



Institute of Health Policy, Management & Evaluation
UNIVERSITY OF TORONTO

Health Care Utilization Trajectories Revisited: Implications for Insurance Markets

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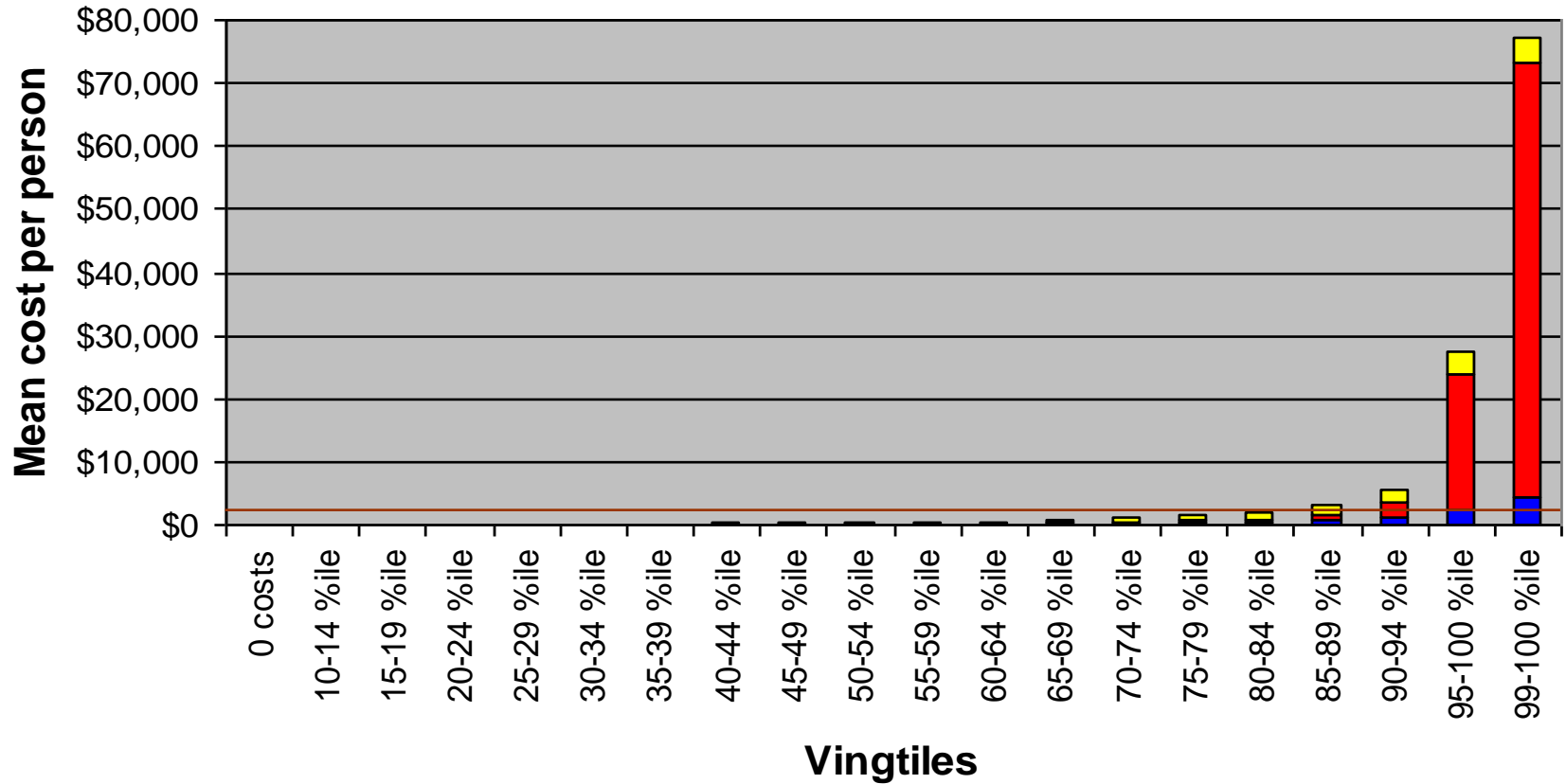
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In Previous CAHSPR Meetings:

- We analyzed:
 - how health expenditures are distributed among Manitobans based on total and sub-sector costs
 - the extent to which this variation can be explained by age and sex
 - the stability of these patterns of health expenditures over time (transition probabilities over 2 and 3-years)

Mean total expenditures by vingtiles in Manitoba, Fiscal 2005 to 2006

(Population Mean = \$2,203.95)



Physician Hospital Drug Population Mean

Recap: Distribution of health care costs

- Health care utilization patterns are highly skewed based on total and sub-sector expenditures from 1997 to 2006
- Minimal differences by age-sex groups and for the chronic disease population
 - the same pattern holds as approximately 80 to 90% of the population in every age-sex group use less than the mean of that group

Three-year transition based on total expenditures for the Manitoba full population, fiscal 2004 to fiscal 2006

= Stable
 = Modal Category if Off Diagonal
 # = Suppressed
 ? = Unknown

	2006: 0-69% (low)	2006: 70-89% (medium)	2006: 90-100 (high)	Died in 2005
2004 - 2005: (low-low)	90.15%	6.76%	2.97%	0.12%
2004 - 2005: (low-medium)	55.80%	34.83%	9.18%	0.19%
2004 - 2005: (low-high)	59.35%	21.17%	16.31%	3.16%
2004 - 2005: (medium-low)	72.29%	21.41%	5.41%	0.89%
2004 - 2005: (medium-medium)	12.29%	72.16%	15.05%	0.50%
2004 - 2005: (medium-high)	13.84%	44.58%	35.95%	5.63%
2004 - 2005: (high-low)	71.40%	14.25%	12.43%	1.91%
2004 - 2005: (high-medium)	12.57%	58.01%	27.52%	1.89%
2004 - 2005: (high-high)	5.97%	18.41%	67.70%	7.92%

Recap: 2 and 3-year stability

- Bottom 90% are stable
 - Top 10% are far more heterogeneous
- Different health care expenditures patterns for different types of health care services
- Different health care expenditures patterns for individuals from different (and at times within the same) age-sex groups
- Different health care expenditures patterns for the chronic disease population

Next step:

- Profile the characteristics of the high users by deriving health care utilization trajectories
- Examine the policy implications of these findings

Data source and methodologies

- Secondary analyses on attributable health care expenditures for each member of Manitoba population (Source: *Population Health Research Data Repository* in the Manitoba Centre for Health Policy)
- For 3 types of services:
 - Hospital
 - Medical Services
 - Drugs (all payers)
 - Used MCHP algorithms to identify those with Asthma, Diabetes

Derive trajectories for 2004-2006

- Divided each person in database for each year into:
 - Low (0-69th percentile)
 - Medium (70-89th percentile)
 - High (90-100th percentile)
 - Died in 2005
- 36 ($3 \times 4 \times 3 = 36$) mutually-exclusive categories
- Show ranks (total, by sub-categories)

Concentration rankings of most common trajectories for the full Manitoba population between 2004 and 2006

<i>Rank Overall</i>				<i>Pathway (2004 → 2005 → 2006)</i>
<i>Total</i>	<i>Physician</i>	<i>Hospital</i>	<i>R_x</i>	
1st	1st	1st	1st	Low → Low → Low
2nd	5th		2nd	Medium → Medium → Medium
3rd	2nd			Medium → Low → Low
4th	3rd			Low → Low → Medium
5th	8th		3rd	High → High → High
6th	4th			Low → Medium → Low
7th		3rd		Low → Low → High
		2nd		High → Low → Low
	6th			Medium → Medium → Low
	7th			Low → Medium → Medium
	9th			Medium → Low → Medium

Concentration rankings - frequencies for all 20 age-sex groups, total expenditures, 2004 and 2006

