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IMPROVING TRANSITIONS: EVALUATION OF THE GREATER SUDBURY CARE TRANSITIONS COMMUNITY PARAMEDICINE PROGRAM

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Overview

- Program Overview
- Patient Population
- Program Evaluation Results
- Recommendation

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Greater City of Sudbury

Quick Facts:

- Largest municipality in Ontario: 3,267 square km and second largest in Canada
- Population : 160,275
- Significant geographic dispersion
- High incidence of chronic disease
- 10% Aboriginal

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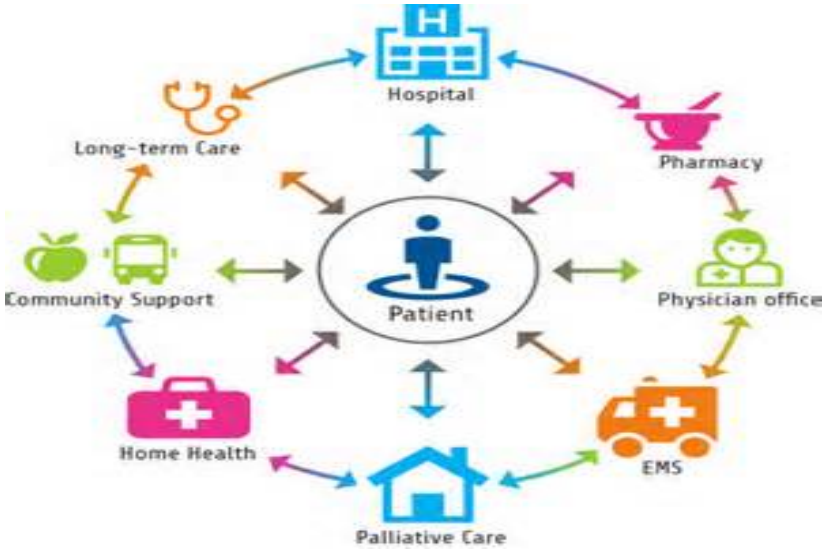
Why get Paramedics involved in *Post Hospital Care*?

- **PURPOSE**: Intervention aimed at improving the management and coordination of service for patients transitioning from hospital to home in the post-discharge period.



Hospital to Home

Goal: Partnership with HSN (Discharge Transitions Nurses), Northeast Community Care Access Centre (NECCAC) and Greater Sudbury Emergency Medical Services (EMS) to reduce hospital readmissions and post-discharge adverse events.

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Program Development Overview

- **Planning (Fall 2014)**
  - Recruitment
  - Staff Training
  - Process Development
- **Implementation (Jan 2015)**
  - Patient Enrollment
  - Process review and adjustment
  - Data collection
  - Ministry reporting
- **Evaluation (March 2016)**
  - Chart reviews
  - Patient survey
  - Paramedic input

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Community Paramedicine Service Model

- Hours of Operation: 1 Community Paramedic 12 hours/day 365 days
- Staff:
  - 3 Advanced Care Paramedics;
  - 2 Fulltime; 1 Part-time
  - Experience > 7 years
- <u>Program Training:</u>

✓ Centennial College Community Paramedicine Program

✓ Clinical placement with Health Sciences North Chronic Disease Management Clinics

