



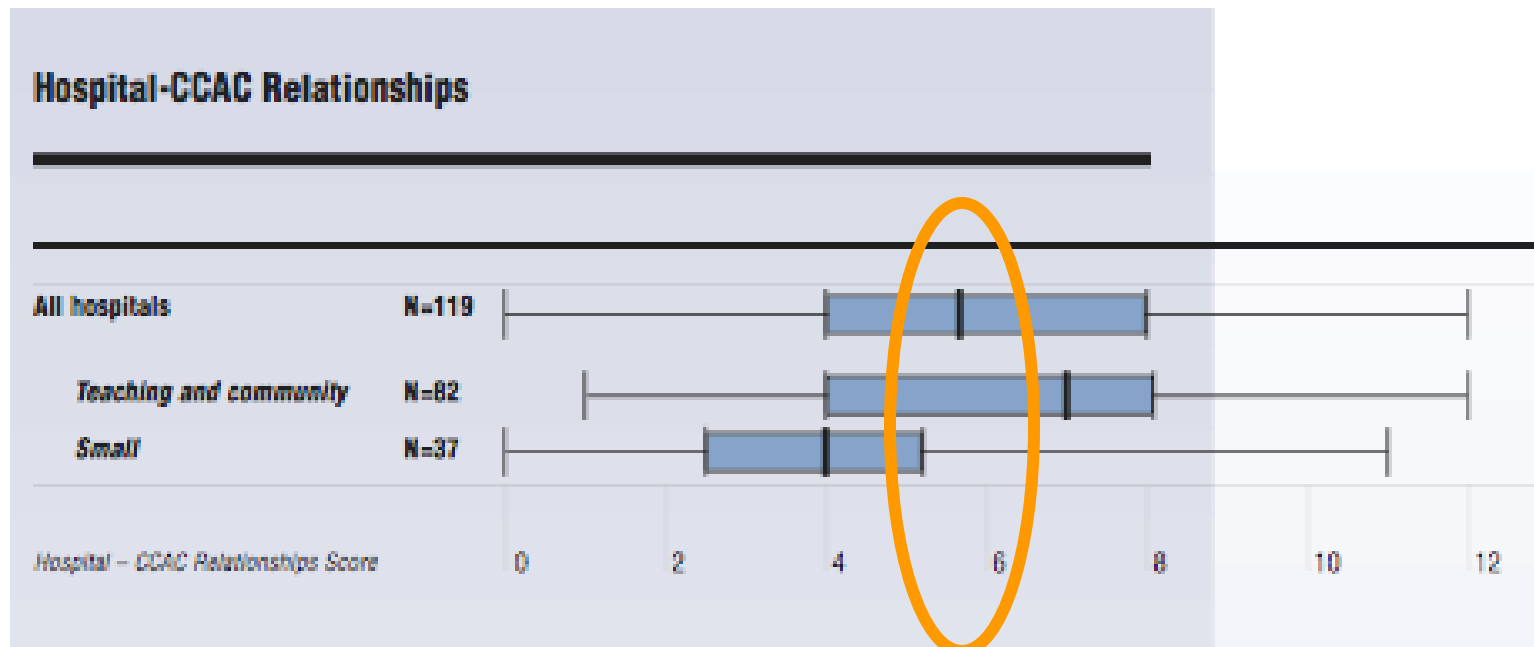
# Understanding and Identifying Target Populations for Integrated Care

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Leveraging the Culture of Performance Excellence in Ontario's Health System

