - Program information

Interview Guides

- Separate guides for HFC and HCC participants.
- Questions overlap concepts between Gorski Model and CFIR Framework.

Software

- Microsoft Teams platform for interview recording and transcription.
- Dedoose for coding, data visualization and analysis.

Krauter (2025)

Results

Sample Characteristics

Participant Characteristics (N = 19)		N (%)
Role		
Prescriber	Nurse Practitioner	6 (31.6)
	Physician	3 (15.8)
Injector	Registered Nurse	2 (10.5)
	Community Paramedic	3 (15.8)
Coordinator	Registered Nurse	4 (21.1)
Sex		
	Female	15 (78.9)
	Male	4 (21.1)
Specialty		
	Heart Failure	10 (52.6)
	Home and Community Care	3 (15.8)
	Palliative Care	2 (10.5)
	Paramedicine	3 (15.8)
	Primary Care	1 (5.3)

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Sample Characteristics

Participant Characteristics (N = 19)		N (%)
Years of Professional Experience		
	< 5 years	2 (10.5)
	5-10 years	2 (10.5)
	> 10 years	15 (78.9)
Years of Experience with Home IV Diuretics		
	< 5 years	5 (26.3)
	5-10 years	8 (42.1)
	> 10 years	6 (36.1)
Number Of Patients Treated With Home IV Diuretics Annually		
	< 5 patients	7 (36.8)
	5-10 patients	4 (21.1)
	>10 patients	8 (41.2)

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Key Themes

- Lack of standardization across the care continuum
- Variable organizational and provider preparedness
- Fragmented communication and collaboration

Lack of Standardization Across the Care Continuum

- No standard protocols for patient selection or monitoring.
- Inconsistent administration methods and policies.
- Differences between models of care.

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HAVEN-HF Results

Lack of Standardization Across the Care Continuum

Variable Organizational and Provider Preparedness

- Preparedness differed by role, region, and organization.
- Inconsistent clinical confidence across roles and settings.
- Infrastructure and role clarity gaps.

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HAVEN-HF Results

Lack of Standardization Across the Care Continuum

Variable Organizational Preparedness

Fragmented Communication & Collaboration

- Lack of integrated communication pathways.
- Delayed information transfer and limited feedback loops.
- Delays in care contributed to potential safety risks, provider frustration.

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HAVEN-HF Results

Implications for Practice

Strong need for **evidence-based provincial recommendations**

- **Future Directions:**
  - Understand patient and caregiver experiences and preferences
  - Establish a home IV diuretic registry
  - Evaluate models of care and administration methods

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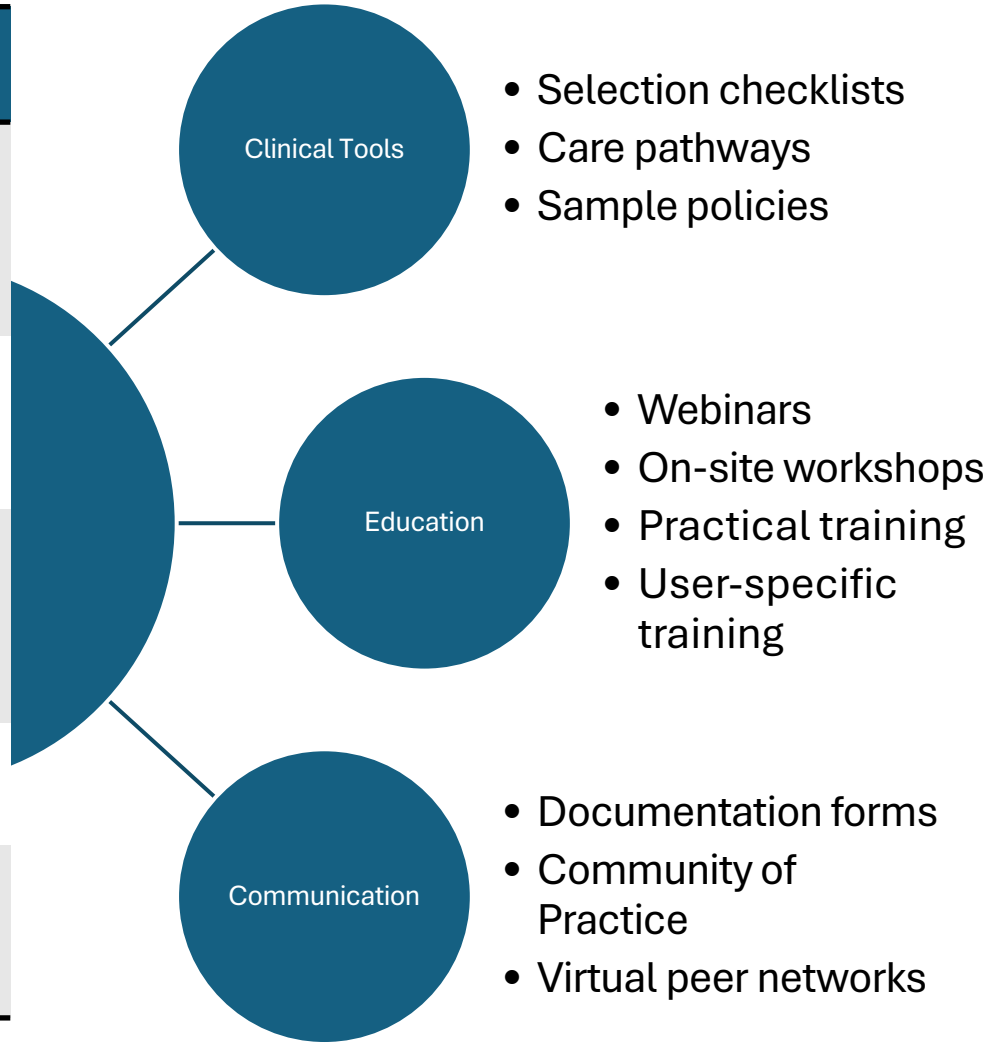
Core Component	Core Messages
Patient Selection	Risk-benefit criteria must integrate clinical, social & environmental factors
Provider Preparedness	Providers require role-specific orientation for safe administration and monitoring
Communication & Care Planning	Standard communication pathways facilitate interprofessional collaboration and reduce errors
Patient & Caregiver Education	Need for clear, consistent education and materials
Monitoring Practices	Adaptable monitoring frameworks with clear escalation triggers can ensure timely intervention



