




Patterns and Cost of Health Care Transitions to Adult Care among Youth with Chronic Conditions in Ontario: A Population-Based Cohort Study

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Background

- Increase in number of youth with chronic conditions surviving into adulthood
- Transitions are challenging:
 - Emotional/Cognitive/Developmental challenges
 - Social supports
 - Communication/Coordination across health systems
 - Trained providers
- Decline in health after transitions has been described, but usually focused on single disease populations in single centers
- Few studies in important subgroups (e.g. mental health, neurodevelopmental disabilities)
- Little population-level data

Study Objectives

1. Describe the population of youth with chronic conditions that requiring transition to adult care
2. Examine differences in health service use and costs before and after transition to adult care

Study Design and Setting

- Retrospective cohort study in Ontario, Canada
- Linked population-based administrative health datasets
- Youth w/ child-onset chronic conditions:
 - Born between April 1st 1989 and April 1st 1993
 - Alive at age 16 years
 - Continuously residing in Ontario from ages 10-20 years

Study Design and Setting

- Conditions were sorted hierarchically into mutually exclusive disease categories, with most complex conditions at the top
- Subjects entered one of 11 mutually exclusive disease cohorts if specific diagnostic criteria were met using ICD-9 or ICD-10 codes, or if prevalent record in select disease registries

Data Sources

Demographic Characteristics:

- Ontario Registered Persons Database (RPDB)
- Citizenship and Immigration Canada (CIC)

Disease Registries:

- Systematic Lupus Erythematosus (SLE)
- Paediatric Inflammatory Bowel Disease (PIDB)
- Ontario Diabetes Database (ODD)
- Ontario Asthma Database (OASIS)

Health Service Use:

- Ontario Health Insurance Plan (OHIP)
- Discharge Abstract Database (DAD)
- National Ambulatory Care Reporting System (NACRS)
- National Rehabilitation System (NRS)
- Continuing Care Reporting System (CCRS)
- Ontario Mental Health Reporting System (OMHRS)
- Home Care Database (HCD)
- Ontario Drug Benefit Claims (ODB)
- ICES Physician Database (IPDB)
- Client Agency Program Enrolment (CAPE)
- Assisted Devices Program (ADP)

Cohort Definitions

Definition	Cohort
Hospital discharge records <ul style="list-style-type: none">• Birth to age 16 years	<ul style="list-style-type: none">• Congenital Heart Disease• Cystic Fibrosis• Sickle Cell Disease
Hospital discharge records <ul style="list-style-type: none">• Age 10 to 16 years	<ul style="list-style-type: none">• Neurological Impairment• Eating Disorders• Schizophrenia• Mood and Affective Disorders
Records in disease registries	<ul style="list-style-type: none">• Systemic Lupus Erythematosus• Inflammatory Bowel Disease• Type 1 Diabetes• Asthma*

Clinical Groups

'Complex' Chronic Conditions

- Neurologic Impairment (NI)
- Cystic Fibrosis (CF)
- Sickle Cell Disease (SCD)
- Systemic Lupus Erythematosus (SLE)

'Non-Complex' Chronic Conditions

- Asthma
- Type 1 Diabetes Mellitus (DM)
- Inflammatory Bowel Disease (IBD)
- Congenital Heart Disease (CHD)