✓ Medical Director and “Doctor in a Box” program

✓ CME /Clinical Rounds with Medical Director

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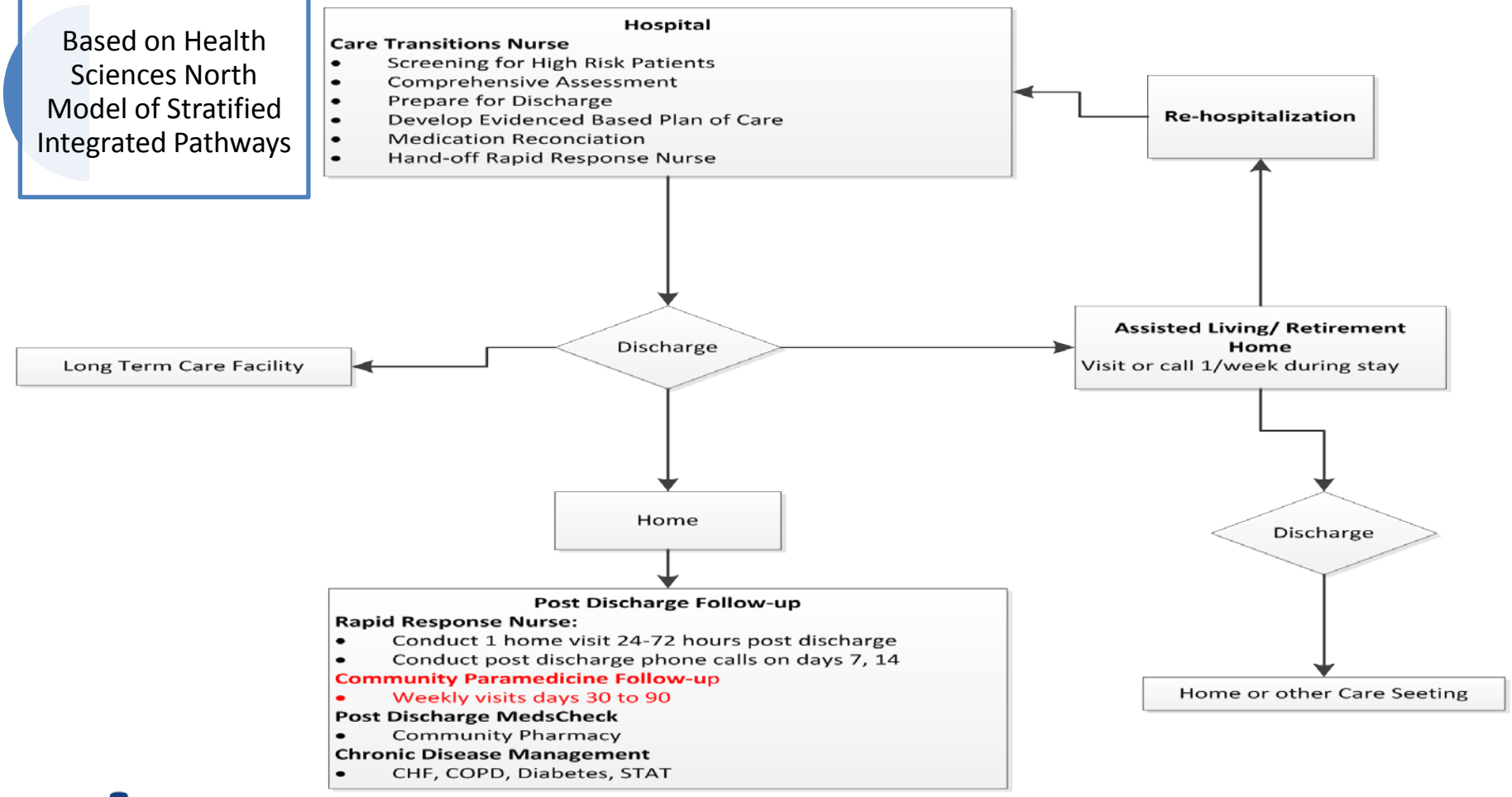
Service Model

- Physician oversight – if required, the CP may consult directly with one of the on-call program Physician's or with HSN chronic disease clinics
- Point of care testing – point of care blood analysis,12-Lead ECG analysis
- Medical interventions – such as medication administration and dosage adjustments
- Just-in-time and Scheduled Visits – Patient can call CP directly anytime to request a visit to manage a worsening condition
- Education on disease management and as required medication reconciliation

Stratified Integrated Transitional Care

Based on Health Sciences North Model of Stratified Integrated Pathways



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What does it look like in Sudbury?

Admission

HSN

- DTN Screening –
- CHF, COPD, Diabetes
- LACE

Inpatient Care

HSN

- 48/5
- Standardized Care Planning
- Comprehensive Discharge Planning

Discharge/Transition

Discharge/ Transition Home

- Outpatient Referral
- Family Practice Follow-up
- Rapid Response (Days 0-30)
- Community Paramedicine (Days 30-90)

