Characteristics of Hospitalists and Hospitalist Programs in the United States and Canada

Christine Soong, MD, Eddy Fan, MD, Eric E. Howell, MD, Robert J. Maloney, MD, Peter J. Pronovost, MD, PhD, David Wilton, MD, and Scott M. Wright, MD

Abstract

- **Objective:** To compare hospitalist physician and program characteristics in the United States and Canada.
- **Design:** Cross-sectional study using survey instruments.
- **Measurements:** Hospitalist characteristics included age, gender, residency training, international medical graduate status, part-time status, salary, and paid time off. Hospitalist program characteristics included age of program, hospital size, clinical and nonclinical services rendered, teaching activities, on-site night coverage of patients, program growth, and utilization of nurse practitioners, physician assistants, and case managers.
- **Results:** American hospitalists were predominantly internal medicine–trained (82%), whereas Canadian hospitalists were trained in family medicine (90%; \( P < 0.001 \)). American hospitalist groups were more involved with consultative work (98% vs. 59%; \( P < 0.001 \)), intensive care unit patient care (75% vs. 4%; \( P < 0.001 \)), rapid response team service (35% vs. 16%; \( P = 0.01 \)), and surgical inpatient comanagement (84% vs. 57%; \( P < 0.001 \)). However, American programs provided less pediatric care (12% vs. 31%; \( P < 0.001 \)) and psychiatric inpatient comanagement (2% vs. 51%; \( P < 0.001 \)) than programs in Canada. On-site evening coverage of inpatients was more prevalent among American versus Canadian hospitalist groups (51% vs. 30%; \( P = 0.01 \)).
- **Conclusion:** American and Canadian hospitalist physician and program characteristics appear to be different. These differences may allow for future studies to identify strategies and best practices for inpatient care.

More than a decade ago, the term “hospitalist” was used in the United States to describe a novel group of providers focused on delivering specialized inpatient care [1]. The rationale for hospitalists to serve as the primary model for inpatient care included increasing demands on primary care physicians, cost pressures on hospitals, and increasing volume and acuity of inpatient admissions [2]. Evidence of improved efficiency without detrimental effects on health care quality or patient satisfaction has promoted this growth [2,3]. In particular, studies have noted reduced readmission rates [4] and improved short-term mortality [5]. Data from the American Hospital Association indicate that 55% of hospitals with more than 200 beds have hospitalists [6]. The number of U.S. hospitalists today has grown to approximately 20,000 with a projected workforce of over 30,000 by 2010 [7].

Canadian physicians, like their American counterparts, have also been practicing as hospitalists before the term was coined [8]. One academic center in Canada initiated a hospitalist program in response to increased patient volumes as early as 1989 [9]. In contrast to the United States, the growth of hospitalists in Canada was accelerated by the shortage of family practitioners who customarily had been providing care to their own patients when hospitalized, resulting in increased numbers of unassigned “orphan” inpatients. Further, poor remuneration for inpatient services, increasing complexity and acuity of hospitalized patients, and reductions in the number of residency positions spurred the creation of inpatient specialists in community hospitals and, to a lesser extent, in academic centers [10–13].

While there are marked differences between the health care systems in Canada and the United States, many similarities exist, such as indications for acute hospitalization, treatment of acute conditions, and overarching goals of hospital care [14–16]. Thus, different processes of care may impact on patient outcomes independent of the health care system structure or payers. To our knowledge, there have been no direct comparisons of hospitalist provider or program

