Inequalities in end-of-life care for cancer patients:
Do they exist and what contributes to them?
The literature says…
The next steps are…

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Background

- Previous work
  - Age differences found:
    - PCP referral (older ages less likely)
    - Out of hospital death (older ages more likely)
    - Home visits (older ages more likely)
    - ED visits (older age groups make fewer visits)
    - Transitions following PCP admission (fewer with age).

- Sex differences:
  - Out of hospital death (females more likely)
  - Home visits (females more likely)
  - ED visits (females make fewer visits)
  - Transitions following PCP admission (fewer among females).

New Study: Inequalities

Objectives

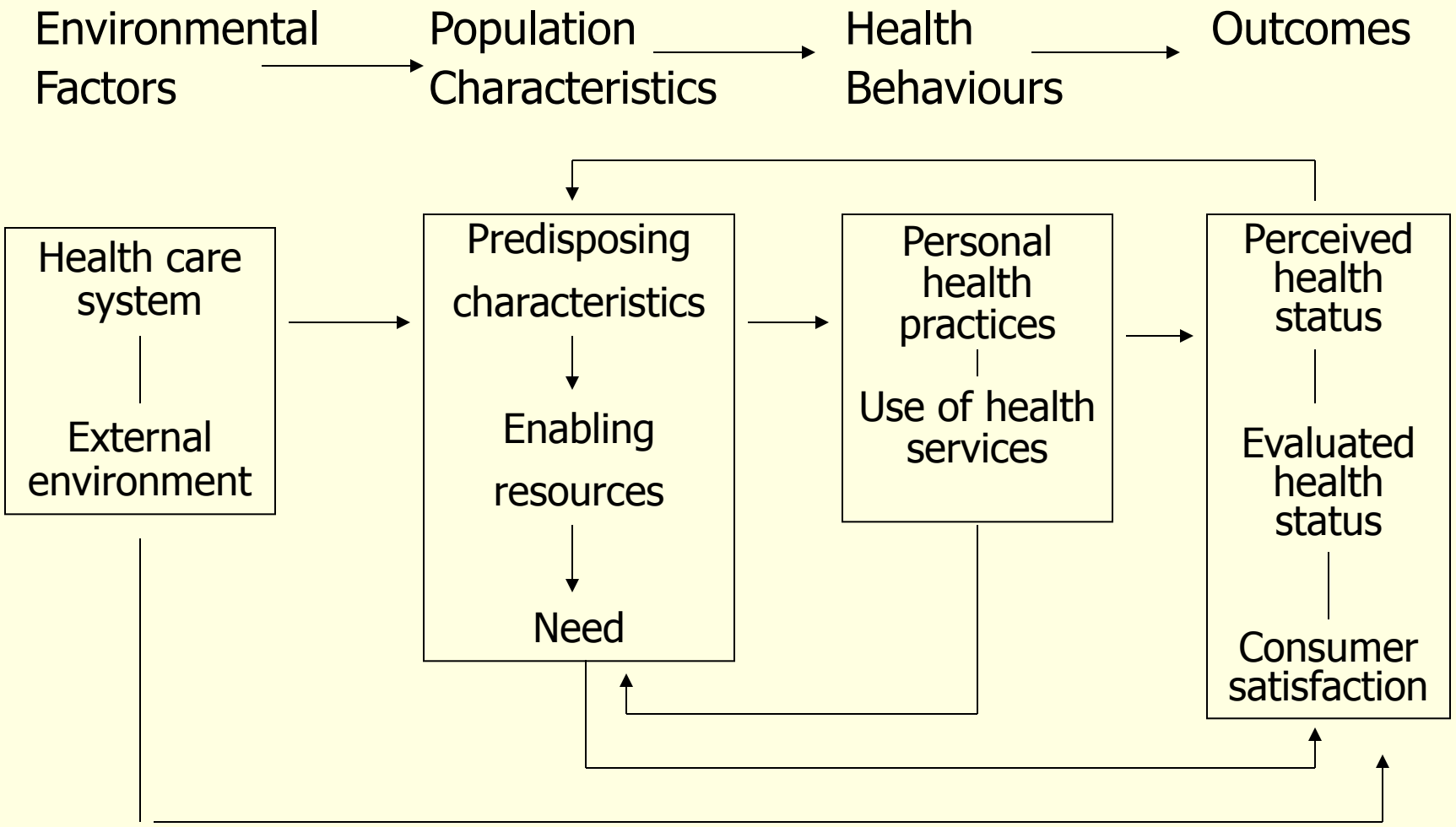
Among cancer patients during the end of life …

1. To examine health service utilization inequalities & health care outcomes related to age and gender
2. To identify population characteristics & health care system factors contributing to these inequalities.