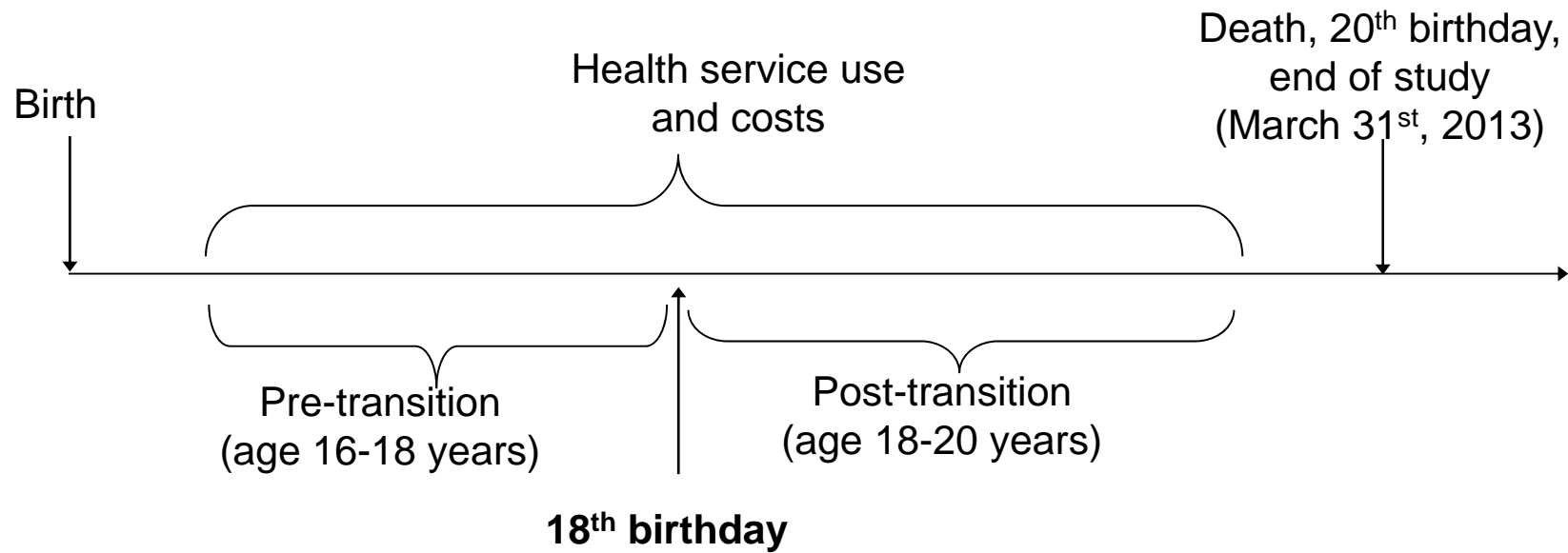
Chronic 'Mental Health' Conditions

- Eating Disorders (ED)
- Schizophrenia (SCZ)
- Mood and Affective Disorder (MAD)