# Hospital Report 1999

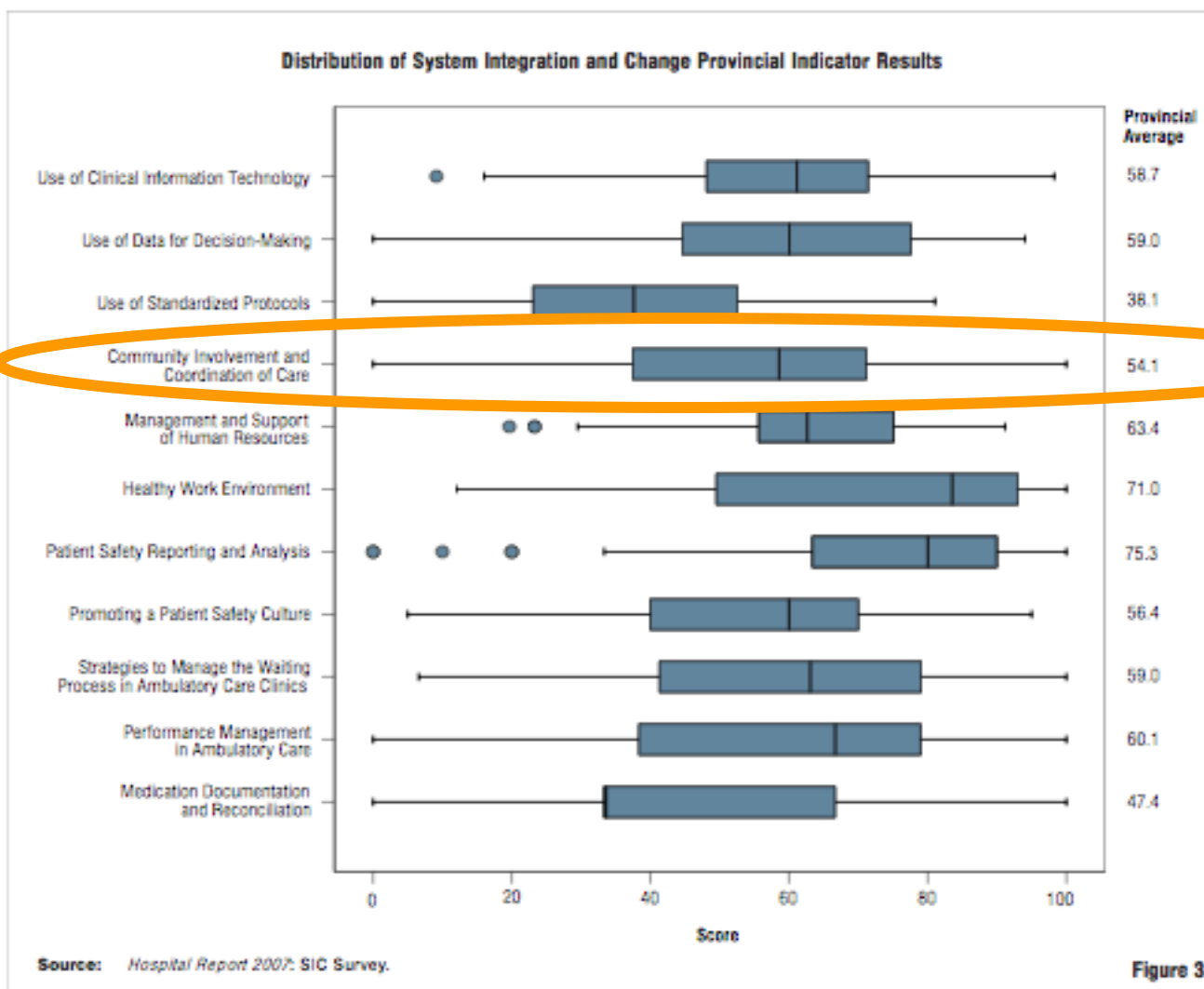
## A Measure of Integration (5.7 / 12)



