

The State of End-of-life and Palliative Care in Ontario

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HSPRN Symposium

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Outline

- 1) Health care at the end of life in ON
- 2) Palliative Care in ON
- 3) End of life in 2036 – what will it look like
- 4) Performance measurement for EOL and palliative care in ON
- 5) Places of care at the end-of-life – what matters?

Background

- Aging population
 - Decreasing birth rate
 - Extension of life expectancy
 - Aging of baby boomers
- 5.2 million seniors in Canada
- Will double by 2036; 85+ Quadruple
- Concerns RE: sustainability

Research Questions

- 1) Is this concern justified in Ontario/Canada?
- 2) How is EOL & Palliative care delivered across health sectors in Ontario?
- 3) Beyond health care use/cost, what can we say about:
 - Other indicators of health system performance
 - Variation & Gaps in performance
 - The effectiveness of our current main population interventions/tools

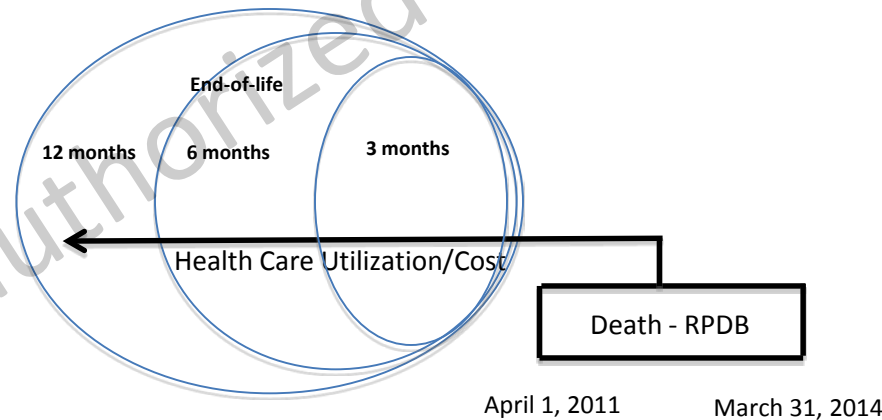
Methods – Data Sources

- Looked across all health sectors available at Institute for Clinical Evaluative Sciences (ICES)
- Linked at the individual level across broad health care sectors
 - “Continuing care”: Long-term care (LTC), complex continuing care (CCC), Home care, Rehab
 - “Acute care”: Hospital admission, Intensive Care Unit (ICU), Emergency Room (ER)
 - “Outpatient care”: Physician visits/claims, outpatient hospital visits, select: drugs, non-physician, labs, devices

I. HEALTH CARE USE & COST AT THE END-OF-LIFE

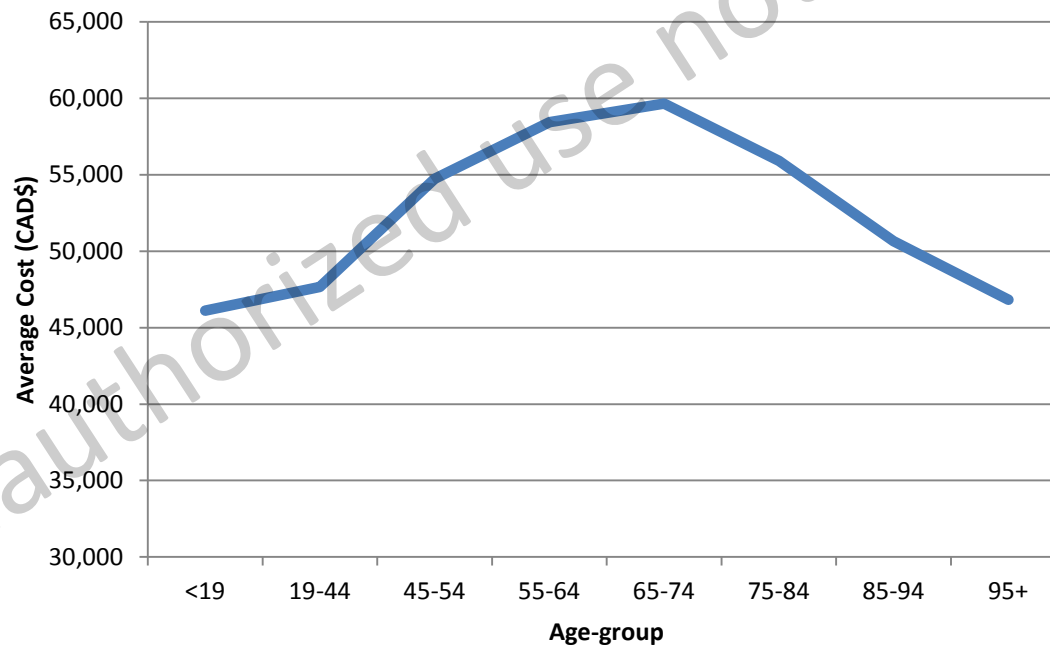
EOL Cohort – Approach

- Retrospective cohort approach
- All deaths in Ontario between Fiscal Year 2011 to 2013: 264,755 deaths
- 12 month look back



Results – Average Cost

- Q: Average cost per decedent, in last 12 months of life?



Answer: \$53,661

Results – Total Cost

EOL costs are significant:

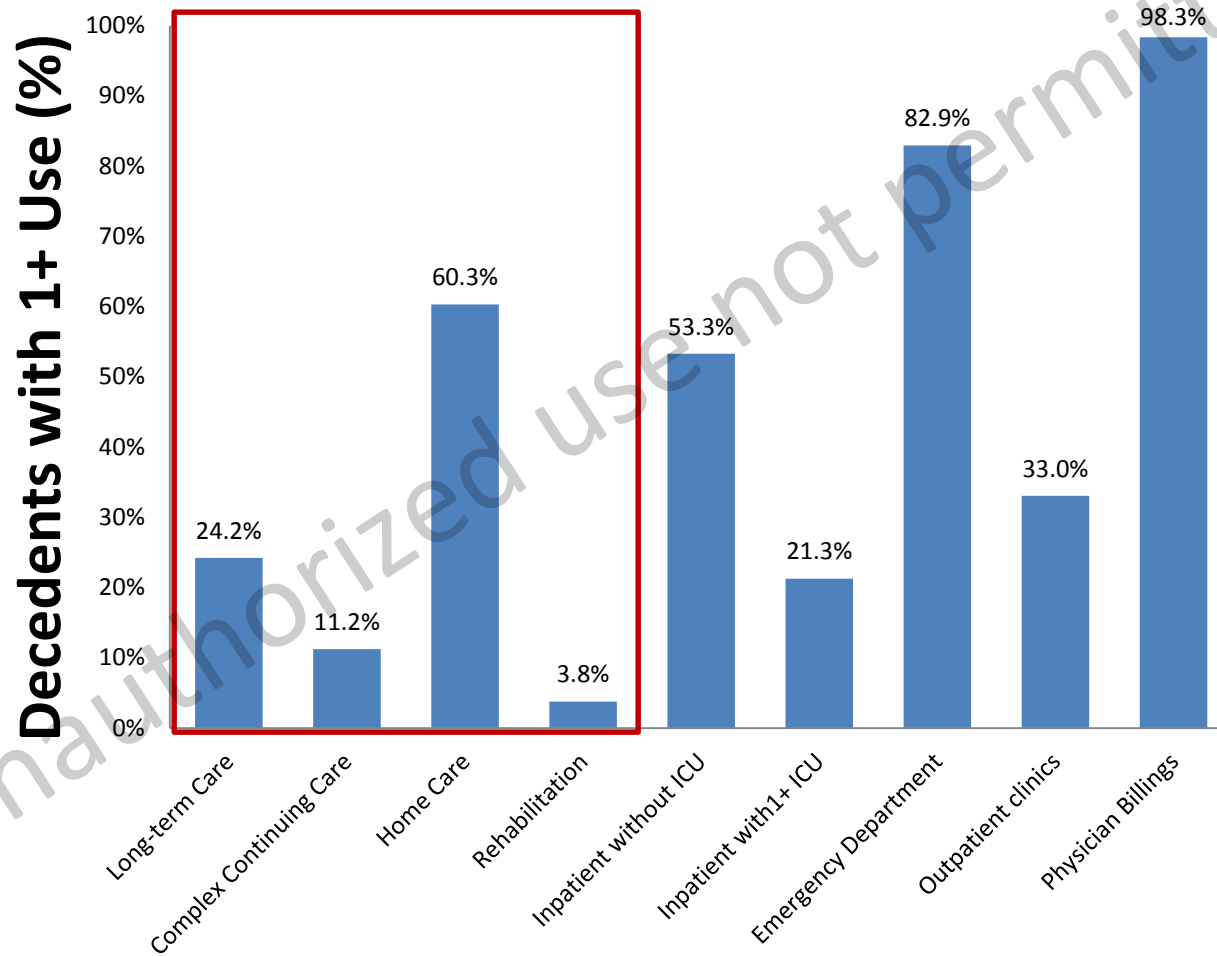
- Total annual cost of \$4.7 billion represents more than 10% of all government-funded health care.
- Likely under-representation (e.g., doesn't include some physician services, hospices, etc.)

