

Impact of Hospitalist Programs on Perceived Care Quality, Interprofessional Collaboration, and Communication: Lessons from Implementation of 3 Hospital Medicine Programs in Canada

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Objective: Despite the ongoing growth in the number of hospitalist programs in Canada, their impact on the quality of interprofessional communication, teamwork, and staff satisfaction is not well known. This study aimed to evaluate perceptions of frontline care providers and hospital managers about the impact of the implementation of 3 new hospitalist services on care quality, teamwork, and interprofessional communication.

Design: We used an online survey and semistructured interviews to evaluate respondents' views on quality of interprofessional communication and collaboration, impact of the new services on quality of care, and overall staff satisfaction with the new inpatient care model.

Setting: Integrated Regional Health Authority in British Columbia, Canada.

Participants: Participants included hospital administrators, frontline care providers (across a range of professions), and hospital and community-based physicians.

Results: The majority of respondents reported high levels of satisfaction with their new hospital medicine services. They identified improvements in interprofessional collaboration and communication between hospitalists and other professionals, which were attributed to enhanced onsite presence of physicians. They also perceived improvements in quality of care and efficiency. On the other hand, they identified a number of challenges with the change process, and raised concerns about the impact of patient handoffs on care quality and efficiency.

Conclusion: Across 3 very different acute care settings, the implementation of a hospitalist service was widely perceived to have resulted in improved teamwork, quality of care, and interprofessional communication.

Keywords: hospital medicine; hospitalist; teamwork; interprofessional collaboration.

Over the past 2 decades, the hospitalist model has become prevalent in Canada and internationally.¹ Hospitalist care has been associated with improvements in efficiency and quality of care.²⁻⁶ However, less is known about its impact on the quality of interprofessional communication, teamwork, and staff satisfaction. In a 2012 study of a specialized orthopedic facility in the Greater Toronto Area (GTA), Ontario, Webster et al found a pervasive perception among interviewees that the addition of a hospitalist resulted in improved patient safety, expedited transfers, enhanced communication with Primary Care Providers (PCPs), and better continuity of care.⁷ They also identified enhanced collaboration among providers since the addition of the

hospitalist to the care team. In another study of 5 community hospitals in the GTA, Conn et al⁸ found that staff on General Internal Medicine wards where hospitalists worked described superior interprofessional collaboration, deeper interpersonal relationships between physicians and other care team members, and a higher sense of "team-based care."

Fraser Health Authority (FH) is an integrated regional health system with one of the largest regional Hospital

From the Fraser Health Authority, Surrey, BC, Canada (Drs. Yousefi and Paletta), and Catalyst Consulting Inc., Vancouver, BC, Canada (Elayne McIvor). Appendices A and B are available online at mdedge.com/jcomjournal.

Medicine (HM) networks in Canada.⁹ Over the past 2 decades, FH has implemented a number of HM services in its acute care facilities across a range of small and large community and academic hospitals. More recently, 3 hospitalist services were implemented over a 2-year period: new HM services in a tertiary referral center (Site A, July 2016) and a small community hospital (Site B, December 2016), and reintroduction of a hospitalist service in a medium-sized community hospital (Site C, January 2017). This provided a unique opportunity to assess the impact of the implementation of the hospitalist model across a range of facilities. The main objectives of this evaluation were to understand the level of physician, nursing, allied staff, and hospital administration satisfaction with the new hospitalist model, as well as the perceived impact of the service on efficiency and quality of care. As such, FH engaged an external consultant (EM) to conduct a comprehensive evaluation of the introduction of its latest HM services.

Methods

Setting

Hospital medicine services are currently available in 10 of 12 acute care facilities within the FH system. The 3 sites described in this evaluation constitute the most recent sites where a hospitalist service was implemented.

Site A is a 272-bed tertiary referral center situated in a rapidly growing community. At the time of our evaluation, 21 Full Time Equivalent (FTE) hospitalists cared for an average of 126 patients, which constituted the majority of adult medical patients. Each day, 8 individuals rounded on admitted patients (average individual census: 16) with another person providing in-house, evening, and overnight coverage. An additional flexible shift during the early afternoon helped with Emergency Department (ED) admissions.

Site B is small, 45-bed community hospital in a semi-rural community. The hospitalist service began in December 2016, with 4 FTE hospitalists caring for an average of 28 patients daily. This constituted 2 hospitalists rounding daily on admitted patients, with on-call coverage provided from home.

Site C is a 188-bed community hospital with a hospitalist service initially introduced in 2005. In 2016, the program was disbanded and the site moved back to a primarily

community-based model, in which family physicians in the community were invited to assume the care of hospitalized patients. However, the hospitalist program had to be reintroduced in January 2017 due to poor uptake among PCPs in the community. At the time of evaluation, 19 FTE hospitalists (with 7 hospitalists working daily) provided most responsible physician care to a daily census of 116 patients (average individual census: 16). The program also covered ED admissions in-house until midnight, with overnight call provided from home.

Approach

We adopted a utilization-focused evaluation approach to guide our investigation. In this approach, the assessment is deliberately planned and conducted in a way that it maximizes the likelihood that findings would be used by the organization to inform learning, adaptations, and decision-making.¹¹ To enable this, the evaluator identified the primary intended recipients and engaged them at the start of the evaluation process to understand the main intended uses of the project. Moreover, the evaluator ensured that these intended uses of the evaluation guided all other decisions made throughout the process.

We collected data using an online survey of the staff at the 3 facilities, complemented by a series of semistructured qualitative interviews with FH administrators and frontline providers.

Online survey

We conducted an open online survey of a broad range of stakeholders who worked in the 3 facilities. To develop the questionnaire, we searched our department's archives for previous surveys conducted from 2001 to 2005. We also interviewed the regional HM program management team to identify priority areas and reached out to the local leadership of the 3 acute care facilities for their input and support of the project. We refined the survey through several iterations, seeking input from experts in the FH Department of Evaluation and Research. The final questionnaire contained 10 items, including a mix of closed- and open-ended questions (**Appendix A**, found online at mdedge.com/jcomjournal).

