

Health system drivers of hospital medicine in Canada

Systematic review

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Abstract

Objective To identify the underlying systemic drivers of the development and ongoing expansion of hospitalist programs in Canada.

Data sources MEDLINE and Google Scholar were searched using combinations of the terms *hospitalist*, *hospital medicine*, and *Canada*.

Study selection All publications that addressed the study question, including review articles, original research, editorials, commentaries, and letters or news articles, were included in the review.

Synthesis Constant comparative methodology was used to analyze and code the articles and to synthesize the identified codes into broader themes. Three broad categories were identified: physician-related drivers, health system-related drivers, and patient-related drivers. Within each category, we identified a number of drivers.

Conclusion Many drivers have been cited in the literature as reasons behind the emergence and growth of the hospitalist model in the Canadian health care system. While their interplay makes simple cause-and-effect conclusions difficult, these drivers demonstrate that hospitalist programs in Canada have developed in response to a complex set of provider, system, and patient factors.

EDITOR'S KEY POINTS

- This study aimed to identify some of the driving factors in the development and ongoing expansion of hospitalist programs in Canada. Three broad categories of drivers were identified: physician-related drivers, health system-related drivers, and patient-related drivers.
- Physician-related drivers included physician perceptions, preferences, and attitudes; behaviour; demographic changes; and financial considerations. System-related drivers included health human resources, health system performance, and system complexity. Patient-related drivers included increasing numbers of unattached patients and patients' increasing medical complexity and age.
- The multitude of drivers, and the complex interplay among them, suggests that simple interventions are unlikely to reverse the trend of health care institutions adopting hospitalist models. As a result, the number of hospital medicine programs across Canada will likely continue to grow in spite of the reluctance of some practitioners and relatively few published studies on the clinical effectiveness of such models in the Canadian context.

This article has been peer reviewed.
Can Fam Physician 2013;59:762-7

Facteurs du système de santé qui favorisent la médecine hospitalière au Canada

Revue systématique

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Résumé

Objectif Identifier les facteurs systémiques favorisant le développement et l'expansion continue des programmes pour hospitalistes au Canada.

Sources des données On a consulté MEDLINE et Google Scholar en combinant les rubriques *hospitalist*, *hospital medicine* et *Canada*.

Sélection des études On a retenu toutes les publications traitant du sujet à l'étude, y compris des articles de revues, des recherches originales, des éditoriaux, des commentaires et des lettres ou des articles nouvelles.

Synthèse On a utilisé une méthodologie comparative constante pour analyser et coder les articles et pour condenser les codes identifiés en thèmes plus larges. Trois grandes catégories ont été identifiées: les facteurs liés aux médecins, ceux liés au système de santé et ceux liés aux patients. Dans chaque catégorie, nous avons identifié un certain nombre de facteurs favorables.

Conclusion Plusieurs facteurs ont été cités dans la littérature pour expliquer l'émergence et la croissance du modèle hospitaliste dans le système de santé canadien. Même si on peut difficilement conclure à une relation de cause à effet en raison des interactions entre ces facteurs, il est clair que les programmes pour hospitalistes se sont développés en réponse à un ensemble complexe de facteurs liés aux soignants, au système et aux patients.

POINTS DE REPÈRE DU RÉDACTEUR

- Cette étude avait pour but d'identifier les facteurs responsables du développement et de la croissance des programmes pour hospitalistes au Canada. Trois grandes catégories ont été identifiées: les facteurs liés aux médecins, ceux liés au système de santé et ceux liés aux patients.
- Parmi les facteurs liés aux médecins, mentionnons les perceptions, préférences et attitudes des médecins; les changements démographiques; et les considérations financières. Les facteurs liés au système comprenaient les ressources humaines en santé, la performance du système de santé et la complexité du système. Les facteurs liés aux patients incluaient le nombre croissant de patients sans médecin, leur condition médicale plus complexe et leur plus grand âge.
- La multitude des facteurs en jeu et la complexité de leurs interactions laissent croire qu'il est peu probable que la tendance actuelle voulant que les institutions de soins de santé adoptent les modèles de type hospitaliste soit renversée. Il est donc probable que le nombre des programmes de médecine hospitalière continuera à croître au Canada malgré les réticences de certains praticiens et le nombre relativement faible de publications sur l'efficacité de ce type de modèle dans le contexte canadien.

