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Team-based care in specialist practice: a path to improved physician experience in British Columbia

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Abstract

Background Specialist physicians in the province of British Columbia commonly work on teams in acute care settings such as operating rooms or inpatient hospital units. However, while the implementation of team-based care (TBC) has been supported in primary care clinics, no formal mechanisms have supported specialist physicians in adopting TBC in their private outpatient offices. Adopting TBC models is associated with improving physician experience, efficiency, and patient experience.

Methods The Institute for Healthcare Improvement Breakthrough Series guided a program to support 11 specialist physicians, representing nine different specialties, to develop and implement TBC in outpatient offices. Participants were supported through resources including funding, mentorship, and learning opportunities. To determine whether the program improved physician experience, quantitative data were collected using the validated Mini Z survey and qualitative data were collected through monthly reports, semi-structured interviews, and focus groups. Patient experience data were collected through surveys and follow-up calls.

Results The fifteen-month program was successful, with 10 of the 11 specialists implementing TBC in their offices. The Mini Z results demonstrated that physician experience improved over the course of the program, with scores on job satisfaction, work pace, and time spent on the electronic medical record improving the most. Interviews with specialists and focus groups with specialists' team members support these findings, with participants stating that TBC modulates workloads, begins to affect burnout, improves work-life balance, and increases the efficiency of care. Patients reported positive experiences while receiving TBC. Patients were less likely to visit the emergency department after consultations with specialist teams, and providers agreed that their patients would be less likely to seek acute care because of the new practice models.

Conclusion TBC is a viable model for specialist physicians and their health care teams practicing in British Columbia to foster well-being, job satisfaction, and efficiency, and to improve patient experience. These findings may be of interest to specialists, health care providers, policymakers, and administrators looking to better support and retain specialist practices that are integral to patient care.

Keywords Team-based care, Specialist physician, Well-being, Burnout, Quadruple aim

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Introduction

Specialist physicians in British Columbia's (BC) publicly funded fee-for-service system typically operate as solo practitioners providing services in private, outpatient offices. Physicians are challenged by administrative burdens, particularly related to documentation requirements such as charting and completing forms that detract from direct patient care [1, 2]. Specialist physicians acknowledge that medicine is fast-paced and complex, but the increasing volume of non-patient care tasks is overburdening them [1]. Given the high prevalence of physician burnout [3–6], a novel approach to enhancing efficiency, modulating workload, and mitigating further burnout is required to ensure job satisfaction and improve the experience of specialists while delivering quality patient care.

Team-based care (TBC) has proven beneficial in primary care settings, and BC has made strides in enhancing TBC through initiatives such as Primary Care Networks [7–9]. TBC has been identified as essential for overcoming administrative burdens [1] and task volume to ensure delivery of high-quality health care [10–12]. Physician-led TBC involves a collaborative approach where health professionals work together to support a patient's needs [13] resulting in decreased workloads, increased efficiency, improved quality of care, improved patient outcomes, and decreased clinician burnout [14–17].

While primary care has been supported in implementing TBC initiatives, there remains a gap in support for the 7,257 practicing specialists spanning 43 different specialties across the province [18]. In BC, patients and their families receive specialized treatment for health concerns from specialist physicians practicing in outpatient offices. The applicability of TBC for specialists who operate in these offices, particularly in terms of enhancing patient and (specialist) provider experience within the Institute for Healthcare Improvement (IHI) Quadruple Aim [19], has not been extensively studied. The journey toward specialist-led TBC in BC began in 2011 when the Specialist Services Committee (SSC), one of four Joint Collaborative Committees (JCCs) representing a partnership between the Doctors of BC and the Government of BC [20], collaborated with the section of rheumatology to fund a novel physician-nurse model of care. Early results from this model showed an increased volume of patient encounters and high patient satisfaction [21].

With funding from the SSC and drawing from the IHI Breakthrough Series (BTS) methodology [22], the Specialists Team Care (STC) initiative was established. This initiative supported 11 specialists from nine different specialties in implementing a TBC model within their outpatient offices. The purpose of this paper is to describe the results of the program evaluation and report the impact of the STC initiative on physician experience, efficiency, and patient experience.

Methods

Study design

The STC initiative ran for 15 months from January 1, 2023 to March 31, 2024 (Fig. 1). During this program, various supports (Table 1) were offered to participating specialist clinics to implement TBC. Participants were given a Toolkit containing teamwork and leadership frameworks, quality improvement ideas, and a driver diagram (Fig. 2) for implementing TBC. This suite of support is commonplace in the IHI BTS methodology and was intended to promote teamwork within specialist clinics over the course of the initiative. A mixed methods program evaluation was used to collect quantitative and qualitative data from specialist physicians, their team members, and patients to assess how TBC implementation affects physician experience, efficiency, and patient experience. Informed consent was not required as this was a quality improvement project and not research involving human subjects per national regulations of Article 2.5 of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans [23]. While all