The Patient's Journey from Hospital to Home

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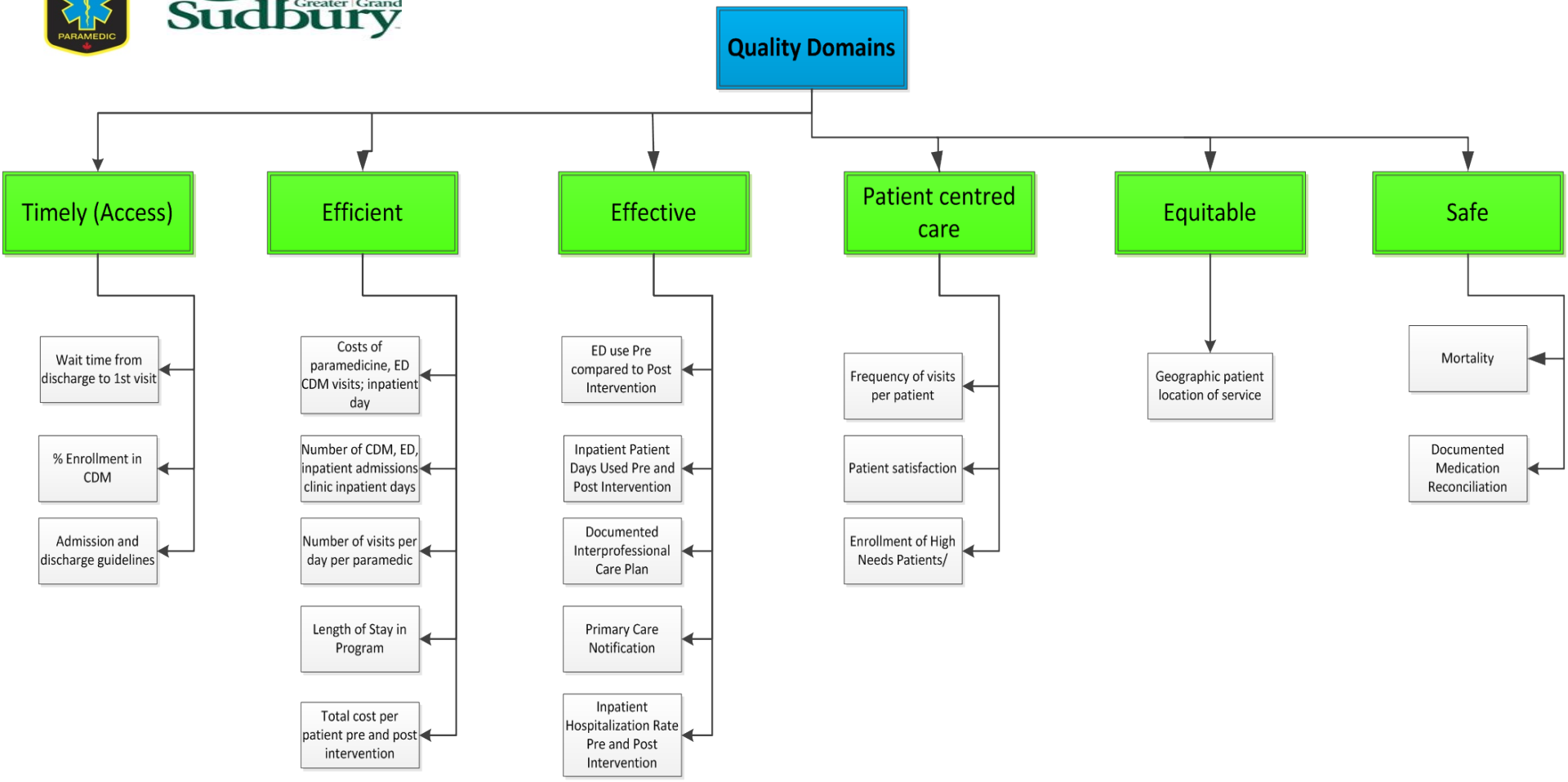
Evaluation Framework for Community Paramedicine



Demographic Information:

- Age
- Sex
- Living Arrangements
- Number of Chronic Conditions

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Patient Centre: Eligibility Criteria

- **Enrolled Patients**
  - Mean age = 77.8
  - Average Number of chronic diseases = 3.2
  - Diagnosis:
    - Congestive Heart Failure (CHF) = 53.6%
    - Chronic Obstructive Pulmonary Disease (COPD) = 68.6%
    - Diabetes = 53.6%
  - At least 1 previous admission in the last 12 months
  - Identified as high risk for readmission
  - 71 % living in Sudbury Core with remainder in Greater Sudbury Area

Timely: Time to First Visit Post-Discharge

Time from hospital discharge to first Community Paramedicine visit

Average = **24.3 days**

Timely (Access)

Percentage (%) of Patient Enrollment in HSN Chronic Disease Management Clinics and seen by Community Paramedics by Cohort

	3 Months (n=153)	6 Months (n=122)	12 Months (n=72)
Attended a clinic	43.8%	48.4%	54.2%
Heart Failure Clinic	26.1%	27.0%	26.3%
Diabetes Care Service	20.9%	22.9%	22.2%
Centre for Life	9.2%	9.8%	12.5%