To reach the target audience, we collaborated with each hospital's local leadership as well as the Divisions of

Family Practice (DFP) that support local community PCPs in each hospital community.¹⁰ Existing email lists were compiled to create a master electronic survey distribution list. The initial invitation and 3 subsequent reminders were disseminated to the following target groups: hospital physicians (both hospitalists and nonhospitalists), PCPs, nursing and other allied professionals, administrators, and DFP leadership.

The survey consent form, background information, questions, and online platform (SimpleSurvey, Montreal, QC) were approved by FH's Privacy Department. All respondents were required to provide their consent and able to withdraw at any time. Survey responses were kept anonymous and confidential, with results captured automatically into a spreadsheet by the survey platform. As an incentive for participation, respondents had the opportunity to win 1 of 3 \$100 Visa gift cards. Personal contact information provided for the prize draw was collected in a separate survey that could not link back to respondents' answers. The survey was trialed several times by the evaluation team to address any technical challenges before dissemination to the targeted participants.

Qualitative interviews

We conducted semistructured interviews with a purposive sample of FH administrators and frontline providers (**Appendix B**, found online at mdedge.com/jcomjournal). The interview questions broadly mirrored the survey but allowed for more in-depth exploration of constructs. Interviewees were recruited through email invitations to selected senior and mid-level local and regional administrators, asking interviewees to refer our team to other contacts, and inviting survey respondents to voluntarily participate in a follow-up interview. One of the authors (EM), a Credentialed Evaluator, conducted all the one-time interviews either in-person at the individual participant's workplace or by telephone. She did not have pre-existing relationships with any of the interviewees. Interviews were recorded and transcribed for analysis. Interviewees were required to consent to participate and understood that they could withdraw at any point. They were not offered incentives to participate. Interviews were carried out until thematic saturation was reached.

Analysis

A content analysis approach was employed for all qualitative data, which included open-ended responses from the online survey and interview transcripts. One of the authors (EM) conducted the analysis. The following steps were followed in the inductive content analysis process: repeated reading of the raw data, generation of initial thematic codes, organizing and sorting codes into categories (ie, main vs subcategories), coding of all data, quantifying codes, and interpreting themes. When responding to open-ended questions, respondents often provided multiple answers per question. Each of the respondents' answers were coded. In alignment with the inductive nature of the analysis process, themes emerged organically from the data rather than the researchers using preconceived theories and categories to code the text. This was achieved by postponing the review of relevant literature on the topic until after the analysis was complete and using an external evaluation consultant (with no prior relationship to FH and limited theoretical knowledge of the topic matter) to analyze the data. Descriptive statistics were run on quantitative data in SPSS (v.24, IBM, Armonk, NY). For survey responses to be included in the analysis, the respondents needed to indicate which site they worked at and were required to answer at least 1 other survey question. One interviewee was excluded from the analysis since they were not familiar with the hospitalist model at their site.

Ethics approval

The evaluation protocol was reviewed by FH Department of Evaluation and Research and was deemed exempt from formal research ethics review.

Results

A total of 377 individuals responded to the online survey between January 8 and February 28, 2018 (response rate 14%). The distribution of respondents generally reflected the size of the respective acute care facilities. Compared to the overall sampled population, fewer nurses participated in the survey (45% vs 64%) while the rate of participation for Unit Clerks (14% vs 16%) and allied professionals (12% vs 16%) were similar.

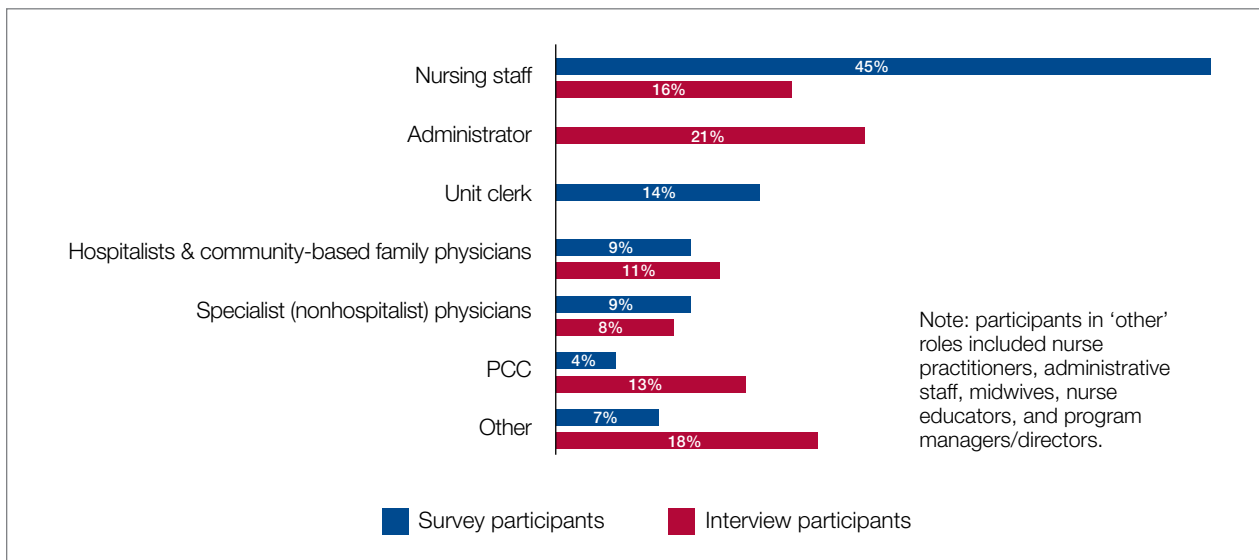


Figure 1. Percentage of survey and interview participants by primary role (N = 377; n = 38, respectively). PCC indicates Patient Care Coordinator.