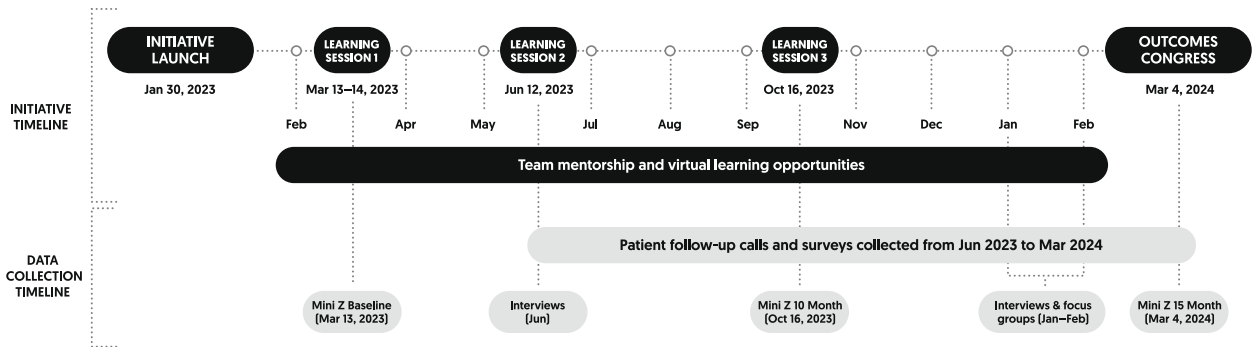

Fig. 1 Timeline of the Specialists Team Care initiative. This figure presents the timeline for the STC initiative, highlighting key event dates (top) and data collection points (bottom)

Table 1 Supports offered to participants in the Specialists Team Care initiative

Support	Description
Funding	Innovation funding was provided directly to participating specialists to pilot a TBC model. Specialists received up to CAD $40,000 for their participation in the program through a combination of reimbursement formats, which included: - Monthly stipends to support time associated with planning their team model and completing program deliverables such as data collection - Funding through a cost sharing agreement that they could use to offset costs associated with adding new team members. Specialists had the autonomy to set wages of their additional team members and be reimbursed for a portion of this cost - Compensation for themselves and team members' involvement in all team learning activities such as webinars and in-person learning sessions. This portion of funding varied depending on how many team members participated in these activities Upon completion of the program, funding ceased and specialists were expected to sustain their team model through provincially regulated fee-for-service payment billing mechanisms.
Technical Resources	Participants were given a Toolkit with change ideas for implementing TBC. Specialists were encouraged to apply resources at their own discretion based on the best interests of their practice. A measurement spreadsheet tool was also provided to track progress throughout the program. Resources were developed based on literature review of clinical evidence and best practices, along with an environmental scan of team care activities across BC. Input and expertise were provided by the STC Faculty of Experts which included family physicians, Ministry of Health representatives, academics, and patients.
Mentorship	STC initiative leaders with prior experience working in TBC and quality improvement provided virtual mentorship to participants on a regular basis. These mentors also made in-person visits to participating clinics to better understand and support the teams.
Learning opportunities	Specialists and their team members attended webinars and in-person learning sessions focused on the technical resources (i.e., the Toolkit and drivers of change including team fundamentals, collaborative environment, role clarity, efficiency, and sustainability). Communities of practice were also established through structured learning opportunities and unstructured learning via email and virtual communication platforms.

aspects of the IHI Quadruple Aim were evaluated, this paper reports on patient and provider experiences, as these outcomes were more immediate and demonstrable within the timeframe of the study.

Initiative participants

Specialists who participated in a series of focus groups to understand their interest in TBC prior to the creation of STC were encouraged to submit an Expression of Interest to become participants. To be eligible, each specialist had to be an actively practicing physician registered with the College of Physicians and Surgeons of British Columbia. Additionally, the specialist had to provide a portion of their care in an outpatient office. Applicants were interviewed and scored against a set of criteria by members of the STC Working Group. The STC Steering Committee selected and approved 11 specialists from 13 applicants to participate (Table 2).

Data collection

Specialist and team member experience

Quantitative data about physician and staff experience were collected anonymously through the STC Mini Z Survey (see Additional File 1), which was administered to specialists and each of their team members 3 months (baseline), 10 months, and 15 months into the initiative. The survey used questions from the validated Mini Z 1.0 survey to assess job satisfaction, stress, and burnout and their risk factors [26, 27]. A 'satisfaction with work-life integration' item was included as an additional measure and predictor of well-being.

Qualitative data were collected through semi-structured interviews with specialists at 7 months (the midpoint) and 15 months into the initiative; an evaluator that was external to the STC program conducted the interviews. The interview guide asked specialists how their experience changed, using prompts that mirror constructs from the Mini Z, such as job satisfaction, stress, burnout, control over workload, and electronic medical record (EMR) use at home. The interviews were recorded and transcribed.

There were further opportunities for gathering qualitative data from the specialists' team members through two focus groups conducted at the end of the program. One focus group consisted of 10 individuals including nurses and allied health professionals such as a dietician, a kinesiologist, and a registered clinical counselor. The other focus group consisted of 11 individuals in administrative staff roles, including medical office assistants (MOAs) and office managers. The external evaluator conducted these focus groups, which were also recorded and transcribed.