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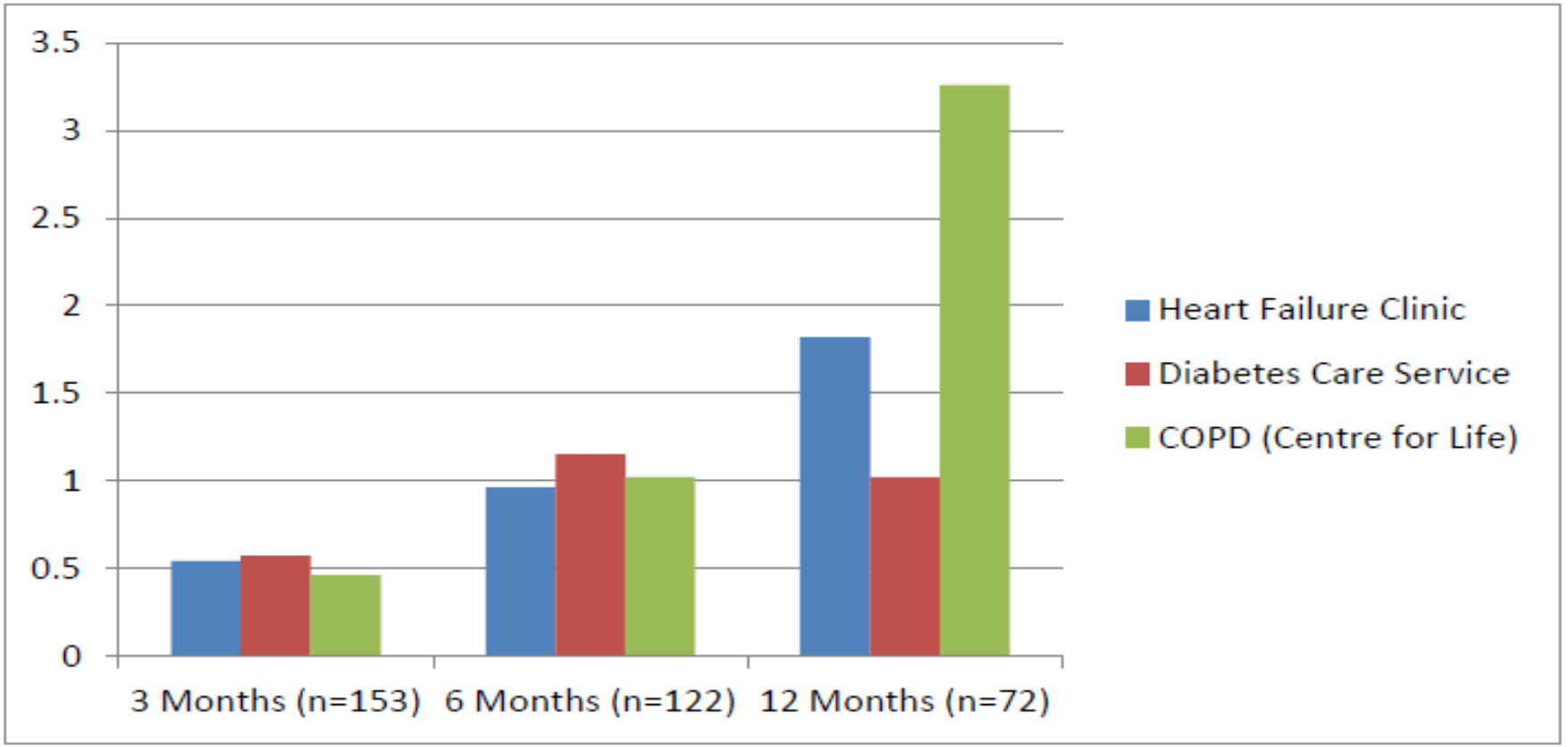
Chronic Disease Management Clinic Visits

Average Number of Visits per Patient by Clinic for Select Periods



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Program Efficiency

- **Community Paramedicine Costs**
  - AVG daily cost of program = $1000.00
  - AVG number of visits per day = 2.71
  - Cost per paramedic visit = **$369.00**

- **Cost Comparisons**
  - Emergency Department Visit: $148.70
  - Inpatient Admission: $1084/day
  - Chronic Disease Management Clinic /visit:

    Diabetes: $86

    Heart Failure: $237

    COPD: $68

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Program Efficiency

- Number of visits per day per paramedic = **2.71 visits/day**
- Number of visits per enrolled patient = **8.4 visits/patient**
- Length of stay in program
  - AVG = **111.1 days**
  - Min = 1 day
  - Max = 408 days