From Evidence to Practice

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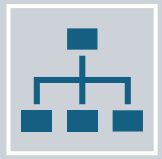
Towards Safe Home IV Diuretic Programs

Summary

HAVEN-HF provides an in-depth understanding of implementation barriers & facilitators.



Significance

Highlights the need for standardization, preparedness, and communication.

Overall Contribution

Informs policy, practice, and future research to enhance home-based HF care in Ontario.

Krauter (2025)

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1. Brightpurpose. (2014). Evaluation of IV diuretics pilot: Final report for British Heart Foundation.
2. Chirnside, J. G., Malone, C. J., Scott, J. G., & Crozier, I. G. (2024). Managing an Advanced Heart Failure Patient at Home With a Long-TermContinuous Intravenous Furosemide Infusion. JACC: Case Reports, 29(19), 102611. https://doi.org/10.1016/j.jaccas.2024.102611
3. Khalifa, A., Harkness, K., Jewett, L., & McKelvie, R. (2013). Home administered lasix therapy in patients with heart failure and chronic congestion (Halt). Canadian Journal of Cardiology, 29(10 SUPPL. 1), S387. https://doi.org/10.1016/j.cjca.2013.07.666
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6. Patel, H. Y., & West, D. J. (2021). Hospital at Home: An Evolving Model for Comprehensive Healthcare. Global Journal on Quality and Safety in Healthcare, 4(4), 141–146. https://doi.org/10.36401/JQSH-21-4
7. Gorski, L. A. (2021). A Look at 2021 Infusion Therapy Standards of Practice. Home Health Care Now, 39(2), 62–71.
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9. Krauter, M. (2025) *Home Administration of Intravenous Diuretics in Heart Failure (HAVEN-HF) Study.* [Doctoral dissertation, University of Toronto]. TSpace

OHT Spotlight:

HURON PERTH & AREA
ONTARIO HEALTH TEAM

Lori Vermeersch

Superintendent, Professional Standards & Community Programs

Huron County Emergency Services

Travis Coyle

Commander, Perth Country Mobile Integrated Health Team

HURON PERTH & AREA
ONTARIO HEALTH TEAM

In-Home IV Lasix Administration

Enhancing Patient Care and Reducing Healthcare Burden through Mobile Integrated Health Services

December 2025

In-Home IV Lasix Administration:
A Transformative Approach to Patient Care

The in-home IV Lasix administration program improves patient comfort by allowing treatment in familiar surroundings, reduces the burden on healthcare facilities, and offers significant cost savings. Key players in this initiative include healthcare professionals from the Huron Perth Heart Failure Clinic, Perth County Mobile Integrated Health Teams and Huron County Paramedic Services.

Key Players in In-Home IV Lasix Administration

Key Players

Lori Vermeersch - Superintendent, Professional Standards & Community Programs with Huron County Emergency Services, brings 30+ years of emergency services expertise, recognized with the EMS Exemplary Service Medal and leads innovative Community Paramedicine initiatives.