Results – Use by sector

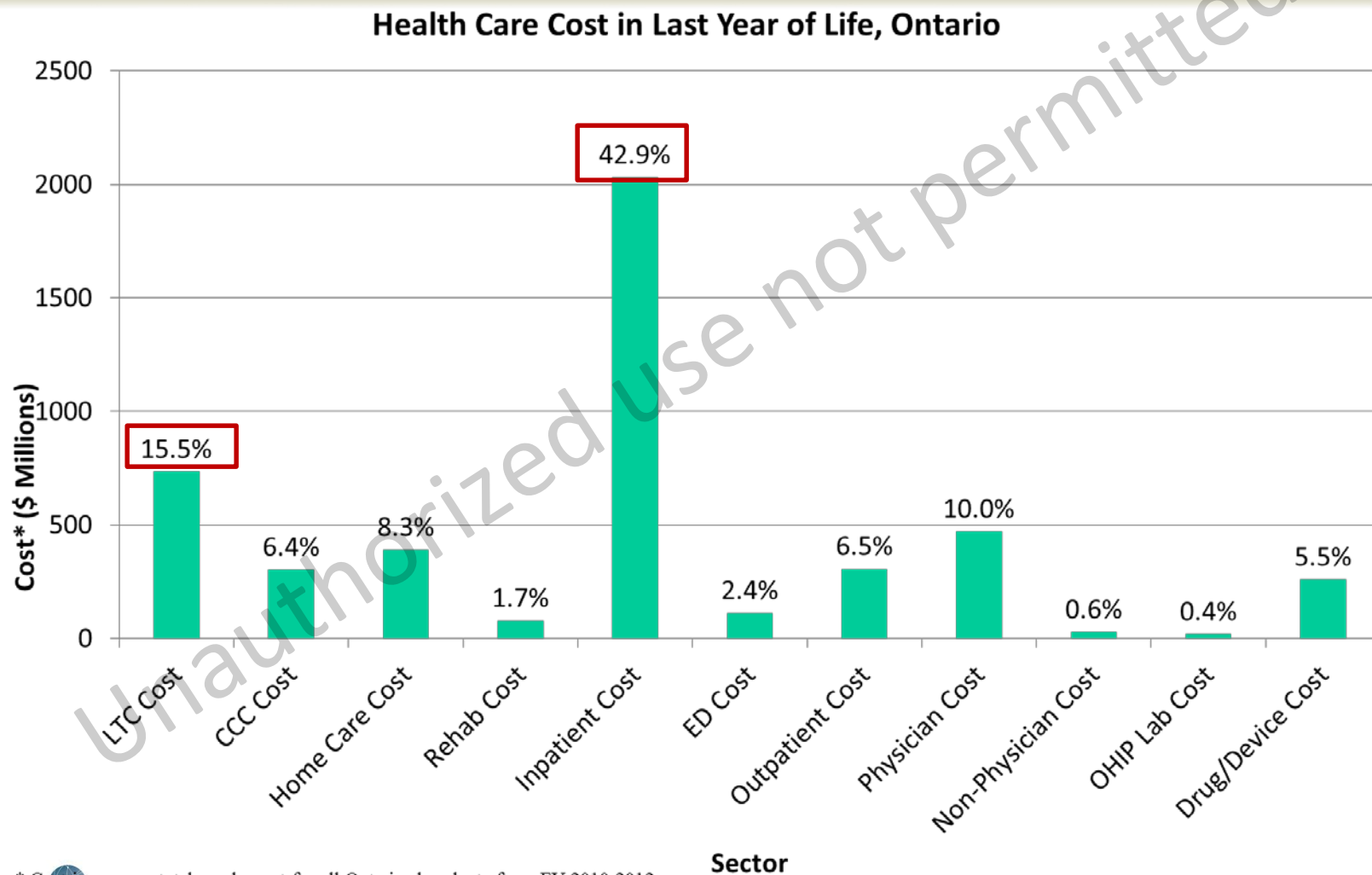
- Q: What proportion of Ontarians dying use LTC in their last year of life?
 - Answer: 24%

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Results – Use by sector



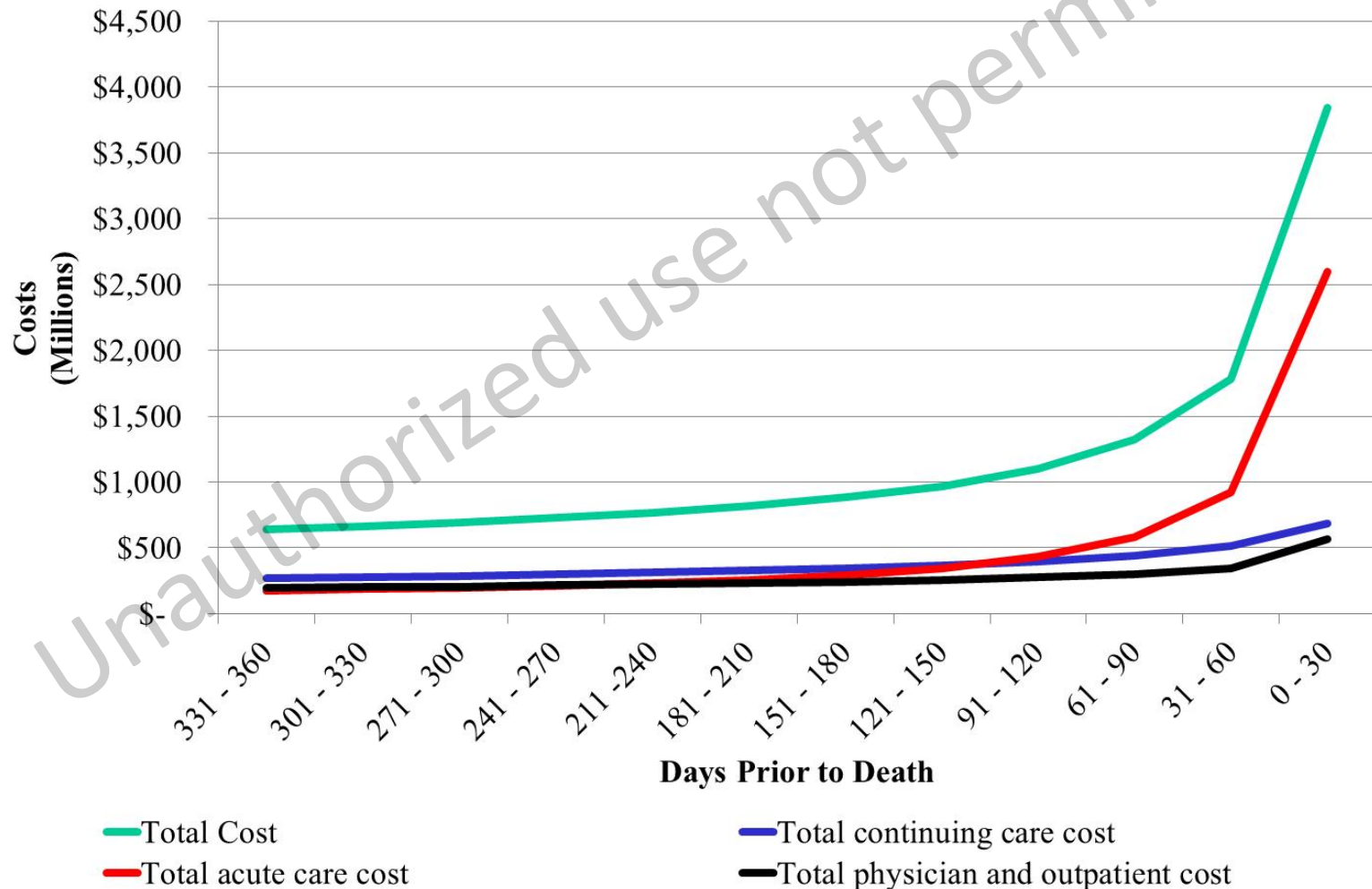
Total costs – Across all sectors



* Cost is average total yearly cost for all Ontario decedents from FY 2010-2012

Results – Escalation of Cost

Q: When do costs escalate? Which sectors?



Results – Individual Predictors

Example: Chronic Diseases

- Order Average Cost for: Cancer, Congestive Heart Failure (CHF), Renal Disease, Dementia, Osteoarthritis
- 5) Osteoarthritis - \$49,900
- 4) Cancer - \$54,500
- 3) Dementia - \$55,454
- 2) CHF - \$ 59,200
- 1) Renal Disease - \$68,100

Results – Health System Predictors

- Example: Primary Care Enrollment
- Family Health Group (FFS): \$51,500
- Family Health Organization (CAP): \$48,900
- Family Health Teams (CAP): \$47,800
- Not rostered: \$51,200

Conclusions

Inpatient costs in last 4 months dominates

Institutionalized Care is expensive:

- 24% used long-term-care (LTC) at average costs of \$34,381
- 60% used home care at average cost of \$7,347

Conclusions

- Community care plays a relatively small role
 - Home care = 8.3% of total cost
 - Physician billings (in & outpt.) = 10%
- Reducing hospitalizations & delaying institutionalization: improve the patient dying experience + substantially reduce the costs

“Last month of life costs health-care system \$14K on average: report”



The Health Care Cost of Dying: A Population-Based Retrospective Cohort Study of the Last Year of Life in Ontario, Canada

Peter Tanuseputro^{1,2,3}, Walter P Wodchis^{3,4,8}, Rob Fowler⁵, Peter Walker¹, Yu Qing Bai⁴, Sue E. Bronskill^{3,4}, Douglas Manuel^{1,2,3,6,7}



II. PALLIATIVE CARE IN ONTARIO AT THE EOL

Introduction



- Began as an AHRQ Declaration of Partnership and Commitment to Action – Hospice & Palliative Care
- 3 Main Objectives:
 - 1) Develop health admin data to identify palliative care
 - 2) Describe palliative care: Intensity, timing, initiation
 - 3) Measure regional and sub-regional differences

Sample Palliative Care Codes

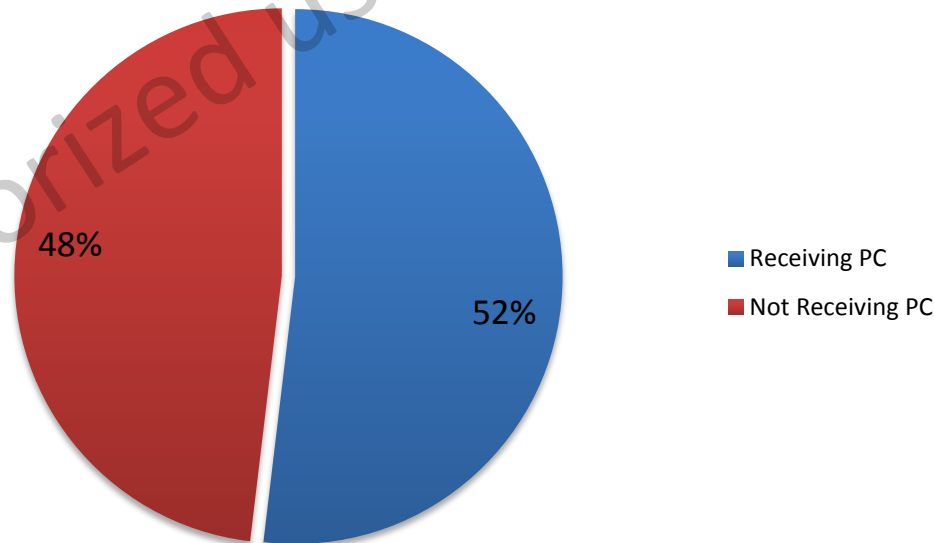
Sector	Database & Codes
Physician Services	OHIP: K023, A945, G512, B966, K700
Inpatient Hospital	DAD ICD 10 Codes: Z51.5 NACRS Provider Service Code: 00121
Home Care	HCD: SRC admission, service, or discharge 95 RAI-HC: P2S = 1 or 2; RAI-CA: B2c, B4
Long-term Care	OHIP code W872, K023
Complex Continuing Care	OHIP code W882, K023

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Results – How Much?