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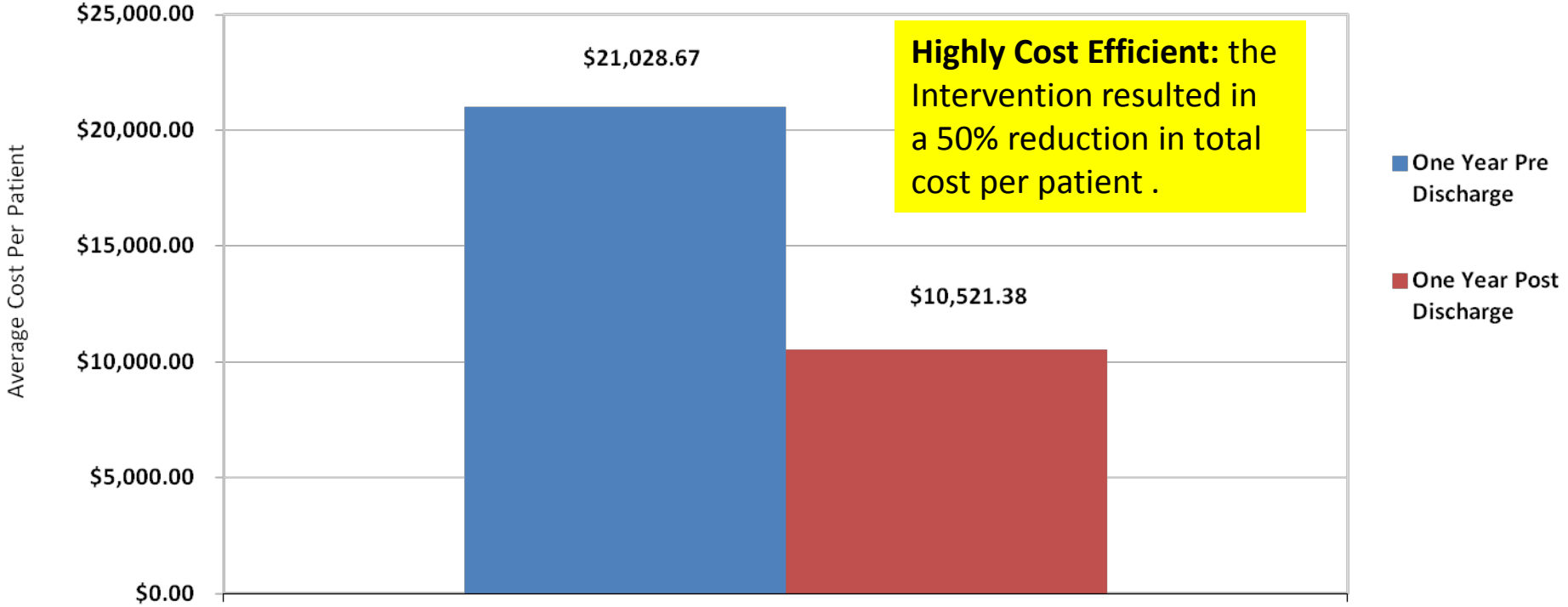
Efficiency: Pre and Post Enrollment Total Cost/Patient

- **Total Cost Pre/Post (Costs include ED visit costs, inpatient costs, CDM clinic visit costs and community paramedicine costs.**



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Effective

Emergency Department Use Pre and Post Intervention

Visits /Patient pre - Intervention	Visits /Patient Intervention	Pre/ Post Difference (paired t-test p-value)
3 Months (N=153)		
0.850	0.582	0.268 (0.022)*
6 Months (N=122)		
1.369	1.262	0.107 (0.515)
12 Months (N=72)		
2.236	1.917	0.319 (0.304)