Travis Coyle - Commander of MIH, oversees the operational aspects of the MIH Team, ensuring timely and effective home care services for patients in need of IV Lasix administration.

Key Players

Dr. Narayan – Leading Physician,

a leading physician at the Huron Perth Heart Failure Clinic, plays a pivotal role in overseeing patient care and treatment plans for heart failure patients, ensuring they receive appropriate medical interventions.

NP Judy Gardiner - Care Collaborator,

collaborates closely with Dr. Narayan and the healthcare team to provide comprehensive care for patients, focusing on assessment, education, and management of heart failure.

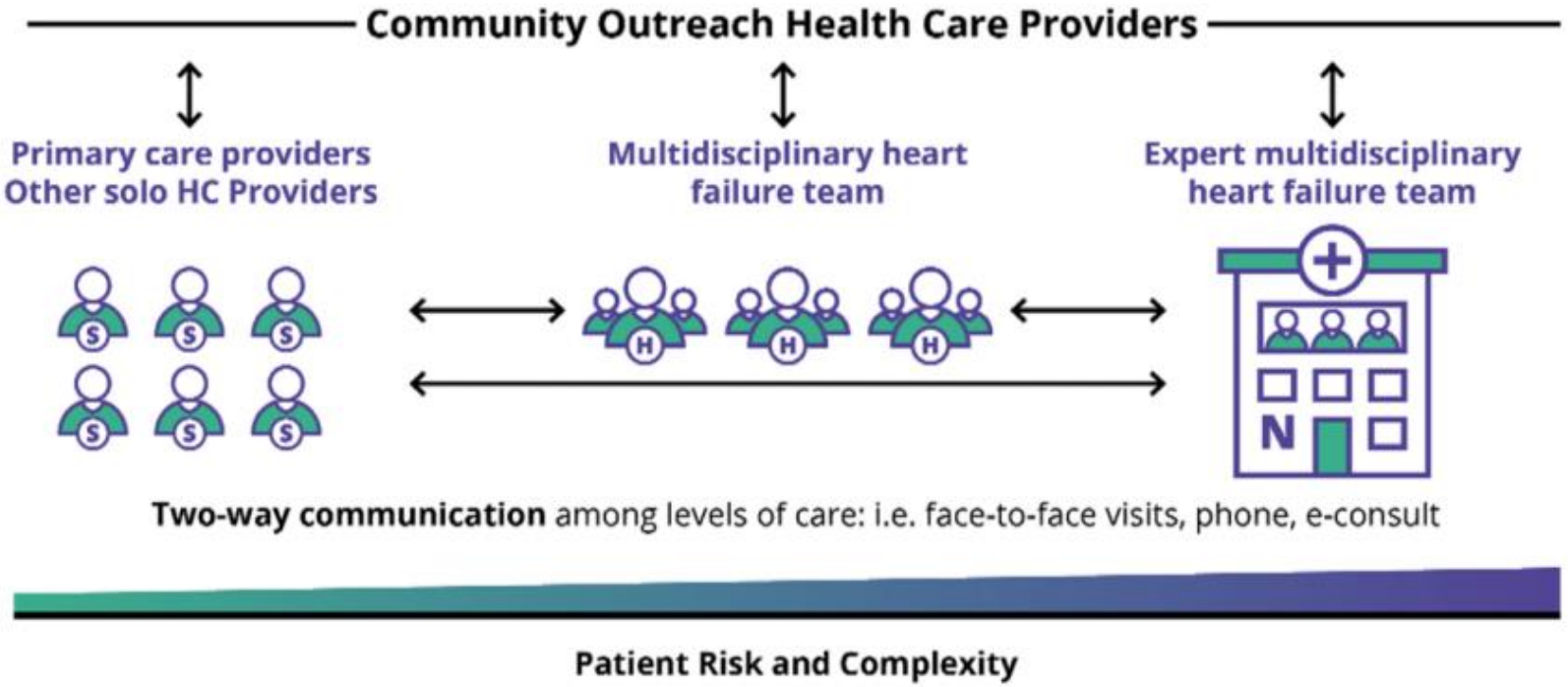
Benefits of In-Home IV Lasix Administration

Enhances Patient Comfort and Accessibility

In-home IV Lasix administration enables patients to receive essential treatment in their own homes, promoting comfort and convenience. This method alleviates strain on hospital resources, decreasing patient volume and allowing healthcare systems to allocate resources more efficiently.

Cost-Effective Healthcare Solution

Utilizing In-home IV Lasix not only improves patient satisfaction but also leads to significant cost reductions. The reduced need for hospital admissions and emergency care translates to lower healthcare expenses for both patients and providers.