Patient experience

The patient experience was evaluated through convenience sampling of patients via the STC Patient Survey (See Additional File 2), which was administered by clinic staff shortly after each patient's appointment with the team. Surveys were completed anonymously either

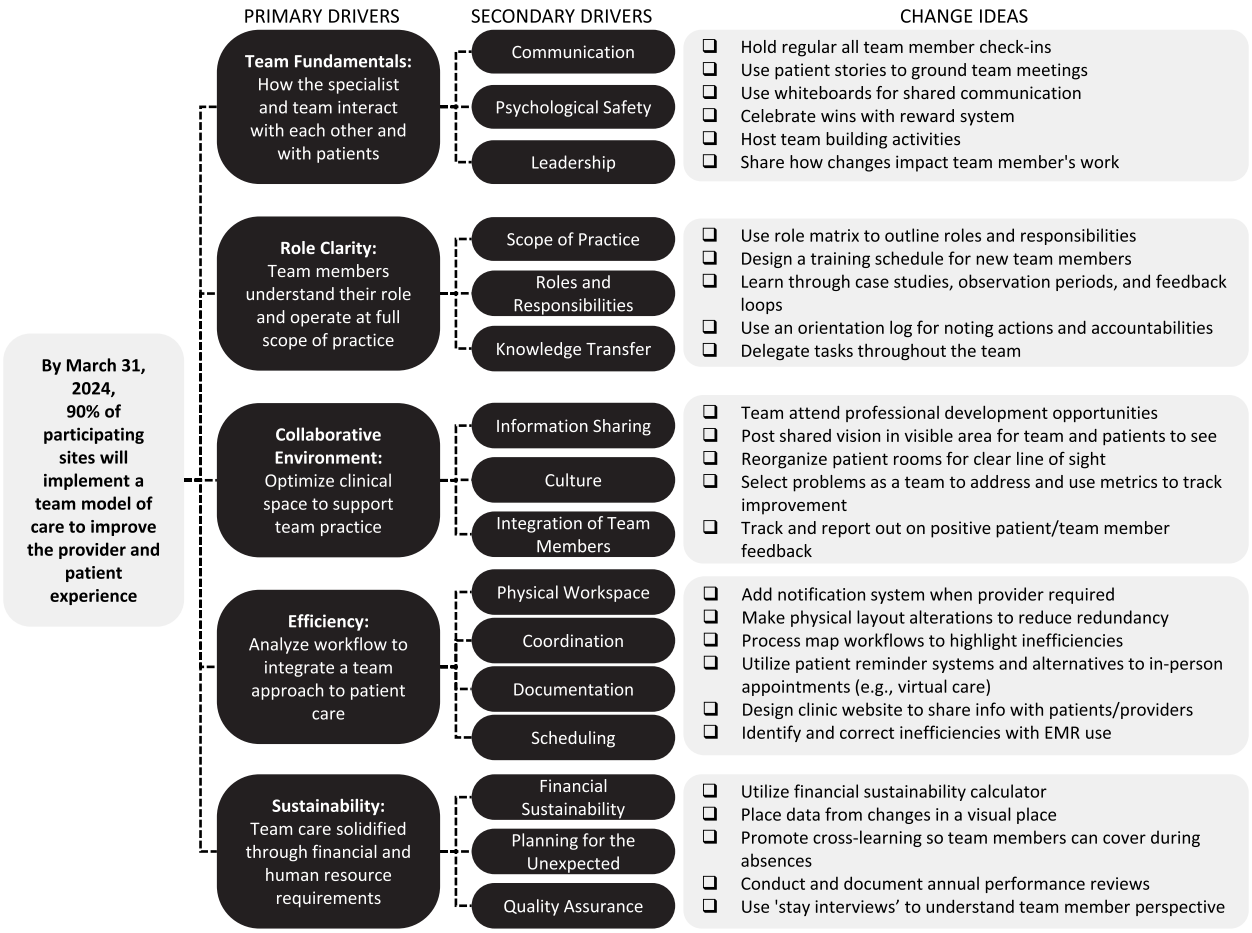

Fig. 2 Driver Diagram from the STC Toolkit used for implementing TBC. This figure shows the driver diagram and its primary drivers, secondary drivers, and specific change ideas. The diagram offers ideas and suggestions that may prove useful for specialists and their teams to consider when implementing TBC

electronically or on paper and then dropped in a ballot box to assure anonymity. Patients were invited to participate in a voluntary follow-up phone call with the STC program coordinator three months after the first interaction with their clinic team. Therefore, a subset of patients who completed the STC Patient Survey were contacted, verbally surveyed, and given an opportunity to comment on their experiences with care at participating specialist clinics.

Long-term outcomes

Indirect measures of patient outcomes (population health) and health care utilization (per capita costs of health care) were collected, as directly observing these long-term outcomes of TBC was not feasible within the 15-month program. Specialist interviewees, patient follow-up call respondents, and focus group participants were asked whether they believed TBC improved patient and utilization outcomes. Patients' self-reported visits to different types of health care services, including the emergency department (ED), urgent care centre, hospital admissions, family doctor, walk-in clinic, or other, were used as a quantitative proxy to assess whether TBC reduced health care utilization.