# Hospital Report 2007

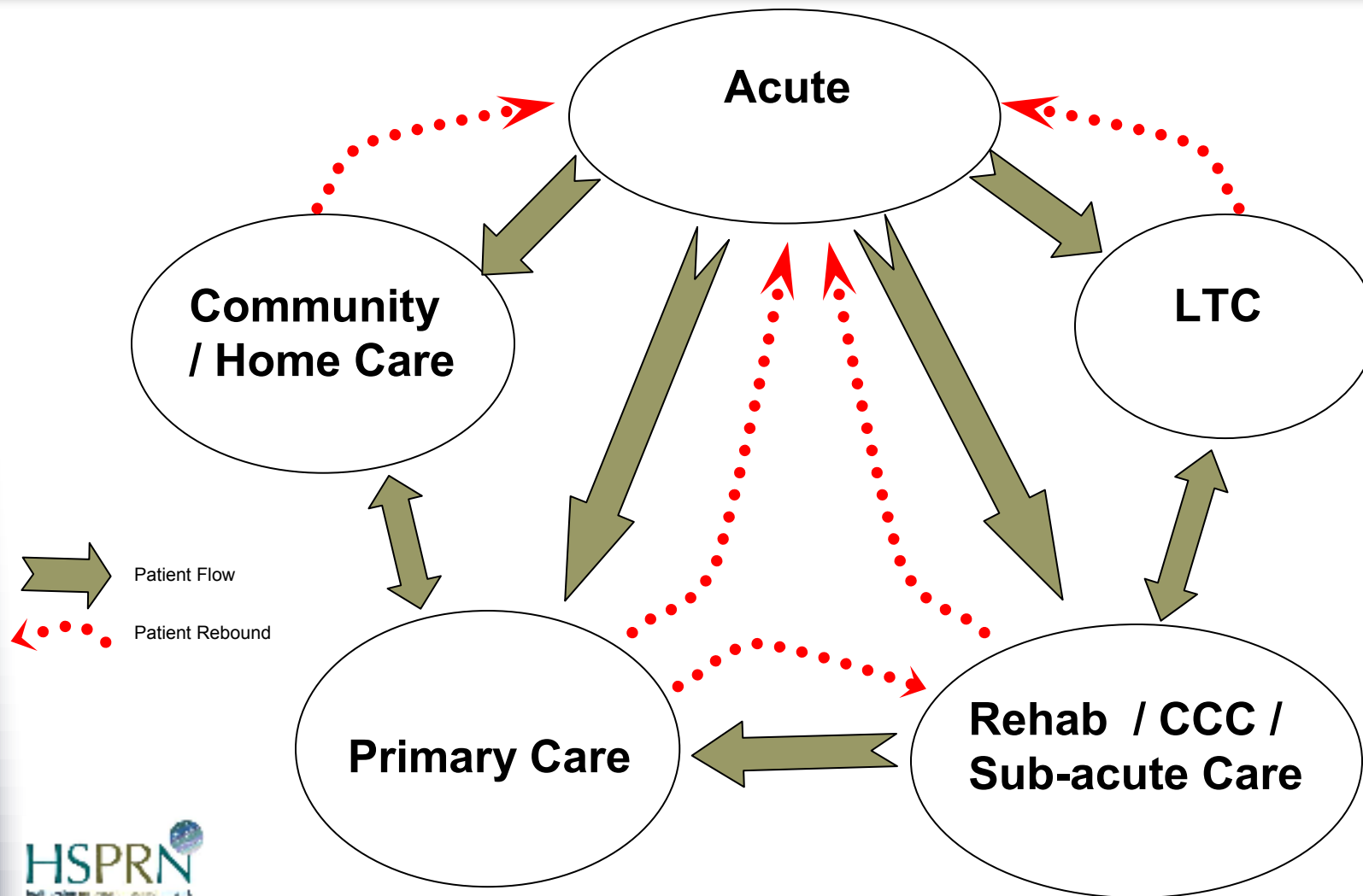
## Still Measuring Integration (54.1 / 100)