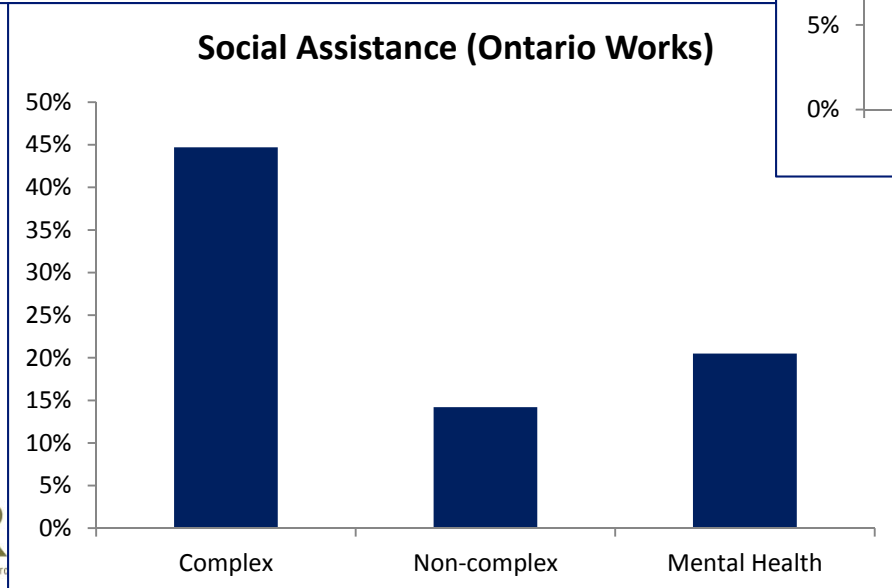
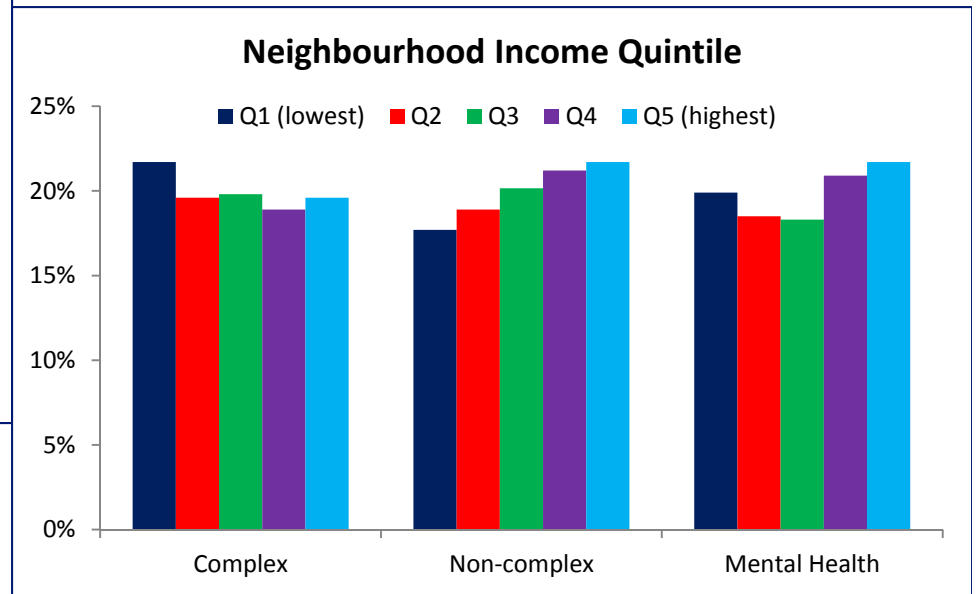
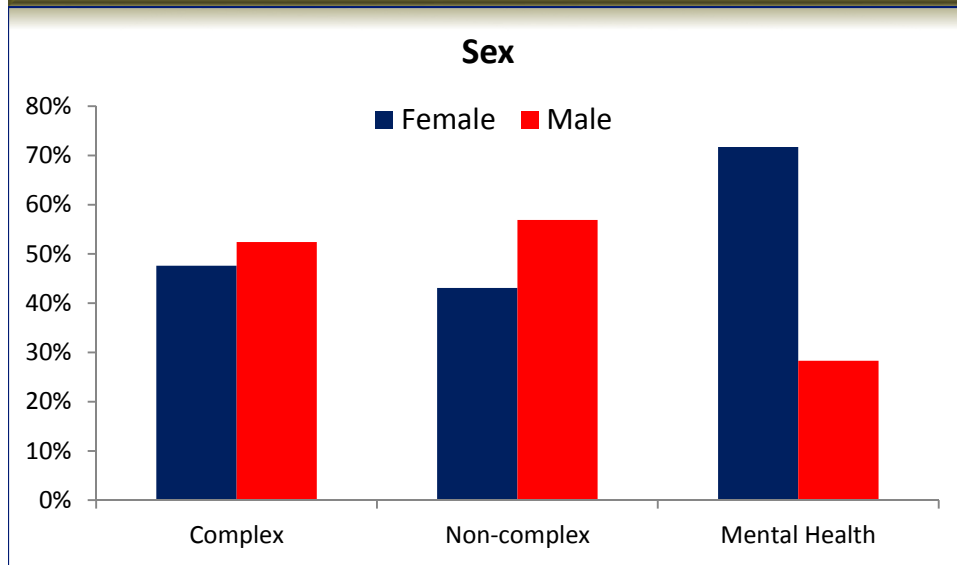
Outcome Measures

