

Virtual Care as a Protective Measure in Nova Scotia's COVID-19 Response

The Shift of Physicians' Services from Face-to Face Care

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Executive Summary

In order to protect patients and their doctors from avoidable face-to-face encounters during the COVID-19 pandemic, the Nova Scotia Department of Health and Wellness (DHW) implemented policy changes to enable a shift to virtual care. Effective March 13, 2020, physicians in Nova Scotia were permitted to claim for all office-based non-procedural services that would normally be rendered in a face-to-face (F2F) setting, whether they were provided in person, by telephone, via telehealth network, or via a PHIA-compliant virtual care platform. This report set out to explore the extent to which synchronous (real-time) virtual care helped patients and doctors avoid the need for in-person clinical encounters during the COVID-19 pandemic response.

This study draws from MSI billing data, looking specifically at the use of new fee codes created and implemented in response to a rapidly developing pandemic situation. While the total physician service counts presented are reliable, as is the total value of services (since virtual care was paid on par with in-person care), it is believed that the proportion of care provided virtually is under-reported throughout the data. One indicator of this data quality issue is the fact that half of doctors responding to a Nova Scotia Health (NSH) survey said they used virtual care for 80% or more at the height of lockdown, but this proportion vastly exceeds the percentage of virtual care captured in billing data.

Physician billing data shows a plunge in volume of F2F care in mid-March 2020 and a corresponding rise in virtual care service claims. Between March 1 and December 31 2020, about 18.5% of physician services were billed as virtual care. During the same period in 2019, less than 1% of physician services were billed as being delivered virtually. The 2020 billing data translates into approximately 1.5M virtual care services that were claimed with a value of about \$73M. By comparison, fewer than 10,000 virtual care services were billed during 2019, representing a value of less than \$400K. Although virtual care was used across all specialties to some extent, general practitioner (GP) billings accounted for more than two-thirds of all virtual care services provided by all doctors in 2020.

Zoom licenses were made available by the Province to physicians to enable delivery of video-based patient encounters in 2020, but only 1.4% of virtual care was delivered with this technology. The vast majority of virtual care service by physicians was provided by telephone.

Notwithstanding the sharp rise in volume of virtual care services billed by physicians in 2020, there was a 12% drop in total volume of physician services as compared to the previous year. This represents a difference of almost 1M services. Almost all physician specialty groups billed for a lower volume of services in 2020 as compared to the previous year. Those specialty areas experiencing the greatest disruption to prior year service volume (pathology, ophthalmology, surgery, diagnostic radiology) were the ones least able to shift service delivery from F2F to virtual. The service volume claimed by GPs was about 9% lower in 2020 as compared to 2019, which represents a difference of about 500K services.

It is not known whether the drop in volume of physician services in 2020 is due to reduced physician capacity (extra time for public health protocols for in-person visits) or reduced patient demand (a change in health service seeking behaviour because of the pandemic). The latter would appear to be corroborated by a drop in the number of visits to emergency departments over the same reporting period. This also suggests that patients were not presenting in emergency departments because of lack of access to their doctor.

All patient groups (by age and gender) received fewer physician services in 2020 compared to 2019. The oldest Nova Scotians had the least disruption in total services and received the smallest proportion of those services virtually among all adult age groups. The youngest Nova Scotians saw the greatest drop in total services in 2020 and received the smallest proportion of those services from doctors virtually. Rural patients accounted for a higher volume of services (virtual or F2F) in both years, consistent with the fact that Nova Scotia's population is more rural than urban, but urban patients received the largest proportion of their physician services through virtual care in 2020.

Patients with expected health service needs such as cancer, chronic issues, intermittent illness and reproductive care represent a significant proportion of all virtual care services provided by doctors in the province. Patients who received the most virtual care were those with chronic issues (~625K virtual services) or intermittent illness (almost 500K virtual services). Virtual care was also important to the Cancer Care program. During the service restriction period the rate of virtual care use almost doubled from 24% to 46% for returning cancer patients and increased from 2% to 42% for new cancer care consults. Even after the service restrictions were lifted, virtual care was used by the program for patient care more than it was before the pandemic. The experience of the Cancer Care Program suggests that there may be greater value of virtual care in situations where there is an established relationship between the doctor and the patient or where the doctor has the benefit of referral information from another provider prior to the visit.

The rate of follow-up visits with the same provider increased significantly in the first weeks of the state of emergency. In the case of GP services, the rate of follow-up within one week remained higher for the rest of 2020. The initial spike in follow-up services may be explained by a higher proportion of patients with complex health needs being represented in GP schedules as compared to the same time in 2019 (healthier people stayed home, those who could not defer care sought it). The continued trend for the remainder of the year suggests either a change in the type of work GPs were doing, a change in the way they were doing their work, or some combination of both. Further study is required to understand the benefits of virtual care in creating potential quality improvements (better access and patient monitoring) or potential inefficiencies (creating the need for additional patient encounters in cases where a single in-person visit would have completed the service).

Doctors and patients report having high levels of satisfaction with virtual care when it can replace a F2F visit. Patient groups that Nova Scotian physicians identified as being particularly appreciative of the convenience of telephone-based care included the elderly, those with mobility challenges, patients in rural areas challenged by distance to care and patients with frequent service needs. Physicians were also aware of cost and time savings for patients who can avoid a trip for in-person care. While nine out of ten physicians indicated in a survey of their intention to continue to use virtual care after the COVID-19 restrictions, it was widely noted that virtual care was used during the pandemic more than patients or doctors would like to under normal circumstances.

In sum, the DHW policy to pay physicians for providing services to patients virtually was an effective strategy that helped doctors and their patients avoid in-person encounters as a protective measure during the pandemic. This study looked at the extent to which synchronous virtual care has protected patient access to physicians' services during the pandemic, but raises several questions regarding how the broader dimensions of quality relate to the delivery of virtual care in a future state health system.

1. Introduction

The COVID-19 pandemic triggered a disruption of a magnitude that has the potential to redefine the future-state of health service delivery. Public health measures to prevent the spread of the Coronavirus required an immediate shift from a face-to-face (F2F) model of physician service to virtual care whenever possible. The response by patients, clinicians and policy makers alike has given lift to the virtual care agenda and set the stage for Nova Scotia to modernize healthcare in ways that system leaders have been trying to achieve for years.

With every opportunity comes a risk. There can be unintended consequences of the use of virtual care, and policies implemented to solve one problem but exposing another. There can also be unexpected benefits to patients, providers and the health system that are important to capture and carry forward. The future state should be better than the one we left behind.

Recognizing the fluid nature of events, this evaluation set out to explore a seemingly straightforward question: to what extent did virtual care help patients and doctors avoid the need for in-person clinical encounters during a time when physical distancing was imperative, non-essential clinical services were being disrupted and society was effectively locked down? The objective was to identify lessons that could inform future state policy and better understand the unintended consequences and unexpected benefits of the virtual care experience. The entire approach to virtual care service delivery and how to pay doctors for it is being transformed in a state of crisis. The need for evidence-informed policy to guide this work in a post-pandemic health system environment is therefore vital.

Approving a temporary fee code change to fund virtual care

In order to minimize disruption of patients' access to care during the COVID-19 response (and physicians' ability to provide it), the Nova Scotia Department of Health and Wellness (DHW) implemented a number of policy changes to enable the use of virtual care technologies by doctors and patients.

To set the stage, the following considerations made up the policy landscape as health system leaders needed to adapt quickly to an uncertain and volatile pandemic situation:

- Access to care was a top priority for citizens, NSHA, IWK and DHW. Geographical variation exists with access to primary health care and was expected to be amplified by COVID-19.
- Some physicians and other health care providers were believed to be returning home from travel at the time of the state of emergency declaration and would be unable to provide traditional in person care to their patients when self-isolating; retired physicians were willing to provide care but needed access to virtual tools; NSHA was standing up virtual care clinics to support unattached patients requiring access to care anywhere in the province; in-hospital and community-based physicians may require virtual care tools to support provision of care.
- There was an identified risk that physicians without personal protective equipment (PPE) may need to close their offices.
- Direction from public health regarding social distancing was a key consideration as the health system looks at reducing the number of in-person visits to health care facilities.

- Patients who require episodic care, ambulatory care, hospital discharge follow up, or routine / interval care can be treated virtually, significantly decreasing the number of patients who must come into a health care facility or a PHC office for in-clinic care.
- As confirmed and presumptive cases of COVID-19 increased in NS, follow-up care would be required. Virtual care can provide increased safety measures for the patient and provider, to minimize potential spread.
- Virtual care options were a priority for physicians and specialists, including many PHC providers and collaborative care clinics.

Nova Scotia Medical Services Insurance (MSI) released a bulletin on March 18¹ with the following information about the launch of the new virtual care fees, which were available to all specialties and could be used during the pandemic.

“Due to the current risk of Coronavirus (COVID-19) effective March 13, 2020 the following new interim service fee code is available for Telephone Management and Telehealth Management for presumptive/confirmed COVID-19 diagnosis as well as routine/interval care during pandemic.

Table 1 MSI virtual care billing guidelines

Category	Code	Description	Base Units
VIST	03.03X	<p>Telephone Management and Telehealth Management for presumptive/confirmed Covid-19 as well as routine/interval care during pandemic</p> <p>ME=TELE ME=VTCR</p> <p>Description Telephone or Telehealth communication between the physician and an established patient or a new patient seeking care during a pandemic (or patient’s parent, guardian or proxy as established by written consent). Telephone or Telehealth communication is intended to take the place of an office visit initiated by the patient (or patient’s parent, guardian or proxy as established by written consent). Telephone or Telehealth management requires two-way synchronous communication between the patient and physician on a clinical level.</p> <p>Billing Guidelines</p> <ul style="list-style-type: none"> • Physicians to bill no more than 2 telephone or telehealth management sessions per patient per day. • Ideally can differentiate between presumptive/confirmed diagnosis of Covid-19 or exacerbation of Covid-19, vs a follow up visit that would have otherwise been scheduled by either the physician or the patient, when a physical examination of the patient is not required. (i.e. Covid-19 related and non Covid-19 related) • The encounter must include a discussion of the clinical problem and a management decision. • The Health Service Code (HSC) is not reportable for administrative tasks. • The service is not reported if the decision is to see the patient at the next available appointment in the office. • The HSC is not available for walk-in clinics. 	<p>15.28 MSU</p> <p>Increasing to: 15.95 MSU</p> <p>Eff. April 1, 2020</p>

- The HSC is not reportable for facility-based patients.
- The HSC is reportable for Health Authority supported clinics.

The service is not reportable when the purpose of the communication is to:

- o Arrange a face to face appointment
- o Notify the patient of an appointment
- o Prescription renewal
- o Arranging to provide a sick note
- o Arrange a laboratory, other diagnostic test or procedure
- o Inform the patient of the results of diagnostic investigations with no change in management plan.

The service is not reportable for other forms of communication such as:

- o Written email or fax communication
- o Electronic verbal forms of communication that are not PHIA compliant.

The service is reportable only when the communication is rendered personally by the physician reporting the service and is not reportable if the service is delegated to another professional such as:

- o Nurse practitioner
- o Resident in training
- o Clinical fellow
- o Medical student
- o Clerical staff

Documentation Requirements

- Date, start and stop times of the conversation must be noted in the medical record.
- The medical record must indicate the content of the discussion, the management plan and that the patient (or patient’s parent, guardian or proxy as established by written consent) understands and acknowledges the information provided.
- The start and stop time of the call must be included in the text field on the MSI claim
- Use ME=TELE for services provided over the telehealth network; or ME=VTCR if provided over a virtual care platform. For telephone calls, no additional modifier is required.
- If for a presumptive/confirmed diagnosis of Covid-19 submit electronic claim with diagnostic code: 487.8 Influenza with other manifestations.

Specialty Restriction:

N/A

Premium:

No evening/weekend premium

Location:

N/A

A further update was released the following week²:

“Last week the new health service code 03.03X was announced to facilitate the provision of synchronous clinical care by physicians to their patients using technology that supports non face to face encounters; Telephone, Telehealth, and PHIA compliant virtual care platforms. This was provided at the same rate as is afforded to physicians who provided comprehensive primary care to their patients (ME=CARE) and is meant to encourage provision of non-face-to-face care wherever possible and appropriate.

This new health service code will be available to load into your vendor software on Friday, March 27th . Once your vendor software has been updated, you may submit claims for any services rendered since March 13th.

In view of the extenuating circumstances and recommendations for social distancing, and in order to promote continued delivery of patient care as seamlessly as possible, effective March 13th, 2020 all office based non-procedural services that are normally rendered in a face to face setting will be permitted to be reported whether they are provided in person, by telephone, via telehealth network, or via a PHIA compliant virtual care platform. Such services would include limited visits, consultations, psychotherapy, and counselling where appropriate to be delivered in a synchronous non face to face encounter. Long Term Care, Residential Care, and Hospice services normally rendered face to face due to medical necessity could be reported using this format. During this interim measure these services will be paid at the same rate as they would be if delivered face to face.

Please submit your claims for encounters as you usually would, using your normal practice location. For all services not rendered face to face at that location, include the following text on the claim to denote the mode of synchronous care delivery:

- If service was provided via phone call: Pandemic telephone
- If service was provided over the telehealth network: Pandemic telehealth
- If service was provided over a virtual care platform: Pandemic virtual care

If the service is rendered to a patient with suspected or confirmed diagnosis of COVID-19, include diagnostic code 487.8 in the appropriate diagnostic field. For the duration of the pandemic, diagnostic code 487.8 should only be used in confirmed or suspected cases of COVID-19. For other influenza strains please use a separate applicable diagnostic code.”

The rapid expansion of virtual care has been tracked by several evaluation initiatives in Nova Scotia, of which this report is one. The main dimension of interest in this study centres on the funding of physicians to provide their services to patients virtually.

2. Evaluation Framework

This study set out to understand whether enabling the use of virtual care helped patients and doctors avoid the need for in-person clinical encounters during the COVID-19 pandemic response. It also seeks to identify lessons that could inform future state policy through the identification of unintended consequences and unexpected benefits.

The working definition of ‘virtual care’ is based on the one used by Canada Health Infoway, “Virtual care represents any interaction whether synchronous or asynchronous in nature between patients and/or members of their circle of care, without direct contact, using any form of communication or information technology” (CHI, 2019).

2.1 Logic Model

The following logic model (table 2) describes the relationship of inputs, activities, outputs and expected short-term outcomes of the DHW decision to encourage physician use of virtual care during the pandemic.