### SUMMARY OF RESULTS



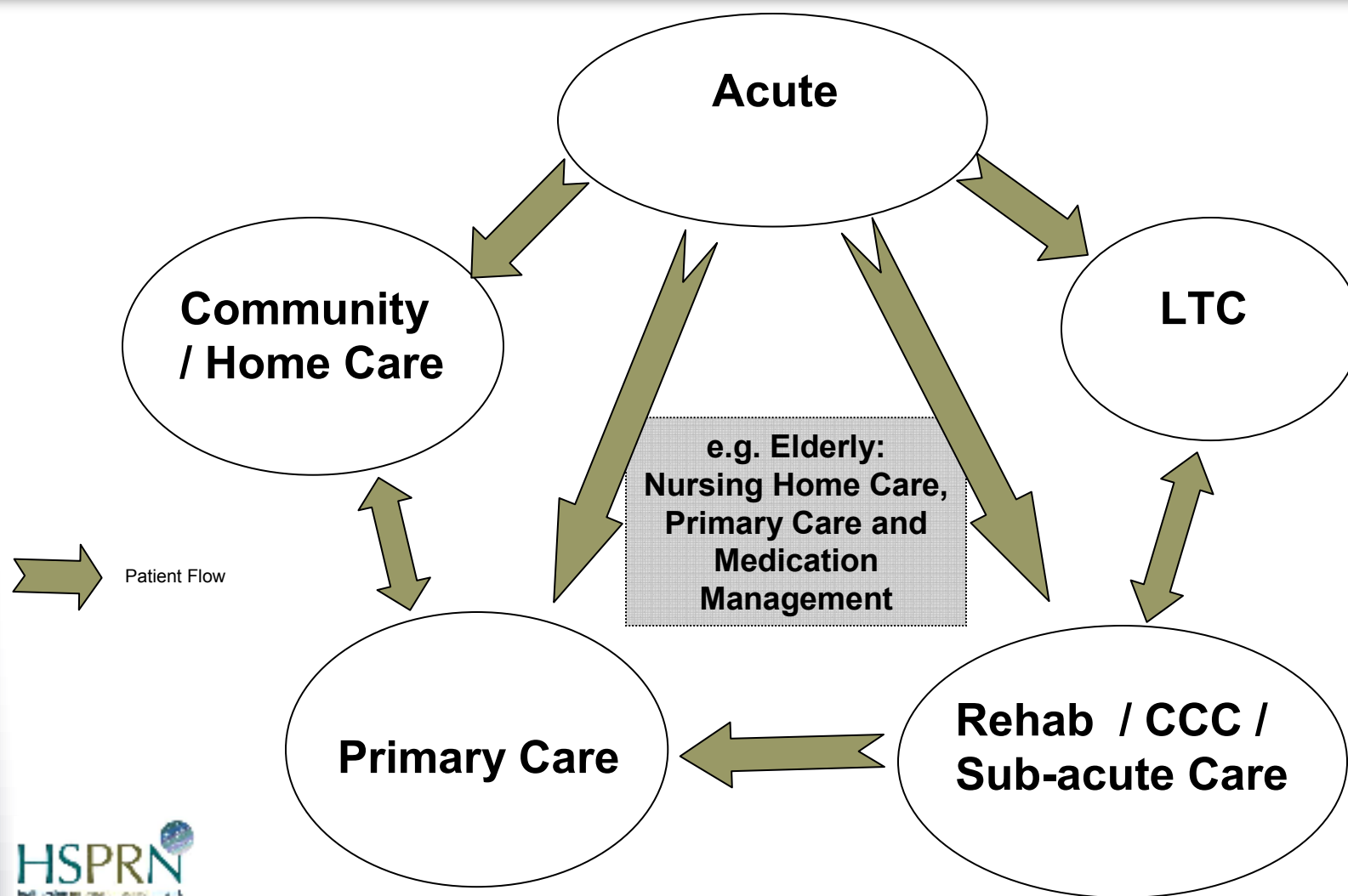
# What Can We Work On ?

## e.g. Integration and Transitions of Care



# New Research

## *Better Transitions of Care*



# Target Populations for Integration

1. Populations that have high health utilization rates and that move from one sector to another have important implications for both the costs and quality of care.
2. These populations are of interest because they may represent opportunities both to improve the quality and reduce the burden and costs on the health care system.
3. Costs are driven by number and intensity of interactions with Health System.
4. High cost populations:
  1. Unpredictable acute short term illness
  2. Protracted course of care involving multiple providers potentially marked by episodes of high intensity.