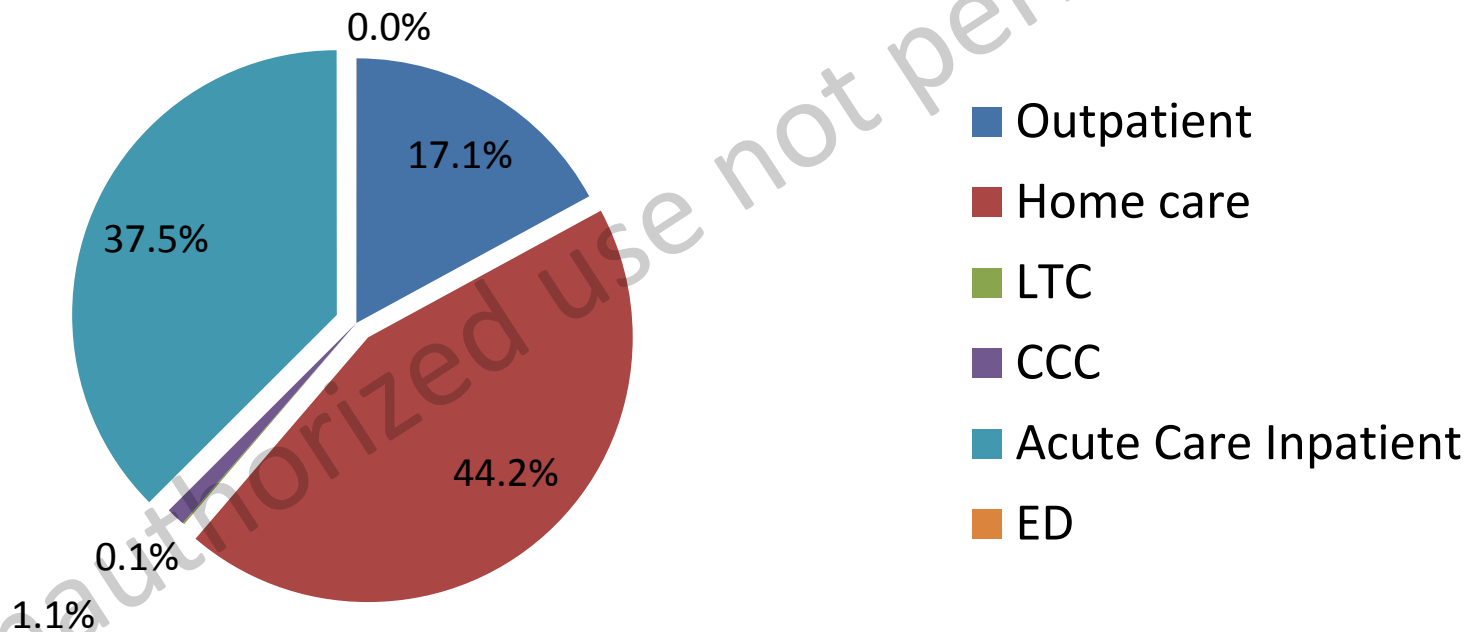
- Q1: How many decedents are receiving palliative care in last year of life?

Percentage of Total Decedent Cohort Receiving and Not Receiving Palliative Care



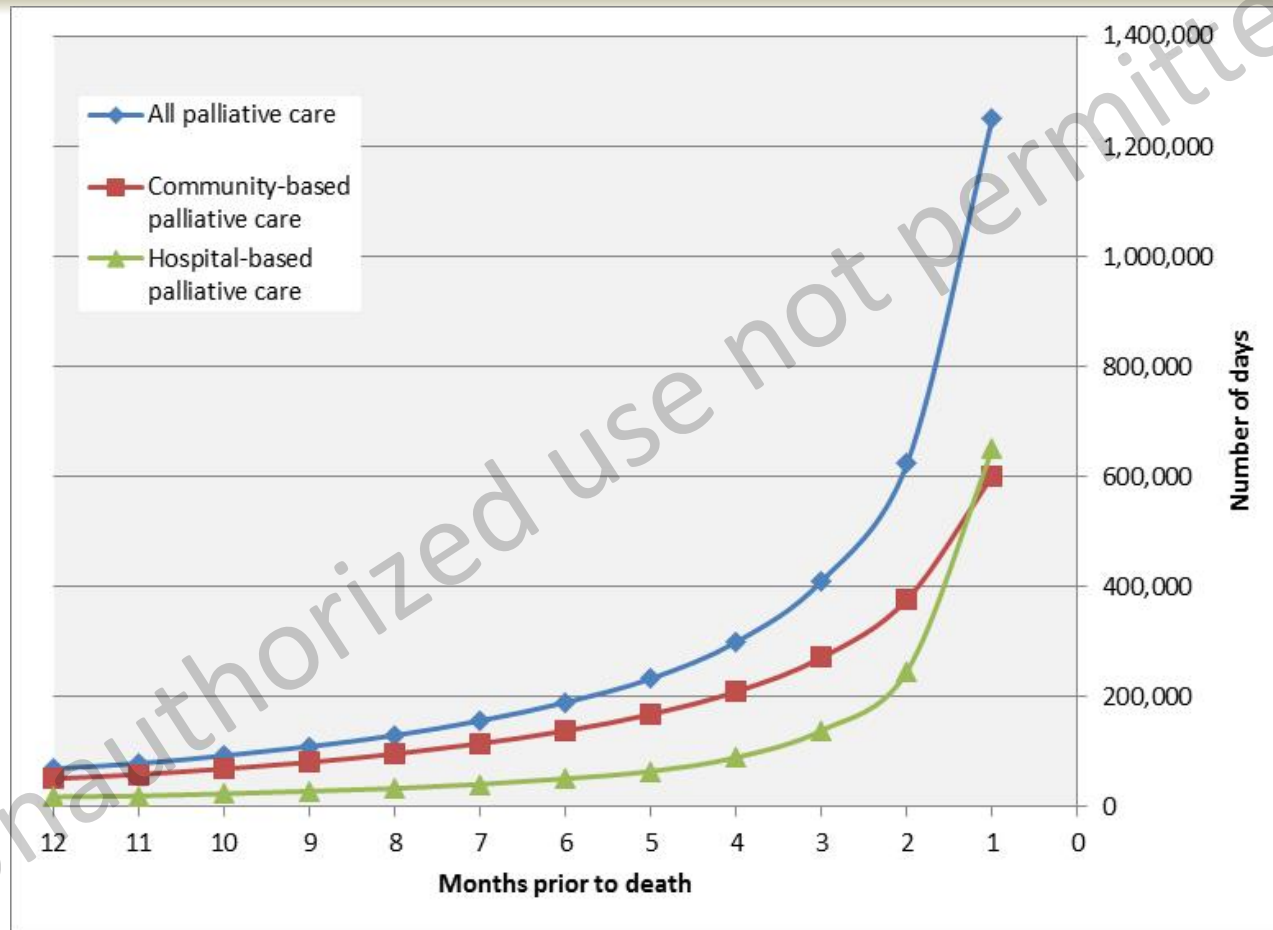
Q2: Where is palliative care delivered?

Proportion of total days of palliative care in the last year of life



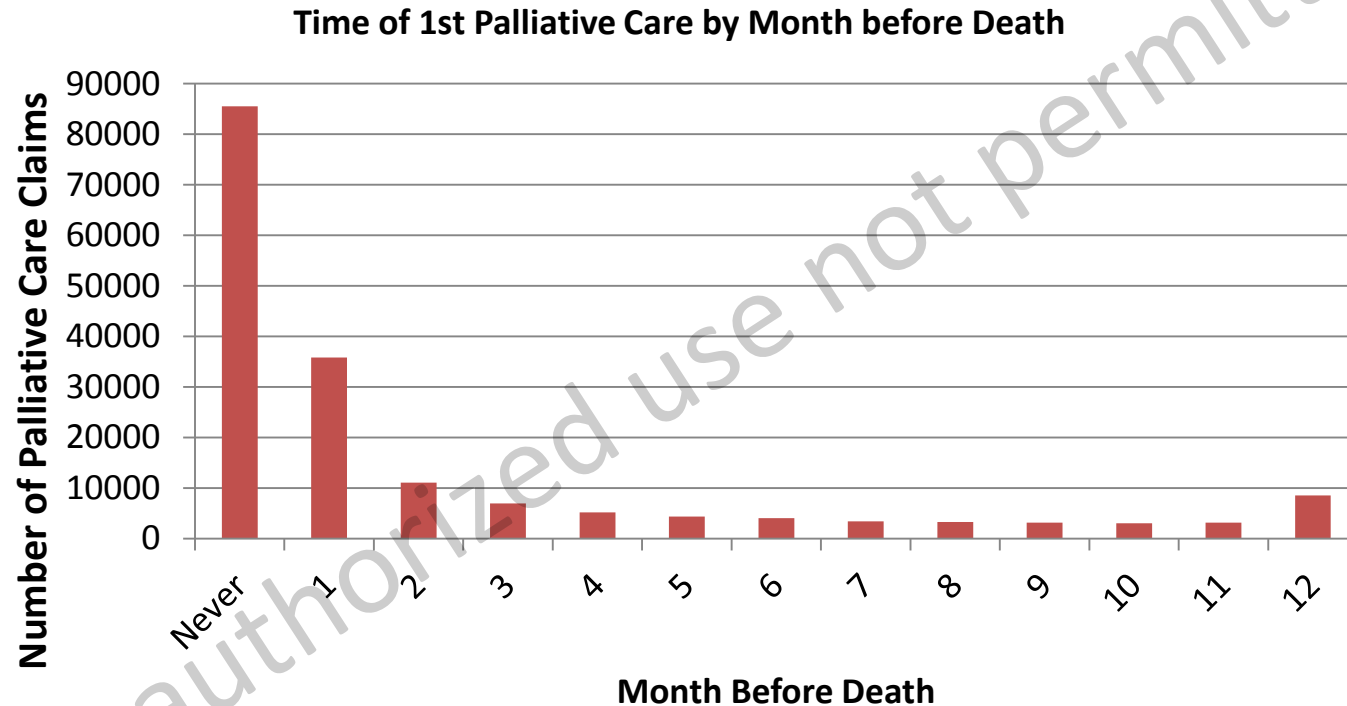
- Home care & inpatient acute care: most days: 44.2% and 37.5%, respectively
- Physician based outpatient palliative care days were next at 17.1%,
- CCC, ER: an insignificant proportion.

Q3: Timing of Palliative Care



- About half (49.1%) of all days of palliative care delivered was performed in the last 2 months prior to death.

