SECURE MESSAGING PROOF-OF-CONCEPT PILOT EVALUATION

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Women's College Hospital Institute for
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Acronyms

AFP	Alternative Funding Arrangements
APP	Alternate Payment Plans
CDHE	Centre for Digital Health Evaluation
DAD	Discharge Abstract Database
ED	Emergency Department
EMR	Electronic Medical Record
FHO	Family Health Group
FHT	Family Health Team
HAIB	Health Analytics and Insights Branch
HIS	Hospital Information System
ICES	Institute for Clinical Evaluative Sciences
IPDB	ICES Physician Database
ITS	Interrupted Time Series
MHP	Mental Health Program
MOH	Ministry of Health
NACRS	National Ambulatory Care Reporting System
NASSS	Non-adoption, abandonment, scale-up, spread, and sustainability
OH	Ontario Health
OMHRS	Ontario Mental Health Reporting System
PCP	Primary care physician
PoC	Proof of Concept
PPE	Patient Partner Evaluator
SM	Secure Messaging
WCH	Women's College Hospital
WIHV	Women's College Hospital Institute for Health System Solutions and Virtual Care

Operational Definitions

Capitation payment model: A payment model where physicians receive a fixed per-patient amount for each enrolled patient over a defined time period rather than being paid per in-basket visit or service.

Electronic medical record (EMR) integration: In the context of secure messaging, EMR integration refers to the ability of a secure messaging solution to connect directly with a health setting's EMR, allowing messages to be documented and accessed within the patient's chart.

Fee-for-service payment: A payment model where physicians can submit a claim for every service or procedure they perform and receive the full service amount.

FHO+ model: A revised payment structure for primary care physicians in the Family Health Organization (FHO) model that comes into effect April 1, 2026, and includes time-based billing that pays an hourly rate for all direct and indirect care.

In-basket services: Primary care services provided to a physician's rostered patients, typically covered by capitation payments.

K303: The billing code for a SM service encounter that enables a tier-based remuneration model within the Secure Messaging Proof-of-Concept Pilot. Remuneration is subject to specific eligibility criteria, including that each claimed K303 represents an SM service encounter, with Monthly Management Fee payment tier structured as follows: Tier 1 (≥ 15 K303 services/month; $150 per service month), Tier 2 (≥ 30 K303 services/month; $300 per service month) and Tier 3 (≥ 45 K303 services/month; $450 per service month). All amounts mentioned here are the full fee-for-service Monthly Management Fee amounts.(1)

One-way messaging: A form of messaging that enables a provider or healthcare staff to send information to a patient without permitting responses within the same communication channel.

Patient-initiated messaging: A secure exchange of messages between a patient or patient's proxy and the practitioner, where the patient is the initiator of the message thread.

Payment Type: Categorization of payment types for physicians based on their group affiliation (e.g., whether a Family Health Network (FHN), FHO, Alternate Payment Plan (APP), etc.), whether they are locum, or affiliated with Income Stabilization or New Graduate Entry Program. Type 1 and Type 2 payments are for primary care models with shadow billing, where physicians get a

percentage of the secure messaging Monthly Management Fee amount. The percentage received depends on the primary care model the physician is part of. Type 3 refers to specialist APP models where physicians receive a flow through percentage of the secure messaging Monthly Management Fee amount. The percentage received depends on the APP model the physician is part of. Type 4 refers to physicians who receive the full fee-for-service secure messaging Monthly Management Fee amount. Type 5 receives $0 payment as they are salaried but submit claims. (1)

Secure messaging: A digital communication modality that allows users to transmit confidential (end-to-end encrypted) messages to recipients using a secure solution.

Secure Messaging Proof-of-Concept: A two-year project initiated by the Ontario MOH with support from OH to facilitate delivery of services to patient by SM between April 2024 and March 2026.

Secure messaging service encounter: An exchange of secure messages transmitted between a patient or patient's representative and a physician, encompassing all messages that were exchanged to undertake and complete the clinical service for the presenting health issue(s), which includes the physician soliciting the appropriate patient information, analyzing the information, and providing appropriate management and/or advice related to the patient's presenting health issue(s) (1).

Shadow billing: A billing mechanism used in some primary care practice models (e.g. FHO) where physicians receive a percentage of the Fee-for-Service (FFS) amount for some claims. The percentage depends on their practice model.

Two-way messaging: A secure exchange of messages between a patient or patient's proxy and the practitioner, where the recipient has the ability to respond to the initial message.

Verified solution: A virtual visit solution that has been verified by Ontario Health to meet all the mandatory requirements of the provincial virtual visits verification standard, ensuring that solutions meet the provincial standard for privacy, security, technology, accessibility and functionality.

Executive Summary

Background

This report summarizes findings from the evaluation of the Ontario Ministry of Health's (MOH) Secure Messaging Proof-of-Concept (SM PoC) pilot (April 2024 - March 2026), launched by the Ministry of Health (MOH), which enabled physician registrants to bill for eligible SM service encounters using the K303A billing code. The key objectives of the evaluation are to:

1. Develop an understanding of the current use of secure messaging.
2. Identify barriers and enablers of effective messaging adoption and use.
3. Assess the effectiveness of the SM PoC implementation model.
4. Describe the impact of including messaging in the publicly funded suite of physician services (e.g., SM billing practices and impact on utilization of other visit modalities).

Methods

We adopted a mixed-methods approach with multiple data sources: A physician registrant survey, MOH claims data, semi-structured interviews (patients, physicians, and non-physician clinic staff), a physician experience survey, Ontario-wide aggregate SM vendor data, electronic medical record (EMR) data (specialist care and primary care), vendor utilization reports (primary care), and population-health administrative data (ICES).

Key Findings

SM POC UPTAKE AND PARTICIPATION

- **The SM PoC had limited reach** as only a small proportion of physicians in the province enrolled. Awareness, financial, operational and eligibility challenges may have limited participation, with concerns including SM implementation costs and increased workload.

SM UTILIZATION AND ALIGNMENT WITH THE BILLING MODEL

- **Most SM utilization was outside of the K303 billing model.** Actual SM utilization was higher than what billing data suggested.
- **Low K303 remuneration combined with a tiered volume-based payment structure did not incentivize SM for clinical encounters**, as physicians continued to use SM mainly for non-billable purposes and most physicians who did use the K303 code did not qualify for payment as they did not reach the minimum threshold of 15 K303s/month.

- **Billing for SM service encounters was mainly by primary care physicians**, who also had a higher average number of SM claims per month compared to specialists.
- **SM PoC remuneration was not a major driver of SM use,** with low conversion from non-billers to billers beyond the first month of K303 eligibility.
- **The overall use of OceanMD and QHR Accuro for SM (unrelated to the PoC) has increased across the province, and was driven by new user adoption and not increased intensity or type of SM use.** Despite increased SM volumes in Ontario, the average monthly utilization per user remained stable, indicating that expanding SM to new users may be more impactful for scaling SM provincially than increasing usage among existing users.

SM USE CASES

- **SM was primarily used for administrative and one-way communication** to support operational efficiency and digitize existing activities.
- **SM may replace other visit modalities for a limited number of straightforward clinical tasks and simpler clinical concerns,** but it was not widely used for this purpose, given the potential work burden and limited incentives. Interviewees found it was most valuable as a complementary tool to support efficiency and patient-centred visits (e.g., sharing test results, and facilitating pre-visit gathering of patient information and symptoms).

IMPACT ON OTHER PHYSICIAN SERVICES

- **Primary care SM billing by SM users was associated with more stable visit volumes and increased patient throughput** compared to SM non-users (ICES data). This may reflect changes in care delivery patterns and/or the improved ability to capture SM encounters through billing data.
- **Immediate follow-up for SM encounters is often unnecessary**, as ICES data showed that only 10.6% of billed SM encounters were followed by an in-person or virtual visit with the same physician for the same condition within 7 days.

PARTICIPANT PERSPECTIVES ON ADDITIONAL CONSIDERATIONS FOR SM ADOPTION

- Interviewees' perspectives on how to improve PoC participation and SM utilization included:
  - **Simplified remuneration** to reflect actual SM use in practice.
  - **Financial support** for broader adoption and use of SM by physicians.
  - **Timely SM solution verification mechanisms** to enable participation in the PoC.
  - **Organization-level alignment in SM utilization and PoC registration** to support consistent adoption of SM service encounters across an organization.

1.0 Introduction

1.1 Context

Secure messaging (SM) enables the confidential and protected exchange of personal health information (PHI) between patients, healthcare providers, and administrative staff (2). The importance of SM has grown significantly in recent years as healthcare delivery becomes increasingly digital (2). SM covers a range of message types and uses, including clinical and administrative interactions. Within this, SM service encounters represent a subset of messages that meet a defined criteria for clinical service delivery specifically. This report examines both overall SM use as well as SM service encounters in the context of a pilot program in Ontario.

More broadly, SM has many benefits including convenience, efficient communication, improved clinician response times, and equitable access to care (3,4). However, there are associated challenges including increased physician workload due to high message volumes, insufficient compensation structures, and inappropriate use of SM by patients (2,5,6). It is unclear whether SM can replace other modalities (e.g., video/phone appointments and in-person visits) or if SM increases overall burden of communication (7) Furthermore, some clinics disable patient-initiated messages due to the absence of suitable workflow and triage mechanisms to handle SM volumes (8). To promote high-value SM use, variations in SM workflow, and the facilitators and barriers to SM for different types of users across care settings needs to be understood.

SM adoption has increased over the years across both primary and specialty care, especially after the COVID-19 pandemic (9,10).The experience with SM in Canada varies between provinces due to differences in remuneration, governance, and implementation approaches. For example, Alberta and British Columbia have standardized billing codes for SM visits, whereas Ontario has had only temporary billing codes for SM through an earlier primary care pilot program between 2017 and 2019 (6,8).

The SM proof of concept (PoC) pilot program was a two-year project initiated by the Ontario Ministry of Health (MOH) with support from Ontario Health (OH) that aimed to support the delivery of SM services to patients between April 2024 and March 2026. The SM PoC pilot aimed to (11):

1. Meaningfully complement care within existing patient-practitioner relationships.
2. Support increased patient access to care.

3. Gather a wider scale of evidence related to the use of SM within physician practices in Ontario

physicians registered in the SM PoC could receive compensation for SM service encounters (K303A billing code) according to the remuneration framework provided in the SM PoC Billing Guide (1). The remuneration framework provided a Monthly Management Fee payment that counted the number of K303 services delivered a registered physician in the month and allocated the appropriate Monthly Management Fee payment across three tiers, with a minimum threshold of 15 K303 services in the month to qualify for payment:

- Tier 1: Minimum K303 count of 15 ($150 per service month*)
- Tier 2: Minimum K303 count of 30 ($300 per service month*),
- Tier 3: Minimum K303 count of 45 ($450 per service month*).

  * Rates represent the full Fee-For-Service amount.

The physician's payment rate was determined based on the physician's group affiliation(s). See Payment Type in the Operational Definition section, and/or the SM PoC Billing Guide (1) for more details.

The SM PoC Billing Guide listed K303 eligibility criteria (1) which included terms and conditions such as:

- The use of secure messaging functionality of a virtual visit solution that is verified for secure messaging by Ontario Health and listed on Ontario Health's Verified Solution List.
- The physician and patient, or patient's representative, must be physically located in Ontario at the time(s) when they send their message(s) contributing to their side of the secure messaging service encounter.
- Service is delivered within an existing/ongoing patient-provider relationship.
- Delivery of the SM service personally by the physician.

Physicians could register for the SM PoC during two registration windows: January-October 2024, and August-September 2025. As of March 2026, 747 physicians registered for the SM PoC.

1.2 Purpose and Objectives

The Centre for Digital Health Evaluation (CDHE) was commissioned by the Ontario MOH to evaluate the implementation and outcomes of the SM PoC. The objectives of this evaluation were to:

1. Develop a comprehensive understanding of the current use of secure messaging, i.e., describe the models of care, clinical workflows, and both billable and non-billable uses of messaging in different clinical settings.
2. Identify barriers and enablers of effective messaging adoption (SM PoC registrants as well as non-registrants) and use (SM PoC registrants) and summarize lessons learned.
3. Assess the effectiveness of the SM PoC implementation model.
4. Describe the impact of including messaging in the publicly funded suite of physician services (e.g., SM billing practices and impact on utilization of other visit modalities).

2.0 Methodology

This mixed methods study used multiple data sources that are summarized in Table 1.

Table 1 List of data sources

Data source	Details
Registration survey	• MOH-conducted survey to collect physician registrant information and practice information
MOH data	• Physician registrant demographic and practice characteristics, along with secure messaging (SM) claims data from April 2024 to October 2025, provided by MOH. This included physician demographics, specialty and practice location, group affiliations, overall care delivery patterns (including in-person and virtual visits), monthly SM billing activity, and physician payment model classifications across all registrants.
Semi-structured interviews	• Interviews with key informants, physicians, non-physician clinical staff, and patients
Physician survey	• CDHE survey to evaluate messaging use, perceptions and perceived value proposition from PoC registrants as well as non-registrants
EMR/HIS data	• Electronic Medical Record (EMR)/Hospital Information System (HIS) data to analyze SM utilization patterns and how messages were integrated into care • Data obtained from one specialist care site (Site A) and one primary care site (Site B)
Vendor data	• Ontario-wide vendor data (OceanMD and QHR Accuro Engage/Medeo) to assess patterns of use and SM volumes • Site-specific 30-day vendor utilization reports (OceanMD) from two primary care sites (Site B and Site C)
ICES data	• Population-based health administrative data (April 2024 to May 2025) to evaluate SM billing patterns and impact of SM on other visit modalities • Databases included OHIP for physician claims, Discharge Abstract Database (DAD) for hospitalizations, Ontario Mental Health Reporting System (OMHRS) and National Ambulatory Care Reporting System (NACRS) for emergency department visits, and the ICES Physician Database (IPDB) for data on physician characteristics

The four main evaluation objectives were approached by leveraging these data sources as outlined in Table 2.

Table 2 Data sources used to address evaluation objectives

Study Objective	Data Sources
1. Develop a comprehensive understanding of the current use of secure messaging in different clinical settings	• Registration survey • Semi-structured interviews • Physician survey • Vendor data • EMR/HIS data
2. Identify barriers and enablers of effective SM adoption and use	• Semi-structured interviews • Physician survey
3. Assess the effectiveness of the SM PoC implementation model	• Semi-structured interviews • Physician survey • EMR/HIS data • MOH data • ICES data
4. Describe the impact of including messaging in the publicly funded suite of physician services	• ICES data

DATA COLLECTION AND ANALYSIS

Data collection and analysis processes for the different data sources are elaborated below.

REGISTRATION DATA AND MOH CLAIMS DATA

A total of 747 physicians registered for the SM PoC across two registration windows: 620 between January - October 2024, and 127 between August - September 2025. All physician registrants were required to complete an MOH-administered registration survey that included questions related to their practice as well as SM use (Appendix C1). The CDHE analyzed registration survey data to understand the characteristics of PoC registrants and linked it to physician claims data provided by MOH for the time frame April 2024 - October 2025 to assess the utilization of the K303 billing code. Data was analyzed using descriptive statistics to summarize key differences and similarities between registrants who billed versus registrants who did not bill. Monthly billing trends were visualized comparing physician type (primary care physicians (PCPs) versus specialists), payment model type, and the proportion of billing physicians reaching each Monthly Management Fee payment tier.

EMR DATA AND VENDOR DATA

PROVINCE-WIDE SM UTILIZATION VENDOR DATA

Aggregate Ontario-wide SM utilization data was received from two SM solution vendors: OceanMD and QHR. Appendix A provides a list of metrics provided by OceanMD and QHR.

OceanMD SM utilization data was available for the timeframe November 2023 to January 2026. This included information on number of SM conversations initiated by clinic staff and patients, and number of automated reminder messages sent.

QHR enables SM via Accuro Engage (provider-facing tool embedded in the Accuro EMR) and Medeo (patient-facing SM interface). SM utilization data was provided for the timeframe January 2023 to December 2025, with information on the volumes of SM threads and messages. Patient-initiated SM is not available with Medeo, unless the provider/clinic leaves a SM thread open for the patient to message when needed; SM utilization data included information on the number of threads that allowed a patient response.

SITE-SPECIFIC SM UTILIZATION DATA

One specialist care site (Site A) and two primary care sites (Site B and Site C) provided SM utilization data based on EMR data extractions and/or vendor data. Appendix A provides a summary of the SM metrics that informed this evaluation. An overview of these data sources is provided below.

Specialist care: Site A

Site A is an ambulatory hospital in Toronto using the Hospital Information System (HIS), EPIC platform. 20 physicians across seven clinics from Site A registered for the PoC – one physician in 2024, and the remaining 19 physicians in 2025. The clinics represented were Cardiology, Endocrinology, Gastroenterology, Gynecology, Nephrology, Rheumatology and Psychiatry, with the latter including three mental health (MH) programs, namely, General Psychiatry, Reproductive Life Stages (RLS) and Trauma Therapy.

The CDHE requested HIS data extractions that provided SM utilization data for all clinics that had at least one PoC registrant, and aggregate information on visits and their modalities. Data was provided for the timeframe from September 1, 2024, to December 31, 2025, providing data for one year prior to these registered physicians being able to submit claims within the SM PoC and three months after. Appendix A provides a summary of the SM metrics provided by Site A.

Data was analyzed using descriptive statistics to summarize patterns of SM utilization and billing across clinics and between billing physicians and non-billing physicians.

Primary care: Site B (Toronto-based Family Health Team (FHT))

Site B is a primary care clinic that is part of a Toronto-based FHT. Four of six physicians from Site B were registered for the PoC. QHR Medeo was the primary platform used for SM as it was integrated with their EMR (QHR Accuro). OceanMD was also used by one registrant physician and two staff.

Site B provided aggregate EMR data for Medeo SM utilization for a one-year time frame spanning six months pre- and post- SM PoC, i.e., October 2023 to September 2024. In addition, a user-generated OceanMD utilization report for a 30-day time frame, July 23rd 2025 to August 23rd 2025, provided an overview of OceanMD SM utilization at the clinic. Appendix A provides a summary of the SM metrics provided by Site B.

Primary care: Site C (Waterloo-based Family Health Organization (FHO))

Site C is a primary care clinic that is part of a Waterloo-based FHO. Two of four physicians at Site C were registered for the PoC. The clinic used OceanMD for SM, with its Telus PS Suite EMR system. Site C provided user-generated OceanMD utilization reports for a 30-day time frame time, January 2nd to January 31st 2026. Appendix A provides a summary of the SM metrics provided by Site C.

Primary care EMR data and vendor data for Site B and Site C were analyzed using descriptive statistics to summarize patterns of SM utilization between physician registrants, non-registrants and other clinic users. K303 utilization patterns for these sites were analyzed using linked MOH claims data.

INTERVIEWS

MOH claims data was used to identify sites which had physician registrants billing for K303 services. The CDHE identified physicians from a subset of these sites, to include participants from different types of practice settings.

33 semi-structured interviews were conducted with key informants (n=2), physicians (n=17), non-physician clinic staff (n=7) and patients (n=7) (Table 3). These included participants from three sites where SM utilization data (vendor reports and/or EMR data) was requested, to understand SM utilization patterns (Table 4). Interview guides are available in Appendix B.

Table 3 Interview participants.

Interview participants (Physicians)	
Key informant – PCP	1
Key informant – Specialist	1
PCPs	11
Specialists	6
Total Physicians	**19**

Interview participants (staff and patients)	
Non-physician clinic staff	
Administrative staff	4
Nurses	2
Social Worker	1
Total non-physician clinic staff	**7**
Patients	**7**

Table 4 Interview participants from sites that provided EMR/vendor data

	Specialist care	Primary care	
Participants	**Site A**	**Site B**	**Site C**
Physicians	3	1	2
Non-physician clinic staff	1	1	-
Patients	1	1	-

Interviews explored participants' experiences using secure messaging. Physicians were requested to share their perspectives on the ongoing SM PoC pilot, and whether their utilization of SM was influenced by the availability of a new SM billing code.

Interviews were conducted over Microsoft Teams, recorded, and transcribed verbatim for analysis. Transcripts were thematically analyzed using the Non-Adoption Spread Scale and Sustainability (NASSS) framework which helps understand why technologies are adopted, fail to be adopted, or are not scalable or sustainable, based on seven domains, namely, the clinical condition, the technology, the value proposition, the adopter system, the organization, the wider system, and overall embedding and adaptation over time (12).

Four team members including a patient partner evaluator (PPE) met after independently coding three interviews to collaboratively develop a code book to guide the interview coding process. Subsequently, three team members analyzed the transcripts using an iterative process, reviewing and updating the codebook as new themes emerged.

PHYSICIAN SURVEY

The physician survey was open between December 10th, 2025, and February 2nd, 2026. Most questions in the survey were not mandatory to complete; therefore, not all questions received 183 responses. In addition to being sent to PoC registrants, the survey was distributed more broadly

to non-registrants by registered physicians and their clinic staff and OH leads and their extended networks. Two survey reminders were sent to registrants. Out of the 747 registrants, one was retired and not included in the survey distribution and nine did not receive the survey due to undeliverable email addresses, resulting in 737 PoC registrants invited to participate.

A total of 183 completed survey responses were received, including 12 from PoC non-registrants, corresponding to a 24.8% response rate among PoC registrants. As most questions were optional, response counts vary by question. The survey guide is provided in Appendix C. Data was analyzed using descriptive statistics to compare views of SM between PCPs and specialists with linkage to MOH claims data to explore billing utilization.

ICES DATA

We conducted a population-based repeated cross-sectional study examining SM visits in Ontario using monthly measures from April 2024 - May 2025. The databases used for this analysis included the OHIP for physician claims, and the ICES Physician Database (IPDB) for data on physician characteristics.

To be included in the study, physicians had to be active billers (defined as at least 100 unique billing dates, or 100 unique patients served in the calendar year prior to their first K303 billing date). For each month of our study period (April 2024 - May 2025), we included all SM claims and relevant ambulatory visits (in-person and virtual) using relevant provider billing codes. SM claims were also broken down across physician specialty, practice type (for PCPs), sex, and level of virtual care use within their practice. To explore the proportion of SM service encounters that may have led to additional in-person or virtual visits, we looked at the proportion of SM service encounters that were followed up with an in-person or virtual visit within the next 7, 14, and 28 days with the same physician and patient and the same diagnosis. We also examined whether SM service encounters were preceded by a similar visit within the 7, 14 and 28 days prior to the SM claim.

ANALYSIS

We ran a mixed negative binomial model to conduct an Interrupted Time Series (ITS) analysis. The study centers on each physician's first SM (K303) billing date, comparing outcomes across a 24-month window (12 months pre- vs. 12 months post-intervention). Physicians were stratified as non, low or high SM users based on the number of SM billings they had submitted during the study window. Non-users had no SM billings; low-users had 1-299 SM billings; and high-users had 300 or more SM billings. Physician baseline characteristics were defined at their first K303 billing date.

We looked at physician sex, age, number of unique patients seen, number of OHIP encounters per day, number of OHIP ambulatory service encounters per patient in the previous year, total cost billed in the past year, percent of OHIP ambulatory service encounters by phone or video in the past year, practice model (for PCPs), average healthcare cost per patient, average emergency department (ED) visits per patient, and average hospitalization per patient within all the patients the physician saw at least once during the study period. The ITS model incorporates the following fixed factors: **time** (monthly) to capture underlying trends over time, and an **intervention** variable characterizing months as pre- or post- start of participation in the PoC (i.e. before or after the first K303 billing date for each physician) to quantify the immediate level shift (immediate change after the intervention) and slope change (gradual change over time in the outcome variable) attributable to the start of participation in the PoC. The primary outcomes were total number of patients served by the physician in a given month and total amount/cost of billings per physician for each month. We conducted 4 analyses: two in primary care and two in specialist care for each of the two primary outcome variables. For each analysis, physicians were matched on a 1:5:5 fashion, with 5 low SM users and 5 non SM users matched to each high SM user in a 3-way match based on their index date, medical specialty/practice model (classified as specialist, Primary care FHT, or Primary care Other) and billing volume.

3.0 Findings

3.1 SM PoC Uptake and K303 Utilization

We used registration data and MOH claims data to analyze PoC registrant profiles. Analysis of K303 utilization drew on registration data, MOH claims data, and ICES data and was further contextualized by physician interview and survey data.

REGISTRANT PROFILES

Among the 747 SM PoC registrants, PCPs represented a slightly higher proportion (n=420, 56.2%) compared to specialists (n=327, 43.8%). Approximately 50% of registrants billed for SM at least once using the K303 code between April 2024 and October 2025.

Focusing on 373 registrants who billed, Ocean is the most widely used SM platform at 42.9%, followed by QHR's Accuro Engage (25.2%) and Telus Pomelo (10.2%) (Appendix E, Figure E1). 73.2% of billers stated they used SM for both clinical and administrative purposes prior to the PoC, and only 3.8% had not used SM previously, suggesting that the PoC is more likely to compensate physicians who were already frequent SM users rather than incentivizing new uptake (Appendix E, Figure E2). However, it cannot be conclusively determined if SM PoC registration led to increased clinical use of SM or changes in how registrants used SM clinically, given the wide range of clinical uses. Registration data shows that 92.2% of registrants who billed were proficient, advanced, or expert in their use of technology (Appendix E, Figure E4). Majority (68.6%) of registrants who billed were providing care primarily to patients residing in urban or suburban settings (Appendix E, Figure E9). Registrants who billed were also more likely to be working in a group practice (56.6%) (Appendix E, Figure E11).

MOTIVATION FOR POC REGISTRATION

Interview findings showed that most physicians registered for the PoC primarily for financial reasons. While the majority expected meaningful compensation for the time and effort associated with SM, a few indicated that any level of remuneration was preferable to none, particularly for services that they were already providing to their patients. One PCP registered for the PoC with the intention to maximize their 'Access Bonus'[1] by improving patients' access to care through SM.

[1] Access Bonus: A fee that capitation-based physicians in Ontario are paid if their patients do not seek core care services outside their practice. The access bonus approach will be ending after March 2026 when the new FHO+ model comes into effect.

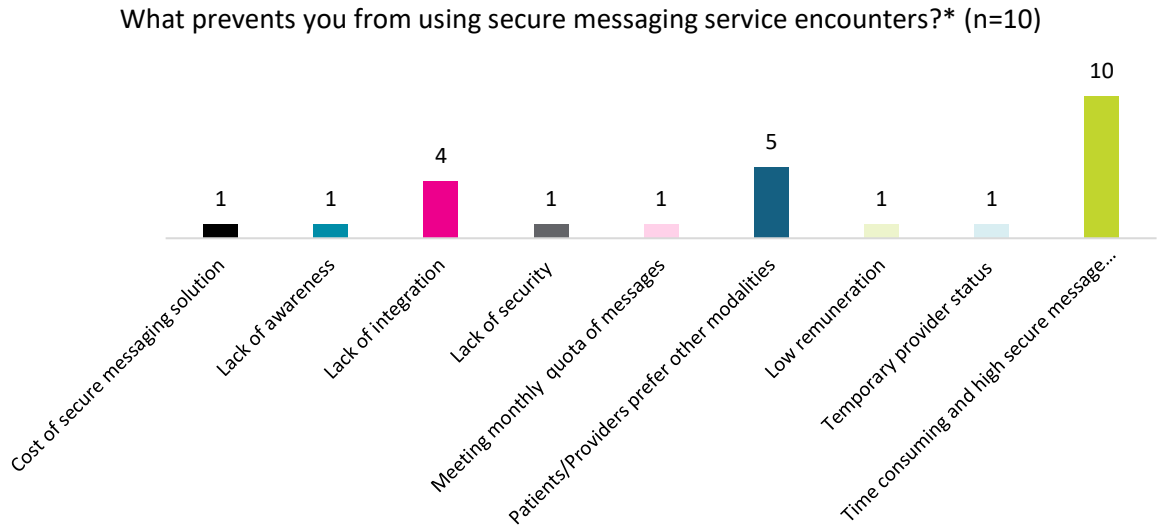
A few physicians also highlighted that the PoC supported improved documentation of additional diagnostic codes for patients (when submitting a K303) which was particularly valuable for those in payment models where remuneration is linked to patient acuity or complexity.

BARRIERS TO POC REGISTRATION

Interviewees highlighted that the cost of implementing SM could be a deterrent to PoC enrollment. They also mentioned the limited registration window as a factor that reduced opportunities for broader uptake. Broader barriers to SM adoption including concerns about increased message volumes and workload may also have influenced physicians' decisions not to register for the SM PoC. While some physicians registered for the PoC, they were unable to participate in billing as their SM solution was not yet listed as a 'verified solution' (as noted by one interviewee using EPIC).

Of 183 survey respondents, 12 were non-registrants. Among the 12 non-registrant survey respondents, 10 provided reasons for not enrolling in the SM PoC and these included lack of awareness (n=5), inadequate compensation (n=2), not using SM at their practice (n=1), lack of interest (n=1), and trying to enroll but not hearing back (n=1). Non-registrants provided reasons preventing them from using secure messaging with most mentioning time consumption and high SM volumes as barrier (n=10), preference of other modalities (n=5) and lack of integration (n=4).

Figure 1 Reasons Preventing Secure Messaging Use for Service Encounters

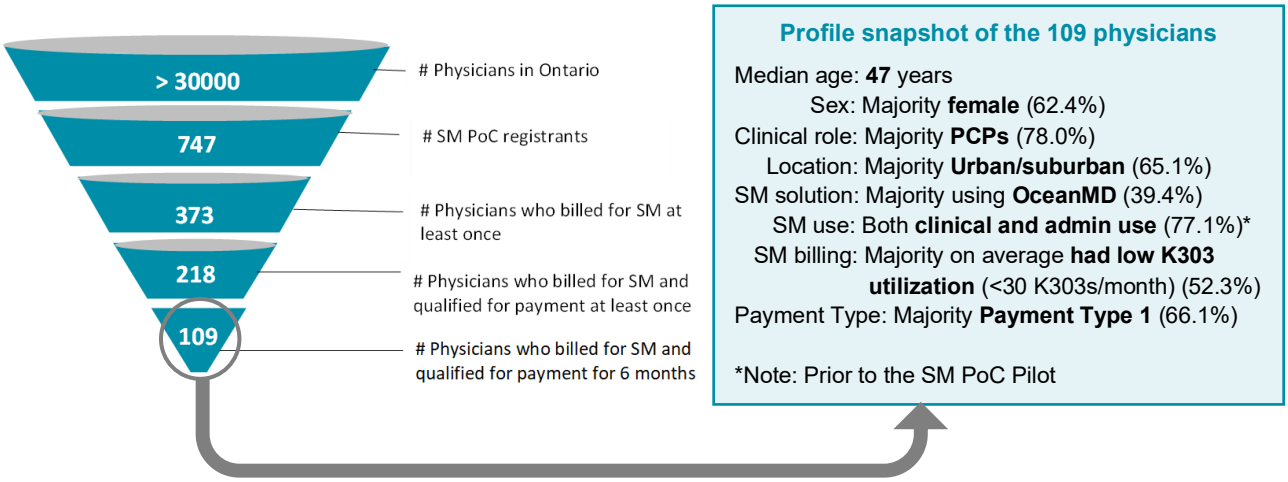


***Note:** Only answered by 10 non-registrants survey respondents. Responses were coded into multiple themes*.

K303 UTILIZATION

Out of approximately 35,215 physicians in Ontario (13), interest in the SM PoC was minimal with only 747 registrants. Just under half of these registrants (49.9%, n=373) submitted at least one K303 between April 2024 - October 2025, but only 218 registrants ever qualified for payment (Figure 2). Consistent with this, ICES data showed that 311 physicians (of 619 who enrolled during the first PoC registration window) billed for an SM encounter at least once between April 2024 - May 2025, indicating that only about half of enrolled physicians used the K303 code for billable SM service encounters.

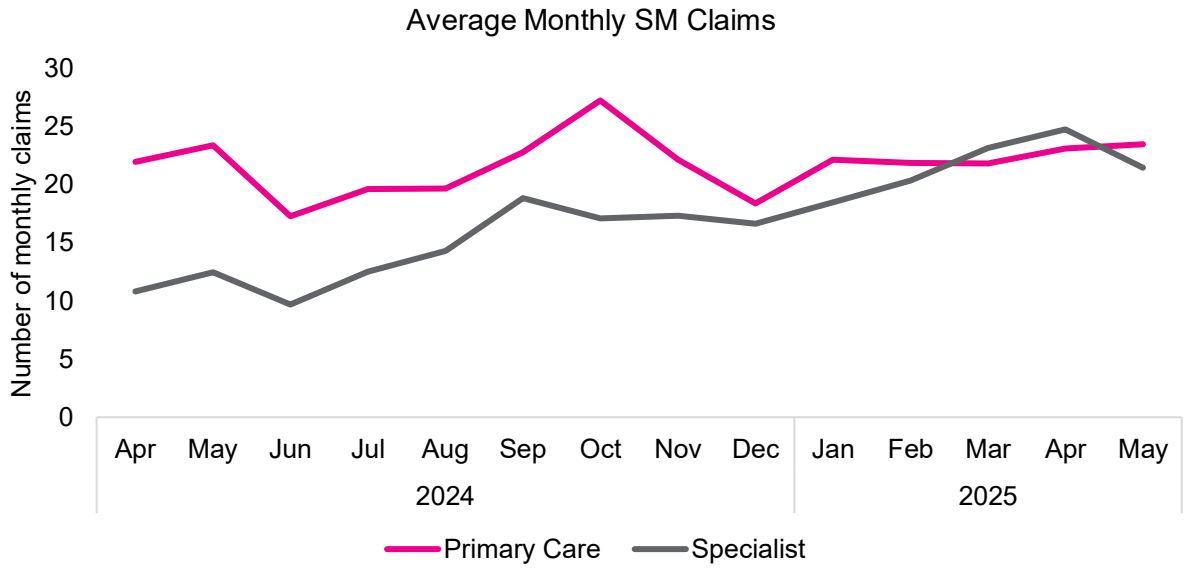
Figure 2 Physician participation and utilization of the SM PoC



As per SM PoC registration data and MOH claims data, 40.2% of registrants who billed did so within the first month they were eligible to bill within the PoC. Only 9.8% of registrants started using the K303 billing code more than a month after they were eligible to bill within the PoC, indicating a lower conversion rate from non-billers to billers after the first month.

ICES data indicated that the number of SM claims per physician ranged from 1 to 3,227 between April 2024 - May 2025. Overall, ICES data showed an average of 3,752.9 SM claims per month, across a monthly average of 3,333 patients, or an average of 1.1 SM claims per patient per month. The average number of physicians with SM claims per month was 180.9 with an average of 20.6 (SD=2.6) SM claims per physician per month. We estimated that 10.3% of the physicians who claimed for SM were responsible for 44.9% of all SM claims. Male physicians had more SM claims (monthly mean = 25.2, SD = 3.4), than female physicians (monthly mean = 18.0, SD = 2.4).

Figure 3 Average Monthly SM Claims (ICES data)



MOH claims data indicated that majority of registrants who billed (69.7%) were PCPs (Table 5), consistent with ICES (PCPs (80.5%): Monthly mean = 21.8, SD = 2.5; Specialists: Monthly mean = 17.0, SD = 4.6.) and SM PoC registration data findings. PCP registrants were also more likely to bill for SM, with 61.9% of PCP registrants submitting at least one K303 compared with only 34.6% of specialist registrants. After the first six months of the PoC, specialists' average monthly K303 billings rose above the minimum payment threshold, while for PCPs the average monthly billings fluctuated but were consistently above the minimum threshold (Figure 3). However, this may be influenced by outliers, as some PCPs submitted an unusually large number of SM claims (with the highest reaching 347 K303 claims in a single month), possibly due to lack of clarity around billing criteria and eligibility. Out of the 260 PCP registrants who billed for SM, only 101 (38.8%) qualified for payments by meeting the minimum threshold (15 or more K303s per service month).

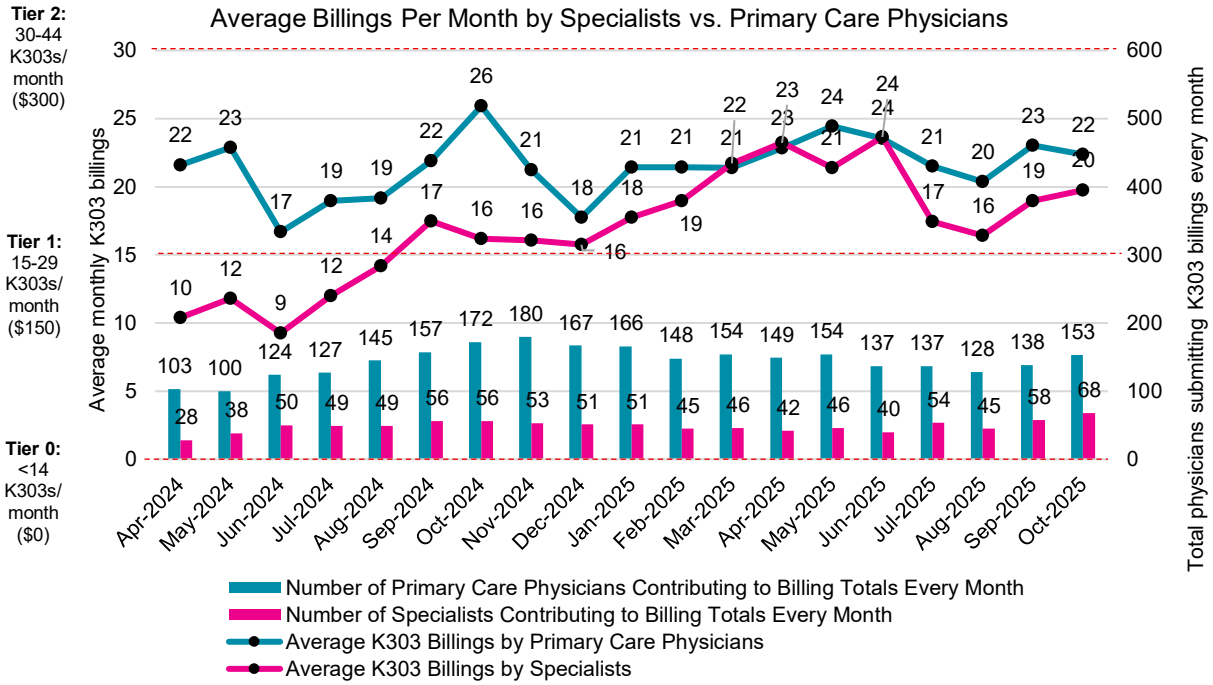
Table 5 SM PoC billers by provider role

Provider group	Number of SM PoC registrants	Billers (n%)
PCPs	420	260 (61.9%)
Specialists	327	113 (34.6%)
Total	747	373 (49.9%)

The specialities with higher K303 billings were pediatrics, rheumatology, gastroenterology, endocrinology, and obstetrics and gynaecology, (which varied from ICES findings showing

rheumatology (3.7%) as the highest billing specialty, followed by pediatrics (3.4%), gastroenterology (3.0%), and dermatology (2.5%) between April 2024 and May 2025). Among the 69 specialists from the top 5 specialties that billed, only 27 specialists (39.1%) qualified for payments by meeting the minimum threshold (15 or more K303s per service month) (Appendix E, Figure E7). When comparing self-reported average monthly SM use compared to average monthly K303 billings, 59.6% of survey respondents reported higher SM usage compared to their K303 billings (Appendix F, Figure F11). Among 183 physician survey respondents, 21.9% (n=40) had not submitted any K303s between April 2024 and October 2025 (MOH claims data).

Figure 4 K303 billing by Specialists and PCPs (April 2024 to October 2025)

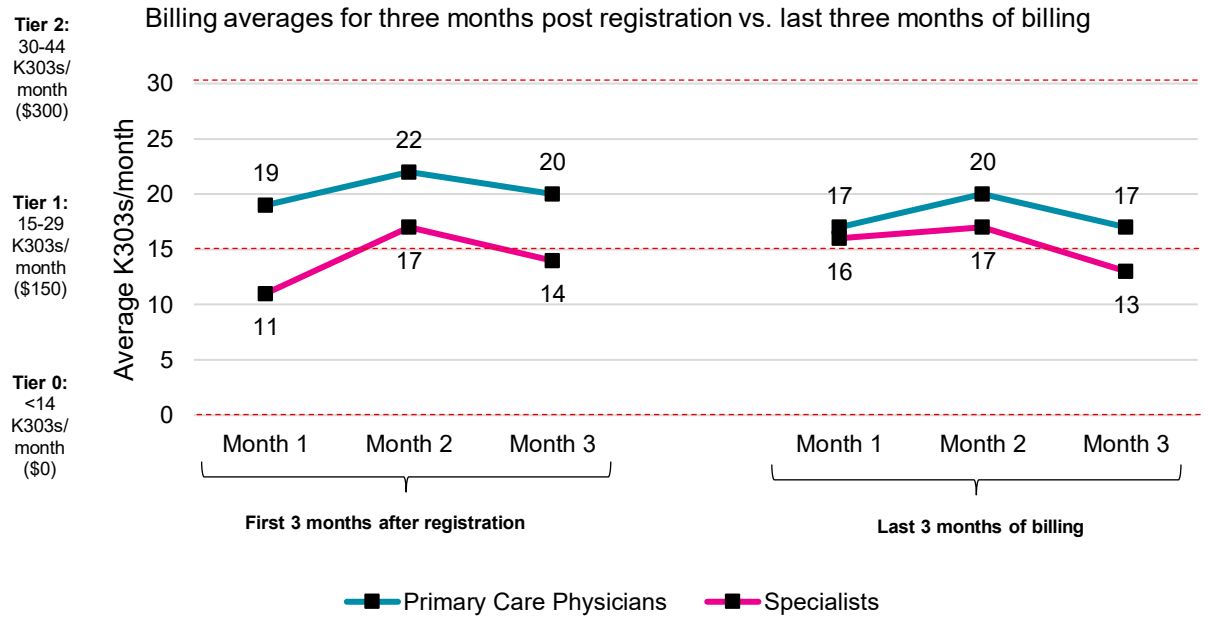


We also compared K303 utilization based on registrants' payment models. Payment model types 1, 2, and 3 are physicians operating under Alternative Payment Plans (APPs), Alternative Funding Arrangements (AFPs), and Capitation-based models (such as FHOs). Physicians from Type 1 and Type 2 primary care practices and Type 3 specialist practices were paid a percentage of the Monthly Management Fee for their claimed SM services in alignment with their payment contract. Based on MOH claims data, K303 billing by payment model type was highest among physicians in Type 1 (54.9%), followed by Type 4 Fee-for-Service physicians (37.0%). No physicians billed under Type 2 payment model type (Appendix E, Figure E15).