....primarily the latter group are amenable to interventions.

# Interventions for Transitions

## Specific to diagnoses

- ◆ Rich et al., (NEJM 1995) RCT of nurse-directed intervention with patient education, diet, social service consultation, medication review, intensive follow-up for CHF
  - **Risk of Readmission at 90 days = 0.56**
- ◆ Naylor et al., (NEJM 2004) RCT of Advanced Practice Nurse-lead intervention with patient assessment, patient and caregiver education, follow-up including coordination with primary care physician for CHF
  - **1-year Readmissions in intervention group = 1.18/patient vs 1.79 in control**
- ◆ Coleman et al., (2006) RCT of APN-lead intervention with patient education, medication review, rapid (24-72 hours) in-home follow-up
  - **90-day Readmissions in intervention group = 16.7% vs. 22.5% (Odds=0.64)**

## Common components of these interventions:

- In-home follow-up care (24-72 hours)
- Patient education/empowerment (Coleman) or case management (Naylor)
- Patient personal health record
- Medication management / reconciliation

# Target Populations for Integration

## Purpose for our study:

- 1. Identify the Ontario population prevalence of populations that have been included in prior interventions.**
- 2. Examine the treatment and follow-up patterns of care for these patients.**
- 3. Examine the relationship between follow-up care (as suggested by interventions) and patient outcomes (hospital readmission) in the Ontario population cohort.**
- 4. Examine health system costs associated with total 1- year care for this population.**



# Target Populations for Integration

## What we've done:

1. Identify community-based cohort of clients aged 66+ based on Acute care admission (April 2006-March 2007) with :
  1. 2 or more ACSC conditions (Angina, Asthma, COPD, Diabetes, Grand Mal Seizure, Heart Failure, Hypertension)  
or any one of the following conditions: Stroke, Cardiac Arrhythmia, Spinal Stenosis, Hip Fracture, Peripheral Vascular Disease, Deep Vein Thrombosis or Pulmonary Embolism
  2. [Note: Next Mental Health and Complex Pediatric Population]

Follow for 365 days (until March 2008)

2. Describe characteristics of the patients
3. Examine readmission rates (to ED and Acute Inpatient)
4. Understand system utilization and costs

# Target Populations for Integration

Acute Diagnosis	Prevalence	
Cardiac Arrhythmia	14,976	38.4%
Stroke	8,707	22.3%
ACSC (>1 diagnosis)	7,351	18.9%
Hip Fracture	5,749	14.7%
DVT/PE	1,887	4.8%
PVD	1,634	4.2%
Spinal Stenosis	1,418	3.6%
<b>Total</b>	<b>39,978</b>	

# Target Populations for Integration

LHIN	Prevalence
Erie St. Clair	2,512
South West	3,325
Waterloo Wellington	1,849
Hamilton Niagara Haldimand Brant	5,255
Central West	1,471
Mississauga Halton	2,459
Toronto Central	3,339
Central	3,981
Central East	4,305
South East	1,726
Champlain	3,426
North Simcoe Muskoka	1,522
North East	2,639
North West	1,158

# Target Populations for Integration

## Summary Characteristics:

- ◆ Average Age: 79
- ◆ Slightly more women (56%) except Hip Fracture (75% women)
- ◆ Average number of medications in prior year = 11
  - ACSC Average=14.4 and 25% with 19 or more
- ◆ 28% with new medication within 30 days prior to index hospitalization (35% for ACSC conditions)
- ◆ 88% have a Regular family physician

# Target Populations for Integration

## Outcomes :

- ◆ 4,646 (12%) died during initial hospitalization
- ◆ 17,727 (45%) discharged to other health care institution
- ◆ 16,605 (43%) *discharged to community*