Out of the 45 people approached for an interview, a total of 38 were conducted from January 3 to March 5, 2018 (response rate 84%). The interviews lasted an average of 42 minutes. Interviewees represented a range of administrative and health professional roles (**Figure 1**). Some interviewees held multiple positions.

Satisfaction with HM service

Across all sites, survey respondents reported high levels of satisfaction with their respective HM services and identified positive impacts on their job satisfaction (**Figure 2**). Almost all interviewees similarly expressed high satisfaction levels with their HM services (95%; n = 36).

Perceptions of HM service performance

Survey respondents rated the strength of hospitalists' interprofessional communication and collaboration with other physicians and with care teams. Roughly two-thirds reported that overall hospitalist communication was "good" or "very good." We also asked participants to rate the frequency at which hospitalists met best practice expectations related to interprofessional teamwork. Across all sites, similar proportions of respondents (23% to 39%) reported that these best practices were met "most of the time" or "always" (**Figure 3**). Survey questions also assessed perceptions of respondents about

the quality and safety of care provided by hospitalists (**Figure 4**).

Perceptions of the impact of the HM service postimplementation

The majority of survey respondents reported improvements in the quality of communication, professional relationships, and coordination of inpatient care at transition points after the implementation of the HM service (**Figure 5**). This was also reflected in interviews, where some indicated that it was easier to communicate with hospitalists due to their on-site presence, accessibility, and 24/7 availability (n = 21). They also described improved collaboration within the care teams (n = 7), and easier communication with hospitalists because they were approachable, willing, and receptive (n = 4).

We also asked the survey respondents to assess the impact of the new hospitalist model on different dimensions of care quality, including patient satisfaction, patient experience, efficiency, and overall quality of care (**Figure 6**). Findings were comparable across these dimensions, with roughly 50-60% of respondents noting positive changes compared to before the implementation of the programs. However, most interviewees identified both positive and negative effects in these areas. Positive impacts included hospitalist

Impact of Hospitalist Programs on Care Quality

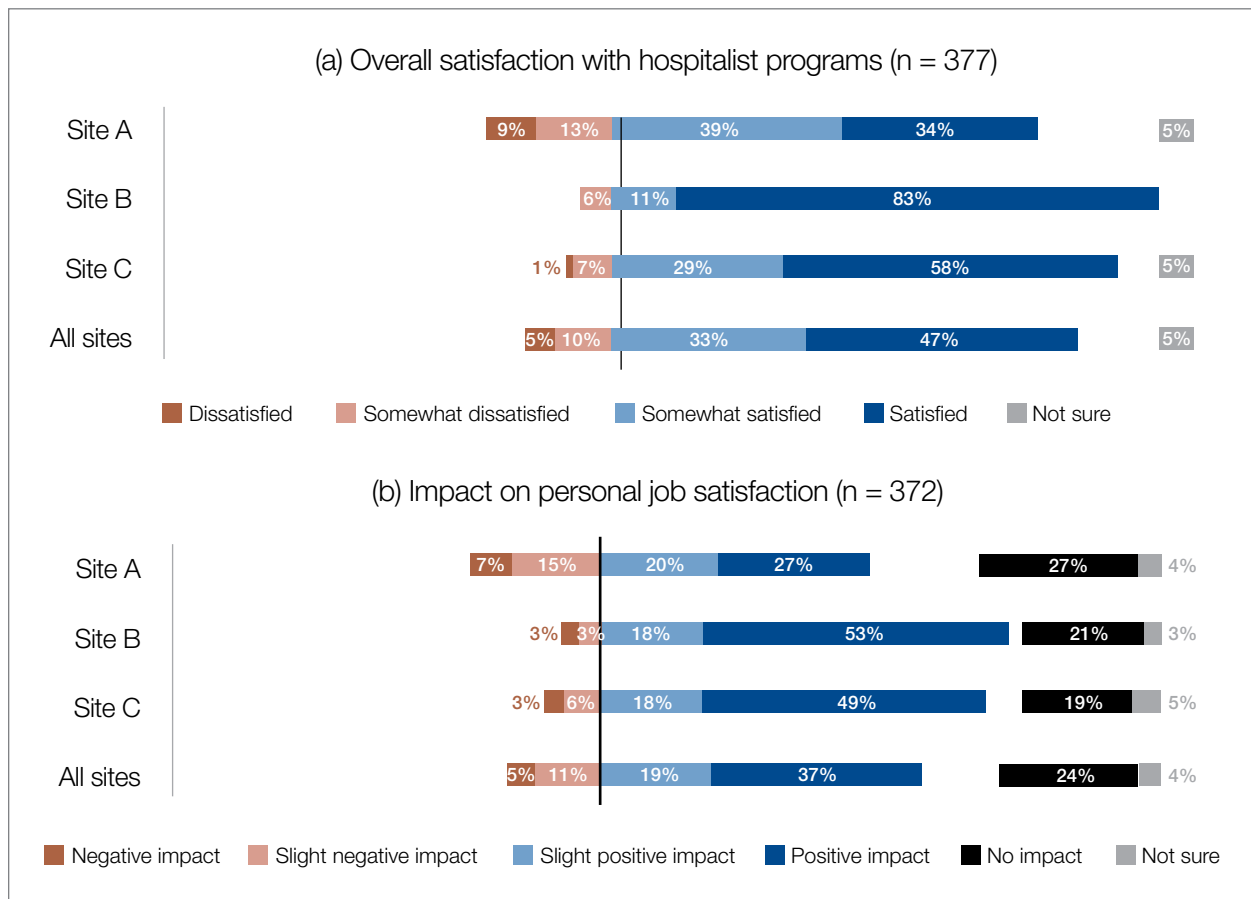


Figure 2. Survey respondents' ratings of satisfaction.

on-site presence leading to better accessibility and timeliness of care (n = 5), hospitalists providing continuity to patients/families by working for weeklong rotations (n = 6), hospitalists being particularly skilled at managing complex clinical presentations (n = 2), and hospitalists being able to spend more time with patients (n = 2). On the other hand, some interviewees noted that patients and families did not like seeing multiple doctors due to frequent handoffs between hospitalists (n = 12). They also raised concerns that hospitalists did not know patients' histories or had relationships with them, potentially leading to longer length of stay and unnecessary investigations (n = 8).