Table 2 Physician use of virtual care logic model

INPUTS	ACTIVITIES	OUTPUTS	INTENDED OUTCOMES/BENEFITS (SHORT-TERM)			
			PATIENTS	PHYSICIANS	HEALTH SYSTEM	
Provincial State of Emergency Declaration re: COVID-19	Communication of Public Health directives to physicians re: use of PPE, quarantine, self-isolation, social distancing etc.	Physician practice adaptation to comply with Public Health measures.	→	<ul style="list-style-type: none"> • access to care • avoids need for in-person visit • satisfaction 	<ul style="list-style-type: none"> • satisfaction • minimize service interruption • PPE savings 	<ul style="list-style-type: none"> • pandemic containment • efficiency of care • ‘pathway to care’ innovation
Compensation Model Adapted for Virtual Care	Fee codes modified for virtual care encounters	Physician claims for virtual care services.				
Technology Readiness	Provision of Zoom licenses to physicians	Patients and physicians connecting in virtual care space.				

2.2 Methods and Limitations

2.2.1 MSI Data

Only services that met the following criteria were included in the study:

- The service date was in the 2019 or 2020 calendar year
- The provider type associated with the service was “PH” (physician)
- The payment responsibility for the service was Nova Scotia Medical Services Insurance (MSI) i.e., billings for which the payment responsibility was another province or territory (“reciprocal billings”) or the Workers' Compensation Board of Nova Scotia (WCB) were excluded from the study
- The billing was not reversed (“current status = 3”)

Nova Scotia health utilization data in this report captured “virtual care” if any of the following conditions were met in the billing information provided by physicians:

- The health service code was “03.03” (office visit) and “ME=TELE” (telehealth) was present in the modifier codes
- The health service code was “03.03” (office visit) and “ME=VTOR” (virtual care) was present in the modifier codes
- The health service code was “03.03” (office visit) and the qualifier code was “X” (virtual care)
- The free text field contained the word “phone”
- The free text field contained the word “call”
- The free text field contained the word “telehealth”
- The free text field contained the word “virtual”
- The free text field contained the word “pandemic”

While total service counts are reliable, readers should note that F2F vs virtual billing data should be reviewed with caution, due to data quality issues that have been identified by the Department of Health and Wellness analytics team and corroborated by physicians. Namely, the abrupt change to billing code guidelines may or may not have been implemented accurately by practices in their claims submissions. Some of the virtual care billings required free text field entry of a service identifier, which is at high risk of inconsistency and free-entry error.

The following algorithm was used to compute the proportion of visits with a follow-up visit within 1 week:

- Each service was classified as virtual or face-to-face (see “Definition of virtual care”)
- For each person and each day, the first service of the day was chosen
- Technically services were ordered by date and then by SE_NUMBER and, for each person/date, the first SE_NUMBER was chosen.
- If a person had a service/visit on day “d” and another service/visit in the (inclusive) range [d + 1, d + 7], then the service/visit on day “d” was considered to have had a follow-up service/visit within 7 days. For example, if a person had a service on January 1, 2020 and another service on January 2, 2020, then the service on January 1, 2020 would be considered to have had a follow-up within 7 days. If a person had a service on January 1, 2020 and another service on January 8, 2020, then the service on January 1, 2020 would be considered to have had a follow-up within 7 days. If a person had a service on January 1, 2020 and another service on January 9, 2020, then the service on January 1, 2020 would not be considered to have had a follow-up within 7 days.

It should be noted that patients requiring daily treatment might have an impact on the proportion of visits that have a follow-up visit within 7 days. For example, a patient that goes to the doctor each day will add one to the visits-that-required-a-follow-up-visit tally each day.

Utilization data was aggregated by provider specialty based on the groupings as described in table 3 and table 4 shows the number of physicians in each of the speciality groups.

Table 3 Grouping of provider specialties in utilization data

SPECIALTY	GROUP
ANAESTHESIA	ANAESTHESIA
CARDIOLOGY	CARDIOLOGY
DIAGNOSTIC RADIOLOGY	DIAGNOSTIC RADIOLOGY
EMERGENCY MEDICINE	EMERGENCY MEDICINE
GENERAL PRACTITIONER	GENERAL PRACTITIONER
INTERNAL MEDICINE	INTERNAL MEDICINE
OBSTETRICS AND GYNAECOLOGY	OBSTETRICS AND GYNAECOLOGY
OPHTHALMOLOGY	OPHTHALMOLOGY
CLINICAL IMMUNOLOGY AND ALLERGY	OTHER
COMMUNITY MEDICINE	OTHER
DENTAL GENERAL PRACTITIONER	OTHER
DERMATOLOGY	OTHER
DIAGNOSTIC & THERAPEUTIC RADIOLOGY	OTHER
ENDOCRINOLOGY / MEDICINE	OTHER
GASTROENTEROLOGY	OTHER
GERIATRIC MEDICINE	OTHER
HAEMATOLOGY	OTHER
HUMAN GENETICS	OTHER
INFECTIOUS DISEASES	OTHER
MEDICAL GENETICS	OTHER
MEDICAL MICROBIOLOGY	OTHER
MEDICAL ONCOLOGY	OTHER
MEDICAL BIOCHEMISTRY	OTHER
NEPHROLOGY	OTHER
NEUROLOGY	OTHER
NEUROLOGY PAEDIATRIC	OTHER
No Primary Specialty	OTHER
NUCLEAR MEDICINE	OTHER
OPTOMETRY	OTHER
OTOLARYNGOLOGY	OTHER
PHYSICAL MEDICINE & REHABILITATION	OTHER
PROSTHETICS PROVIDER	OTHER
RESPIRATORY MEDICINE	OTHER
RHEUMATOLOGY	OTHER
UNKNOWN	OTHER
ANATOMICAL PATHOLOGY	PATHOLOGY
GENERAL PATHOLOGY	PATHOLOGY
HAEMATOLOGICAL PATHOLOGY	PATHOLOGY
NEUROPATHOLOGY	PATHOLOGY

PEDIATRICS	PEDIATRICS
PSYCHIATRY	PSYCHIATRY
RADIATION ONCOLOGY	RADIATION ONCOLOGY
CARDIOVASCULAR / THORACIC SURGERY	SURGERY
GENERAL SURGERY	SURGERY
NEUROSURGERY	SURGERY
ORTHOPAEDIC SURGERY	SURGERY
PLASTIC SURGERY	SURGERY
THORACIC SURGERY	SURGERY
VASCULAR SURGERY	SURGERY
UROLOGY	UROLOGY

Table 4 Number of physicians, by specialty group

GROUP	DISTINCT_PROVIDER_COUNT
ANAESTHESIA	175
CARDIOLOGY	45
DIAGNOSTIC RADIOLOGY	128
EMERGENCY MEDICINE	44
GENERAL PRACTITIONER	1296
INTERNAL MEDICINE	154
OBSTETRICS AND GYNAECOLOGY	85
OPHTHALMOLOGY	58
OTHER	204
PATHOLOGY	58
PEDIATRICS	144
PSYCHIATRY	129
RADIATION ONCOLOGY	20
SURGERY	197
UROLOGY	27

Approximately 22% of providers billed in more than one zone during the study period. For each provider, the number of services billed in each Nova Scotia Health Zone was totalled, and the provider was assigned to the Zone with the largest total.

Approximately 6% of providers billed under more than one specialty during the study period. For each provider, the number of services billed under each specialty was totalled and the provider was assigned to the specialty with the largest total.

When assigning patient age, this refers to patient age on the date of the service delivery. Patients were assigned an urban/rural status based on their postal code using the Statistics Canada Population centre and rural area size classes (POPCTRRRclass)³ variable from the postal code conversion file⁴.

The following is the list of the population centre and rural area size classes.

- Rural area
- Small population centre (population 1,000 to 29,999)
- Medium population centre (population 30,000 to 99,999)
- Large urban population centre (population 100,000 or greater)

Physician Survey

A provider survey was administered by Nova Scotia Health (NSH) and, physician data was extracted for this study. Ethics approval was facilitated by NSH to conduct further analysis on the physician survey responses. No personal identifying information is included in this report, as per ethics requirement.

Patient Survey

A patient survey tool was drafted by the study team to gather feedback from the Nova Scotia patient perspectives regarding the ease of use accessing virtual care technologies, level of comfort with the various modalities and the desire to access service virtually in the future. The survey was developed based on a plan to collaborate with NSH on launch and promotion of this tool, however it proved to be unfeasible to administer a patient survey within the timeframe of this evaluation deadline.

Understanding the patient experience is vital to all future policy and planning with regard to virtual care. Several initiatives across Canada and beyond have looked at questions around patient satisfaction with virtual care during the COVID-19 pandemic, with consistent findings.

Document Review

Other key data cited in this report include:

- DHW Zoom Dashboard (used to monitor adoption and utilization)
- DHW Virtual Care Dashboard (used to monitor physician virtual care billing activity)
- Nova Scotia Emergency Department Data (provided by NSH)
- Cancer Care Data (provided by the NS Cancer Care Program)

3. Data Results

The following sections present data that were collected to explore the short-term impacts of physician use of virtual care, based on the logic model developed to guide this study.

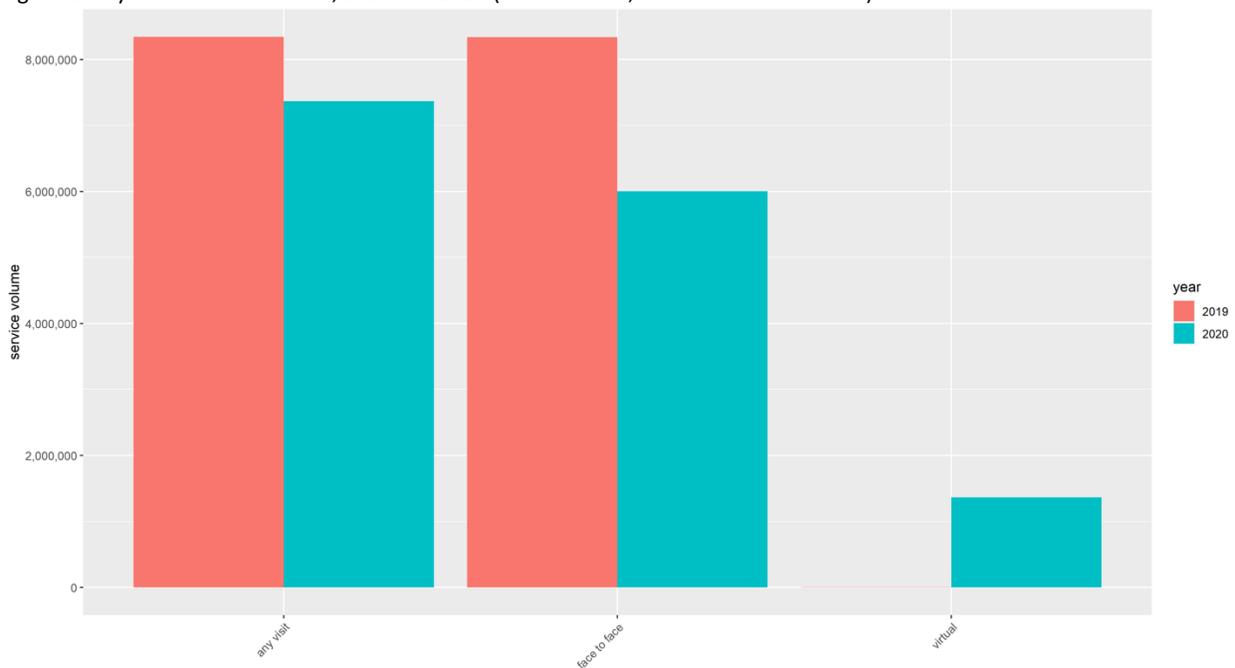


Important note: as noted in the limitations, the virtual care service volumes are believed to be under-reported in these data to an unknown extent.

3.1 access to care

To understand how overall patient utilization of physician services was impacted by the pandemic and associated public health restrictions, and the extent to which virtual care contributed to access, Nova Scotia physician billing information was extracted to explore pattern changes between 2019 and 2020. Based on Nova Scotia Medical Services Insurance (MSI) data, a total value of \$395,399,872.61 billing claims was submitted by physicians in Nova Scotia between March 1 and December 31, 2020. Of this amount, \$72,984,798.72 (18.46%) was billed as virtual care and represents 1,501,778 services provided by doctors. By comparison, in the same period (Mar-Dec) during 2019, a total value of \$434,670,442.21 billing claims was submitted, with virtual care making up .09% of that amount (\$386,689.29). Figure 1 shows this information, as represented by service count, indicating a total drop in service volume of 950,938.

Figure 1: Physician service volume, 2019 and 2020 (total services, face-to-face and virtual)



The service count by 7-day moving average is depicted below in figure 2, which shows the time-trended data for the full calendar years of 2019 and 2020. A sharp drop in service volume in March 2020 coincides with the state of emergency declaration. Generally, the total service count trends under volume in 2020 for the balance of the year.