- Mortality (after age 16)
- Health Service Use & Costs
- Physician Visits
 - Specialist visits
 - Preventative Care
- Acute Care
 - Inpatient hospital (including psychiatric)
 - Emergency department visits
- Home care services
- Drug claims (among claimants)

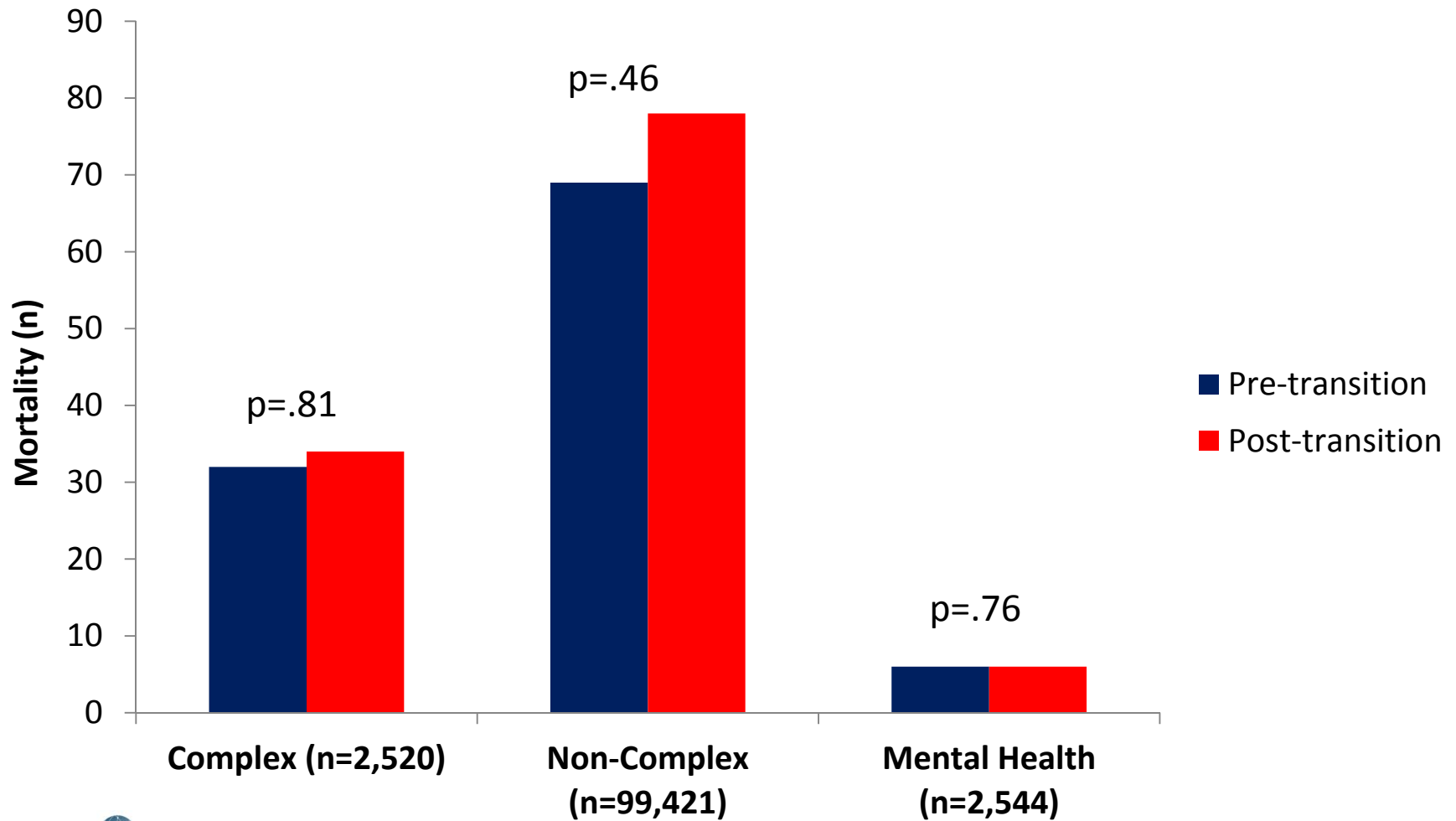
Analysis



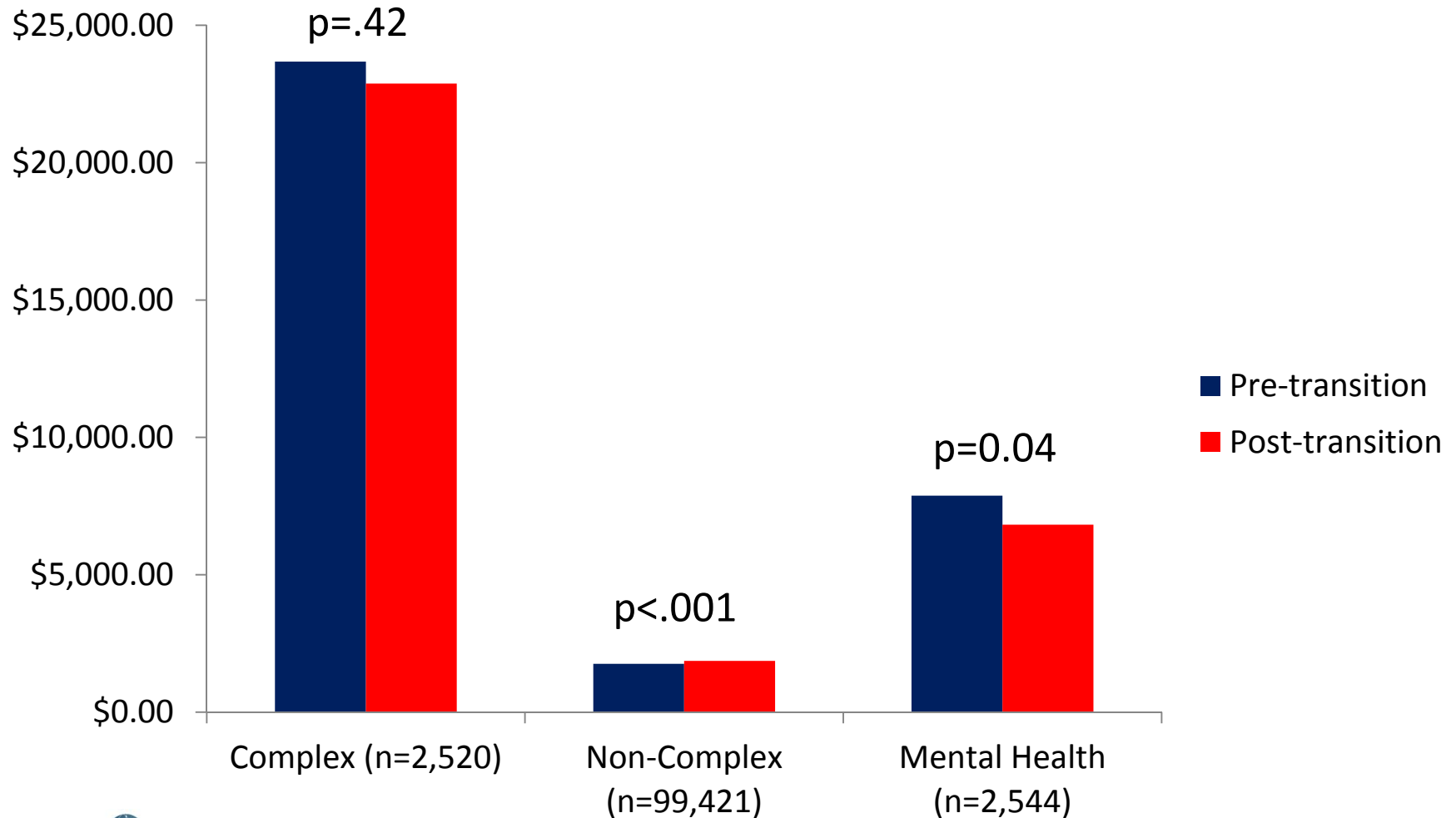
Demographic Characteristics



Mortality

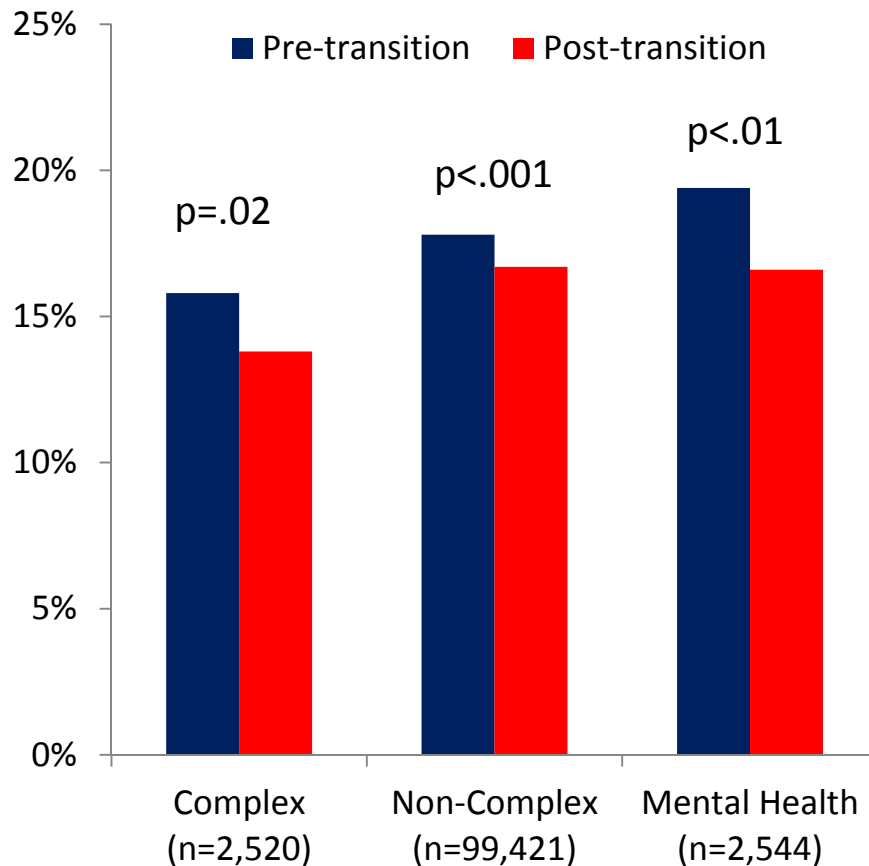


Mean Total Health System Costs

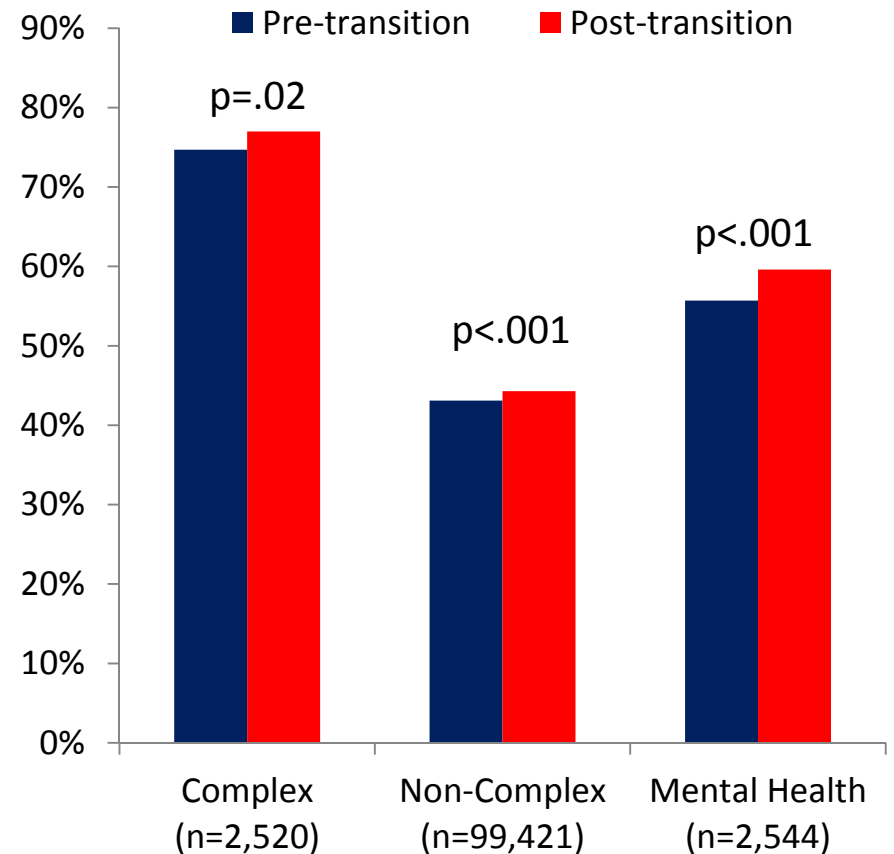


Physician Visits

PCP Preventative Visit (%)