LEVELS OF PATIENT CARE AND SETTING

SPOKE
Stable, low risk, few co-morbidities
Community provider office or clinic

COMMUNITY HUB
Moderate risk multiple, stable co-morbidities
Local hospital or community setting

TERTIARY NODE
High risk, multiple co-morbidities, complex needs
Advanced cardiac hospital

Flow Map and Communication Pathways

Flow Map and Communication Pathways

Illustrating the process of patient referrals and communication in In-home IV Lasix administration.

Patient Visit

The process starts with a patient visiting the heart failure clinic, where their condition is assessed and the need for Community Paramedic involvement is identified.

Referral Sent

A referral is sent from the heart failure clinic to the Community Paramedic team along with a clinical note detailing the patient's condition.

Client Triage

The Community Paramedic team triages the client based on the referral received, assessing urgency and scheduling a visit accordingly.

Findings Communicated

After the visit, the Community Paramedics compile their findings and communicate them back to the heart failure clinic based on the urgency of the situation.

Facilitating Transition and Treatment

Community Paramedics are essential in facilitating a smooth transition from hospital to home care. They enhance patient outcomes by providing timely interventions in a familiar environment, ensuring that patients receive necessary treatments like IV Lasix without the need for hospital visits. This approach not only improves the patient experience but also reduces the strain on healthcare facilities.

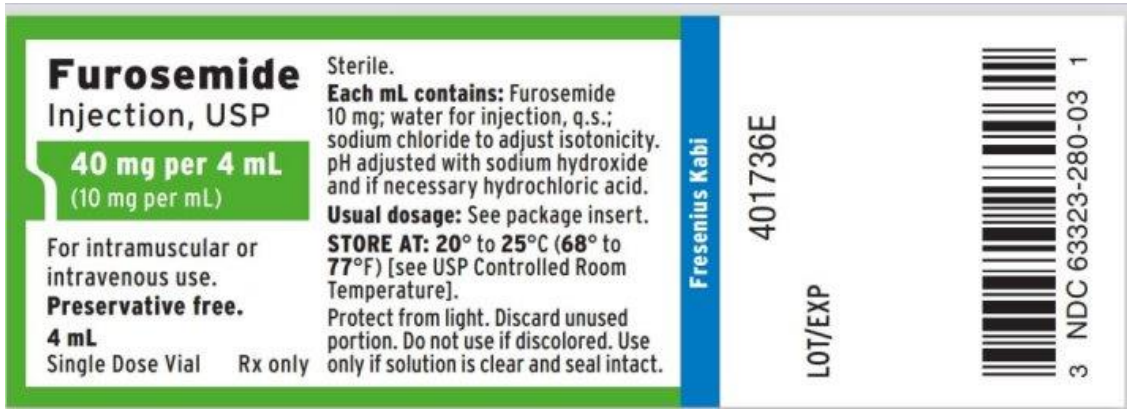
Education and Ongoing Support

In addition to administering medication, Community Paramedics play a vital role in education and support. They help patients understand their treatment plans and monitor their conditions closely, contributing to better management of heart failure. By maintaining communication with healthcare providers, they ensure that patients receive coordinated care tailored to their needs.

Clinical Indications for In-Home Lasix

Mild to Moderate Heart Failure Exacerbation

In-home Lasix administration is clinically indicated when patients exhibit mild to moderate heart failure exacerbation, allowing for timely intervention and management of their condition without the need for hospitalization.



Evidence of Volume Overload

Evidence of volume overload, such as edema, shortness of breath, or unexplained weight gain, indicates the need for in-home IV Lasix to alleviate symptoms and prevent further complications.

Stable Vital Signs

Stable vital signs are crucial for in-home administration, as identified by healthcare professionals at the heart failure clinic, ensuring patient safety during treatment.