Data analysis

Specialist and team member experience

The STC Mini Z Survey data were analyzed based on their roles, with the results for specialists and their team members (nursing, allied health, and administrative staff) reported separately. Individual survey questions were assessed by examining the desirable responses (top box of either two or three depending on the item) for each item and then comparing the percentage point change from baseline (3-month) to initiative-end (15-month) results. The interview and focus group data were analyzed thematically by the external evaluator; the qualitative data were used to explain and provide reasons for

Table 2 Demographics of the 11 participating specialists

Characteristic	Count
BC Health Region [24]	
Fraser Health	2
Vancouver Coastal Health	2
Island Health	2
Interior Health	3
Northern Health	2
Specialty [25]	
Dermatology	1
Gastroenterology	1
Internal medicine	2
Obstetrics and gynecology	2
Orthopedics	1
Pediatrics	1
Psychiatry	1
Respirology	1
Urology	1
Gender	
Man	4
Woman	7
Years of practice since MD graduation	
Median (IQR)	17 (16 to 26)
Mean	19.4
Range	8 to 32

This table describes specialist physicians selected from a diverse range of specialties and backgrounds across all health regions in BC [24, 25].

the findings from the survey's quantitative results. Role-specific themes were also kept separate and considered in the explanatory analysis.

Patient experience

Quantitative data from the STC Patient Survey and follow-up call were analyzed cross-sectionally by STC administration, pooling all the data collected over the course of the initiative into a single sample. Individual survey questions were assessed by calculating the percentages for each Likert scale response category. Qualitative data were analyzed thematically by the external evaluator and used to provide context on the patient experience.

Long-term outcomes

The percentages of patients making each type of visit were calculated by dividing the number of respondents selecting that type by the total number of survey respondents. Since respondents could select multiple visit types, the percentages may not sum to 100%. The overall care-seeking behaviours were compared for all surveyed patients before and after receiving TBC, using data from the STC Patient Survey (initial interaction with specialists) and the follow-up call conducted three months later. Qualitative comments were also analyzed thematically by the external evaluator.

Results

Specialist and team member Mini Z survey data

At the end of the STC initiative, 10 out of 11 specialists implemented a team care model in their offices. One specialist withdrew from the program because the team care model did not align with their practice setting. The physician Mini Z results (Fig. 3) showed that by the end of the initiative, 88% of the specialists reported satisfaction with their current job and 75% reported no symptoms of burnout. TBC improved specialists' work pace (control over workload, sufficient time for documentation, work atmosphere, and time spent on the EMR at home) and work-life integration. However, the Mini Z indicated that stress worsened for the specialists.

A key part of the STC initiative included providing financial support for specialists to build their team, particularly in terms of adding a nurse or allied health professional. At least one nurse or allied health professional was hired in 10 out of 11 specialist offices during the STC initiative. Mini Z data from team members (Fig. 4) demonstrated improvements in job satisfaction, stress, and work atmosphere. The time for documentation worsened for team members. Turnover in specialists' team members (in at least one role) was observed in 7 of the 10 clinics.

STC Patient Survey data

The STC Patient Survey data collected from June 2023 to March 2024 (Fig. 5) showed that a majority of patients reported positive experiences while receiving care from specialists who had implemented a TBC model. On average, across the clinics, more than 95% of the patients said they were treated with courtesy and respect, had confidence in the clinic team, were satisfied with how the clinic team listened, felt the clinic team worked well together, and

(See figure on next page.)

Fig. 3 Specialist responses from the STC Mini Z Survey. Small multiple stacked bar charts represent the distribution of responses (by percent) for each of the nine survey items (**A**–**I**) measured at 3, 10, and 15 months into the STC initiative. Likert scales differ for each question, with descriptions and color coding in the figure keys. The data are ordered from left to right as least to most positive. Positive scores are shown for **A**–**C** and **I** (top-two box), and for **D**–**H** (top-three box). Comparator data on physician responses (BC and national) from the Canadian Medical Association (CMA) 2021 National Physician Health Survey are displayed where applicable [3–6].