* Statistically Significant

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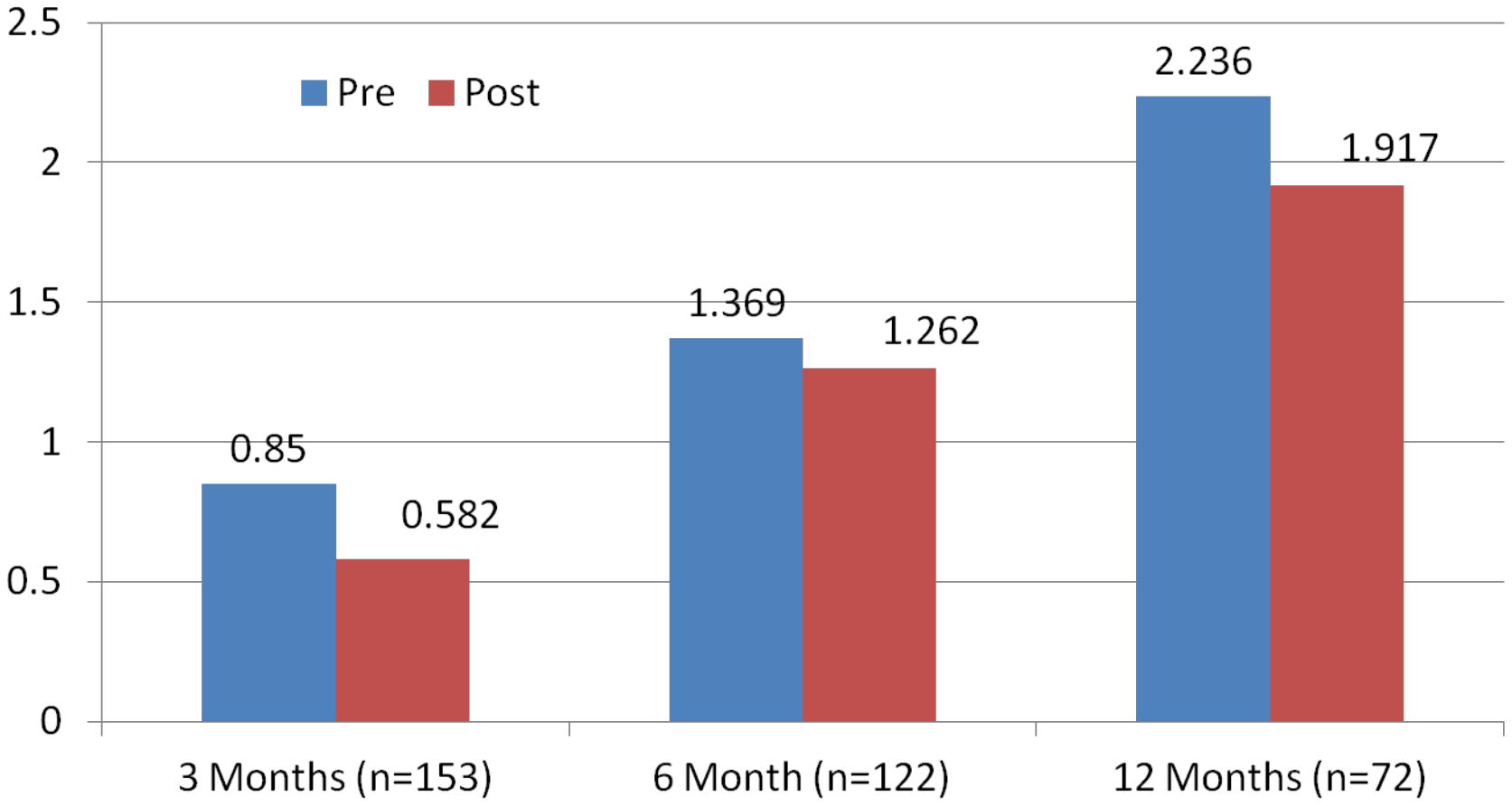
Effective

- Emergency Department Use Pre and Post Intervention



*** Statistically Significant**

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Effective

Number of inpatient admission pre and post intervention

Visits /patient pre discharge	Visits /patient post discharge	Difference (paired t-test p-value)
3 Months (N=153)		
1.549	0.562	0.987 (0.000)*
6 Months (N=122)		
1.943	1.016	0.927 (0.000)*
12 Months (N=72)		
2.292	1.847	0.385 (0.062)*