Site-to-site ratings of satisfaction and performance

Survey respondents' satisfaction and performance ratings varied substantially site-to-site. Across all areas

assessed, ratings were consistently highest at Site B (the smallest institution in our evaluation and the most recent addition to the HM network in the health authority). These differences were statistically significant across all survey questions asked.

Discussion

Findings from this study provide insight into the experiences of frontline health care professionals and administrators with the implementation of new HM services across a range of small to large acute care facilities. They indicate that the majority of respondents reported high levels of satisfaction with their hospitalist services. Most also indicated that the service had resulted in improvements compared to prior inpatient care models.

Over half of the survey respondents, and the majority of interviewees, reported a positive impact on interprofes-

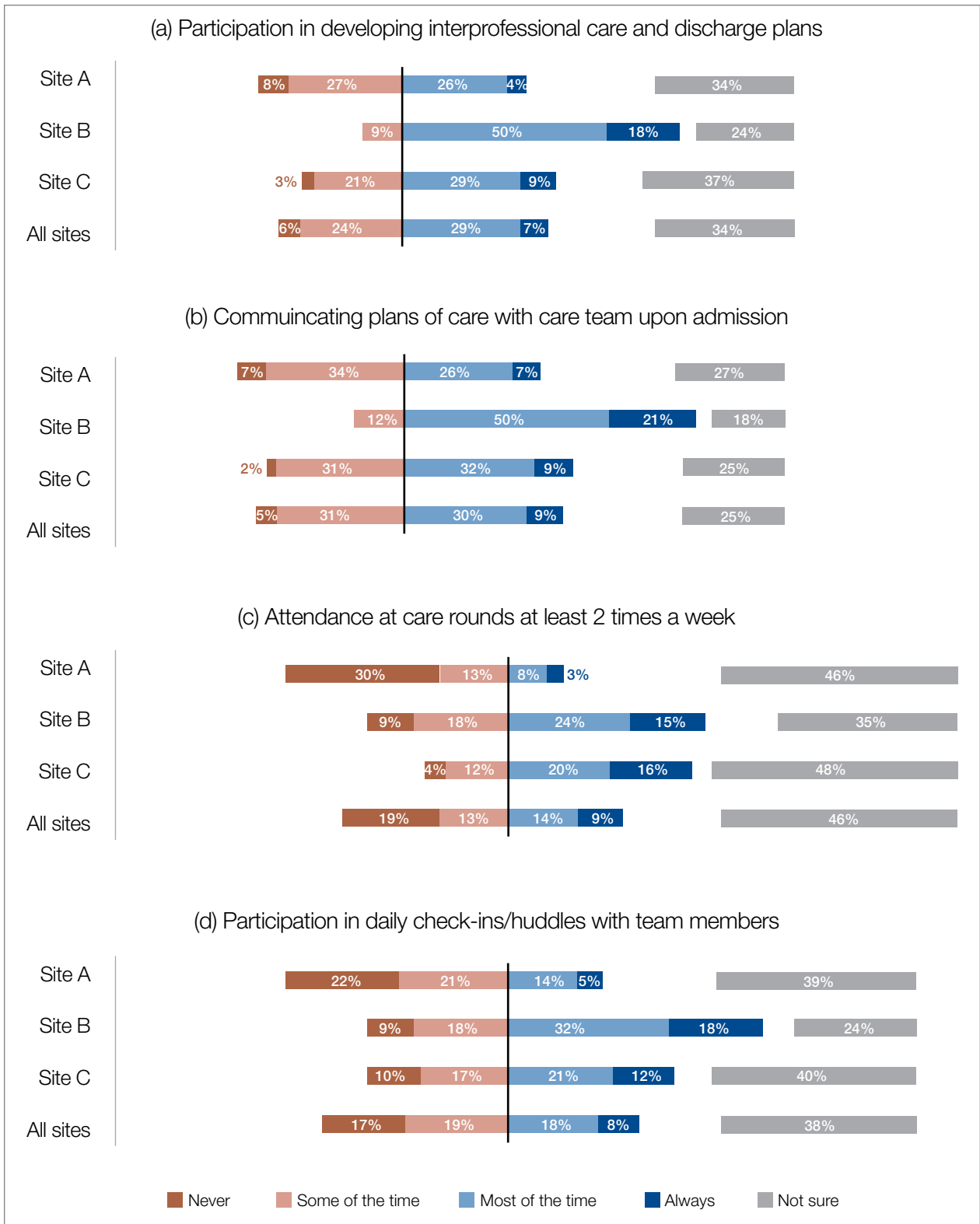


Figure 3. Survey respondents' ratings of how often hospitalists meet best practice expectations related to interprofessional communication and collaboration (N = 371).

sional communication and collaboration. This was largely attributed to enhanced accessibility and availability of hospitalists:

- "Being on-site lends itself to better communication because they're accessible. Hospitalists always answer the phone, but the general practitioners (GP) don't always since they may be with other patients." (Dietician, Site A)
- "A big strength is that we have physician presence on the unit all day during scheduled hours, which makes us more accessible to nurses and more able to follow up on patients that we have concerns about." (Physician Leader, Site B)