Analysis of MOH claims data for physician registrants who submitted K303s in at least six months revealed distinct billing patterns between PCPs and specialists. Among PCPs, average billings

were slightly higher in the first three months post-billing eligibility than in the final three months for which claims data was available, and PCPs billed at levels sufficient to qualify for payment in all six months on average. In contrast, specialists exhibited greater variability: average billings fluctuated between early and later billing periods, and specialists qualified for payment in only three of the six months on average. Overall, this indicated that among PCPs and specialists who billed consistently (i.e., for at least six months), PCPs more reliably met K303 payment thresholds compared to specialists.

Figure 5 Billing averages for three months post registration and three last months of billing by PCPs and specialists between April 2024 to October 2025



ICES data showed that PCPs in FHTs had fewer claims (monthly mean=12.9, SD=4.3) than those in FHOs (monthly mean =24.0, SD=10.3). Lower virtual care users (<5% of total care conducted over phone or video) had lower SM claims (monthly mean 18.9, SD=4.3), relative to medium virtual care users (5-15% of virtual care, SM claims monthly mean=19.7, SD=2.9) and high virtual care users (>15 of virtual care, SM claims monthly mean=24.1, SD=3.9).

Low utilization of K303 billing was aligned with interview findings. Some physician interviewees reported that they had stopped billing (n=2), never billed (n=4), or billed inconsistently (n=1). A key reason was that the majority of SM messages did not meet the eligibility criteria for billing - four clinicians noted that only a small proportion of their SM utilization was billable, with one describing that only about one in ten would meet the criteria. Clinicians described using SM

extensively for one-way communication, resources sharing, sharing results, and form distribution, all of which while valuable to patient care, did not qualify as billable SM encounters.

> *"I think it just, to me anyway, it sort of says that the small piece of the puzzle, or the small piece that qualifies for us to use the tracking codes, is just such a small piece of how we use secure messaging."* – ***Clinician 11, PCP***

One clinician developed a workaround to increase billable encounters by converting patient emails into SM messages and prompting a confirmation response to complete the communication required for billing eligibility. However, this added additional steps to an already time-consuming process.

> *"I would say 90% of messages are triggered because patients email me still (…) I convert their email into a response in the secure messaging system asking them for a confirmation that they understand the instructions or the plan that I've given them and then hopefully there's a secondary response that confirms that in order to secure the full loop in terms of the billing."* – ***Clinician 14, Specialist***

73.7% of physician survey respondents indicated that they billed for SM inconsistently (or not at all). This was attributed to various reasons including challenges with the billing process as well as lack of sufficient compensation via the PoC billing model.

PROFILING HIGH VERSUS LOW K303 USERS

Based on ICES data, there were no major baseline characteristic differences between SM K303 user groups for PCPs. User groups for the ICES data were defined by K303 utilization between April 2024 and May 2025: non-users (no K303s), low-users (1-299 K303s), and high-users (300 or more K303s). High SM users tended to have a slightly higher number of unique patients seen in a year and were billing (overall) slightly more, but the average number of visits per day was overall similar (Appendix D, Table D1).

MOH claims data between April 2024 - October 2025, showed that 32 (12.3%) PCP registrants on average billed more than 45 K303 claims per month. Baseline claims data (2023-24) indicated that PCPs with high SM use (more than 45 K303 claims a month) had a slightly higher average number of patients (1,744 patients) compared to other SM user groups. Baseline claims data (2023-24) also showed that PCPs with high SM use on average had higher total visits (6068 visits)

compared to other SM user groups, indicating that PCPs with more patients seen and visits prior to the SM PoC pilot generally made greater use of K303 billing (Appendix E, Figure E14 and Table E1).

Among specialists across SM user groups, low users of SM had a much smaller number of unique patients seen in the year (Mean=1659.79, SD=1044.42) than high users (Mean=3049.30, SD=1570.02) or non-SM users (Mean=2575.78, SD=5964.89). They saw fewer patients per day (Mean=8.58, SD=4.36) relative to high users (Mean=12.8, SD= 6.98) and non-users (Mean=11.8, SD=19.07). The number of visits per patient was similar across the three groups (Appendix D, Table D2).

MOH claims data between April 2024 - October 2025, showed that 11 (9.7%) specialists billed more than 45 K303 claims per month. Baseline claims data (2023-24) indicated that specialists with high SM use (more than 45 K303 claims per month) had a considerably higher average number of patients (3129 patients) and high total visits (7635 visits) compared to other SM user groups, indicating that specialists with more patients and visits prior to the SM PoC pilot generally made greater use of K303 billing (Appendix E, Figure E14 and Table E2).

3.2 SM Utilization and patterns of use

IMPACT OF K303 AVAILABILITY ON SM UTILIZATION

The K303 code did not incentivize SM adoption by new users, as only a minority of physicians who billed (3.8%) did not use SM prior to the PoC. The majority of physician interviewees (n=10) reported that the billing model did not influence whether and how they used SM, and most did not bill K303s consistently. The remuneration amount available through the K303 code was perceived as insufficient to incentivize increased use of SM service encounters, with physicians continuing to use SM as they had previously, i.e., primarily for non-billable use cases. Consistent with this, 59.6% of survey respondents reported higher SM usage than reflected in their K303 billing volumes, suggesting that many SM interactions were either non-billable or not billed despite being K303-eligible.

> *"This pilot program has absolutely no impact on my life. As I said, I'm not billing for it. If you told me it was over last week I wouldn't know the difference. I just do it for my own practice."* – ***Clinician 7, PCP***

One clinician compared the PoC to earlier approaches that compensated virtual visits at parity with in-person care, and felt that the lower remuneration currently available for SM may reduce incentives to substitute visits with SM. While existing users may continue to use SM, the current billing model may limit its expansion and uptake among current SM non-users.

USE CASES

Interviewees and survey respondents identified several key use cases for SM, most of which were non-billable within the SM PoC as they were not clinical service encounters. Across all interviewee groups, the most mentioned uses were sharing test results, non-urgent clinical questions, and requisitions (Appendix G, Figure G8).

Among physician interviewees, the most commonly highlighted uses were sharing test results, prescriptions/refills, and non-urgent clinical questions, while staff most frequently mentioned using SM to send pre-visit forms and questionnaires. Physician survey responses were in alignment with this, as sharing test results were the most common use of one-way messaging (86.3%).

Among patient interviewees, SM utilization was most frequently related to non-urgent clinical questions and receiving appointment reminders and test results.

Physician survey responses to being asked to list the top five use cases validated interview findings, with the most common use cases being sharing test results (88%), responding to non-urgent clinical queries (53.0%), sending patients post-visit follow-up questions or notes (50.3%), distributing patient pre-visit forms and questionnaires (48.6%), and receiving patient's self-reported data (e.g., Blood pressure readings) (42.6%).

APPROPRIATE AND INAPPROPRIATE USE OF SM

Survey responses showed that a majority of specialists (88.1%) and PCPs (91.8%) agreed that SM was an acceptable means to provide care when appropriate (Appendix F: Figure F10). Interviewees described several appropriate uses of SM including responding to non-urgent patient questions and supporting access for patients with disabilities or conditions that limit how they seek care. One specialist also noted that patients with mental health concerns may use SM to share reflections or updates between scheduled visits.

However, inappropriate use was cited as a potential deterrent to SM adoption by several interviewees as well as a few survey respondents (Appendix F: Figure F8). Examples of inappropriate use included **urgent high-acuity questions**, **lengthy messages** requiring in-person assessment, **images sent without context**, and **prescription or referral requests**

without prior discussion. One clinic disabled patient-initiated SM after experiencing abusive **hostile patient communication**. One physician interviewee also reported challenges when patients raised **concerns for multiple dependents within a single SM**, complicating chart review and billing. Multiple messages with **repetitive questions** from patients with cognitive impairments highlighted that while SM can be helpful, such patients would benefit from caregiver or family member support to manage messaging and follow guidance without adding to clinic workload. One physician in a hospital setting, received messages from their patients to forward to providers in other clinics that had not enabled patient-initiated SM, which created extra and inappropriate work. Staff noted that while SM was intended to reduce call volumes, some patients would message and then call the clinic to confirm receipt, resulting in increased phone calls and administrative burden.

> *"The hardest ones are the people who send a secure message, and then call us and say, "Hey, did you get my message?" Those are so tough, because it doesn't eliminate the amount of phone calls. Secure messaging is perfect for that, but I think it's just… patients aren't confident that email goes through (…) they always call us, most times, as a backup." – **Staff 4, Administrative Staff***

Despite several interviewees mentioning these examples of inappropriate use, most agreed that these instances were not frequent, and could be mitigated by patient education and using SM primarily with patients who have an established patient-provider relationship.

WORKFLOW VARIATIONS

Among sites represented by interviewees, the proportion of clinician- versus patient-initiated messages varied. In some clinics, most SM was clinician-initiated, with patient-initiated messages making up a smaller portion. In other clinics, particularly where they allowed patients to initiate a new SM thread, patient-initiated messages accounted for the majority of SM volume.

Several participants reported using multiple platforms for patient communication, with each serving a distinct purpose within the same clinic. For example, in one clinic, clinicians used Medeo for messaging with patients, and Ocean for forms, appointment reminders, and referrals. When patients had trouble accessing their SM platform, some clinics defaulted to regular email.

Certain SM platforms (e.g., OceanMD) were reported as being more accessible for patients, requiring minimal information (e.g., date of birth) for login, and more efficient for providers regarding managing attachments and forms with content auto-populating directly into the patient

chart. In contrast, other platforms (e.g., Medeo) required additional login steps and only partially populated attachments or message content into the patient chart. In some cases, staff supplemented SM with phone calls to ensure patients received important information, reflecting that SM alone was not always sufficient to reliably reach patients.

HANDLING INCOMING MESSAGES

Interviewees reported varied approaches to triaging incoming SMs, with workflows differing across clinics as well as between different platforms within the same clinic. In most practices, SMs were triaged by administrative staff (52.38%) while in other practices, SM were delivered directly to the clinician (47.62%).

SM triage by front desk staff involved handling administrative requests (e.g., appointment bookings) and forwarding clinical inquiries to the appropriate clinician or clinic staff. This workflow was valued for reducing physicians' inbox load and for providing a safety net when clinicians were unavailable, ensuring urgent messages were not missed. However, a key limitation was the risk of messages being missed or delayed in being sent to the clinician due to administrative staff workload. One clinician estimated that about 10% of messages intended for them, never reached them due to gaps in the triaging process. Some clinicians preferred receiving SM directly from the patient to avoid misinterpretation of the message by non-medical front desk staff.

> *"You check a button, say, "Send patient response directly to me." But I usually don't do that because I'm just worried something will get missed. Like if I'm off sick for a day unexpectedly, or I just don't want there to be a situation where … Because you don't know what's going to be in the response, and if the response is, "I'm suicidal," then I want to make sure that if I'm off then admin would see that and be able to triage it to the covering physician. Yeah, so I don't check that off personally (…) I don't want there to ever be a gap or something urgent gets missed." –* ***Clinician 16, Specialist***

Direct delivery of SM to clinicians was perceived by some to improve efficiency and timeliness, by eliminating forwarding delays and allowing them to act on patients' SM immediately. However, this placed more responsibility on clinicians to manage incoming SM volumes and to educate patients on appropriate SM use.

In practices that used multiple SM platforms, triage workflows varied by platform, which resulted in some messages sent directly to the physician, and others triaged through administrative staff. A physician from one such practice, which had multiple communication platforms but no patient-

initiated SM, reflected that broader buy-in among physicians within the practice, along with improved triaging systems, would support increased adoption of patient-initiated SM without creating unnecessary burden for physicians.

> *""[Need to] figure out how to do secure incoming and how not to burden the doctor. Most of the messages don't need to go to the doctor. They can go to the nursing, they can go to the front staff (…) But I can't do it at the office because the fact that the others have not agreed. And the concern is we're going to get flooded. And if you can have some way of having an AI-based triage so it doesn't burden the administrator, and if you can pay for it as a pilot, even better, then we can try and see if that this – so that would decrease the number of phone-calls to the front desk (…) And then do a pilot for that and see whether that works. AI-based triage." – **Clinician 13, PCP***

SM RESPONSE AND FOLLOWUP BY CLINIC

Clinicians generally responded to SMs within the same day or within one to two business days. Staff responses were similar, with most follow-up occurring within 24 to 48 hours.

Unresolved SM conversations, long or complex messages, or referral requests resulted in an escalation to either a virtual or in-person visit. In some cases, clinicians used SM to prompt patients to book follow-up appointments based on chart reviews as a reminder mechanism supporting preventive care and ongoing health management.

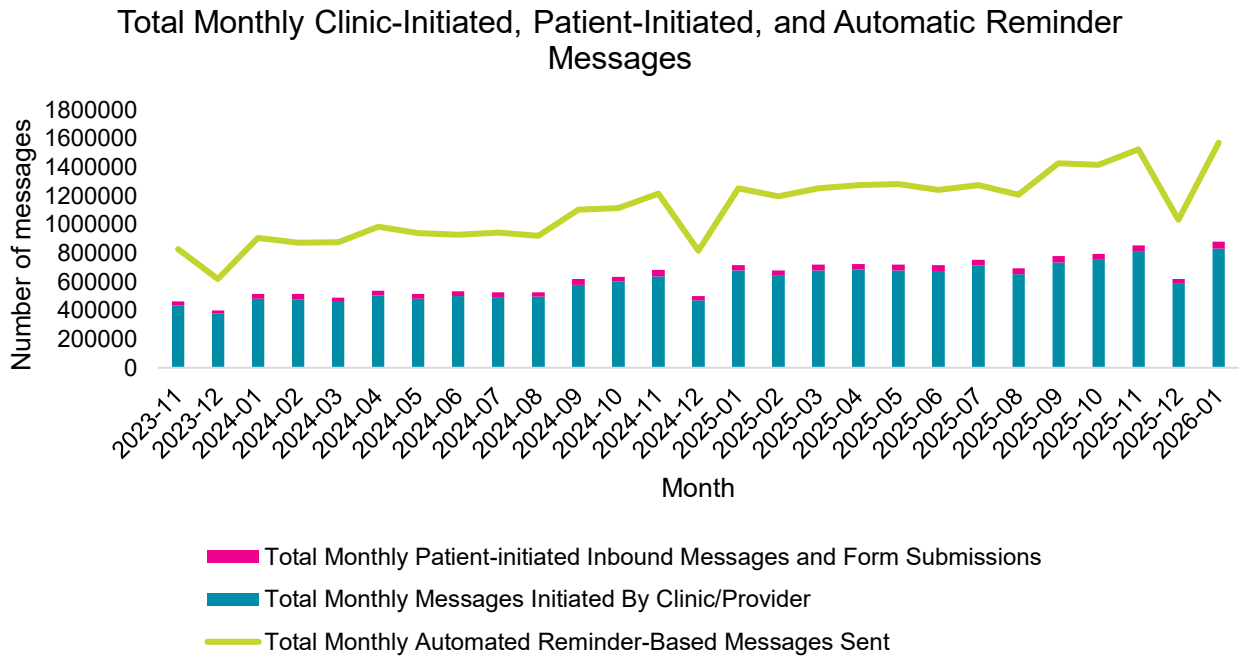
Several interviewees used read receipts to confirm whether patients had viewed messages, enabling more targeted follow-up. If a message remained unopened by a patient after a set timeframe, staff would follow up by phone or resend it. This was seen as an improvement over voicemail, where receipt could not be confirmed, thereby supporting more reliable communication. However, in some cases, patients were required to click an option to mark a message as read but did not do so, prompting staff to make follow-up calls to confirm the message had been received.

> *"One of the things I want to say that is helpful, that's different about leaving a message, leaving a voice message. You know, you've left the message, you don't know if they're going to get it or, you know, whatever. But with the messaging, we can see if it's been read now. That could mean a lot of things. But, you know, that is helpful to know" – **Staff 7, Social Worker***

SM PATTERNS OF USE

Among PoC registrants who billed for SM, the majority (42.9%) used OceanMD for messaging, followed by 25.2% using QHR Accuro Engage. Ontario-wide OceanMD SM utilization data (irrespective of physicians' PoC registration status) indicated that the majority of messages were clinic-initiated (Figure 6). As of January 2026, only 342 sites (21%) using OceanMD for SM had patient-initiated SM enabled, and on average, only 12.5% of all SM threads allowed for patient responses. Automated reminders far exceeded the number of clinic-initiated and patient-initiated SM combined. While OceanMD SM volumes and number of users increased between 2023 and 2026, the average number of monthly messages per user remained relatively stable (Appendix H, Figure H1), suggesting that growth in SM activity was primarily driven by new user adoption of SM rather than expanded use per user.

Figure 6. Total monthly clinic-initiated, patient-initiated, and automatic reminder messages in OceanMD from November 2023 to January 2026



The average monthly SM volumes for QHR Accuro Engage in 2025 fluctuated, with an average of 263,187 monthly QHR SM, and 6424 active users (providers) in Ontario. Patient-initiated SM, unless the provider/clinic leaves a SM thread open for the patient to message when needed, is unavailable through this platform. Aggregate data between January 2023 – December 2025 show that only 19% of Accuro Engage/Medeo messages are sent by patients, and the majority (70%) of message threads are 'closed', i.e., they do not allow a reply by the patient. 91% of Accuro Engage/Medeo SM threads are a single message, highlighting that it is used primarily for clinic-

initiated one-way purposes. The average number of messages per thread in 2025 was 1.36, further demonstrating that most threads are one-way.

Figure 7 A) QHR secure message volumes by sender. B) Proportion of QHR SM threads by reply permissions ('Open threads' being those that allow a patient response)



These Ontario-wide SM patterns provide context for the case studies presented below, which highlight how SM is used in practice within a specialist care site and two primary care sites.

SPECIALIST CARE: SITE A

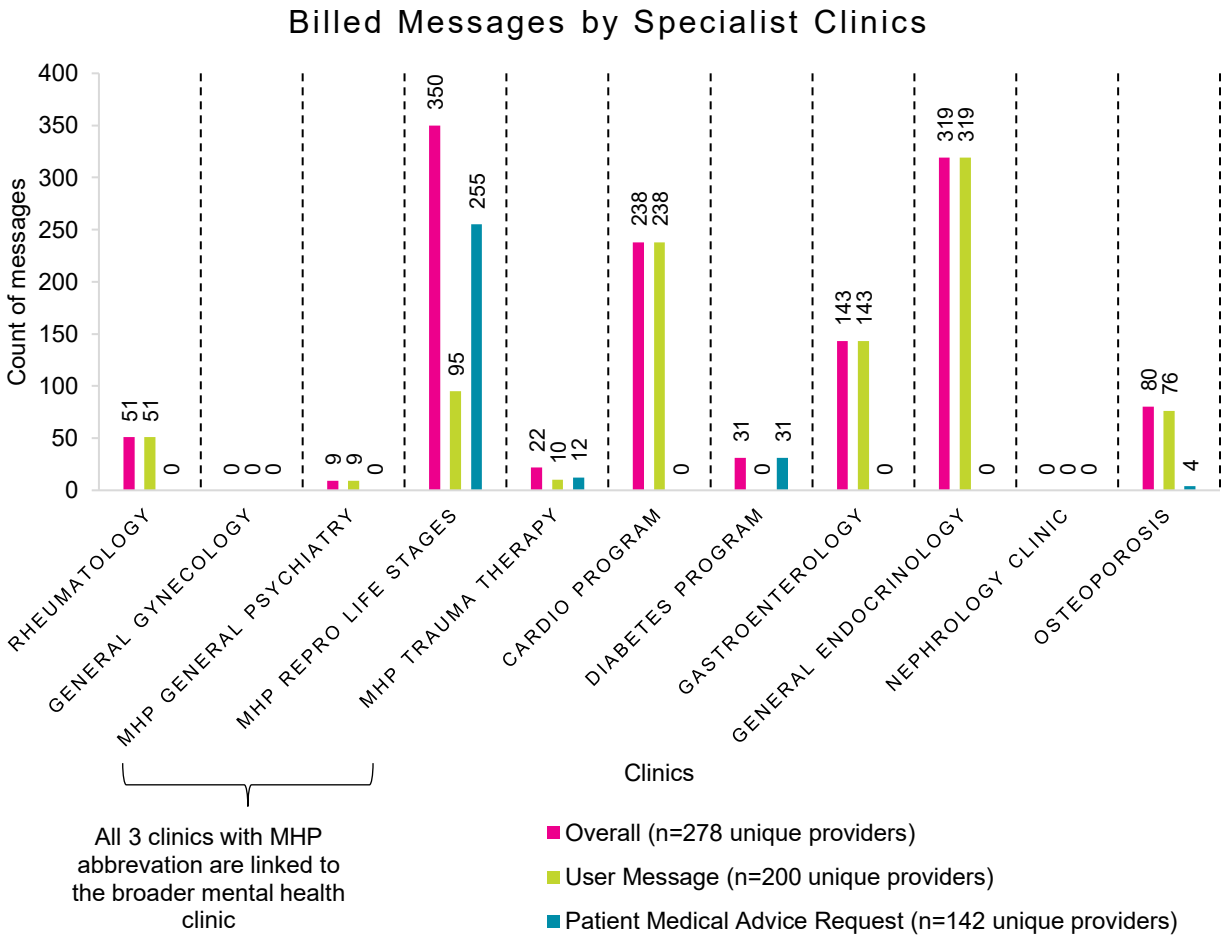
Site A interviewees (two psychiatrists, one cardiologist, one social worker, one patient) highlighted differences in workflows and SM triage between the clinics/programs. The General Psychiatry program did not allow for patient-initiated messages while the Reproductive Life Stages (RLS) program did. A cardiologist interviewee mentioned having to request their information technology (IT) department to enable patient-initiated SM for their clinic, and to allow for patients to message the physician directly instead of having SM triaged via the front desk.

Among the Site A clinics that had at least one PoC registrant, SM utilization was highest in the Endocrinology clinic (52,389 messages) followed by the Trauma Therapy program within the mental health clinic (52,235 messages). Patient appointment schedule requests were the most frequently sent message type across all specialist clinics.

Between September 2024 and December 2025, the RLS mental health program (MHP) (350 messages billed), General Endocrinology (319 messages billed), and Cardiology (238 messages billed) were the clinics with the highest number of billed messages, though these represented only a small share of total SM activity (less than 1%) for each clinic. Only messages classified in the EPIC system as 'user messages' (provider-initiated) or 'patient medical advice requests' (patient-

initiated) were intended to qualify as billable service encounters. Most billed messages in the RLS clinic were classified as 'patient medical advice requests' (n= 255), while those in General Endocrinology clinic and Cardiology were predominantly 'user messages' at 319 and 238 respectively.

Figure 8 Number of Billed Messages by Specialist Clinics in Site A between September 2024 to December 2025



*(**Note**: 46 unique providers billed for both user messages and patient medical advice requests.)*

Among the five interviewees from Site A, majority mentioned using SM for **medication management and non-urgent clinical questions**. Users also described using SM to **share clinical data/health information** (e.g., test results, requisitions, and pre-visit forms and questionnaires). Additional use cases included **communication/guidance** (e.g., the clinic sending resources and information, broadcast SMs, and patients sharing narrative reflections) as well as **administrative tasks** (e.g., appointment requests, appointment reminders and preparation, team coordination amongst clinic staff, and patient requests for letters or notes). One

clinician mentioned using attachments but noted that the process was cumbersome so did not use this often. See Appendix I for data specific to Site A (specialist care).

PRIMARY CARE CONTEXT: SITE B (TORONTO-BASED FHT)

Site B used QHR Accuro Engage/Medeo and OceanMD and four of its six physicians were PoC registrants. Site B registrants had a total roster size of 2432 patients, with 48% registered to use Medeo for SM. Site B registrants shadow billed for SM and received only a percentage of the remuneration. SM utilization was primarily via Medeo; the use of OceanMD for SM was limited to a single physician registrant and two nurses. Patient-initiated messaging was not available through either Medeo or Ocean, although workarounds were available to accommodate patient-initiated requests. Patients either emailed or called the clinic to initiate a request, and an SM thread was opened on their behalf using Medeo. Patient responses to clinic-initiated SM threads were sent directly to the physician instead of being triaged via admin, according to a Site B physician interviewee.

Aggregate EMR data demonstrated that SM utilization (Medeo) by physician registrants (n=4) was consistently higher than that of all other users (non-registrants, administrative staff, nurses) (Appendix J, Figure J1), except for specific months where the number of SMs sent by administrative staff significantly spiked, likely due to broadcast SM reminders sent on a quarterly basis for preventative care, as explained by interviewees from this clinic. Very few clinic-initiated SM allowed a reply by patients (1.25% on average per month); however, messages from patients accounted for approximately 45% of monthly SM volumes. As patient-initiated SM was not a functionality offered by their SM platform, it is likely that patients responded to existing threads that were left open to initiate a new conversation.

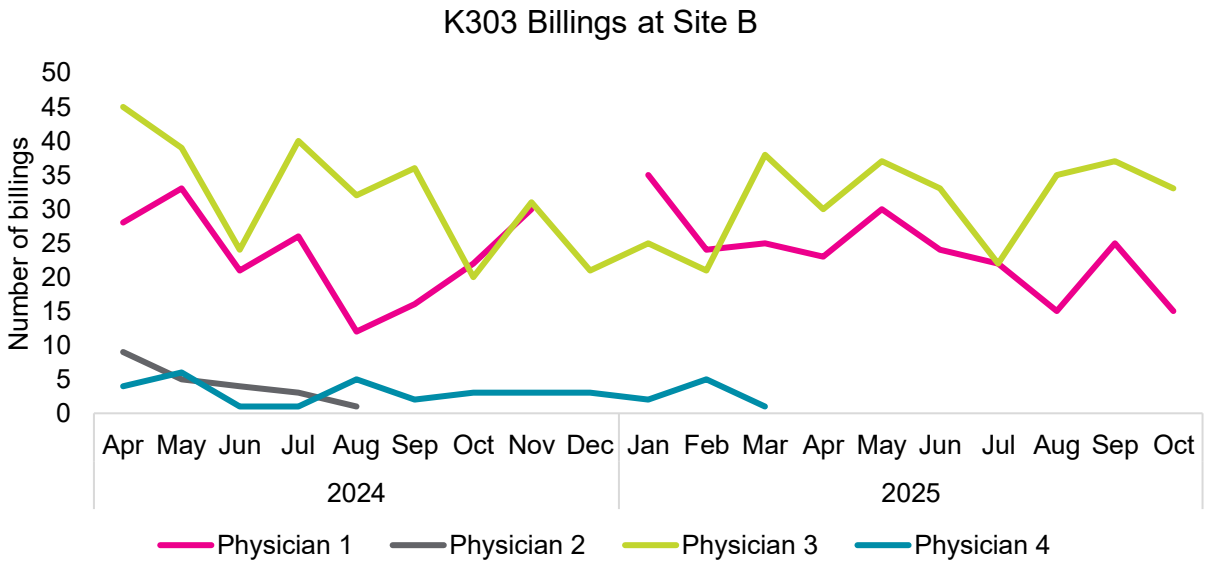
OceanMD utilization reports (specific to one registrant and two nurses) showed that forms constituted a larger proportion of SM utilization, with the number of forms being much higher (175 forms sent to patients, of which 169 were completed) than other SM sent (n=133) in a 30-day period. The main types of forms used were for administrative purposes (e.g., consent, registration, etc.) followed by forms for adolescent health and child development, mental health, and pre-visit assessments (Appendix J, Figure J3).

Interview data further contextualized the SM utilization at this site. Among the 4 interviewees from Site B (1 physician, 1 staff, 2 patients), the top SM use case was sending pre-visit forms and questionnaires. Other uses of SM at this site included sending and receiving **clinical data/health information** (e.g., sending requisitions and test results, asking patients to send their vitals,

coordinating referral requests, and wellness baby check visits.), **communication/guidance** (e.g., only accepting non-urgent clinical questions, sending out public health information to patients, as well as messages as broadcast messages through SM, sending clinical/preventative care related reminders, and sending patients follow-up actions/advice after a diagnosis), **medication coordination** (e.g., prescriptions refills and medication management), and **administrative activities** (e.g., appointment reminders, and patient requests to fill out/send letters/forms). Those who sent attachments sent photos and documents.

MOH claims data showed variations in billing patterns between the four physician registrants at Site B, with two high billers (Physician-1 and Physician-3 billed higher number of K303s/month and billed consistently throughout, with the exception of December 2024), and two low to moderate billers (Physician-2 and Physician-4 who had lower K303s/month and stopped billing after 5 months and 12 months respectively). Only the two high billers qualified for remuneration by meeting the K303 payment threshold consistently; the two low billers never qualified for payment as they never crossed the minimum payment threshold.

Figure 9 K303 Billings at Site B (based on MOH claims data)



See Appendix J for data specific to Site B.

PRIMARY CARE CONTEXT: SITE C (WATERLOO-BASED FHO)

Site C used OceanMD and had two (of four) physicians registered for the PoC. Interviewees reported shadow billing and therefore received only a small percentage of remuneration using the

K303 code. Patient-initiated SM was not available at this site. Patient messages to clinicians were triaged via front desk staff.

OceanMD utilization reports showed that the average SM utilization for a 30-day period by the two PoC registrants was significantly higher than that by non-registrants (Appendix J, Figure J5). The most frequent use of SM, apart from automated reminders, was for forms (31.3%), of which, majority were for administrative purposes followed by forms for pre-visit assessment (Appendix J, Figure J6).

Physician interviewees (n=2) at Site C mentioned using SM to provide follow-up and advice to patients, responding to non-urgent clinical questions, and sending test results and requisitions. Other use cases mentioned were using SM to send broadcast messages to patients, checking in with a patient following a diagnosis, booking appointments, and coordinating referral requests.

Site C interviewees voiced that the K303 code was not an incentive for SM utilization, and that they continued to use SM as they did prior to the PoC. MOH claims data indicates low and intermittent K303 billing at Site C, with the two physicians never crossing the minimum threshold (15 K303s/month) to qualify for payment (Appendix J, Figure J4). This could be due to inconsistent billing practices, or only a small proportion of SM qualifying as eligible service encounters.

See Appendix J for data specific to Site C.

3.3 Perspectives on the SM PoC Billing Model

Some physician interviewees appreciated the availability of the K303 billing code as it provided compensation for SM services they were already providing to their patients. However, most physician interviewees expressed dissatisfaction regarding the level of compensation and structure of the billing model.

REMUNERATION AMOUNT

Most physician interviewees felt that the billing model provided low financial incentives. SM implementation costs and ongoing monthly SM subscriptions were not offset by SM remuneration within the PoC, due to both the low remuneration amounts as well as physicians often not meeting the threshold for payment (as highlighted in the earlier findings around K303 utilization). With reference to the availability of patient-initiated SM specifically, some SM solutions also required additional fees to enable this functionality.

Dissatisfaction with the remuneration amount was especially true for those in capitation payment models who 'shadow billed' and got only a percentage of the claimed amount. Physicians expressed unmet expectations as financial incentive was often the primary motivation to register for the PoC, but treating SM akin to an 'in-basket' service meant that they were not paid the full amount billed for via a K303.

The limited number of eligible encounters, combined with the additional effort required to bill, further contributed to physicians' dissatisfaction with the remuneration amount. Consequently, some physicians stopped tracking SM use and submitting K303 claims, as they viewed the process as unsustainable and not worth their time.

> *"I'm making this K303 bill I'd say probably only 50% of the time I'm actually messaging a patient because I'm like, I don't have the time for that. And I'm not getting compensated, so scrap it. So, if they're planning to keep the K303 going, I'm not interested in billing that if I'm only going to make, what, $400.00 a year? It's so not worth my time"* ***– Clinician 2, PCP***

This was corroborated by physician survey findings that demonstrated broad agreement from physicians (71.7%) that the new billing model provides inadequate remuneration for SM.

Alternative approaches to SM remuneration were suggested by physician interviewees including a fee per message (or conversation) instead of the current tier-based model, since most did not reach the minimum threshold for payment within the PoC. Some proposed the use of a time-based remuneration model as the time for drafting a message can vary depending on complexity and physicians felt that the remuneration should reflect the time and effort taken to draft a secure message. Payment based on the number of patients with whom they had SM encounters, or a monthly stipend for provision of SM were also mentioned.

Physician interviewees felt that while SM remuneration could be lower than that of an in-person visit, it should be financially viable and offset the cost of SM implementation, with financial support to purchase SM solutions or subscribe to specific functionalities (e.g., patient-initiated SM) if necessary. This sentiment was shared especially by physician registrants who worked in a blended salary model or FHO model who only received a small percentage of the billed amount. These physicians also suggested that SM should not be treated like an in-basket service, so that remuneration could be similar across different practice payment models.

INADEQUACY OF TIER-BASED BILLING

The tier-based billing model was regarded as inadequate and limited, as physicians were not incentivized to bill for additional SM service encounters once they reached the threshold for a specific billing tier. This tier-based payment also resulted in variable monthly SM remuneration, as it was dependent on the number of service encounters completed and consistent billing practices, which made it challenging to have steady funds available to cover SM monthly costs.

> *"The minimum number per month didn't really end up working, because often in a month I probably have like five or six maybe that would meet those criteria so then you're like not paid. And then you're spending time entering the billing information to not get paid" –* ***Clinician 16, Specialist***
>
> *"By having this non-standardized way of having tier-based payment schemes means that one month I might get my … hit one tier, the other month I might hit a higher tier, and it goes back and forth. It doesn't allow for the compensation to offset whatever the monthly fees are." –* ***Clinician 6, Specialist***

MISALIGNMENT BETWEEN K303 ELIGIBILITY AND ACTUAL SM UTILIZATION

Only a small proportion of secure messages met the criteria for billing, as seen from interview data, Ontario-wide OceanMD utilization data (Appendix H), as well as site-specific SM utilization data (Appendix I and Appendix J). Interview and survey data indicated that the most common use cases for SM included sharing test results, pre-visit forms and questionnaires, and requisitions, with a large portion of messages being one-way. These are largely non-billable but constituted an important part of care delivery. SM use with out-of-province patients was non-billable, reflecting misalignment between billing eligibility criteria and how providers may wish to use SM to support access to care for patients outside their home location.

The narrow eligibility criteria of the K303 code limited its usefulness as it required two-way communication that may have been better suited for in-person care or phone visits which were already covered by existing billing codes that offered higher remuneration.

> *"I could make a few phone calls and spend a few seconds doing that and that's my stipend for a month. So [K303s are] not a motivator per se given that we could now bill for phone conversations." -* ***Clinician 4, Specialist***

Additionally, even when SM exchanges did not qualify for K303 billing, physicians still invested substantial time and effort into decision making and messaging responses, particularly for complex cases, suggesting that alternative billing models were needed to fairly compensate SM use.

> *"I think there's also a lot of messaging that happens that's not direct, that doesn't fall under the rules of what would be billable, but it still takes up some time"*– ***Clinician 15, Specialist***

COMPLEXITY AND LACK OF CLARITY IN THE BILLING MODEL

Physician interviewees reported finding it hard to remember the details and eligibility criteria of the billing model and had to continually assess whether each message qualified for billing. This created uncertainty and stress, particularly as some physicians tried to optimize their claims without fully understanding the criteria. One physician interviewee suggested that receiving regular reports on their K303 claims and approvals would help manage physician expectations and understand the billing model better.

> *"I don't think a lot of doctors realize or feel that they're [not] getting paid for the time spent doing messages unless they get to certain numbers. We have to start thinking how many numbers did I get and am I three short this month? It's causing stress, it's something else to think about and to worry about, am I meeting those thresholds and how do I know. It just adds another level of more stuff to do."* - ***Key Informant 2, PCP***

WORKFLOW BURDEN OF SM BILLING

Billing for SM was not well integrated into physicians' workflows and some SM platforms. The process often required physicians to switch between the SM platform and the EMR to document the encounter to submit a claim. This additional effort, including multiple steps or clicks per patient chart, discouraged physicians from consistently submitting claims; some suggested the use of smart billing systems that automatically pull monthly data on K303-eligible SM to avoid them having to bill separately for each SM service encounter, or automatically populating the associated diagnostic codes for each encounter based on patients' existing information in their chart.

3.4 Value Proposition of SM

Overall, interview data demonstrated that SM was regarded as being easy to use and convenient for physicians, clinic staff as well as patients, and improvement of patient satisfaction was an

important value proposition of SM, highlighted by all three user groups. Interview and survey participants provided their perspectives on the value of SM regarding efficiency, optimized workflows, and overall quality of care particularly with respect to access, continuity, and patient-centredness. Survey responses showed that specialists (77.5%) were more likely to **not regret** offering SM to their patients compared to PCPs (66.7%). While the survey data captured physicians' perspectives on SM service encounters specifically, the interview data was broader in scope, where interviewees often reflected on the value of SM more generally in their practice.

EFFICIENCY AND SERVICE OPTIMIZATION

While some physician interviewees felt that SM resulted in increased workload and administrative tasks, overall, interviewees felt that SM improved efficiency and optimized service delivery for clinicians, staff, and patients by providing time savings, reducing reliance on phone-based communication, minimizing unnecessary in-person visits, and improved documentation.

For **physicians** specifically, SM enabled faster communication with patients, allowing them to respond directly to patients and reducing delays that could occur if requests were routed to physicians through the front desk. SM optimized workflows by giving users the flexibility to respond to SM asynchronously and from any location. By reducing phone volumes and unnecessary appointments, SM enabled physicians to save time and provide in-person care to patients who needed it the most. Interviewees also appreciated the use of macros (pre-written sequences of text) to save time when sending SM to patients. Additionally, SM improved communication with patients who were hard to reach via phone, and supported improved documentation while reducing paper communication. Physicians also highlighted that the use of pre-visit forms and questionnaires via SM, enabled them to provide greater focused care in a more efficient manner. Physicians who mentioned increased workload due to SM usually associated this as a challenge of increasing access to patients using SM, and possible inappropriate use by patients.

> *"It influences it in two ways. Number one: I know what they're coming in for. They've already filled it out for me. Number two: it makes the visit probably a little bit shorter because I don't have to ask all those questions again. They can focus on what's important for them for the presenting complaints. –* ***Clinician 13, PCP***

For non-physician clinic staff, SM reduced daily workload and enabled time-savings by reducing phone tag with patients, avoiding extended phone conversations (for example when discussions moved beyond the initial issue), enabling messages to be sent to multiple patients

simultaneously, and eliminating administrative steps associated with traditional paper-based communication. This allowed them to focus on higher priority tasks and provide better service to in-person patients. When contacting waitlisted patients for procedures or sessions, SM read receipts allowed staff to determine whether a message had been received and decide whether to follow up or move on to the next patient - an advantage not available with phone calls. However, a few respondents felt that SM resulted in increased phone calls with patients needing help troubleshooting SM, seeking clarification or reassurance when a message was unclear or raised concerns, or contacting the front desk to confirm that their SM was received.

> *It streamlines the communication piece, it streamlines the record management, and allows my admin staff to focus on other things that are more customer service-oriented, patient-oriented, rather than just let me be a middle man for your instructions.* – ***Clinician 10, PCP***

For **patients**, SM improved efficiency by providing a convenient way to communicate with care teams without needing to travel to appointments, wait on the phone, or take time off work. Asynchronous communication enabled patients to ask questions, receive guidance, and share information at times that fit their schedules. Patients also felt that pre-visit SMs helped keep physicians informed so that their in-person visits were more focused with the needed contextual information already available to their physician.

ACCESS TO CARE

61.9% of physician survey respondents (66.7% of specialists and 57.7% of PCPs believed secure messaging service encounters enabled timely access to care to the same degree as in-person visits. This result aligns with interview findings indicating that SM improved access to care for patients who were located in rural areas, had disabilities, and/or had unique clinical conditions that made in-person visits challenging.

Patients also appreciated the ability to send SMs to the clinic regardless of the time of day. However, some providers believed that increased access also increased workload, especially when patients used SM after work hours. Some interviewees felt that the use of SM for non-urgent clinical questions allowed for in-person appointments for patients whose medical needs were more significant or urgent and reduced phone call volume.

"Patients call on a Wednesday, get an appointment Thursday, if that's what they want. Or they can get an appointment next week (…) We have basically advanced access. And the advanced access is maintained because of the non-in-person visit virtual care, whether it's email or phone." – ***Clinician 13, PCP***

Furthermore, SM enabled patients to connect with their provider for quick queries in between visits, which alleviated anxiety regarding test results or overall wellbeing. In addition to connecting with their PCP, patients can connect with specialists through care coordination by their PCP. However, some patients reported not being proactively informed about the availability of SM to benefit from the improved access that it enables.

PATIENT-CENTRED CARE

Among the 182 survey respondents, majority (85.7%) reported that SM allowed them to provide patient-centred care. PCPs (89.9%) were more likely than specialists (78.6%) to report that patients are satisfied with SM service encounters compared to specialists. The interview findings below provide further detail on experiences of patient-centred care delivery through SM.

COMMUNICATION, CONVENIENCE, AND TIME SAVINGS

Patient interviewees regarded SM as a more accessible and convenient alternative to traditional phone-based communication, particularly for those with busy schedules, young children, or work commitments that made in-person visits or phone calls during clinic hours difficult. SM reduced the need to take time off work, arrange childcare, or travel to the clinic for concerns that could be addressed via SM, while still providing quality and timely care.

Patients also reported that SM reduced the frustration of 'phone tag' or long call hold times. Many felt it offered greater certainty of reaching the clinic compared to calling. The secure nature of SM reassured them that their information was safely and reliably delivered to the intended recipient. As a result, some shifted away from phone-based communication, using SM instead to have questions addressed between visits. SM also allowed direct communication with their clinician and enabled faster access to test results without the need to wait for a scheduled appointment or a return call.

"As a patient myself it's really hard for me to get to my doctor in the afternoon. I work, it's hard to get through on the phones, it's really challenging. But now (…) we just message back and forth rather than me spending a lot of time on the phone as a patient trying to get through to a receptionist that then, I have to negotiate with to get an appointment eventually, where I have to take a half a day off to go and see her, when I could have in just a few minutes sent a message back and forth." – ***Key Informant 2, PCP***

QUALITY OF CARE AND PATIENT-CLINICIAN RELATIONSHIP

Patients reported that SM positively influenced their relationship with their clinician. Clinicians also mentioned being more thoughtful in their written responses than during time-constrained in-person visits, where patients (especially those with multiple or complex questions) may feel rushed. The ability to send follow-up messages after an appointment, and share concerns between visits supported an ongoing dialogue, helping patients feel supported and connected to their clinician between visits. Timely responses from clinicians reassured patients, reduced anxiety, and made them feel their concerns were taken seriously. However, delayed responses made patients feel that they were a low priority and were adding to their clinician's workload.

