Comparing primary care payment models on chronic disease management and prevention: a scoping review

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Research Aim

To compare primary care payment models in their performance of preventive care and chronic disease management for middle-aged and older adults in Canada

Background

Canadian primary care is predominantly remunerated by fee-for-service (FFS), which centers around acute episodes of care and may thus be inadequate in meeting the needs of aging populations with chronic conditions.

Given that chronic illness accounts for the greatest disease burden in adults 45 and older, ensuring quality care earlier in mid-life will support healthy aging. Evidence suggests that organizational factors, such as payment models, have a strong influence over quality of care [1-4].

Very basic overview of common payment models:

Traditional FFS	Enhanced FFS	Capitation	Salary
Paid Fee-For-Service	Paid Fee-For-Service + Incentives	Paid per patient enrolled in their care + some FFS	Paid salary
Not multi-disciplinary	Not multi-disciplinary	Often multi-disciplinary	Highly multi-disciplinary
Variable $	Variable $	Mostly Fixed $	Fixed $

Due to intersecting vulnerabilities and complex care needs, primary care payment reforms will likely impact aging populations, so we must understand how payment models impact quality [5-6].

Methods

Search Strategy

- Databases: Ovid MEDLINE, CINAHL Plus, Academic Search Complete, and PsycINFO.
- Search themes: (1) payment models; AND (2) primary care; AND (3) Canada.
- Limited to: peer-reviewed, English-language articles published between Jan 1, 2000 - Dec 31, 2018.

Inclusion Criteria	Exclusion Criteria
1. Pertain to Canada 2. Examine primary care payment models 3. Quantitative or mixed-methods	1. Focus not on comparing effects of payment models on quality of care measures 2. Not clear which payment models were examined in comparison group(s) 3. Outcome measures not relevant to middle-age or older adults

Extraction → Quality Appraisal → Synthesis
1. Descriptive Overview
2. Rank Performance
3. Summarize Findings

Quality Assessment using the validated and reliable Effective Public Health Practice Project (EPHPP) tool [7].
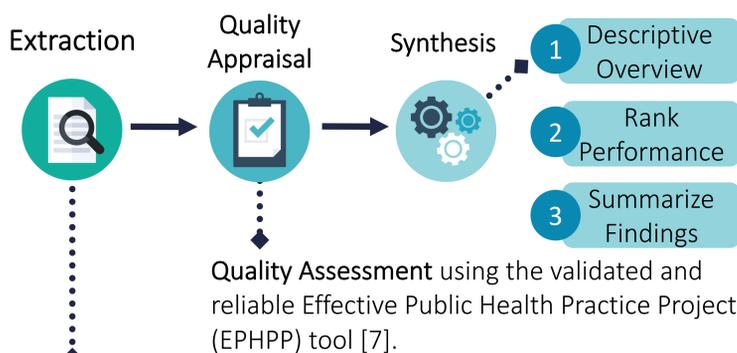
Extracted and charted study details, major findings, and relative performance of payment models on quantitative measures that fit the following criteria:

1. measure is of technical quality of preventive care or chronic disease management (CDM);
2. independent variable is, or is stratified by, model;
3. measure is relevant to adults 45 and older

Results

**Figure 1.** PRISMA chart. Search conducted on Jan 30, 2019.

Total identified articles (n=633)
→ Duplicates Removed (n=148)
Title/Abstract Screening (n=485)
→ Excluded (n=452)
Full-text studies assessed for eligibility (n=33)
→ Excluded (n=17)
Relevant articles included (n=16)

Appraisal: 3 strong • 6 moderate • 7 weak
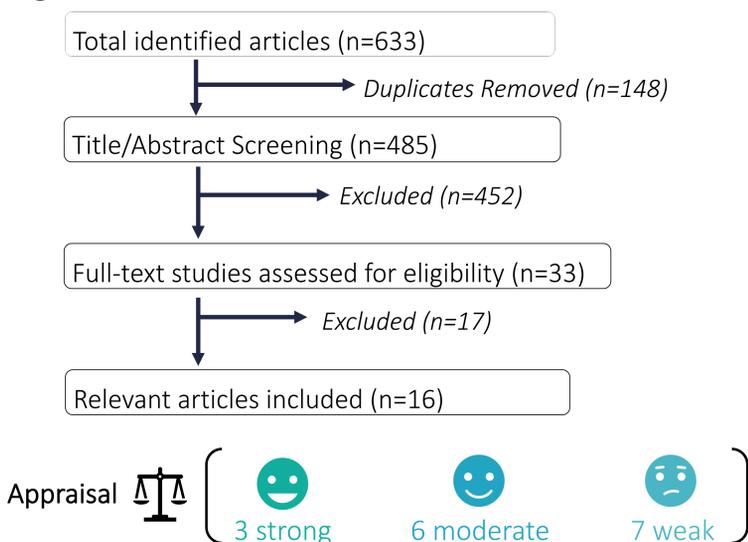
Table 1. Summary of Findings