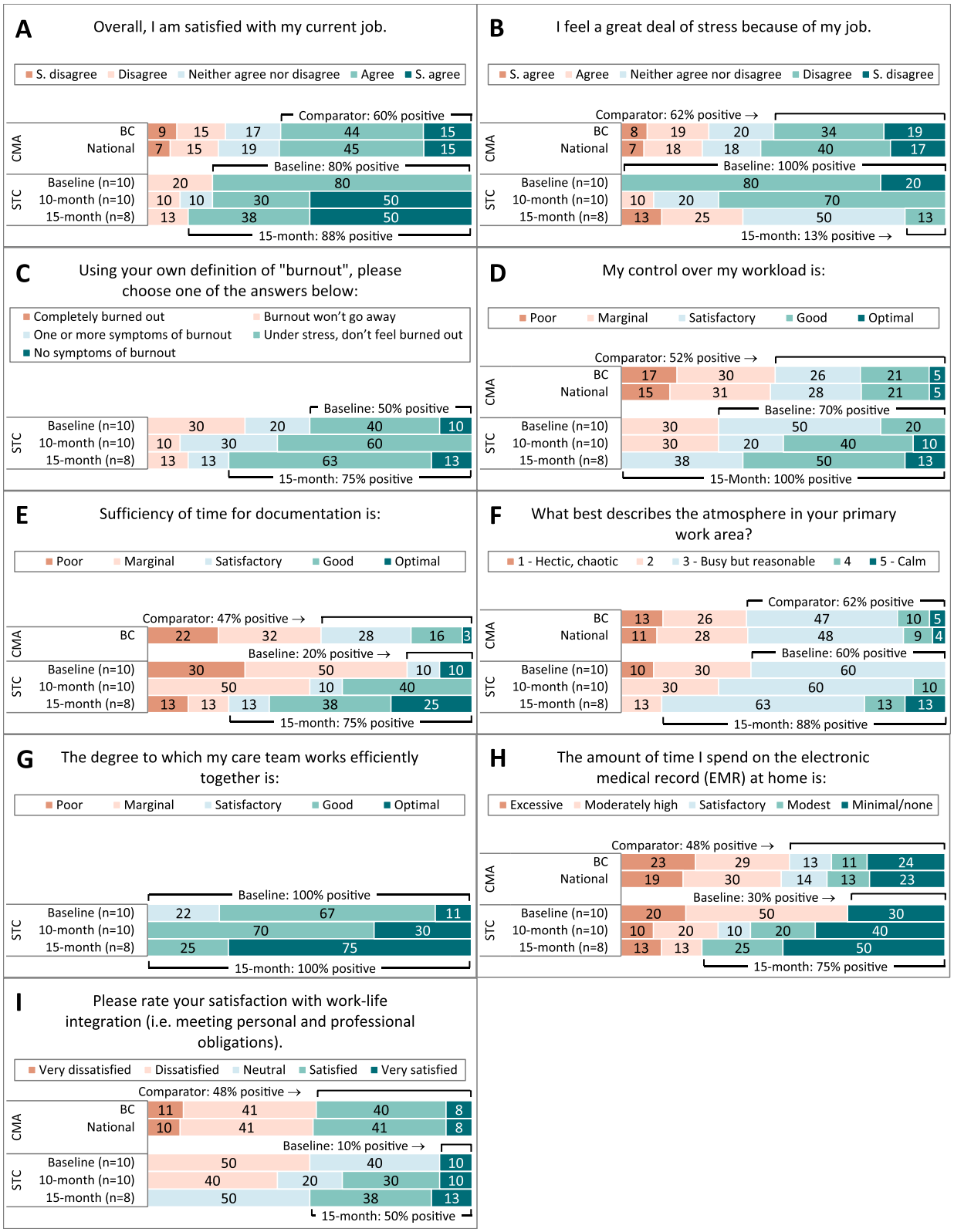

Fig. 3 (See legend on previous page.)

were satisfied with their care. Of the patients who received a follow-up call three months after their initial appointment, 84% said the specialist clinic provided everything needed to manage their health concerns.

Specialist interviews

Multiple specialist interviews provided insight into improvements affecting the specialist experience. Significant improvements were noted in the time allocation on the EMR at home, in the fulfillment of documentation requirements, and in the management of workloads. Some specialists reported that they were able to address waitlists and heavy workloads, and had adequate time for appointments. As one specialist explained,

> *It is great for the patient because they're receiving much longer encounters. In the past, I wasn't spending the time they needed, but now the patient gets as much time as they need because we are using my team members.*

The ability to rely on their team rather than be solely responsible for care reduced specialists' sense of isolation and offloaded administrative burden (while increasing efficiency). While some specialists reported decreased job-related stress, others said it stayed the same or increased due to a variety of factors, such as the pressure of having more patient volume and TBC requiring them to focus on aspects of their practices that were less rewarding or interesting to them personally. Some noted that their burnout stemmed from responsibilities outside of their office, as one physician said,

> *My office is not the source of my burnout. It comes from provincial things I am working on. I am probably just as burnt out, but my office and team are just a place I can go and enjoy my job.*

Overall, the specialists identified facilitators and barriers related to their STC participation. They noted benefitting from the site-to-site learning opportunities, mentorship, and funding to support hiring new team members. Specialists reported, however, that the time and cost involved in training new hires and building team cohesiveness were barriers. Human resource sustainability and turnover among team members are challenges for most clinics. Specialist perceptions related to the turnover of team members included the following: parental leave; administrative staff were not sufficiently qualified or were the 'right fit' for TBC (e.g., uncomfortable with ambiguity, change, and pace of work); and the general competitiveness of the job market. Specialists noted struggling with the shift from working independently to operating as a team and recognized that they had to consciously let go of control and respect the training and expertise of other team members. As one specialist said, "The process of making all these changes takes time and dedication. I can see that it will be well worth it once fully established, but you have to be willing to do the work." Despite these challenges, the majority of specialists were optimistic that their TBC models are financially sustainable and viable in the long term.

Team member focus groups

Focus groups with team members, including nurses, allied health professionals, and MOAs revealed high job satisfaction, and these team members generally enjoyed working with others in the specialist clinic, the ability to make changes quickly, and a focus on improving patient care. Team member attrition was a challenge for 70% of the specialist practices. The MOAs and office managers specifically explained that the implementation of TBC increased their administrative and documentation workload, and subsequently, their feelings of stress and burnout also increased; some noted that the addition of an allied health professional worsened their administrative burden.

Patient follow-up calls

Patient follow-up phone calls provided patients with the opportunity to comment on their experience receiving TBC at participating specialist clinics. Patients generally made positive comments about specific team members or about the team working well together, appreciated their questions being answered, and believed that their needs were addressed or resolved. These remarks serve to emphasize patient satisfaction and positive experiences with the new model of care. As one patient said,

> *The team-based model is excellent. In particular, I appreciated the nurse specialist. She was very thor-*

(See figure on next page.)