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Table 1. Hospitalist Characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>American Hospitalists (N = 2550)</th>
<th>Canadian Hospitalists (N = 265)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, n (%)</td>
<td></td>
<td></td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>≤ 30 yr</td>
<td>179 (8)</td>
<td>15 (6)</td>
<td></td>
</tr>
<tr>
<td>31–40 yr</td>
<td>1234 (58)</td>
<td>100 (39)</td>
<td></td>
</tr>
<tr>
<td>41–50 yr</td>
<td>528 (25)</td>
<td>77 (30)</td>
<td></td>
</tr>
<tr>
<td>≥ 51 yr</td>
<td>190 (9)</td>
<td>67 (26)</td>
<td></td>
</tr>
<tr>
<td>Male gender, n (%)</td>
<td></td>
<td></td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>General/family practice</td>
<td>74 (3)</td>
<td>231 (90)</td>
<td></td>
</tr>
<tr>
<td>Internal medicine</td>
<td>1980 (82)</td>
<td>21 (8)</td>
<td></td>
</tr>
<tr>
<td>Pediatrics</td>
<td>366 (15)</td>
<td>4 (2)</td>
<td></td>
</tr>
<tr>
<td>International medical graduate</td>
<td>633 (26)</td>
<td>38 (15)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Part-time status, n (%)</td>
<td>700 (33)</td>
<td>97 (38)</td>
<td>0.12</td>
</tr>
<tr>
<td>Paid time off, n (%)</td>
<td>1442 (63)</td>
<td>40 (22)</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

Characteristics between these 2 countries. We hypothesized that hospitalist programs in Canada and the United States would differ with respect to clinical responsibilities. Thus, we conducted this study to compare American and Canadian hospitalists and their programs. The differences observed would serve as the first step to examining how these distinctions may impact patient, physician, or system-wide outcomes.

Methods

Study Design and Subjects

During the time period 2005 to 2007, both the Society of Hospital Medicine (SHM) and the Hospitalist Sections within Canadian provincial medical associations conducted independent surveys of American and Canadian hospitalists, respectively. Because the 2 survey instruments collected similar types of data, we set out to compare the information collected from both surveys.

Data Collection

American Hospitalist Survey. Information about American hospitalists was obtained from the SHM 2005–2006 survey [17]. The initial survey was conducted from September to December 2005. A list of hospitalist medical directors (n = 1551) was generated from the SHM membership database and they were surveyed. The SHM solicited the assistance of International Communications Research (Media, PA), an independent research organization, in developing the survey instrument and collecting the data. Follow-up strategies included mailed and electronic reminders. A second survey was sent in March 2006 and obtained additional information about the financial support structures of the hospitalist programs. Survey variables included characteristics of hospitalists and their groups, work performed, coverage arrangements, compensation, growth, productivity, financial support, and leaders’ concerns.

Canadian Hospitalist Survey. Provincial medical associations of Hospitalist Sections conducted a national “Canadian Hospitalist Survey.” Data were collected from January to May 2007. First, a Web link to an online survey was sent by e-mail to hospitalist program leaders as identified by their corresponding hospitals. Hospitalist programs were found by telephoning hospitals across the country and inquiring about such programs; 67 programs were identified. The program leaders were asked to provide a complete list of hospitalists at their institution. Next, each individual hospitalist then received an e-mail to complete a separate online survey. Survey variables included characteristics of hospitalist and their groups, work performed, coverage arrangements, compensation, growth, workload, professional satisfaction, and professional development.

Data Analysis

The authors reviewed the 2 surveys and identified comparable questions. Where data were insufficient or not presented in similar format, descriptive comparisons were made. Proportions were compared using chi-square test. All statistical analyses were performed using Stata 10.0 statistical software (Stata Corporation, College Station, TX).

The institutional review board at the Johns Hopkins University reviewed the research protocol and provided a human subjects research exemption.

Results

In the SHM survey, 396 of 1551 (26%) hospitalist program leaders returned completed surveys. These 396 respondents acknowledged leading 2550 hospitalists in their programs. Completed Canadian surveys were received from 50 of 67 (75%) hospitalist program leaders and 265 of 500 (53%) individual hospitalists and represent 8 out of 10 provinces.