Guiding conceptual models

- Bacquet et al. A model for conducting research on cancer disparities or inequalities
  - Four components:
    - Surveillance
    - Explanatory research
    - Intervention research
    - Translation/application of research results
- Andersen's conceptual model of health service utilization
  - Guide the explanatory phase

Andersen's model of health service utilization



Method

Design

- Retrospective, population based
  - Administrative health data & Statistics Canada information

Subjects

- All adult cancer deaths 1998-2003
  - (N=14,426)
  - All with confirmed cancer diagnosis & Nova Scotia health card number

Data

Level 1 (individual level)

- NS Vital Statistics
- QEII Oncology Information System (OPIS)
  - Cancer registry, radiation, oncology
- CDHA & CBDHA Palliative Care Programs
- NS Continuing Care, SEAscape
- NS Medical Services Insurance Physician Services
- Hospital discharge data for NS (CIHI)

Level 2 (ecological level)

- 2001 Statistics Canada census information
- Provincial FP & LTC bed density

Outcomes

Realized health behaviours

- Use of provincially funded health services* (realized access)
  - Palliative care program registration
  - FP & specialty visits
  - Home care use (limited to 2003)

End of life outcomes

- Location of death – 2 definitions
- Days out of hospital* (inpatient days)

Analysis

- HNLM Hierarchical nonlinear modeling
  - Recognizes the clustering nature of the data
  - Individuals living within a region (e.g. dissemination area or neighbourhood)
- Individual level one data
  - the patient (demographics, need, services)
- Ecological level two data
  - the ’neighbourhood’ (census info)

Inequalities

PCP admission

- Limited to subjects residing in CDHA & CBDHA (n=7511)
- Focus on age and sex

Results

- 66% admitted to program
- 63% of males; 68% of females
- Admission by age:
  - 79% of subjects < 65 yrs
  - 70% of those 65-74 yrs
  - 62% of those 75-84 yrs
  - 44% of those 85+ yrs

Odds of being admitted to the PCP

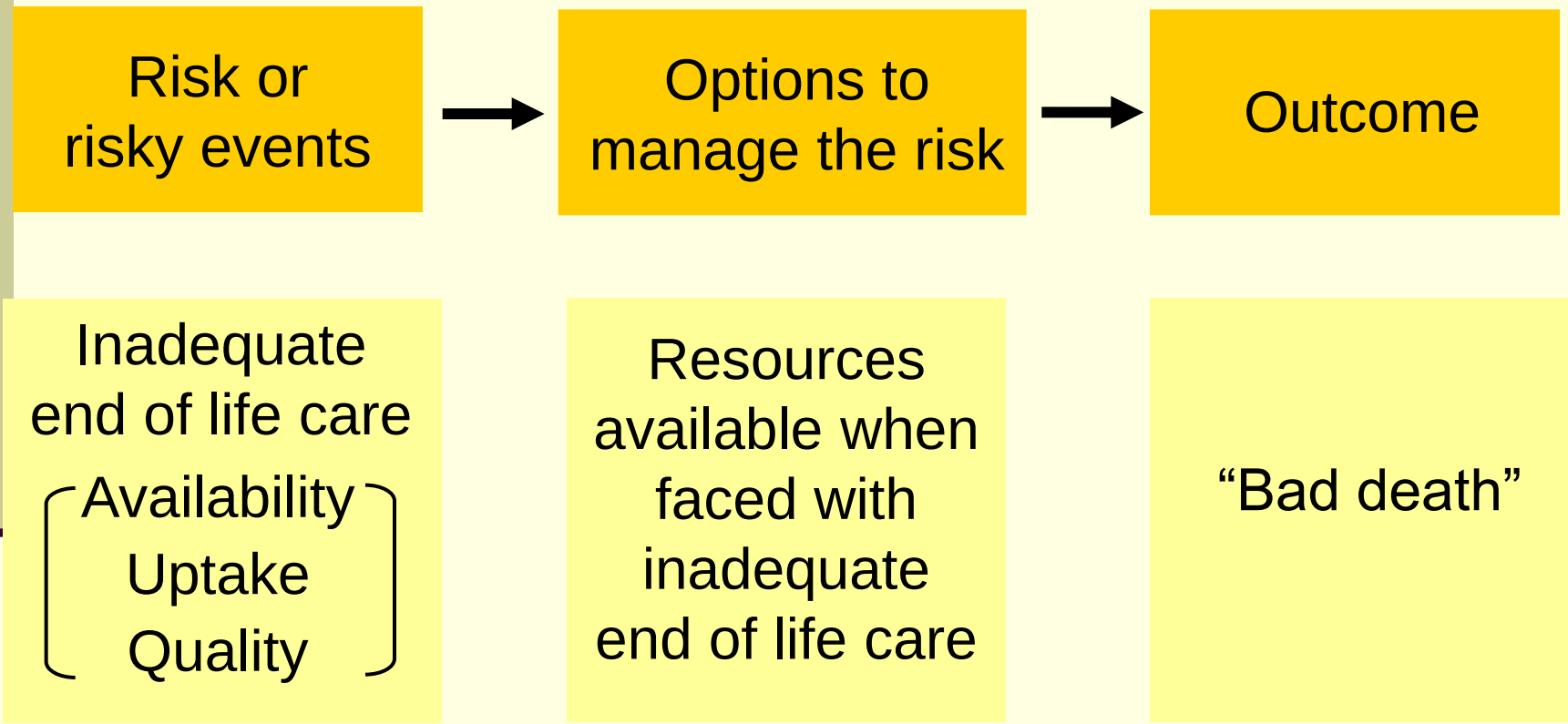
Characteristic	Odds Ratio (95% CI)	
	Unadjusted	Adjusted*
Age (vs < 65 yrs)		
65-74	0.6 (0.5, 0.7)	0.8 (0.7, 0.9)
75-84	0.4 (0.4, 0.5)	0.7 (0.6, 0.8)
85+	0.2 (0.2, 0.2)	0.4 (0.3, 0.5)
Sex (vs female)		
Male	0.8 (0.8, 0.9)	0.8 (0.7,0.9)