Dimension of Care	# Studies	Summary of Relative Ranking
Preventive Care	😃😊🙁	
Cervical Cancer Screening	2 2 0	Cap ≈ E-FFS > T-FFS
Breast Cancer Screening	1 2 0	Cap > E-FFS > T-FFS
Colorectal Cancer Screening	1 2 0	Cap > E-FFS > T-FFS
General Preventive Care	0 1 3	Cap ≈ Salary > E-FFS ≈ T-FFS
Chronic Disease Management (CDM)		
Cardiovascular Disease	0 3 3	Cap ≈ E-FFS > Salary > T-FFS
Diabetes	1 3 3	Salary > Cap ≈ E-FFS > T-FFS
Asthma/COPD	1 1 0	E-FFS > Cap > T-FFS
Epilepsy	0 1 0	E-FFS > Cap ≈ T-FFS
General CDM	0 1 4	Salary > Cap > E-FFS ≈ T-FFS

Legend: # of Strong Studies; # of Moderate Studies; # of Weak Studies
Cap = Capitation; E-FFS = Enhanced FFS; T-FFS = Traditional FFS

Table 2. Overview of Included Studies

Study	Design	Quality Rating	Ref.
Thind et al. (2008)	Cross-sectional, physician survey	🙁 Weak	[8]
Russell et al. (2009)	Cross-sectional, chart audit	🙁 Weak	[9]
Tu et al. (2009)	Cross-sectional, chart audit	😊 Moderate	[10]
Dahrouge et al. (2010)	Cross-sectional, chart audit	🙁 Weak	[11]
McColl et al. (2010)	Cross-sectional, chart audit	🙁 Weak	[12]
Jaakkimainen et al. (2011)	Cross-Sectional & Pre-Post, admin data	😊 Moderate	[13]
Liddy et al. (2011)	Cross-sectional, chart audit	🙁 Weak	[14]
Dahrouge et al. (2011)	Cross-sectional, chart audit	🙁 Weak	[15]
Dahrouge et al. (2012)	Cross-sectional, chart audit	😊 Moderate	[16]
Beaulieu et al. (2013)	Cross-sectional, chart audit	🙁 Weak	[17]
Kiran et al. (2014)	Cross-sectional, admin data	😊 Moderate	[18]
To et al. (2015)	Cross-sectional & Longitudinal, admin data	😃 Strong	[19]
Kiran et al. (2015)	Cross-sectional & Longitudinal, admin data	😃 Strong	[20]
Pendrith et al. (2016)	Cross-sectional, chart audit	😊 Moderate	[21]
Laberge et al. (2017)	Cross-sectional, chart audit	😊 Moderate	[22]
Lofters et al. (2018)	Cross-sectional & Longitudinal, admin data	😃 Strong	[23]

Discussion

Fixed Payments Generally Perform Better

This review suggests that fixed payment models, like capitation and salary, may deliver higher quality preventive care. Superiority in chronic disease management was less clear.

Traditional-FFS consistently performed worst, though Enhanced-FFS was sometimes equivalent or superior to fixed models.

Fixed Payments Support Better Organization of Care

Fixed payment models foster organizational structures that align with what evidence suggests is best for aging populations, like:

- Smaller roster sizes
- Smaller practice sizes
- Multidisciplinary teams
- Longer appointment times

Performance often varied by organizational model, which further suggests that organizational features play a significant role.

Fixed Payments May Lead To More Equitable Care

Fixed payment models performed better in chronic disease management for persons with disabilities [12] and they provided more age- and gender-equity in care [11,15].

Because persons with disabilities are a 'bellwether group', this suggests fixed models support a system to meet the needs of populations with above average health care needs [24], such as older adults.

Therefore, Provinces May Benefit From Payment Reform

Few provinces have adopted alternative payment models, but a shift is strongly encouraged, but funding must be sufficient to support the best organizational structures.

Limitations

- This review was conducted as part of the author's MSc coursework, which precluded a second reviewer and thus reduces reliability of findings.
- Evidence weakened by largely cross-sectional designs.
- Did not distinguish between differences in organizational models (e.g. team vs non-team) other than payment type.
- Summarizing trends in ranking could not account for magnitude of performance differences between models.

Key Messages

$ Fixed payment models (salary and capitation) generally delivered higher quality preventive care, though it was less clear which was superior for chronic disease management. Traditional FFS consistently performed worst.

Fixed-payment models foster an organizational structure that better supports quality chronic disease management, and a financial structure that incentivizes prevention.

High-quality evidence on payment reform is lacking. To improve the evidence base, natural policy experiments should be conducted prospectively.

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