Cet article a fait l'objet d'une révision par des pairs.
Can Fam Physician 2013;59:762-7

The Canadian health care system has witnessed a substantial change in the delivery of inpatient care over the past decade. In an increasing number of institutions, hospitalists are replacing traditional providers.^{1,2} Early surveys revealed that by 2008, more than 100 hospitalist programs had been identified in various jurisdictions in Canada.¹ Using such data, Soong et al compared the characteristics of hospitalists in Canada and the United States, demonstrating several differences in training background and scope of practice.³ Other reviews have outlined the unique challenges of hospital medicine programs operating within the Canadian health care system.²

Most commentaries have identified the increase in “unattached” patients as the main driver behind the development of this model.^{4,5} However, important changes in complex adaptive systems, such as health care, are the result of multiple factors.⁶ In such systems, small changes in one component might lead to large and unintended consequences in other parts. This review aims to identify the underlying systemic drivers of the development and ongoing expansion of hospitalist programs in Canada.

DATA SOURCES

We searched the literature using combinations of the terms *hospitalist*, *hospital medicine*, and *Canada* in MEDLINE and Google Scholar. The MEDLINE search was limited to the period from 1966 to 2010. We also searched references for additional information. Articles were examined for identifying reasons for development of hospitalist programs. We analyzed all types of publications using the constant comparative methodology. Both authors reviewed the articles and coded the texts, which were subsequently grouped into broader themes. The Research Ethics Board of Lakeridge Health approved the study.

Study selection

Our MEDLINE search identified 42 results. Based on the review of abstracts, 23 entries were selected for further analysis. The Google Scholar search yielded 1920 results. The search of the first 20 pages of results yielded 3 additional entries, and 3 papers were identified from a review of references. We subsequently analyzed 29 articles and excluded 12 that did not address the study question. The remaining 17 entries in the review include 5 commentaries,⁷⁻¹¹ 4 review articles,^{5,12-14} 3 original research articles,¹⁵⁻¹⁷ 2 news items or analysis,^{4,18} 2 letters to the editor,^{19,20} and 1 editorial²¹ (Table 1).^{4,5,7-21}

SYNTHESIS

Box 1^{4,5,7-21} summarizes the results of thematic analysis. Most entries are either from publications targeted

Table 1. Articles included in the review

| REFERENCE | TYPE OF PUBLICATION | PHYSICIAN FACTORS | SYSTEM FACTORS | PATIENT FACTORS |
|--------------------------------------|---------------------|-------------------|----------------|-----------------|
| Samoil, ⁷ 2008 | Commentary | X | X | X |
| Samoil, ⁸ 2008 | Commentary | X | X | |
| Wilson, ⁹ 2008 | Commentary | X | | X |
| Maskey, ¹⁰ 2008 | Commentary | X | X | X |
| Goldbloom, ¹¹ 2000 | Commentary | | X | X |
| Beck et al, ¹² 2008 | Review | | X | |
| Lee, ¹³ 2008 | Review | X | X | X |
| Day and MacMillan, ⁵ 2001 | Review | X | X | X |
| CFPC, ¹⁴ 2003 | Review | X | X | X |
| Chan, ¹⁵ 2002 | Original research | X | X | X |
| Dwight et al, ¹⁶ 2004 | Original research | | X | |
| Abenham et al, ¹⁷ 2000 | Original research | | X | X |
| Kermode-Scott, ¹⁸ 1999 | News | X | | |
| Sullivan, ⁴ 2000 | News | X | X | X |
| Crosby, ¹⁹ 2002 | Letter | X | X | |
| Lancashire et al, ²⁰ 2003 | Letter | X | | X |
| Borkenhagen, ²¹ 2002 | Editorial | X | X | X |

CFPC—College of Family Physicians of Canada.

to Canadian FPs or address the study question from a primary care perspective. Our systematic review uncovered a large number of drivers for the development of the hospitalist model. We identified 3 broad categories: physician-related factors, health system-related factors, and patient-related factors.

Physician-related drivers

Our review found that several provider-related factors contributed to the development of the hospitalist model: physician perceptions, preferences, and attitudes; physician behaviour; demographic changes; and financial considerations.

Perceptions, preferences, and attitudes. We identified the perception of increasing workload and shortage of time as a dominant theme in our analysis. According to many authors, primary care physicians are faced with increasing clinical and nonclinical duties in their offices, leaving them with little time to attend to patients in other settings. A number of surveys have identified workload as an important concern for physicians, with many physicians describing their workloads as heavier than desired²²⁻²⁴ and a quality concern.²⁵

We also identified a preference for nonhospital work among FPs. Some authors suggested that many FPs did

Box 1. Emerging themes identified in the literature as driving forces behind development of hospitalist programs in Canada

Physician-related drivers

- Physician workload, lack of time^{4,5,8-10,14,19}
- Choosing to limit scope of practice, work preferences^{5,7,8,13,18,19,21}
- Physician remuneration^{4,5,13,14,20}
- Aging physicians^{4,5,14,15}
- Maintenance of professional skills and competencies in acute care^{5,14,15}
- Work satisfaction^{13,14,20}
- Subspecialization^{9,13,15}
- Evolving sex distribution in physician work force^{5,15}
- Lifestyle preferences, work-life balance, quality-of-life concerns^{5,15}
- Opportunities to practise in hospitals¹⁴