"It's definitely improved the relationship because I feel like she cares. When she does get back to me in a timely manner, especially on the same day I think, 'Oh wow, my situation matters.' So, yeah, I definitely think it improves the relationship compared to other doctors in the past (…) [Previous physician's] answers always took much longer, and it was very hard to actually get her herself, and that made me feel that I was maybe overstepping, bothering, not a priority (…) but I always did get an answer (…) I do feel better about the messaging with [current physician] because she always answers usually the same day (…) I never get the feeling that I'm bothering her or asking too many questions." – ***Patient 7***

Some patients used SM to share their thoughts with their clinician, which helped them feel heard and reassured. This sense of connection extended to the clinic team as well, as front desk staff recognized that when a patient who typically managed their care through SM came in for an in-person appointment, it was likely urgent and needed to be treated as a priority.

PATIENT EMPOWERMENT, COMFORT, AND REDUCED ANXIETY

SM lowered the barrier for patients to raise concerns they might otherwise have considered too minor to book an in-person or phone appointment for. Clinicians mentioned that patients who were anxious about phone calls or needed privacy (such as at work), found SM to be a more comfortable channel for communicating with the clinical team, making them more likely to ask follow-up questions after appointments rather than waiting until their next scheduled visit.

The asynchronous nature of SM supported better patient engagement and decision making, allowing patients to articulate their thoughts more clearly than during a rushed appointment. Resources shared by clinicians through SM were reviewed at the patients' own pace, allowing them to make more informed decisions. Patients valued the written record that SM provided, as they were able to refer back to clinical advice, instructions, or lab results at any time without relying on memory. SM fostered a sense of responsibility, as patients used it to send reminders of discussion points for upcoming appointments, helping ensure that nothing was overlooked.

CONTINUITY OF CARE

Interviews with clinicians, staff, and patients revealed that SM supported continuity of care between appointments. Instead of waiting until the next scheduled appointment, patients were able to reach their clinician at any time. SM bridged the gap between visits, by allowing clinicians to manage medications, monitor symptoms, order requisitions, and follow-up on test results, without the patients needing to go to a walk-in clinic or ED.

> *"It's phenomenal. I have had lab work done late on a Friday. It comes in Saturday and my doctor has sent me a note Saturday and sent the prescription over to the pharmacy on the next morning. It's just phenomenal service."* – ***Patient 5***

Clinicians described SM as a tool that allowed care to flow more seamlessly as SM conversations carried over into in-person visits. Appointments felt like a continuation of an ongoing conversation, allowing for clinicians to focus on care instead of trying to understand the problem, reducing the feeling of siloed, episodic care.

> *"We've had half the conversation so then we can just focus in on that and then the other three issues that they always have anyway. It just takes these little slices of the work off and you feel like you're in the middle of an ongoing conversation, so it feels a lot less episodic."*– ***Clinician 9, PCP***

Though not considered a part of clinical service encounters, pre-visit questionnaires also supported continuity by ensuring clinicians were prepared before patients arrived, and in some cases allowed care decisions to be made proactively, before the appointment took place.

Continuity of care fell short with SM when clinician availability was limited (i.e., they were out of office or only present in the clinic a few days a week). Patients experienced delays in receiving responses. Clinicians also noted that relying heavily on SM for communication risked missing non-verbal cues that informed clinical assessment, which could introduce gaps in quality of care over time.

3.5 Challenges surrounding SM adoption and utilization

Interviews with physicians, clinic staff, and key informants identified some challenges affecting both SM uptake as well as effective utilization of SM in practice. These challenges related to barriers to adoption, workflow integration, and usability, some of which have been discussed already. Survey responses indicated that the biggest barriers to increased SM use among PCPs was patient preference (28.6%) followed closely by low remuneration (26.2%) while for specialists the biggest barrier was low patient technological literacy (39.7%) followed by low remuneration (25.0%).

BARRIERS TO SM ADOPTION

Among physicians, barriers to SM adoption were primarily related to limited perceived **value of SM**, concerns about increased **workload**, and **financial constraints**. Some interviewees cited **limited engagement** with other physicians to promote the potential benefits of SM, previous **negative experiences** with digital health technologies or **poor integration of SM** with their EMR systems. Concerns were also raised around the **inappropriate use of SM** for high-acuity concerns, which had implications for physician **liability**.

Barriers to SM adoption by patients were highlighted by both physicians as well as patient interviewees. These were often linked to broader social determinants of health. Physicians noted that patients with lower **socio-economic status**, limited **access to technology**, or **lower digital literacy** often faced greater challenges adopting SM. Older patients were sometimes reluctant to adopt new technologies and preferred traditional communication methods to maintain in-person interactions with their physicians.

In some cases, patients were **unaware that SM was available** through their clinics. Concerns around **security** risks also emerged as barriers, highlighting the importance of having vetted solutions that people could trust.

OPERATIONAL AND WORKFLOW CHALLENGES

Among physicians and clinic staff, several operational challenges were reported while using SM.

Missed messages were a common concern and could occur when clinicians left message threads open unintentionally, when staff were busy and did not notify clinicians of new messages, or when patients ignored new SM notifications due to unfamiliarity with the SM platform or sender (particularly for new patients) or cumbersome log-in processes. Technology-related issues also contributed to missed messages, such as older unread messages appearing before newer ones or multi-recipient messages being marked as read when opened by one recipient.

A few physicians felt that though SM provided time-savings, it also introduced **additional work**. Interviewees noted that better integration with EMR platforms could support a more seamless and efficient workflow. **Inappropriate use of SM by patients,** discussed earlier, was another commonly reported challenge. This also posed **challenges to optimized billing**, for example, if patients sent questions related to multiple dependents in a single message.

Among non-physician staff, some reported **increased phone volumes** as patients needed support using SM or clarification for messages that were not clear to them.

Workflows involving **front desk SM triage occasionally resulted in delays** in communicating time-sensitive information (e.g., when a patient was unable to attend a same-day group session). This required clinic staff to inform patients that time-sensitive (but not high acuity) messages should be sent directly to the clinician or the allied health professional concerned and emphasized the importance of providing patients with clear guidance on how to use SM appropriately and effectively.

Other limitations included situations requiring interpreters, where clinic staff opted to call patients rather than use SM.

SM USABILITY CHALLENGES FOR PATIENTS

Among patients, SM challenges included **extra authentication steps** that caused patients to postpone logging in to view SMs and subsequently forgetting to read them, as well as **missed messages** when notifications go to junk email folders. SM **word limits** were problematic for patients and resulted in multiple SMs being sent to communicate their full message. In one clinic,

patients were **unable to respond to messages after a certain timeframe**, and this was problematic for staff as well, when they waited for patients' responses to SM related to scheduling.

Some physicians noted that a few patients, especially those less comfortable with technology, found their **SM solution interface unintuitive** or confusing to navigate. This sometimes led them to revert to email communication, creating additional work for physicians and clinic staff who then had to handle requests via multiple communication channels.

The **asynchronous** nature of SM meant clinician responses were not immediate, particularly when clinicians were away, causing some patients to prefer phone calls as a faster and more reliable option.

3.6 Considerations for continued use and spread of SM

Interviewees described several considerations that may influence the effective use and broader adoption of SM.

Physician interviewees felt that **established patient-provider relationships**, built on trust and familiarity, supported more effective SM use, as physicians were better able to judge when messaging was appropriate and how patients might respond. At the same time, some interviewees felt that increased access through SM could shift patient expectations, where some patients expected faster responses, greater access to information, and replies outside regular working hours. This created additional communication or administrative demands, and physician interviewees also highlighted that **clear expectations and boundaries need to be established** so that patients understand what constitutes appropriate SM use and reasonable timeframes for receiving a response. **Improved triaging systems** would also encourage more physicians to adopt patient-initiated SM, as this would help avoid unnecessary burden for physicians.

Participants also highlighted the need for **clinical judgment in determining when SM is appropriate.** While SM is well suited for straightforward transactional communication (e.g., sending requisitions, test results and appointment related reminders), its appropriateness for clinical service encounters depended on the complexity, urgency and sensitivity of the issue. Interviewees indicated that urgent or complex issues, and sensitive or potentially concerning information were better addressed through phone or in-person modalities where more immediate support and clarification can be provided and emphasized SM's role as a complementary communication tool rather than a replacement for existing care pathways.

One physician highlighted the need for clinicians to use **clear language, avoiding jargon** in their messages to avoid confusion or unnecessary patient anxiety. Staff interviewees expressed that unclear messages sometimes resulted in additional phone calls to clarify concerns.

Organizational factors were identified as important for supporting the spread and sustainability of SM. Consistent **organization-wide policies governing SM use** (e.g., availability of patient-initiated SM and clear guidance on what constitutes appropriate SM use) were also mentioned. Interviewees emphasized the need for **thoughtful implementation, clear and consistent workflows, staff training, and patient onboarding** to ensure that SM is used appropriately and effectively, without creating additional workload. Participants noted the importance of informing patients about the availability and appropriate use of SM so that both clinics as well as patients can fully leverage its benefits.

On a broader system level, participants noted that the future value of SM extends beyond patient-provider communication, with opportunities to enable more seamless communication between multiple providers in a patient's circle of care or members of a care team**. Improved SM integration with EMRs and better interoperability across SM platforms** were highlighted as critical to avoid fragmented communication in care delivery.

3.7 Health system impact of SM

IMPACT ON OTHER VISITS

ICES data showed that only 10.6% of the SM encounters were followed by an in-person, or virtual visit with the same physician for the same condition (diagnostic code) within the next 7 days. This percentage increased to 15.5% when looking at the following 14 days and 21.5% when looking at the next 28 days. Looking at preceding visits, 14.4% of SM encounters were preceded by an in-person or virtual visit with the same diagnostic code, patient and physician, and this percentage increased to 20.95% and 28.5% when looking at 14 and 28 days before the SM encounter. Within primary care only, only 9%, 13% and 18% of visits were followed up by another virtual or in-person visit with the same patient, physician and diagnostic code over the following 7, 14 and 28-day periods. These numbers were 17%, 25% and 35% within specialist care. Looking back into preceding visits, in primary care, 12%, 17% and 23% of visits were preceded by another in-person or virtual visit with the same patient, physician and diagnostic code over the 7, 14 and 28-day periods before the SM claim. In specialist care, these numbers were 25%, 36%, and 50%.

Most interviewees discussed ways in which SM helped reduce or replace other types of visits. This was most effective for simpler concerns and follow-ups, such as routine lab test results discussions, medication adjustments, prescription renewals, and minor symptoms. In some situations, SM was able to fully replace a follow-up visit, where patients were able to share their vitals (e.g., blood pressure readings) with their provider via SM. However, some, especially elderly patients, often valued being able to connect with their provider in-person and would not regard this as entirely positive. In addition, while some patients were comfortable using SM to send image attachments, others preferred to address concerns that require a visual assessment in-person.

The availability of suitable remuneration for SM could encourage some physicians to use it in place of in-person visits, enabling them to prioritize in-person care for patients with more urgent or complex needs.

However, both patients and clinicians emphasized that SM cannot replace all types of care. Complex issues, conditions requiring physical examination, or situations needing back-and-forth discussion were usually better addressed through other modalities. Some clinicians also raised concerns about the impact of SM on quality of care for certain patient populations as, important non-verbal cues that inform clinical assessment could be missed.

INTERRUPTED TIME SERIES ANALYSIS

PRIMARY CARE PHYSICIANS MODEL

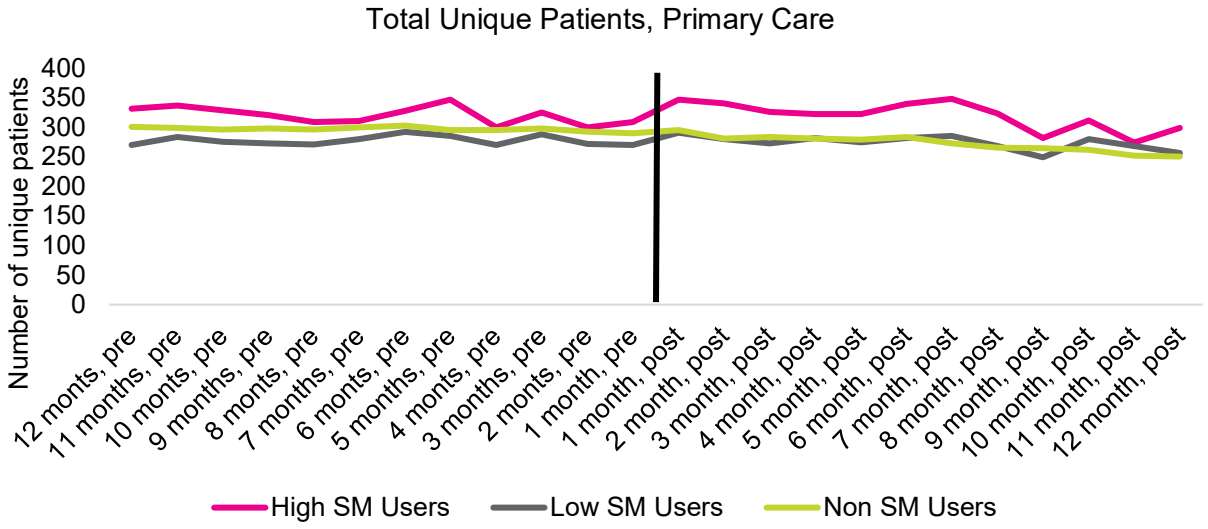
To examine the hypothesis that the use of SM may free up potential spots for more patients to be seen in a given time period, we conducted an interrupted time series (ITS) analysis examining whether participation in the PoC increased the number of patients seen by physicians.

The ITS analysis on total number of patients seen per month in primary care (Figure 10) showed that **before** joining the PoC, low SM users (but not high SM users) were seeing fewer patients than non SM users (t=2.61, p=0.009). Further, non SM users seemed to be seeing fewer patients over time **before** the PoC (t=-3.72, p=0.0002). Low SM users also were seeing fewer patients over time before the PoC, but their rate of decrease was not as big as that of non SM users (t=2.34, p=0.019).

Once the PoC started, a significant group-by-intervention interaction (t=3.53, p=0.0004) indicated that the high SM group had an immediate increase in the total number of patients seen per month; an increase not seen among non SM users. This may reflect changes in care delivery patterns and/or the improved ability to capture SM encounters through billing data. There was also a significant time by intervention interaction suggesting that there was a significant reduction he

number of unique patients seen during the PoC period in the non SM users group only (t=-3.36, P=0.008) (this refers to the change in unique patients seen from month to month in the non SM user group). There was no significant "3-way" interaction between groups, intervention and time, however. This means that the time by intervention effect was not different across groups and may suggest that the reduction in patients seen is system-wide.

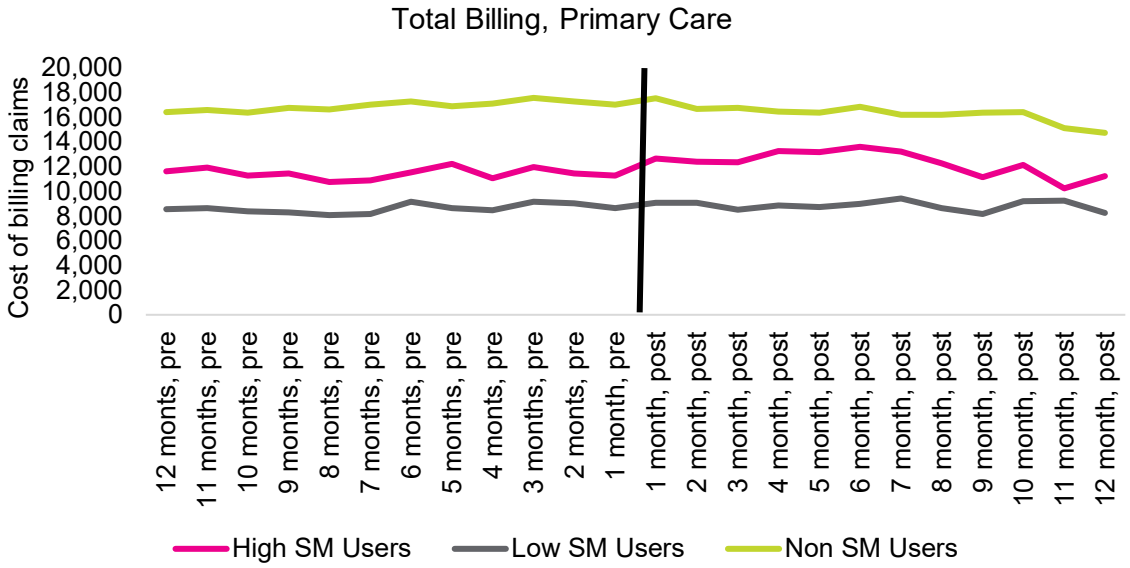
Figure 10: Total unique patients serviced per month per group in Primary Care.



With regards to billing (Figure 11), the ITS analysis showed a significant difference between low and high users, relative to non SM users in total billing **before** the PoC (t=-4.71, P=<.0001 for low vs non and t=-2.48, p=0.013 for high vs non SM users). This means that these 3 groups of physicians had different rates of billing **before** the PoC. Both high and low SM users billed less than the average non SM PCP users **before and after** the PoC.

There was also a significant time-by-intervention interaction (t = -3.57, P = .0004), indicating a significant decrease in month-to-month total billing in the non SM user group over time **after** the PoC was introduced through the end of the study. This means non SM users billing reduced over the 12 months after the PoC was introduced. Same, as mentioned in the total patient comparison, there was no "3-way" interaction effect, suggesting that this reduction likely occurred across all 3 groups.

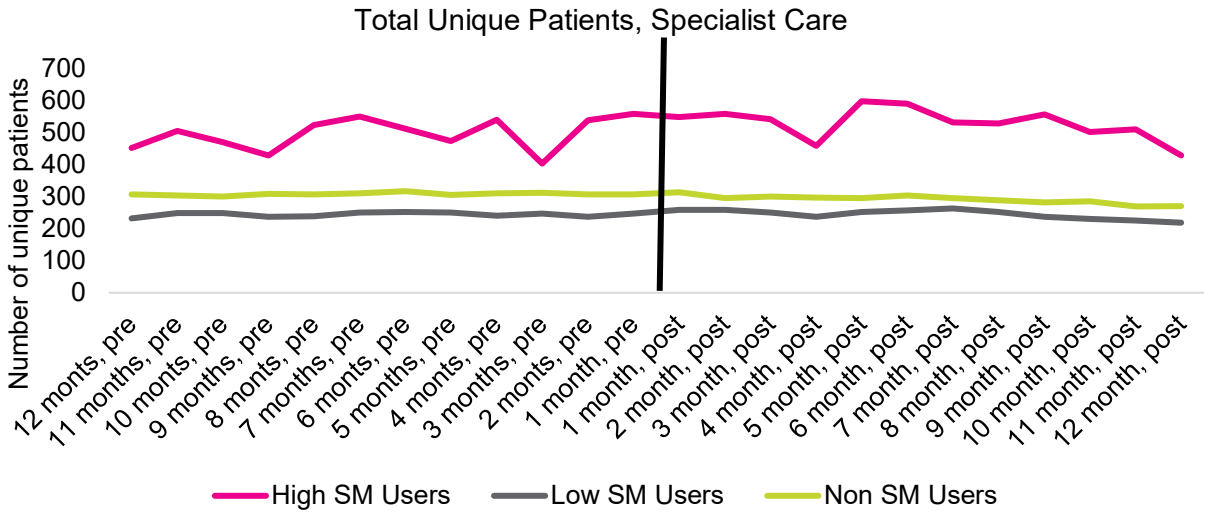
Figure 11: Average total billing per month per group in Primary Care.



SPECIALIST CARE PHYSICIANS MODEL

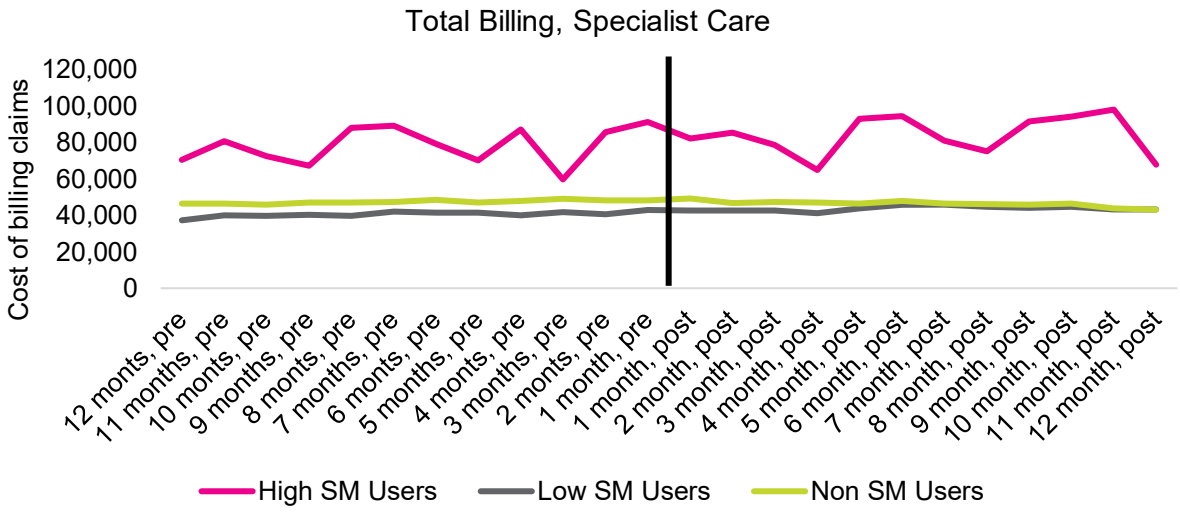
The ITS analysis on the total number of patients seen per month in specialist care showed only one significant effect (Figure 12). There was only a significant difference between low and non SM users ($t=-4.41$, $p<.001$), with the low SM users seeing fewer patients prior to the intervention. Note that while Figure 12 shows that high SM users clearly see more patients per month throughout, there was a lack of statistically significant effect due to the small number of physicians in this group. No other significant effects were observed.

Figure 12: Average total patients per month per group in Specialist Care.



The ITS analysis for total billing among specialist care physicians showed that low SM users had significantly lower billing than non SM users prior to the intervention (t=-5.86, P<.0001) (Figure 13). Again, similar to the previous analysis, the high SM users group was small and lacked statistical power. A significant time-by-intervention interaction showed that there was a significant change in the slope of the total billing (the decrease in total billing from month to month) amount seen after the start of the PoC until the end of the study (12 months after the start of the PoC) in the non SM group only (t=-2.25, P=0.025). There was no "3-way" interaction effect, suggesting that this reduction likely occurred across all 3 groups.

Figure 13: Average total billing per month per group in Specialist Care.



3.8 Additional considerations for future SM initiatives

Evaluation findings provided additional participant perspectives and key considerations on how the PoC could be adapted and what steps could be taken to support broader adoption and use of SM by physicians.

1. **Organizational alignment in SM utilization and PoC registration:** Variation in PoC participation was observed within clinics, with most interviewees indicating that only a subset of physicians in their practices had registered for the PoC. This could be partly attributed to limited clinic-level alignment and lack of collective buy-in for workflows such as patient-initiated SM, according to a PCP interviewee. Having organizational policies for SM utilization, and streamlined registration for future SM pilots by enabling clinic-level enrollment (instead of individual physician-based enrollment) may support more consistent adoption of SM service encounters across an organization. This would be helpful especially in team-based care settings where multiple providers are involved in a patient's care and promote more standardized use across an organization, as explained by a specialist in a hospital setting, who had patients message them to convey a message to other providers in the same organization who did not have patient-initiated SM enabled.

2. **Simplified SM remuneration to reflect actual SM use in practice:** Clinical SM service encounters account for a small portion of actual SM utilization, with most messages being clinic-initiated and one-way, as per interview data, vendor data, and HIS data (Site A). The use of SM for service encounters may require significant time and effort from physicians depending on the complexity of the patient's condition, and a specialist interviewee recommended that this be accounted for. Alternatives that physician interviewees proposed to the current billing model included volume-based models, time-based payments, or fixed payments covering asynchronous care, and expansion of criteria for billable encounters including (non-automated) administrative communication by clinicians, instead of complex, tiered, clinical encounter-based billing.

3. **Targeted financial support and incentives for broader adoption and use of SM by physicians.** Physician interviewees felt that targeted funding could help offset implementation costs, ongoing subscription fees, better triaging systems and compensation for time spent managing SM, particularly for solutions that meet verification standards. Where implementation costs are not offset, availability of SM remuneration would encourage

physicians to continue using SM despite the upfront cost. This would reduce financial barriers to SM implementation and adoption, while supporting the use of secure and trusted SM solutions for patient care.

4. Strengthened and timely SM platform verification processes

A specialist interviewee from a hospital using EPIC described their inability to participate in billing within the PoC despite having registered for it, as their platform was as yet not listed on the verified solutions list.. While the verification process is typically applied at the vendor/platform level, this approach was not feasible for EPIC as a locally deployed solution. This highlighted a potential gap in accommodating widely used hospital-based systems such as EPIC within the PoC, as it limited participation among EPIC users, and suggested the need for more timely verification processes for locally deployed platforms, to allow more physicians to use their preferred, clinically integrated solutions without administrative barriers.

4.0 Summary of key findings

SM POC UPTAKE AND PARTICIPATION

- **The PoC had limited reach across the physician population**. PoC registrants represented only a small proportion of the physician workforce in Ontario, suggesting that the billing model and/or PoC design did not generate widespread engagement. Qualitative findings suggest that PoC participation may have been deterred for some physicians by a combination of awareness, financial, operational, and/or eligibility challenges. Concerns related to low financial incentives, high SM implementation costs, and increased workload limited PoC uptake. Only half of those who registered, ended up participating in the PoC. In addition, lack of awareness of the PoC and its billing criteria, and challenges with SM solution verification processes (specific to users of the EPIC secure messaging solution) also played a role in limiting participation.

- **Provincial growth in SM use was driven by new user adoption, not increased intensity or scope of SM use**. Ontario-wide vendor data, from OceanMD and QHR, indicates that increases in total SM volume (across Ontario, not limited to the PoC) were driven primarily by a growing number of users, rather than increased scope or intensity of use among existing users. This suggests that efforts to scale SM adoption across more providers may be more impactful, in terms of increasing scale of SM use province wide, than seeking to increase usage among current users. K303 utilization was mainly among physicians who stated they were active SM users in both administrative and clinical use prior to the PoC, indicating that the PoC billing model did not make significant changes to the ways SM was used. For wider SM adoption, implementation efforts could be targeted toward clinical groups and use cases with a proven value proposition, such as longitudinal chronic disease management, high-volume low-complexity tasks such as sharing test results and clinical guidance, and pre-visit data collection.

SM UTILIZATION AND ALIGNMENT WITH THE POC BILLING MODEL

- **Most SM utilization was outside of the K303 billing model**. Findings across interviews, surveys, as well as site-specific EMR data and vendor utilization reports consistently indicated that the K303 code captured only a small proportion of actual SM utilization. Most SM activity was for uses that did not qualify as billable service encounters, meaning that actual SM usage was much higher than billing data suggests.

- **The tier-based payment structure limited physician billing practices and remuneration.** Payment thresholds within the tier-based billing model created an additional challenge with the remuneration model as most billing physicians did not meet the minimum threshold of 15 K303s/month for payment. This discouraged billing as many clinicians could not consistently reach the required tiers for billable SM. As a result, the model may have unintentionally excluded physicians who use SM service encounters moderately, even if they were using SM meaningfully in practice.

- **SM PoC remuneration was not a major driver of SM use**. Despite dissatisfaction with the billing model, many physicians continued to use SM as they previously did, indicating that PoC remuneration did not substantially increase (or decrease) the use of SM for service encounters. Conversion from non-billers to billers declined significantly after the registrants' first month of being eligible to submit K303s, indicating that physicians either adopted SM billing into their workflow quickly, or not at all. Participant feedback indicated a preference for simpler, more predictable remuneration models that reflect routine SM use.

- **Primary care vs Specialist care SM utilization differences:** PCPs accounted for most of SM billing, and represented the majority of claims, and higher average monthly claims. This may reflect greater applicability of SM for service encounters in longitudinal care. Physician survey findings showed that while specialists were more optimistic about SM's ability to support timely access and were less likely to regret offering SM to their patients, PCPs perceived greater patient satisfaction than their specialist counterparts. These differences reflected variation in workflows, patient needs, and how SM was experienced across care settings.

SM USE CASES

- **SM was primarily used for administrative and one-way communication.** Vendor and site-level data show that SM was mainly used for administrative and operational purposes, often as one-way, clinic-initiated communication rather than for billable SM service encounters. Automated messages accounted for a large proportion of total volume, and even where patient-initiated SM was available, it represented a small share of use. These patterns suggest that SM was often used to support clinic operational efficiency and digitize existing activities rather than enable new clinical interactions that transform patient-provider communication. Consistent with this, SM was most often used for high-frequency, low-effort tasks such as sharing test results, providing clinical guidance, and sending notifications or reminders, typically via one-way SM.

- **SM can support efficiency for low-complexity care but may complement, rather than replace other visits.** SM was well-suited for straightforward clinical tasks and minor clinical concerns and may reduce the need for some visits. However, interviewees felt it was not a substitute for most care. Rather, SM served as a complementary tool to support efficient in-person visits by pre-visit data collection, allowing visits to focus on clinical decision-making.

IMPACT OF THE SM POC ON OTHER PHYSICIAN SERVICES

- ICES data showed that in primary care, SM users (both high and low) billed fewer total visits than non-users, reflecting pre-existing practice pattern differences**.** However, **SM users maintained more stable patient volumes over time,** while non-users had declines in their patient volumes.

- **High SM primary care users saw a greater increase in the unique number of patients seen immediately after the start of their participation in the SM PoC**, suggesting that the use of SM service encounters may have supported greater patient throughput. It is unclear if this is solely due to SM services being tracked, a change in behaviour, or other confounding factors. In contrast, among specialists, there was no clear immediate impact of SM on (unique) patient volumes.

- ICES findings suggest that when a service encounter was suitable for SM**, immediate follow-up through other visit modalities was not needed** (as only 10.6% of billed service encounters were followed by an in-person or virtual visit with the same physician for the same condition within 7 days).

POLICY CONSIDERATIONS

- **Planned changes to primary care funding in Ontario may address some limitations of the current PoC model**. From April 2026 onwards, in primary care, the new FHO+ model will introduce time-based payments for direct as well as indirect care, including administrative tasks. This may enable SM to be incorporated into routine compensated work, eliminating the need for physicians to bill using a special code for each SM service encounter, and better reflecting the time and effort involved in asynchronous care that does not meet the PoC service encounter definition. As a result, the current emphasis (through the PoC) on using SM for service encounters, may shift toward supporting more commonly used SM use cases. This may help normalize broader adoption of SM to improve efficiencies but removes the direct SM-specific financial incentive offered by the K303 code.

5.0 Project Limitations

1. **Low response rate from PoC non-registrants**. The physician survey aimed to identify SM challenges faced by PoC non-registrants; however, low response rates limited our ability to include more in-depth perspectives from non-registrants.

2. **Limited primary care EMR data**: Only aggregate EMR data was available from Site B, constraining the analysis, compared to the more granular data obtained from the specialist care site (Site A). Further, Site B's EMR data did not include information related to billing or message type.

3. **Identification of distinct SM conversations from EMR/HIS data**: There were limitations to identifying distinct SM conversations in Site A's HIS data. In cases where SM threads remained open, patients could send new requests within existing conversations, limiting our ability to identify distinct encounters. Aggregate EMR data from Site B was also limited by the inability to differentiate between distinct encounters or threads.

4. **Lower participation from non-physician clinic staff and patients:** Interview participation was lower among non-physician clinic staff and patients. Greater representation from these user groups would have provided valuable insights into additional use cases for SM.

5. **Billing data may not accurately reflect actual SM service encounters among PoC registrants:** Billing data (MOH claims as well as ICES) is not necessarily reflective of actual utilization of SM service encounters by PoC registrants. Many physicians did not bill consistently, and our findings are based on those who submitted K303s. Further, there were no validation mechanisms to ensure that billed K303s meet the required criteria, which further limited our ability to draw accurate conclusions about the utilization of SM service encounters.

6. **Small sample size for the interrupted time series analysis** limited our ability to detect some differences, even when clear differences were seen in the graph (especially for the high SM users specialist group).

7. **Findings may have limited transferability to some practice models** where similar challenges may coexist with additional setting-specific barriers not captured in this evaluation.

6.0 Conclusion

The evaluation of the SM PoC demonstrates that while SM is a highly valued tool for improving patient satisfaction, clinic efficiency, and continuity of care, the current PoC implementation is limited by a gap between billing criteria, level of remuneration, and actual clinical practice.

While patients benefit from improved access and reduced anxiety, physicians face significant operational friction and limited remuneration that often fails to offset the costs of the technology. For SM to be a sustainable and scalable component of Ontario's digital health strategy, future SM policy could consider prioritizing workflow-integrated, team-based and predictable funding models that reflect how SM is used in practice - primarily as asynchronous, administrative and supportive care, not just replacing discrete clinical "visits", to support adoption by new users. This will prioritize SM utility over limited eligibility criteria, ensuring that messaging remains a complementary pillar to support access of high-quality, patient-centered care.

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Appendix A: SM Utilization metrics (EMR and Vendor data)

Site A provided de-identified message-level data from their EPIC platform, that could be stratified by clinic as well as user type (registrants vs non-registrants). Message level data included message type, user type (role, and whether a PoC registrant), clinic, whether the SM was sent during office hours, and whether the SM was associated with a K303 claim. Table A1 provides a summary of metrics that were derived from Site A's EMR data.

Table A1. Site A (Specialist care): EMR aggregate data.

Site A (Specialist care):SM Utilization Metrics – EMR data (Sept 2024 - Dec 2025)
Number of unique SM users
Number of unique patient SM users
Number of secure messages sent (stratified by registrants vs. non-registrants)
Number of secure messages sent (stratified by message type)
Number of SM threads
Average SM thread length
Average SM thread duration
Average time between message and last visit
User type
Number of messages associated with a K303

Table A2 provides a summary of the aggregate SM utilization data provided by Site B based on their EMR data.

Table A2. Site B: EMR aggregate data (QHR).

Site B: SM Utilization Metrics – EMR data (Oct 2023 – Sept 2024)
Total number of patient-provider messages per month (physician registrants vs non-registrants) (Medeo)
Total number of messages sent by clinic per month (split by user type - physician registrants, non-registrants, other clinicians, admin) (Medeo)
Total number of messages from patients received by clinic per month (for those enrolled with physician registrants vs those enrolled with physician non-registrants)
Number of messages initiated by physicians (registrants vs non-registrants) that allow a reply by patients

Table A3. Ontario-wide SM utilization metrics (QHR)

QHR Metrics (Jan 2023 – Dec 2025)
Number of Medeo Clinics
Active messaging users
Average messages per thread

% of threads sent open
% of open threads with reply
Number of messages sent (2023-2025)
Number of message threads created
Number of messages sent by patients
Number of threads that allow reply

Table A4. Ontario-wide SM utilization metrics (OceanMD)

OceanMD metrics (Nov 2023 – Jan 2026)
Total Monthly Messages Initiated by clinic/provider
Total sites/clinics that sent a message
Total users that sent a message
Total monthly automated reminders
Total sites/clinics that sent automated reminder-based messages
Total users at clinics that sent automated reminder-based messages
Total monthly patient-initiated inbound messages and form submissions
Total clinics/sites using patient-initiated inbound messages and form submissions
Total users at clinics that use patient-initiated inbound messages and form submissions

Table A5. OceanMD metrics from monthly utilization report for Site B and Site C

Site B and Site C OceanMD utilization report metrics
Number of forms completed via patient messages and website forms
Type and numbers of forms completed
Number of secure messages sent per user
Type and numbers of reminders sent
Number of referrals sent per user
Number of eConsults sent per user

Appendix B: Interview Guides

B1. Key Informant Interview Guide

Pre-interview screening questionnaire

1. **How do you prefer to be identified today?**

   - ☐ Woman
   - ☐ Man
   - ☐ Transgender
   - ☐ Two-Spirit or other indigenous identity
   - ☐ Gender nonconforming/ Genderqueer
   - ☐ Gender fluid
   - ☐ Gender neutral
   - ☐ Androgynous
   - ☐ Non-binary
   - ☐ Do not know
   - ☐ Prefer to self-describe: _____
   - ☐ Prefer not to answer

2. What is your age?

   - ☐ 18 – 24
   - ☐ 25- 34
   - ☐ 35 – 44
   - ☐ 45 – 54
   - ☐ 55 - 64
   - ☐ 65 and over

3. What is your role at your practice?

   - ☐ Physician - Family doctor
   - ☐ Physician – Specialist (If so, please indicate what type of specialist): _____
   - ☐ Other (specify) _____

4. How many years of practice do you have in your clinical role? _____

5. In what year did you start working at your current practice? _____

6. What setting is your practice in?

☐ Urban

☐ Rural

7. How would you characterize the majority of clinical encounters in your practice?

☐ Single consultations, possibly with a follow up visit

☐ Frequent visits with the same patients for a limited period of time (e.g., several months)

☐ Ongoing care of the same patients over several years

☐ Other: _____ (please specify

8. What EMR is used at your practice? _____

9. What secure messaging application is used at your practice? _____

10. Please estimate the percentage of your time that you spend doing the following:

a) Administrative work: _____%

b) Direct patient care: _____%

c) Other (specify): _____%

11. What percentage of your practice's communication with patients do you estimate to be via:

a) Telephone: _____ %

b) Email: _____ %

c) Messaging: _____ %

12. Please indicate yes/no depending on availability of the below at your practice:

a. One-way messaging (clinic/physician to patient):

☐ Yes ☐ No

b. Two-way messaging (clinic/physician to patient; patient to clinic):

☐ Yes ☐ No

c. Patient-initiated messages:

☐ Yes ☐ No

Semi-structured interview guide

Thank you for taking the time to speak with me. My name is [interviewer name] and the goal of our conversation today is to **understand your perspective of secure messaging, how messaging adoption may vary across settings, and what can be done to promote adoption of secure messaging.**

A reminder that participation today is voluntary, and you can choose not to answer or skip any or all of the questions we ask today and can withdraw at any time. Only people working on this research study will be able to see this information. If used in the research, your information will be combined with information from the other participants in this study so that your information cannot be linked to you.

Our discussion should take about 30-40 minutes. With your permission, I would like to record our conversation. Do you have any questions before we begin?

1. Could you tell me about your current role?
    a. How have you been involved with decision-making or implementation of secure messaging at [name of institution/organization]?
2. What do you think is the potential value of secure messaging in the healthcare sector?
    a. To what extent do you think these expected value propositions hold true?
    b. For whom do you think secure messaging is most useful?
3. What do you think are the challenges of secure messaging in the healthcare sector?
    a. What risks, if any, do you think are related to the use of secure messaging?
    b. What limitations, if any, do you think are related to the use of secure messaging?
    c. How do you think these challenges can be addressed?
4. Could you tell me about the overall experience with SM implementation by clinicians at [name of institution/organization]?
    a. What factors facilitated ease of implementation?
    b. What challenges, if any, were faced at [name of institution/organization]?
5. Could you tell me about the current uptake of secure messaging at [name of institution/organization]?

   a. What are the most commonly utilized use-cases for secure messaging? (e.g., one-way, two-way, administrative, clinical, etc.)
   b. What variations do you think there are in the way different types of clinic settings may utilize secure messaging (e.g., specialist vs. family medicine; smaller/solo practices vs. larger clinic settings)?
6. What do you think would motivate patients to adopt secure messaging?
   a. What would discourage patients from adopting secure messaging?
7. What do you think would motivate clinics to adopt secure messaging?
   a. What would discourage clinics from adopting secure messaging?
8. What do you think would motivate clinicians to adopt secure messaging?
   a. What would be a suitable incentive to support clinicians' use of secure messaging?
   b. What would discourage clinicians from adopting secure messaging?
9. What are your thoughts about the renumeration model within this SM pilot?
   a. How has this renumeration influenced SM utilization at [name of institution/organization]?
   b. Do you think this renumeration is suitable and appropriate considering the level of care that can be delivered utilizing SM at [name of institution/organization]? If not, what do you think needs to be changed? What do you think would be an appropriate renumeration for utilizing SM?
   c. How does this renumeration compare relative to similar services that can be delivered using different modalities (for example by phone, video or in-person)? Can all of the components of comparable services be provided when utilizing SM?
10. What challenges do you see to increased adoption of secure messaging in [name of institution/organization]?
   a. What do you think can be done to address these challenges at an organizational level?
   b. What do you think can be done to address these challenges at the regional or provincial level?
11. What advice would you give to a practice that is seeking to implement a secure messaging solution?
12. Is there anything else you would like to talk about related to secure messaging?

B2. Physician Interview Guide

Pre-interview screening questionnaire:

1. **How do you prefer to be identified today?**

   - ☐ Woman
   - ☐ Man
   - ☐ Transgender
   - ☐ Two-Spirit or other indigenous identity
   - ☐ Gender nonconforming/ Genderqueer
   - ☐ Gender fluid
   - ☐ Gender neutral
   - ☐ Androgynous
   - ☐ Non-binary
   - ☐ Do not know
   - ☐ Prefer to self-describe: _____
   - ☐ Prefer not to answer

2. What is your age?

   - ☐ 18 – 24
   - ☐ 25- 34
   - ☐ 35 – 44
   - ☐ 45 – 54
   - ☐ 55 - 64
   - ☐ 65 and over

3. What is your role at your practice?

   - ☐ Physician - Family doctor
   - ☐ Physician – Specialist (If so, please indicate what type of specialist): _____
   - ☐ Other (specify) _____

4. How many years of practice do you have in your clinical role? _____

5. In what year did you start working at your current practice? _____

6. What setting is your practice in?

☐ Urban

☐ Rural

7. How would you characterize the majority of clinical encounters in your practice?

☐ Single consultations, possibly with a follow up visit

☐ Frequent visits with the same patients for a limited period of time (e.g., several months)

☐ Ongoing care of the same patients over several years

☐ Other: _____ (please specify

8. What EMR is used at your practice? _____

9. What secure messaging application is used at your practice? _____

10. Please estimate the percentage of your time that you spend doing the following:

d) Administrative work: _____%

e) Direct patient care: _____%

f) Other (specify): _____%

11. What percentage of your practice's communication with patients do you estimate to be via:

d) Telephone: _____ %

e) Email: _____ %

f) Messaging: _____ %

12. Please indicate yes/no depending on availability of the below at your practice:

b. One-way messaging (clinic/physician to patient):

☐ Yes ☐ No

c. Two-way messaging (clinic/physician to patient; patient to clinic):

☐ Yes ☐ No

d. Patient-initiated messages:

☐ Yes ☐ No

Semi-structured interview guide

Thank you for taking the time to speak with me. My name is [interviewer name] and the goal of our conversation today is to help us **understand your experience utilizing secure messaging at your practice,** as well as the workflow around messaging at your practice.