Figure 2: Total service count (7-day moving average) vs day by year, all physicians

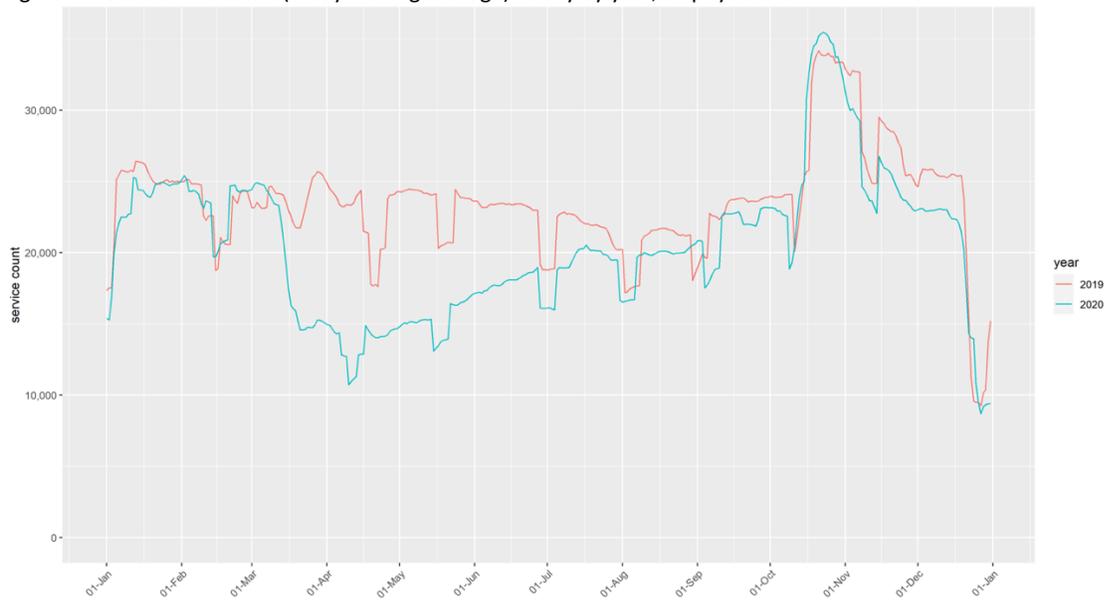
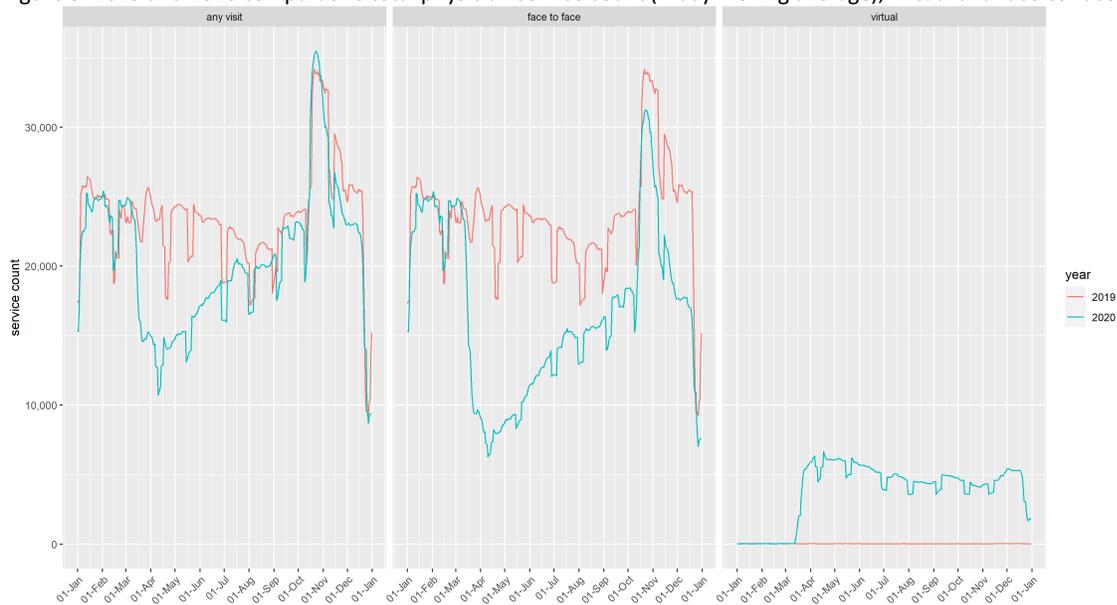


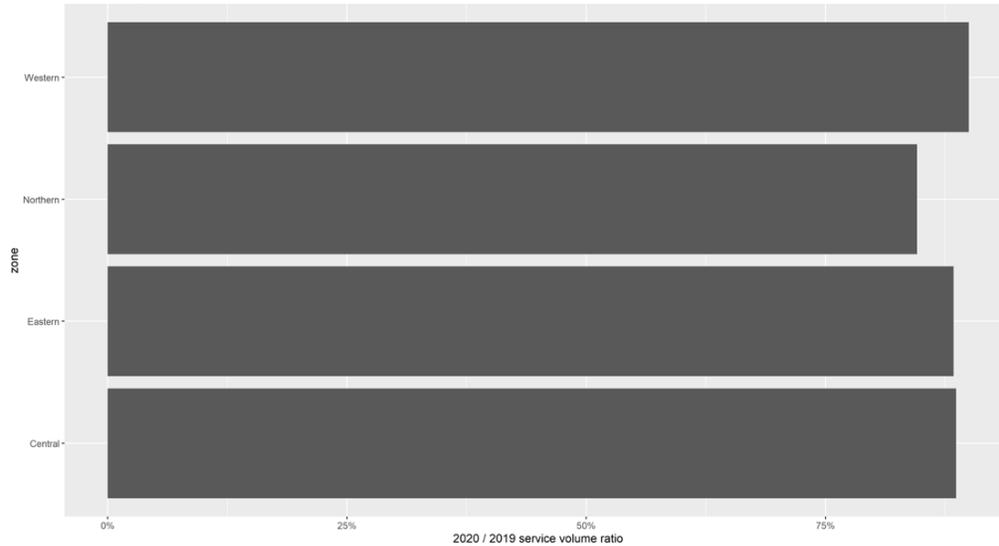
Figure 3 below provides a breakdown of the service counts that were billed as being delivered face-to-face and virtually. There was an immediate uptick of virtual care in March 2020, but no continued growth in use after initial adoption; virtual care billings saw a slight dip after the first wave. Conversely, there was an immediate drop in face-to-face service in March but sharply trended upward after mid-April when some public health restrictions began to be lifted.

Figure 3: 2019 and 2020 comparative total physician service count (7-day moving average), virtual and face-to-face



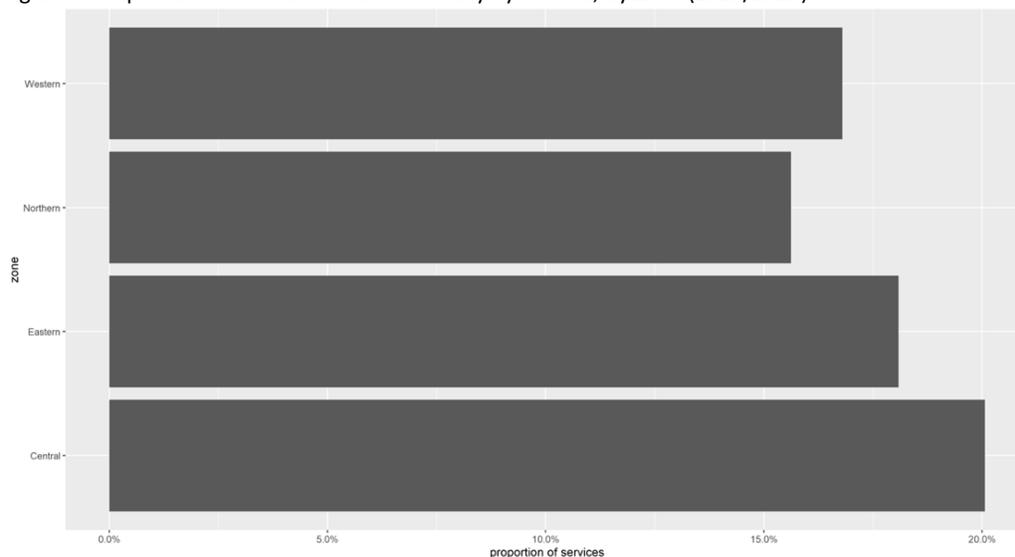
A Zone-based analysis of change in service volume in the 2020 as compared to the previous year shows that services billed in the Western Zone maintained the highest proportion of services and the Northern Zone maintained the lowest, with a small margin of difference between the four Zones.

Figure 4: 2020/2019 service volume ratio by Zone



Looking at the Zone-level virtual care physician service claims, figure 5 below shows that the highest proportion of care delivered virtually was by doctors in Central Zone. Doctors in the Northern Zone proportionately billed the least for virtual care. It should be noted that billing data reflects the location of the physician and not necessarily where the patient was located (i.e. a specialist in Central Zone conducting a virtual visit with a patient who accessed their service from a different Zone would be captured in Central Zone service data).

Figure 5: Proportion of services delivered virtually by doctors, by Zone (2020/2019)



To understand the billing pattern of virtual care in the context of patient urban-rural status, figure 6 shows the change in virtual care and F2F service volumes in 2020 as compared to 2019. F2F service in both years was proportionately the highest for rural patients (the population in rural areas is also greater than the population in large urban population centres). In 2020, virtual care services were provided to patients in all groups (rural, small population centre and large population centre).

Figure 6: Service volume by service type, year and urban-rural status

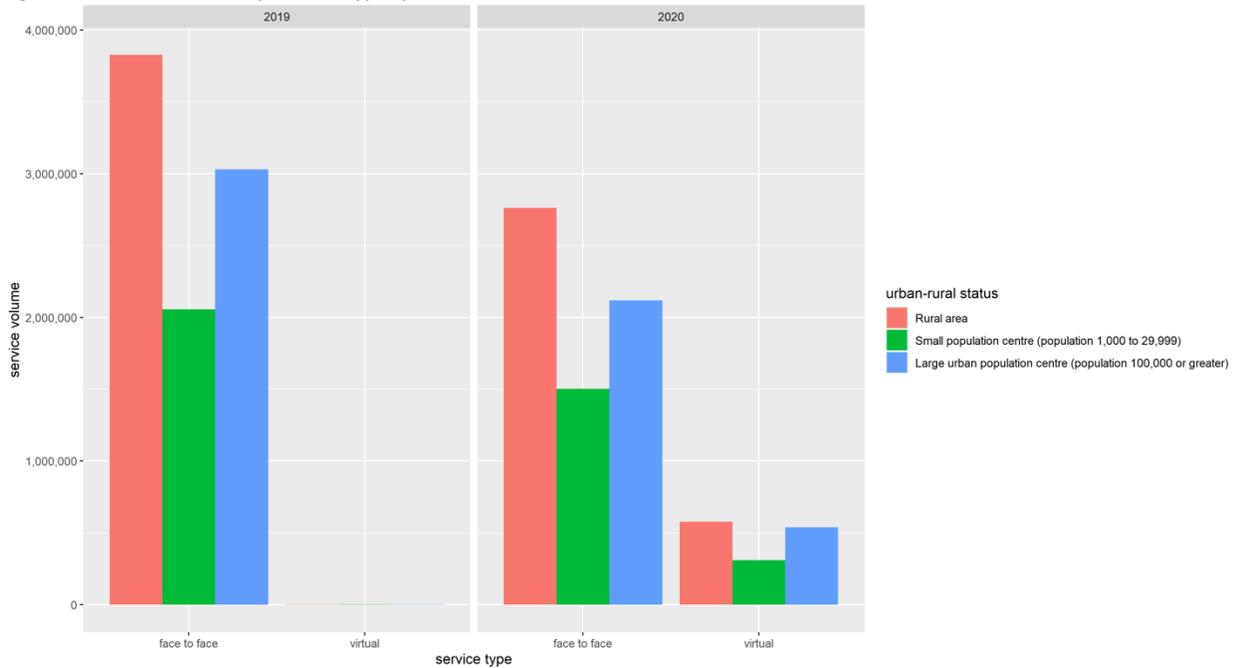
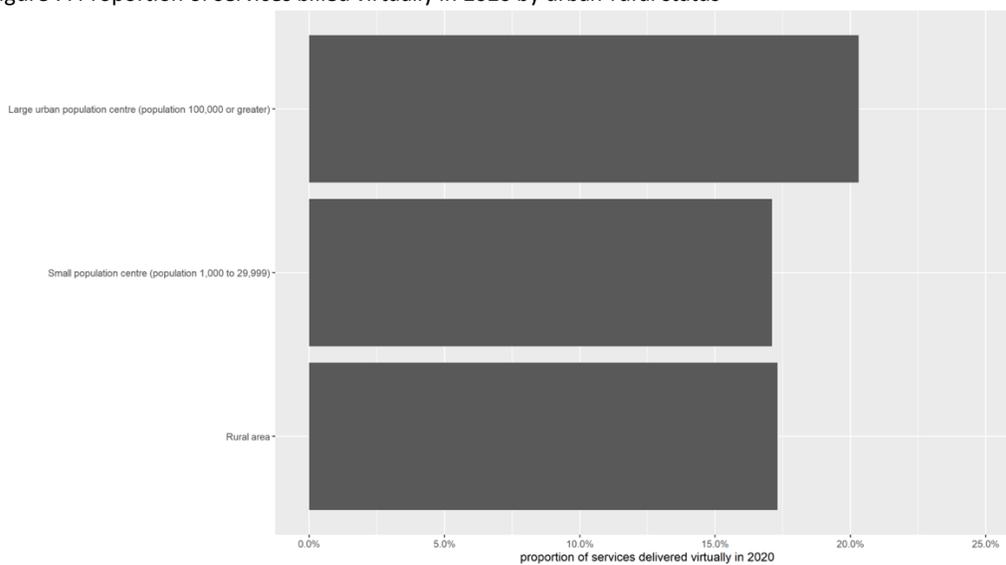


Figure 7 shows that patients in large urban centres received a higher proportion of their physician services virtually than patients living in smaller population settings.

Figure 7: Proportion of services billed virtually in 2020 by urban-rural status



Further exploring physician billing patterns for virtual care services by specialty, figure 8 shows that there was variability across specialty areas in the proportion of billing for the use of virtual care. This is explained in part by program suspensions and procedure cancellations that occurred based on public health directives.

Figure 8: Proportion of physicians billing for virtual care in 2020, by specialty

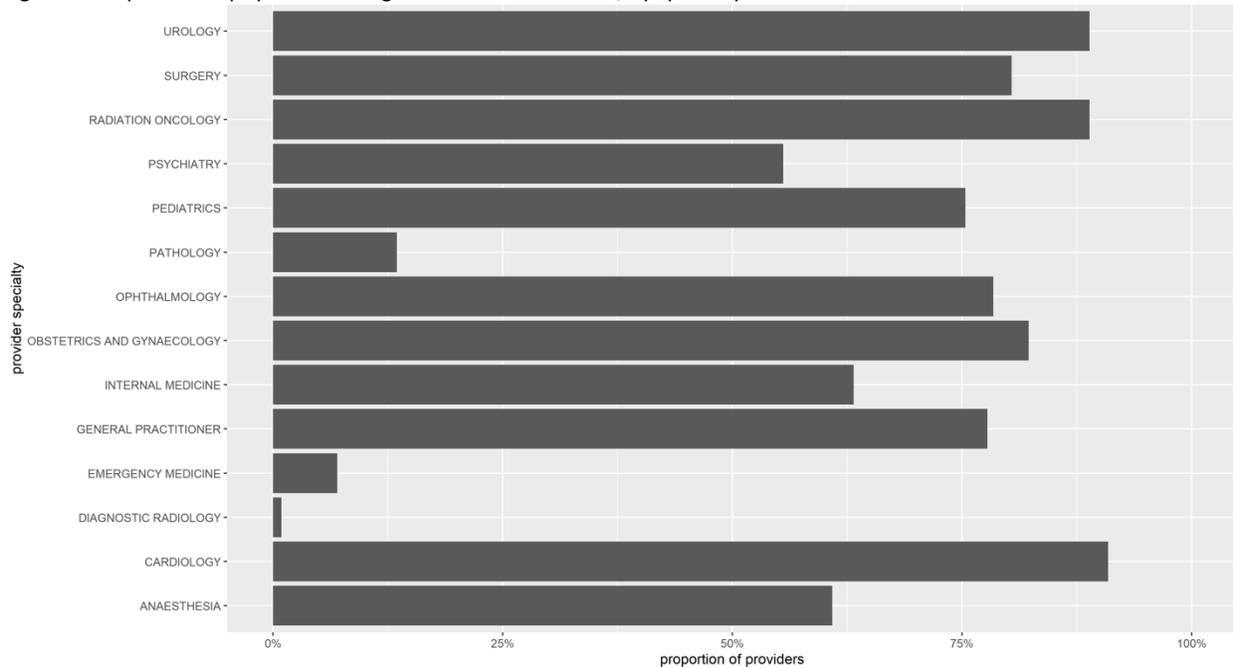


Figure 9 (page 22) shows the weekly pattern of service volume by specialty area, time-trended over 2019 and 2020. Mirroring the total physician service volumes, the most significant drop for most specialities occurred in the pandemic first wave. It is uncertain what proportion of services could only be provided in-person or were impacted by non-essential service cancellation.