Fig. 4 Team member responses from the STC Mini Z Survey. Small multiple stacked bar charts represent the distribution of responses (by percent) for each of the nine survey items (**A**–**I**) measured at 3, 10, and 15 months into the STC initiative. This figure follows the same format as described in Fig. 2, with Likert scales differing for each question, descriptions and color coding in the figure keys, and data ordered from least to most positive. Positive scores are shown for **A**–**C** and **I** (top-two box), and for **D**–**H** (top-three box). Comparator data on national general population responses from the CMA 2021 National Physician Health Survey are displayed where applicable [3–6].

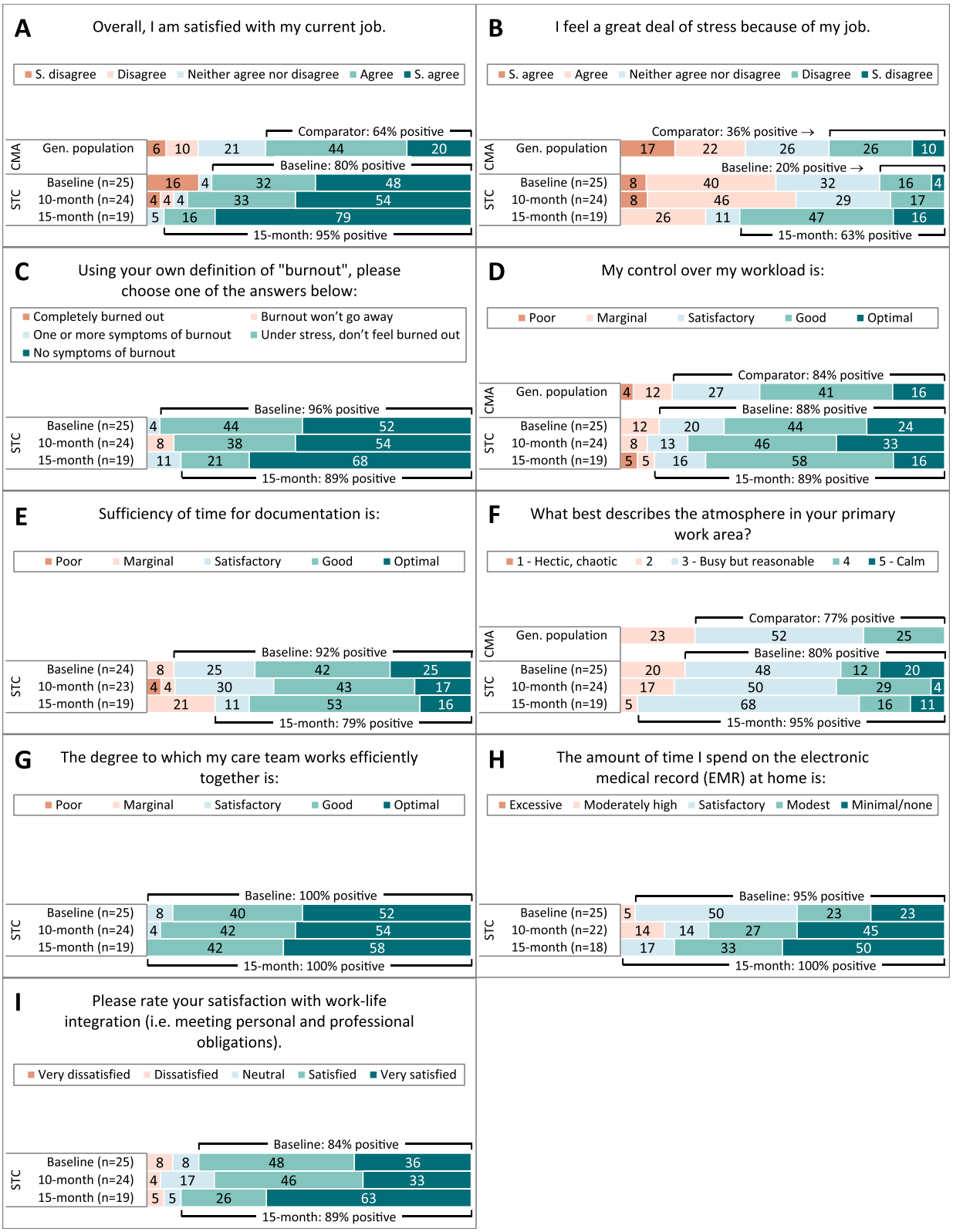

Fig. 4 (See legend on previous page.)

Fig. 5 Patient responses from the STC Patient Survey and follow-up call. Small multiple stacked bar charts represent the distribution of patient responses (percent) for each of the questions from the survey (**A**–**E**) and follow-up call (**F**). Likert scales differ for each question, figure keys contain descriptions and color coding, and data bars are ordered from least to most positive. Positive scores (top-two box) are labeled

ough in her history-taking and answered all my questions.

Long-term outcomes

Specialists and their team members highlighted ways in which they believe their patients' quality of care and health improved as a result of specialist TBC. Nurses and allied health professionals, under physician direction and supervision, were able to take patient histories, offer group education sessions, answer patient questions, and complete patient follow-ups. A majority of providers believe the addition of team members and new ways of delivering care increased their capacity to see patients and reduced waitlists. One medical specialist stated,

It allows a lot of patients sitting at home with their non-urgent issues to be seen sooner and receive longitudinal care for those issues. This is huge for patients. Before being able to see them, many have become quite isolated dealing with life-changing problems that are not urgent.