A reminder that participation today is voluntary, and you can choose not to answer or skip any or all of the questions we ask today and can withdraw at any time. Only people working on this research study will be able to see this information. If used in the research, your information will be combined with information from the other participants in this study so that your information cannot be linked to you.

Our discussion should take about 30-40 minutes. With your permission, I would like to record our conversation. Do you have any questions before we begin?

1. Can you tell me about the type of practice you work in?

Probes

- Tell me about your clinic setting (FHO/solo practice, etc.) and size (number of clinicians/staff; panel size, etc.)

2. Did you use secure messaging prior to enrolling in the Ministry of Health's (MOH's) pilot program? If yes, what made you enroll in the secure messaging pilot project? How did you use messaging prior to enrollment in this pilot project? If not, what motivated you to incorporate SM in your practice via this program?
3. Have you used the secure messaging functionality since registering for the pilot program?

If YES and if they used messaging prior to the PoC as well: How did your utilization of messaging change after enrollment to this pilot project (e.g., did you use if only for admin purposes before, and start using it for other purposes after enrolling in this pilot? **If NO, go to questions for non-users at the end.**

4. What has been your experience using secure messaging?
    a. How would you describe the ease of using secure messaging? (*if needed, prompt:* e.g., Hard to use, or ease to use? Please elaborate)
    b. What additional skills, if any, have you needed to use SM?

c. What problems, if any, have you faced when using secure messaging?

5. What are the various scenarios for which you use secure messaging in your practice? *(E.g., administrative, clinical, one/two-way, prescription refills, etc.)*
   a. How do you perceive the balance between the effort put into specific SM use cases (e.g. two-way clinical messaging, automated reminders, communication of lab results, etc.) versus the impact on the quality of care?
   b. For which of these purposes do you find secure messaging particularly useful?
   c. What challenges have you faced using secure messaging for these different purposes/scenarios?
6. Is secure messaging available to **all** patients at your practice? **If not:**
   a. For which patient groups is secure messaging available?
   b. Why is secure messaging made available only to a selected subset of patients?
   a. Are most message threads initiated by the clinic (clinician or staff) or by the patient?
7. For incoming messages: when a secure message is received, how does the team handle it?
   a. How is a message triaged?
   c. Who handles the messages?
   c. Which ones do you personally handle or complete?
   d. Which ones do you forward to others? What are the reasons you might ask others for input?
   e. Have there been any instances when you weren't sure how best to handle a particular message?
   b. What do you do when messaging cannot resolve the patient's request? Do you book an appointment? If so, do you have appointments reserved for issues arising from messages? If not, can you schedule patients relatively quickly for a virtual or in-person visit?
   a. Are patient-initiated messages (if enabled at your practice) handled differently? If yes, could you elaborate on how these are handled?
   b. Have you ever used secure messaging to reach out to patients?

a. Tell me about situations when you or your team have reached out to patients and sent them a message. Can patients respond to these messages or are they one way?
   b. What is the process for generating, sending, and handling any follow up associated with those messages?

c. Are there things that make it difficult to reach out to patients through secure messaging?

g. Who handles patients' responses – the initial sender or do messages go to a general message inbox?

g. What are your thoughts on the benefits of utilizing secure messaging in your practice?

8. What are the most useful features offered by the secure messaging application you use?

b. What are some good use cases (clinical situations) where messaging is more useful than other modalities of care (e.g. video, phone, in -person)? Any specific patient populations that especially benefit?

c. How, if at all, has secure messaging influenced work efficiency at your practice? (e.g., administrative processes, communication, increased/decreased workload)

d. What are the challenges or risks of using secure messaging?

e. What do you dislike about using secure messaging?

10. What are your thoughts on the renumeration model within this secure messaging pilot program?

a. What types of visits do you provide using SM?

b. How does this renumeration model influence your utilization of secure messaging?

c. Do you feel that this renumeration mechanism is suitable and appropriate considering the level of care that can be delivered within the utilization of secure messaging? If not, what do you think needs to be changed? What do you think would be an appropriate renumeration for utilizing SM? How does this compare relative to similar services that can be delivered using different modalities (for example by phone, video or in-person)? Can all of the components of comparable services be provided when utilizing SM?

11. How do you think secure messaging has impacted your patients' access to clinical care at your practice?

a. Have any specific patient groups particularly benefited from secure messaging? If so, how?

b. Have any groups been placed at a disadvantage by the use of secure messaging?

12. How do you feel secure messaging has impacted the **quality of care** that you are able to provide your patients?

a. How has secure messaging influenced the **responsiveness** and **timeliness** of care provision at your practice?
b. How has secure messaging influenced your **interactions** with your patients?
c. How has secure messaging influenced your **patient-provider relationship**?
d. How has secure messaging impacted the **frequency** of patient visits?
e. How has secure messaging impacted the **duration** of patient visits? *(e.g. if patients answered screening questions via messaging prior to their visit)*
f. Do you think secure messaging has had any impact on patient **outcomes** at your clinic? If yes, how?

13. How has secure messaging influenced your daily workload?

a. What additional tasks have you had to take on, because of using secure messaging?
b. What effect does this have on the time spent on patient care?
c. How does secure messaging fit into your daily work routine? Do you block time in the day for handling messages, or do you respond to them in between other tasks?
d. Do you have a specific timeline within which you need to respond to all messages?
e. Has messaging affected other types of appointments, like video or in-person appointments? If yes, how?

14. What factors, if any, have facilitated the adoption of secure messaging at your practice?

a. What additional resources, if any, did you need in order to implement secure messaging at your practice?
b. What challenges, if any, have you faced with secure messaging within this pilot program?
c. What implementation factors have facilitated/would further facilitate SM utilization at your practice?

15. Do you think you will continue to use secure messaging?

a. What would motivate you to continue to use secure messaging?
b. What would discourage you from continued use of secure messaging?
c. What are your suggestions to increase the adoption of secure messaging?
d. Does this SM pilot program influence your decision on whether to continue using secure messaging? Why or why not?

16. Is there anything else you would like to talk about related to secure messaging and its use at your clinic? Is there anything that we've overlooked?
17. Also remind them of the giftcard

18. Also ask for non-physician staff and patients who she can forward our request to - we want to interview asap within the next week if possible.

Non-Users (continued from Q2)
3. What discourages you from utilizing secure messaging in your practice? a. What do you think are the challenges of secure messaging? b. Have you used secure messaging and then stopped, or have you never used it at all? c. Do other clinicians at your practice use secure messaging? d. What would motivate you to utilize secure messaging more? 4. What do you think are the possible benefits of secure messaging? 5. What limitations, if any, do you think are related to the use of secure messaging? 6. What are your thoughts on the billing model within this secure messaging pilot program? a. Do you feel that this billing mechanism is suitable and appropriate for those who utilize secure messaging, considering the level of care that can be delivered within the utilization of SM? If not, what do you think needs to be changed? b. What do you think would be an appropriate renumeration for utilizing SM? How does this compare relative to similar services that can be delivered using different modalities (for example by phone, video or in-person)? Can all of the components of comparable services be provided when utilizing SM? 7. What are your thoughts on the future direction of secure messaging at your practice? 8. Is there anything else you would like to share with me related to secure messaging and its use at your clinic?

B3. Non-Physician Staff Interview Guide

Pre-interview screening questionnaire

1. How do you prefer to be identified today?
   - ☐ Woman
   - ☐ Man
   - ☐ Transgender
   - ☐ Two-Spirit or other indigenous identity
   - ☐ Gender nonconforming/ Genderqueer
   - ☐ Gender fluid
   - ☐ Gender neutral
   - ☐ Androgynous
   - ☐ Non-binary
   - ☐ Do not know

- ☐ Prefer to self-describe: _____
- ☐ Prefer not to answer

2. What is your age?
   - ☐ 18 – 24
   - ☐ 25- 34
   - ☐ 35 – 44
   - ☐ 45 – 54
   - ☐ 55 - 64
   - ☐ 65 and over

3. What is your title/position at this facility?
   - ☐ Nurse (please select type)
   - ☐ RN (Registered Nurse)
   - ☐ RPN (Registered Practical Nurse)
   - ☐ Healthcare Aid
   - ☐ Personal Support Worker (PSW)
   - ☐ Nurse Practitioner
   - ☐ Therapist/Psychosocial Worker (please select type)
   - ☐ Physical Therapist Social Worker
   - ☐ Occupational Therapist
   - ☐ Therapeutic Recreation Therapist Rehabilitation Counselor
   - ☐ Physician
   - ☐ Physician Assistant
   - ☐ Medical Support Assistant/Clerk
   - ☐ Medical Secretary
   - ☐ Clerical Staff
   - ☐ Other (specify) _____

4. How long have you worked as an [insert title/position]? _____

5. In what year did you start working at [name of clinic]? _____

6. Please estimate the percentage of your time that you spend doing the following:

Administrative work: _____% Direct patient care: _____%

Other (specify): _____%

7. What Electronic Medical Record (EMR) is used at the [name of clinic]? (e.g., Accuro, Oscar etc.): _____

8. What SM application do you use at [name of clinic]? (e.g., Ocean):_____
9. Is the SM application one-way (e.g., clinic staff to patient only) OR two-way (e.g., bi-directional between physician to patient)?
   - ☐ One-way
   - ☐ Two-way
   - ☐ Both
   - ☐ None of the above
   - ☐ Other (please specify):_____
10. SM exchanges with patients occur between which of the following (check all that apply):
   - ☐ Administrative staff to patients
   - ☐ Physicians to patients
   - ☐ Other staff to patients (please specify):_____
   - ☐ None of the above
   - ☐ Not sure
11. Can patients initiate SM exchanges?
   - ☐ Yes
   - ☐ No
   - ☐ Sometimes (please specify when):_____
   - ☐ Not sure
12. **How do you typically correspond with patients outside of in-person visits?**
   - ☐ Telephone
   - ☐ Email
   - ☐ Text message
   - ☐ Other (please specify): _____

Semi-structured interview guide

Thank you for taking the time to speak with me. My name is [interviewer name] and the goal of our conversation today is to help us **understand your experience with secure messaging at [insert clinic name].** The focus on our conversation today would be to understand how messages are being used in your clinic, what is the pre-existing workflow around them and how are they being handled.

A reminder that participation today is voluntary, and you can choose not to answer or skip any of the questions we ask today and can withdraw at any time. Only people working on this research study will be able to see this information. If used in the research, your information will be combined with information from the other participants in this study so that your information cannot be linked to you.
Our discussion should take about 30-40 minutes. With your permission, I would like to record our conversation. Do you have any questions before we begin?

1. Do **you** use secure messaging? If so, **when** do you typically use SM?
    a. Tell me about situations when you or your team have reached out to patients and sent them a message. Upcoming appointment?
    b. What is the process for generating, sending, and handling any follow-up associated with those messages?
    c. How often would you say that this happens?
    d. Can patients respond to these messages or are they one-way? Two-way? Can patients initiate message exchanges?
    e. Who handles the patient responses, the initial sender or do they go to a general message inbox?
    f. Was any guidance provided to patients on how to use SM?
2. How does SM fit into the daily routine at [name of clinic]? (e.g. do you block time in the day for handling messages or do you respond to them in between other tasks?)
    a. What role does it play in your work? Your team's work?
    b. How would you characterize its impact on your work? Your team's work? Positive? Negative? Why do you say that?
    c. Do you have a specific timeline within which you need to respond to all messages?
3. Please describe the general flow of messages from intake, triage (if any) and either resolution or forwarding to other team members.
    a. Are there standard procedures around this or is it done on an ad hoc basis? Can you elaborate
    b. Do you distinguish b/w administrative or clinical messages?
    c. Which ones do you personally handle or complete?
    d. Which ones do you forward to others? What are the reasons you might ask others for input?

e. Have there been any instances when you weren't sure how best to handle a particular message?
f. Are most message threads initiated by the clinic (staff or clinician) or by the patient?

4. What do you do when messaging cannot resolve a patient's request?
   a. Do you book an appointment? If so, do you have appointments reserved for issues arising from messages? If not, can you schedule patients relatively quickly for a virtual or an in-person visit?
5. Do you routinely send pre-visit messages to patients? If so,
   a. Under what circumstances is this done?
   b. What is the general procedure for generating, sending, and handling any follow-up associated with those messages?
   c. How often would you say that this happens?
   d. Are there things that make it difficult to contact patients through secure messaging before an upcoming appointment?
6. Overall, thinking about the general process for using secure messaging at the [name of clinic]?
   a. What is working about this process (in general}?
   b. What is not working about this process (in general)?
   c. What do <u>you</u> **like** about it? Pros? Benefits? Advantages? Facilitators of use?
   d. What do <u>you</u> **dislike** about it? Cons? Drawbacks and downsides? Barriers of use? [Perceived vs. Actual barrier]
   e. What role does it play in your work? Your team's work?
   f. How would you characterize its impact on your work? Your team's work?
   g. Positive? Negative? Why do you say that?
7. How has the use of secure messaging influenced your interaction with patients at [name of clinic]?
   a. Specifically, we could think about telephone encounters and how those may or may not have changed.
   b. Are you getting more or less phone calls?
   c. Would you say that those phone calls are longer or shorter?
   d. In an average week, would you say the average time that you spend on phone calls has increased or decreased?
   e. Has messaging impacted other types of appointments, like video or in-person appointments? If yes, how?

6. How would you say that practice is impacting **quality of care**, if at all?
    a. Do you think secure messaging is impacting patient outcomes here at [name of clinic]? If so, how?
    b. b. How do you perceive the balance between the effort put into specific SM use cases (e.g. two-way messaging, automated reminders, communication of lab results, etc.) versus the impact on the quality of care?
7. How would you say that practice is impacting **access** to care, if at all?
8. What changes, if any, need to be made to make secure messaging more effective?

Concluding

9. Where do you see all of this going – the use of secure messaging at [name of clinic]?
10. Do you have any advice for other clinics that might want to implement the practice of using secure messaging?
11. What are important considerations that they should keep in mind?
12. Is there anything else that we should talk about related to secure messaging and its use at [name of clinic]? Is there anything that we've overlooked?
13. Do you have any questions for me?

B4. Patient Interview Guide

Pre-interview screening questionnaire

1. **What is your age?**
   - ☐ 18 – 24
   - ☐ 25- 34
   - ☐ 35 – 44
   - ☐ 45 – 54
   - ☐ 55 - 64
   - ☐ 65 and over
2. **What gender do you prefer to be identified as today?**
   - ☐ Woman
   - ☐ Man
   - ☐ Transgender
   - ☐ Two-Spirit or other indigenous identity
   - ☐ Gender nonconforming/ Genderqueer
   - ☐ Gender fluid
   - ☐ Gender neutral
   - ☐ Androgynous
   - ☐ Non-binary
   - ☐ Do not know
   - ☐ Prefer to self-describe: _____
   - ☐ Prefer not to answer
3. **Which of the following best describes your race/ethnicity? Select all that apply.**
   - ☐ Black (African, Afro-Caribbean, African-Canadian descent)
   - ☐ East Asian (Chinese, Korean, Japanese, Taiwanese descent)
   - ☐ Southeast Asian (Filipino, Vietnamese, Cambodian, Thai, Indonesian, other Southeast Asian descent)
   - ☐ Indigenous (First Nations, Métis, Inuit)
   - ☐ Latino (Latin American, Hispanic descent)
   - ☐ Middle Eastern (Arab, Persian, e.g. Afghan, Iranian, Lebanese, Turkish, Kurdish, etc.)
   - ☐ South Asian (South Asian descent, e.g. East Indian, Pakistani, Bangladeshi, Sri Lankan, Indo-Caribbean, etc.)
   - ☐ White (European descent)
   - ☐ Another Race (Any race category not described above, please specify) _____
   - ☐ Prefer to self-describe _____
   - ☐ Prefer not to answer
   - ☐ Unsure
4. **How would you describe where you live?**
   - ☐ Rural (less 1,000 people)
   - ☐ Small population centers (1,000 to 29,999 people)
   - ☐ Medium population centers (30,000 to 99,999 people)
   - ☐ Large population centers (100,000 to 999,999 people)
   - ☐ Urban centers (1 million people and over)
   - ☐ Unsure/Do not know
   - ☐ Prefer not to answer
5. **What is your highest level of education?**
   - ☐ Elementary school (1^{st} – 6^{th} grade)

- ☐ Middle school (7-8th grade)
- ☐ Highschool (9th-12th grade)
- ☐ Some college/vocational school
- ☐ College diploma
- ☐ Undergraduate degree
- ☐ Graduate degree
- ☐ Other

6. **For the year ending on December 31, 2023, what do you estimate was your annual household income?**
   - ☐ Less than $10,000
   - ☐ $10,000 to less than $20,000
   - ☐ $20,000 to less than $30,000
   - ☐ 30,000 to less than $40,000
   - ☐ $40,000 to less than $50,000
   - ☐ $50,000 to less than $60,000
   - ☐ $60,000 to less than $70,000
   - ☐ $70,000 to less than $80,000
   - ☐ $80,000 to less than $90,000
   - ☐ $90,000 to less than $100,000
   - ☐ $100,000 and over
   - ☐ Prefer not to answer
7. **Which best describes your work situation? Select all that apply.**
   - ☐ Full Time (30+ hours per week)
   - ☐ Part Time (less than 30 hours per week)
   - ☐ Casual, on-call or short-term contract
   - ☐ Student
   - ☐ Seasonal
   - ☐ Retired
   - ☐ Volunteer
   - ☐ Leave of absence (sick/ maternity/ paternity, etc.)
   - ☐ Self-employed
   - ☐ Not currently working in the labour force
   - ☐ Other (please specify) _____
   - ☐ Prefer not to answer
8. **In general, how would you rate your overall health?**
   - ☐ Poor
   - ☐ Fair
   - ☐ Good
   - ☐ Very good
   - ☐ Excellent
   - ☐ Do not know
   - ☐ Prefer not to answer
9. **What language would you feel most comfortable in when reading healthcare information?**
   - ☐ English
   - ☐ French
   - ☐ Cree languages
   - ☐ Ojibwe languages
   - ☐ Oji-Cree
   - ☐ Inuktitut
   - ☐ Mandarin

- ☐ Cantonese
- ☐ Punjabi (Panjabi)
- ☐ Spanish
- ☐ Arabic
- ☐ Urdu
- ☐ Tamil
- ☐ Persian (Farsi, Dari, Tajik)
- ☐ Tagalog (Pilipino, Filipino)
- ☐ Italian
- ☐ Portuguese
- ☐ Russian
- ☐ Polish
- ☐ Korean
- ☐ Vietnamese
- ☐ Gujarati
- ☐ German
- ☐ Bengali
- ☐ Other: _____
- ☐ Prefer not to answer

Technology Skill-Level

10. What is your experience with computers or technology?
    - ☐ None- Not comfortable
    - ☐ Basic- I can log into an email account but require some assistance
    - ☐ Moderate- I can log into an email account and perform basic functions on a computer
    - ☐ Advanced- I can independently solve a problem by navigating some webpages and applications
    - ☐ Expert- I can independently solve a problem with multiple steps across webpages and applications

Net promoter score

11. On a scale of 0-10 (0- Not at all likely, 5- Neutral, 10- Extremely likely), how likely is it that you would recommend secure messaging to a friend or colleague?

Please circle response below:

0 – 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10

(Not at all likely) *(Neutral)* *(Extremely likely)*

Semi-structured interview guide

Thank you for taking the time to speak with me. My name is [interviewer name] and the goal of our conversation today is to help us understand your experience using secure messaging at [insert clinic name]. As highlighted in the consent form you completed, we are conducting an evaluation of a study that your primary care provider [name of provider] has enrolled in. We are evaluating a Ministry of Health pilot project aimed at supporting the delivery of services to patients through Secure Messaging. Secure messaging can have a variety of definitions, but for this study, it is when a user (e.g., a patient) sends confidential (end-to-end encrypted) messages to a recipient (e.g., physician) in a secure solution (e.g., Ocean). This can be

for various purposes such as asking clinical concerns to your physician, sending a follow-up question after a visit, receiving test results from your clinician, and appointment scheduling. Secure messaging solutions ensure that all text, images, attachments, etc. are encrypted.

A reminder that participation today is voluntary, and you can choose not to answer or skip any of the questions we ask today and can withdraw at any time. Only people working on this research study will be able to see this information. If used in the research, your information will be combined with information from the other participants in this study so that your information cannot be linked to you.

Our discussion should take about 30-40 minutes. With your permission, I would like to record our conversation. Do you have any questions before we begin?

1. **Do you currently use secure messaging? [yes/no] If so, how often?**

*****If YES [continue with numbered questions, if NO proceed to questions in the red box]*****

- More than once a week
- At least once a week
- At least once a month
- A few times a year
- Less than once a year

2. **Approximately how long have you been using secure messaging applications for care in general?**
    - Less than 6 months
    - 6 months to 1 year
    - More than 1 year but less than 2 years
    - More than 2 years but less than 5 years
    - More than 5 years
3. **When do you use secure messaging?**
    - Are you able to ***self-initiate sending messages*** to your physician (i.e., without the physician starting the messaging thread)? Why or why not?

If yes,

- Were you invited to use SM or did you register? Please explain.
- Were you given any guidance from the clinic (e.g., by clinic staff) on how to use SM? If so, please describe.

- What are the ***types of situations that prompt*** you to use messaging over calling? Are there specific types of questions/requests that prompt you to use messaging over calling? *[Behaviour]*
- Have you ever sent a secure message to your healthcare team ***in preparation for an upcoming visit*** to the clinic/clinic office? If so, how often does this happen?
    - Before every visit/ Before most visits/ Before some visits/ Before only a few visits etc.
- Have you ever sent a secure message to your healthcare team ***after a visit*** to the clinic? If so, how often does this happen?
    - Before every visit/ Before most visits/ Before some visits/ Before only a few visits etc.
- Has your ***health care provider or clinic staff ever reached out to you,*** and sent you a secure message in preparation for one of your upcoming visits to the clinic? If yes, how often does that happen? How about after a visit?
    - Before every visit/Before most visits/Before some visits/ Before only a few visits etc.
    - After every visit/After most visits/After some visits/after only a few visits

4. **Why did you decide to start using secure messaging?** *[Incentives/ease of use/behaviour]]*
    - What has been your experience with secure messaging up to this point?
    - Did you find secure messaging ***valuable***? Please explain.
    - What was most **appealing** to you about secure messaging [appointment scheduling, communication with physician]
    - Are there things that make it **challenging to use?**
    - Are there things about secure messaging that you would like to see changed?
    - What would **motivate** you to use the secure messaging tool(s) more?
5. **How confident do you feel in using the Secure Messaging tool?** *[Knowledge/Skills/Ease of Use]*
    - Were you familiar with secure messaging prior to your clinician's participation in the PoC pilot study?
    - What skills, if any, did you require to use the secure messaging tool?
    - Does anyone ever assist you when you use the secure messaging application? If yes, why?
        - Family member/Friend/Paid assistant/other

Care Access and Quality

6. Do you think secure messaging has influenced the care you receive? Please describe.
   - Improved? Worsened?
   - How does it impact timeliness of care that you receive? (i.e., how does it influence the time it takes for you to receive care/clinical advice from your care provider?)
7. Do you feel secure messaging tool has made it easier for you to **connect/reach your provider/care team**? If so, how? Is that a benefit? If not, why?
8. Do you feel like using secure messaging has made a **difference in your relationship** with your provider/care team? In your health? Help me understand the influence that it has had.
9. What role, if any do you think it plays or should play in the patient-physician relationship?
10. Do you think secure messaging has **replaced in-person or phone/video visits** that you would have had with your physician in the past?
    a. Would you describe that as a positive or negative consequence of using secure messaging?
11. How long does it usually take for you to get a response on your message request? Do you think that timeframe is reasonable? If not, why not?

Concluding

12. Do you have any advice for other patients that might want to use secure messaging? What are important things that they should keep in mind?
13. Is there anything else that we should talk about related to secure messaging? Is there anything that we've overlooked?
14. Do you have any questions for me?

If NO:

- Why did you decide NOT to use secure messaging? What about using the secure messaging tool wasn't appealing?
- If this decision was based on prior experiences using SM, were there specific issues with the secure messaging tool you used earlier? Explain.
- What would help prompt you to use the secure messaging tool(s) in the future? (e.g., would a reminder be beneficial to encourage/remind you to use it?)

Additional suggested questions if patient has had limited use of SM, mainly for non-clinical purposes (e.g. appointment booking etc):

- Are you aware that secure messaging is available at your provider's clinic for clinical queries (i.e., not just appointment booking)?
- Is this something you think you would be interested in using in the future? Why or why not?
- Would you have any concerns about using secure messaging to communicate with your physician? If yes, could you elaborate?

Appendix C: Registration and Physician Survey Guide

C1. MOH PHYSICIAN REGISTRATION SURVEY FOR SM POC

A. Physician Information

1. Indicate your level of comfort and competency in using technology (such as, electronic medical records, virtual visit solutions) to deliver care:

- ☐ None
- ☐ Novice - I have limited experience using technology in care delivery and require substantial assistance
- ☐ Intermediate - I can perform basic tasks, but I'm uncertain about more advanced functions and often
- ☐ need guidance
- ☐ Proficient - I am comfortable using technology for care delivery and can navigate the technology and
- ☐ most tasks independently
- ☐ Advanced - I possess a high level of competence in using technology for care delivery and can handle
- ☐ complex tasks
- ☐ Expert - I am highly skilled and experienced in using technology to deliver care, and I can troubleshoot technical issues
- ☐ Not sure

2. How many practice(s) are you currently practicing at (includes outpatient community-based or hospital-based clinics)?

3. At how many of these practice(s) do you intend to offer clinical services to patients by secure messaging?

B. Practice information

Provide information for the practice(s) where you intend to offer clinical services to patients by secure messaging.
The following sections are to be filled out for each practice individually.
If there are more than two practices, provide information on the two most diverse practices.
When selecting which practices to provide information on, please consider elements such as size, patient population, care delivered, support for implementation and use of virtual care, technology, etc.

First Practice

1. Administrative Information

a) Describe the practice type where you intend to offer clinical services to patients by secure messaging.

- ☐ Private Practice
- ☐ Group Practice

- ☐ Hospital
- ☐ Other

b) Provide contact details for the practice where you intend to offer clinical services to patients by secure messaging.

Practice Name:
Practice Address:
Primary Phone # :
Secondary Phone # (optional):
E-mail (optional):

Primary administrative contact:
Name:
Role / position:
Phone #:
E-mail (optional):

2. Staffing Information
a) Who in this practice supports, or will support, the implementation and use of secure messaging?
[select all that apply]

- ☐ Administrative staff
- ☐ Quality improvement lead
- ☐ Director Virtual care lead
- ☐ IT staff
- ☐ None
- ☐ Other

b) Do you anticipate the administrative staff in this practice using secure messaging?
[Note: This does not constitute a funded secure messaging service encounter under the Secure Messaging Proof-of-Concept Pilot].

- ☐ Yes
- ☐ No
- ☐ Some
- ☐ Unknown

c) Do you anticipate the nursing staff in this practice using secure messaging?
[Note: This does not constitute a funded secure messaging service encounter under the Secure Messaging Proof-of-Concept Pilot].

- ☐ Yes
- ☐ No
- ☐ Some
- ☐ Unknown

d) If there are Allied Health Providers (AHP) as part of the practice, do you anticipate the AHP(s) will be offering clinical services by secure messaging?
[Note: This does not constitute a funded secure messaging service encounter under the Secure Messaging Proof-of-Concept Pilot].

- ☐ No AHP

- ☐ Yes
- ☐ No
- ☐ Some
- ☐ Unknown

3. Patient Population Information

a) What is the main patient catchment for this practice?

- ☐ Urban/suburban
- ☐ Small town
- ☐ Rural
- ☐ Geographically isolated/remote
- ☐ Wide geographic distribution
- ☐ Other

b) Does this practice serve a significant proportion of patients from First Nations, Inuit, Métis, and/or urban Indigenous communities?

- ☐ Yes
- ☐ No

c) Does this practice serve a significant proportion of patients from a unique population(s) (such as, historically marginalized or equity seeking patient populations)?

- ☐ Yes
- ☐ No

If Yes, please specify: [select all that apply]

- ☐ Racialized/Ethnic communities
- ☐ Precarious status individuals (such as, temporary foreign workers, refugees, etc.)
- ☐ Linguistic diversity (such as, non-English or non-French speaking)
- ☐ Low socioeconomic status
- ☐ Persons with disabilities/disabled persons (such as, physical, deaf or hard of hearing, visual, learning, mental illness, addiction/substances, etc.)
- ☐ 2SLGBTQIA+ populations
- ☐ Geriatric population
- ☐ Other

4. Care Delivery Information

a) How many of your eligible patients (i.e., those in Ontario with whom you have an existing patient-physician relationship) in this practice do you expect to offer clinical service by secure messaging?

- ☐ A few (<=20%)
- ☐ Some (21-40%)
- ☐ Many (41-75%)
- ☐ Most (>75%)
- ☐ All (100%)
- ☐ Unsure

b) Are there specific patient group(s) you intend to offer clinical services through secure messaging to in this practice?

- ☐ Yes
- ☐ No
- ☐ Unsure

If yes:
c) What are the specific considerations or characteristics of the patient group(s) to whom you plan to provide clinical services via secure messaging in this practice? [select top three considerations]

- ☐ Specific age group
- ☐ Specific health condition(s)
- ☐ Medical status
- ☐ Distance from the practice
- ☐ Difficulty coming in for appointments (such as, transportation challenges, mobility issues, small
- ☐ children, provides elder care)
- ☐ Frequency of interactions and/or services provided to the patient
- ☐ Likelihood of patients' appropriate use of secure messaging
- ☐ Level of English and/or French language proficiency
- ☐ Communication challenge minimized by messaging modality (such as, Hearing deficit)
- ☐ Digital literacy
- ☐ Access to connectivity or technology
- ☐ Other

d) What proportion of your patients in this practice who are offered clinical services by secure messaging do you think will choose to use secure messaging?

- ☐ A few (<=20%)
- ☐ Some (21-40%)
- ☐ Many (41-75%)
- ☐ Most (>75%)
- ☐ All (100%)
- ☐ Unsure

5. Technology Information

a) What verified virtual visit solution will you be using in this practice to deliver clinical services by secure messaging?
i) I will use a solution currently on the Ontario Health Verified Solutions List, which is:
Solution name:
Vendor:

ii) I do not know yet what solution I will use.
• Please review the Ontario Health Verified Solutions List for eligible solutions. Please note you will be contacted at the e-mail you provided in three to six months to confirm the virtual visits solution you will be using.

iii) I do not see the solution I want to use on the list.
• What solution do you wish to use?
Solution name:

Vendor:
Please contact your vendor directly regarding if they are engaged in the Ontario Health Virtual Visits Verification Program as Ontario Health is not able to disclose information regarding the status of vendors nor is Ontario Health aware of all submissions that are being prepared by vendors.
A sample statement you can use when communicating with your vendor can be found here.
• Please note you will be contacted at the e-mail you provided in three to six months to confirm the virtual visits solution you will be using.

If you selected i) or iii) above and know what solution you want to use:
b) Has this practice already procured the solution?

- ☐ Yes
- ☐ No

If No:
Please note you will be contacted in three to six months to confirm the virtual visits solution you will be using.
If Yes:
c) Has the solution been implemented?

- ☐ Yes
- ☐ No

If Yes:
d) Does this practice currently offer secure messaging?

- ☐ No
- ☐ Only for two-way administrative purposes (such as, appointments)
- ☐ Only for one-way administrative purposes (such as, clinic notifications)
- ☐ Both for clinical services by secure messaging and for administrative purposes

e) Is this practice offering other types of virtual care (such as, video, audio-only, remote care management/monitoring)? [select all that apply]

- ☐ None
- ☐ Video
- ☐ Audio-only
- ☐ Other types of virtual care (such as, remote care management/monitoring)

f) Are any of these other types of virtual care being offered via the same virtual visit solution that you are using, or would like to use, to deliver secure messaging?

- ☐ Yes
- ☐ No

***Note: Respondents with a second practice that used SM proceeded to the second practice survey which was identical to the first practice survey above**

C2. PHYSICIAN SURVEY

The goal of this survey is to help us understand your experience with secure messaging (SM) at your practice both in the context of the Ministry of Health Patient-to-Physician Secure Messaging Proof-of-Concept Pilot and outside of the pilot. Survey questions will help us

understand how secure messaging service encounters are being used in your clinic, their perceived value proposition of SM use to you as a physician and how you think it influences care quality and delivery.

For the purposes of the survey, secure messaging service encounters are defined as (unless otherwise indicated):

An exchange of secure messages, transmitted between a patient or patient's representative and a physician, encompassing all messages that were exchanged to undertake and complete the clinical service for the presenting health issue(s)

The clinical service includes the physician soliciting the appropriate patient information, analyzing the information, and providing appropriate management and/or advice related to the patient's presenting health issue(s).

Must include at least one message from the patient and one message from the physician

Must be: 1) initiated by the patient, or the patient's representative; or 2) initiated by the physician as a clinically appropriate follow-up to a preceding service initiated by the patient or the patient's representative.

A reminder that your participation is voluntary, and you may withdraw at any time. While most questions are optional, a few questions are mandatory to ensure the survey displays the appropriate sections based on your response. can choose not to answer or skip any of the questions we ask today and can withdraw at any time. Only people working on this research study will be able to see this information. If used in any research output, your information will be combined with information from the other participants in this study so that your information cannot be linked to you.

Instructions for respondents:
For the following questions, please click on the box to place an X with the response you most agree with.

Questions

Physician Demographics and Practice Characteristics

1. What is your age?
   - ☐ 18 – 24 years old
   - ☐ 25- 34 years old
   - ☐ 35 – 44 years old
   - ☐ 45 – 54 years old
   - ☐ 55 - 64 years old
   - ☐ 65 years and over

2. What gender do you prefer to be identified as today?
   - ☐ Woman
   - ☐ Man
   - ☐ Transgender
   - ☐ Two-Spirit or other indigenous identity
   - ☐ Gender nonconforming/Gender variant

- ☐ Gender fluid
- ☐ Gender neutral
- ☐ Androgynous
- ☐ Non-binary
- ☐ Do not know
- ☐ Prefer to self-describe: _____
- ☐ Prefer not to answer

3. How many years have you been in practice?
   - ☐ Less than 1 year
   - ☐ 1-5 years
   - ☐ 6-10 years
   - ☐ 11-15 years
   - ☐ More than 15 years

4. What is your medical specialty?
   - ☐ Addiction medicine
   - ☐ Allergy and clinical immunology
   - ☐ Anesthesia
   - ☐ Cardiac surgery
   - ☐ Cardiology
   - ☐ Chronic pain
   - ☐ Critical care medicine
   - ☐ Dermatology
   - ☐ Diagnostic and interventional radiology
   - ☐ Emergency medicine
   - ☐ Endocrinology
   - ☐ Gastroenterology
   - ☐ General and family practice
   - ☐ General internal medicine
   - ☐ General surgery
   - ☐ General thoracic surgery
   - ☐ Genetics medicine
   - ☐ Geriatric medicine
   - ☐ Hematology and medical oncology
   - ☐ Hospital medicine
   - ☐ Infectious diseases
   - ☐ Laboratory medicine
   - ☐ Long-term care/care of the elderly
   - ☐ Nephrology
   - ☐ Neurology
   - ☐ Neuroradiology
   - ☐ Neurosurgery
   - ☐ Nuclear medicine
   - ☐ Obstetrics and gynecology
   - ☐ Occupational and environmental medicine
   - ☐ Ophthalmology
   - ☐ Orthopedic surgery
   - ☐ Otolaryngology/head and neck surgery
   - ☐ Palliative medicine
   - ☐ Pediatrics

- ☐ Physical medicine and rehabilitation
- ☐ Plastic surgery
- ☐ Primary care mental health
- ☐ Psychiatry
- ☐ Radiation oncology
- ☐ Reproductive biology
- ☐ Respiratory disease
- ☐ Rheumatology
- ☐ Sport and exercise medicine
- ☐ Urology
- ☐ Vascular surgery
- ☐ Other (please specific): _____

5. If General and Family Practice is a yes:
   - θ What type of practice do you work in?
     - ☐ Solo Fee for Service
     - ☐ Family Health Group
     - ☐ Family Health Organization
     - ☐ Family Health Team
     - ☐ Other (please specify):_____

6. Do you practice in any other areas aside from primary care:
   - ☐ Emergency department
   - ☐ Intensive care unit
   - ☐ General medical unit
   - ☐ Specialist medical unit (i.e., oncology, orthopedic, cardiology, geriatrics)
   - ☐ Surgical unit
   - ☐ Other (please specify):_____

7. Does your practice include different clinical team members (i.e. nurses, physiotherapists, specialists etc). If yes, please describe briefly: _____

8. Which EMR system do you use?
   - ☐ Accuro EMR – QHR Technologies Inc
   - ☐ Collaborative Health Record (CHR) - Telus Health Solutions Inc
   - ☐ OSCAR McMaster – Professional Edition (OSCAR Pro) - WELL EMR Group Inc
   - ☐ PS Suite EMR – Telus Health Solutions Inc
   - ☐ Other, please specify

9. Which Secure Messaging solution(s) (if any) are installed at your practice? (Need to provide Checkbox options here – Medeo, Pomelo, CHR Connect, Ocean, + other options from Ontario's VVV list + **"Other (please specify)"** + **"No SM solution installed"**) [**Enable multiple choices].**

10. Are you currently enrolled in the MoH Secure Messaging Proof-of-concept pilot study?
    - ☐ Yes
    - ☐ No

11. If NO, then ask:

Why did you not enroll in the SM proof-of concept

- ☐ I did not know about it
- ☐ I do not use secure messaging in my practice
- ☐ The compensation in the billing model is inadequate
- ☐ My practice did not want enroll
- ☐ Other: Please describe:_____

12. Indicate your level of comfort and competency in using technology (such as, electronic medical records, virtual visit solutions) to deliver care:
    - ☐ None
    - ☐ Novice - I have limited experience using technology in care delivery and require substantial assistance
    - ☐ Intermediate - I can perform basic tasks, but I'm uncertain about more advanced functions and often need guidance
    - ☐ Proficient - I am comfortable using technology for care delivery and can navigate the technology and most tasks independently
    - ☐ Advanced - I possess a high level of competence in using technology for care delivery and can handle complex tasks
    - ☐ Expert - I am highly skilled and experienced in using technology to deliver care, and I can troubleshoot technical issues
    - ☐ Not sure
13. How would you characterize the regions where the majority of your patients reside in?
    - ☐ Urban/suburban
    - ☐ Small town
    - ☐ Rural
    - ☐ Geographically isolated/remote
    - ☐ Wide geographic distribution
    - ☐ Other

[Non-registrants: Go to Q 23-31 and then continue to Provider Experience qns]

14. **If Yes [**to enrolling in PoC], then ask:

    CPSO Number: _____ (to link this to your registration data) [Mandatory field]

    Registrants: Go to Q23-31, and then come back to Q15

15. **[If YES or "I used to", to #25, ask #15-17]** Since enrolling in the SM proof-of-concept study, how many secure messaging service encounters have you had on average, monthly??
    - ☐ None
    - ☐ Less than 15 secure messaging service encounters per month
    - ☐ At least 15 secure messaging service encounters per month
    - ☐ At least 30 secure messaging service encounters per month
    - ☐ At least 45 secure messaging service encounters per month
    - ☐ At least 60 secure messaging service encounters per month

- ☐ Unsure
- ☐ Other (please specify):

16. **[If YES or "I used to", to #25 about using service encounters]** Since enrolling in the SM proof-of-concept study, how often do you bill (K303A) for a secure messaging service encounter on average, monthly?
    - ☐ Never
    - ☐ Less than 15 times a month
    - ☐ At least 15 times a month
    - ☐ At least 30 times a month
    - ☐ At least 45 times a month
    - ☐ Unsure
    - ☐ Other (please specify)

17. **[If YES or "I used to", to #25 about using service encounters]:** Do you consistently bill using the K303 code whenever you have an eligible secure messaging service encounter?
    - ☐ Yes
    - ☐ No

If Yes (to Q17, ask Q 18)

18. How has the availability of the K303 billing code affected your actual utilization of secure messaging service encounters?
    - ☐ My use of secure messaging service encounters is the same as it was prior to K303 availability
    - ☐ I use secure messaging service encounters more frequently after K303 availability
    - ☐ I use secure messaging service encounters less frequently compared to before K303 availability
    - ☐ Other (please specify)

If No (to Q17, ask Q 19-20):

19. If No (to Q17): Why do you not bill consistently for secure messaging service encounters?
    - ☐ It takes time to bill
    - ☐ It takes effort to bill
    - ☐ The compensation is insufficient
    - ☐ Other: (*please specify)*
20. If No (to Q17): How has this affected your actual utilization of secure messaging service encounters?
    - ☐ I still use secure messaging service encounters regularly

- ☐ I use secure messaging service encounters but not as frequently as before
- ☐ I stopped using secure messaging service encounters
- ☐ Other: (*please specify)*

21. The new billing model for secure messaging meets my expectations.
    - ☐ 1- Strongly Disagree
    - ☐ 2- Disagree
    - ☐ 3 - Neutral
    - ☐ 4- Agree
    - ☐ 5- Strongly Agree
    - ☐ Not sure
22. The new billing model provides inadequate remuneration for secure messaging exchanges
    - ☐ 1- Strongly Disagree
    - ☐ 2- Disagree
    - ☐ 3 - Neutral
    - ☐ 4- Agree
    - ☐ 5- Strongly Agree
    - ☐ Not sure

[Registrants: After Q22 Proceed to provider experience survey qns]

23. Please indicate whether you use secure messaging for administrative purposes by selecting the choices that apply to you:
    - ☐ Scheduling requests
    - ☐ Medical record requests
    - ☐ Update on status of a referral
    - ☐ Other, please specify
    - ☐ I do not use secure messaging

24. Please indicate whether you use secure messaging for one-way dissemination of information by selecting the choices that apply?
    - ☐ Sending test results to patients
    - ☐ Notification of vaccination clinics
    - ☐ Appointment reminders
    - ☐ Vaccination or treatment –related reminders
    - ☐ Other, please specify
    - ☐ I do not use secure messaging

25. Do you provide secure messaging **service encounters** in your own practice?
    - ❑ Yes
    - ❑ No
    - ❑ I used to but do not offer them any more

If "No", or "I used to but do not offer them anymore" then ask:

26. . What prevents you from using secure messaging service encounters in your practice? (open text box) [*If non registrant, proceed to Provider Experience Qns. If Registrant go back to Q15]*

If yes, then ask:

27. How many of your eligible patients (i.e., those in Ontario with whom you have an existing patient-physician relationship) in this practice do you offer secure messaging clinical encounters to?