Figure 10 shows the total service total volume by specialty, visit type (face-to-face and virtual) and year. It shows that different specialty areas used virtual care to varying degrees. Diagnostic radiology and pathology (which are predominantly procedure-based) had the lowest use of virtual care; general practice, psychiatry, radiation oncology, pediatrics and urology appear to have shifted the greatest proportion of their service delivery to virtual care. The range in volume scale across specialty areas is explained by the relative number of physicians in each group. For example, there are 1,296 General Practitioners as compared to 44 radiation oncologists captured in the data. Caution should be used in interpreting the total service volume increase in 2020 in Emergency Medicine billings. This could be skewed by it being a small data set limited to FRCP Emergency Medicine certified specialists, which does not represent all physicians providing emergency medical services in the province.

Figure 9: Service count (7-day moving average) vs. day by year and physician specialty

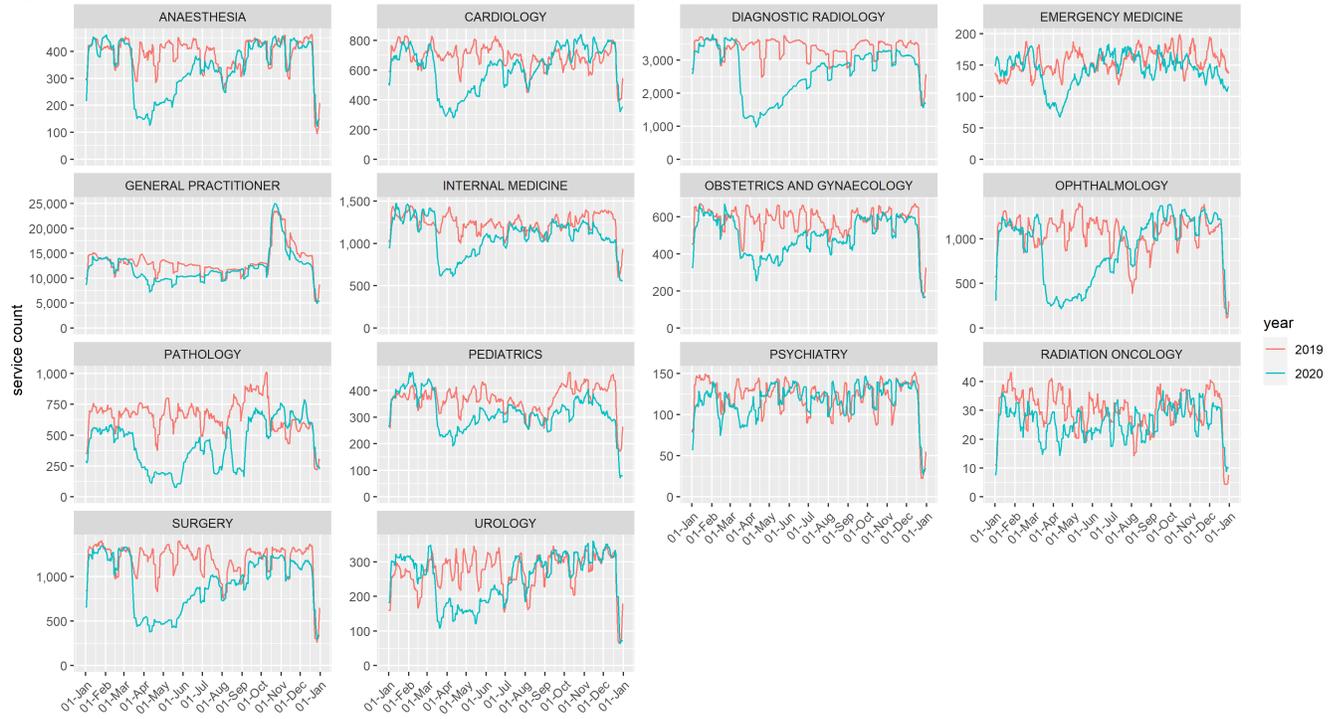
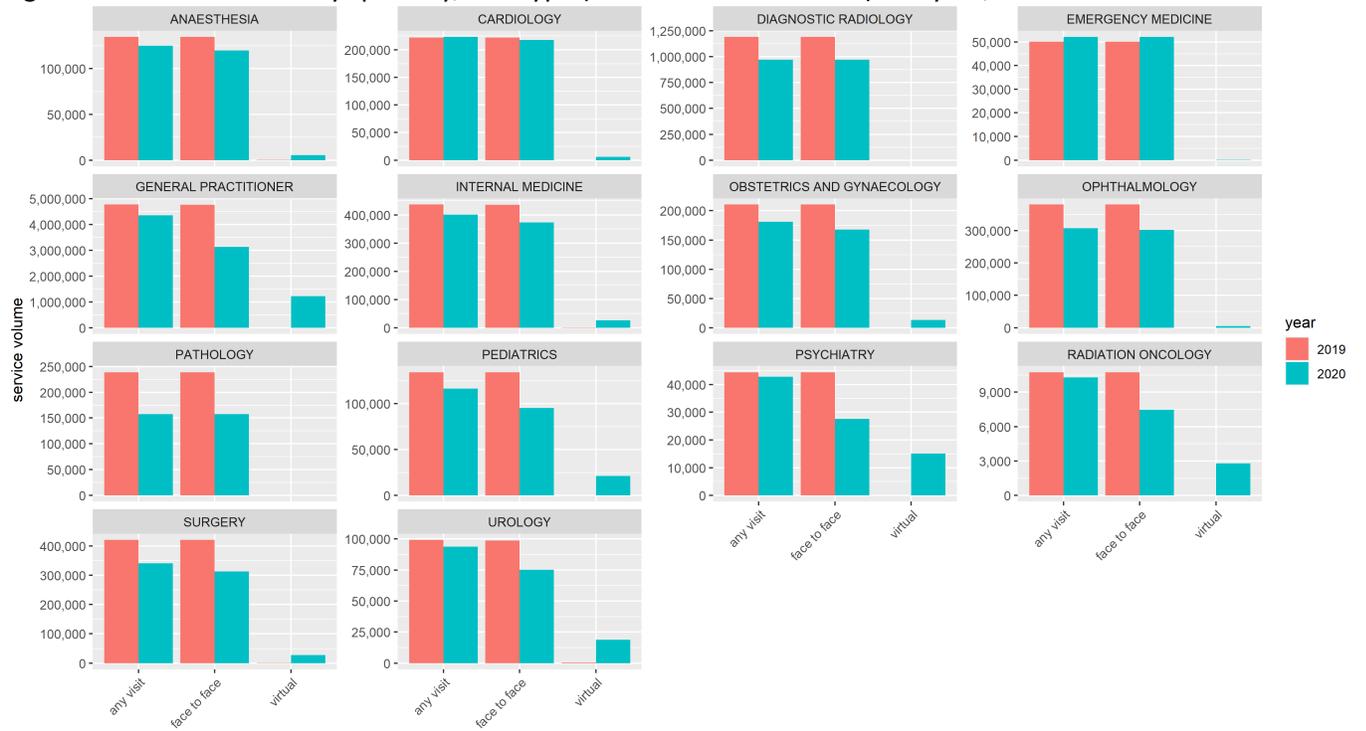


Figure 10: Service volume by specialty, visit type (face-to-face and virtual) and year, as billed



Unlike referral-based access to specialists, patients have direct access to general practitioner (GP) services. Looking at overall GP service volume over the year ('any visit' columns in figure 10), 9% fewer services were provided in 2020 as compared to 2019, generally trending below the baseline for the duration of 2020 after March (trending in figure 9 above).

Patients also have direct access to emergency medical care. Looking at emergency department utilization data (figures 11 and 12 below), there was a sudden drop in utilization across all levels of acuity that coincides with the health system-wide drop in service volume and the provincial lock down. Patients seeking all CTAS levels of care increases into July and August, but only CTAS level 1 rises above the 2019 baseline after the onset of the pandemic. After August, service utilization for CTAS levels 4 and 5 drop again and were at least 10% below pre-pandemic service volume.

Figure 11: % change in ED visits by month and CTAS score (2019/2020)

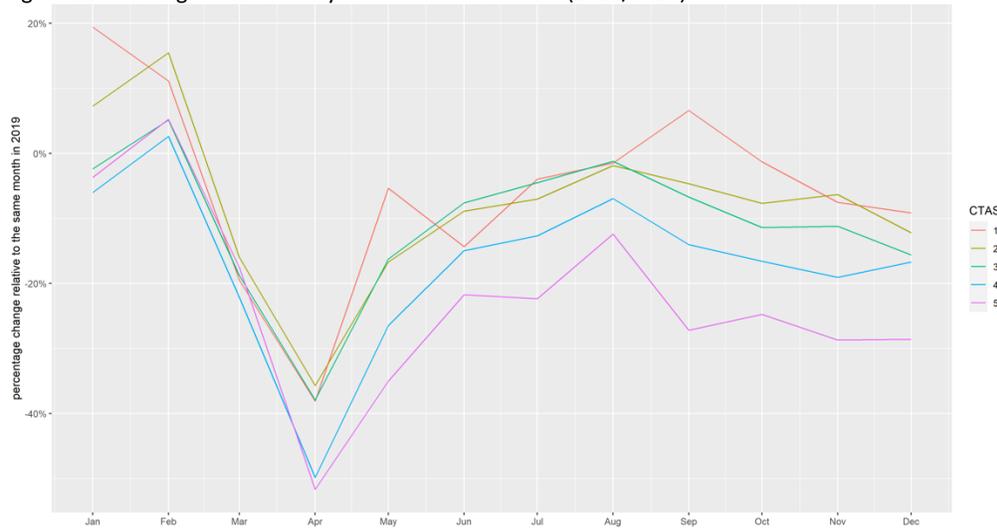
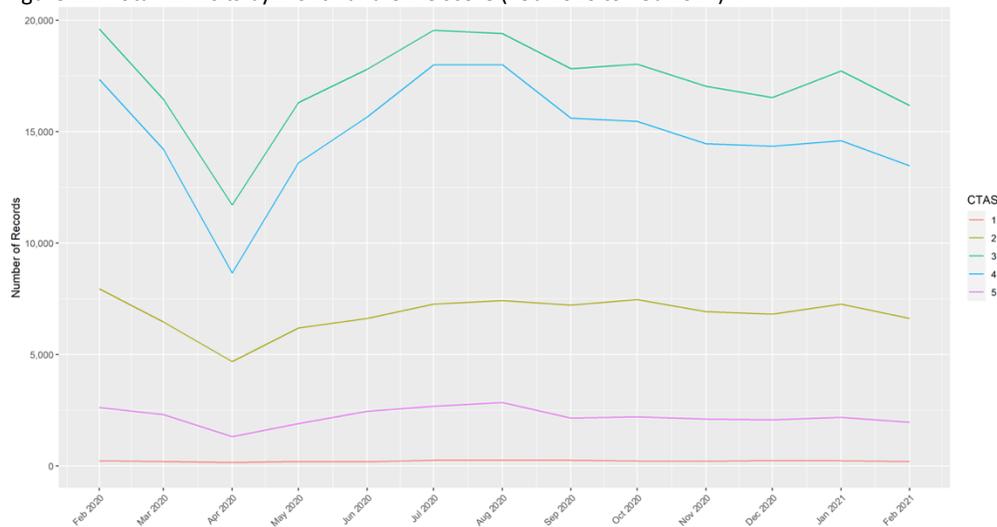
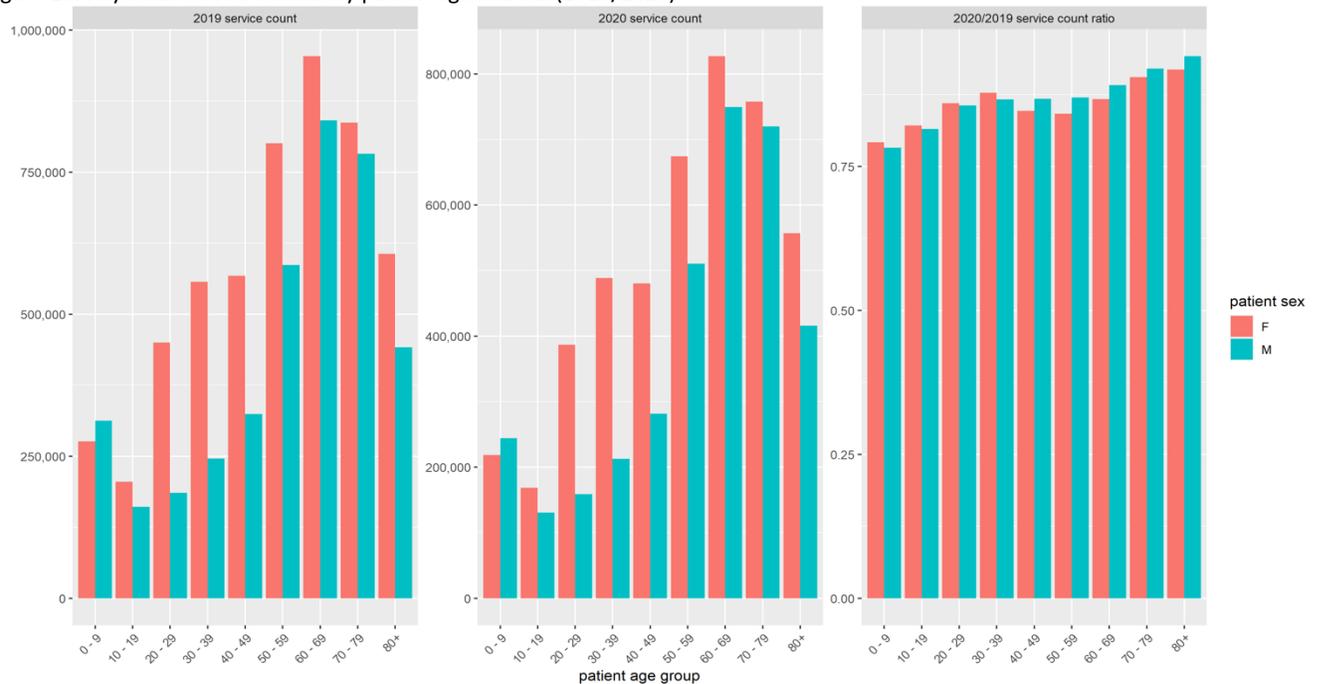


Figure 12: Total ED visits by month and CTAS score (Feb 2020 to Feb 2021)



To understand how overall physician service utilization changes were reflected throughout patient demographics, figure 13 shows that all age and gender groups received fewer services from doctors in 2020 as compared to 2019. In general, the younger age groups saw a larger reduction in service in 2020 (vs. 2019) than did the older age groups. For those aged 40 and above, females saw a larger reduction in service in 2020 (vs. 2019) than males. For those aged 39 and below, males saw a larger reduction in service in 2020 (vs. 2019) than females. The smallest change in service utilization was in the 80+ male group, with 80+ females slightly behind. The youngest cohort saw the greatest decrease in service utilization in 2020.