Characteristics of Hospitalists

Characteristics of hospitalists from both countries are shown in Table 1. The average reported age of hospitalists was similar, but more American hospitalists were male (65% vs. 57%; P = 0.02). The majority of American hospitalists trained in internal medicine (general and/or subspecialty, 82%), while the majority of Canadian hospitalists were trained in general or family practice (90%; P < 0.001). More American hospitalists identified themselves as international medical graduates as compared with Canadian hospitalists (26% vs. 15%; P < 0.001).
Median hospitalist compensation reported was lower for American hospitalists ($169,000 vs. $190,000; all values in USD). However, a greater number of American hospitalists described having paid time off as compared with Canadian hospitalists (63% vs. 22%; P < 0.001).

### Characteristics of Hospitalist Programs

American programs differed from Canadian programs in clinical and nonclinical services provided (Table 2). The primary responsibility for groups in both countries appears to be to care for unassigned inpatients. Compared with Canadian hospitalist programs, American hospitalist programs described performing more consultative work (98% vs. 59%; P < 0.001), intensive care unit (ICU) patient care (75% vs. 4%; P < 0.001), rapid response team service (35% vs. 16%; P = 0.01), cardiac arrest coverage (43% vs. 18%; P < 0.001), and surgical inpatient comanagement (84% vs. 57%; P < 0.001). In contrast, Canadian hospitalist programs partook in more pediatric inpatient care (31% vs. 12%; P < 0.001) and psychiatric inpatient comanagement (51% vs. 2%; P < 0.001) as compared with American programs. Nonclinical activities such as teaching were less frequently described by American hospitalist programs as compared with Canadian hospitalist programs (51% vs. 81%; P < 0.001); however, involvement in quality improvement initiatives was reported more commonly among American hospitalist programs (86% vs. 53%; P < 0.001).

Patient coverage at night and on weekends also differed. Fewer Canadian hospitalist programs indicated the presence of on-site hospitalist coverage after 5 pm as compared to American hospitalist programs (30% vs. 51%; P = 0.01).

Hospitalist programs are expanding in both countries, with reported increases in the median number of full-time equivalent faculty members from 5.52 to 6.00 for American programs and 4.00 to 6.00 for Canadian programs over the last 2 years.

### Challenges and Supports for Hospitalists

Hospitalist program leaders from both countries acknowledged stressors on the hospitalist providers and on the programs. Commonly cited concerns included recruitment, retention, workload, work-life balance, and hospital demands.

Direct utilization of nurse practitioners (8%) and clinical nurse specialists (5%) was lower among Canadian hospitalist programs; a greater proportion of American hospitalist programs directly employed nurse practitioners (20%) and physician assistants (16%).

### Discussion

Our study demonstrates that there are significant differences between American and Canadian hospitalist physician and program characteristics. The majority of American hospitalists had been trained in internal medicine and engage in significantly more consultations, ICU care, rapid response team care, cardiac arrest coverage, surgical comanagement, and quality improvement compared with Canadian hospitalists, who were trained in family practice and provide more comanagement of pediatric and psychiatric inpatients. Furthermore, American hospitalist programs provided more on-site hospitalist coverage overnight than Canadian hospitalist programs. Understanding these differences in the delivery of inpatient medical care may allow for the identification of physician or program characteristics associated with best practices and desired patient outcomes.

To date, published studies on hospitalists have focused largely on comparisons of costs and effectiveness between hospitalists and nonhospitalists rather than examining...
the differences that exist between hospitalist programs [2,3,18,19]. However, Freed and colleagues [20] conducted a telephone survey of 200 hospitals with pediatric hospitalist services in the United States and found that the majority of pediatric hospitalists were trained in pediatrics (73%) and none were family practice–trained. In addition to general pediatric inpatient care, most also performed consultations (88%). Our findings for hospitalists in the United States are consistent with these results from the pediatric hospitalist workforce study. Srivastava and colleagues surveyed pediatric academic hospitalist chairs in Canada and the United States and found that the majority worked on general pediatric wards, but the researchers did not directly compare hospitalists between the 2 countries [21].