* Adjusted for:
Level 1: cancer type, co-morbidities, LTC resident, chemotherapy visit, radiotherapy, distance to closest cancer centre, survival, hospital in-patient days, total physician visits
Level 2: urban/rural, income, francophone, visible minority (excluding black)

Fit with Yukiko's Equity? Framework

- Inequality is evident, but is it an inequity?

Tool 1: the risk chain model



Inequities in end of life (the particularly vulnerable)

- When some people have increased risk for inadequate end of life care (in terms of availability, uptake, and quality) beyond individual control

- When people have less option to manage the risk of inadequate end of life care (e.g., can they complain? Do they have resources to claim what they deserve?)

Inequities in end of life (the particularly vulnerable)

	Those who have increased risk for inadequate end of life care beyond individual control	Those who have less option to manage the risk of inadequate end of life care
The elderly	X	X
Children		
Women (?sex)	X	X
People with low SES		
People in rural areas		
Cultural, religious, and ethnic minorities		

Inequities in end of life (the particularly vulnerable)

	Those who have increased risk for inadequate end of life care beyond individual control (Availability, uptake and quality)	Those who have less option to manage the risk of inadequate end of life care
The elderly	More co-morbidities	Lack of caregiver
	Provider bias in non-referral	Middle/Lower income
	Lack of elderly oriented services e.g. in LTC	Cognitively impaired
	Individual choice	Lack of extended health care insurance

Inequities in end of life (the particularly vulnerable)

	Those who have increased risk for inadequate end of life care beyond individual control	Evidence indicating possible increased risk for inadequate end of life care	Those who have less option to manage the risk of inadequate end of life care
The elderly	X	Referral to PCP 65-74yr AOR = 0.8 75-84yr AOR = 0.7 85+ AOR = 0.4	
Women	X	no	
Men		Referral to PCP AOR = 0.8	

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Men		Referral to PCP AOR = 0.8	
People with low SES	X	Referral to PCP Low-middle AOR = 0.7	X
People in rural areas	X	AOR= 0.8	X
Cultural, religious, and ethnic minorities	X	Francophone AOR=0.6	X

Literature Review: Age

- Trend is that the elderly are the least likely to access specialized PC services, and later if accessed
- Elderly also less likely to die at home, more likely to die in hospital or LTC
- Needs may differ but not clear: some evidence that symptom experience less in elderly, but co-morbidities greater with special attention on cognitive ability and relation to decision-making
- Lack of home caregiver for elderly substantial barrier to home based EOLC
- Exploration of provider bias needed

Literature Review: Sex

- There is a lack of sex specific research on access to EOLC that controls for caregiver issues
- One US study controlling for co-resident support found that men were less likely to receive formal or informal care in last year of life
- Some evidence that men and women have different perspectives on desired location of care
- Women may receive more “comfort oriented care” and men more “aggressive care”, but preferences also may differ
- Possible provider “gender” bias in care provision

Discussion

- Where do we go from here? (grant renewal)

Future Directions

- Biggest gap is estimate of “need”
- We require age and gender specific data on utilization and outcome
- Also, require age and gender specific data on decision-making/choices

- In moving toward a prospective study we might first consider a “mortality follow back survey” approach