Figure 13: Physician service volume by patient age and sex (2019/2020)



Correspondingly, the 0-9 age group received the smallest percentage of their care virtually in 2020 (~7%), as shown in figure 14. The 80+ age group received the second-smallest percentage of their care virtually, however, that group received the highest volume of service overall. The group receiving the greatest percentage of their care virtually was the 40-49 female group, with men in the 30-39 group not far behind. After age 40, the older patients were, the less percentage of their care was received virtually. After age 40, females received more of their care virtually than males.

Figure 14: 2020 virtual / 2019 total service volume ratio by patient age and sex

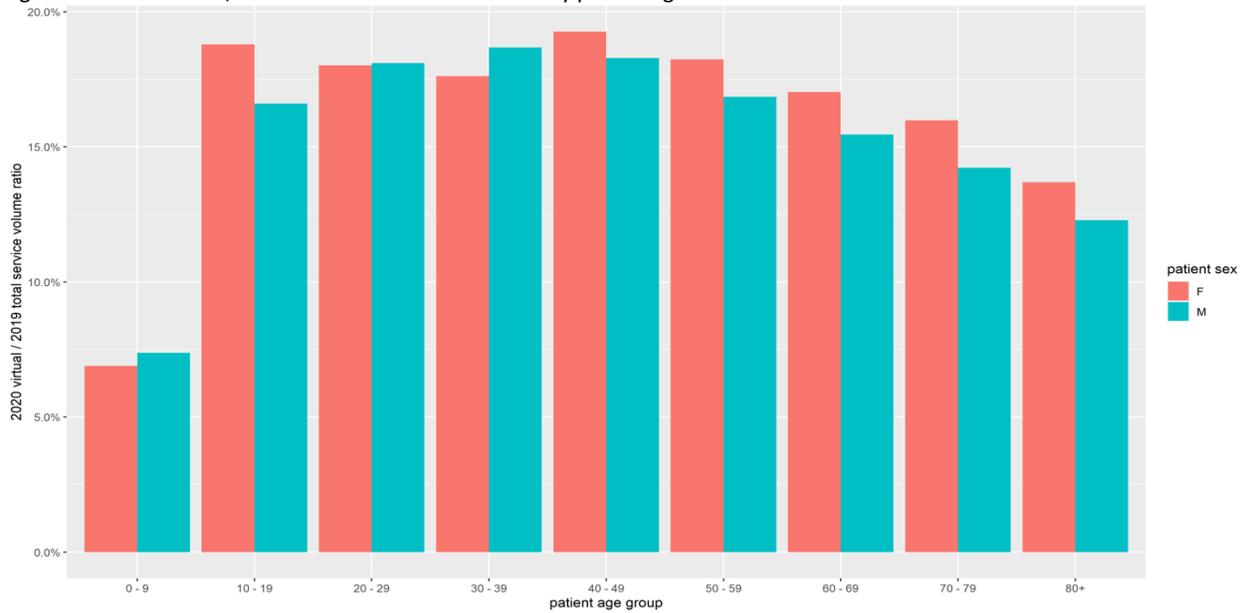
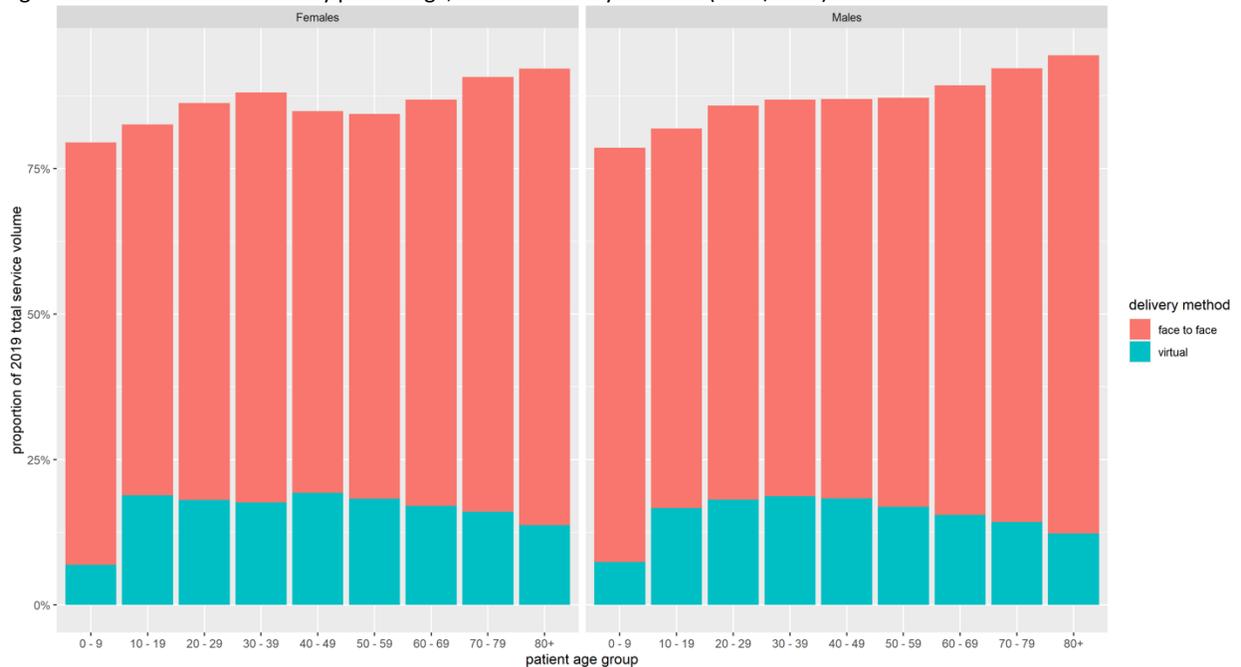


Figure 15 shows the proportional breakdown of F2F and virtual care by patient age group and gender in 2020 as compared to 2019. This shows that those in the oldest age categories had the smallest change in overall volume of services provided but received the smallest proportion of service virtually of all the adult age groups.

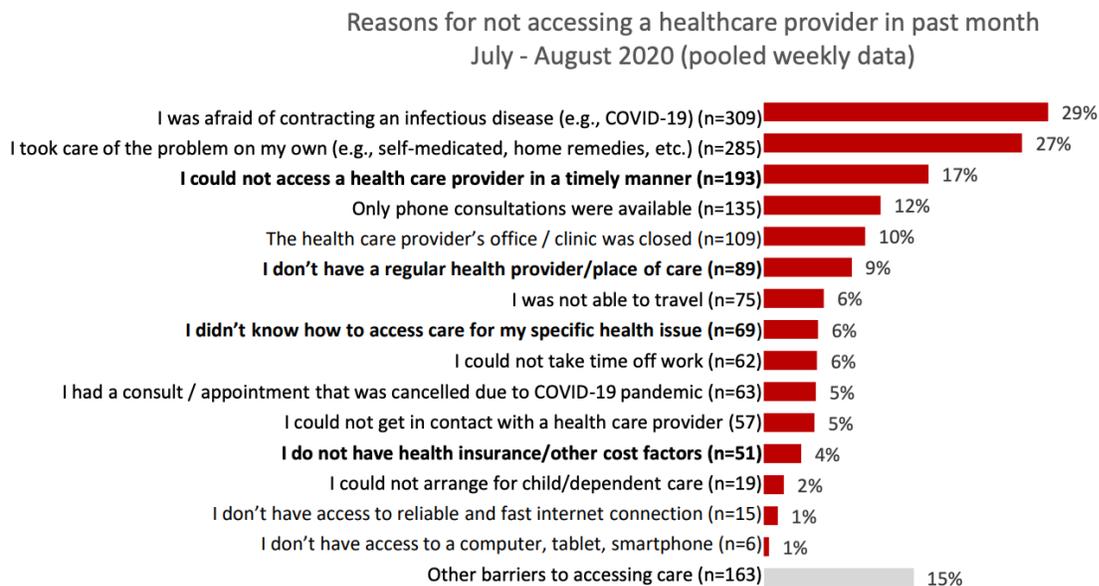
Figure 15: Service volume ratio by patient age, sex and delivery method (2019/2020)



There is no available data tracking the service utilization patterns of the ‘unattached patient’ group in Nova Scotia, which as of March 1, 2021 included 60,154 people. Since April 2020, this number has increased at a rate of 7.7% and it represents 6.1% of Nova Scotia’s total population⁵. Those patients using walk-in clinics as their primary care access point would not have had access to virtual care as walk-in clinics were excluded from using the MSI virtual care billing codes.

In light of the overall reduction in the volume of physician services delivered in 2020 as compared to 2019, data was sought to understand patient access issues. A survey commissioned by Canada Health Infoway⁶ found that 13% of Canadians failed to access care while they experienced health concerns. The top reason for unmet health service need during the pandemic was due to fear of contracting an infectious disease (29%), with taking care of the problem independently as the second most common response (figure 16).

Figure 16: Reasons for not accessing a healthcare provider in the past month (Canada Health Infoway, COVID-19 Tracking Survey)



The evaluation further probed the issue of utilization changes in key areas of expected patient need in Nova Scotia, using CIHI population grouper categories to aggregate utilization data for patients receiving services for cancer, chronic issues, intermittent illness and reproductive care. The CIHI grouper places patients into one of a set of mutually exclusive categories. A given patient may have billings in multiple categories. Comparing virtual service volume in 2020 (figure 17) to total service volume in 2020 (figure 18), the data shows that “Chronic Issues” (48.7% of virtual; 45.9% of total) and “Intermittent Illness” (37.9% of virtual; 36.0% of total) used relatively more virtual care, whereas “No Information Available” (3.9% of virtual; 7.8% of total) used relatively less virtual care.

Figure 17: Service volume by service type (F2F and virtual), year and CIHI grouper category

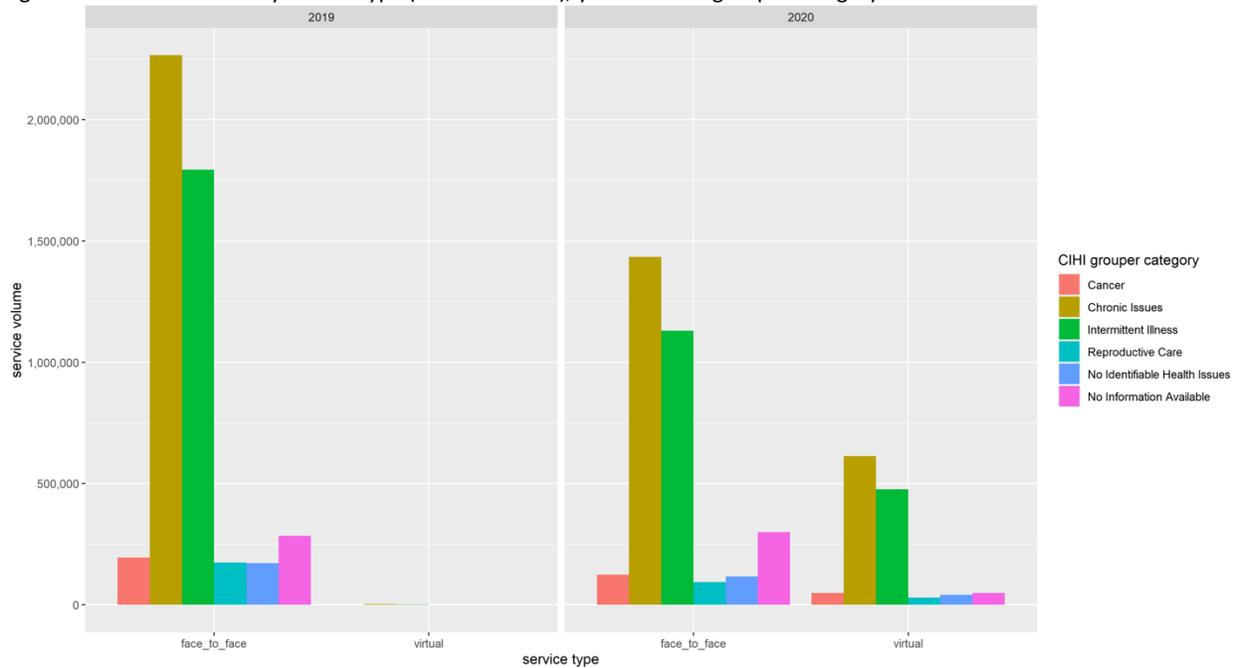
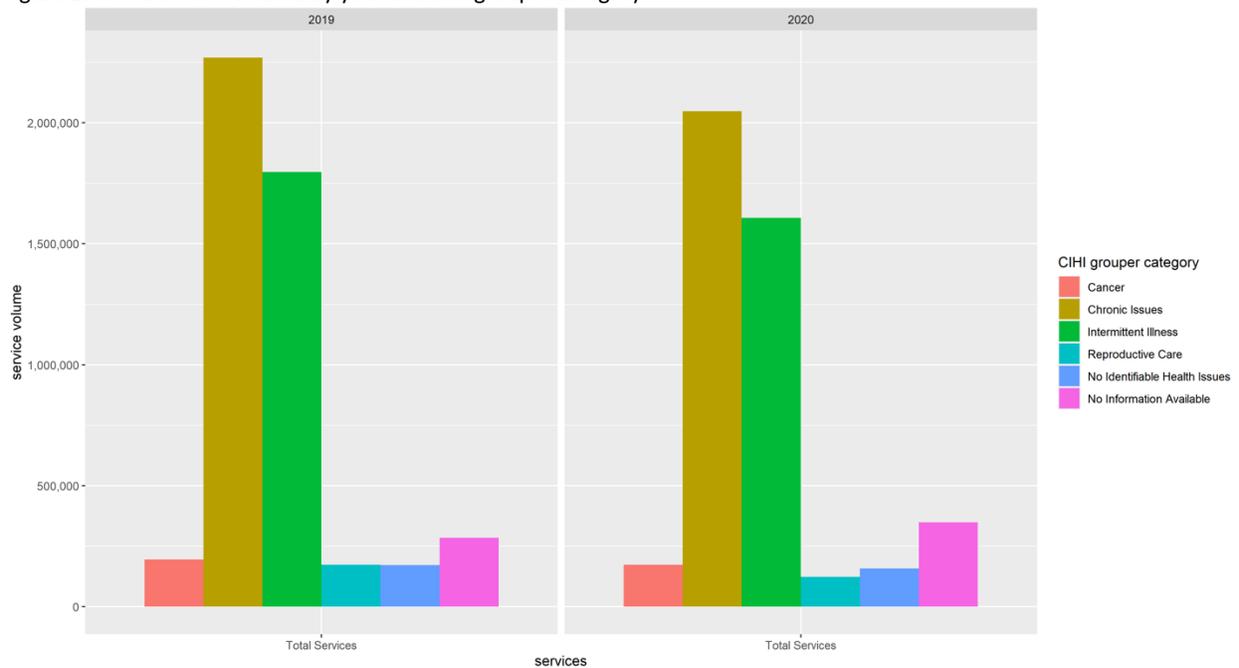