Rank Overall	Pathway (2004 → 2005 → 2006)	Frequencies in 20 Age-Sex Groups	Concentration Rank out of 36 Categories
1st	Low → Low → Low	20	1stx20
2nd	Low → Low → Medium	20	2ndx8
			3rdx6
			4thx6
3rd	Medium → Low → Low	20	2ndx6
			3rdx13
			4thx1
4th	Low → Medium → Low	20	3rdx1
			4thx11
			5thx6
			6thx1

Concentration rankings, by service, all age-sex groups, 2004 and 2006

<i>Rank Overall</i>				<i>Pathway (2004 → 2005 → 2006)</i>
<i>Total</i>	<i>Physician</i>	<i>Hospital</i>	<i>R_x</i>	
1st	1st	1st	1st	Low → Low → Low
2nd	3rd	6th	4th	Low → Low → Medium
3rd	2nd	5th	3rd	Medium → Low → Low
4th	4th	7th	6th	Low → Medium → Low
5th	9th		5th	Medium → Medium → Medium
6th	5th	10th	7th	Medium → Medium → Low
7th	10th	2nd	10th	High → Low → Low
8th	6th	8th	8th	Low → Medium → Medium
9th	8th	3rd		Low → Low → High
10th	11th		2nd	High → High → High
11th	12th	4th		Low → High → Low
12th	7th	9th	11th	Medium → Low → Medium
13th				High → Medium → Medium
14th	13th		9th	Low → Low → Died in 2005
		11th		Low → High → Died in 2005

Overall findings re: Trajectories

- 80% of the Manitoba full population fall into only 3 to 14 of the 36 possible trajectories (depending on service type and age-sex group)
- Consistently-low trajectory always the most common

Trajectories for High Users?

- High users can be
 - consistently-high (3.13% of the full population)
 - highly-episodic (1.46% of the full population)
 - moderately-episodic (1.27% of the full population)
 - long-term high (1.43% of the full population)
 - end-of-life (0.60% of the full population)

Policy implications

- In competitive insurance markets, strong incentives for private insurers' to maximize profit at the expense of those who need health care
- May be managed through regulation
 - E.g., sickness funds (Belgium, Germany, Israel, the Netherlands, Switzerland, etc.)

How might insurers limit their costs?

- Cream skim potential clients who are likely to be profitable
- Particularly applicable to the consistently-low (Low → Low → Low) trajectory
 - Note: this is the most common trajectory
- And/or.....

Avoid unattractive prospective clients

- Refuse to sell them health insurance, impose exclusion clauses (e.g., pre-existing conditions), and/or charge them very high premiums
- Particularly applicable to those who fall into the
 - consistently-high (High → High → High)
 - long-term high, and end-of-life trajectories

Limit risk by implementing spending caps

- May also use co-payments and deductibles
- Particularly applicable to highly-episodic and moderately-episodic clients

Risk adjustment?

- In theory, could use risk adjustment
- In practice, methods not yet very effective
- Most people are relatively healthy (and hence relatively profitable)

A Canadian problem?

- Yes
- Not as much for “insured services for insured persons” (*Canada Health Act*)
- But even now, for some populations and some services

Canadian citizens/Permanent residents

- 1) Non-medically-necessary health care services that are not covered by provincial and territorial health insurance plans
- 2) Travel health insurance for those who want to be covered when they are outside of Canada

Non-Canadians

- 1) International students from foreign countries who are studying at Canadian schools on visas (e.g., the University Health Insurance Plan)
- 2) Travelers from other countries who are in Canada for business/professional reasons
- 3) Tourists from other countries who are in Canada for vacations

Potential problem?

- If we move to competitive models for financing (as opposed to single payer models)

Final thoughts: No magic bullet

- No 'one size fits all' policy that would maximize the scope of savings without jeopardizing service quality or leaving vulnerable individuals unprotected
- Particularly if 'savings' are from avoiding the high cost people

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