## Among 16,605 discharged to community...

### At 30 days

- ◆ 23.4% have ED visit
- ◆ 12.8% readmitted to acute care
- ◆ 3.2% dead

### At 90 days

- ◆ 38.0% have ED visit
- ◆ 22.2% *readmitted to acute care*
- ◆ 7.3% dead

# Target Populations for Integration

## Post-acute follow-up care when discharged home:

- ◆ 39% receive home care within 30 days
  - 21% within one day and 25% within 3 days
  - Average number of days to HC visit = 5.5 days
- ◆ 18% receive home care **nursing visit** within 30 days
  - 9% within one day and 12% within 3 days
  - Average number of days to HC nursing visit = 4.8 days
- ◆ 52% have primary care visit within 30 days (25% within 7 days)
  - Average number of days to primary care = 10.3 days
- ◆ 68% have any physician visit within 30 days (34% within 7 days)

# Target Populations for Integration

Risk of Readmission to Inpatient Acute Care 7 - 30 days		
	Unadjusted Odds Ratio (95% Confidence Interval)	Adjusted* Odds Ratio (95% Confidence Interval)
Home Nursing Visit within 1 day	0.93 (0.78, 1.09)	<b>0.72<sup>L</sup></b> (0.53, 0.98)
Primary Care Visit within 7 days	0.96 (0.83, 1.19)	0.91 (0.81, 1.03)
New Filled Prescription	(not calculated)	<b>1.07<sup>L</sup></b> (1.04, 1.10)

\* Adjusted for 51 measures of patient characteristics, prior medical treatment, diagnoses and geography  
<sup>L</sup> significant at the 5% level

# Target Populations for Integration

Risk of Readmission to Inpatient Acute Care 7 – 90 days		
	Unadjusted Odds Ratio (95% Confidence Interval)	Adjusted* Odds Ratio (95% Confidence Interval)
Home Nursing Visit within 1 day	0.90 (0.78, 1.04)	<b>0.70<sup>L</sup></b> (0.55, 0.90)
Primary Care Visit within 7 days	0.86 <sup>L</sup> (0.76, 0.98)	<b>0.85<sup>L</sup></b> (0.78, 0.93)
New Filled Prescription	(not calculated)	<b>1.04<sup>L</sup></b> (1.01, 1.06)

\* Adjusted for 51 measures of patient characteristics, prior medical treatment, diagnoses and geography  
<sup>L</sup> significant at the 5% level



# Target Populations for Integration

Summarize Utilization and Costs in 365 days following acute discharge:

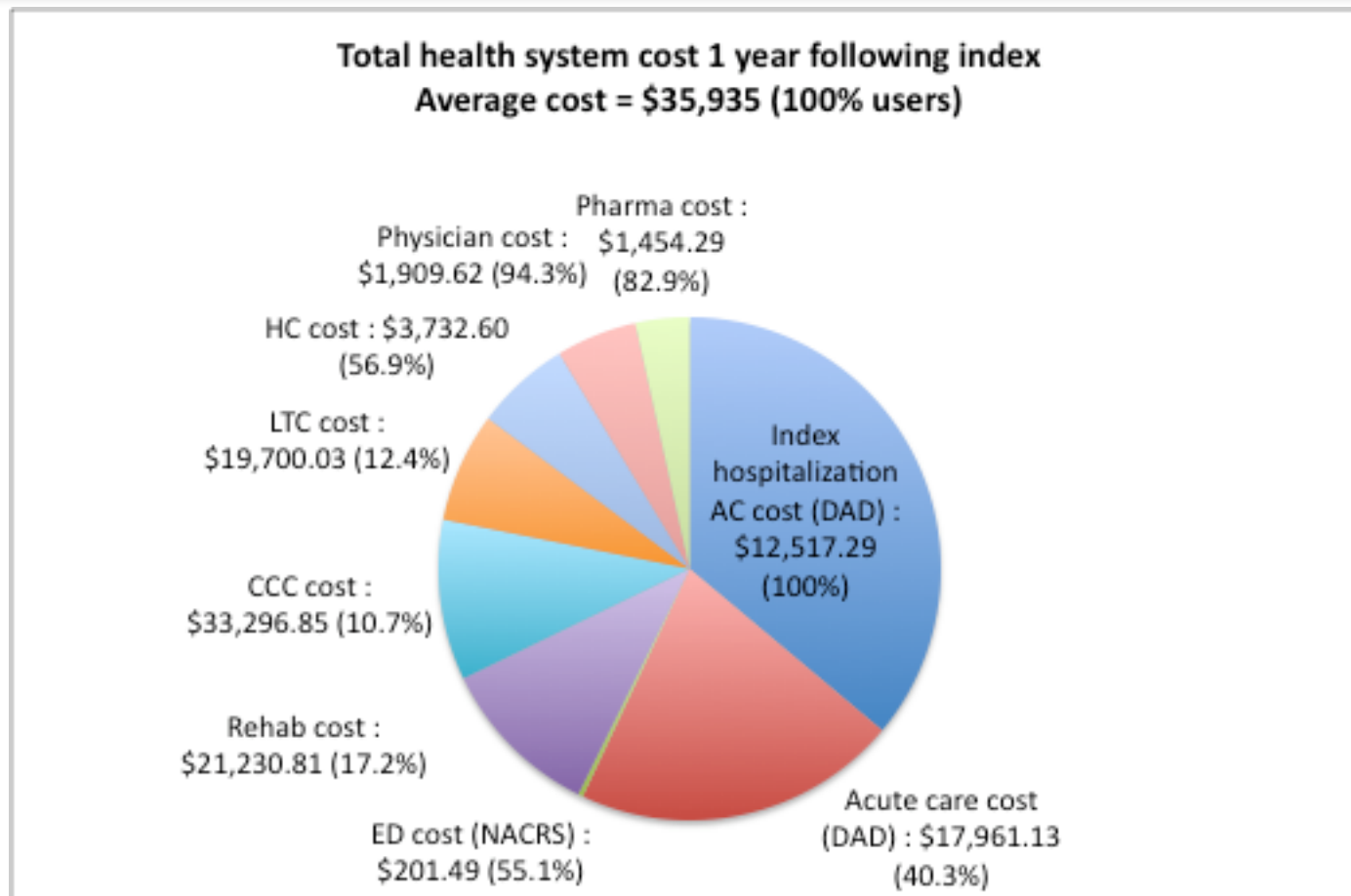
- Index Hospitalization (Hospital and OHIP Cost)
- Subsequent:
  - ◆ ED visits (Hospital and OHIP Cost)
  - ◆ Acute Hospitalization (Hospital and OHIP Cost)
  - ◆ Same Day Surgery
  - ◆ Rehabilitation Hospital
  - ◆ Complex Continuing Care Hospital
  - ◆ Long Term Care Facility
  - ◆ Home Care
  - ◆ Primary and Specialist (OHIP) care
  - ◆ Pharmaceutical (Ontario Drug Benefit - ODB)

# Target Populations for Integration

Summarize Utilization and Costs in 365 days following acute discharge:

- Total Population 39,978
- Average Annual Cost \$35,935
- System Cost \$1,400,689,862

# Target Populations for Integration



# Target Populations for Integration

## Summary:

1. Value-proposition: Data represent baseline system cost for evaluating interventions. (e.g. preventing 785 (5%) of readmissions would 'free-up' \$14,106,792 in acute care costs. Recall 30% and 15% reductions with in-home nursing within 1 day and physician follow-up within 7 days)
2. This population comprises 0.003% of Ontarians and consumes 3% of the provincial healthcare budget.
  1. Ensuring rapid in-home follow up would likely have a substantive impact on the readmission rate to acute care and associated deleterious outcomes.
  2. Medication management may also be an important factor.
  3. Population are old and frail and need to use health care.

# Target Populations for Integration

## Next Steps:

1. Case studies of successful transition interventions and local engagement in SW LHIN to adapt, pilot and evaluate care transition intervention.
2. Further Analyses are underway examining A. Mental Health and B. Complex Paediatric Populations.
3. Evaluate determinants of lower costs among this target population (e.g. Precedent and Antecedent services in community from Home care, Family physician, Specialist).
1. Compare “High cost” to “High risk” based on community-identified home care cohort.