Q4: Initiation



- 38.8% initiated in last month
- 50.8% initiated in last 2 months

Discussion

- Use palliative care codes with caution – validation needs to still be conducted
- Most helpful: sector specific palliative care codes
- What we envision as community palliative:
 - Only **9.5%** receive home visit by physician
 - Only **19.3%** receive “palliative” home care

Conclusions

- Much of EOL care/cost occurs in hospital – including palliative care
- Rule of 50's (approximately):
 - 50% decedents get PC
 - 50% of PC days delivered in last 50 days
 - 50% of PC initiated within 50 days of death
- Room for improvement

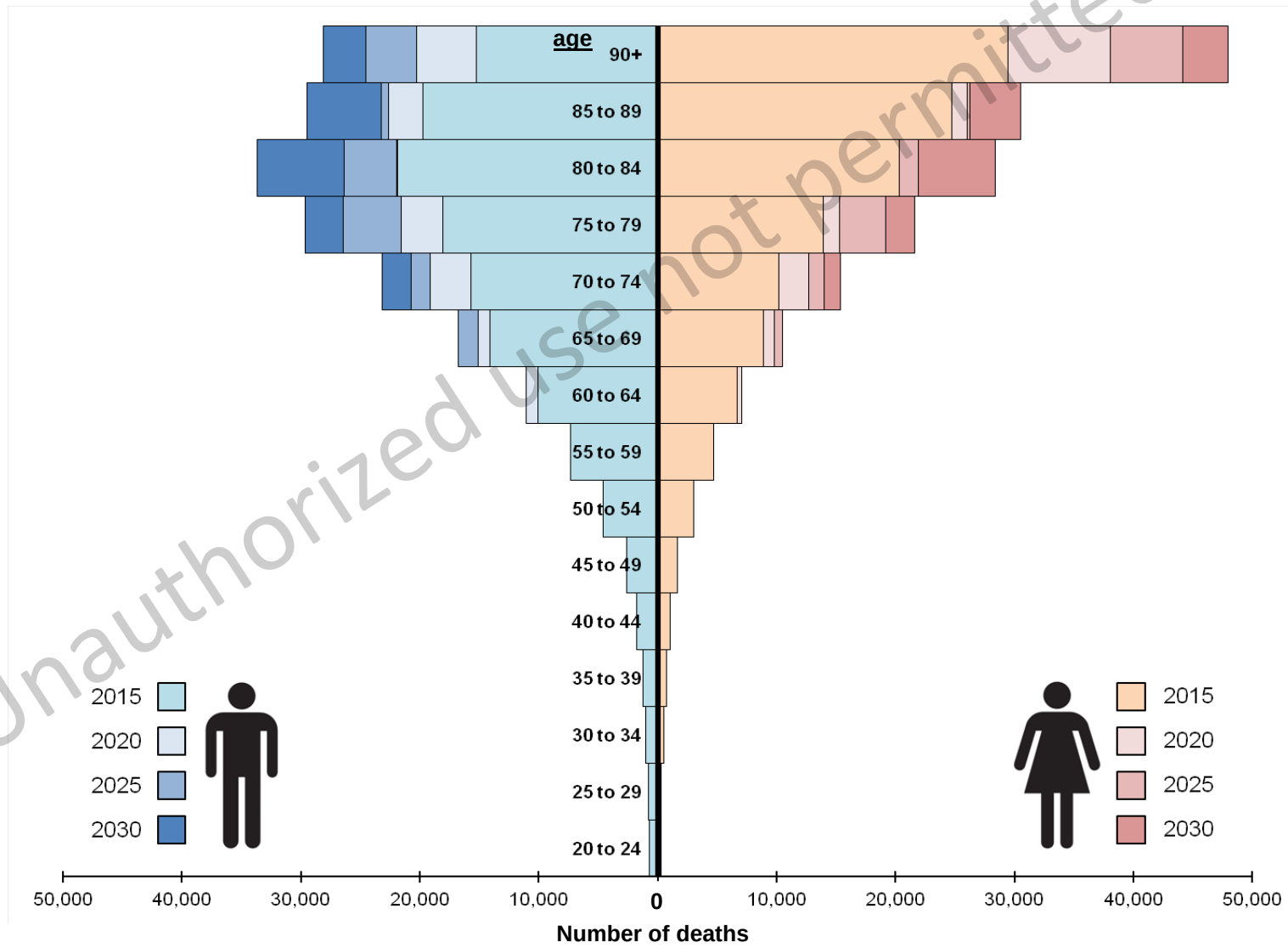
III. PROJECTIONS – AMY HSU

Study design

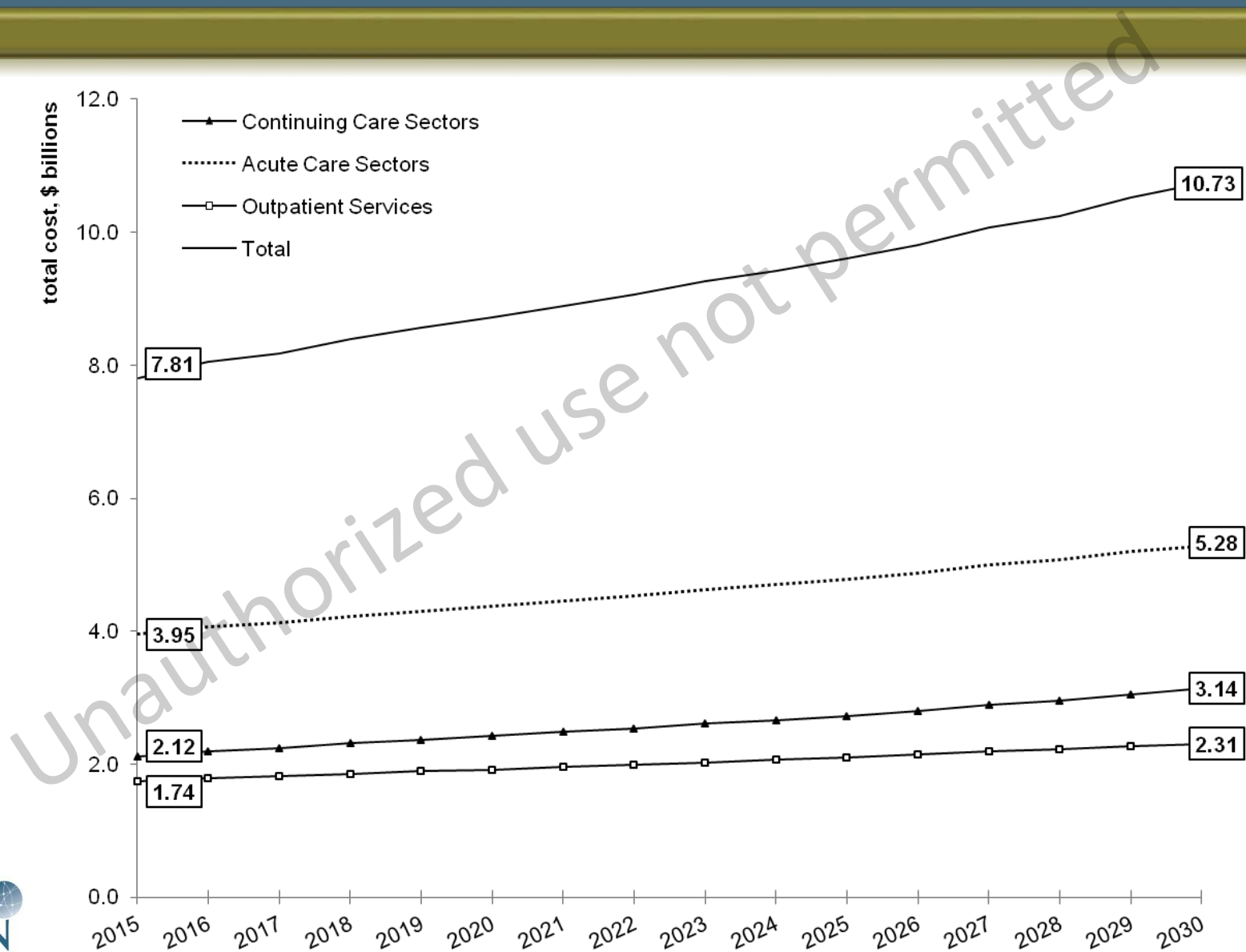
- EOL care costs were estimated from a 3-year decedent cohort (March 31, 2010 – April 1, 2013) in Ontario.
- Costs were stratified by age (5-year age groups), sex, and types of health care service.
- Mortality counts were obtained from Statistics Canada's microsimulation model, POpulation HEalth Model (POHEM).
- Projected total cost for 9 types of health services from 2015 to 2030.