Referral Process for In-Home IV Lasix Administration

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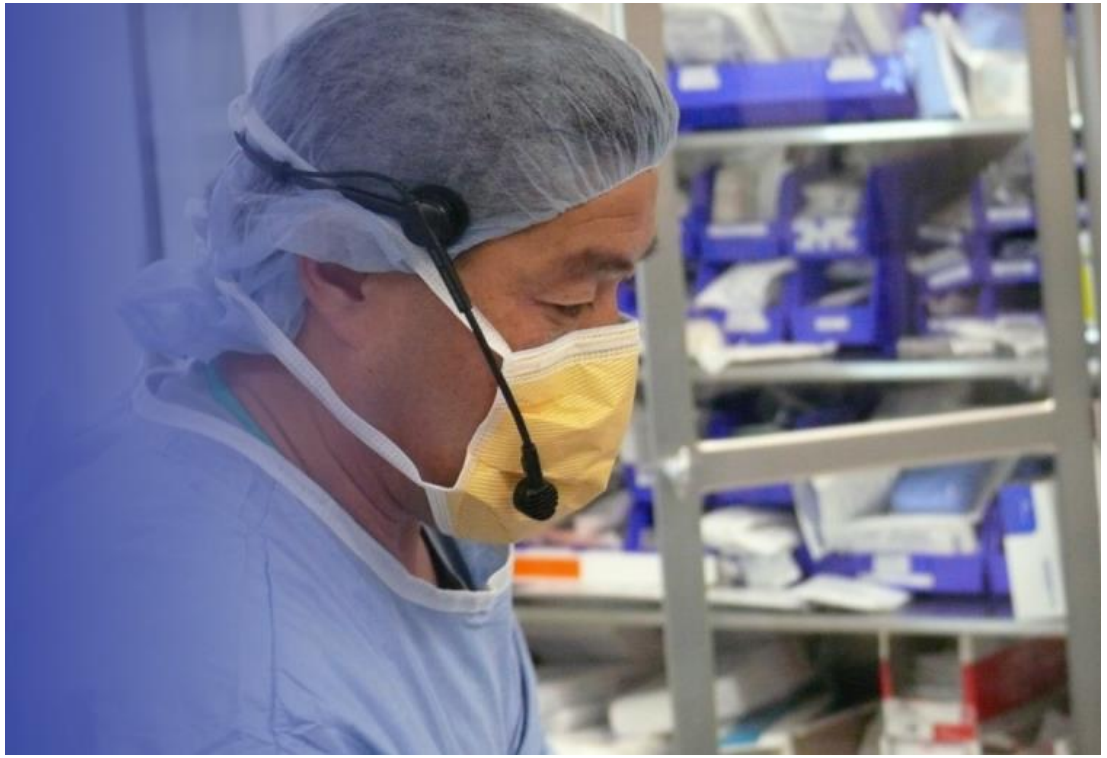
Referral Process

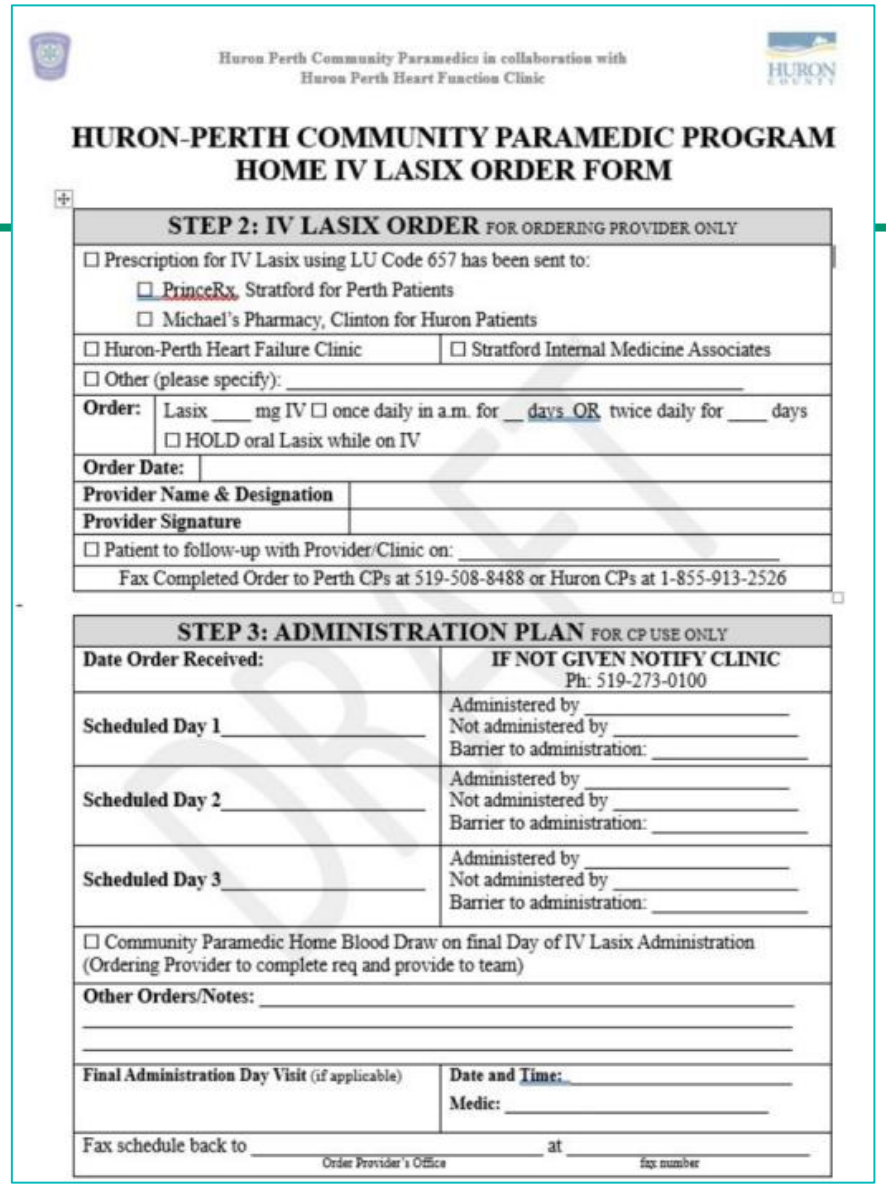
The referral process is streamlined to ensure timely and efficient service. A clinical note is faxed to the Community Paramedics team, and this is typically followed by a confirmation phone call. Once the referral is received, the MIH team reaches out to the client to introduce the program, clarify any requisition directions, and schedule the in-home visit.