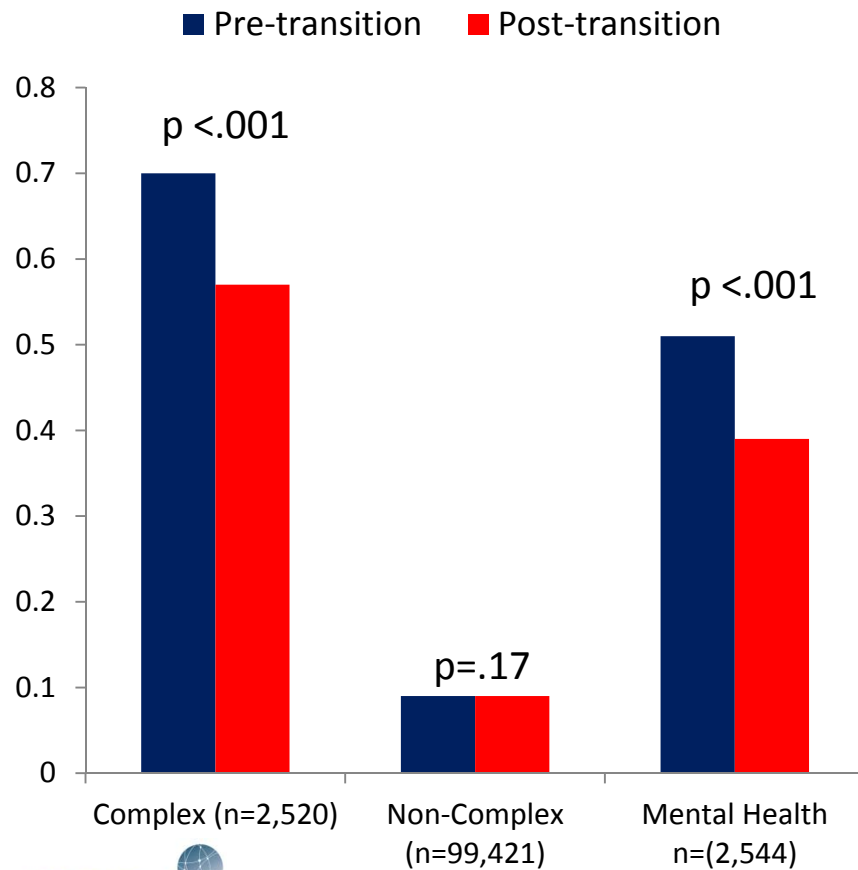


Specialist Visit (%)