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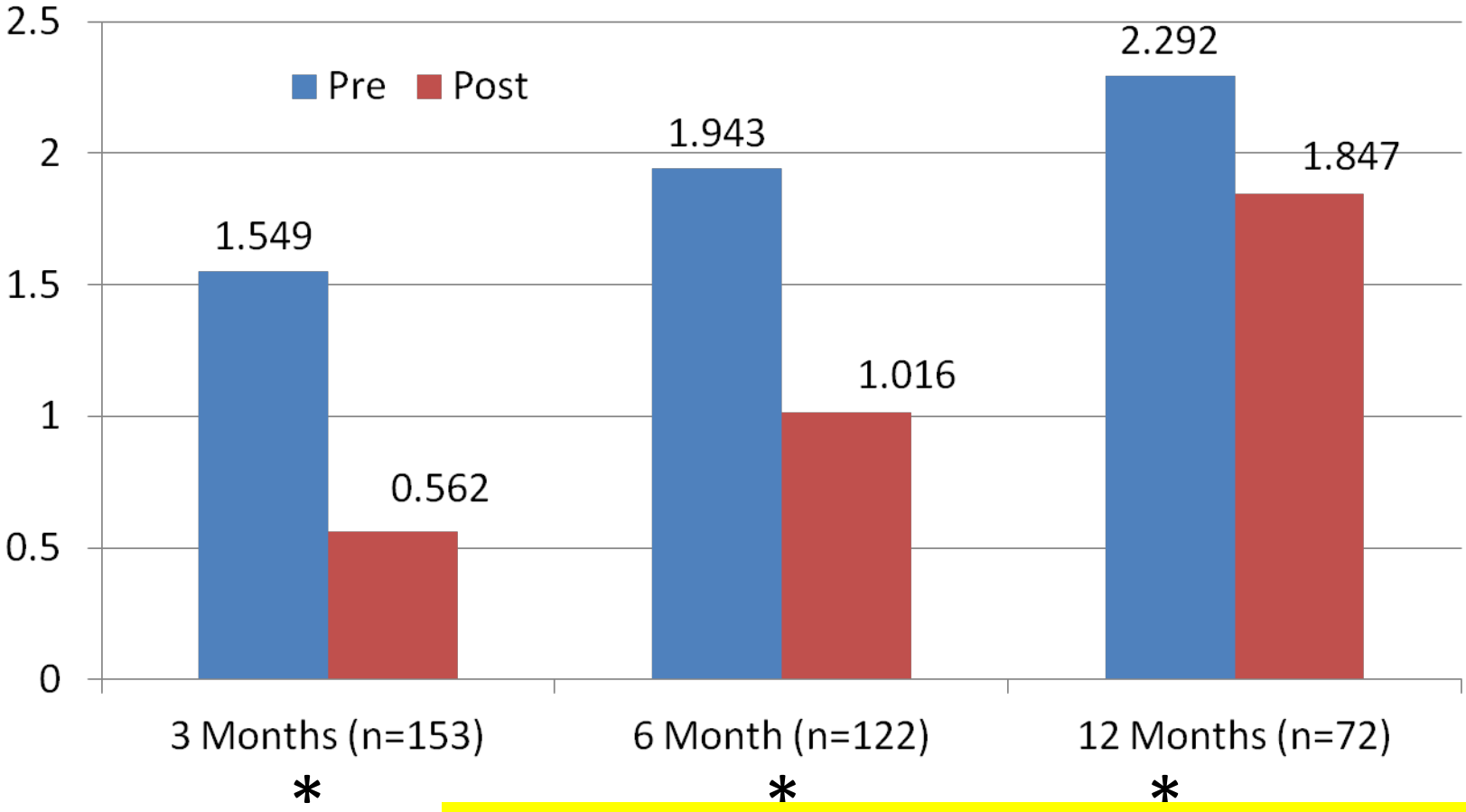
*** Statistically Significant**

Effective

- Admissions Pre/Post discharge



* Statistically Significant Pre and Post Intervention difference

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Effective

Number of inpatient days used pre and post intervention

Days /patient pre discharge	Days /patient post discharge	Difference (paired t-test p-value)
3 Months (N=153)		
13.588	4.451	9.131 (0.000)*
6 Months (N=122)		
16.648	9.705	6.943 (0.001)*
12 Months (N=72)		
18.778	5.639	13.139 (0.000)*