Community Paramedic Protocol and Process

Review of Orders

The protocol begins with a thorough review of orders to clarify medication requests, including the use of Metolazone, adjustments to oral medications, and determining the patient's dry weight. This ensures that all aspects of the patient's medical needs are addressed before proceeding with treatment.



Huron Perth Community Paramedics in collaboration with
Huron Perth Heart Function Clinic

HURON-PERTH COMMUNITY PARAMEDIC PROGRAM
HOME IV LASIX ORDER FORM

STEP 2: IV LASIX ORDER FOR ORDERING PROVIDER ONLY

☐ Prescription for IV Lasix using LU Code 657 has been sent to:
☐ PrinceRx, Stratford for Perth Patients
☐ Michael's Pharmacy, Clinton for Huron Patients

☐ Huron-Perth Heart Failure Clinic | ☐ Stratford Internal Medicine Associates

☐ Other (please specify): _____

Order: Lasix ____ mg IV ☐ once daily in a.m. for __ days OR twice daily for ____ days
☐ HOLD oral Lasix while on IV

Order Date:

Provider Name & Designation

Provider Signature

☐ Patient to follow-up with Provider/Clinic on: _____

Fax Completed Order to Perth CPs at 519-508-8488 or Huron CPs at 1-855-913-2526

STEP 3: ADMINISTRATION PLAN FOR CP USE ONLY

Date Order Received:	**IF NOT GIVEN NOTIFY CLINIC** Ph: 519-273-0100
Scheduled Day 1_____	Administered by _____ Not administered by _____ Barrier to administration: _____
Scheduled Day 2_____	Administered by _____ Not administered by _____ Barrier to administration: _____
Scheduled Day 3_____	Administered by _____ Not administered by _____ Barrier to administration: _____

☐ Community Paramedic Home Blood Draw on final Day of IV Lasix Administration
(Ordering Provider to complete req and provide to team)

Other Orders/Notes: _____

Final Administration Day Visit (if applicable)	**Date and Time:** _____ **Medic:** _____

Fax schedule back to _____ (Order Provider's Office) at _____ (fax number)

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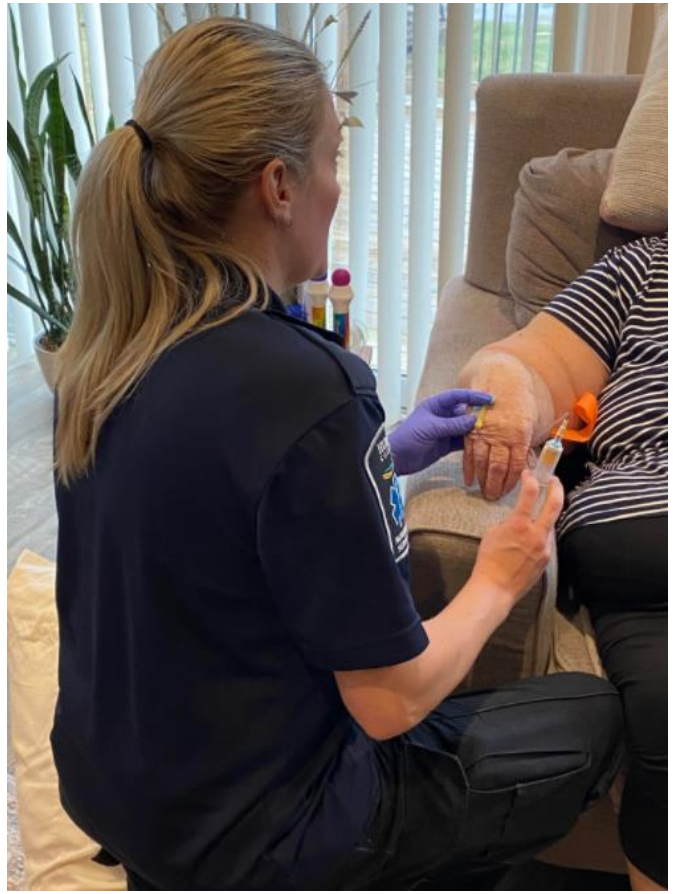
Ensuring IV Access

Ensuring IV access is a critical step in the protocol. Community Paramedics assess the patient's veins and select an appropriate site for IV placement to facilitate smooth medication administration and minimize discomfort.