Some differences observed between American and Canadian hospitalists may relate to physician supply. Approximately half of all Canadian physicians (52%) are trained in family practice compared with 12% of American physicians. Only 11% of Canadian physicians are trained in internal medicine as compared with 15% of American physicians [22,23]. Internists are a limited resource in Canada, particularly in rural and underserved regions, thereby explaining why the hospitalist movement may have predominantly recruited family practitioners. Before the advent of the hospitalist, the care of inpatients fell to primary care providers in both countries: family practitioners in Canada and internists in the United States [22,24]. Hospitalists emerged from the respective primary care provider pools, thus explaining the differences in specialty make-up among hospitalists. Early economic factors may have also been at play given the historically lower remuneration for family practitioners compared with internists in Canada (by an average of $100,000 in Canadian dollars), perhaps making family practitioner hospitalists more financially feasible to hospitals [25]. American family practitioners and internists earn similar salaries [26].

Given that family practitioners are trained across a wider breadth of patient populations and clinical settings, this almost certainly explains why more Canadian hospitalists are comanaging pediatric and psychiatric inpatients. In contrast, internal medicine residents are trained extensively in the adult inpatient setting and have reported great “preparedness” for managing acute inpatient problems, including patients in ICU settings [27]. Whether these differences in training settings translate into meaningful differences in patient outcomes has not been determined but may be worthy of further study.

Differences in staffing patterns between the 2 countries may impact patient care. Hospitals with on-site hospitalists at all times of the day may have improved patient outcomes compared with those with off-site physicians who are less accessible to respond to acute situations. Several large studies have shown increased mortality during weekends and nights, particularly for patients admitted with potentially fatal conditions (eg, pulmonary embolism [28] and myocardial infarction [29]) and those having an in-hospital cardiac arrest [30]. These findings may, in part, be a reflection of decreased staffing during off hours. Optimal physician staffing patterns (eg, daily rounds by an ICU physician and greater use of intensivists in ICUs) have also been linked to improved patient outcomes (eg, hospital mortality, complication rates, and length of stay) in other acute care environments such as the ICU [31,32]. The improved outcomes are thought to be related to 4 factors: presence in the unit; specialized knowledge; communication with patients, families, and the care team; and management at the unit level (such as the development of quality improvement programs) [33]. Such a paradigm may also be applied to hospitalist staffing. The presence of hospitalists during off hours to respond to changes in patient status, as seen in American programs, requires future study to examine associations with patient outcomes.

There currently is no training requirement for hospitalists in the United States or Canada. Hospital medicine fellowship programs are optional, and SHM lists 19 adult hospitalist fellowships programs in the United States and 1 program in Canada [34]. The hospitalist core competencies defined by SHM may be one way to ensure that hospitalists arriving to the field from different training programs meet expected standards. With the expansion of the hospitalist movement, certification or accreditation may be the logical next step towards a uniform definition of a “hospitalist.”

The differences we observed in physician remuneration and paid time off may have important implications on provider satisfaction and burnout. While there had been a historical trend of physicians leaving Canada to seek more attractive offers in the American health care system [35], this proclivity seems to have ended [36] and the current salaries of Canadian hospitalists appear to be higher than their American counterparts.

Several limitations of this study should be noted. First, we relied on self-report and utilized survey instruments. Second, on the SHM survey, American hospitalist program leaders responded on behalf of the individual hospitalists in their group. Third, the results from 2 separate survey instruments were compared. It would have been preferable to apply a uniform set of questions to both study populations. We attempted to minimize this issue by focusing our analysis on objective responses (eg, gender, age, residency training). Because of the 2 independently developed instruments, some questions precluded statistical comparison. Fourth, only hospitals with hospitalist programs were surveyed, potentially excluding individuals who practice as hospitalists outside this setting, thus limiting generalizability of our findings. Fifth, responses were pooled from many
heterogeneous programs. Finally, response rates were lower among American hospitalist program leaders than Canadian hospitalist program leaders. This may have resulted in an incomplete representation of American hospitalist characteristics.

In summary, our study identifies significant differences between American and Canadian hospitalists. Given the diverging models of hospitalist care in these 2 countries with similar medical practice, future studies should explore associations with patient and physician outcomes as a way to gain insight into optimizing the discipline and to determine best practices.

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References
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