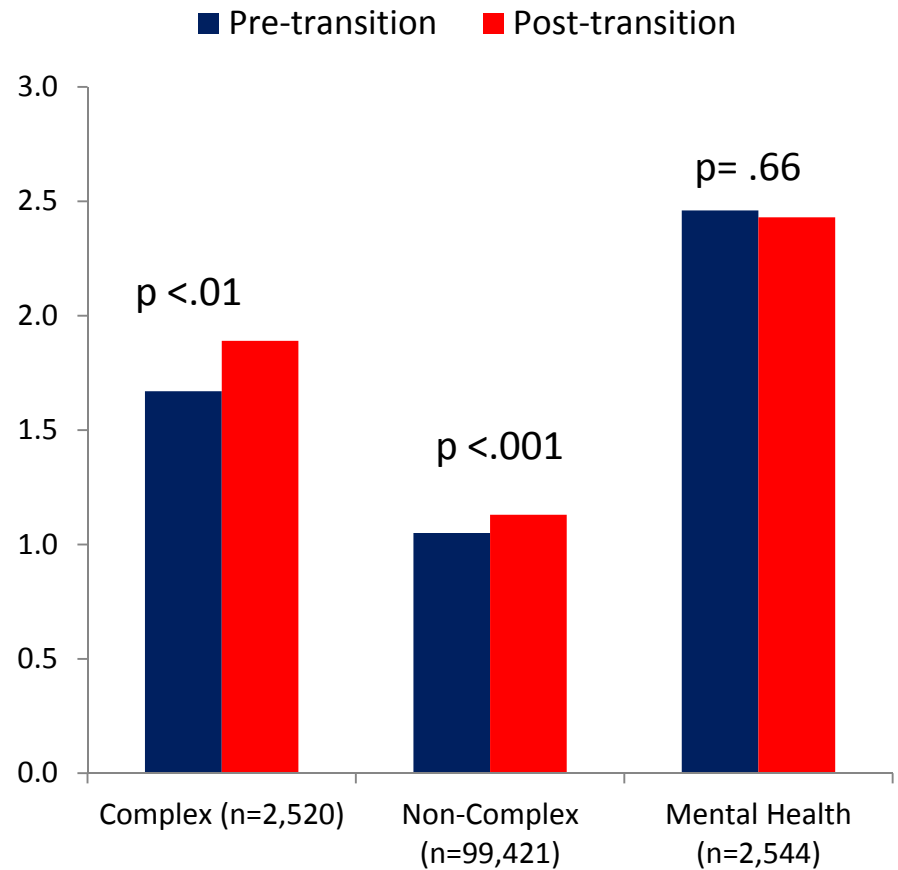


Acute care service use

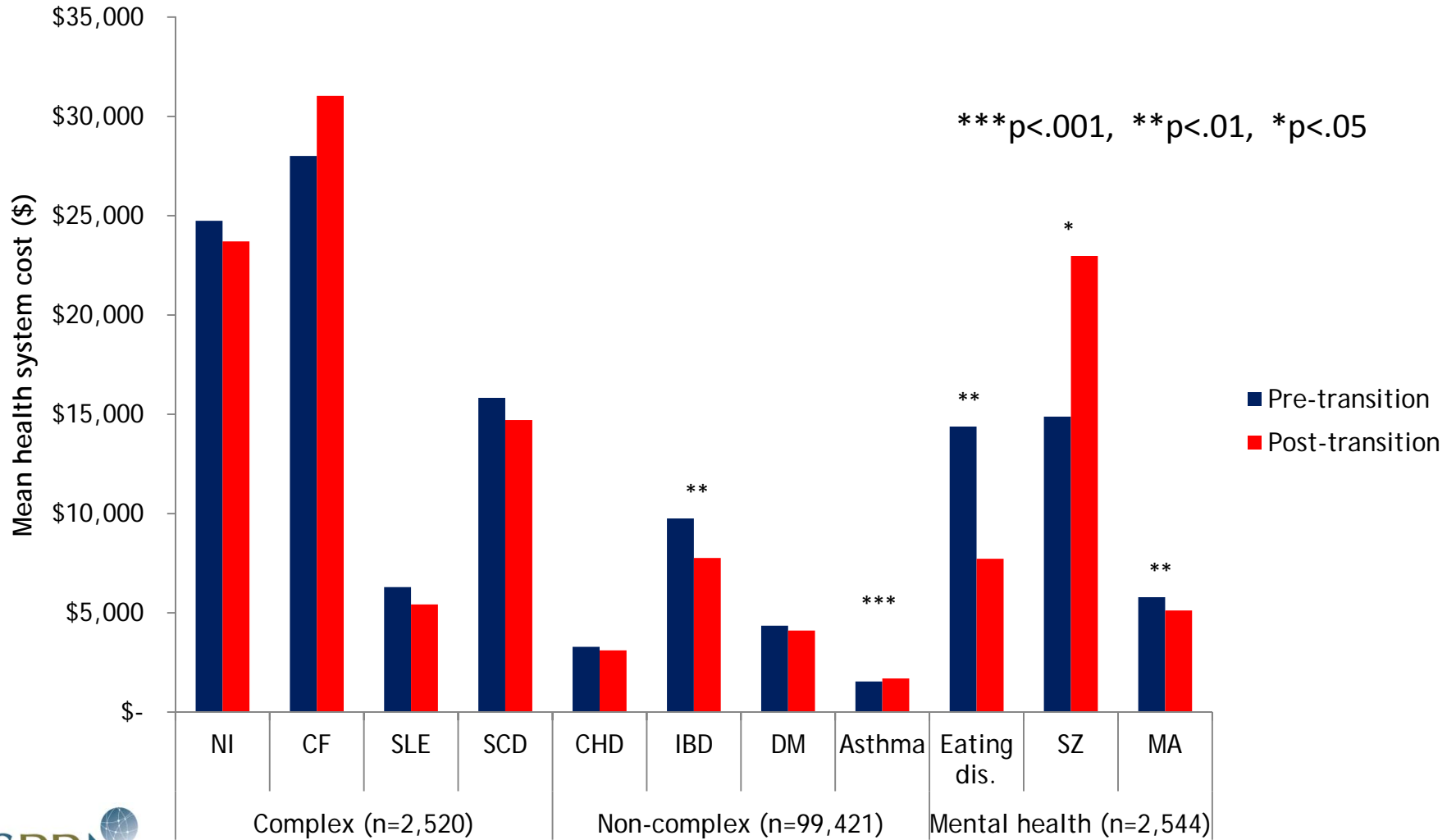
Hospitalizations (mean)