Slow Medication Administration

Administering the Lasix slowly is essential to monitor the patient's response and manage potential side effects effectively. This helps in ensuring patient comfort and safety during the treatment process.

Medication Management and Patient Safety

Key considerations in the protocol also include meticulous medication management and ongoing assessment of patient safety throughout the process, ensuring that all protocols align with best practices for in-home healthcare.

Oversight and Medical Directive

Oversight and Medical Directive

The oversight of the in-home IV Lasix administration program is anchored in a robust partnership with the Huron Perth Heart Failure Clinic. This collaboration facilitates continuous quality assurance and fosters close communication among healthcare providers, including nurse practitioners, physicians, and Community Paramedics. Regular reviews and documentation processes ensure that all stakeholders are aligned in their efforts to provide optimal patient care and safety.

Early Outcomes of In-Home IV Lasix Administration

High Patient Satisfaction

Initial data indicates a high level of patient satisfaction, with many clients reporting improved comfort and quality of life due to in-home Lasix administration. Patients appreciate the convenience and personalized care from Community Paramedics.

Reduced Hospital Admissions

Health improvements are evidenced by reduced hospital admissions for heart failure exacerbations among patients receiving in-home Lasix. This has led to a significant decrease in healthcare costs, benefitting both patients and the healthcare system.

Improvement in Volume Overload Symptoms

Data gathered will include metrics on volume overload symptoms, such as edema and shortness of breath, which have shown improvement following the administration of in-home Lasix. This data reinforces the programs effectiveness in managing heart failure.

Patient Story

86-year-old male patient with a history of congestive heart failure experienced sudden fluid overload and severe shortness of breath at home. Instead of requiring an emergency department visit, community paramedics responded promptly through a referral by the Heart Failure clinic and Nurse Practitioner.

After a thorough assessment and consultation with the supervising physician and Nurse Practitioner, they administered IV Lasix in the patient's home for 5 consecutive days. Within that time, the patient's symptoms improved, and he began to feel better.

This intervention prevented hospital admission, reduced healthcare costs, and allowed the patient to recover comfortably at home. The case highlights how community paramedics can deliver advanced, timely care that improves outcomes and enhances patient satisfaction.

Age	Gender	#of MIH Visits	#of Lasix Doses	#of Blood Draws	Days on Program	Comments
75	Male	17	17	2	Continued Care	Lasix extended post initial 9 day
69	Male	x	x	x	x	Out of Region
91	Female	5	5	0	Continued Care	
91	Female	2	2	0		
75	Male	3	3	0	Continued Care	F/U MAID IV on Dec 3/24
91	Male	3	3	1	3	
87	Male	5	5	2	Continued Care	Onboarded for cont' care
69	Female	3	3	0	3	Patient went to hospital
69	Female	18	18	1	9	Patient went to hospital for gout
74	Male	3	3	1	3	
74	Male	10	10	1	5	F/U on UTI

Next Steps in In-Home IV Lasix Program

Next Steps in In-Home IV Lasix Program

Planning and strategic actions to enhance patient care and collaboration in heart failure management.

Upcoming Day at Heart Failure Clinic

Engagement with Nurse Practitioners to learn about advanced medical management and quadruple therapy for heart failure patients.

Addressing Logistical Challenges

Discussion on the logistical challenges in providing care and strategies for meeting goals of care effectively.

Shared Interdisciplinary Care

Implementing shared, collaborative interdisciplinary care practices to enhance quality of life for heart failure patients and reduce hospital visits.

Regroup and Evaluate

Regrouping with team members to evaluate what is working, identify areas for improvement, and enhance collaboration.

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Thank You!

Questions?