Quantitative patient survey findings (Fig. 6) show that 10.9% (54 out of 495) of patients reported seeking care at the ED within three months prior to their first specialist appointment, compared to 4.5% (6 out of 133) of patients three months after. Patient use of urgent care centres and admissions to hospitals increased slightly, though the volumes remained low. Visits to family doctors and walk-in clinics decreased. A specialist commented that there would be reduction in visits to acute care because patients accessing specialty care in a more timely manner won't require emergency care. Specialists' team members agreed, stating that appointments provide preventative care. One surgeon remarked,

We get lots of questions from patients about after-

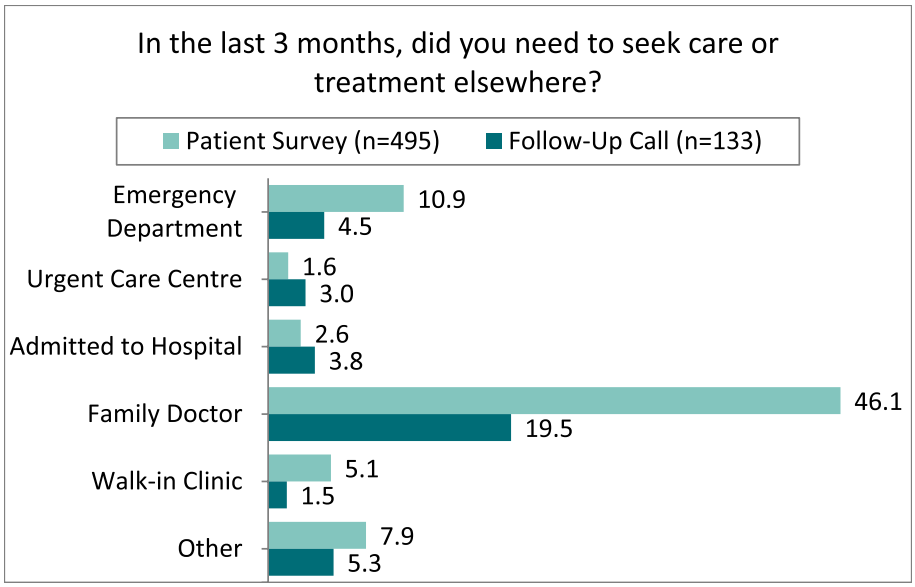

Fig. 6 Patient self-reported health care utilization. Clustered bar charts represent the patient responses (percent) to different types of health care or treatment they needed to seek in the last three months (elsewhere than the specialist office). Percents are based on the number of respondents who selected the visit type divided the total number of respondents. In BC, an Urgent Care Centre is an alternative to emergency departments and provides access to same-day, urgent, non-emergency health care

care and post-surgical things and they don't know the signs to look for in terms of an infection. Rather than typically going to the emergency room, we can often provide them with the reassurance they need to avoid that visit.

Discussion

The STC initiative met its stated objective of improving physician experience, increasing efficiency, and improving patient experience. Specialists reported increased job satisfaction, work-life integration, and efficiency, specifically in terms of having more time for documentation and spending less time on their EMR at home. The majority of patients also reported high satisfaction and positive experiences receiving care within a TBC model. While specialists' team members showed improvement in their overall experience, the increased administrative burden on MOAs and office managers, coupled with team member attrition at 70% of practices is worth noting. This particular finding, which was an unintended consequence of the STC initiative, is aligned with findings in the primary care setting where changes that reduced clinician burnout did not decrease, and in some cases, worsened, burnout among staff [28]. Sheridan et al. reported that medical assistants (akin to MOAs in Canada), had a greater workload (73%) and greater job satisfaction (86%) when working in team-based primary care models [29]. This highlights the need for sustainable workloads for all team members in future iterations of STC.

At the start of the STC initiative, 50% of participating specialists reported burnout, similar to that reported by physician peers across Canada (53%) and BC (52%), as measured by the Canadian Medical Association's (CMA) 2021 National Physician Health Survey [3–6]. This survey used the Maslach Burnout Inventory two-item scale [30, 31] in addition to the Mini Z questions. This similarity in results indicates the specialists are highly likely to have poor mental health and to reduce or modify their clinical hours. Notable differences were observed between the STC and CMA data. At baseline, STC specialists scored worse than average BC physicians in terms of sufficient time for documentation, time spent on EMR at home, and work-life integration, but responded better on stress [4]. The CMA survey revealed that BC physicians spend an average of 9.7 h on administrative tasks per week [1, 4]. These comparisons suggest that while participating specialists face similar administrative burdens, they may have experienced a greater workload—whether perceived or actual—stemming from documentation and EMR use.