Mortality in the Canadian population: 2015-2030

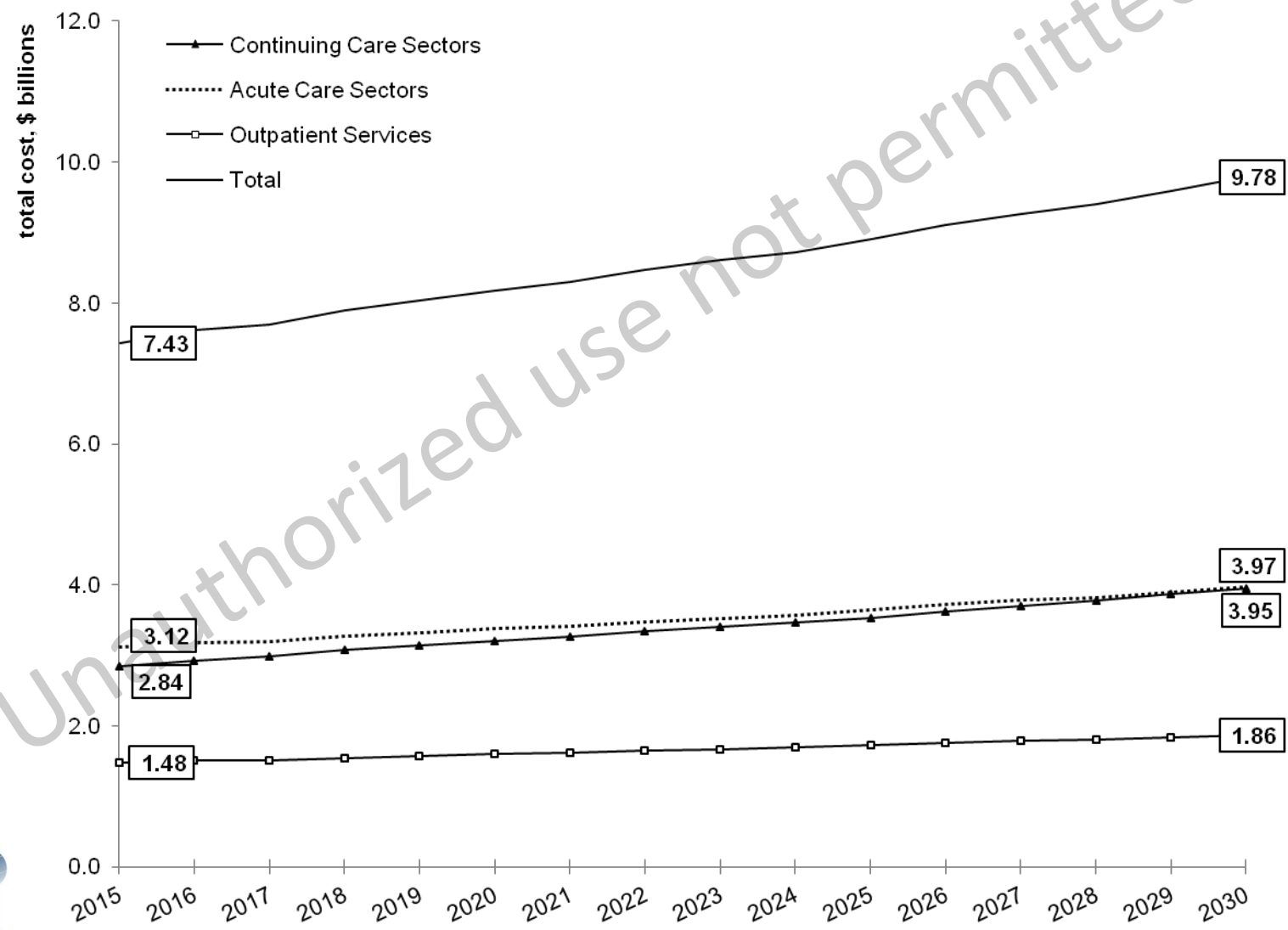
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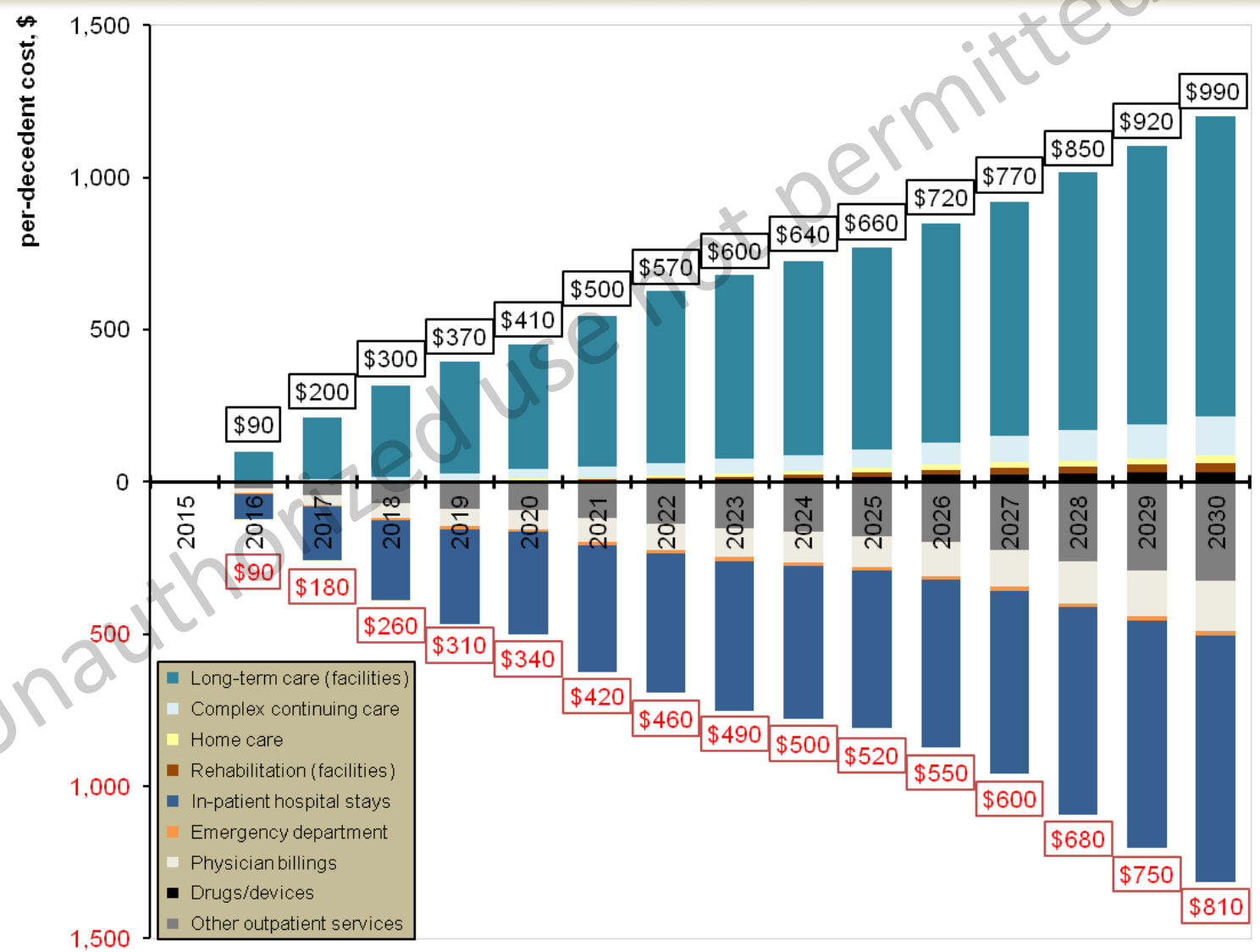
Projected costs in the last year of life: Males



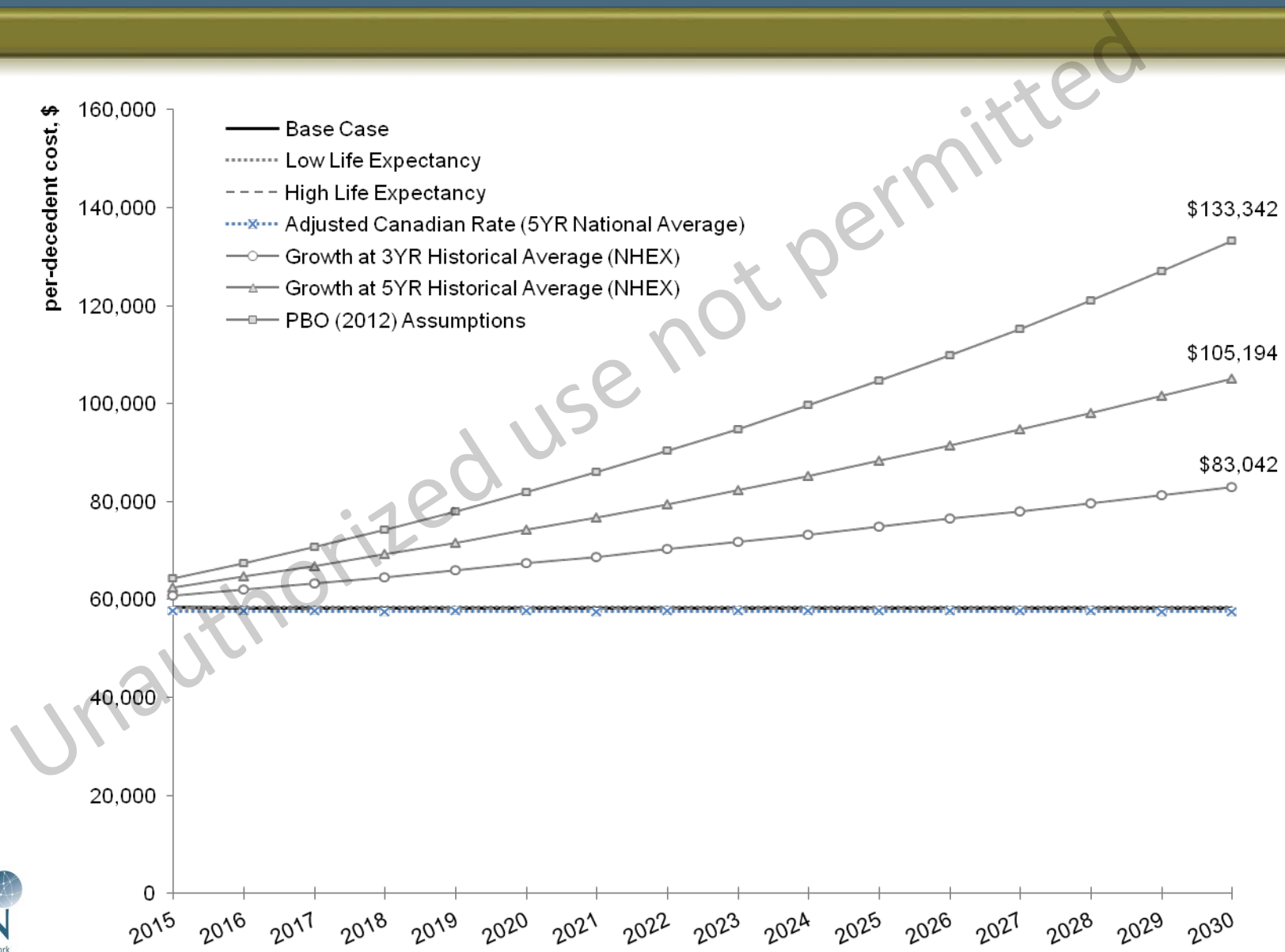
Projected costs in the last year of life: Females



Incremental change in projected per-decedent costs



Sensitivity analysis of projection assumptions



Policy implications

- Myth of impending “tsunami of cost” – cost/death stable
- Per-decedent cost on facility-based LTC increases at a greater rate than other health services (at 0.7% per decedent, per year).
- Key assumption is that current supply remains constant. What if future supply does not meet future demand?
- While limiting the supply of more costly services (e.g., residential LTC) may curb the total expenditure on health care, there may be unintended consequences to individuals requiring significant health care prior to death, their families/caregivers, and the health care system.

IV. PERFORMANCE MEASUREMENT

– LUKE MONDOR

Indicators

- HSPRN involvement in Declaration Group
- 6 indicators to OHTAC → 4 in HL Report
- 3 additional Indicators from HSPRN
 - Total cost @ EOL
 - Deaths in institution
 - Days in institution at EOL
- HSPRN project on indicators → sector by sectors approach on system performance

Assessing Value in Ontario's Health Links

Measures of Palliative Care and End-of-Life Care

Luke Mondor, MSc

Peter Tanuseputro, MD MHSc

Walter P. Wodchis, PhD

HSPRN Symposium, December 1, 2015

Ontario's Health Links

- An innovative approach to coordinating health care services for complex, high-needs patients
- Each Health Link (HL) model is unique and based on local needs
- Announced Dec 2012: 22 early-adopter HLs
- To date: considerable investment, and a need for evaluation

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HSPRN Work to Date: Health Links

Finding: Baseline HL performance is related to community SES



Summarized from *Assessing Value in Ontario Health Links (AHRQ Series)*, available via hsprn.ca

Objective

- To conduct empirical analysis to assess the performance of Health Links on measurable indicators of palliative care and end-of-life care
- Use population-based health administrative data held at ICES
- Applied Health Research Question (AHRQ): What 'value' do Health Links add to the healthcare system?