Funding provided in part by: Ontario

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Questions & Discussion

Thank You

OH ICP Project Team

Join the…

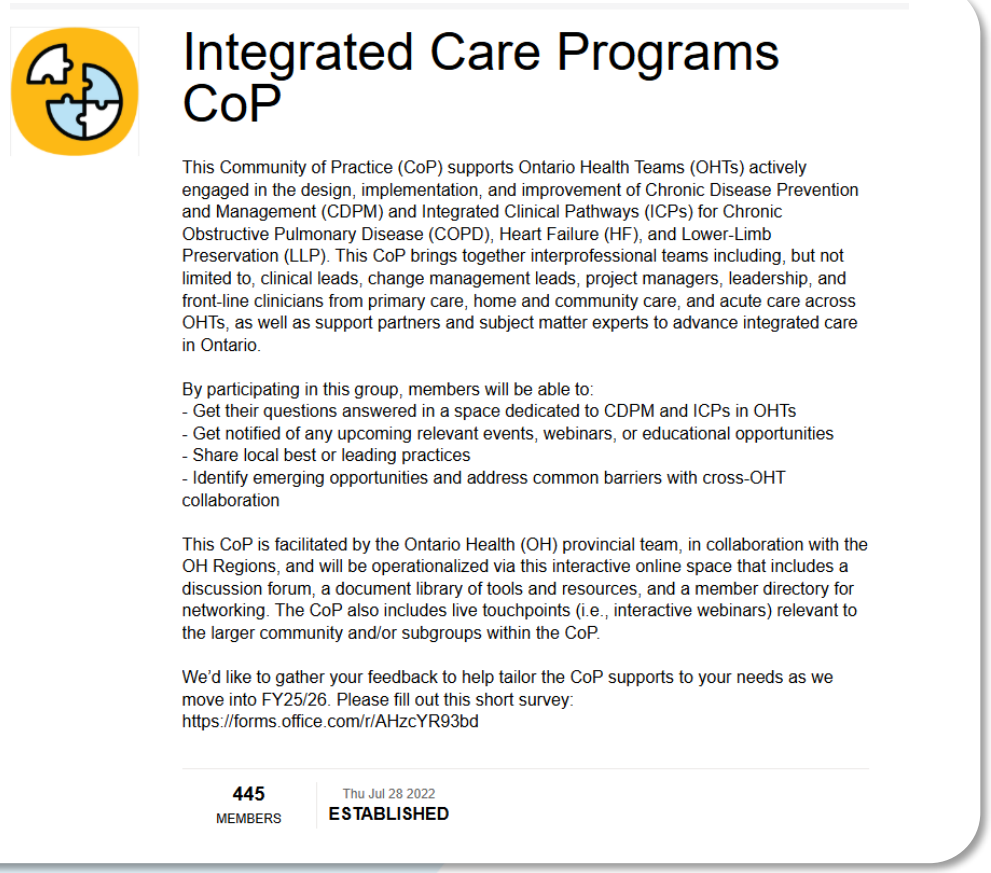
Community of Practice

Teams are encouraged to join the online **Integrated Care Programs Community of Practice*** in the OHT Shared Space to access and share resources, connect with peers, and advance **Integrated Care.**

1. Visit the **OHT Shared Space** and click "SIGN UP" to create your account.
2. Visit the **Integrated Care Programs CoP** and click the "JOIN GROUP" button. You will receive an email notification when you've been accepted into the group.

   Note: You are automatically accepted into the "General Discussion" Group.
3. Don't forget to click on the "**Subscribe to Updates**" button once you've been accepted into your CoP!

*The ICP CoP has been updated to include all OHTs actively engaged in the design, implementation, and improvement of **Chronic Disease Prevention and Management (CDPM)** and **Integrated Clinical Pathways (ICPs).**



Integrated Care Programs CoP

This Community of Practice (CoP) supports Ontario Health Teams (OHTs) actively engaged in the design, implementation, and improvement of Chronic Disease Prevention and Management (CDPM) and Integrated Clinical Pathways (ICPs) for Chronic Obstructive Pulmonary Disease (COPD), Heart Failure (HF), and Lower-Limb Preservation (LLP). This CoP brings together interprofessional teams including, but not limited to, clinical leads, change management leads, project managers, leadership, and front-line clinicians from primary care, home and community care, and acute care across OHTs, as well as support partners and subject matter experts to advance integrated care in Ontario.

By participating in this group, members will be able to:
- Get their questions answered in a space dedicated to CDPM and ICPs in OHTs
- Get notified of any upcoming relevant events, webinars, or educational opportunities
- Share local best or leading practices
- Identify emerging opportunities and address common barriers with cross-OHT collaboration

This CoP is facilitated by the Ontario Health (OH) provincial team, in collaboration with the OH Regions, and will be operationalized via this interactive online space that includes a discussion forum, a document library of tools and resources, and a member directory for networking. The CoP also includes live touchpoints (i.e., interactive webinars) relevant to the larger community and/or subgroups within the CoP.

We'd like to gather your feedback to help tailor the CoP supports to your needs as we move into FY25/26. Please fill out this short survey: https://forms.office.com/r/AHzcYR93bd

445 MEMBERS

Thu Jul 28 2022 **ESTABLISHED**