    - ❑ None
    - ❑ A few (<=20%)
    - ❑ Some (21-40%)
    - ❑ Many (41-75%)
    - ❑ Most (>75%)
    - ❑ All (100%)
    - ❑ Unsure

28. What proportion of your patients that have been offered secure messaging service encounters, use secure messaging?

    - ❑ None
    - ❑ A few (<=20%)
    - ❑ Some (21-40%)
    - ❑ Many (41-75%)
    - ❑ Most (>75%)
    - ❑ All (100%)
    - ❑ Unsure

29. What proportion of secure messaging service encounters with patients do you initiate?

    - ❑ None
    - ❑ A few (<=20%)
    - ❑ Some (21-40%)
    - ❑ Many (41-75%)
    - ❑ Most (>75%)
    - ❑ All (100%)
    - ❑ Unsure

30. I regret offering secure messaging clinical encounters to my patients.

    - ☐ 1- Strongly Disagree
    - ☐ 2- Disagree

- ☐ 3 - Neutral
- ☐ 4- Agree
- ☐ 5- Strongly Agree
- ☐ Not sure

31. In your opinion, what is the biggest barrier (if any) to increased adoption of secure messaging for service encounters at your practice? (open text field)

Health Care Provider Experience Survey

For the following questions, please reflect on your overall experiences with ***secure message service encounters (as defined in the outset)****, your patient population, and your organization's ability to provide* ***secure message service encounters****.* **Please indicate your level of agreement (from 1- Strongly Disagree to Strongly 5 - Agree)**

If you do not use secure messaging, please answer the following questions based on your beliefs about it in general.

Access to secure message service encounters

1. Secure message service encounters are an acceptable means to provide patient care when appropriate

   - ☐ 1-Strongly Disagree
   - ☐ 2- Disagree
   - ☐ 3 - Neutral
   - ☐ 4- Agree
   - ☐ 5- Strongly Agree
   - ☐ Not sure

2. Secure message service encounters enable equitable access to care for patients to the same degree as in-person visits
   - ☐ 1- Strongly Disagree
   - ☐ 2- Disagree
   - ☐ 3 - Neutral
   - ☐ 4- Agree
   - ☐ 5- Strongly Agree
   - ☐ Not sure
3. Secure message service encounters enable timely access to care for patients to the same degree as in-person visits
   - ☐ 1- Strongly Disagree
   - ☐ 2- Disagree
   - ☐ 3 - Neutral
   - ☐ 4- Agree
   - ☐ 5- Strongly Agree
   - ☐ Not sure

Provider experience with virtual care

4. Secure message service encounters allow me to provide patient-centred care
    - ☐ 1- Strongly Disagree
    - ☐ 2- Disagree
    - ☐ 3 - Neutral
    - ☐ 4- Agree
    - ☐ 5- Strongly Agree
    - ☐ Not sure

5. I understand how to adapt care for secure message service encounters
    - ☐ 1- Strongly Disagree
    - ☐ 2- Disagree
    - ☐ 3 - Neutral
    - ☐ 4- Agree
    - ☐ 5- Strongly Agree
    - ☐ Not sure
6. My patients are satisfied with secure message service encounters
    - ☐ 1- Strongly Disagree
    - ☐ 2- Disagree
    - ☐ 3 - Neutral
    - ☐ 4- Agree
    - ☐ 5- Strongly Agree
    - ☐ Not sure
7. I am satisfied with delivering care where appropriate through secure message service encounters
    - ☐ 1- Strongly Disagree
    - ☐ 2- Disagree
    - ☐ 3 - Neutral
    - ☐ 4- Agree
    - ☐ 5- Strongly Agree
    - ☐ Not sure
8. Secure message service encounters create unnecessary additional work for physicians
    - ☐ 1- Strongly Disagree
    - ☐ 2- Disagree
    - ☐ 3 - Neutral
    - ☐ 4- Agree
    - ☐ 5- Strongly Agree
    - ☐ Not sure
9. If you think that secure message service encounters create unnecessary additional work for physicians, please explain why: (text box for open ended response)

Effectiveness of Secure Messaging for care delivery and quality

10. I can adequately solicit the appropriate information through secure message service encounters
    - ☐ 1- Strongly Disagree
    - ☐ 2- Disagree
    - ☐ 3 - Neutral
    - ☐ 4- Agree
    - ☐ 5- Strongly Agree
    - ☐ Not sure

11. Secure messaging service encounters can benefit at least 50% of my patients
    - ❑ 1-Strongly Disagree
    - ☐ 2- Disagree
    - ☐ 3 - Neutral
    - ☐ 4- Agree
    - ☐ 5- Strongly Agree
    - ☐ Not sure

12. Secure messaging service encounters allow me to provide **high quality care** to my patients
    - ❑ 1- Strongly Disagree
    - ☐ 2- Disagree
    - ☐ 3 - Neutral
    - ☐ 4- Agree
    - ☐ 5- Strongly Agree
    - ☐ Not sure

13. Secure messaging service encounters save me time compared to in-person visits,
    - ❑ 1- Strongly Disagree
    - ☐ 2- Disagree
    - ☐ 3 - Neutral
    - ☐ 4- Agree
    - ☐ 5- Strongly Agree
    - ☐ Not sure

14. I have not <u>frequently</u> experienced technical difficulties in the context of secure messaging service encounters
    - ☐ 1- Strongly Disagree
    - ☐ 2- Disagree
    - ☐ 3 - Neutral
    - ☐ 4- Agree
    - ☐ 5- Strongly Agree
    - ☐ Not sure

<u>Financial impact/cost of secure messaging</u>

15. Secure message service encounters save time for my practice/department/unit/organization
    - ☐ 1- Strongly Disagree
    - ☐ 2- Disagree
    - ☐ 3 - Neutral
    - ☐ 4- Agree
    - ☐ 5- Strongly Agree
    - ☐ Not sure

16. Secure message service encounters lead to fewer patient cancellations and no shows overall.
    - ☐ 1- Strongly Disagree
    - ☐ 2- Disagree
    - ☐ 3 - Neutral
    - ☐ 4- Agree
    - ☐ 5- Strongly Agree
    - ☐ Not sure

Additional Questions

17. In your opinion, what are the most helpful use cases for secure messaging? (Choose up to **five**)
    - ☐ Sharing test results with patients
    - ☐ Prescription refills
    - ☐ Sending attachments (e.g. lab requisitions) to patients
    - ☐ Patients sending non-urgent clinical queries
    - ☐ Patients sharing their vitals (e.g. blood pressure readings)
    - ☐ Appointment booking
    - ☐ Sending patients pre-visit forms and questionnaires
    - ☐ Sending patients follow-up questions or notes after a visit
    - ☐ Other (please specify)

18. I do not feel adequately trained for using secure messaging service encounters (e.g. deciding what clinical populations or type of encounters are best suited for secure messaging service encounters)
    - ☐ 1- Strongly Disagree
    - ☐ 2- Disagree
    - ☐ 3 - Neutral
    - ☐ 4- Agree
    - ☐ 5- Strongly Agree
    - ☐ Not sure

19. There is a lack of patient training on what is appropriate for secure messaging service encounters

- ☐ 1- Strongly Disagree
- ☐ 2- Disagree
- ☐ 3 - Neutral
- ☐ 4- Agree
- ☐ 5- Strongly Agree
- ☐ Not sure

20. If you have any additional feedback regarding this secure messaging proof of concept pilot, please provide your inputs below: *(text box for open ended response.*

Appendix D: ICES data findings

Table D1. Baseline characteristics among PCPs across the high, low and non-SM users at time of submitting their first SM claim. For non SM users the index date was assigned randomly.

		High Users	Low Users	Non-SM Users
Sample Size		N=45	N=141	N=225
Age	Mean (SD)	50.20 (10.74)	47.49 (10.14)	50.70 (12.77)
	Median (Q1-Q3)	49 (41-57)	47 (40-54)	50 (40-60)
Physician sex	F - n (%)	23 (51.1%)	91 (64.55)	115 (51.1%)
	M - n (%)	22 (48.9%)	50 (35.5%)	110 (48.9%)
Unique patients in the past year	Mean (SD)	1,500.91 (775.21)	1,486.01 (725.63)	1,696.83 (1,365.17)
	Median (Q1-Q3)	1,352 (945-1,832)	1,285 (1,055-1,701)	1,265 (822-2,105)
Number of visits per day past year	Mean (SD)	6.76 (2.47)	6.89 (2.83)	8.57 (6.05)
	Median (Q1-Q3)	7 (5-8)	6 (5-8)	7 (5-11)
Number of visits per patient past year	Mean (SD)	3.60 (3.21)	2.92 (0.86)	3.63 (3.18)
	Median (Q1-Q3)	3 (3-3)	3 (2-3)	3 (2-4)
Total costs billed in the past year (CAD $)	Mean (SD)	133,767.7 (129,881.3)	108,843.1 (121,110.5)	226,860.0 (262,610.1)
	Median (Q1-Q3)	78,441 (43,813-169,347)	65,825 (35,407-138,498)	142,633 (49,997-332,440)
% virtual care in the past year	Mean (SD)	0.10 (0.07)	0.11 (0.07)	0.08 (0.10)
Number of physicians in a FHT model		*1-5	*5-9	10 (4.4%)
Total healthcare costs of unique patients in past year	Mean (SD)	32,694,601 (10,137,411)	31,599,152 (10,606,323)	33,401,958 (21,202,894)
	Median (Q1-Q3)	32,257,265 (29,286,131-34,426,003)	32,044,082 (29,749,270-35,749,711)	31,964,598 (20,581,297-41,711,625)
Average healthcare cost per patient in past year	Mean (SD)	26,174.10 (12,600.28)	23,904.26 (10,117.19)	28,385.73 (27,057.31)
	Median (Q1-Q3)	23,810 (19,484-30,412)	25,120 (17,775-29,799)	21,740 (11,762-33,185)
Average ED visits per patient in past year	Mean (SD)	0.54 (0.26)	0.57 (0.34)	1.14 (1.06)
	Median (Q1-Q3)	0 (0-1)	0 (0-1)	1 (0-1)
Average hospitalizations per patient in past year	Mean (SD)	0.29 (0.11)	0.30 (0.17)	0.56 (0.53)
	Median (Q1-Q3)	0 (0-0)	0 (0-0)	0 (0-1)

*A range is given where samples are smaller to reduce risk of re-identification.

Table D2. Baseline characteristics among specialists across the high, low and non-SM users at the time of submitting their first SM claim. For non SM users the index date was assigned randomly.

		High users	Low Users	Non-SM Users
Sample Size		N=10	N=45	N=50
Age	Mean (SD)	47.00 (5.58)	44.64 (7.54)	50.26 (10.15)
	Median (Q1-Q3)	49 (43-51)	44 (39- 49)	48 (41-58)
Physician sex	F - n (%)	*1-5	*26-30	14 (28.0%)
	M - n (%)	*5-9	*15-19	36 (72.0%)
Unique patients in the past year	Mean (SD)	3,049.30 (1,570.02)	1,888.78 (886.93)	6,123.70 (6,711.05)
	Median (Q1-Q3)	3,120 (1,653-3,677)	1,689 (1,453-2,265)	3,056 (1,800-7,304)
Number of visits per day past year	Mean (SD)	12.82 (6.98)	9.07 (4.05)	24.48 (25.47)
	Median (Q1-Q3)	11 (7-16)	8 (7-12)	12 (8-31)
Number of visits per patient past year	Mean (SD)	2.37 (0.56)	2.39 (1.40)	2.05 (1.05
	Median (Q1-Q3)	3 (2-3)	2 (2-2)	2 (1-3)
Total costs billed in the past year (CAD $)	Mean (SD)	918,400.3 (689,971.0)	554,943.1 (276,782.9)	1,079,762 (542,483.6)
	Median (Q1-Q3)	694,342 (363,170-1,336,081)	471,369 (399,265-641,682)	1,015,402 (621,303-1,300,508)
% virtual care in past year	Mean (SD)	0.06 (0.08)	0.05 (0.04)	0.02 (0.04)
Total healthcare costs of unique patients in past year	Mean (SD)	31,743,744 (22,627,373)	26,701,769 (22,287,417)	1.1194E8 (1.1076E8)
	Median (Q1-Q3)	27,878,290 (13,482,983-43,181,798)	18,827,554 (11,090,020-33,392,642)	59,620,313 (33,464,616-1.8136E8)
Average healthcare cost per patient in past year	Mean (SD)	10,845.18 (6,543.66)	15,445.44 (13,049.95)	23,796.59 (20,246.34)
	Median (Q1-Q3)	10,193 (7,363-1,2054)	10,720 (7,773-20,116)	19,179 (10,469-27,459)
Average ED visits per patient in past year	Mean (SD)	0.71 (0.23)	0.91 (0.44)	1.21 (0.79)
	Median (Q1-Q3)	1 (1-1)	1 (1-1)	1 (1-2)
Average hospitalizations per patient in past year	Mean (SD)	0.56 (0.37)	0.70 (0.48)	0.88 (0.50)
	Median (Q1-Q3)	0 (0-1)	1 (0-1)	1 (0-1)

*A range is given where samples are smaller to reduce risk of re-identification.

Table D3. Top 20 specialties across all SM claims between April 2024 to May 2025

Specialty	Total SM Claims	Percent of total claims
Primary Care	42303	80.5
Rheumatology	1951	3.7
Pediatrics	1778	3.4
Gastroenterology	1552	3.0
Dermatology	1307	2.5
Obstetrics & Gynecology	1038	2.0
Endocrinology	598	1.1
Ophthalmology	556	1.1
Geriatrics	296	0.6
Respiratory Disease	274	0.5
Anesthesia	209	0.4
Clinical Immunology	202	0.4
Otolaryngology	162	0.3
Internal medicine	97	0.2
General Surgery	86	0.2
Psychiatry	51	0.1
Plastic Surgery	42	0.1
Cardiology	32	0.1
Neurology	7	0.01

Appendix E: MOH Data and Registration Data Findings

The graphs in this section focus primarily on PoC registrants who billed for SM (n=373) between April 2024 and October 2025, unless there was a significant difference between registrants who billed vs. registrants who did not bill as per early MOH claims data.

Figure E1 SM solutions used by PoC registrants who billed between April 2024 to October 2025

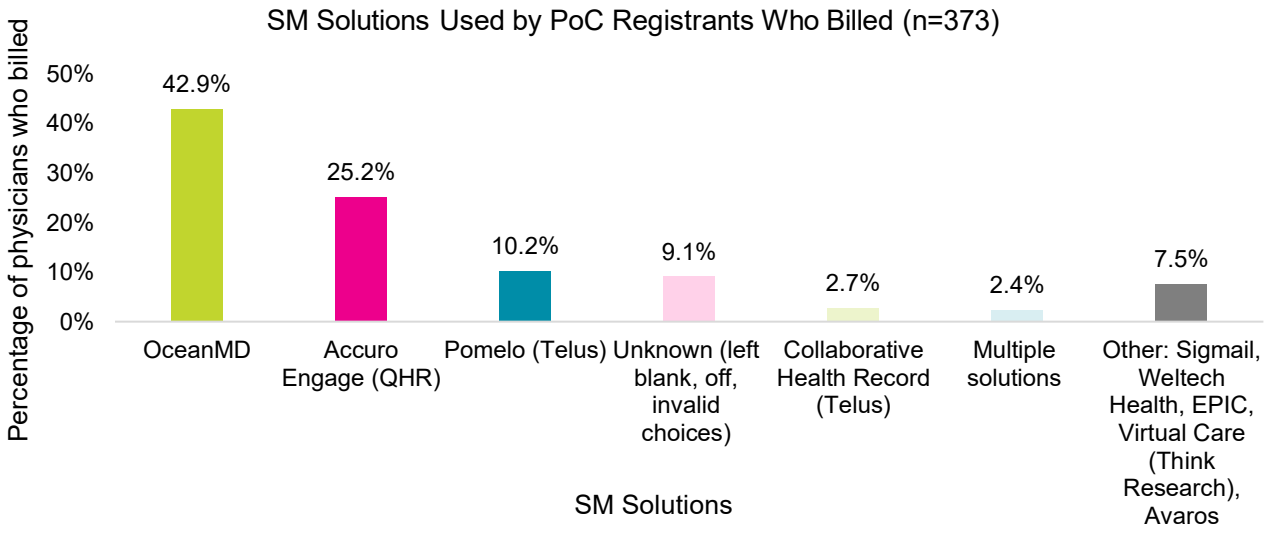


Figure E2 SM utilization prior to PoC registration of physicians who billed between April 2024 to October 2025

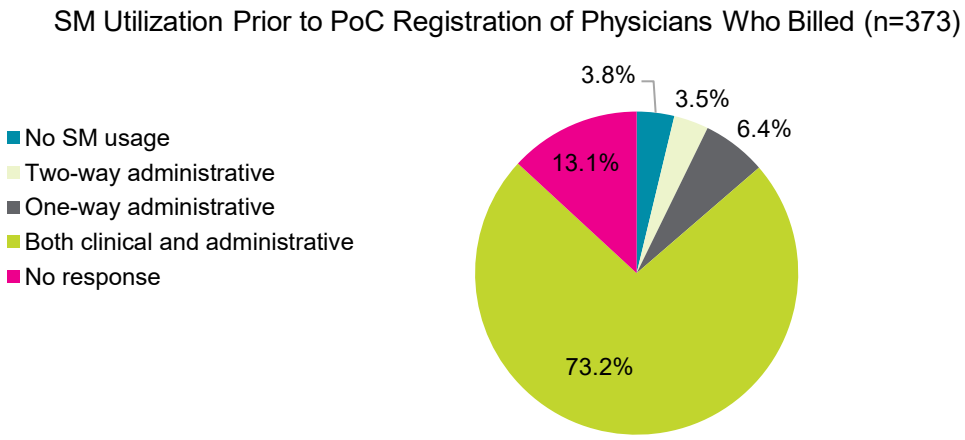


Figure E3 SM utilization prior to PoC registration of physicians who did not bill between April 2024 to October 2025

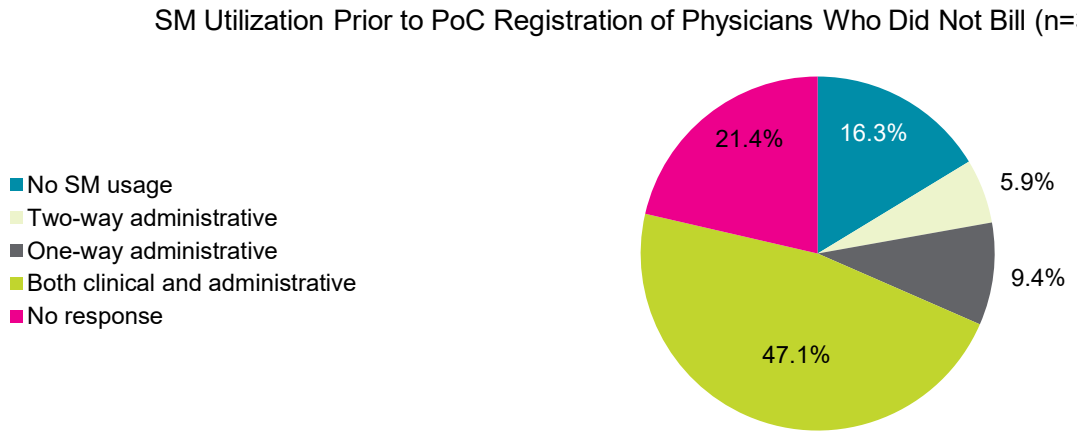


Figure E4 Technological competence prior to PoC registration of physicians who billed between April 2024 to October 2025

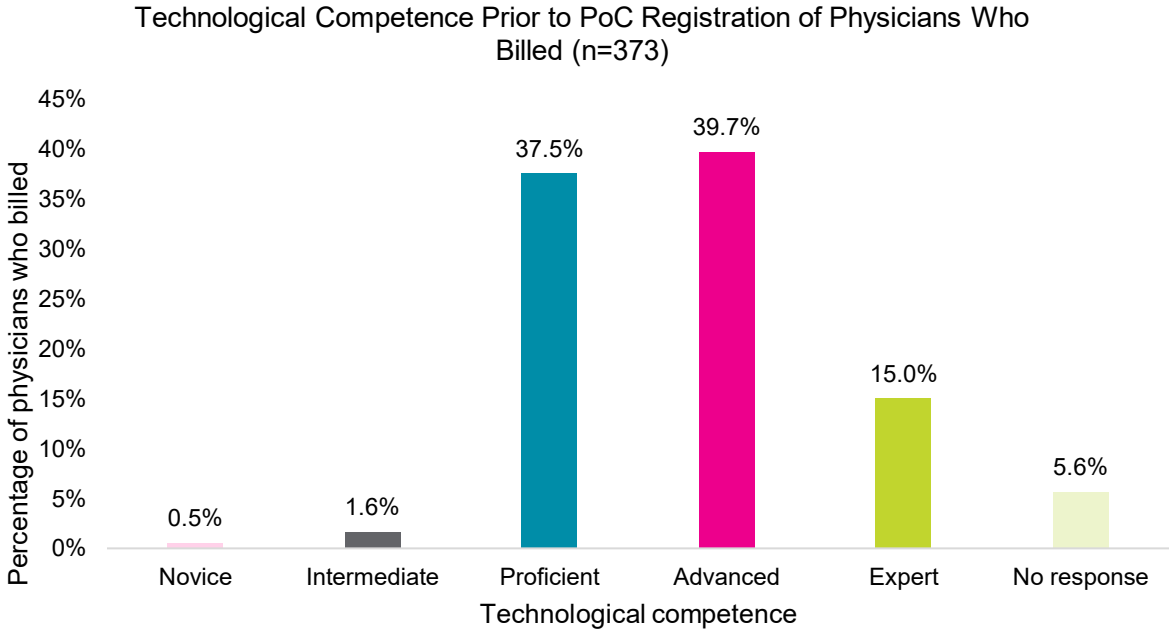


Figure E5 Technological competence prior to PoC registration of physicians who did not bill between April 2024 to October 2025

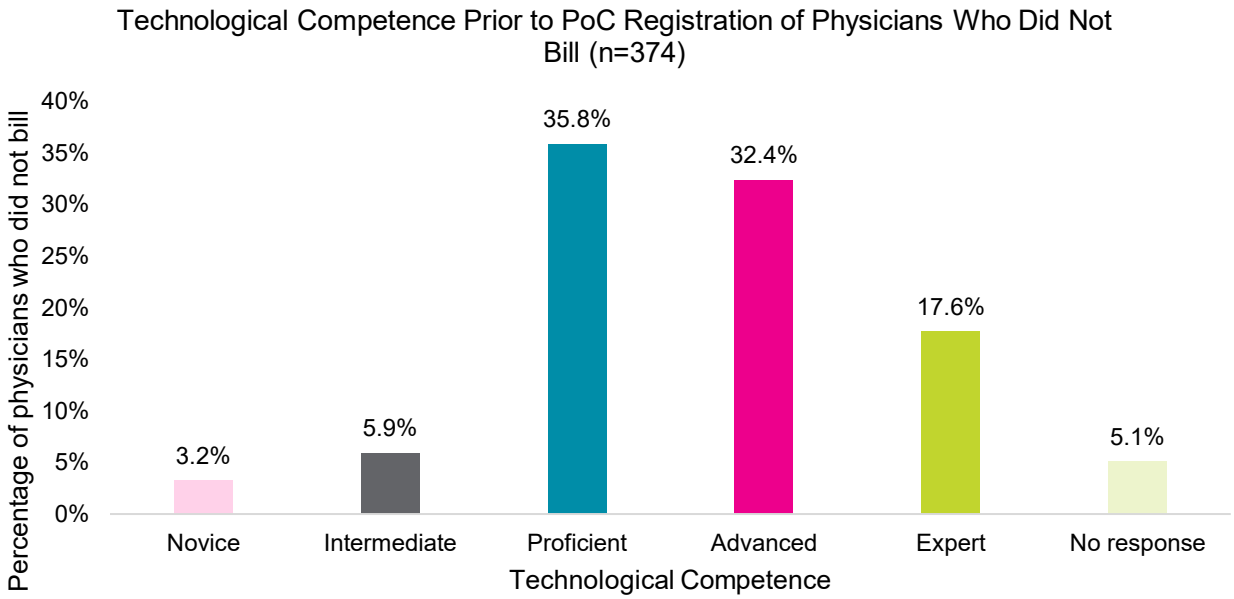


Figure E6 Days elapsed from registration to first K303 billing (April 2024 to October 2025)

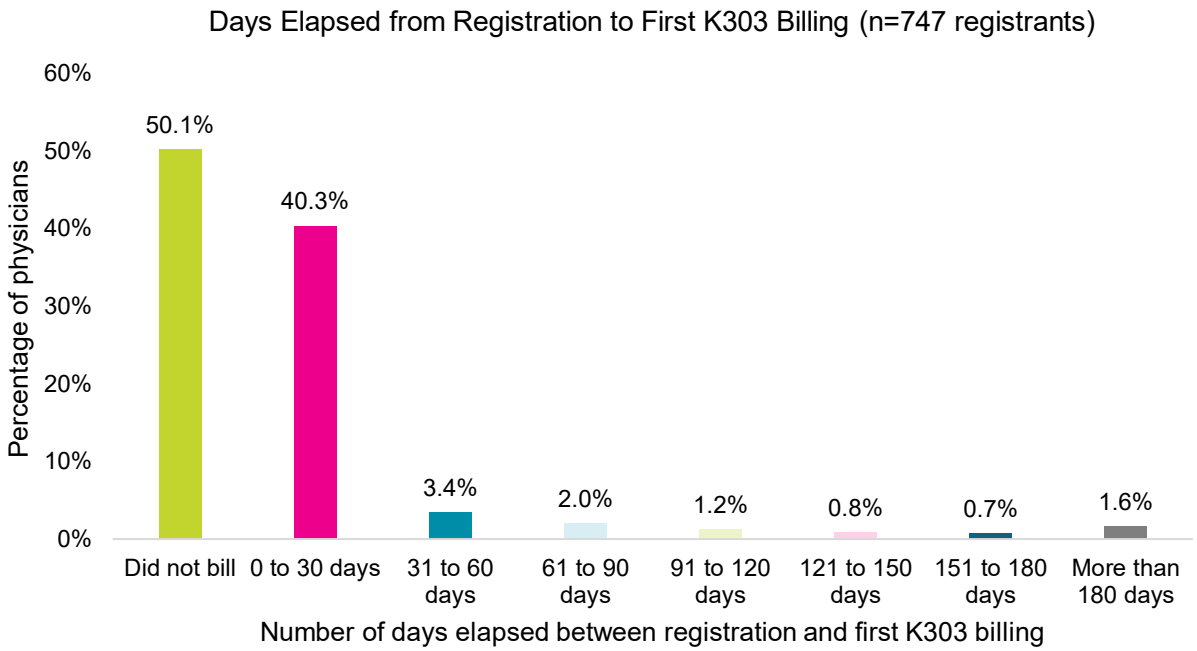


Figure E7 Care setting of registrants who billed and top 5 disciplines of specialists and primary care physicians who billed by payment billing tiers (April 2024 to October 2025)

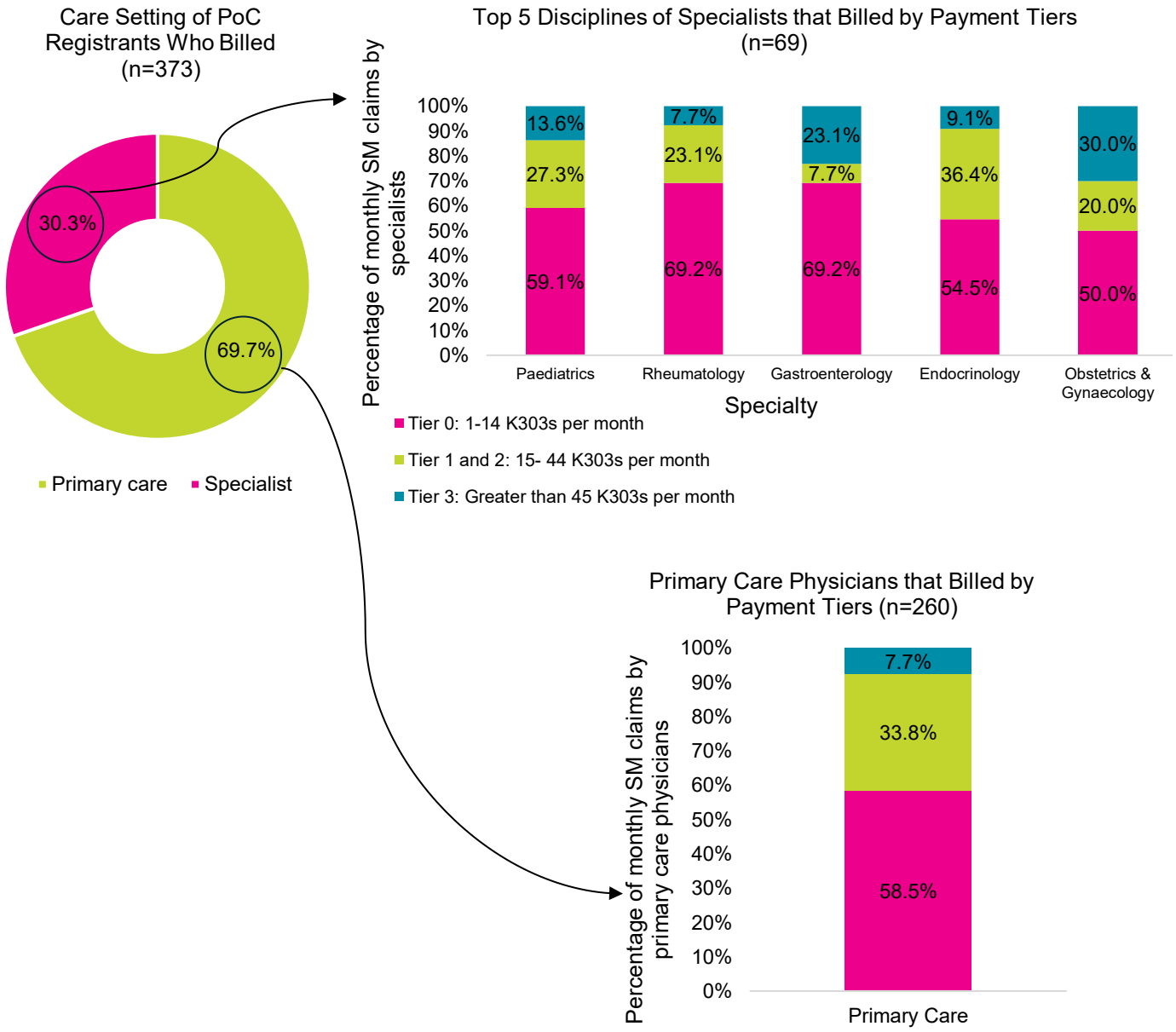


Figure E8 Care setting of registrants who did not bill and top 5 disciplines of specialists that did not bill

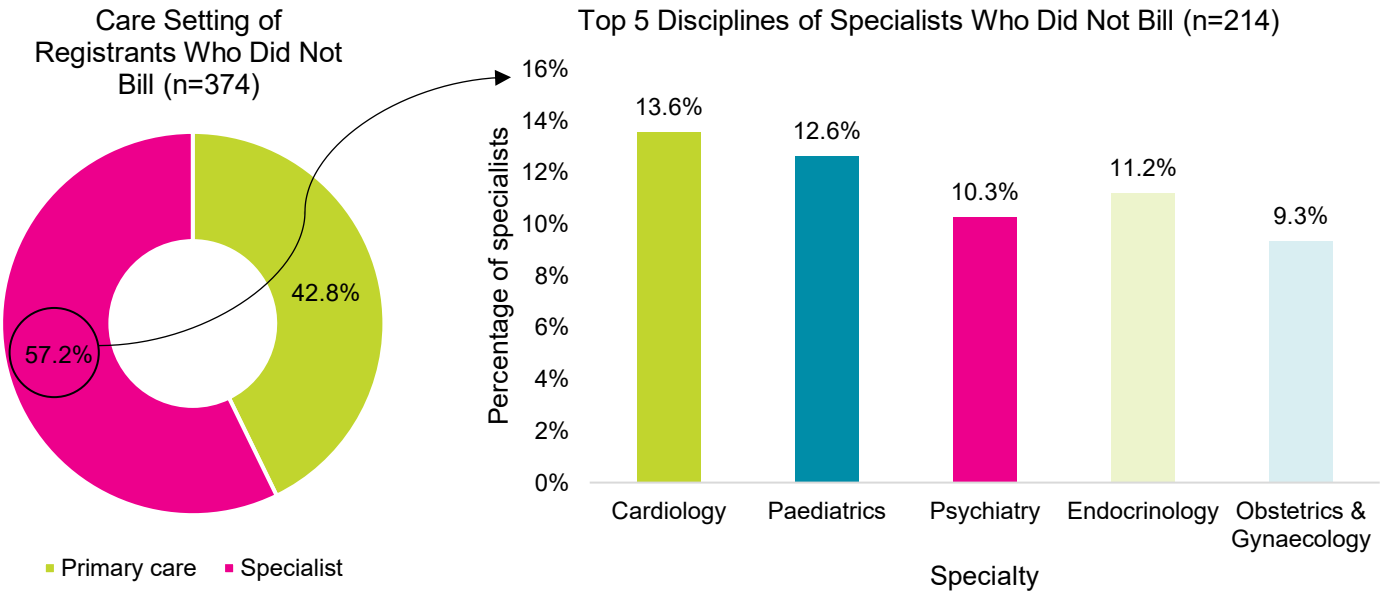


Figure E9 Patient catchment type by PoC registrants who billed between April 2024 to October 2025

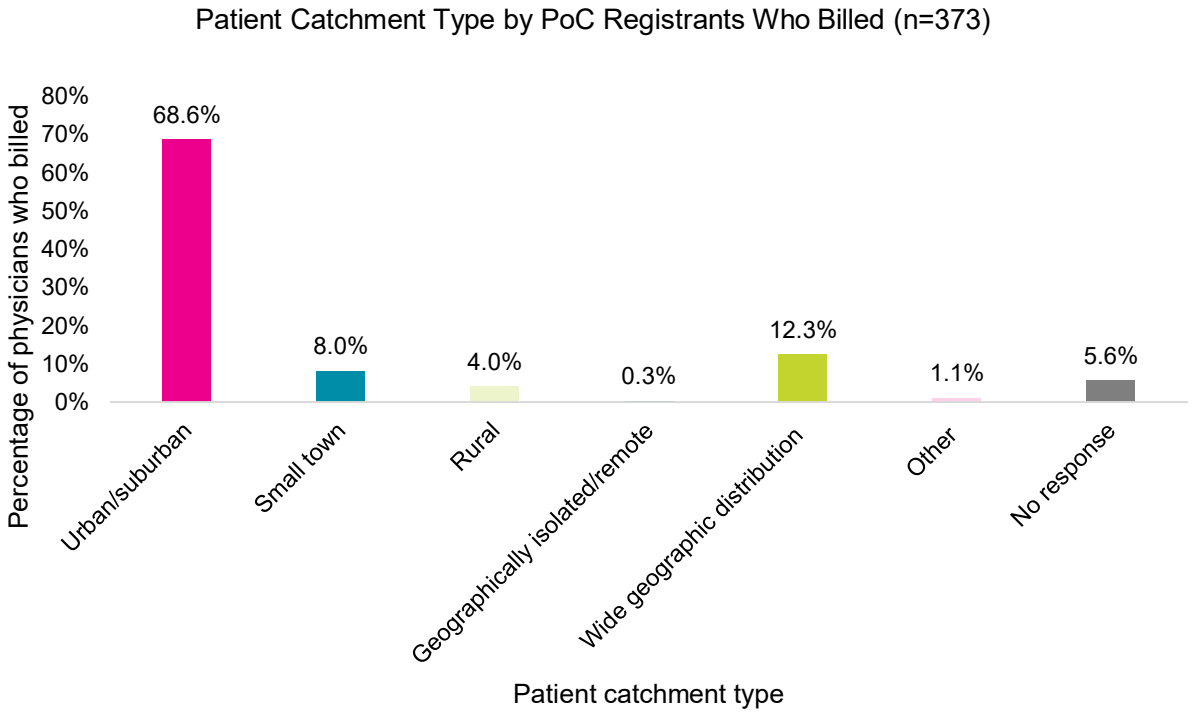


Figure E10 Patient catchment type by PoC registrants who did not bill between April 2024 to October 2025

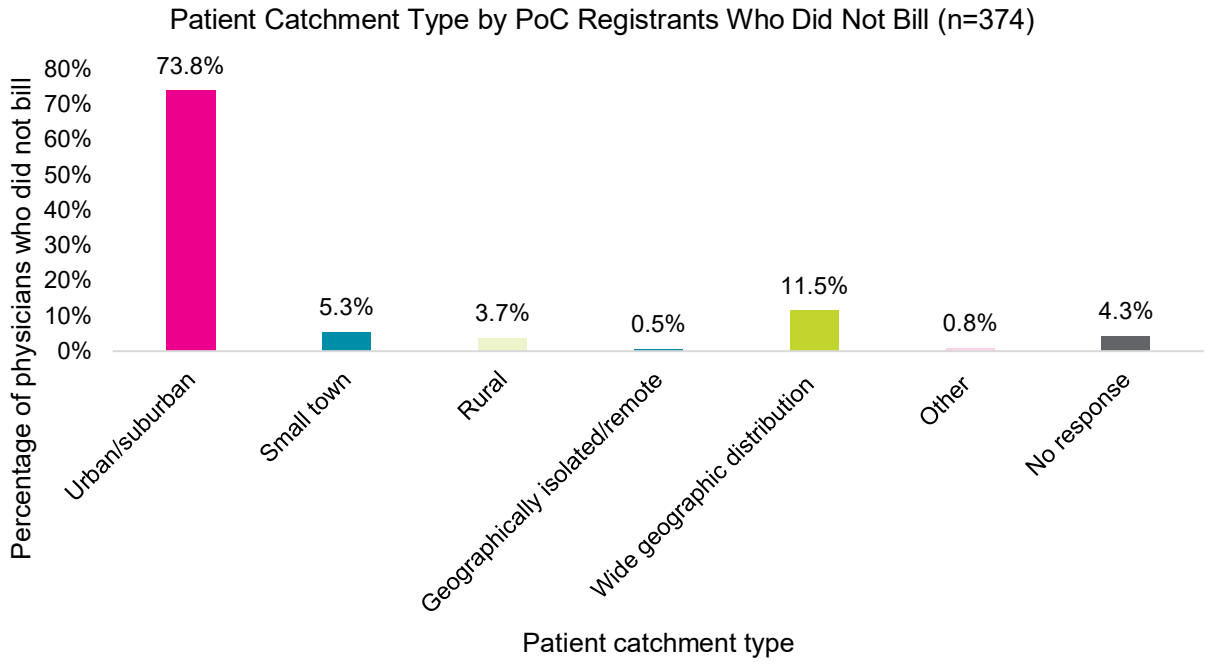


Figure E11 Practice type of PoC registrants who billed between April 2024 to October 2025

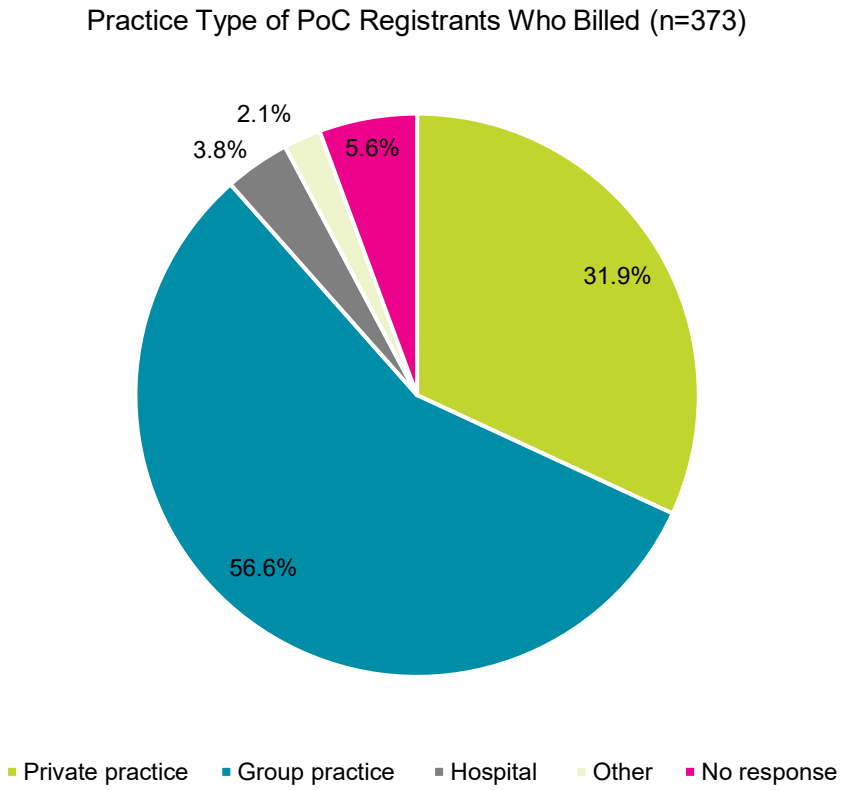


Figure E12 Practice type of PoC registrants who did not bill between April 2024 to October 2025