Approach: Study Populations

- Identified all Ontario resident alive with a valid OHIP card on April 1, 2012. From this we derived:
 1. Palliative (hospitalized) cohort
Includes all patients discharged home in 2012 after an acute stay that indicated that the patient was palliative (data source: CIHI-DAD)
 2. End-of-Life cohort
Includes all decedents in 2012 (data source: RPDB)
- Patients/decedents assigned to a geographically-defined HL (n=67) through the location of his/her:
 - Primary care physician, or
 - Home residence

Approach: Indicators

Palliative Care

Indicator	Description
1 Home support for palliative patients	% of discharged patients that received meaningful community-based home care support within 90 days of discharge
2 Emergency department (ED) visits within 30 days	% of discharged patients with one or more unscheduled ED visits within 30 days of acute care discharge
3 Palliative hospital (30 day) readmission rate	% of discharged patients readmitted (for any cause) to acute care within 30 days of index (palliative) discharge

**Prospective approach (all indicators measured after discharge)*

Approach: Indicators

End-of-Life Care

Indicator	Description
4 ED visits in the last 2 weeks of life	% of decedents with one or more ED visits in the last 2 weeks of life
5 Total cost at the end of life (HSPRN)	Average total (government) costs in the last year of life, adjusted for inflation and reported in 2011 CAD
6 Deaths in institutional care (HSPRN)	% of decedents that died in institutional care
7 Days in institutional care at the end of life (HSPRN)	Average number of days in institutional care in the last 30 days of life

**Retrospective approach (all indicators measured prior to death)*

Approach: Analyses

- Unit of analysis: Health Links (n=67)
- Describe distribution in indicator performance
 - Compared to what?
 - Provincial averages
 - Similar HLs: Rurality¹; Material deprivation quintile²
- Describe high/low performance

¹ Rurality index of Ontario (RIO): Kralj (2009)

² Ontario Marginalization Index: Matheson et al (2012)

Findings: Palliative Care Indicators

Table 2: Findings from palliative care indicators (*from n=6,356 total palliative discharges within HLs in 2012)

	1. Home support for palliative patients (%)	2. ED visits within 30days of index discharge (%)	3. Palliative (30 day) hospital readmissions (%)
Ontario average	68.0	36.3	30.3
Health Link Performance			
High (top decile)	90.0 - 81.1	17.3 - 25.7	18.5 - 21.4
Low (bottom decile)	52.1 - 25.0	46.0 - 54.2	37.7 - 41.9
Rurality			
Rural HLs (n=12)	63.0	41.8	32.5
Suburban HLs (n=19)	63.6	36.9	29.9
Urban HLs (n=36)	69.9	35.6	30.2
Material Dep. Quintile			
Most Affluent HLs (n=13)	63.8	38.7	30.2
Most Deprived HLs (n=14)	68.0	40.5	32.2

Findings: End of Life Indicators

Table 3: Findings from end of life indicators (*from n=67,855 deaths within HLs in 2012)

	4. ED visits in last 2 weeks of life (%)	5. Total costs in last year of life (\$CAD)	6. Deaths in Institutional Care (%)	7. (Mean) Days in Institutional Care
Ontario average	40.1	53,310	51.5	8.6
Health Link Performance				
High (top decile)	32.5 - 37.1	42,610 - 45,760	35.2 - 43.0	5.3 - 6.6
Low (bottom decile)	44.0 - 47.6	59,140 - 62,680	58.6 - 62.6	10.2 - 12.0
Rurality				
Rural HLs (n=12)	41.3	46,650	46.3	7.4
Suburban HLs (n=19)	42.1	49,720	48.0	7.8
Urban HLs (n=36)	39.4	55,200	52.5	9.0
Material Dep. Quintile				
Most Affluent HLs (n=13)	39.1	53,430	47.7	8.1
Most Deprived HLs (n=14)	42.6	55,150	53.8	9.3

Summary: Key Messages

- Substantial variation in performance
 - Across HLs in the province
 - Across HLs within the same LHIN
- Pockets of high (and low) performance – where one HL consistently performs well (or poorly) – were observable
- Some differences evident by rurality and across quintiles of material deprivation

Limitations

- Findings describe general population trends across HL catchment areas, but the true experience of HLs/HL populations requires a roster of patients linked to administrative data
- Analysis is restricted to indicators measurable with health administrative data. Other aspects of palliative and EOL care are important for HLs to consider when measuring performance:
 - (Health-related) quality of life
 - Relief of pain, suffering and other symptoms
 - Experience of patients and families

Conclusions

- Variation suggests opportunities for improvement
- Differences by HL characteristics (rurality, deprivation) highlight important community contexts that need to be considered for future evaluations
- Findings describe baseline performance of HLs, useful for benchmarking

Thank You!

Full report coming soon! (hsprn.ca)

Acknowledgements:

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Performance Indicators – HSPRN

- Systematic Review conducted (Suman/Ashlinder) & Expert panel conducted
- Work with OPCN/HQO/others to develop and measure indicators
- LTC Sector: Will be coming up to bat first...
- Across: LHINs, HLs, Physician Groups...

LTC Indicators Project

Concepts:

- 1) Location of death
- 2) Transitions at the EOL
- 3) Palliative Care
- 4) Uncontrolled symptoms
- 5) Quality of Care
- 6) Advance Care Planning

V. POPULATION INTERVENTIONS @ EOL: HOME CARE & HOUSE CALLS

Moving beyond cost

- Many interventions are geared towards shifting care away from inappropriate settings

I. Examine where people are dying

- Most express desire to die at home

II. Examine where people are spending their last 90 days of life

Grouping of Places of Care

- Analyses: 2 Groups
 - “Institution”: Acute care, Complex Continuing Care, Rehab
 - “Home”: **LTC**, Home Care, Other

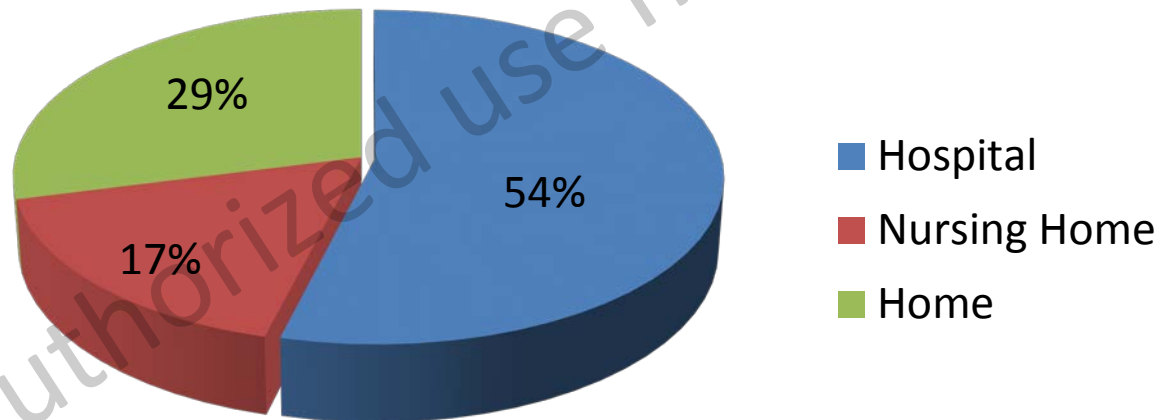
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Results – Where do Ontarians Die?

- Q: What % of Ontarians died @ the community (home, hospice, supportive housing, etc.)
 - A) 0-10%
 - B) 10-30%
 - C) 30-50%
 - D) 50%+

Where do Ontarians die?

- 264,755 decedents – ICES Data (2010- 2012)



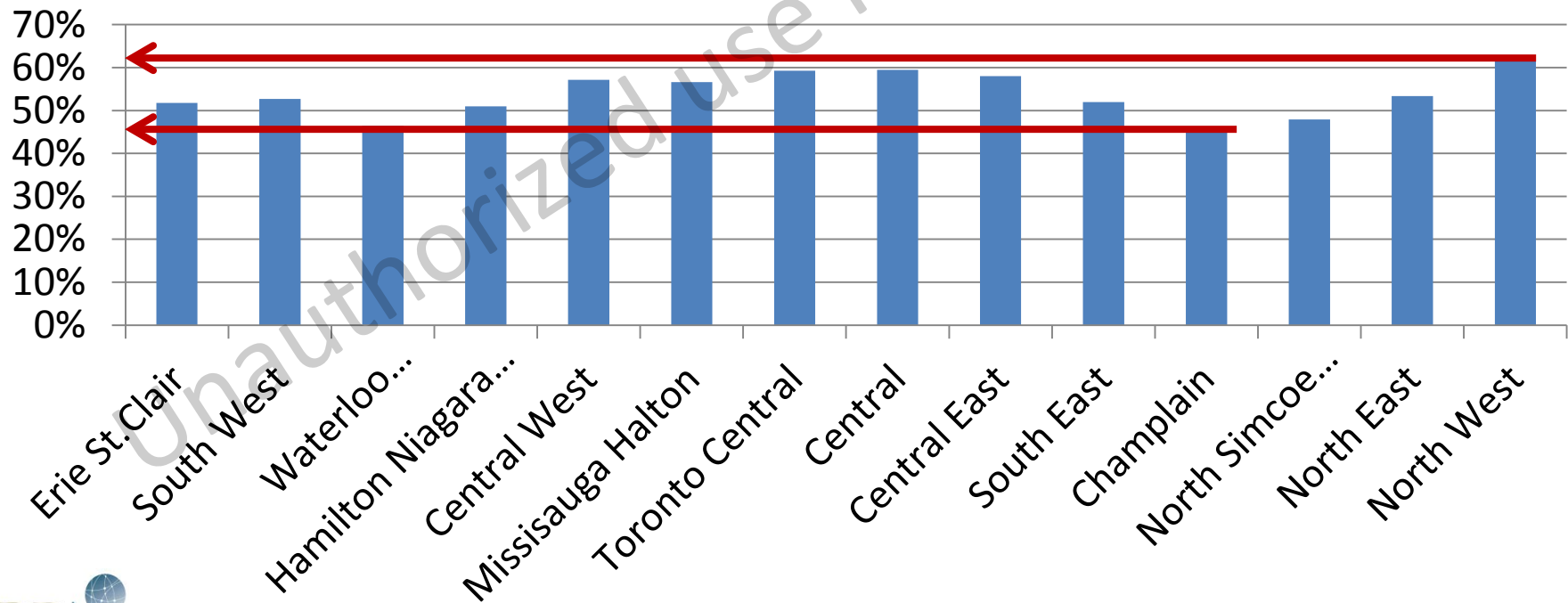
Location of Death - Predictors

Proportion dying in **an institution** by...