However, the ratings dropped substantially when they were asked to assess adherence to specific best practices of such communication and collaboration, such as participation in daily check-ins or attendance at team care rounds (Figure 3). Interdisciplinary clinical rounds have been identified as a tool to improve the effectiveness of care teams.¹² A number of elements have been identified as key components of effective rounds.¹³ Bedside rounds have also been found to enhance communication and teamwork.^{14,15} In our study, the discrepancy between overall high levels of satisfaction with hospitalists' communication/collaboration despite low scores on participation in more concrete activities may illustrate the importance of informal and ad hoc opportunities for interactions between hospitalists and other care providers that result from the enhanced presence of hospitalists on care units.⁸ Outside of formal rounds, hospitalists have the ability to interact with other care providers throughout their shifts. Prior studies have shown that hospitalists spend a significant portion of their time communicating with other care team members throughout their workdays.¹⁶ At the same time, the amount of time spent on communication should be balanced against the need for provision of direct care at the bedside. Future research should aim to identify the right balance between these competing priorities, and to understand the nature and quality of the communication between various care providers.

We also aimed to understand the perceptions of study participants about the impact of the HM service on quality of care. Survey participants not only expressed reasonable satisfaction with various aspects of hospital-

ists' performance, but also described a positive impact on care quality after the implementation of their new services. This was also reflected in the interviews:

- "The clinical knowledge of the new hospitalists is far better. Some are internal medicine trained, so they bring better knowledge and skills. I feel comfortable that they can take patients and manage them. I wasn't always comfortable with doing that in the past." (Emergency Physician, Site C)
- "Hospitalists are really familiar with acute care and how it works. They've become more familiar with the discharge planning system and thus know more about the resources available. And even something as simple as knowing which forms to use." (Dietician, Site A)

It must be noted that these observations should ideally be corroborated through a robust before-after analysis of various quality measures. While such an analysis was beyond the scope of our current project, we have previously demonstrated that across our network (including the 3 sites included in our evaluation) hospitalist care is associated with lower mortality and readmission rates.⁴ Our findings appear to confirm previous suggestions that hospitalists' dedicated focus on inpatient care may allow them to develop enhanced skills in the management of common conditions in the acute care setting¹⁷ which can be perceived to be of value to other hospital-based care providers.

The issue of frequent handover among hospitalists was the most commonly identified challenge by both survey respondents and interviewees:

- "They're very reluctant to discharge patients if it's their first day with the patient. Even if the previous hospitalist said they were ready for discharge, the new doc wants to run all of their own tests before they feel comfortable. Maybe it's a trust issue between hospitalists when they hand patients over. It's also being personally liable for patients if you discharge them." (Patient Care Coordinator, Site A)
- "Communication is an issue. There's lots of turnover in hospitalists. Relationships were closer with GPs because we had so much more interaction with particular individuals." (Hospitalist Physician Leader, Site A)

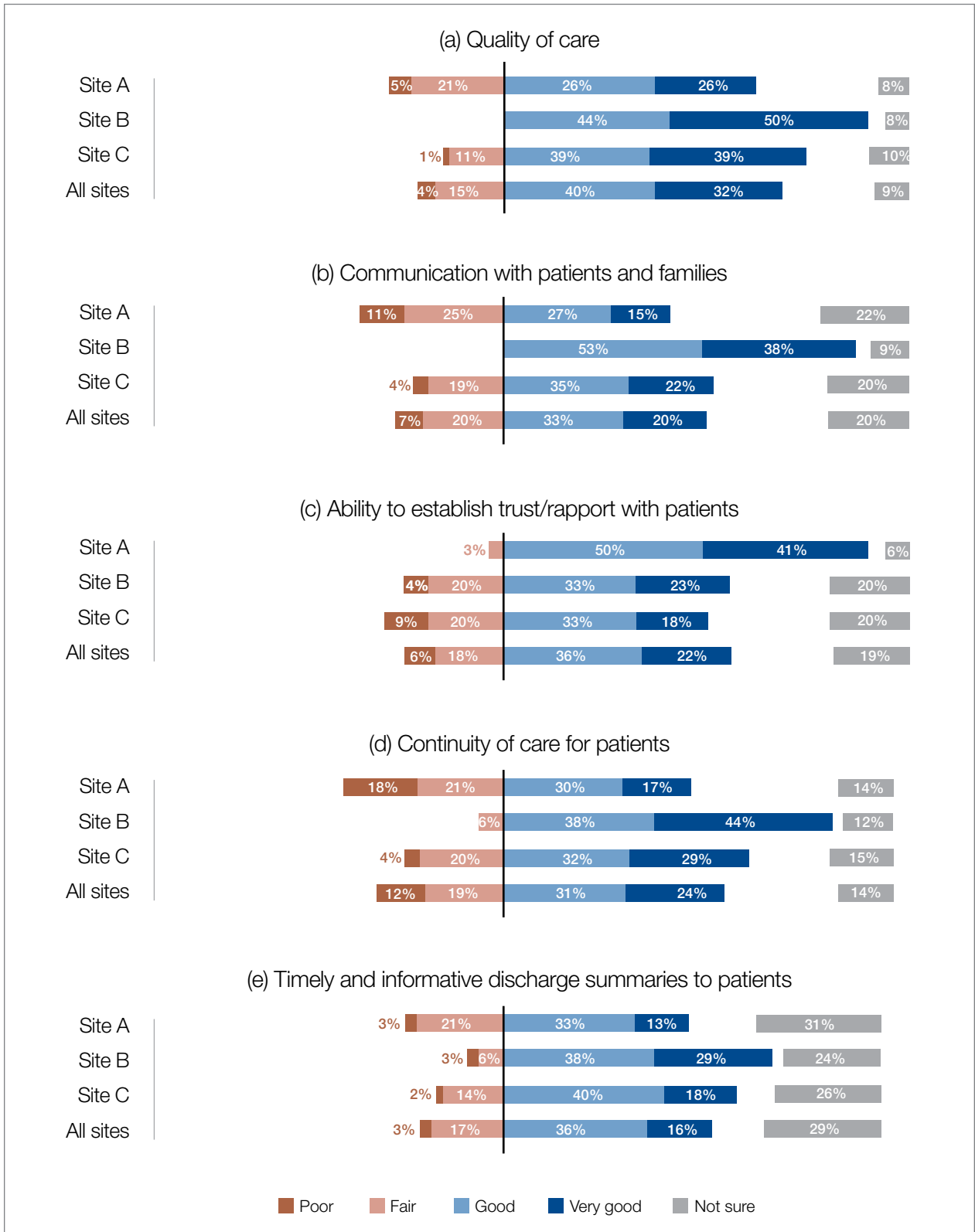


Figure 4. Survey respondents' perceptions of dimensions of quality of care delivered by hospitalists at their sites (N = 377).