System-related drivers

- Reductions in physician work force^{4,5,7,13-15,19,21}
- Fewer students and residents, lower medical school enrolment^{4,5,11,16,17}
- System efficiency, resource utilization^{5,10,14}
- Duty-hour reductions of residents and medical trainees in teaching hospitals^{11,12,16}
- Larger and more complex hospitals^{8,13,14}
- Increasing health care system costs, need for cost reductions^{10,13}
- More paperwork⁸
- Advanced medical technology¹³
- Quality of care⁵
- Urbanization of society⁷

Patient-related drivers

- Increasing numbers of admissions, increasing orphaned patients^{4,5,13,14,17,20,21}
- Medical complexity of patients^{4,5,9,11,13-15}
- Increasing patient and population age^{9,13}
- Patient expectations^{5,10}

not enjoy providing inpatient care and found it to be a source of frustration and stress. Association with a hospital has been shown to be negatively correlated with career satisfaction,^{24,26} and 35% to 70% of respondents in one study were “very uninterested/uninterested” in providing hospital care.²⁷

Finally, our review suggested a shifting attitude toward work-life balance. Physicians are assigning higher priority to family and quality of life, and such attitudes might be particularly prevalent among medical graduates entering family medicine. For example, a 10-year longitudinal study of medical graduates in the United Kingdom showed that for 81% of those who switched from their initial specialty career choice into family medicine, “hours of work and working conditions” were the overwhelming reasons.²⁸

Behaviour. Some authors suggested that hospitalists became necessary when many FPs limited their scope of practice while reducing the total of hours of patient care. Surveys have demonstrated a drop in the percentage of FPs providing hospital care over time.²⁹⁻³¹ From 2007 to 2010, roughly 1 in 10 FPs had reduced their

scope of practice or were planning to do so in the ensuing 2 years.^{29,30} Younger and middle-aged FPs have also been found to carry smaller workloads than their same-aged peers did 10 years earlier,^{32,33} and such reductions in workload might be prevalent among physicians in all age groups.³⁴

We also uncovered a negative association between the need for ongoing maintenance of skills in acute care and involvement with the hospital. For many practitioners, maintaining clinical skills in both primary and acute care medicine is increasingly difficult. This might explain why recent graduates (who are presumably more “up to date”) are more likely to be involved in hospital care, and why FPs with professional designations and advanced training appear to have broader scopes of practice.³⁵

Finally, our review suggested that there is a general trend toward subspecialization in family medicine. While some FPs are limiting their practices to outpatient primary care, others are focusing on acute care or obstetrics.¹⁵ Family medicine training programs already provide a host of specialized training fellowships, and in the 2010 National Physician Survey, 30.5% of FP and GP respondents identified themselves as having focused practices.³⁰

Demographic changes. Many authors in our review commented on the relationship between changing physician demographics and the emergence of hospitalist programs. The Canadian physician work force is aging. For example, the percentage of Ontario FPs aged 45 or older increased from 50% in 1997⁵ to 67% in 2010.³⁶ Another trend has been a change in the sex distribution of Canadian physicians. From 1990 to 2009, the percentage of women entering medical schools increased from 44.0% to 57.9%.³⁷ Once in practice, women have 21% lower practice activity than their male counterparts.³⁸ Such demographic changes could affect human resource planning and the manner in which physician work environments are organized.^{32,38,39}

Financial considerations. Finally, a large number of articles identified inadequate remuneration for inpatient care as a factor in the growth of hospital medicine. The effect of remuneration on physician practice patterns has previously been described.⁴⁰ The fee-for-service structure in most Canadian jurisdictions does not provide adequate coverage for inpatient care,⁵ providing a disincentive for GPs.

System-related drivers

Our review revealed several themes that were broadly categorized as health system drivers: health system human resources, system performance, and system complexity.

Health system human resources. Many authors identified changes in physician supply as an important

contributor to the changing hospital care model. From 1993 to 2000, Canada witnessed a 5.1% drop in the physician-to-population ratio.³⁸ During this time (1994 to 2003), the percentage of Canadian medical graduates who chose family medicine declined from 32.4% to 24.8%.⁴¹ In a 2009 survey, only 28.1% of entering medical students selected family medicine as a career.⁴² Additionally, we identified reductions in resident duty hours to be important in the development of adult and pediatric hospitalist programs in large, academic teaching hospitals.