- Age:
 - 43% (<45 yrs) → 60% (65-85) → 34% (95+)
- Time: 54.4% (2010) → 51.9% (2013)
- Chronic conditions
 - CHF, COPD, Cancer: 62%
 - Dementia: 39%

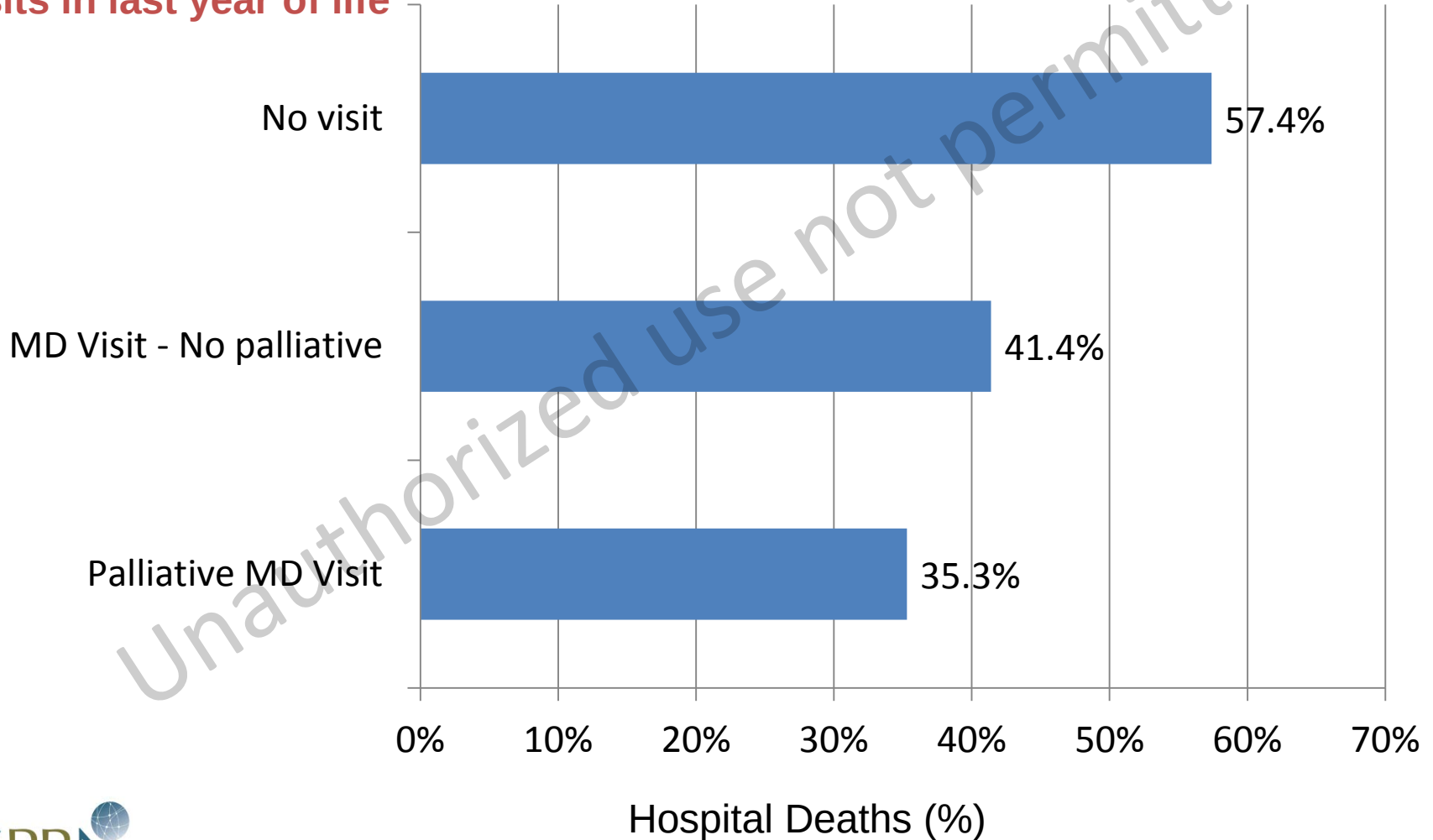
Location of Death - Predictors

- Local Health Integration Networks (LHINs):
 - Range: 45% to 60%
 - Champlain: 45% → Risk adjusted: 50% lower risk



Do house calls matter?

Visits in last year of life



LOD - #Visits

Service Received	Death in an Institution*** (%)	Death in a Non-Institution (%)	Total (column %)
Number of physician home visits			
None	120,556 (57.4)	89,593 (42.6)	210,149 (79.4)
1	8,874 (41.7)	12,414 (58.3)	21,288 (8.0)
2	3,879 (41.7)	5,414 (58.3)	9,293 (3.5)
3-4	3,636 (38.1)	5,904 (61.9)	9,540 (3.6)
5-6	1,723 (36.0)	3,067 (64.0)	4,790 (1.8)
7+	2,987 (30.8)	6,699 (69.2)	9,686 (3.7)

Multivariable Model

- Outcome: **Risk of dying in an institution**
(Acute care, CCC, or Rehab)
- Adjusts for: Age, sex, income quintile, year, rurality, ADG score (Austin, van Walraven et al.), #days at home in the past month, home 1 week before death

MD Home Visits & EOL Home Care

Reference Value	Parameter Variable	Hazard Ratio	95% Confidence Interval	p-values
Primary Care Model – Rostered	Un-rostered	1.315	1.283 - 1.348	<.0001
No Home Care in Last 365 Days	Home care in last 365 days – not palliative	1.099	1.072 - 1.126	<.0001
	Home care in past 365 days – palliative	0.499	0.481 - 0.517	<.0001
No physician home visits	Non-palliative physician home visits	0.509	0.492 - 0.527	<.0001
	Palliative physician home visits*	0.400	0.382 - 0.418	<.0001

Multivariable Model

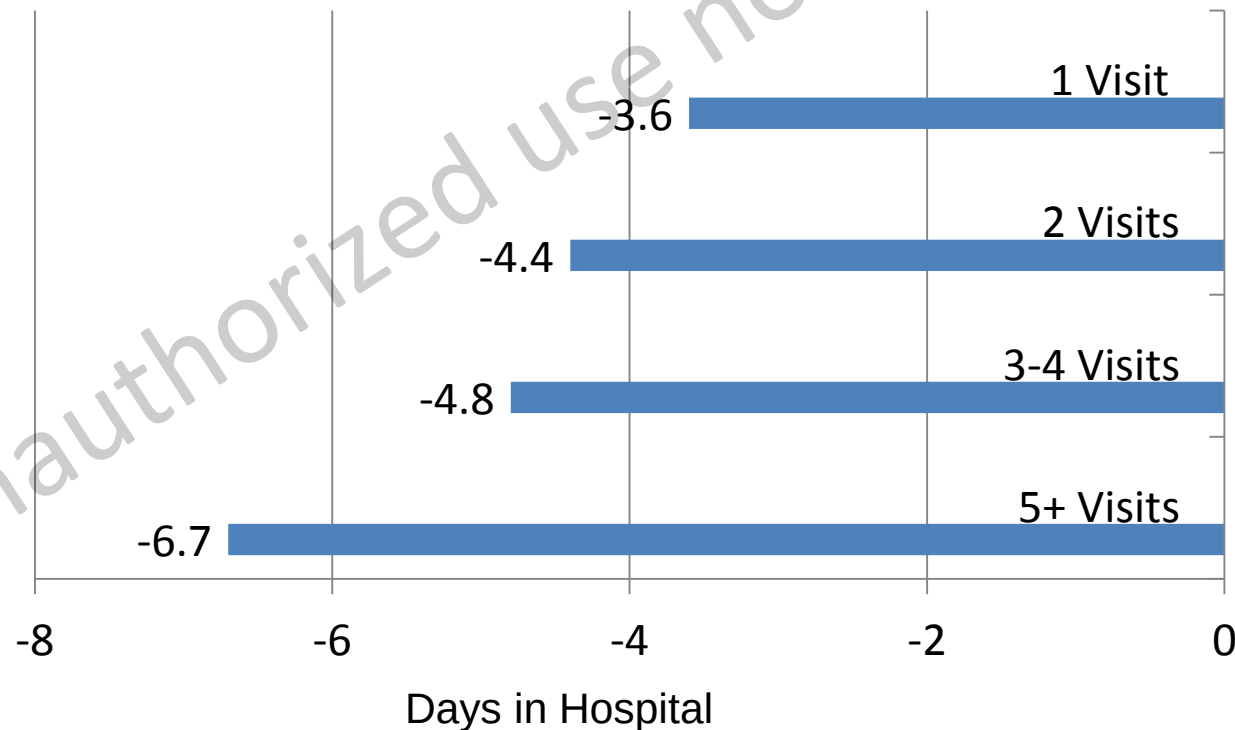
- Rostering
 - Un-rostered: 31.5% higher risk
 - **26%** of all decedents
- Palliative home care
 - 50% lower risk
 - **20%** of all decedents or **30%** of home care recipients

Multivariable models

- Physician home visits
 - 50% lower risk when palliative care specialist not involved
 - About 60% lower risk when specialist involved
- What proportion receive visit in last year?
 - **20.6%** of total population
 - **8.1%** with specialist involvement

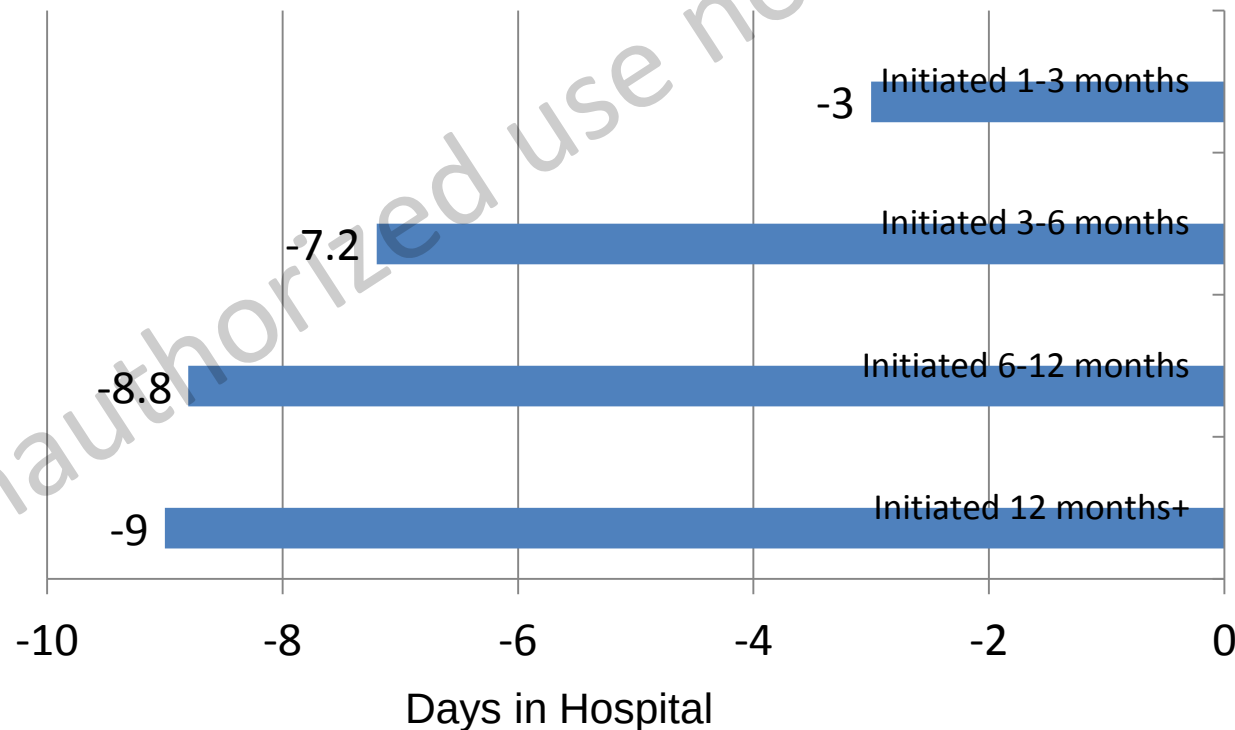
Places of Care – MD Visits

- In last 90 days of life, # days spent in hospital
- Ontario: **16 days**
- Same Model



Places of Care – Home Care

- In last 90 days of life, # days spent in hospital
- Effect of palliative home care (SRC 95)



Conclusions

- 50% Ontarians die in an acute care settings & spend 16 days in hospital in last 3 months
- LOD/POC determined by health system factors
- Gap: likely not met with specialist care teams
- We can make a (big) difference through expansion of current community services

QUESTIONS?