Impact of Hospitalist Programs on Care Quality

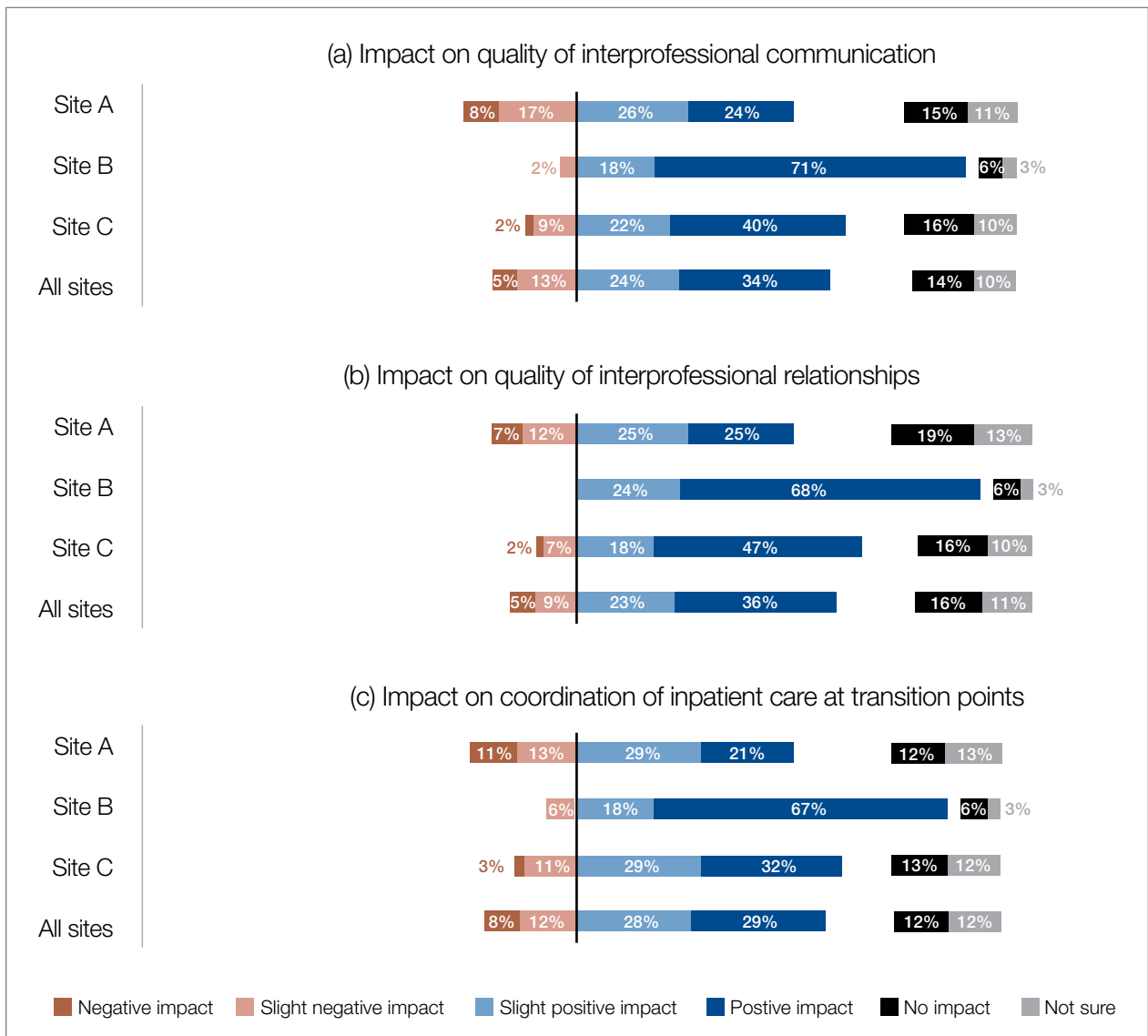


Figure 5. Survey respondents' ratings of program implementation impact on interprofessional communication, relationships, and coordination of care (N = 373).

It must be noted that we conducted our evaluation in a relatively short time span (within 2 years) after the 3 services were implemented. Developing trust among a large number of hospitalists newly recruited to these programs can take time and may be a factor that can explain the reluctance of some to discharge patients after handoffs. However, concerns about discontinuity of care inherent in the hospitalist model are not new.^{18,19} Better continuity has been associated with higher probability of patient discharges²⁰ and improved outcomes.²¹ To address this chal-

lenge, the hospitalist community has focused on defining the core competencies associated with high quality handovers,²² and deliberate efforts to improve the quality of handoffs through quality improvement methodologies.²³ Our study participants similarly identified these measures as potential solutions. Despite this, addressing hospitalist continuity of care remains a pressing challenge for the broader hospitalist community.²⁴

Our evaluation has a number of methodological limitations. First, the survey response rate was only 14%,