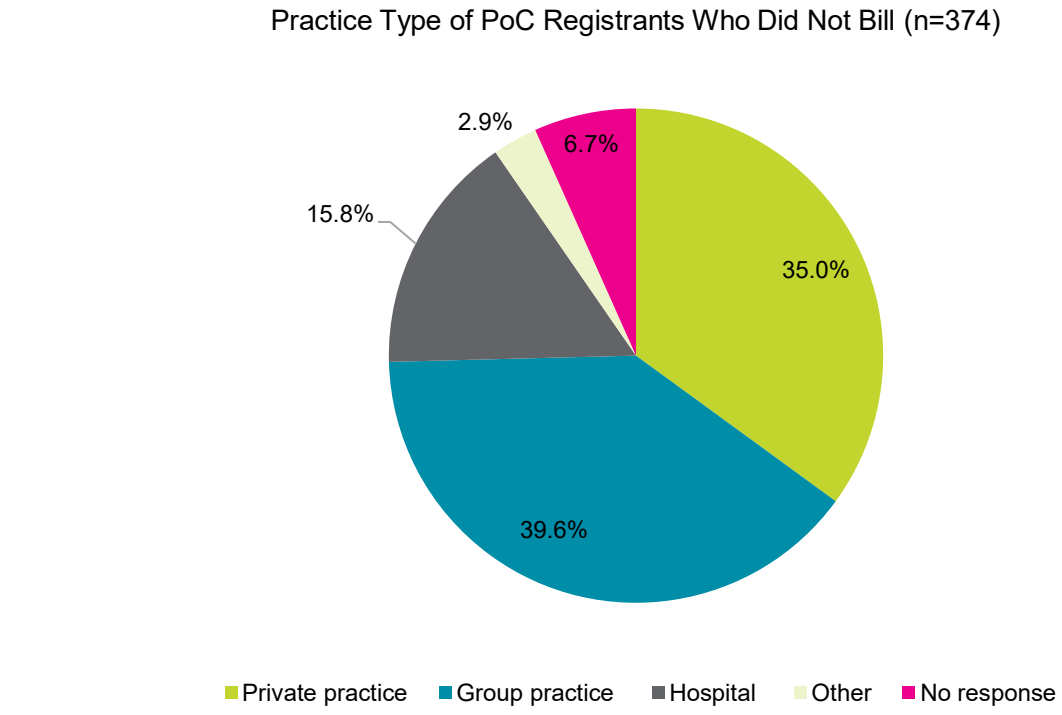


Figure E13 Physician billings by payment tiers and payment type (April 2024 to October 2025)

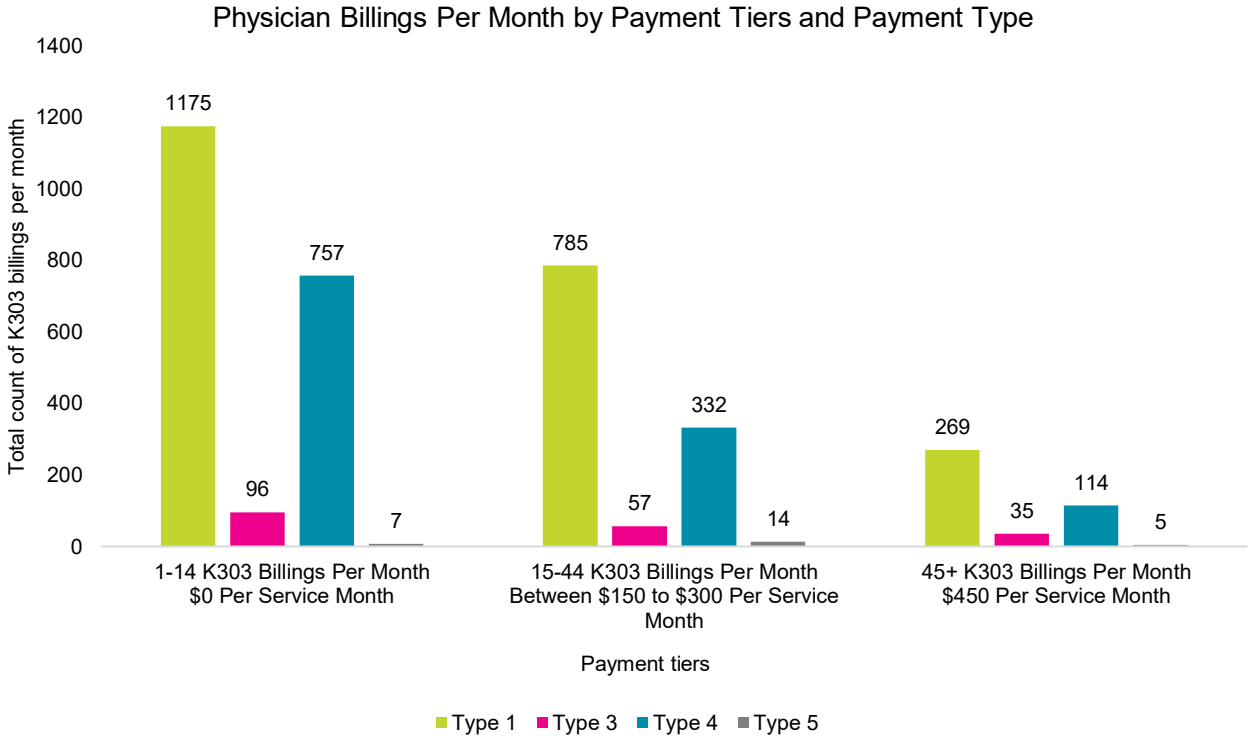


Figure E14 Comparison of SM billing utilization between PCPs and specialists (April 2024 to October 2025)

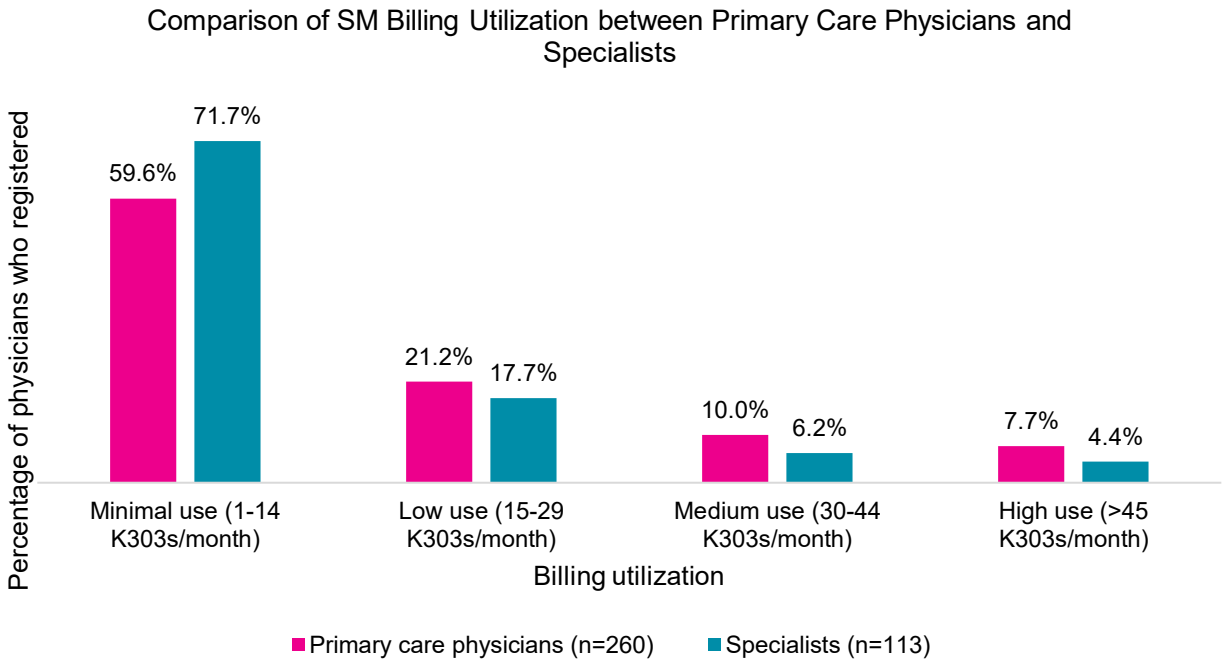


Figure E15 K303 billings by payment model types (April 2024 to October 2025)

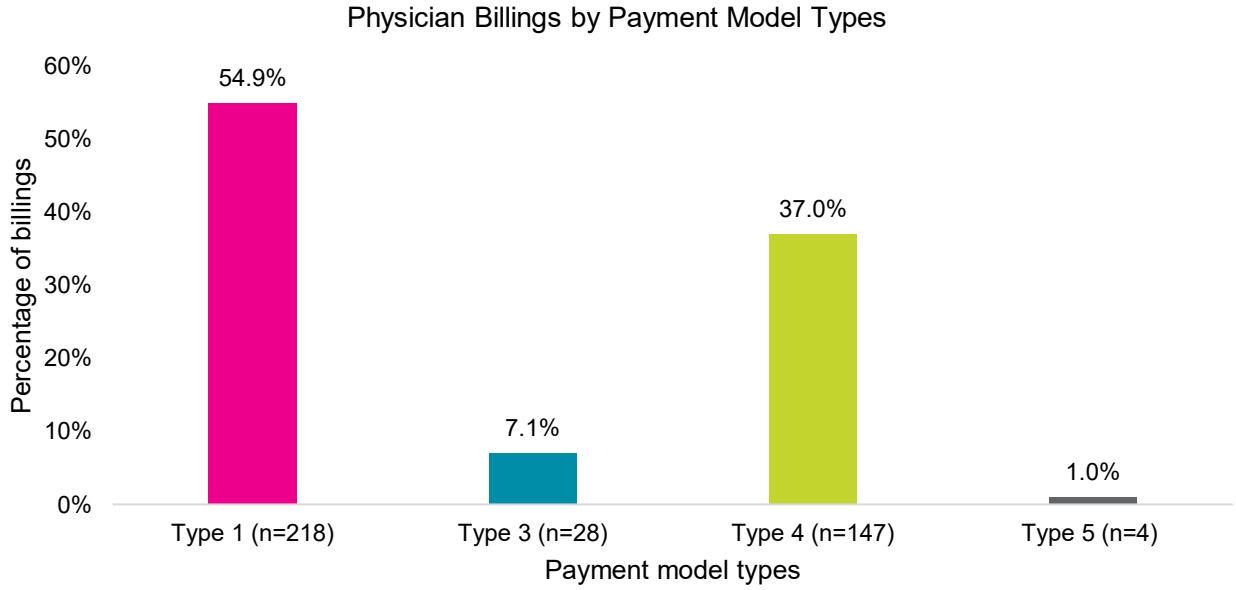


Table E1 Visits and Patients Seen (FY 2023-2024) PCPs registered in the SM PoC Pilot

Primary Care Physicians (n=420)					
SM Use	No SM use (0 K303s/month)	Minimal use (Average <14 K303s/month)	Low use (Average 15-29 K303s/month)	Medium use (Average 30-44 K303s/ billed)	High use (Average >45 K303s billed)
Total visits in FY 2023-2024	4398	3281	4057	3478	6068
Number of patients in FY 2023-2024	1690	1247	1531	1254	1744
Percent virtual visits in FY 2023-2024	20%	18%	20%	20%	20%

Table E2 Visits and Patients Seen (FY 2023-2024) by specialists registered in the SM PoC Pilot

Specialists (n=327)					
SM Use	No SM use (0 K303s/month)	Minimal use (Average <14 K303s/month)	Low use (Average 15-29 K303s/month)	Medium use (Average 30-44 K303s/ billed)	High use (Average >45 K303s billed)
Total visits in FY 2023-2024	3711	3115	3291	3936	7635
Number of patients in FY 2023-2024	1859	1750	1701	1871	3129
Percent virtual visits in FY 2023-2024	16%	19%	23%	17%	7%

Appendix F: Survey Findings

Figure F1 A) Gender of survey respondents, B) Physician specialty of survey respondents, C) Age of survey respondents, D) Years in practice of survey respondents.

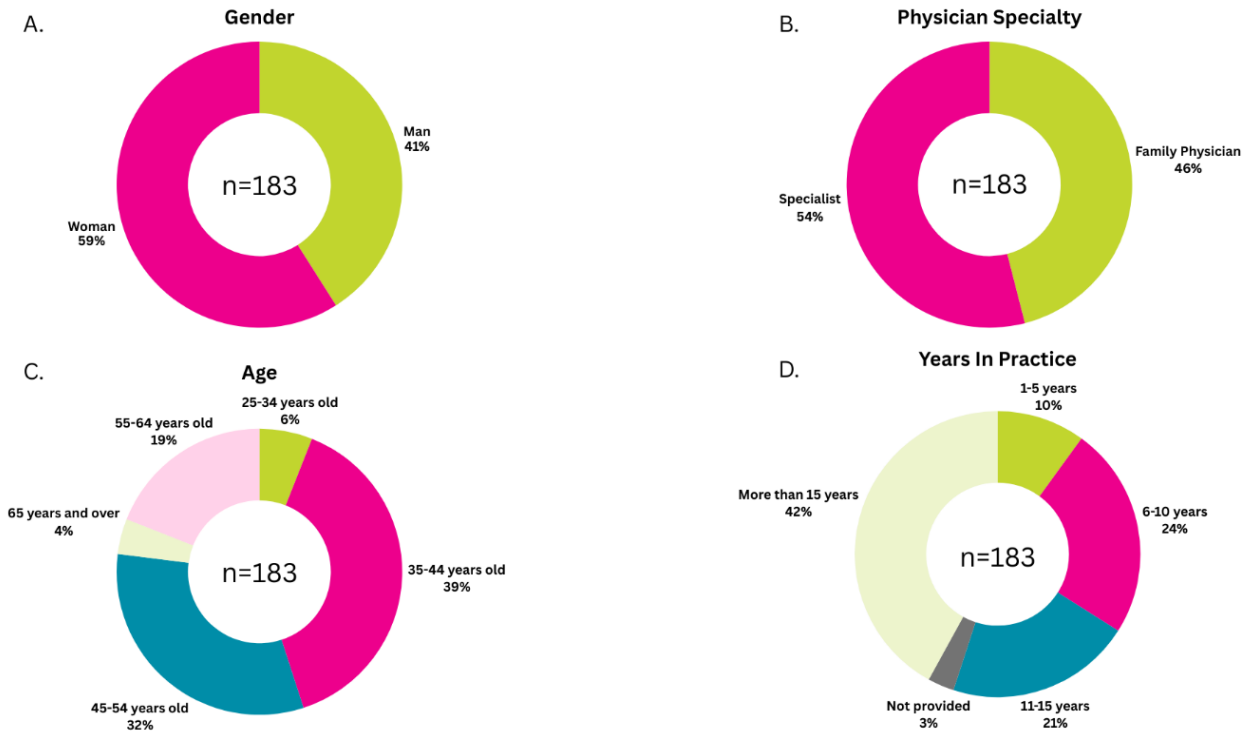
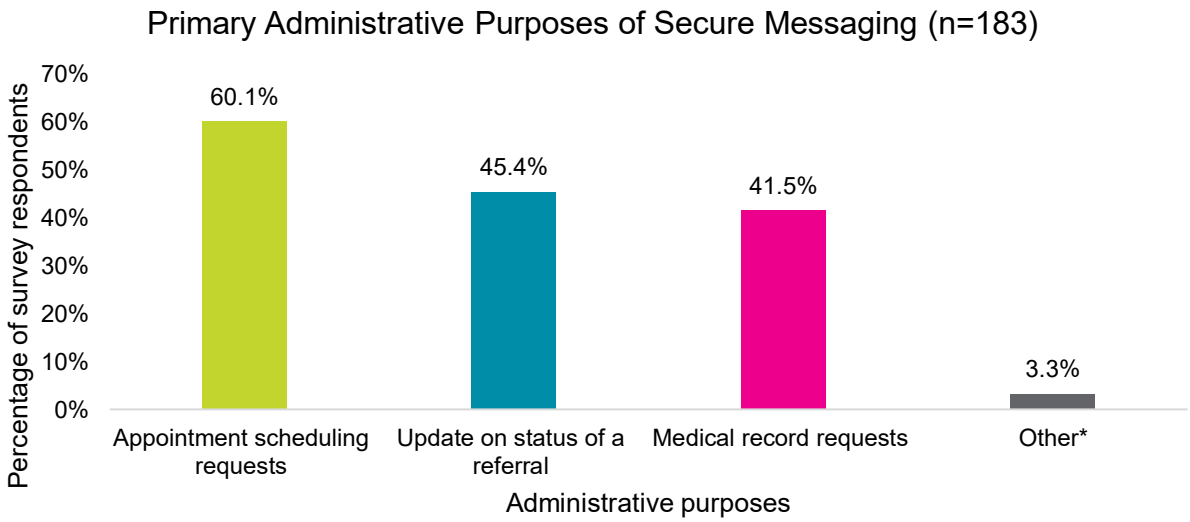
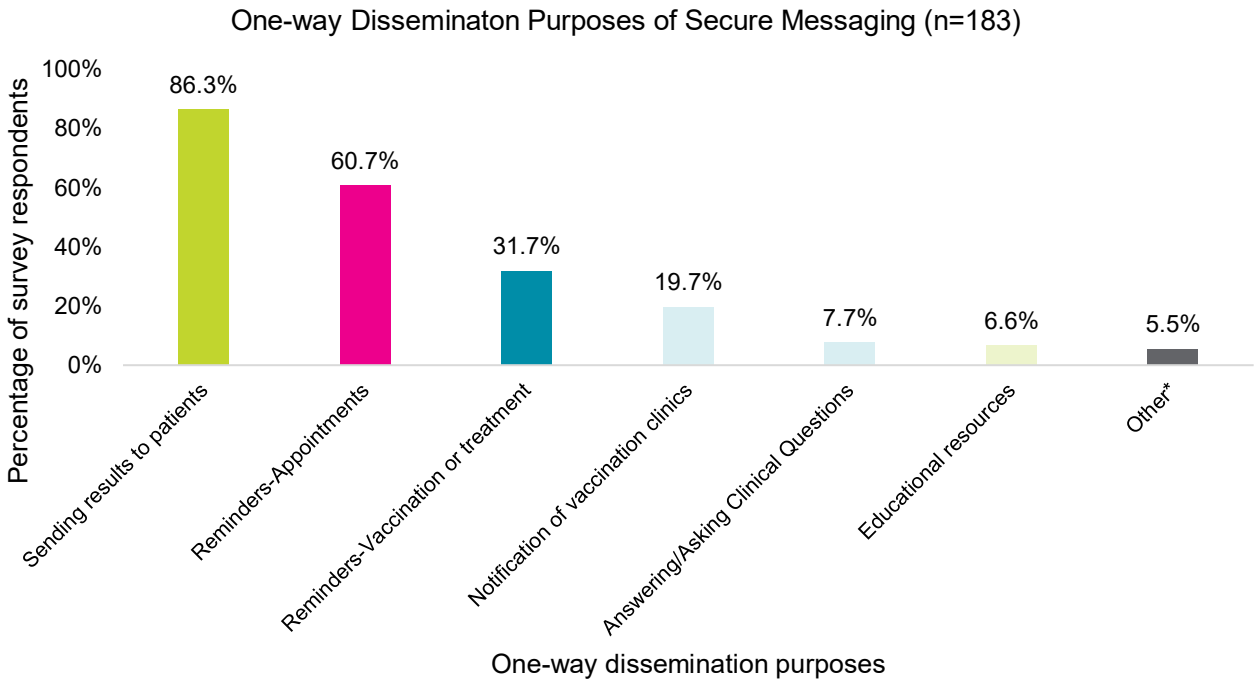


Figure F2 Primary administrative purposes of secure messaging for survey respondents.



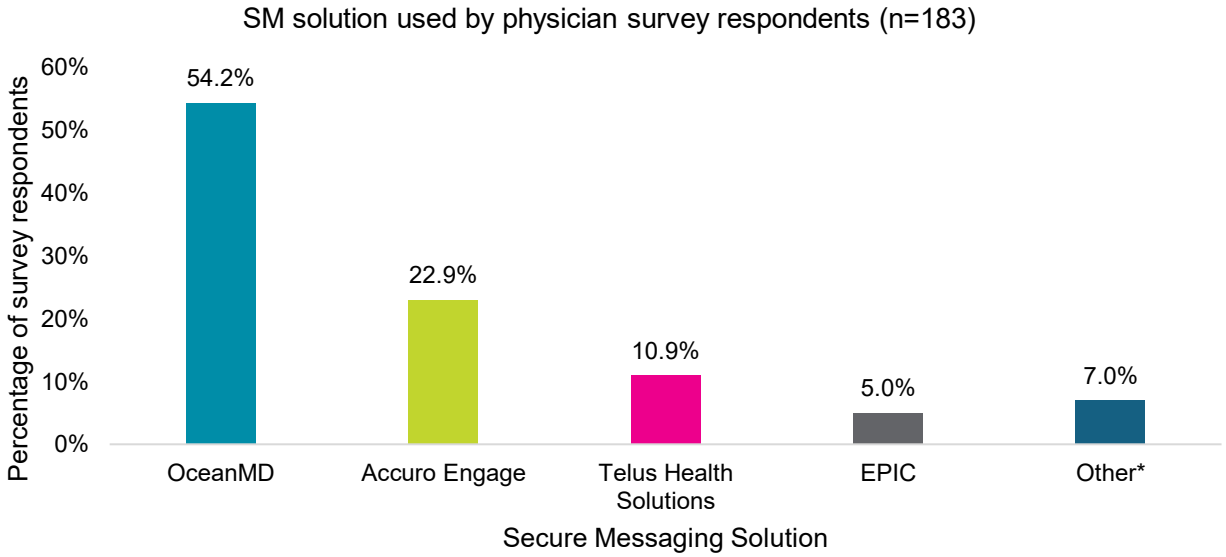
Note: **Other category includes medication management, referrals, questionnaires, and resources.*

Figure F3 One-way dissemination purposes of secure messaging for survey respondents.



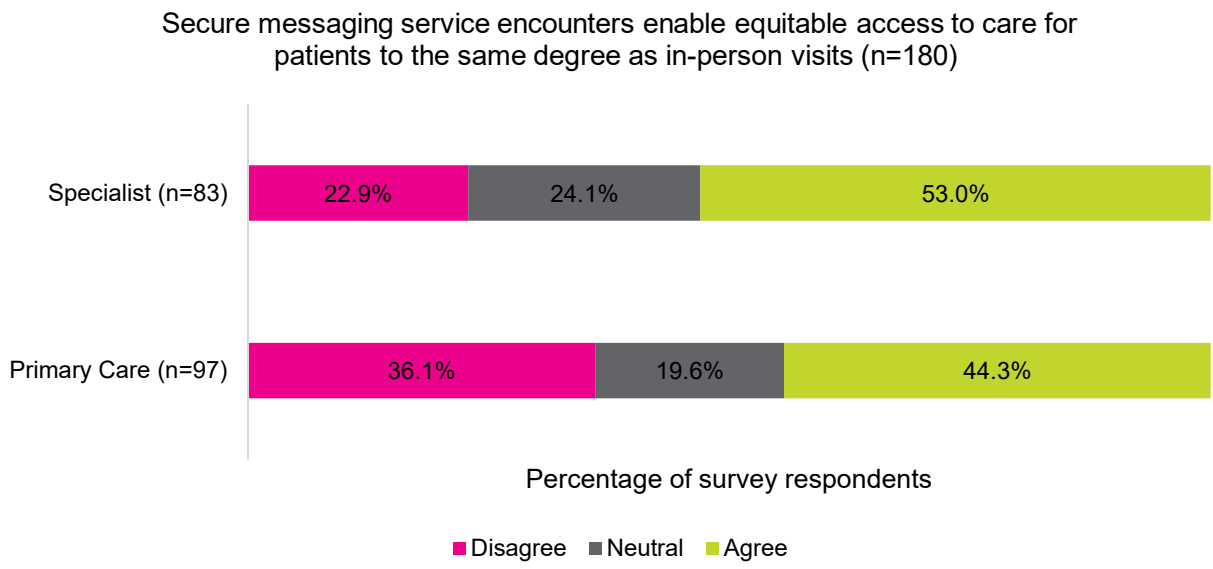
Note: **Other category includes procedure instructions, clinic notices, medication renewals, lab requisitions, and sociodemographic data collection.*

Figure F4 Secure messaging solution used by survey respondents.



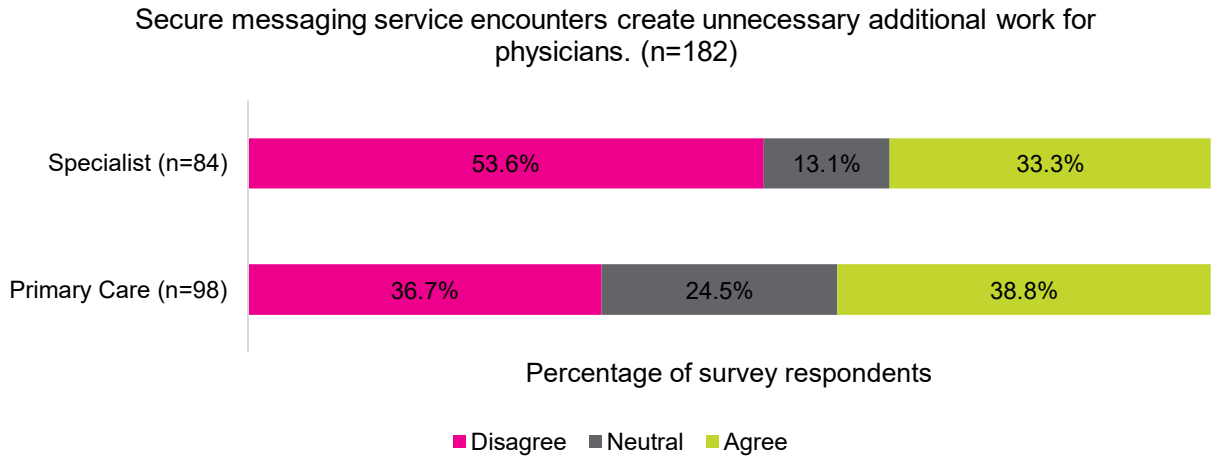
Note: **Other category includes the following secure messaging solutions: VirtualCare-Think Research, Avaros, Cortico, Jane, Bright Squid, MyHealth, Tamarack*

Figure F5 Views on enabling equitable access to care similar to in-person visits



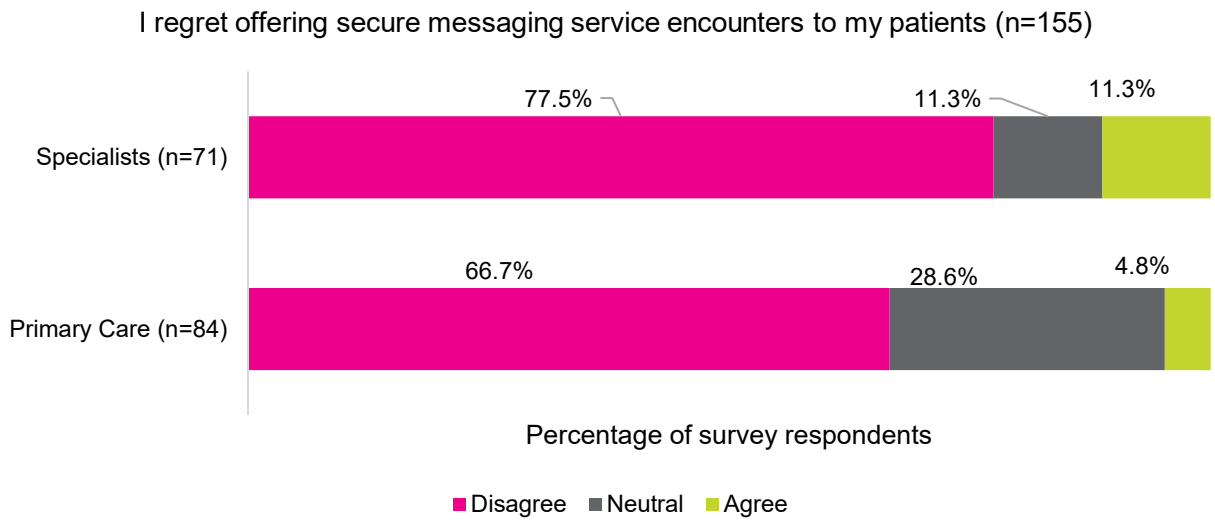
Note: *3 survey respondents did not respond to this question.*

Figure F6. Views on creating unnecessary additional work.



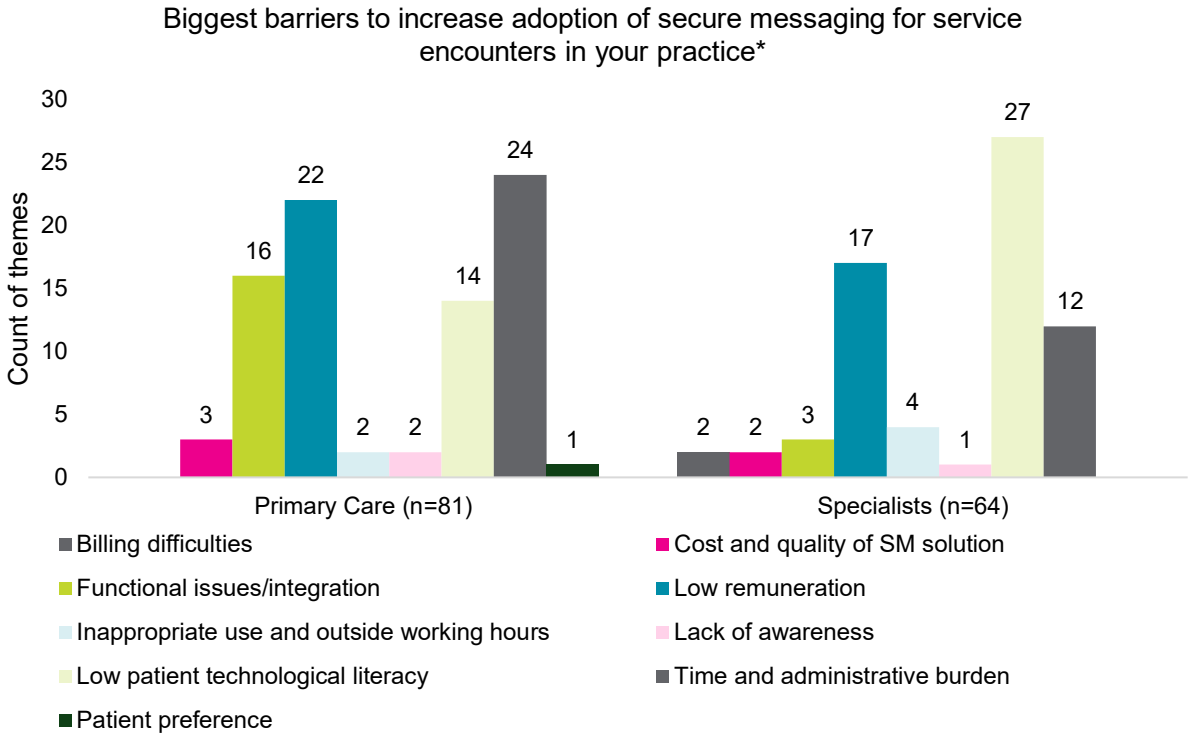
Note: *1 survey respondent did not respond to this question.*

Figure F7. Regrets offering secure messaging for service encounters.



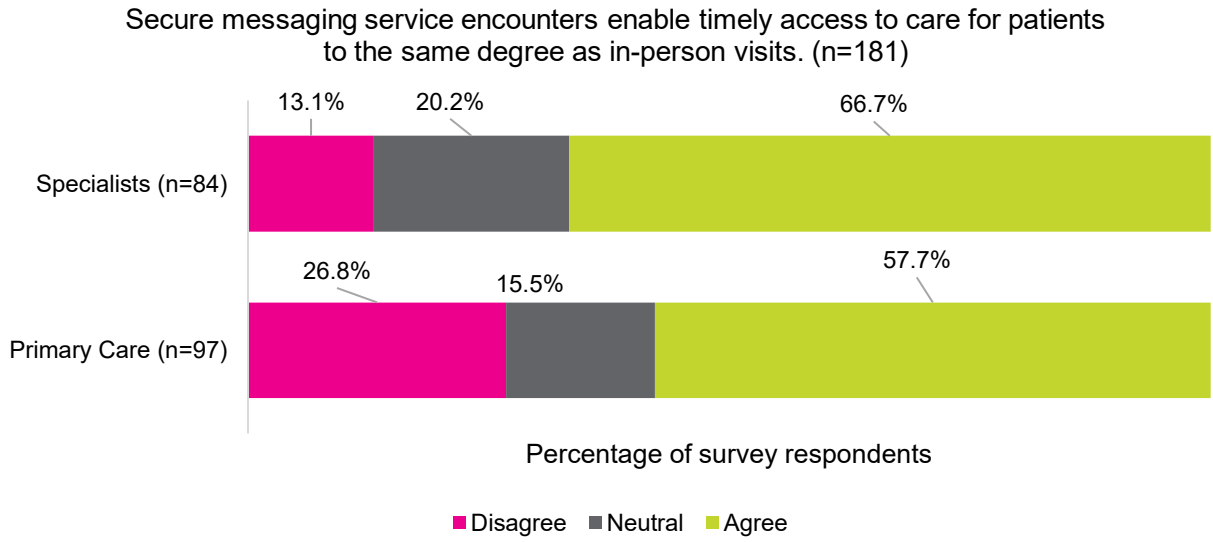
Note: *28 survey respondents did not respond to this question.*

Figure F8. Barriers to adoption of secure messaging for service encounters.



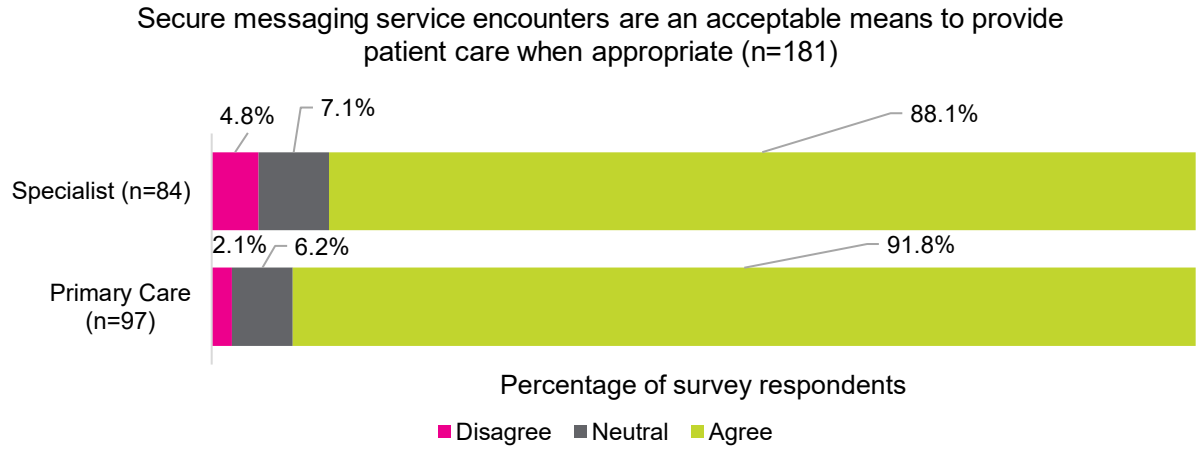
Note: *This represents responses from 145 survey respondents. Each response may have been coded into multiple themes.*

Figure F9. Secure messaging service encounters enabling timely access to care.



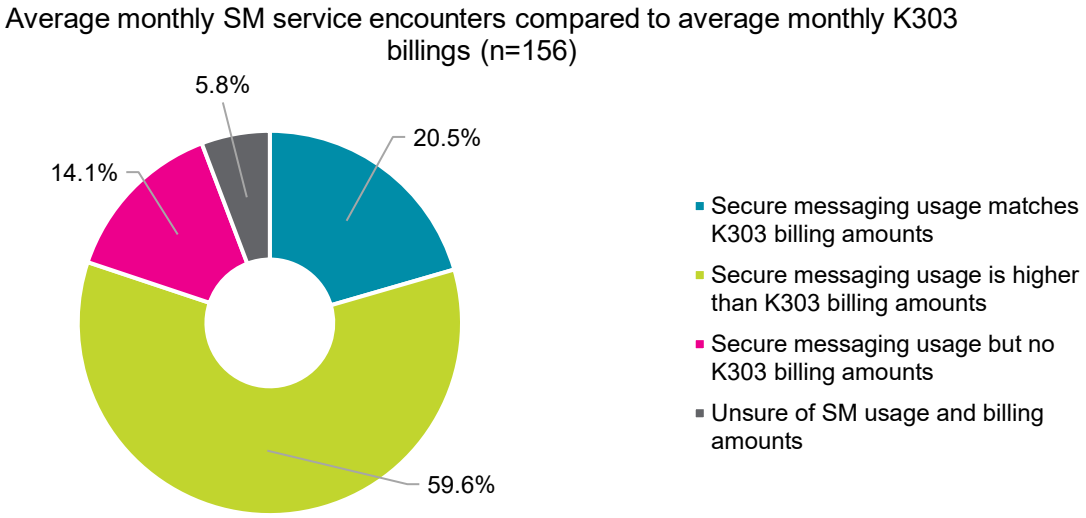
Note: *2 survey respondents did not respond to this question.*

Figure F10. Secure messaging service encounters are an acceptable means for patient care.



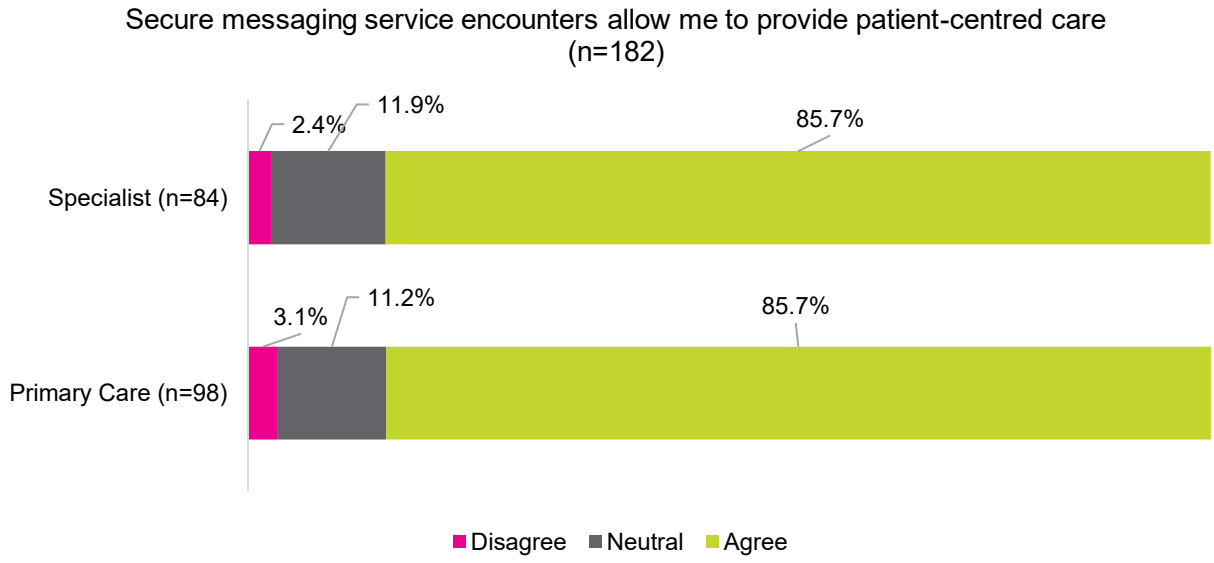
Note: *2 survey respondents did not respond to this question.*

Figure F11. Comparing average monthly use of secure messaging for service encounters to average monthly K303 Billings.



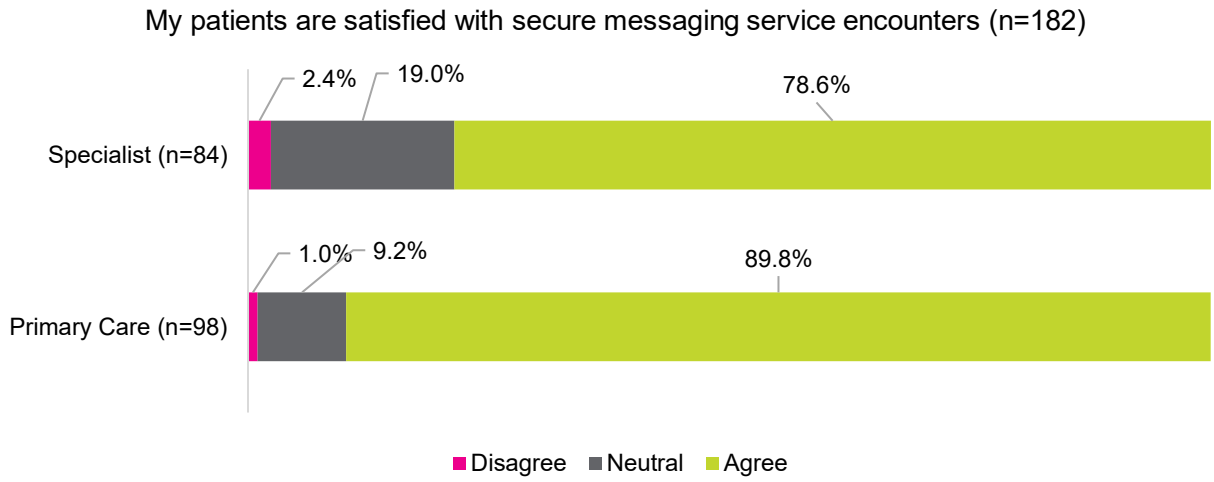
Note: *27 survey respondents did not respond to this question.*

Figure F12. Secure messaging service encounters enables patient-centred care.



Note: *1 survey respondent did not respond to this question.*

Figure F13. Perception of patient satisfaction with secure messaging service encounters.



Note: *1 survey respondent did not respond to this question.*

Figure F14. Billing status of survey respondents.

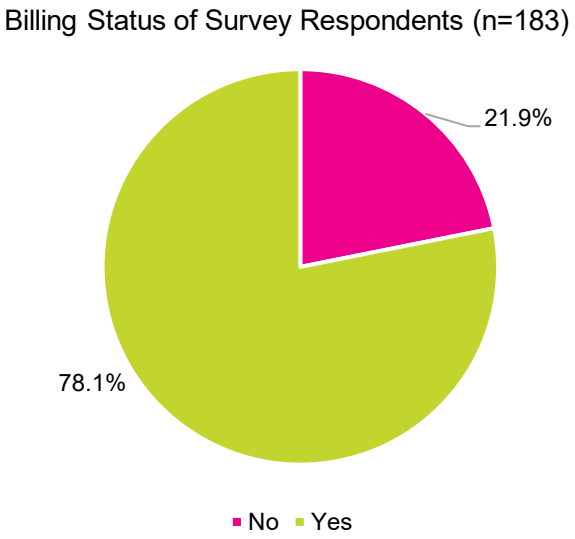


Figure F15. Views of remuneration by physicians' payment model type.