Interestingly, the Mini Z indicated that stress worsened for some specialists over the course of the initiative, but the interview data indicated that some specialists experienced decreased stress or that their stress was related to other parts of their physician role. It is also possible that the stress question in the Mini Z may have been misinterpreted because of the reverse agreement scale,

which produced a false signal. Nonetheless, by the end of the STC initiative, improvements in workload and documentation time were noted, both of which are predictors (recognized as part of organizational factors) of burnout [6, 32]. We anticipate that these changes directly related to administrative burden will continue to provide protective effects for specialists under the TBC model. Benefits related to burnout, job satisfaction, and professional fulfillment will accrue over time, especially as physicians and their teams continue to work more optimally together, manage workloads, cultivate positive team culture, and achieve professional fulfillment [33, 34].

Physicians often lack formal training in leadership and team-building; this is not a core part of their medical education, despite the necessity of these skills in their professional practice where they must frequently work within teams. Essentially, physicians are expected to acquire these abilities on the job [35]. The STC initiative was designed to support action learning by implementing a TBC model and encouraging specialists to develop these skills through practice. According to the literature, teams progress through distinct phases, and inadequate support during these transitions can lead to unmotivated employees and higher attrition rates [36, 37]. This issue was evident in the program, with many teams experiencing the loss of at least one member. This underscores a significant opportunity to better support specialists adopting TBC and enhancing the sustainability of these models. However, simply working in a TBC model is not enough, as teams must also develop and nurture structures (processes) and culture to become effective. Working in tight-knit teams is associated with less clinician exhaustion [34]. Therefore, establishing a formalized education pathway to equip specialists with the necessary skills for managing transitions and developing sustainable teams would improve overall team effectiveness and the quality of care delivery [38, 39].

Early results on improved patient outcomes and reduced health care utilization are promising, demonstrating how TBC can address all aspects of the IHI Quadruple Aim. Participating specialist teams enhanced various aspects of care delivery, including patient education and self-management. These care practices are known to lead to better outcomes, such as improved quality of life, decreased anxiety, fewer complications, adherence to care plans, and patient empowerment [40–44]. TBC also facilitated multidisciplinary care in outpatient specialist practices, which may yield benefits similar to those observed in other care settings, such as cancer clinics, orthopedic rehabilitation centres, and in-hospital units [45–47]. The participating sites demonstrated positive patient experiences, and a systematic review by Doyle et al. indicated that such experiences are associated with clinical effectiveness, patient safety, better health outcomes (objective and self-rated), health-promoting behaviours, and reduced resource use [48]. High levels of positive patient experience, self-reported decreases in care visits (to the ED, family doctor, and walk-in clinic), and provider perceptions of preventative care all support the notion that TBC provides patients with the care they need and potentially reduces costs to the health system.

Limitations

This study has both strengths and limitations. A strength of the study is that multiple sources of data were collected across the 15-month program, and the data were obtained from specialists, team members, and patients. A weakness is that this first iteration of STC has a relatively small sample size. We used a validated tool, the Mini Z, for measuring the constructs of burnout, stress, and control over workload; however, our sample size was small. While the results showed a positive trend, it typically takes more time than the length of the STC for these results to decrease significantly [49–51]. Finally, it is worth acknowledging that this cohort of specialists are early adopters of TBC. It is possible that there are unique pressures on this cohort due to the provincial visibility of this work and additional characteristics in this cohort related to their willingness to innovate that we have not explored. Specialty-specific factors are an area for future study, as specialists are a heterogeneous group in terms of work setting and practice conditions [52]; thus, there are likely relevant specialty-specific differences that we did not examine in this first iteration of STC. Long-term impacts to patient outcomes, costs to the health care system, and sustainability of specialist TBC will continue to be studied in more direct ways as part of ongoing and future work.

Conclusion

The STC initiative successfully supported specialists in implementing TBC models in their outpatient offices, resulting in reduced administrative burdens and enhanced overall experience in delivering care. The model worked well for those who delivered and received care; physicians and their team members were able to rely on each other to deliver care, and patients were satisfied with the care received from the specialist teams. Specialists highlighted several key factors contributing to their success including financial support, mentoring by program leaders, and the opportunity to learn from fellow participants. The benefits of TBC make it one strategy for bolstering the specialist workforce, which is transferable and applicable for similar health settings across Canada and internationally. Early findings on patient outcomes and costs to the health system also suggest TBC can contribute to a high-quality,

sustainable health care system. In BC, the government, in collaboration with specialist leaders, should continue investing in these practice models, with a focus on scaling up to include more specialists and specialties across the province. Future evaluation efforts should consider how TBC models may vary with different specialties, both for physicians and patients, and additional research is needed regarding the impact and importance of mentors in the continued spread of TBC models.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12913-024-11482-2.

Additional file 1: STC Mini Z survey.

Additional file 2: STC Patient Survey and follow-up call.

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Authors' contributions
E.Y. was involved in the study design, data acquisition, and data analysis. G.V. was involved in the study conception and design. E.S. was involved in the study design. All the authors were involved in drafting and revisioning the article, and approved the final manuscript.

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Availability of data and materials
The primary datasets analyzed during the current study are not publicly available due to prior data use agreements. However, the aggregate data used in this paper are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate
This quality improvement project focused on the implementation and evaluation of team-based care models in outpatient specialist clinics was conducted as part of an initiative to enhance the physician experience and patient care in British Columbia. Formal ethics approval and informed consent were not required as this was a quality improvement project and not research involving human subjects as defined by Article 2.5 of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS 2).

Competing interests
The authors declare no competing interests.

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