Figure 18: Total service volume by year and CIHI grouper category



Minimizing service interruption in cancer care, given the often time-sensitive imperative for clinical intervention, was a provincial priority. Virtual care was not new to Nova Scotia’s Cancer Care Program when the state of emergency was declared, having been in use at selected community oncology sites to enhance access to care. Patient, family and provider satisfaction rates have been reported as very high, which has continued to be the case during the pandemic months.

Data provided by Nova Scotia's Cancer Care Program show that the percent of virtual/remote versus in-person visits⁷ by returning users in cancer care increased from 24.4% in the pre-COVID-19 period to 46.2% during COVID-19 with service restrictions. It decreased to 33.2% after the removal of service restrictions (figure 19). The share of virtual/remote versus in-person visits increased from 2.3% pre-COVID-19 to 40.5% during COVID-19 with service restrictions in terms of distinct patients. It decreased to 25.4% after the removal of service restrictions (figure 20). The share of virtual/remote care visits for new consults increased from 2.1% pre-COVID-19 to 41.5% with service restrictions. It decreased to 26.2% after the removal of service restrictions (figure 21).

Figure 19: % of virtual/remote cancer care with returning users

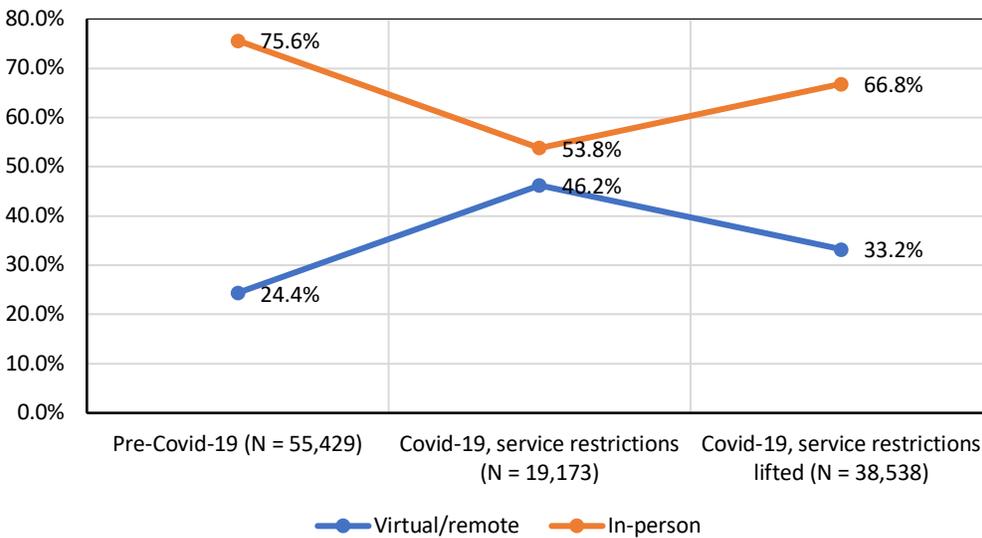


Figure 20: Distinct patients' use of virtual/remote care to receive cancer care

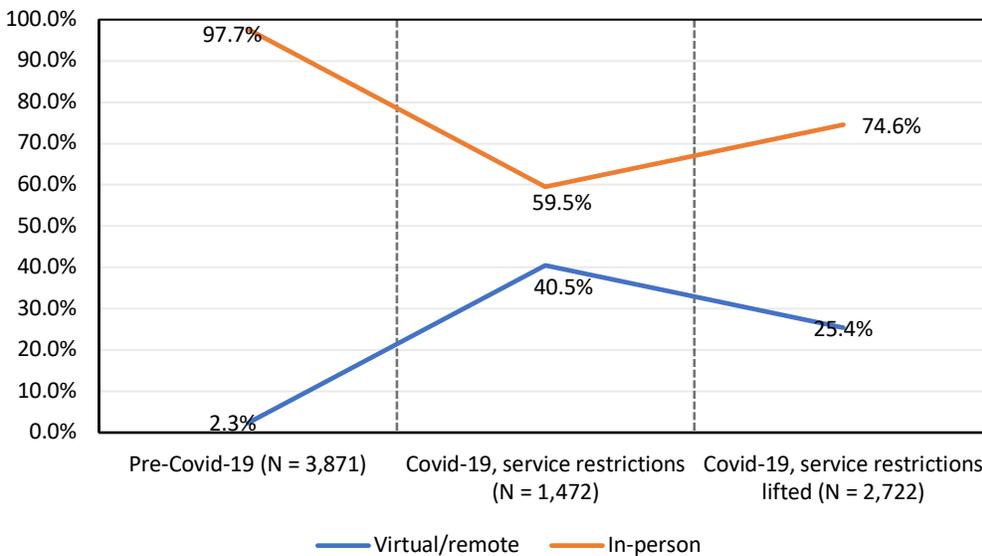
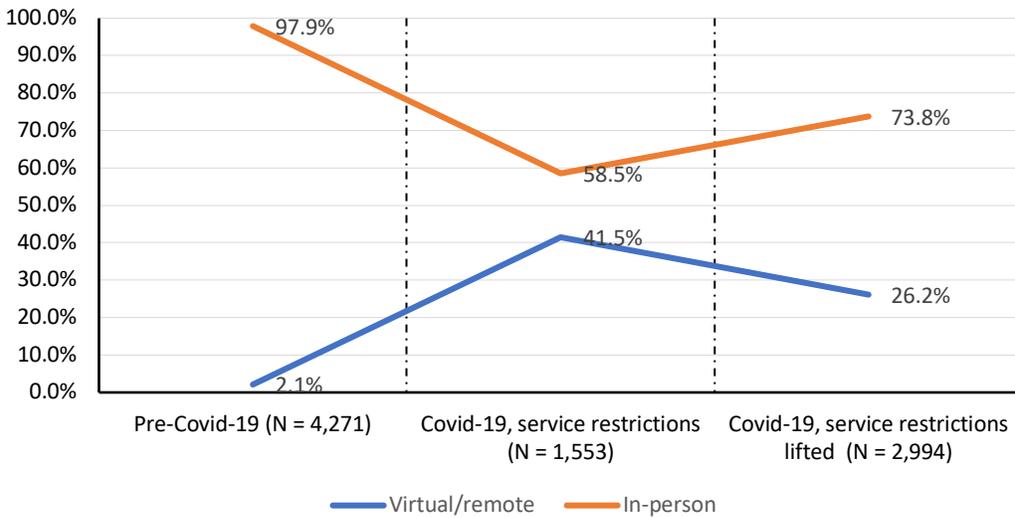


Figure 21: % of virtual/remote cancer care for new consults



Additional information from the Cancer Care Program indicates that, during the height of the pandemic, the urgent and complex case numbers did not decrease significantly, but routine biopsies did decrease. These numbers slowly increased, and as of February 2021 are slightly below usual numbers.

3.2 avoids need for in-person visit

The decision to pay doctors to deliver care virtually on par with the in-person service fee scale was part of the DHW rapid response to the public health imperative for everyone to avoid as much in-person contact as possible.

A provider survey administered by Nova Scotia Health⁸ (NSH) asked respondents, “What % of your visits were virtual?”. Of the 259 physician responses, 79.1% reported that 50% or more of their services were provided virtually during the first wave of the pandemic, with 49.4% reporting that 80% or more of their services were provided virtually (figure 22).

Figure 22: Physician survey responses (2020), “What % of your visits were virtual?”

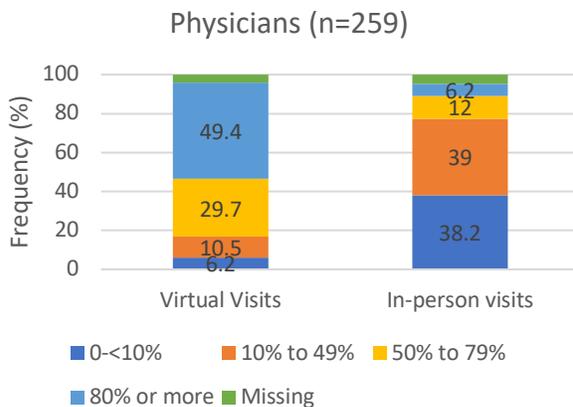
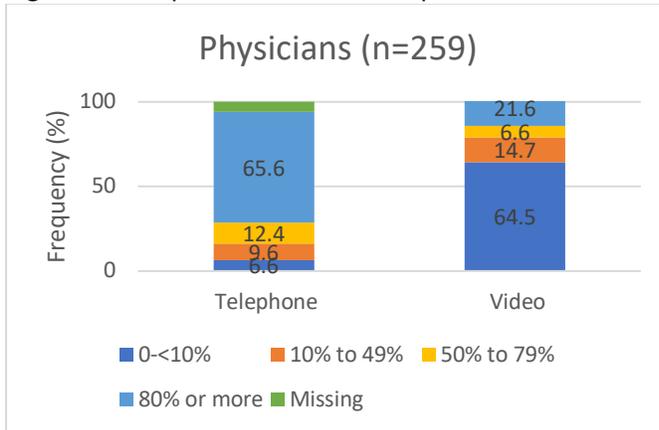


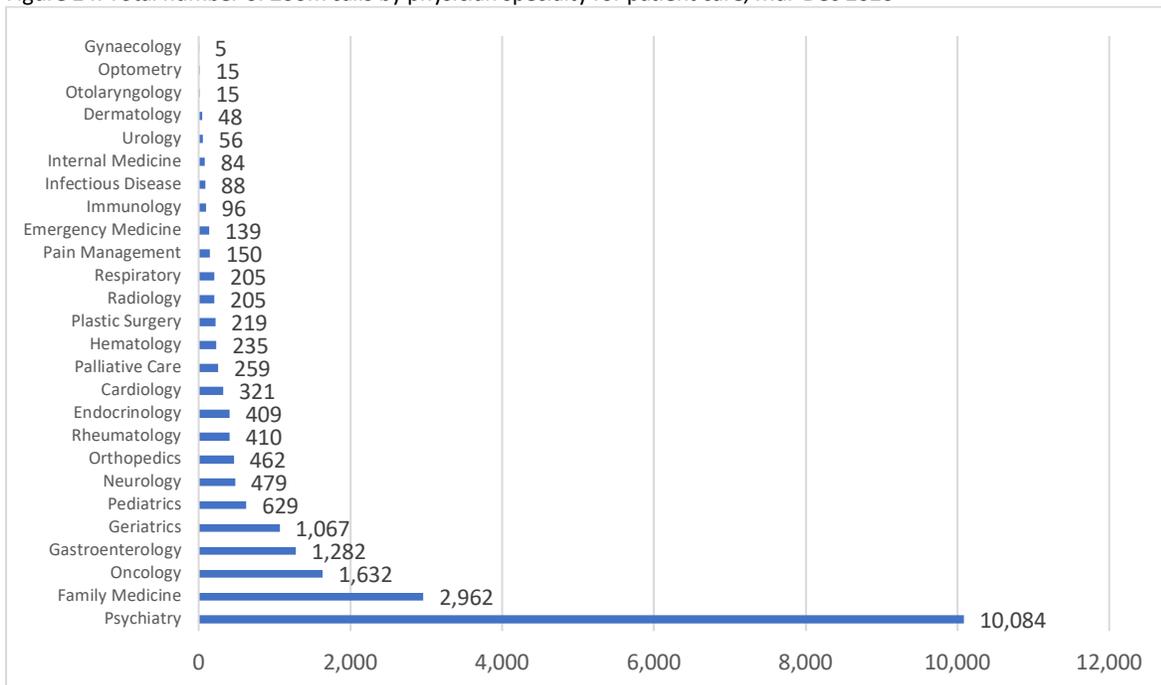
Figure 23 below shows the distribution of telephone and video for virtual care delivery, with 65.6% of physicians (n=170) reporting that they conducted 80% or more virtual visits by telephone. Videoconferencing was not as commonly used, with 64.5% of physicians (n=167) who reported having used videoconferencing less than 10% of the time.