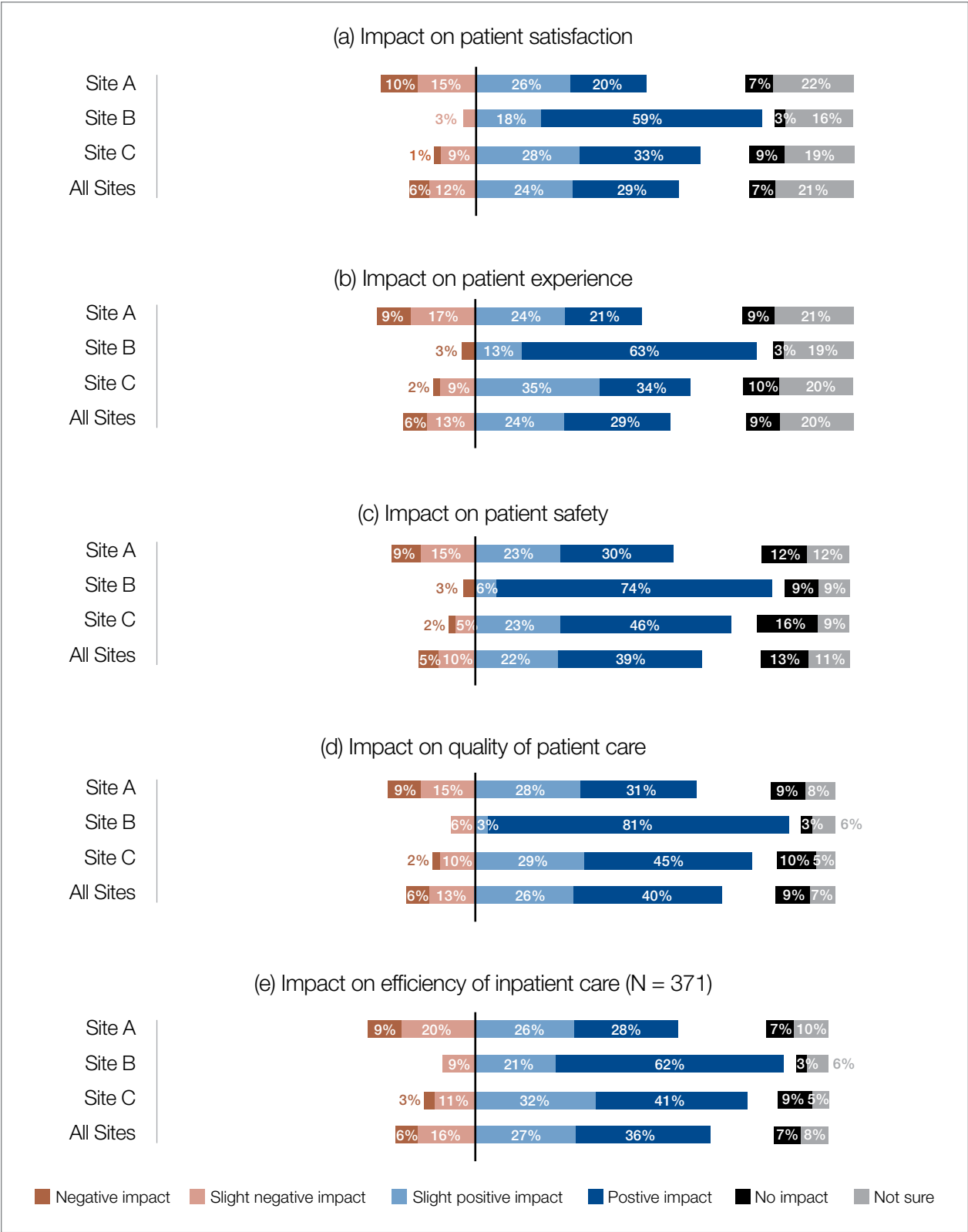


Figure 6. Survey respondents' ratings of program implementation impact on patient quality and safety (N = 373).

which raises questions about nonresponse bias and the representativeness of the findings to the larger population of interest. While the distribution of respondents was largely similar to the overall sampled population, a number of factors may have impacted our response rate. For example, we were only able to distribute our survey to health care providers' institutional email addresses. Moreover, while we provided incentives for participation and sent out a number of reminders, we solely relied on one communication modality (ie, electronic communication) and did not utilize other methods (such as posters, reminder at meetings, in-person invitations). Second, while the survey included a number of open-ended questions, many of these responses were at times brief and difficult to interpret and were not included in the analysis. Third, all data collected were self-reported. For example, we could not corroborate comments about participation in interdisciplinary rounds by objective measures such as attendance records or direct observation. Self-report data is subjective in nature and is vulnerable to a range of biases, such as social desirability bias.²⁵ Finally, patient satisfaction and experience with hospitalist care were not assessed by patients themselves. Ideally, standardized cross-site indicators should validate our patient-related results.

As mentioned above, hospitalist performance ratings varied substantially from site-to-site and were consistently higher at Site B (a small community hospital in a semi-rural area), followed by Site C (a medium-sized community hospital) and Site A (a tertiary referral center). The variability in program ratings and perceived hospitalist impacts between sites could be due to a variety of factors, such as the degree of change between the past and current models at each site, differences in hospitalist hiring processes, hospital size and culture, and differences in service design and operations. It may also be related to the timing of the introduction of the HM service, as Site B was the most recent site where the service was established. As such, there may be an element of recall bias behind the observed discrepancies. This highlights the importance of local context on respondent perceptions and suggests that our results may not be generalizable to other institutions with different attributes and characteristics.

Conclusion

Findings from this study have demonstrated that the recent hospitalist services in our health system have improved overall levels of interprofessional communication and teamwork, as well as perceptions of care quality among the majority of participants who reported high levels of satisfaction with their programs. Our findings further highlight the issue of frequent handovers among hospitalists as a pressing and ongoing challenge.