* Statistically Significant Pre and Post Intervention difference

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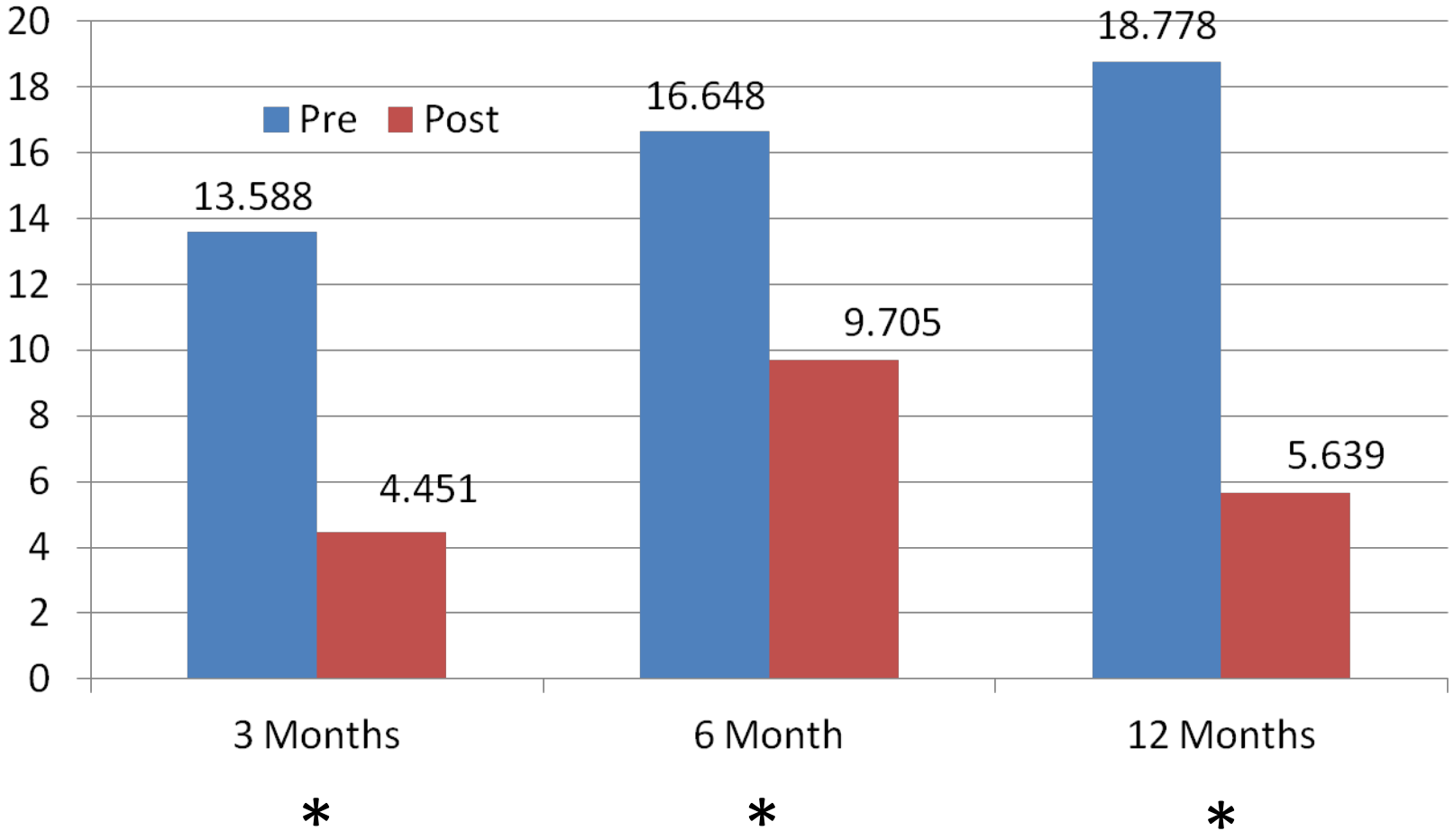
Effective

Number of inpatient days used pre and post intervention



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* Statistically Significant Pre and Post Intervention difference

Effective Information Transfer: An area of potential improvement

- Documented Interprofessional Care Plan
  - Data was not available to evaluate the comprehensive of the documentation of the interprofessional care plan
  - Community paramedics did document in HSN's EMR
- Primary Care Notification
  - Data was not available to evaluate the degree of interaction between the community paramedic and the patient's primary care provider
- Documented Medication Reconciliation
  - Data was not available to evaluate the adherence to the requirement for medication reconciliation at the point of admission to the community paramedicine program

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Safe

- Mortality of enrolled patients = 12.4% (Evaluation period 12 months) and not unexpected given patient age and multi-morbidity.

- Nothing can be said about the effectiveness of the intervention to reduce mortality as comparison was not made between those enrolled in the program and those not enrolled in the program with similar health profiles.

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Patient Centred Care

- **Patient Satisfaction Results**

"Have someone other than 911 system when unwell and unsure to do when not an emergency."

"I think its an excellent program. Gives me a piece of mind to know I can call them and maybe avoid a trip to hospital especially on weekends"

"Having a professional overseeing my health is so good. This program enables seniors to be comfortable in their own home"

"Completely satisfied - hope the funding is continued for this fantastic program"

Recommend this service to others 100% YES!

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Summary

- Intervention shown to be highly cost effective for the system reducing the total cost per care per patient by 50%.
- Statistically significant reductions in the number of admission and hospital bed days at 3, 6, and 12 months.
- Statistically significant reduction in emergency department use in the 3 month intervention period
- Recommendation: continued operation of the program is recommended as it demonstrates that through appropriate community based intervention total health system costs can be reduced and more appropriate patient care provided

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