Figure 23: Proportion of use of telephone and video to provide virtual care



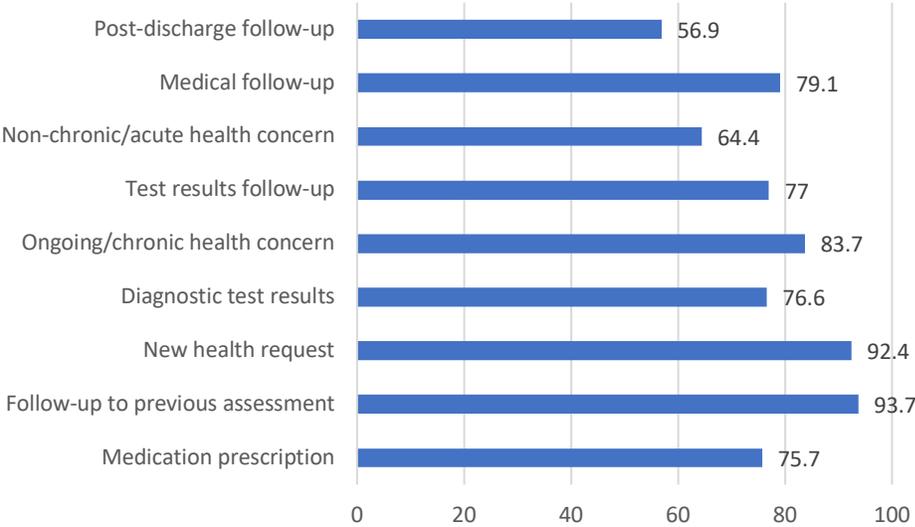
To enable use of video-based virtual care tools, provincial health system leaders procured Zoom licences for Nova Scotia health care providers. The low uptake by doctors of video-based virtual care as reported in the NSH health provider survey is also reflected in the Zoom utilization reporting on user activity for patient care between March and December 2020 (figure 24). The total number of Zoom calls for patient care by all physician specialties in this period was 21,556, which represents 1.4% of the total number of virtual care services billed during this period. Psychiatrists made up almost half of the total number of Zoom calls captured in these data.

Figure 24: Total number of Zoom calls by physician specialty for patient care, Mar-Dec 2020



To understand the types of services for which physicians were using virtual care to avoid in-person visits during the pandemic, physician data was extracted from the Nova Scotia Health provider survey⁹. Respondents were asked to describe all the appointment types offered virtually during Wave 1 COVID-19. As shown in figure 25, “follow-up to previous assessment” was the most frequently reported virtual care appointment type being made available by physicians responding to the survey (93.7% of respondents), closely followed by “new health request” (92.4%). The least frequently reported appointment type was “post-discharge follow-up” (56.9%).

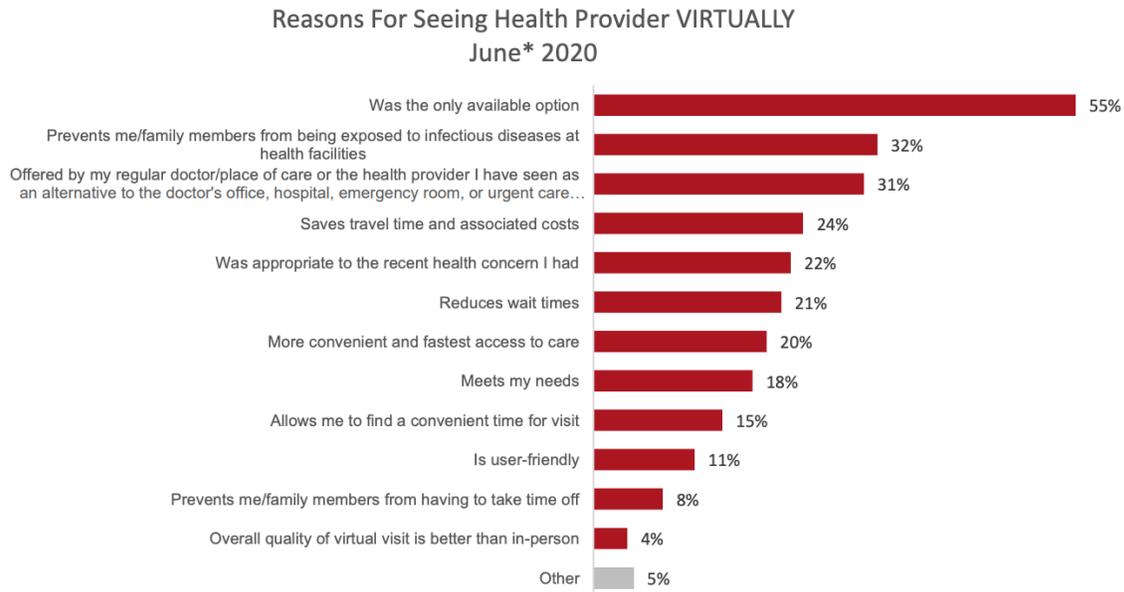
Figure 25: Types of appointment for which physicians report using virtual modalities (NSH Provider Survey, physician responses)



A dominant theme in the open-ended feedback made by physician respondents to that survey spoke to the issue of appropriateness of virtual care as an alternative to in-person care. Of the total 208 comments submitted by physician in this text field, about 40% offered insight to that theme. Feedback included observations that virtual care is appropriate for many visits, is more appropriate for some types of visits than others, and does not replace all in-person care.

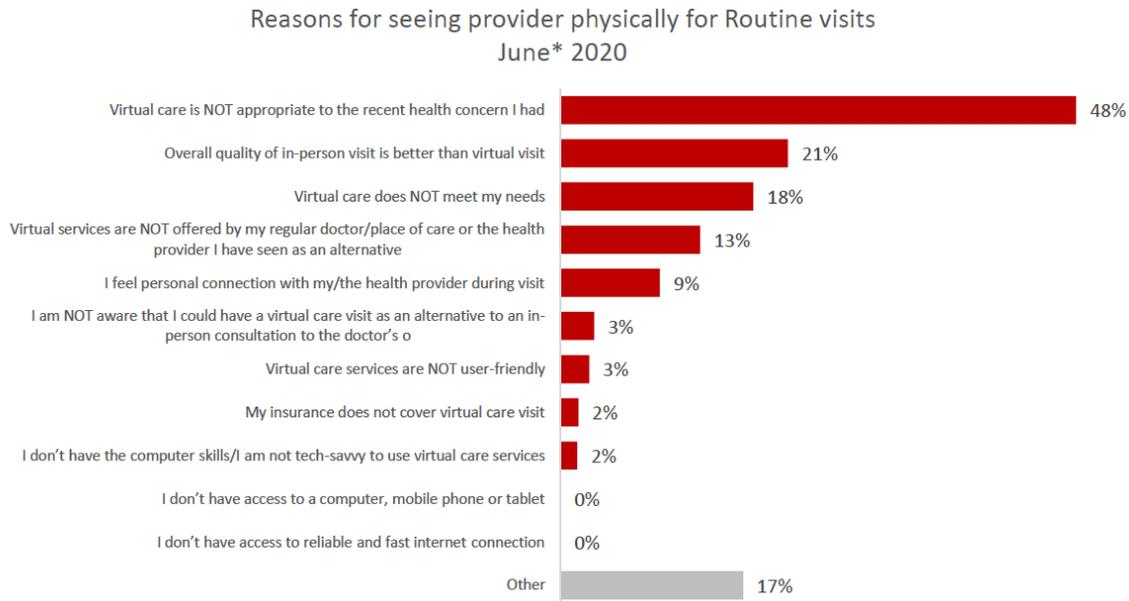
To understand why patients sought care from a health provider virtually rather than in person, Canada Health Infoway (CHI) nation-wide survey data was reviewed, which included feedback from Canadian patients to describe reasons for seeing their health provider virtually (figure 26). The majority reported that it was the only available option (55%). The second top reason was to avoid infectious diseases at health facilities (32%). Factors of convenience or efficiency all ranked with under one-quarter of responses.

Figure 26: Patient-reported reasons for seeing health provider virtually (Canada Health Infoway, June 2020)



Canadian patients were also asked about their reasons for seeing a provider in-person for a routine visit. Figure 27 shows that 48% of respondents reported that virtual care was not appropriate to address the health concern that required a visit. Twenty-one percent (21%) reported the opinion that the overall quality of in-person care is better than virtual care.

Figure 27: Patient reported reason for seeing provider in-person rather than virtually (CHI, June 2020)

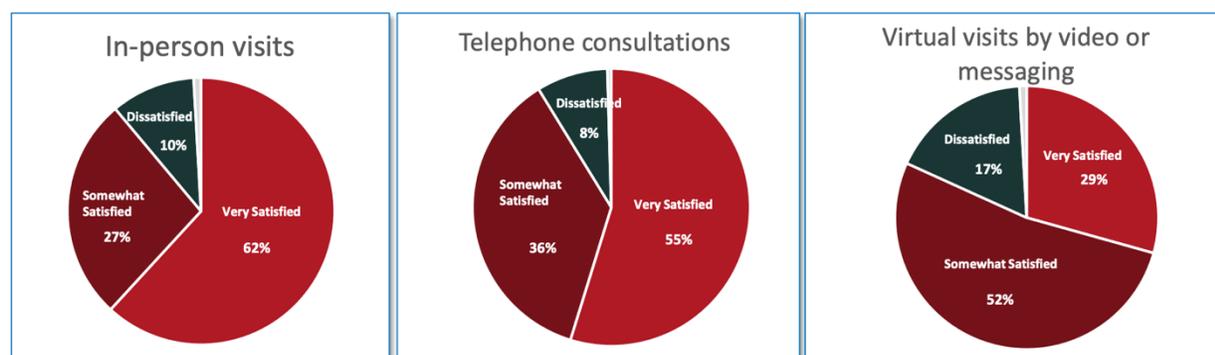


3.3 patient satisfaction

Canada Health Infoway (CHI) has been involved with benefits evaluation research in the virtual care space for many years. At the onset of the COVID-19 pandemic, CHI commissioned weekly COVID-19 tracking surveys aimed at generating insights about Canadians' health care experiences during COVID-19. A total of 31,889 Canadians were surveyed from April 3 to August 25, 2020 with a weekly average of 1,519 respondents. Nova Scotia patient data is included in that study and the results are weighted to be representative of the Canadian population across provinces¹⁰. Nationally, overall patient satisfaction (virtual and in-person visits combined) was 53% during the pandemic, and 59% for those who have a regular family doctor.

As shown in figure 28, satisfaction (as measured by respondents who were 'very satisfied') with in-person visits (62%) was higher than telephone consultations (55%) and significantly higher than virtual visits through videoconferencing or electronic messaging (29%).

Figure 28: Patient satisfaction by modality of visit (CHI)



The Canadian Medical Association also conducted a survey of Canadian residents¹¹ (n=1,800), which included a sample of Nova Scotian respondents (n=66) to gain insight about various aspects of patient use and satisfaction with different virtual care modalities. The survey was weighted according to National Census data to ensure that the sample matched Canada's population according to age, gender, educational attainment and region. The authors of that report cite a confidence interval on the data of +/- 2.31%, 19 times out of 20.

In response to the question, "Since the COVID-19 pandemic was declared, if you needed advice from a doctor, which of these methods did you use?". Respondents were presented with and could select multiple options. Twenty-one percent (21%) reported having had an in-person visit (with their doctor, at a walk-in clinic or a visit to the ER). Fifty-seven percent (57%) reported having received virtual care of some kind (via telephone, virtual health provider, video with their doctor and/or text-based communication with their doctor). Forty-two percent (42%) of respondents reported using "none of the options" presented in the survey.

Respondents were further asked to report on satisfaction by modality, with consideration to three aspects of their experience: whether it [1] gave them access to advice in a timely fashion [2] successfully resolved the condition and [3] was satisfying to them overall. Based on these three areas of experience, it appears that Canadians still like in-person contact with their doctor the most, marginally ahead of

telephone encounters. Patients prefer all virtual care options over going to the emergency department and most over going to a walk-in clinic. Figure 29 breakdown the details of Canadian patient-reported use, by modality, and corresponding levels of satisfaction.

Figure 29: CMA patient survey results, satisfaction levels by method of encounter.

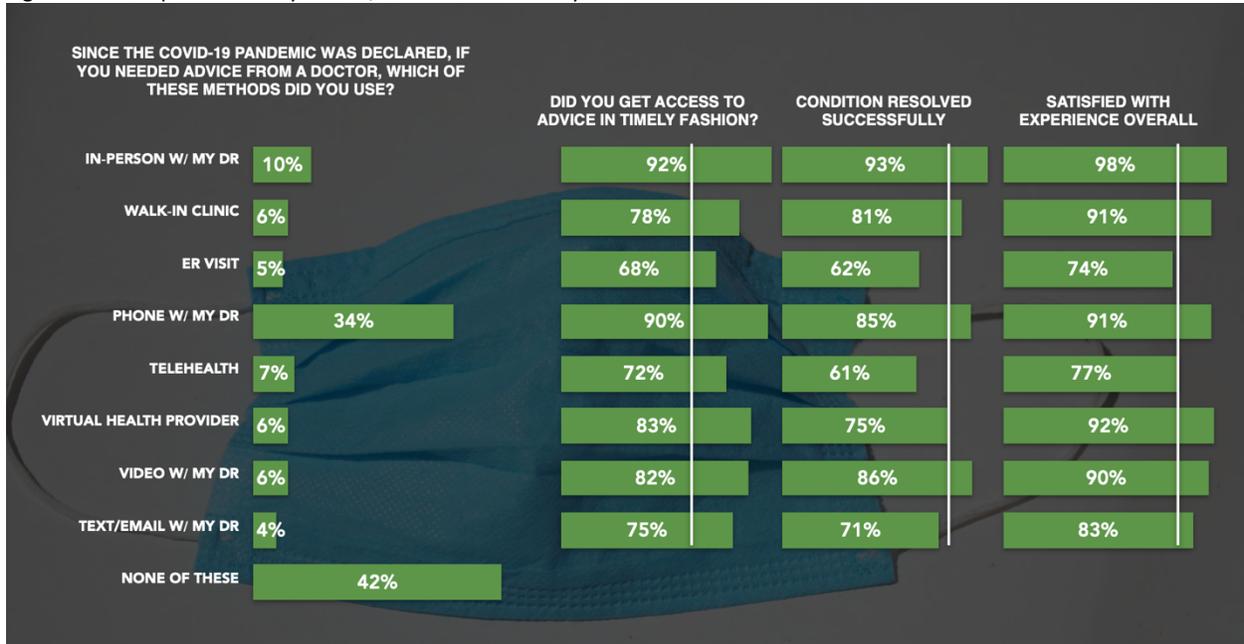
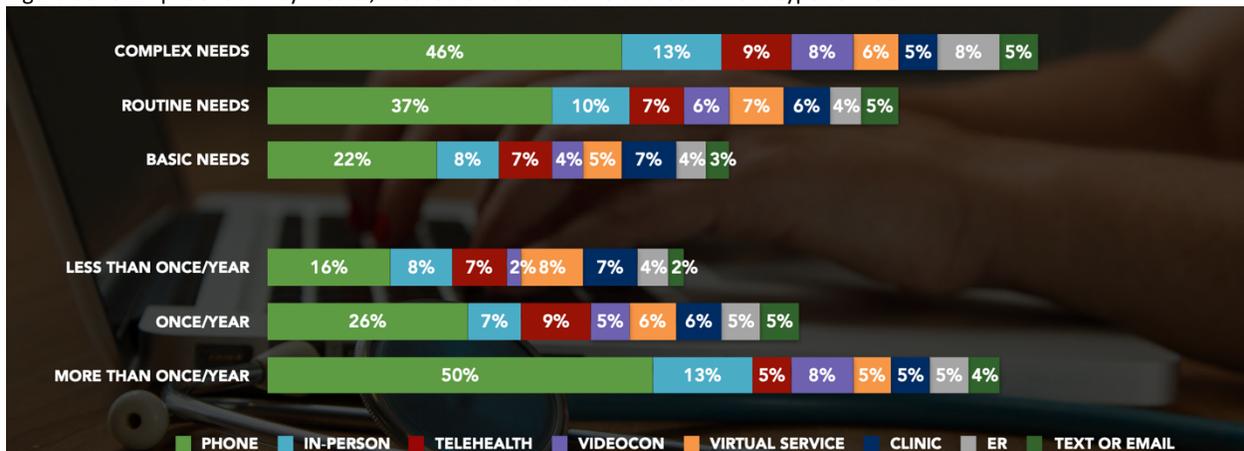