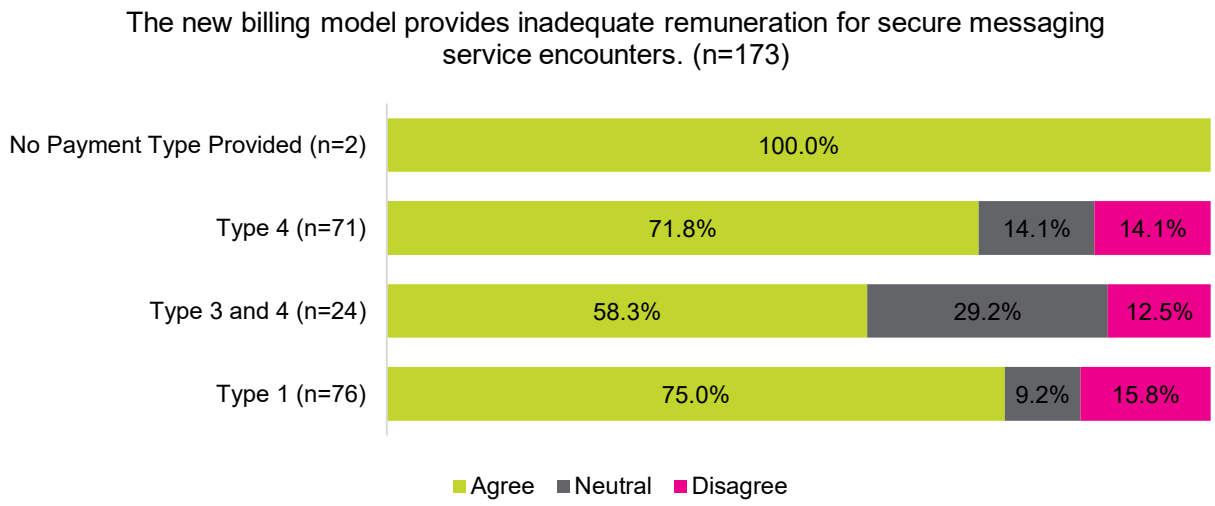
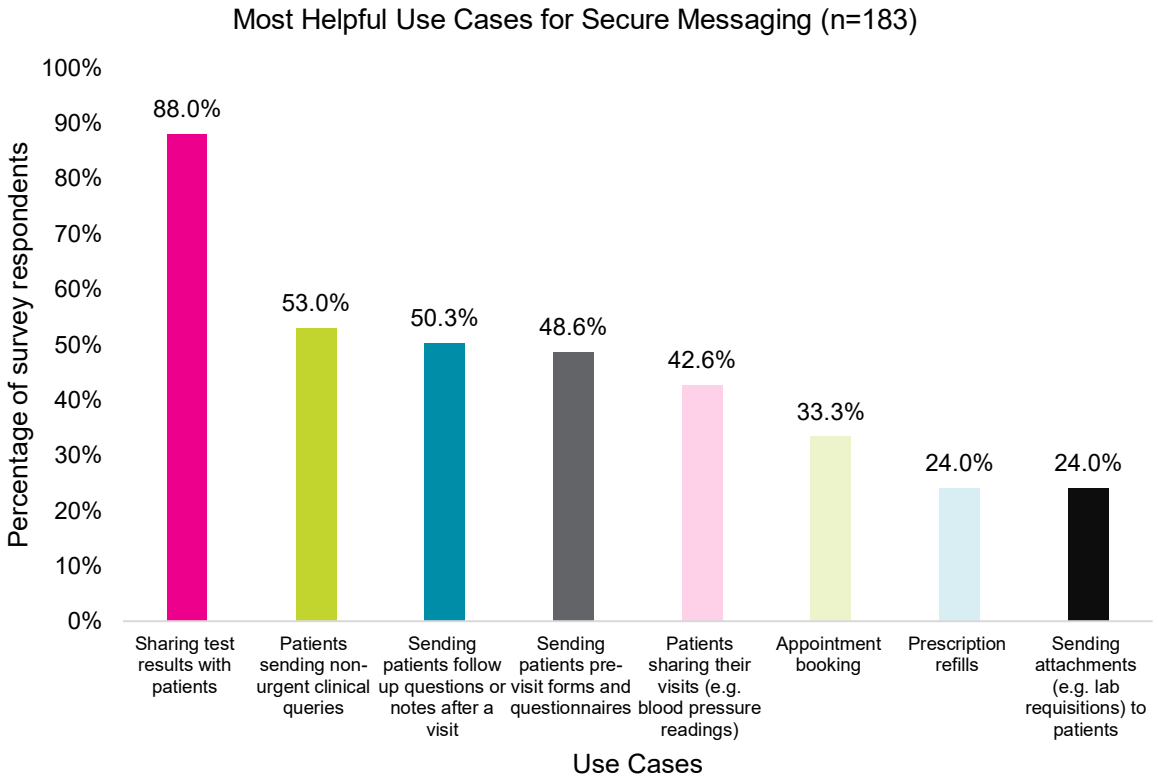


Figure F16. Most helpful use cases for secure messaging.



Appendix G: Interview Findings

Figure G1. Demographics of physician interviewees.

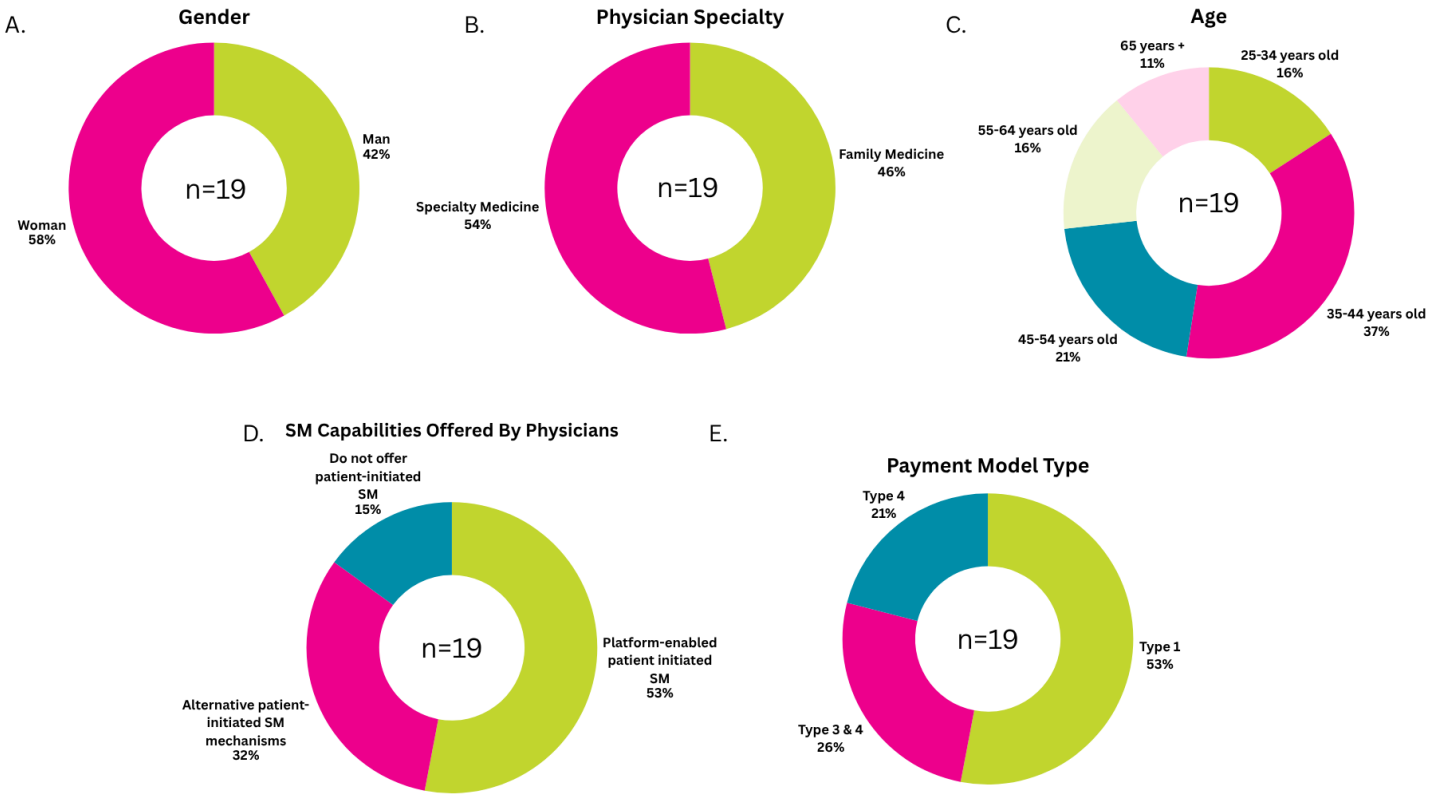


Figure G2. Age and role of staff interviewees.

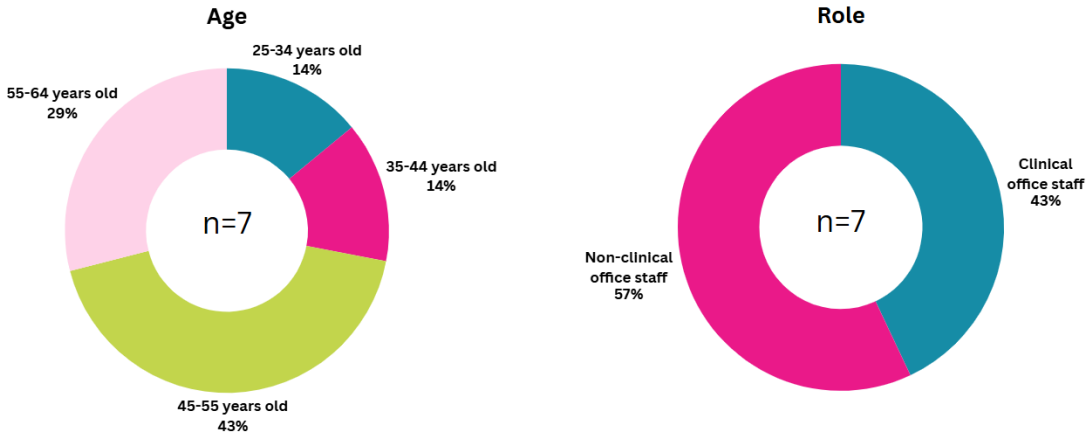


Figure G3. Demographics of patient interviewees. A) Patient occupational status, B) Self-reported technology levels by patients, C) Patient Age, D) Net promotor scale scores reported by patients.

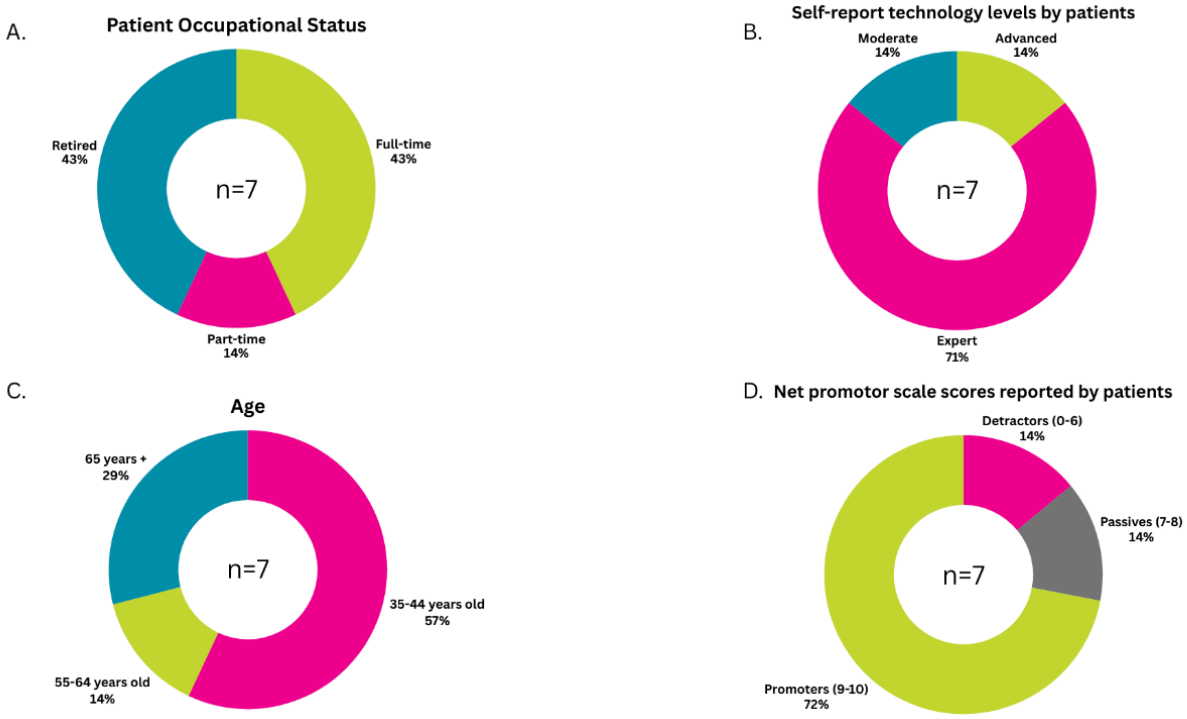
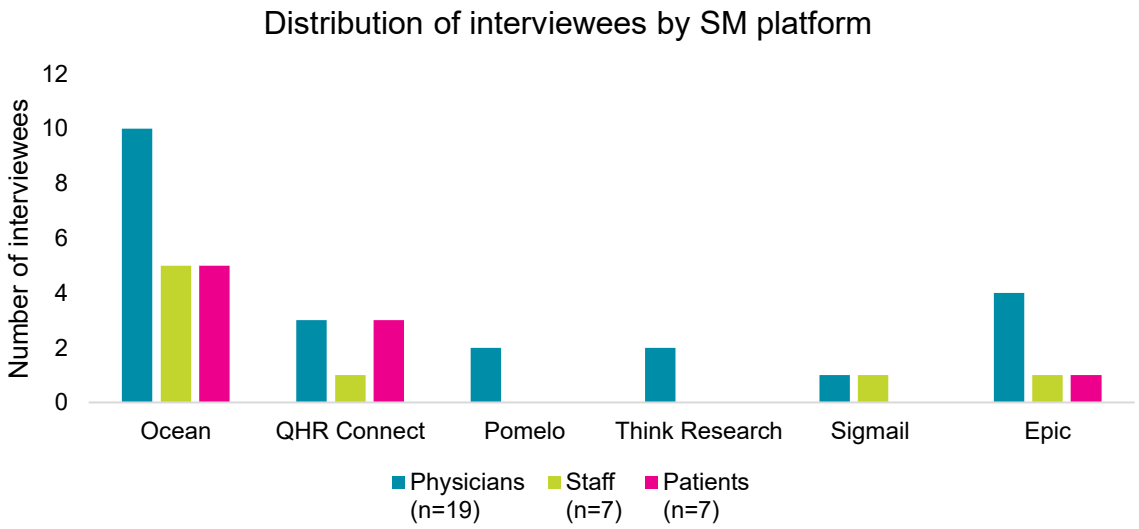


Figure G4. Distribution of physician, staff, and patient interviewees by SM platform.



SM USE CASES

Figure G5. Distribution of clinician SM use cases based on interviews

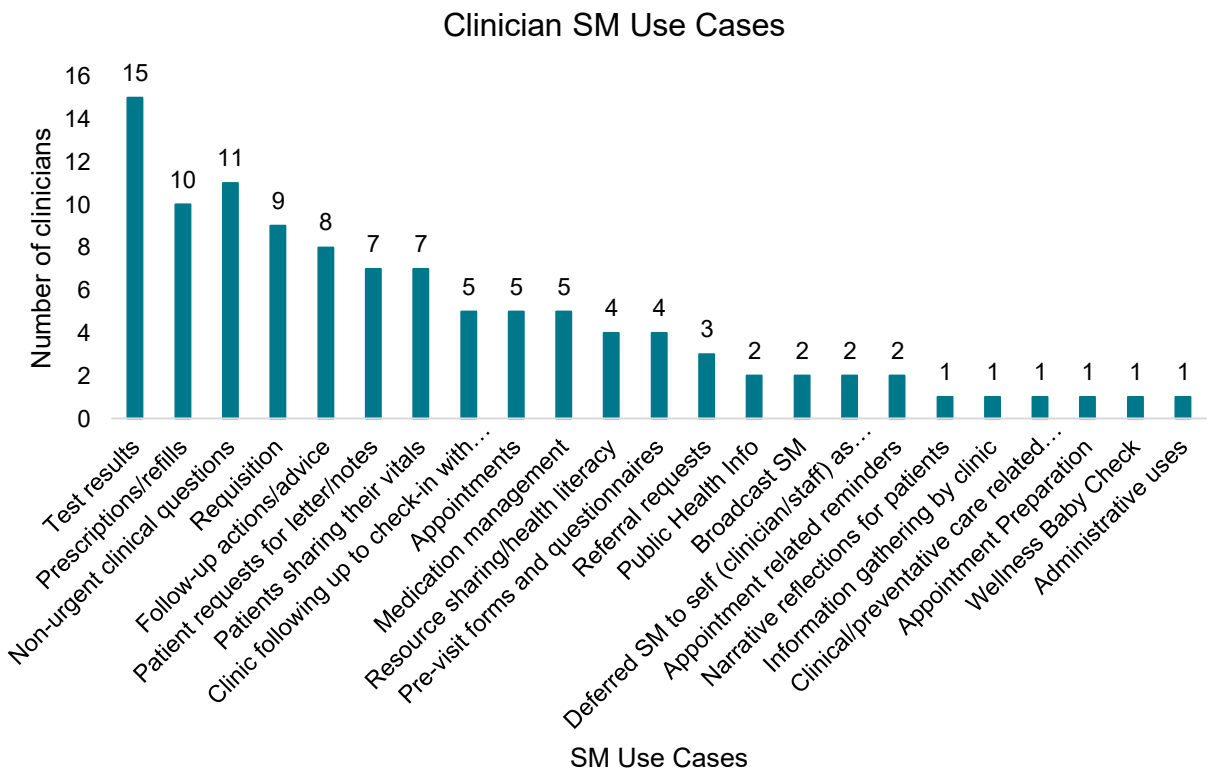


Figure G6. Distribution of non-clinical staff SM use cases

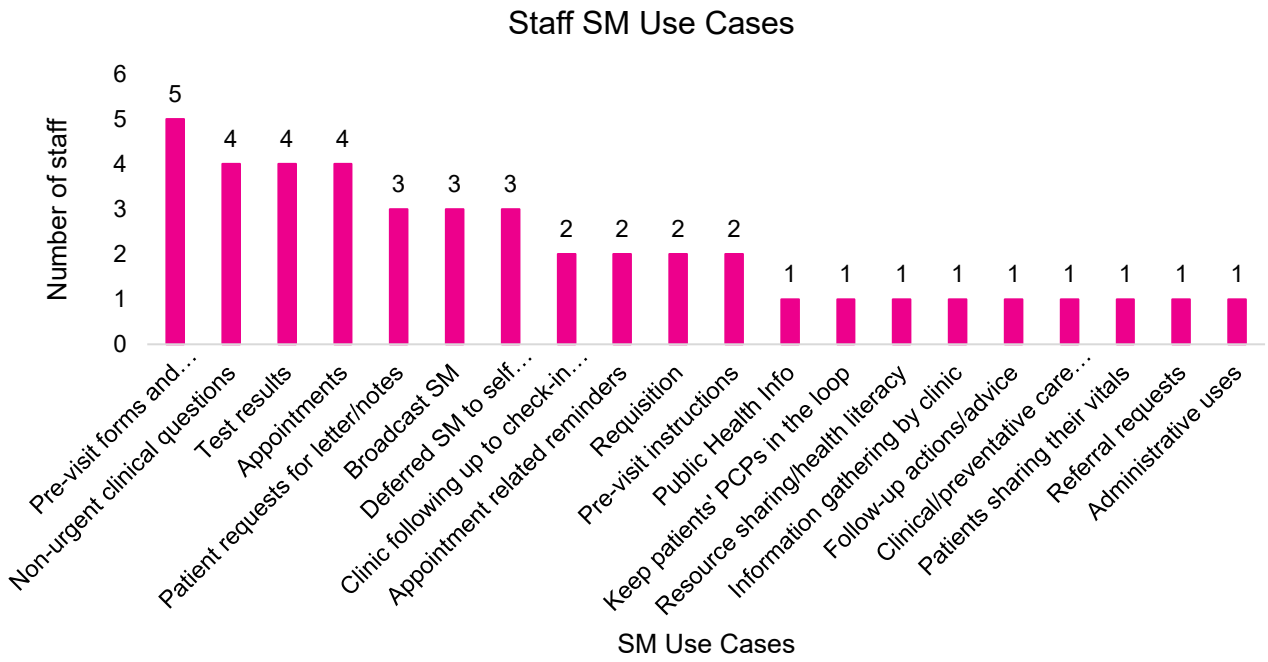


Figure G7. Distribution of patient SM use cases

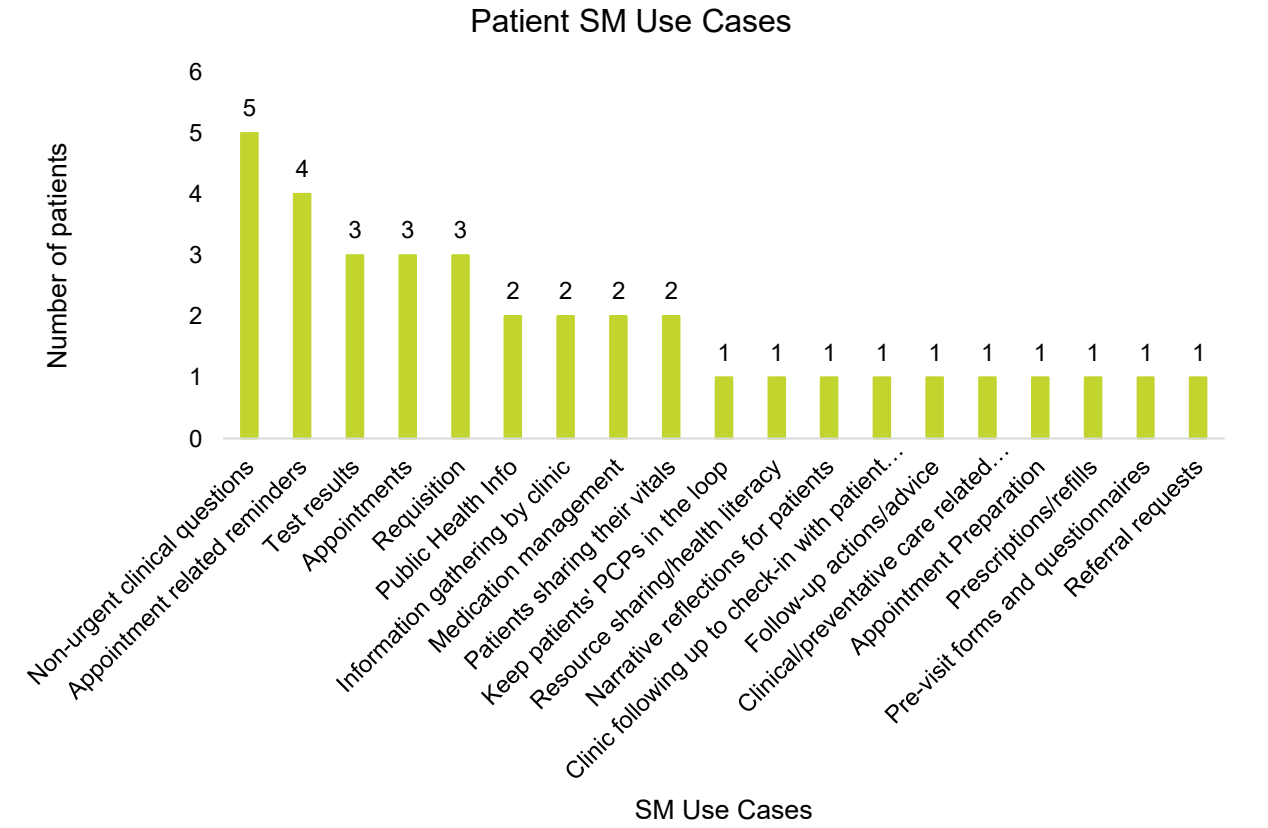
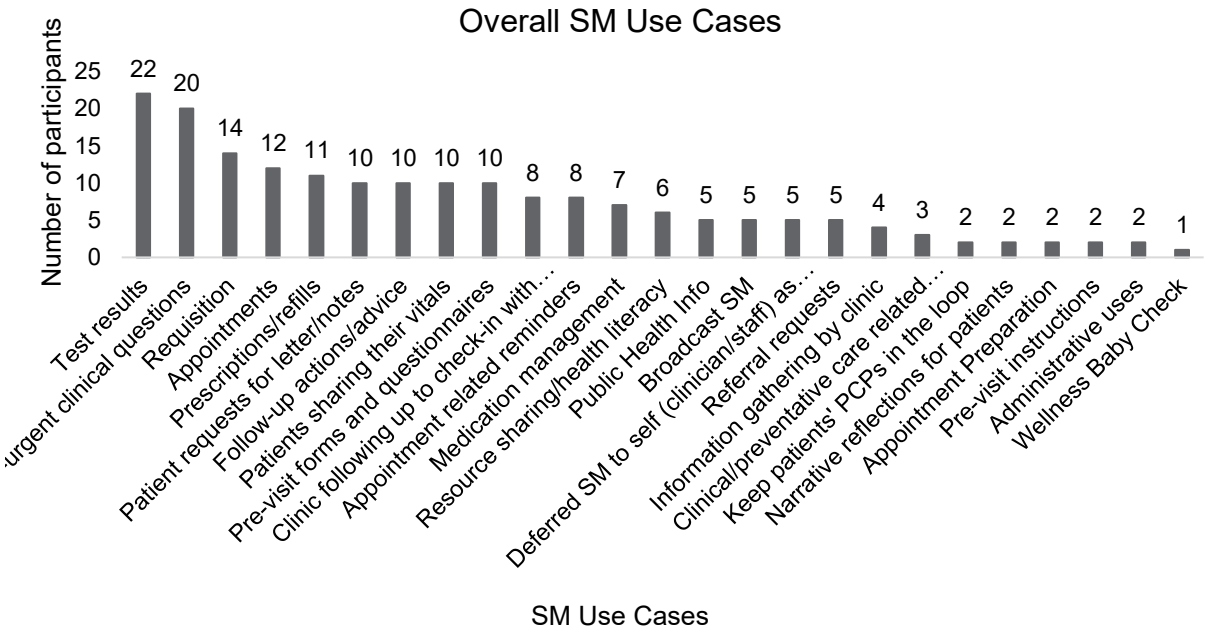


Figure G8. Distribution of SM use cases for clinicians, non-clinical staff, and patient



***Note**: Overall top use cases are Test results, non-urgent clinical questions and requisitions.*

Table G1. Count of SM uses cases among physicians, non-clinical staff, and patient interviewees.

Physicians*	Staff*	Patient*	Top Use Cases Overall*
Clinical Data/Health Information	**Clinical Data/Health Information**	**Clinical Data/Health Information**	**Clinical Data/Health Information**
Test Results (n=15)	Test Results (n=4)	Test Results (n=3)	Test results (n=22)
Requisitions (n=9)	Pre-visit forms and questionnaires (n=5)	Requisitions (n=3)	Requisition (n=14)
Medication	**Administrative**	**Administrative**	**Communication/Guidance**
Prescriptions/refills (n=10)	Appointments (n=4)	Appointment-related reminders (n=4)	Non-urgent clinical questions (n=18)
Communication/ Guidance	Patient requests for letters/notes (n=3)	Appointments (n=3)	
Non-urgent clinical questions (n=9)	**Communication/ Guidance**	**Communication/ Guidance**	
	Non-urgent clinical questions (n=4)	Non-urgent clinical questions (n=5)	
	Broadcast SM (n=3)		

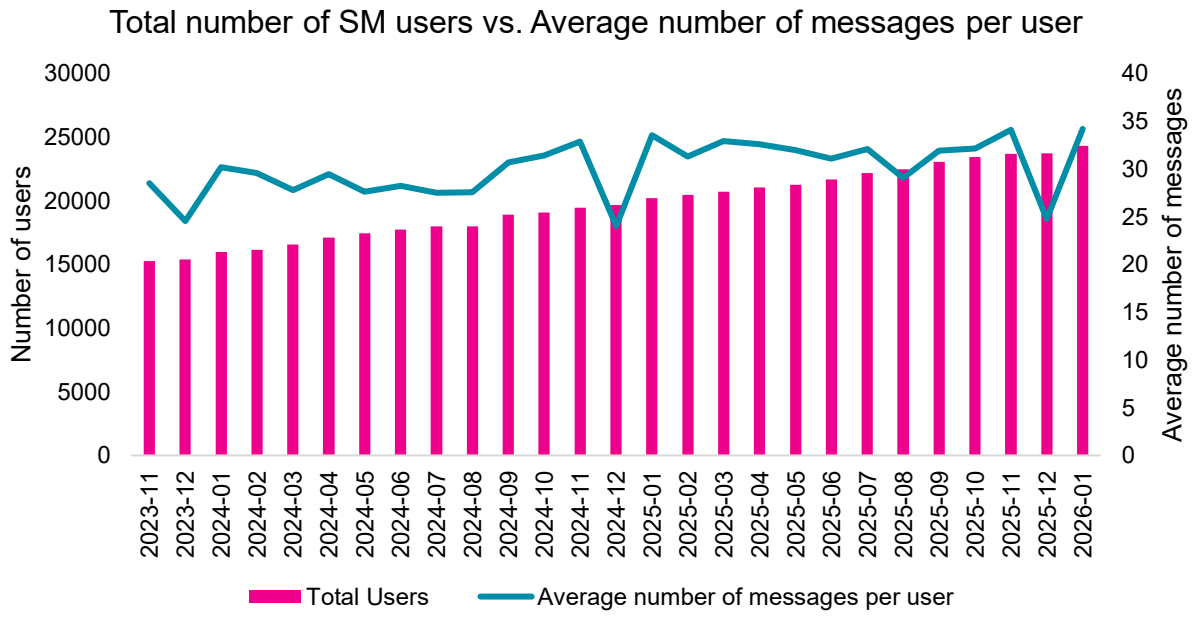
*Based on key informant, physician, staff, and patient interviews (n=33)
Note: 7 clinicians, 4 staff, and 2 patients also highlighted the ease of using SM to send attachments, which may include test results, notes from patients' charts, pre-visit forms or questionnaires, etc. Some interviewees also mentioned using SM for team coordination, such as messaging other staff to coordinate patient care

Appendix H: Vendor data for province-wide SM utilization

Vendor data was provided by **OceanMD** as well as **QHR Accuro Engage/Medeo.**

OCEANMD UTILIZATION IN ONTARIO

Figure H1 Average number of secure messages per user for OceanMD from November 2023 to January 2026. Number of monthly users increased from approximately 15,000 to 24,000.



QHR ACCURO ENGAGE/ MEDEO UTILIZATION IN ONTARIO

Figure H2. QHR secure messages volume in Ontario in 2025.

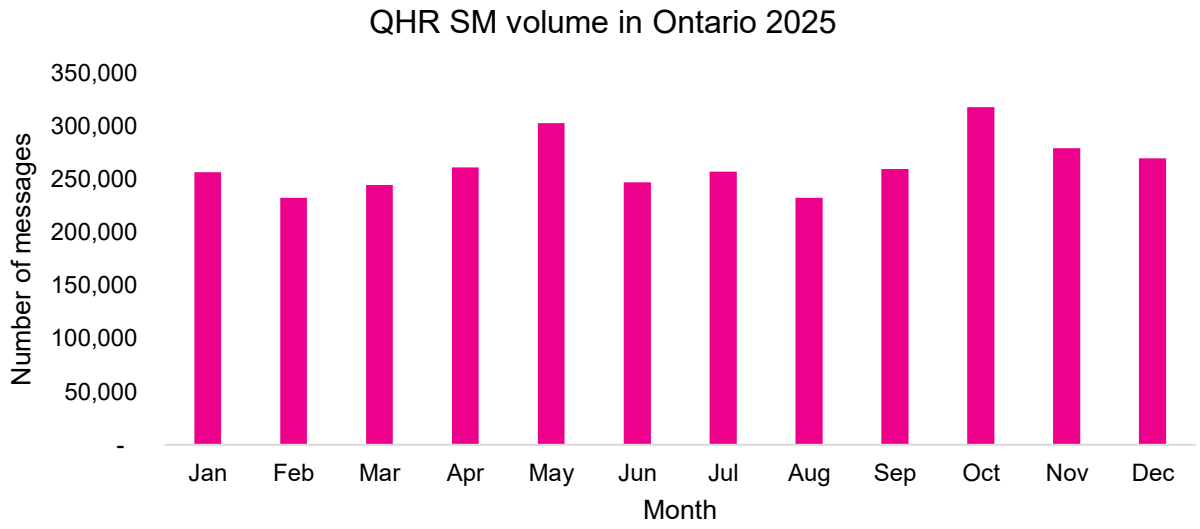
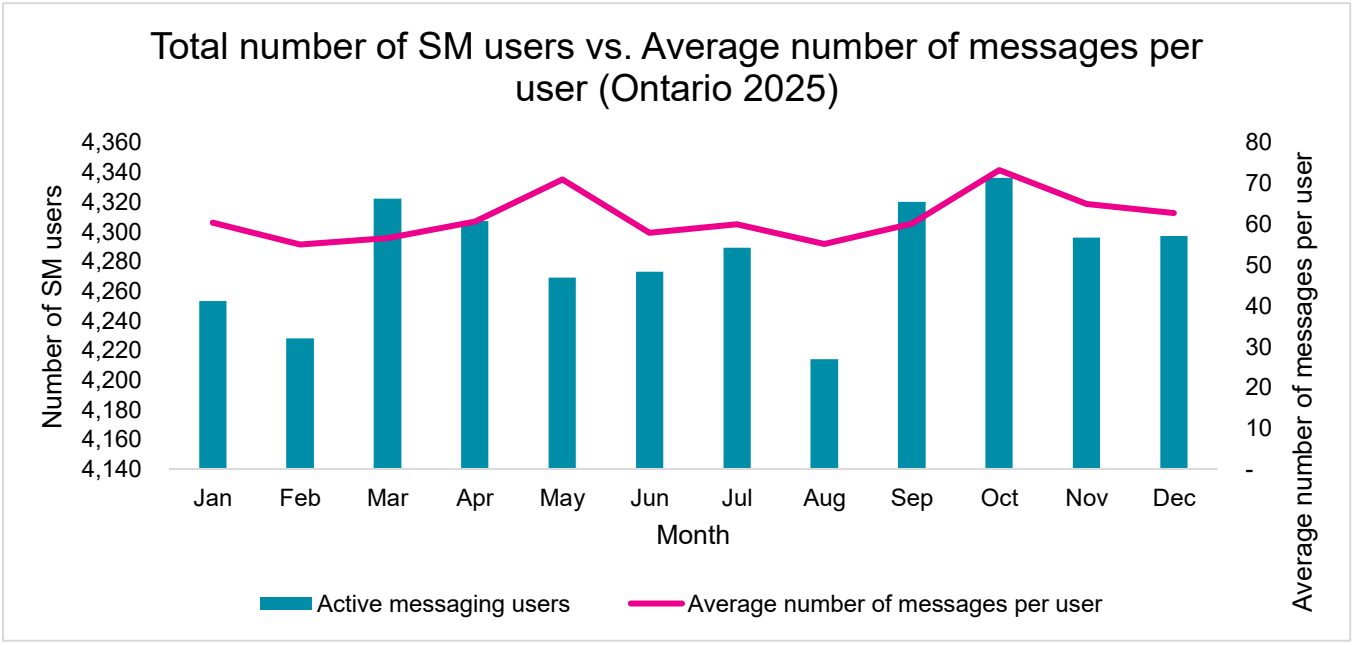


Figure H3. Total number of active QHR SM users versus average number of messages per user in Ontario (2025).



Note: Average number of messages per user was determined by dividing total messages sent by total number of active messaging users.

Appendix I: HIS Data – Site A (Specialist care)

Figure I1 SM volumes by message type at Site A (September 2024 to December 2025)

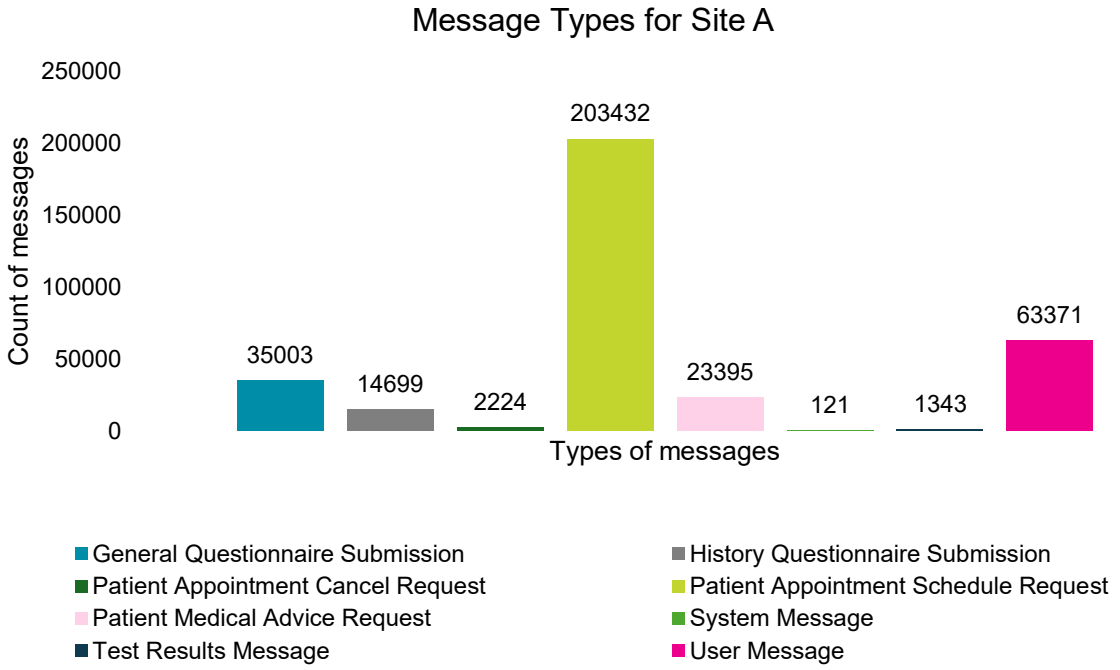


Figure I2 Initial message by message type and user

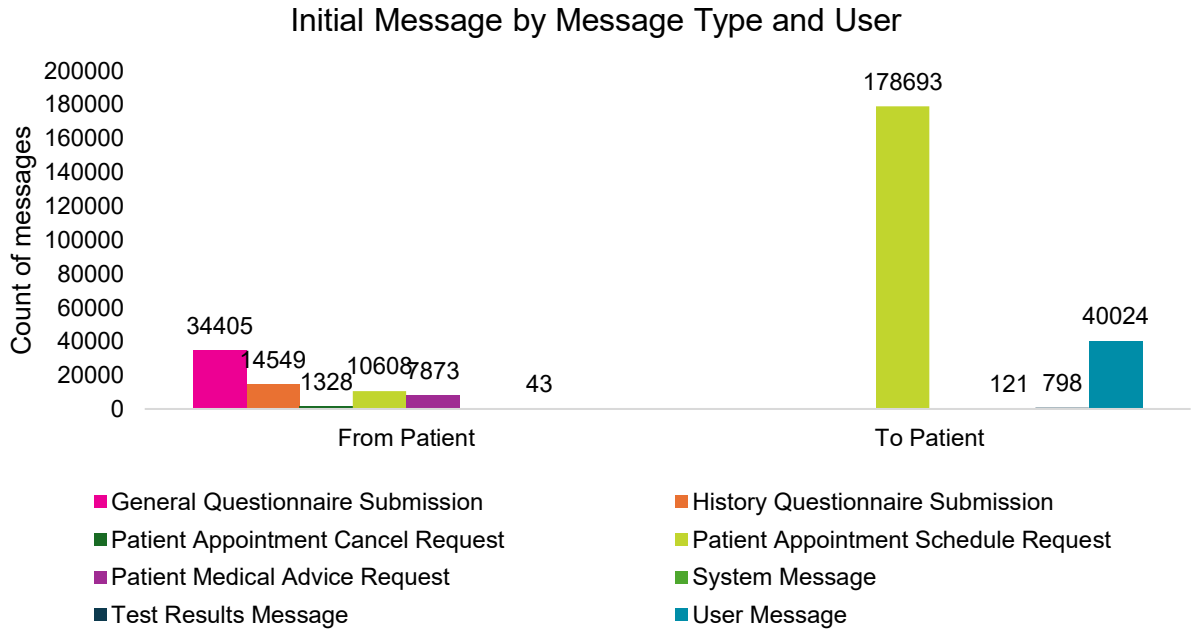
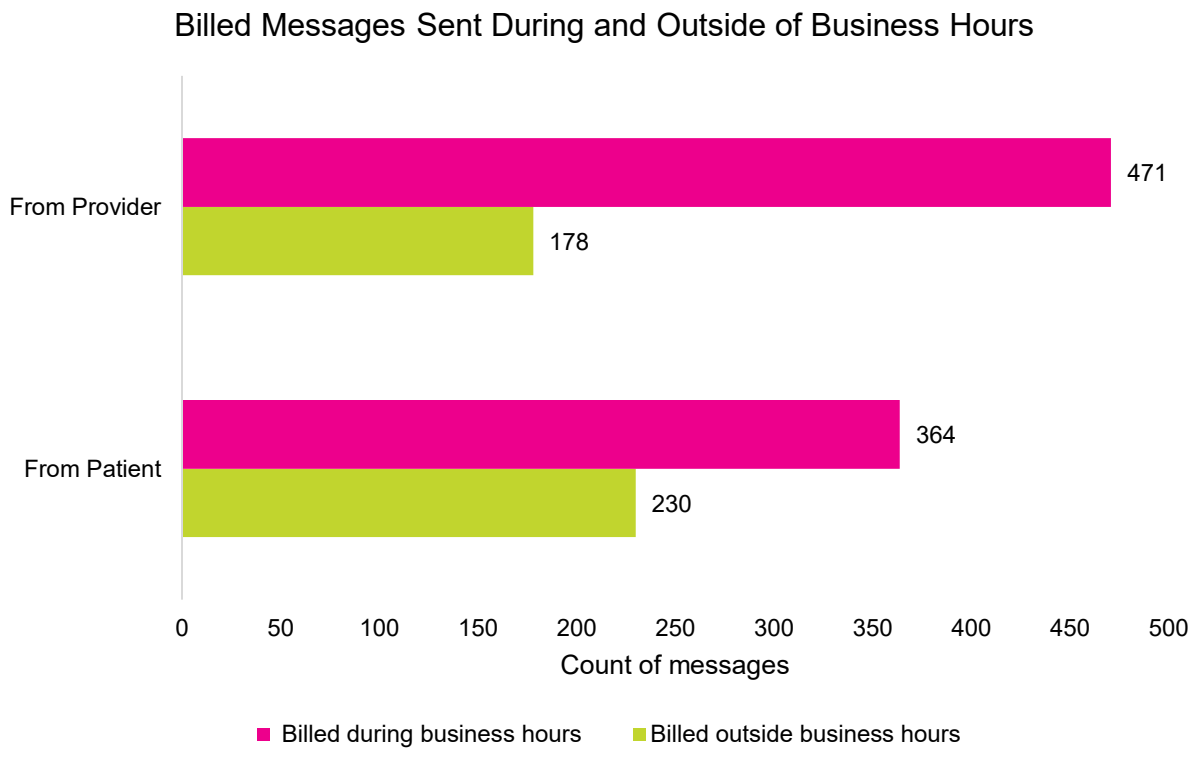


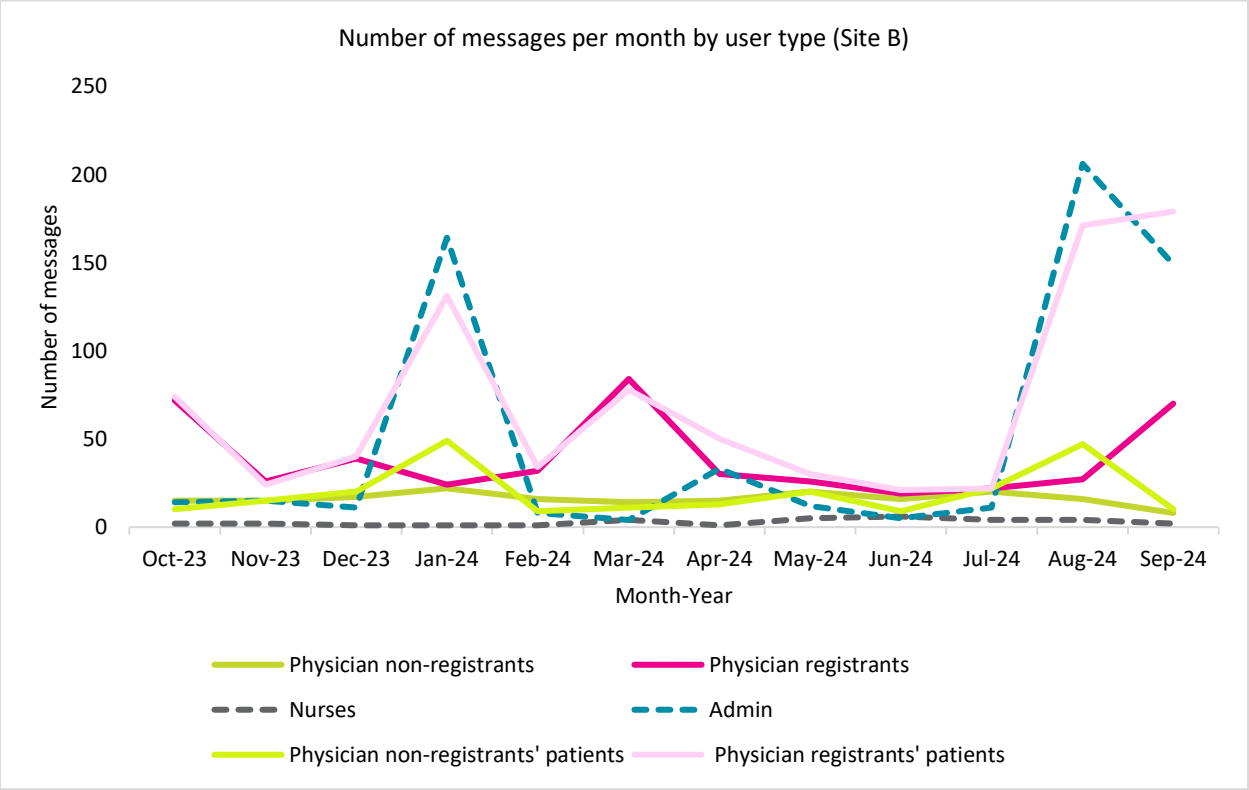
Figure I3 Billed messages sent during and outside of business hours



Appendix J: Site-specific EMR & Vendor Data (Primary Care)

SITE B (TORONTO-BASED FHT)

Figure J1. Number of messages per month by user type at Site B (aggregate EMR data).