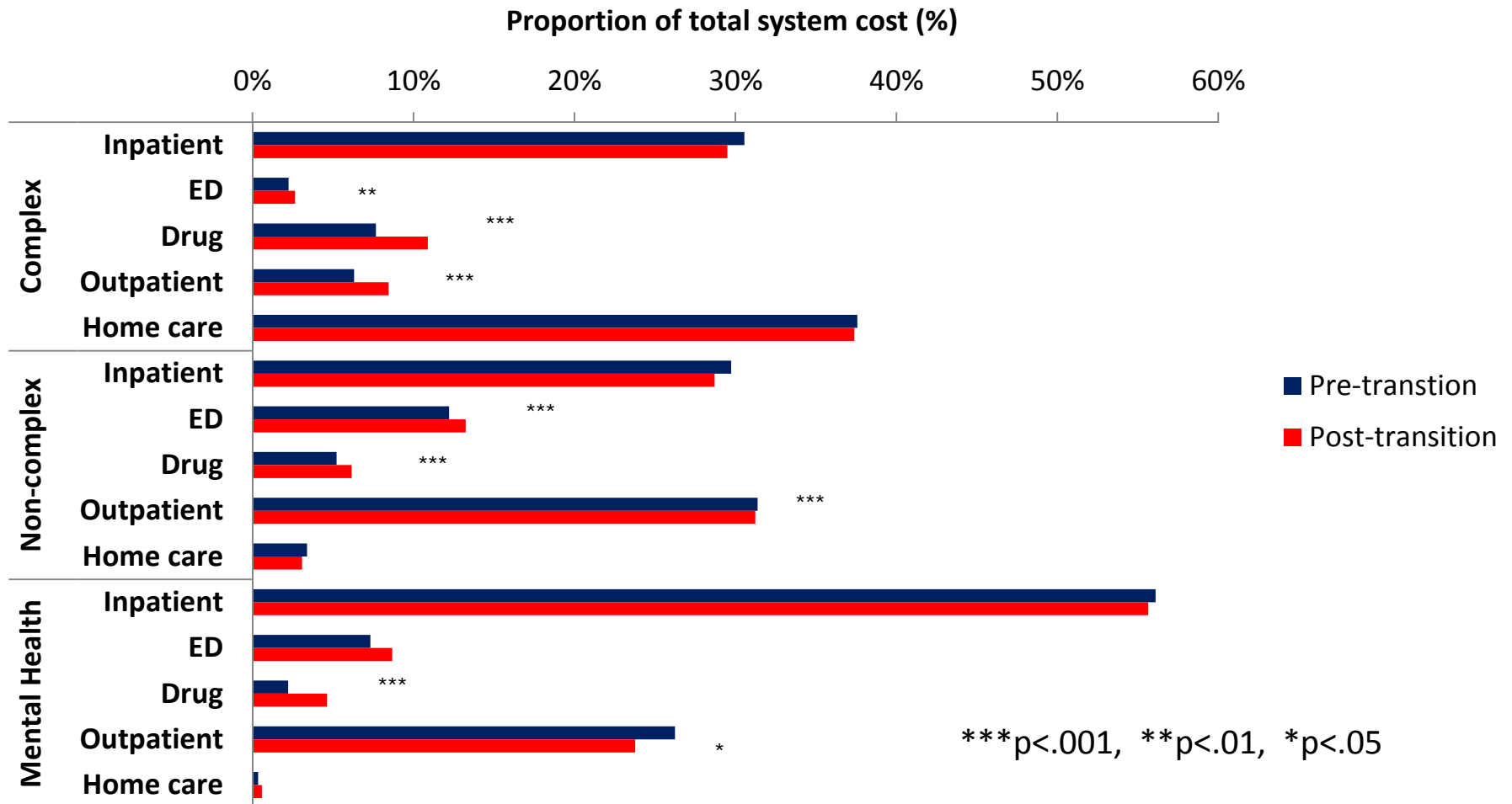
ED visits (mean)



Mean health system costs pre- and post-transition to adult care



Proportion of total health system cost by sector, pre- and post-transition to adult care



Limitations

- Missed some youth without hospitalizations
- Incomplete outcome data
 - private insurance (e.g. drugs and homecare)
 - non-'health' funded services (e.g. rehabilitation)
 - Out-of-province services
 - Disease-specific (e.g. HbA1C) or patient-reported outcomes
- Short outcome period
- Statistical Power

Conclusions/ Future study

- Overall patterns of healthcare use after transition to adult care are **relatively stable**
- Decline in preventative service use
 - ?access ?change in health seeking behavior
- Decline in admission and increase ED use
 - ?different admission threshold in adult health system
- Studies with longer time horizon +/- other health systems will be illuminating

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THANK YOU!

Clinical Hierarchy

- Neurological Impairment (NI)
- Congenital Heart Disease (CHD)
 - Cystic Fibrosis (CF)
- Systematic Lupus Erythematosus (SLE)
 - Sickle Cell Disease (SCD)
- Inflammatory Bowel Disease (IBD)
 - Type 1 Diabetes (DM)
 - Asthma
 - Eating disorders (ED)
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