Thank-you!

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EXTRA SLIDES

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Results – Last 90 days

- Last 90 days (on average):
 - 34 days in an institution
 - 10 days in Acute Care (2 in ALC)
 - 19 days in LTC
 - 3 in CCC
 - 2 in ER
 - 16 days in acute care institutions

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Days in Institution; Home care

- 2 sets of models: 1 for home care recipients (half of decedents), 1 for all decedents

Reference Value	N	Parameter Variable	N	Hazard Ratio	p-value
Ages <19	464	19-44	2 296	-0.45138	0.7146
		45-54	6 275	-2.32849	0.0472
		55-64	14 767	-3.29047	0.0044
		65-74	24 195	-3.59789	0.0018
		75-84	41 229	-3.96172	0.0006
		85-94	38 850	-5.47635	<.0001
		95+	6 150	-7.96667	<.0001
Sex - Male	65 155	Sex - Female	69 073	0.43558	0.0008
Income Quintile - Lowest	29 354	Low	28 306	-0.36834	0.0587
		Middle	26 006	-0.64867	0.0012
		High	25 681	-0.63126	0.0017
		Highest	24 273	-1.10104	<.0001
Rurality	19 556	Urban resident	114 672	1.03007	<.0001

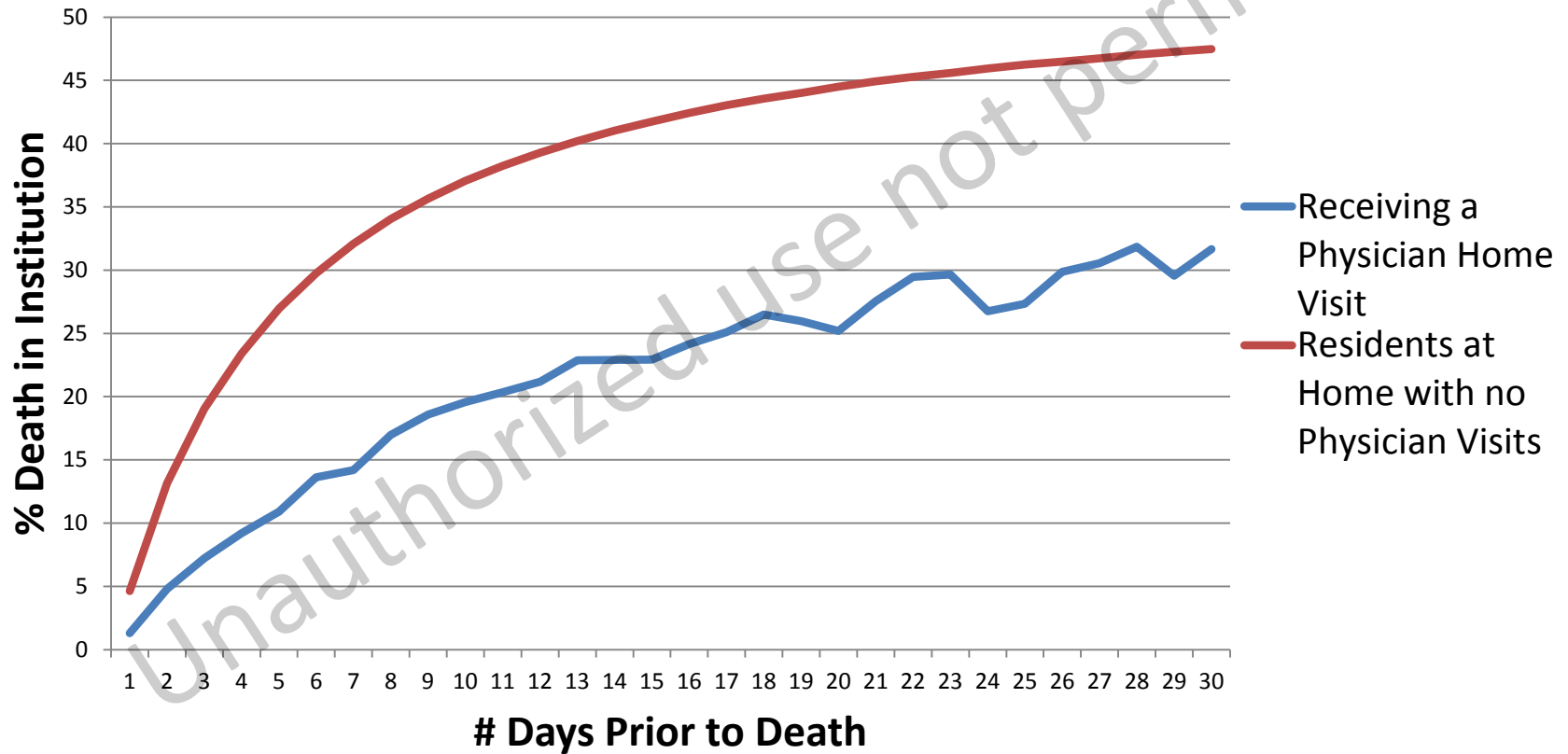
Results

Reference Value	N	Parameter Variable	N	Hazard Ratio	p-value
# of Chronic Conditions - 0 to 2	23 303	3	20 811	2.11398	<.0001
		4	22 527	3.17468	<.0001
		5	21 306	3.88783	<.0001
		6	18 273	4.91079	<.0001
		7+	28 008	6.45182	<.0001
Primary Care Model - Rostered	105 816	Unrostered	28 412	1.25892	<.0001
Never used LTC in past 90 days	119 280	Used LTC at some point in	14 948	-4.29309	<.0001
Does not have cancer	55 201	Has cancer	79 027	0.80111	<.0001

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Physician home visits

Effect of Physician Home Visits by Day of Visit Prior to Death



Palliative Care Billing Codes

Appendix 1: Codes used to identify the provision of palliative care

- 1) Outpatient physician billings for palliative care. Provision of services by physicians as captured in the Ontario Health Insurance Plan (OHIP) database through the following codes:
 - A945: Special palliative care consultation in clinic, office, home; minimum 50 minutes
 - K023: Palliative care support in half hour increments; may be used to add time for longer consultations following a code for A945, or for any PC support visit. Exclude if patient is in hospital, long-term care (LTC), complex continuing care (CCC), or rehabilitation
 - G512: Weekly care case management from palliative primary care management (Mon-Sun)
 - G511: Telephone services to patient receiving PC at home (max 2/week)
 - B966: Travel premium for palliative care (billed with B998/B996)
 - B998: Home visit for palliative care between 07:00 and 24:00
 - B997: Home visit for palliative care between 24:00 and 07:00
 - K700: Palliative care out-patient case conference
- 2) Home based physician home visits for palliative care, using the following subset of outpatient physician care from OHIP:
 - Travel codes B966, B997, B998 and telephone consult code G511

3) Hospital admissions:

a) Data source: Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD):

- ICD-10 Code: Z51.5 and ICD-9 Code: V66.7: Any diagnosis of “palliative” as the main or contributing reason for admission
- PATSERV = 58: main patient service of “palliative care” was responsible for care
- PRVSERV[1-8] or INSERV[1-20] = 00121: “palliative medicine” was a provider who provided service, or an intervention service code of palliative medicine was provided.

b) Data source: OHIP billing codes for inpatient physician services:

- C945: Special palliative care consult (minimum 50 minutes); K023 may be used to add time for longer consultations following a code for C945, or may be billed alone;
- C882: Family medicine palliative care, non-emergency (routine) hospital inpatient service
- C982: Specialist palliative care, non-emergency (routine) hospital inpatient service;
- E083: Subsequent visit and palliative care visit by the most responsible physician premium; following: C982 or C882 or C122, C123, C124, C142, C143
- K023: Palliative care support in half hour increments, if patient was in hospital during date of claim

4) Emergency room visits using the National Ambulatory Care Reporting System (NACRS):

- PRVSERV [1-10] = 00121: Provider service code of palliative medicine
- CONSULTSERV1 to CONSULTSERV3 = 00121: Consult service of palliative medicine was called

5) Home Care:

a) Data source: Resident Assessment Instrument - Contact Assessment (RAI-CA):

- B2c = 1: Referral to initiate/continue palliative care
- B4 = 12: Expected place of stay during service of Hospice facility or Palliative Care Unit

b) Data source: RAI-Home Care:

- P2S = 1 or 2: Hospice care was provided with complete or partial adherence
- CC3f goals of care = palliative care

c) Data source: Home Care Database (HCD):

- SRC_admission = 95: Service recipient code (i.e., classification) of end of life on admission
- Service_RPC = 95: Service care goal of end of life; patient provided service under end of life designation
- Residence_type = 2000: Staying in hospice or palliative care unit while receiving service
- SRC_discharge = 95: Service recipient code of end of life on discharge

6) Long-Term Care (LTC) facilities

a) Data source: OHIP billing codes:

- K023: Palliative care support in half hour increments if delivered in LTC
- W872: Family physician palliative care subsequent visit
- W972: Specialist physician palliative care subsequent visit

b) Data source: Continuing Care Reporting System (CCRS):

- CCRS_P1AO = 1: Received hospice care in last 14 days

7) Complex Continuing Care (CCC)

a) Data source: OHIP billing codes:

- K023: Palliative care support in half hour increments if delivered in CCC
- W882: Family physician palliative care subsequent visit
- W982: Specialist physician palliative care subsequent visit

b) Data source: Continuing Care Reporting System (CCRS):

- CCRS_P1AO = 1: Received hospice care in last 14 days