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- Intervention/implementation process
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Appendix A: Online Survey for Hospital Staff

1. Please select the primary site you work at. *Note: if you work at multiple sites, select the one that you spend the majority of your time at. *** (mandatory question)*
 - a. Site A
 - b. Site B
 - c. Site C
 - d. None of the above

2. Which of the following best describes your role? *(optional)*
 - a. Nurse
 - b. Physiotherapist
 - c. Occupational Therapist
 - d. Speech and Language Pathologist
 - e. Unit Clerk
 - f. Social Worker
 - g. Patient Care Coordinator
 - h. Unit Manager
 - i. Program Director
 - j. Dietician
 - k. Pharmacist
 - l. Community-based family physician (non-Hospitalist)
 - m. Specialist (non-Hospitalist)
 - n. Physician (Hospitalist)
 - o. Other, please specify:

3. Overall, how satisfied are you with the Hospitalist program at your site? *(optional)*
 - a. Dissatisfied
 - b. Somewhat dissatisfied
 - c. Somewhat satisfied
 - d. Satisfied
 - e. Not sure

4. The Hospitalist program has been tailored to meet unique needs of my site. *(optional)*
 - a. Disagree
 - b. Somewhat disagree
 - c. Somewhat agree
 - d. Agree
 - e. Not sure

5. (a) In your opinion, to what extent has the implementation of the Hospitalist model at your site positively or negatively impacted the following, if at all? *(optional)*

	Negative impact	Slight negative impact	No impact	Slight positive impact	Positive impact	Not Sure
i. Your personal job satisfaction.						
ii. 24/7 availability of physician care.						
iii. Patient satisfaction.						
iv. Patient experience.						
v. Patient safety.						
vi. Quality of patient care.						
vii. Efficiency of inpatient care.						
viii. Coordination of inpatient care at transition points.						
ix. Quality of inter-professional communication within the care team.						
x. Quality of inter-professional relationships within the care team.						

- (b) Please comment on your responses provided in question #5(a). *(optional)*

6. (a) How would you rate the Hospitalists at your site on the following? *(optional)*

	Poor	Fair	Good	Very Good	Not Sure
i. Hospitalists' communication with other physicians (e.g. specialists).					
ii. Hospitalists' collaboration with other physicians (e.g. specialists).					
iii. Hospitalists' communication with the care team.					
iv. Hospitalists' collaboration with the care team.					
v. Hospitalists' efficiency of care.					
vi. Hospitalists' quality of care.					
vii. Hospitalists' ability to foster continuity of medical care for patients.					
viii. Hospitalists' communication with patients and families at each stage of the inpatient care episode.					
ix. Hospitalists' ability to establish trust and rapport with inpatients.					
x. Hospitalists' familiarity with institutional processes/operations at your site.					

- (b) If you rated the any of the above as 'poor' or 'fair', please explain why. *(optional)*

7. (a) Please indicate how often Hospitalists at your site do the following. *(optional)*

	Never	Some of the time	Most of the time	Always	Not Sure
i. The Hospitalists at my site are available on a 24/7 basis.					
ii. The Hospitalists at my site participate in developing inter-professional care and discharge plans within 48 hours of admission.					
iii. The Hospitalists at my site communicate plans of care with the rest of the care team during admission.					
iv. The Hospitalists at my site attend care rounds at least 2 times per week.					
v. The Hospitalists at my site participate in daily check-ins/huddles with team members.					
vi. The Hospitalists at my site use standardized tools (e.g. Care Pathways).					
vii. The Hospitalists at my site are involved in non-clinical activities (e.g. quality improvement projects).					
viii. Messaging following Hospitalist to Hospitalist handoff is consistent.					
ix. The Hospitalists at my site provide timely and informative discharge summaries to patients.					
x. The Hospitalist at my site use health care resources wisely (e.g. test ordering).					

(b) If you indicated that Hospitalists at your site do any of the above 'never' or only 'some of the time', please explain why. *(optional)*

8. What are the top three strengths of the Hospitalist program at your site? *(optional)*

9. What are the top three challenges of the Hospitalist program at your site? *(optional)*

10. In your opinion, how can the Hospitalist program be improved at your site? *(optional)*

Appendix B: Semi-Structured Interview Questions with FH Administrators and Health Care Providers

1. Please describe your role with regards to inpatient care in your community, hospital, and/or health authority.
2. Please describe the past and current inpatient care models in place at the primary site you work at. *Ask interviewees to distinguish between assigned vs. unassigned models, when applicable/possible.*
 - a. How satisfied are you with the current model?
 - b. What about the current model is working well?
 - c. What are some of the challenges associated with the current model?
 - d. How can the current model be improved? What type of help can Fraser Health provide to better support the model, if any?
3. Based on your experience, please compare the benefits and drawbacks of past versus current inpatient care models.
4. Based on your experience, what impact (if any) has the implementation of the current Hospitalist model made at your site?
 - a. Differences for patient experience (e.g. satisfaction, quality of care, continuity)?
 - b. Differences in other patient outcomes (e.g. adverse events following discharge)?
 - c. Differences in communication (e.g. within your care team, with community-based GPs)?
 - d. Differences in relationships within your care team (e.g. team morale)?
 - e. Differences in collaboration within your care team (i.e. physician as team player and coordination of care)?
 - f. Differences in efficiency of care (e.g. accessibility of physicians, length of stay)?
 - g. Clinical quality of care (e.g. readmissions, emergency visits)?
5. How sustainable do you foresee your hospitalist inpatient model being over the long-term? What factors threaten or support the sustainability of your hospitalist model?
6. What advice would you share with other sites contemplating a shift towards a hospitalist-based model?
 - a. What lessons did you learn in the process of transitioning to the new model of care?
 - b. Was there any data or information that you wish you had to help inform the decision to change models or how to structure the new model?
7. In an ideal world, with no limits on resources, what is the best inpatient care model in your opinion?
8. Can you recommend anyone else that we should interview in this evaluation?
9. Is there anything else you would like to share with me?