Health system performance. Our study suggested that a higher need for efficiency and cost reduction contributed to the development of hospital medicine in Canada. Over the past 2 decades, there has been a steady decline in the number of acute hospital beds^{14,43} despite an increase in occupancy rates⁴³ and escalating costs.⁴⁴ This has necessitated unprecedented levels of efficiency and a focus on cost containment, and it has been suggested that the hospitalist model might provide a template for achieving better efficiencies and cost reduction in the system.²

Some authors also commented that hospitalists could improve quality by developing clinical expertise and a deeper knowledge of acute medicine.⁴⁵ Because hospitalists spend most of their time in the acute care setting, they could develop a deep knowledge of the organizational processes and have a better understanding of institutional policies, procedures, and priorities. As hospitals are particularly being subjected to increased levels of accountability for quality and safety of care,⁴⁴ hospitalists might emerge as natural partners in advancing the quality and safety agenda of acute care organizations.

System complexity. We identified a number of references to various aspects of an increasingly complex health care system: larger health care institutions, the need for more documentation and paperwork, and more advanced technologies. The higher system complexity places more demands on the traditional GP's time and expertise, resulting in the "disengagement" of many physicians from hospital care and promoting the emergence of new players such as hospitalists.

Patient-related drivers

We identified 2 dominant patient-related factors: increasing numbers of "unattached" patients, and increasing age and medical complexity.

Increasing numbers of unattached patients. A dominant theme in our review was the unattached (or *orphaned*) patient phenomenon. Unattached patients either do not have FPs or their FPs do not have admitting hospital privileges. When such patients present to hospitals, the remaining FPs with privileges are required to accommodate a larger number of inpatients, resulting

in an increased workload and adding to already-overstretched schedules. It was estimated that in 2006, 5 million Canadians did not have family doctors⁴⁶; many authors believed hospitalist programs developed as a solution to this challenging problem.^{4,5,9,14}

Increasing medical complexity and age. Some observers suggested that the higher prevalence of chronic illnesses placed a higher demand on primary care physicians' time and expertise. As a result, many primary care physicians were no longer able to accommodate hospital-based work. Seniors (those aged 65 years and older) are the fastest growing segment of the Canadian population, with their number estimated to be 6.7 million by 2021.⁴⁷ Seventy-five percent of seniors have at least 1 chronic illness, and 42% suffer from 2 or more conditions.⁴⁸

DISCUSSION

Our qualitative analysis of the literature has uncovered a number of drivers behind the emergence of the hospitalist model in Canada. While some drivers pertain more to large academic urban areas (such as limitations on resident duty hours), others are more important in the community hospital setting (eg, concerns about workload and practice preferences for primary care providers).

Limitations

Our study has several limitations. First, we have been limited by the paucity of publications on the subject of hospitalist programs in the Canadian health care system. Although in our approach all sources of data (such as original studies, commentaries, and editorials) can provide valuable insights, it is possible that certain viewpoints are underrepresented in the evaluated literature owing to publication bias or other factors. Despite this, we encountered the emergence of many of the same themes, suggesting we might have reached saturation with our study sample.

Another potential limitation is the high focus on primary care in the literature. Previous surveys suggested that by far most hospitalists in Canada were trained as FPs.^{1,3} However, more recent evaluations suggest that in parts of the country, general internists are increasingly working as hospitalists in community hospitals.⁴⁹ Additionally, some general internists have been working as hospitalists in large urban academic centres as part of teaching units for decades.⁵⁰ Pediatricians have also been forming hospitalist programs in many children's hospitals. Our current review does not fully address the driving forces behind the adoption of the hospitalist model by general internists or pediatricians.

Finally, the complex relationships among many of the drivers identified in our work make simple

cause-and-effect conclusions difficult. For example, many observers identified physician shortage as a reason behind the withdrawal of many primary care physicians from hospitals. However, this might itself be the result of physician demographic changes or reduced medical school enrolment. Similarly, considerations for work-life balance, physician workload, increasing patient complexity, and the choice to limit scope of practice are all interrelated drivers that could contribute to fewer physicians participating in inpatient care.

Conclusion

While implementation of hospital medicine programs might be associated with considerable operational costs for many health care organizations, potential improvements in system efficiency might ultimately result in cost savings for the overall health care system. Regardless, the multitude of physician-, system-, and patient-related drivers, as well as the complex interplay among them, suggests that simple interventions (such as enhanced remuneration) are unlikely to reverse the trend of hospitalist model adoption by health care institutions. As a result, the number of hospital medicine programs across Canada will likely continue to grow in spite of the reluctance of some practitioners and relatively few published studies to date of the clinical effectiveness of such models in the Canadian context. 🌿

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Contributors

Dr Yousefi conceived of the study. **Mr Maslowski** conducted the literature search. Both authors reviewed the study material and participated in the thematic analysis and coding of concepts. Both authors contributed to the analysis and interpretation of findings, as well as to preparing the manuscript.

Competing interests

None declared

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