Limitation of above graph: Aggregate data provided by site B represents approximate number of *conversations*, recognizing that users may initiate a new conversation in an existing open SM thread.

Figure J2. SM sent via OceanMD in a 30-day period Site B (OceanMD utilization report).

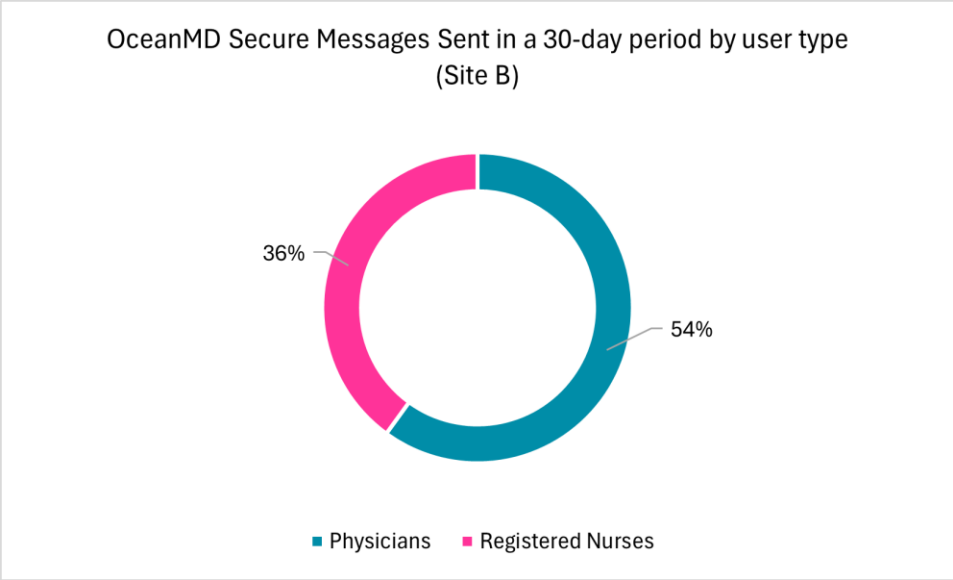
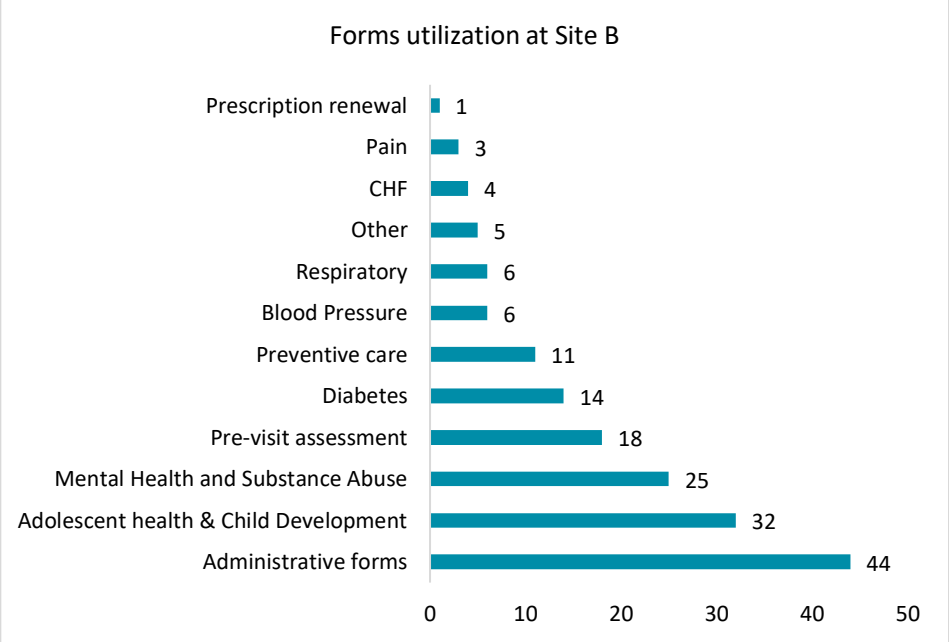


Figure J3. Forms utilization at Site B (OceanMD utilization report).



SITE C (WATERLOO-BASED FHO)

Figure J4. K303 billings at Site C (2 physician registrants).

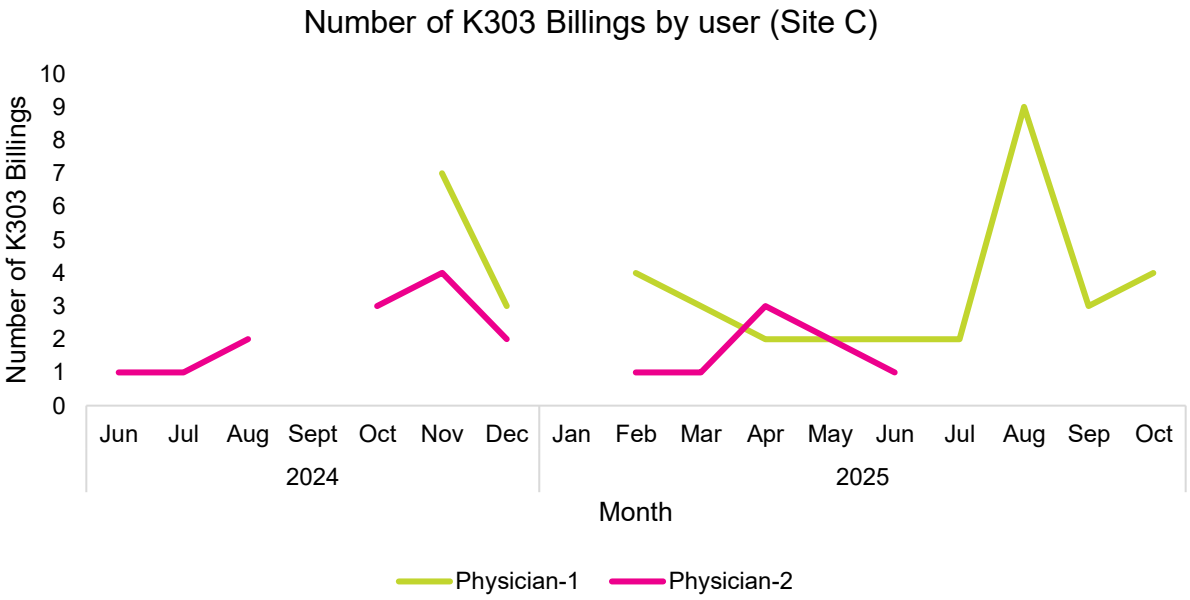


Figure J5. Number of SM sent in a 30-day period per use at Site C (OceanMD Utilization Report) (2 physician registrants, 2 physician non-registrants).

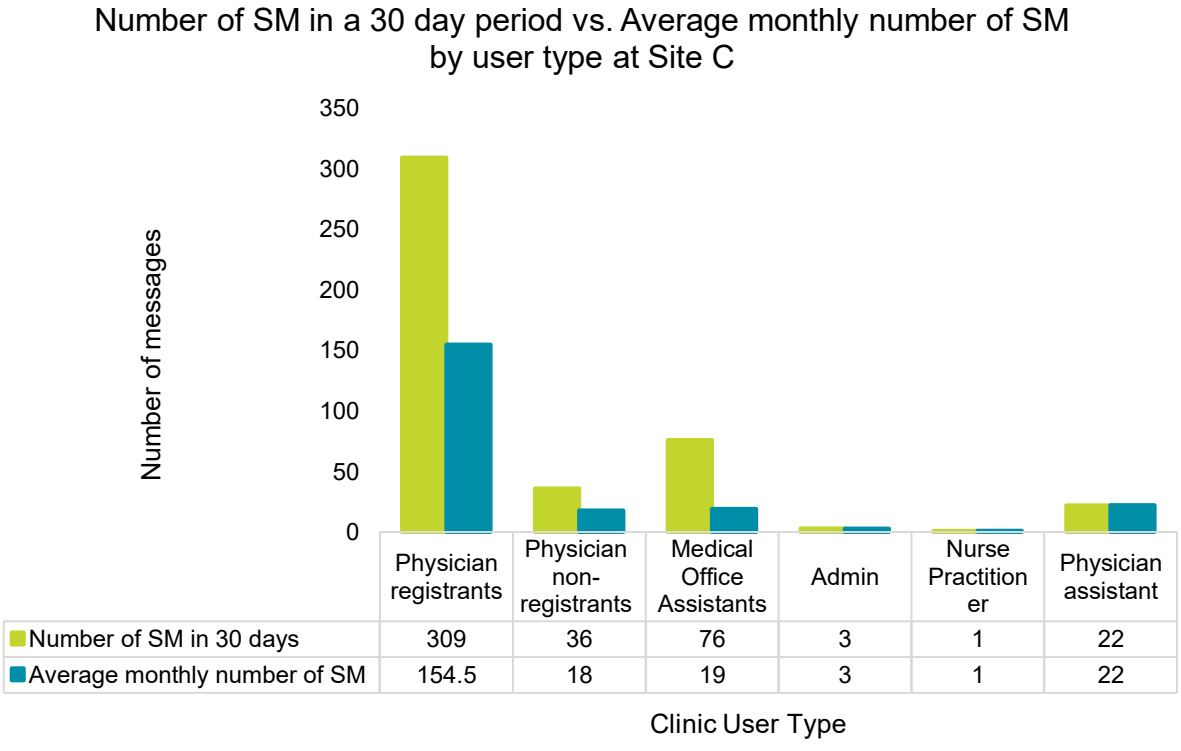


Figure J6. Distribution of SM use cases at Site C in a 30-day timeframe.

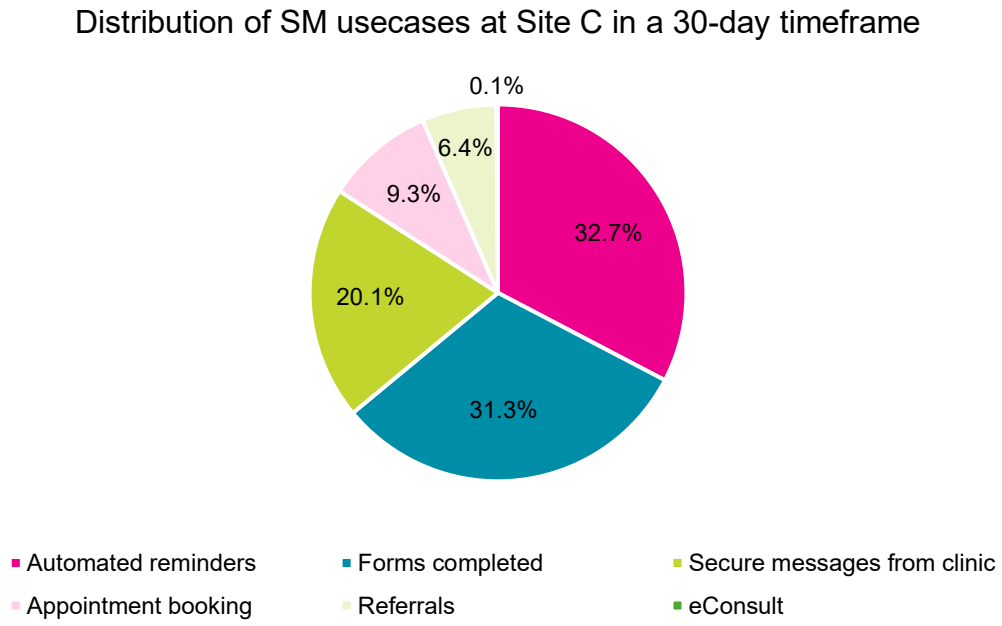
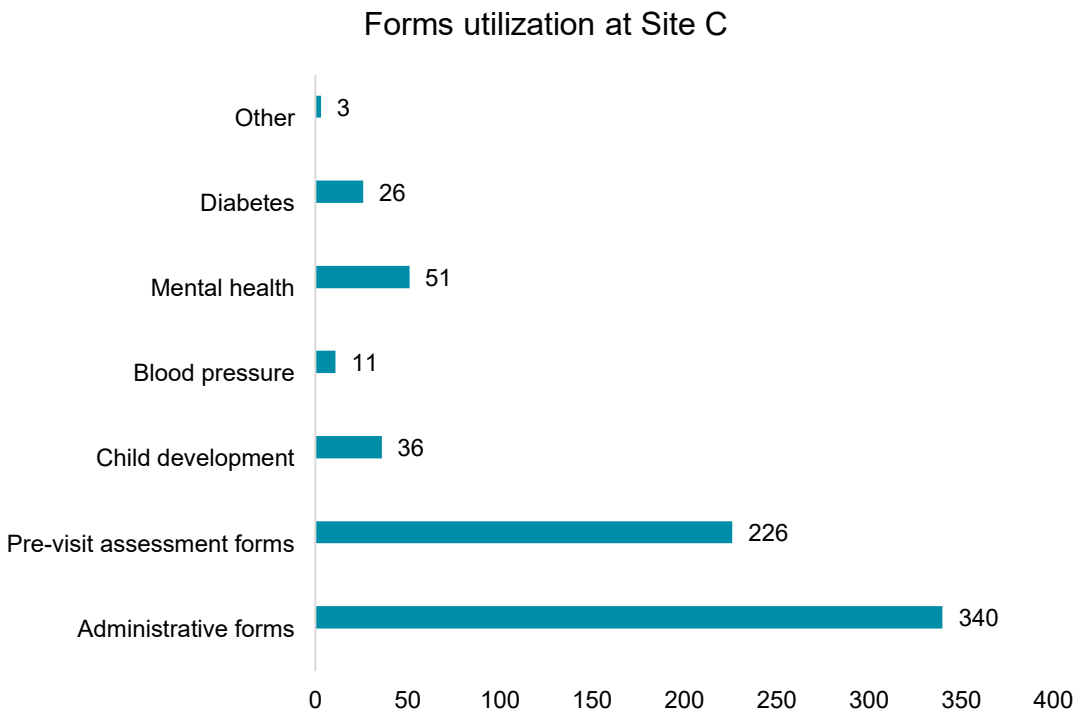


Figure J7. Use cases for types of forms used at Site C



Appendix K: Interview Quotes

Table K1 Quotes

Theme	Quotes
CONDITION	
People/populations who benefit from SM	*"If we see a one-time consult, we don't do, then they're like discharged after that, so then we don't have ongoing. But for anyone who's like ongoing followed would have access to a subgroup where it's very useful. I find for the patients who have like a higher health – kind of like digital literacy, health liter- – like I find for some of those patients, especially where we're following things closely. So if we're tracking lithium levels for example, and then it's like, "Your lithium level is fine, you can keep on your current dose." Or where there's kind of like an established [relationship]"* – Clinician 16, Specialist *"It's the main way I communicate with some of them. They live far away, or have agoraphobia, or whatever, and so, it's just an important way that I connect with patients now".* – Clinician 9, PCP *"My deaf community has really benefited from secure messaging...I have deaf patients so there's quite a bit of back and forth between me and my deaf patients because that's an easier way for them to communicate with me than anything else*." – Clinician 11, PCP
ADOPTERS	
Motivation for PoC registration	*"I mean I think it was really motivated by, again, an interest in patient care. So I think we all made a bit of a sacrifice, because we think, again, for our patients, this is probably better. I think it feels more secure to know you're going to get a response."* – Clinician 15, Specialist *"I believe there was a stipend involved. There was a financial incentive to be part of the pilot. And I was the lead physician when I was a family doctor and that was one of the things that we wanted to do as a group, so that's why I initiated it."* – Clinician 12, PCP *"And I enrolled because then I would be paid some amount for it."* – Clinician 9, PCP

Effort/Workload	"*It's saving time but there is a make-work project within it unfortunately. And I think I'm honestly a pretty super user of it."* – Clinician 2, PCP *"Previously, what would end up happening is we created an administrative barrier, my wait time essentially becomes that administrative barrier. Where if somebody wants to get a form filled out, for example, and instead of coming in for an appointment, they are able to do this through a secure messaging platform. That would usually require them to book an appointment, send it in, call my office, email about that other stuff. With secure messaging, that has stopped now. Now all that comes in to me, and I don't want my front staff to have to triage it, I usually triage it if I were to do that or even historically, I used to triage it myself. That volume would increase by about 30 minutes. Increasing availability means increased workload."* – Clinician 6, PCP "*It's easy to send a reply to a patient. I think sometimes the complexity is what they're asking. So they may have a question about, "I'm experiencing this side effect, these ongoing symptoms, what should I do?" And so sometimes it can be simple, and just, "I want you to go back down to the previous dose," that's a really easy response. Other times there's a lot of considerations, and so for me to respond can be quite involved."* – Clinician 15, Specialist *"Patients have questions, so they'll call us and say, "Well, what does this mean? I don't know what this means." That I think is the hardest, because as an admin (…) now I have to send a message to the doctor to find out. So, that can be a little bit tough, (…) especially if there's a word there that sounds scary, they're going to pick up the phone immediately, "What does this mean?" And I can't give them any reassurance*." – Staff 4, Administrative Staff
Challenges to SM adoption and utilization	*"(…) strong sort of resistance to new technology because frankly we've struggled with technology that's been presented to us in the past like EMRs. I think people did try secure messaging a while ago when it wasn't as seamless, and it wasn't as integrated and it's kind of been there done that. So, there is this undertow of resistance to new technology."* – Key Informant 2 "*FHOs usually work in lower income areas and so with lower income areas you have to be cognizant of the socioeconomic status of these patients. Some of them don't have computers. They don't have laptops."* – Clinician 1, PCP "*We pay for the messaging and then every little additional functionality they want to charge another monthly fee per doctor (…) when you take a look at*

	the overhead cost, all of our rent and phone and internet and we pay our staff well and give them bonuses, all of those costs just go up and up and up." – Clinician 8, PCP *[On the reason for not subscribing to patient-initiated SM]: "If there is an additional fee I'll tell you right now that's why we didn't because the patients can already email us via our email and then we can respond with the email messaging and that works*" – Clinician 8, PCP "*It's almost like a paranoia. That when you start talking about secure messaging to doctors, they think it's more work, I'm going to have to do more than what I'm already doing and I'm already too busy but like I said, done well it's the opposite*." – Key Informant 2, PCP [*Regarding patient-initiated SM]: "My partners are quite worried about being flooded with messages if we open that door. So far it has not been done because [patient-initiated SM subscription] is office-wide*." – Clinician 13, PCP "*A lot of people don't check their messages, so then it's (...) an extra step. Because if I need to get in touch with them I send them a message, I wait, they don't respond, then I give them a phone call, or then I ask admin to follow up with them."* – Clinician 16, Specialist "*This has happened several times where I'm looking at the chart a month later and the patient has actually initiated some contact with me and my staff never messaged me. And it's because they're busy and they've got a list of a million things and they just miss one. So, unfortunately there's an element of human error that because Ocean and Telus are not integrated, it's not great."* – Clinician 2, PCP "*I think it's limited in terms of like if I'm doing a session where I have an interpreter, I'm not sure how that [works]– when I'm going to call someone where there's an interpreter, I've never sent a message (…) usually I will just call*" – Staff 7, Social Worker "*There's also a time issue (…) if I reach out to somebody, "Are you interested in booking an individual therapy appointment?" And then a certain period of time goes by, whether they read it or don't, I think that they're no longer able to respond after a certain point.(…) And sometimes they may say, "(…) they tried to respond back, but they couldn't*" – Staff 7, Social Worker

	"*My other issue with it in terms of time and flow is that if a patient sends something through – it gets routed through admin, and then it comes to me. If it's something like, "Two weeks from now, I can't make that appointment," that's fine if I get it in a few hours or I get it in a few days if admin is really busy. But if it's something like – and this happens – "I'm going to be late for group this afternoon." Let's say they sent it this morning, and they want me to know that they're going to be late, I get that tomorrow afternoon. It's like it doesn't matter now, right?"* – Staff 7, Social Worker "*When the parents come in, they'll bring their entire troop along with them. I can put that into five different charts, I can bill all five of them. I can't do that with the secure messaging where the family doesn't understand that you have to split them up into different people's charts*." – Clinician 6, PCP *"I think I probably had to ask for it. I probably had to say, "What if I have concerns before my next appointment?" And then I think they said, "Oh, you can message us there." I don't think it was offered. I remember thinking like, "Oh, that's a big thing. I would want to …" "That should be told right away" because I was really worried about the length of time between appointments. So I think I had to ask about it and then I figured it out*." – Patient 7
Clinician/staff experience using SM	*"It's made my practice a lot more smoother and the patients are a lot happier with it". - Clinician 1, PCP* *"I must have collected now 50 different versions of a complaint that it is not an intuitive experience on their end whatsoever and they don't like it and it's limited and it's constrained (...) and they go back to emailing me"* – Clinician 14, Specialist (EPIC user) *"I think patients are happy with it, because it is more streamlined. It's maybe easier for them to just quickly send a response via email, rather than having to take time to try and get through to us on the phone (...) I think it's been positive for both patients and myself."* – Staff 5, Nurse
Patient experience using SM	"*I like the process but I have to say that I'd have to test the hypothesis that sending a Medeo message would get me as quick a response as making a phone-call. That's something that I haven't done. I trust the process of calling the office. That's just been my habit. Also I'm of a different generation where I'm not all social media and all that business; it doesn't have to be – I like to*

	talk to people. So tools are great but face to face and talking is better." –Patient 6
VALUE PROPOSITION	
Access to care	"*They find me accessible 24/7 now and some ways that would make me a victim of my own success so to speak. They got no excuse that they can't get a hold of me. If it's after outside regular hours they could just go to any thread, they're all open, and they could reach me there*." – Clinician 4, Specialist "*There isn't always enough time in the day to fit patients in to see them, so it allows that connectivity and to be able to deal with things sometimes that patients aren't able to come in*." – Clinician 5, PCP *"We sent a note through Medeo and our doctor asked for a photograph. She took the photograph. She sent it to a dermatologist, which you couldn't get in – remember at the time you couldn't get in to see a doctor. Everything was diagnosed online through Medeo, just going back and forth to the different doctors, got a prescription, and found out it was an allergy to Neosporin. So that was I think the first instance that I realized how powerful this can be. You can be anywhere in the world any time of the day. My doctor answers ridiculous hours overnight during the middle of the night. So it was just a perfect instance for that*." – Patient 5 *"I think it has immensely helped with actually getting an appointment. I know previously getting through to reception and booking an appointment was the biggest struggle. So I could be on hold for 30 minutes to just try and get an appointment, whereas messaging or doing that online is much quicker*." – Patient 3 *"It made things so much easier instead of waiting for my next appointment, and worrying, and wondering, because there's a lot of questions with what I was dealing with, so it made things a lot easier for me*." – Patient 7
Communication	*"When I ask them to initiate some sort of message with me, they're writing out actually what their symptoms are. I know it's coming from them. Rather than an interpretation from someone at the front desk who is not a healthcare professional*." – Clinician 2, PCP

	"Today for example, I had a patient who thought it was a good idea to leave the country after getting a screening exam and, of course, it came back with a concern recommending a biopsy and so couldn't reach her by phone. Sent an email through the secure messaging and was able to reach her and now we're in the process of scheduling a date at a time where she can make it back in the country to have it done and so the admin is doing that." – Clinician 8, PCP *"He gets to see my written words, my communication style, better. Well, I'm a person who likes to talk, and I'm very social so they're on a time crunch when you go to the office, and I'm very mindful of that so, yeah, they get to see more of my detail, my thought process, or whatever, why I'm asking for something because I am very careful. Well, I think when you're going to talk medically, you have to speak a certain way, and I'm really mindful of that, and that I want to make sure I'm clear with a question"* – Patient 1 *"I can ask my doctor the most insignificant question and I don't feel uncomfortable. Whereas if I felt it was insignificant, there's no way I would make a doctor's appointment and take up her time."* – Patient 5 *The other thing is it's kind of – although I really love my doctor and she's very personable, there is such a thing as white coat syndrome. So you go in and you have all these things and you think, "Oh gee, I've forgotten." This way through Medeo, I will write a good, comprehensive note and I'll get a great answer back and, again, it's recorded."*– Patient 5
Continuity of care	*"I think it allows me to do more continuity of care, it allows more follow up of care. Being able to say to somebody who emails me over the weekend, I've got these symptoms that seem like flu, what should I do, should I come in? Well, let's give it 24 hours and see how you feel and then email them the next day and say how are you feeling, I'm feeling a bit better, okay. It allows for that without having to have them go somewhere else and see somebody in-person or go to the Emerg and deal with that type of stuff."* – Clinician 5, PCP
Convenient	*"Now when I have it selectively open, that becomes a lot more manageable. So I can sneak that in between patients or in my lunch hour, at the end of the day, and I'm able to get to it much more effectively"* – Clinician 12, PCP

	"I work full time; so does my husband. We have a lot of meetings. It's a lot easier to reply to a secured message on your own terms versus having to decide do you interrupt a meeting to take a call." – Patient 4
Efficiency	*"I get a message of a questionnaire that they've completed so that I can either message them instead of the visit or when we have the visit the message that they sent me is in the chart and we spend more time actually helping them rather than asking them what the problem is*." – Key Informant 2, PCP *If you ask my secretary, would you like to have only phone call or in-person interactions with patients? She would say, no. She would say that secure messaging is a tremendous extender. She can accomplish a lot more. She can accomplish in 10 minutes with secure messaging what it takes her one hour to do on the phone."* – Key Informant 1, Specialist
Focused care/ Improved in-person visits	*"Because I can divert things to 'the nurse will see you', I'll send you an email, I'll call you. The amount of in-person visits that they need is less. And we make sure that each in-person visit is max-packed. So they come in, they're there for whatever they need – a pap. They get a pap; they get their tetanus shot; they get a reminder about their stool test or mammogram. They get a lab. We have lab and X-ray downstairs so you're due for your triple-A screening (…) And so it's like they get a lot from coming in."* – Clinician 13, PCP *"If a patient is coming in to see me for something, we can secure message back and forth once or twice first to really get some details. And maybe get the tests done before they come to see me in the office so we can go over the results rather than have them come to the office and I give them the requisition and then they go get the tests done and then they come back to the office"* – Key Informant 2, PCP *I think the fact that you can send it and if they have time or they can take a look at it before. Or even just right before you come into your appointment, they can take a quick glance at it, see if anything jumps out at them. And then have a better idea. Or if they have time before then maybe they can see a reading that's high and then they can reach out and say, "Hey. Take a few more before you come in*." – Patient 3

Patient satisfaction	*"I have had lab work done late on a Friday. It comes in Saturday and my doctor has sent me a note Saturday and sent the prescription over to the pharmacy on the next morning. It's just phenomenal service."* – Patient 5
Replace/reduce other visits	"*Occasionally it will eliminate that which is great because just for time management for the physicians (…) lots of times before doctors couldn't bill for secure messaging, now we actually are in a pilot project where they can actually bill for secure messaging. (…). So before physicians used to always say' they have to come in to the office' because if they don't come into the office then the physician doesn't get paid*". – Staff 1, Nurse *"If that message is something that's a little bit more detailed I call them. I just turn it into a virtual visit and I give them a call and I think they appreciate that*." – Clinician 1, PCP "*Before secure messaging I would have needed to bring them in, or have a phone appointment with them, or have my nurse call them. I then am asking very specific questions. Do you still have a fever? Are you tolerating the medication? If you're not, we're going to use this medication. I'm doing that entire follow-up visit by secure messaging*." – Clinician 2, PCP "*When it's, again, like a simple answer, I think it's nice because it obviously saves the patient the need to make an appointment if all they wanted to know was, "Right, is it normal to have this side effect?" I can say, "Yes, that is expected." Fine, they don't have to make it to an appointment with me for that."* – Clinician 15, Specialist *"You know, they have a problem with an incision, they have a quick question, instead of booking a phone call or coming in to see me, they send a message off and they typically get a response within 24 hours*." – Key Informant 1, Specialist *"There are certain instances where it's not appropriate to be using it, for sort of acute flares of disease activity for our patients. It's not always the best as a standalone. A lot of times you need an in-person appointment or a virtual appointment so you actually can talk to them back and forth and do a little more in-depth questioning therefore. Simple things regarding maybe questions or issues around medication, how to take it, some mild symptoms*

	patients maybe experiencing, [I've] found it to be quite good." – Clinician 3, Specialist *"Secure messaging does not solve all the communication needs of healthcare, it's just one part. And so, whether it's a secure video or secure messaging, we need to ensure that we still are providing appropriate in-person interactions to patients. Secure messaging is just one tool*." – Key Informant 1, Specialist *"Sometimes (...) how to word bloodwork results and things like that, I still find easier over the phone. Because (...) especially (...) if it's anything very concerning I'm [going to] call the patient. But when it's slight abnormalities I find it's almost easier to have a conversation, because then if the patient's worried or has follow up questions, I can kind of allay their concerns in the moment. Whereas when I'm sending a message I'm a little bit more worried ,'Is this [going to] make someone feel more anxious?', and so I feel like the wording about it – because there's no opportunity to respond in that moment, so that I find a bit trickier"* – Clinician 16, Specialist *"There's a lot of (...) simple things that can be accomplished without having to go into the office. But if I got something that she has to look at it, I have to go in. I can't show her something on a screen. And I wouldn't want to. So you can't replace everything with virtual"* – Patient 6 *"It has allowed me to avoid appointments because I would just get my question answered, "Change the dose slightly," and then I would need to give it time to see how that works. Instead of during the appointment then she says, "OK, change the dose" which could have been done easily over messaging. So I think the messaging has been great in that respect*." –Patient 7
Secure	*"I think before the issue always used to be like it has to be HIPAA compliant, like how do we email patients. We can't just send them their results on non-secure email and stuff like that, but I think this mitigates a lot of that."* – Clinician 1, PCP
Time-savings	*"It's my secretary, we did a time audit, my secretary commented that it reduces her daily workload anywhere between 45 minutes to an hour, and I found about the same thing. It reduces my time load for patient care by about 30 to 45 minutes because at the end of each day, instead of having 10 phone calls to return, I might have 1 phone call or none because so many of*

	these issues can be dealt with just by responding to a secure message." – Key Informant 1, Specialist
Considerations for use	*You want to be mindful of the jargon that you're using in the email. They may be like, 'what's a TSH?', so that could end up leading to more confusion (…) you have to realize who your audience is. They don't understand, so you have to explain things clearly and make sure that you're not giving them more anxiety*" – Clinician 1, PCP *"For patients who are trying to avoid me, though, it ends up being a little bit more challenging because a lot of what we do as a clinician is look at the nonverbal stuff of how are you, what do you look like, how are you doing, what is your gait like. We saw this during the pandemic as well, there was a lot of elderly individuals who have lost a significant amount of weight, have deteriorated significantly, and nobody has ever told them or a clinician never told them. There is a bit of a negative aspect here, overuse with a particular patient can cause a misuse of secure messaging."*– Clinician 6, PCP *"We have a strong relationship with all of our patient already. So there's a very strong trust that's built between us and our patients. It's not interfering with the nurse/client relationship or the physician/client relationship because we already have a really good relationship established. So it doesn't take away from that."* – Staff 1, Administrative Staff
ORGANIZATION	
Implementation considerations	"*It's a combination of, 'well, okay, you want me on the secure messaging system, what other clinicians are on it? Who else can I communicate with?' Because there's multiple use cases. There's communication with the patient, there's also communication with a colleague. If it's implemented on an enterprise level and if you put all the docs and all the care providers on the same platform, then it becomes more useful than just one provider, or two providers, and their office communicating with patients."* – Key Informant 1, Specialist "*There has to be some really good planning about making sure that it's used appropriately. And that involves the onboarding, the training and that the rollout are done well. Not just turn it on and all of a sudden, the office is being*

	bombarded with messages and the messages are inappropriate, so there is lots of risks like that." – Key Informant 2, PCP "*In other clinics, other doctors don't have a way of patients sending them messages. So sometimes, because I receive them, I'll have a patient being seen at a totally different department, and I get a message saying, "I can't reach Dr. so-and-so, can you pass on the message to Dr. whoever." And that feels like, "Why do I have to deal with this? (…) Why is this my problem?" But it becomes my problem (…) I can understand from their standpoint why they're frustrated, like they can't reach this provider (…) So I think as a hospital that part is probably a little bit frustrating for patients, that there's different processes depending on where you are."* – Clinician 15, Specialist *"We never sent a blast information package to people telling them we're turning this on. They were not aware until I brought it to people's attention. When I realized that they couldn't initiate, when I was telling people in clinic that they could, despite the fact that I was told they could, that's when I had to go back to IMIT and tell them they couldn't. They didn't realize they couldn't. I needed special exception because apparently this was such a kerfuffle so that patients could message me directly de novo from their initiation."* – Clinician 14, Specialist
TECHNOLOGY	
User experience	*"I think sometimes the integration can be frustrating because oftentimes we'll send messages but they're not copied into the chart, for example, very clearly. So it'd be nice. I think the practice solutions integration with Ocean is better than let's say Accuro for example. It's a little clunky – the integration with Accuro."* – Clinician 12, PCP *"Because there's a few extra steps, it has required a lot of patient education on my part every time I'm seeing a patient, so it's taking time away from me. The front end has been very heavy and I would say I'm still working on that four years later."* – Clinician 2, PCP *"Ocean is a much more easier platform to use. Like, even when sending a message, if the doctor or me or anybody sends a message to a patient in Ocean, they get an email in their regular email box saying you have a message from your doctor and you have to put in your date of birth and you*

	can open it. Medeo: you have to log into Medeo and then patients forget their passwords or patients have issues and it's not easy. We have a lot of patients that won't use Medeo and they just want to use regular email." – Staff 6, Administrative Staff
Technical issues	*"Then also the big issue with Medeo, which you don't have with Ocean is it's email-specific. If I did have a young child, and obviously they don't have an email, then they would share my email address, and then things get mixed up. Because if I'm sending something about my child and then the Medeo message comes back, it might be put in my chart and not my child's chart. And that was a big problem that we had with the online booking was patients were booking emails and I would log on to book an appointment for my child but it was linking it to me because of my email (…) So because it's email-specific, patients have had to create new emails or create second emails."* – Staff 6, Manager "*Often I've got the daughter of an elderly patient, but the elderly patient doesn't have dementia. They can still look at their email and stuff, but they just want their daughter to be in the know (…), but the PDF disappears and the message disappears once the first person looks at it. So, it's like a race to the first thing. (…) it's worrisome because (…) II can't tell who looked at it out of the two people*." – Clinician 2, PCP
WIDER CONTEXT	
PoC billing model – K303 utilization (billing practices)	*"You have to get a certain number of messages. And so there's months that I think I was like nine, and I was like, "Oh, I don't get paid. I did all …" you know. And some of the messages, again, like they were quite intensive in terms of the work I had to put into it. So like if you break it down, like I think they're paying so little. I think assuming maybe it took me like two minutes to reply, when often it doesn't take two minutes to reply (..) even like the time it took to make the billing submission feels like a waste of my time because I get paid zero for all the work that I did, plus I went through the process of printing out the sheet, so it doesn't feel …"* – Clinician 15, Specialist
PoC billing challenges	"*[Organization name] uses Epic, and myself and a couple of colleagues were enrolled with the Ministry, but the Ministry did not approve our version of Epic, so we didn't use it".* – Clinician 17, Specialist

	"I think it's just by, honestly, inertia. I don't remember how many encounters I need to have per month to be able to qualify, nor am I counting them. So I'm doing these virtual visits. And so initially that was the thought: OK. Now I can get compensated for that. But in reality, to be able to administratively count that just didn't happen." – Clinician 12, PCP
PoC billing model – Opinions	"*Yes, you need two-way communication for something to be an appointment, but we already have that for the phone calls and the video appointments. And nothing that we're going to do via email with pauses in the communication is ever going to work the same way. So, I think trying to bill something, like an appointment, that isn't an appointment doesn't make any sense*" – Clinician 12, PCP
Suitable SM remuneration	"*I think something more like the e-consult model where it's time-based, right (...) could I have an inclusion of how much time I spend replying to the message, reviewing the patient's chart (...) looking at what they've been on before, before I reply to them. And that's part of it, right, sort of time-based. (...) Or again (...) if people reach some more reasonable threshold in terms of message correspondence with patients, or if there's a way of tracking in Epic how much time you're spending replying (...) maybe there's like a certain monthly stipend that you get because you have made yourself available to do this service, right?"* – Clinician 15, Specialist *"I like how OTN eConsult is remunerated. It's time-based so anytime I do my eConsult (...) there's a dropdown and I click, 1 to 5 minutes, 0 minutes (...) 6 to 10 minutes, 11 to 15 so I think that would be fair because it recognizes that some messages may take more time than others to do (...) I think a fair thing would be, I don't know, $350.00 an hour so if it's 5 minutes it would be 350 divided by 12 for example. So I think that would be a fair … if it is to be remunerated based on fair market value for a physician, that's what I would do."* – Clinician 4, Specialist
EMBEDDING AND ADAPTATION	
Spread of SM adoption	*"I would say to other patients, use it, be confident in it, and that's what it's there for is for this extra help. But at the same time I know it can be probably overused. I can see it being overused by some people and kind of taken advantage of, and I can see that being a problem for the doctors. But for people that really are – that really do have direct, quick questions, and the doctor and patient have a good relationship, they know each other, the*

	doctor knows the patient well, I feel like it's a good fit. So for people who are reasonable I think the message would be "Use it, clear and concise, and be confident in that." – Patient 7 *"I think secure messaging is an essential part of modern healthcare. We need to deploy it further. It needs to become culturally acceptable. We need to engage not only in secure messaging interactions for the provision of clinical services, you know, provider to patient, but we need to get all the providers on board so that they're all talking to each other on the same platform."* – Key informant 1, Specialist