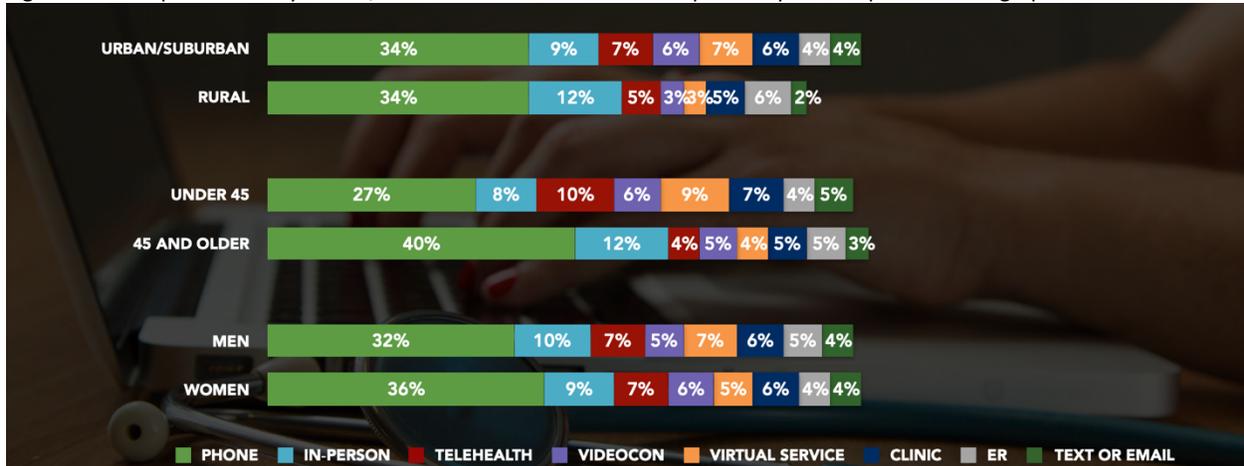
Figure 30 further probes the types of clinical need that patients sought to address with their doctor using different modalities since the COVID-19 pandemic was declared. As above, telephone was generally the most widely-used method of encounter. Patients reported that visits types most frequently conducted via telephone were for those instances that the patient required more than once-per-year contact with their doctor (50%) or to address complex needs (46%). Only 16% of respondents identified telephone as the method of encounter among patients who sought care less often than once per year.

Figure 30: CMA patient survey results, method of encounter to address various types of need.



Regarding the method of encounter used by patients across demographic groups, the results show that telephone was used more by patients in the 45+ age group (40%) than those under 45 years old (27%). There was no difference in use of the telephone between rural and urban patients and slightly more women reported using the telephone for clinical visits than men (figure 31). Those under age 45 reported the smallest percentage in-person visits and the most using telehealth, virtual service, videocon and text-based contact with their doctor. In contrast, rural and over 45-year-old patients reported the highest percentage of in-person visits and the lowest percentage of telehealth, virtual service, videocon and text-based clinical contacts.

Figure 31: CMA patient survey results, method of encounter used as reported by various patient demographics.

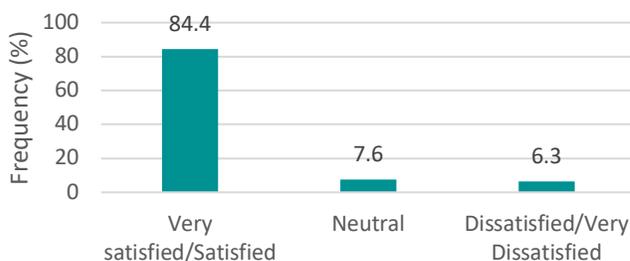


In the provider survey that was administered by Nova Scotia Health, 40% of open comments provided by physician respondents (n=52) were identified as relating to their perceptions of patient satisfaction with virtual care. Physicians generally reported positive feedback from their patients about the experience of receiving services virtually. Patient benefits included convenience, time saved, ease of access, reduced travel, costs saved and shorter wait times.

3.4 physician satisfaction

To understand the extent to which doctors in Nova Scotia have been satisfied with their virtual care experience, physician data was extracted from the provider survey administered by Nova Scotia Health (n=237). Almost 85% of physician respondents said they were satisfied or very satisfied; about 6% were dissatisfied or very dissatisfied (figure 32).

Figure 32: Physician-reported satisfaction with virtual care



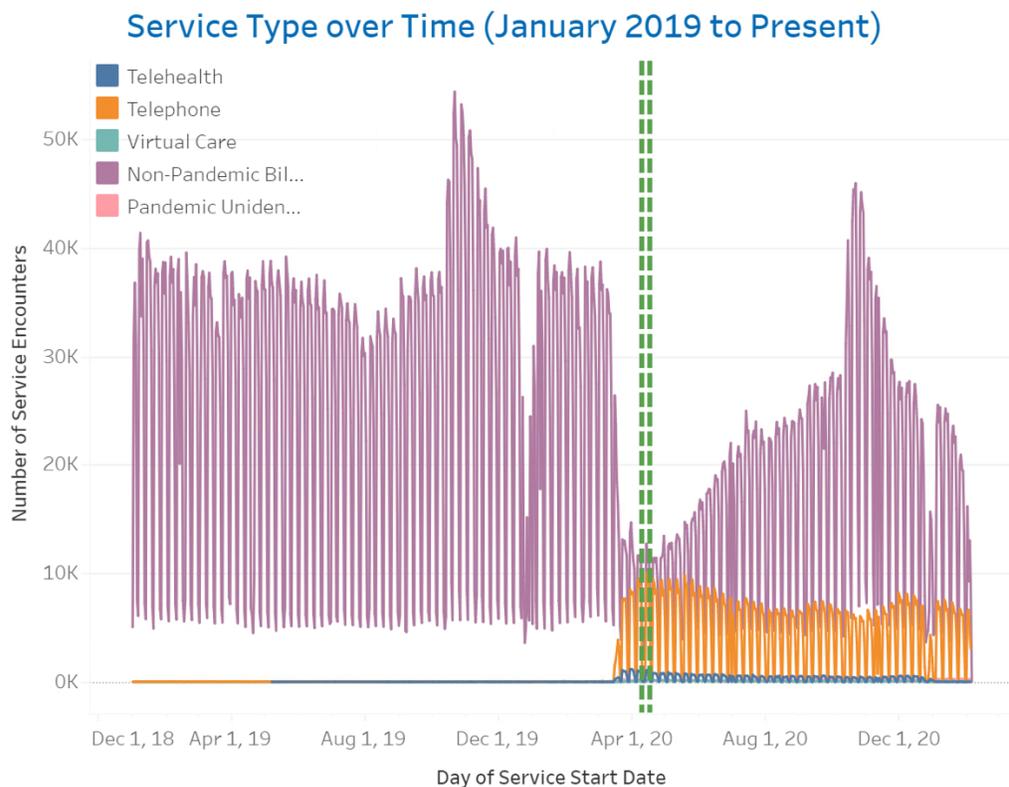
The survey invited open-comments regarding respondent experience with virtual care and 129 physicians provided data in this survey field. Twenty-six percent (26%) of open comments provided by physician respondents (n=34) were identified as relating to their perceptions of provider satisfaction with virtual care. Overall, a high level of satisfaction was reported with virtual care. This was matched by a desire to continue being able to include it in their model of care, albeit in a smaller proportion of their clinic day when the COVID-19 considerations are no longer in play. A recurring comment was satisfaction using the telephone with less satisfaction expressed regarding the use of Zoom. Video-based virtual care was less likely to be used and was associated with administrative/booking barriers and in some cases a lack of patient readiness.

3.5 minimize interruption to physician service delivery

In March 2020, there was a sharp rise in the volume of services that were billed by doctors in Nova Scotia as being provided to patients virtually. This represents an immediate shift to virtual care as a method of delivering service when the state of emergency was first declared. Based on physician feedback to the NSH provider survey, a dominant theme in the open-comment field was the extent to which a compensation model for virtual care was an enabling condition of use. Many comments expressed a hope that virtual care would continue to be compensated permanently.

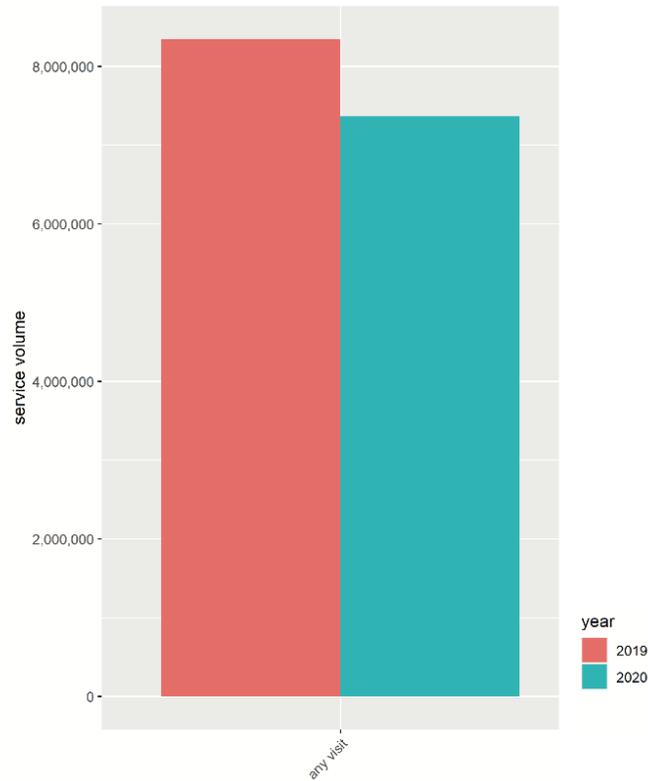
Based on MSI data, virtual care was being provided in a volume comparable to in-person care (noting the data quality limitations and the probability that virtual care is under-reported) when the billing change was first implemented in March/April 2020 (figure 33).

Figure 33: Time trended volume of physician service (2019/2020), by care modality



Between March 1 and December 31, 2020 there were 1,501,778 virtual services billed by doctors, representing 18.46% of all services claimed in that period. Comparing the delivery of all physician services in 2020 to those in 2019, the total billings declined from \$435,075,131.50 to \$395,399,871.61, representing 950,938 fewer services billed (figure 34).

Figure 34: Change in total volume of physician service, 2019/2020



Looking at how this data compares to Canadians’ experience, a CIHI data sample (in which Nova Scotia was one of three provinces represented) was reviewed that compared changes in volume of physician service between 2019 and 2020. The number of patient visits (in person and virtual) to all physicians dropped by 13% to 33% from March to June 2020¹². While the data is not directly comparable, a similar pattern was observed in all three provinces.

To understand if virtual care had contributed to the mitigation of service interruption by physicians who were required to self-isolate for 14 days (due to travel or based on other precautionary public health guidelines), the Nova Scotia Health Medical Affairs team conducted a time sample analysis of billing data for physicians that were in self-isolation. Physician self-isolation days were identified between March 13 - May 11 2020 and corresponding fee-for-service and shadow billing data was examined. It was noted that some of the physicians with no billing activity during their self-isolation period were hospitalists or ED physicians, although fulsome analysis on this was not done. It is believed that a significant amount of the isolation billing data reflects the service period before DHW announced the billing instructions for virtual care services had been announced.

In that data sample, there were 151 physicians were required to self-isolate. One hundred (100) of those continued provide at least some service, based on fee-for-service (FFS) and shadow billing analysis, collectively representing a value of \$344,353. All of these services would have been provided virtually and could not have been provided in person.

3.6 PPE savings

In 2020 there were 1,447,046 virtual care encounters between patients and their physicians in Nova Scotia. Based on routine practices and additional precautions for preventing the transmission of infection in healthcare settings¹³ and per unit PPE costing as provided by Nova Scotia Health procurement, table 5 breaks down the estimated per-contact saving that could be achieved with virtual care.

Table 5 PPE material costs

	Price per Unit	Box Quantity	Box Price
Disinfecting wipes	-	160 Wipes/Tub	10.11 / tub
Glove	\$0.05	200	\$10.00
Gown	\$0.49	100	\$49.00
Mask	\$0.15	50	\$7.50
N95 Mask	\$0.63	20	\$12.60
Per contact cost (regular mask)	2 gloves (.10) 1 gown (.49) = \$0.74 per contact 1 mask (.15)		
Per contact cost (N95 Mask)	2 gloves (.10) 1 gown (.49) = \$1.22 per contact 1 N95 mask (.63)		

Based on the above assumptions, the PPE savings resulting from the virtual care service volume = \$1,070,814.04 calculating on the basis of regular mask use. N95 masks are primarily used for aerosol-generating medical procedures, which would not be the case for clinical encounters that would be appropriate for virtual care, however at the outset of the pandemic when this logic model was developed, it was believe N95 masks may be a necessary measure of precaution for healthcare workers during all patient contact. In that that scenario, the PPE cost saving calculation of virtual care = \$1,765,396.12. Beyond cost analysis, it should further be noted that there has been concern about critical shortages of PPE supplies during the COVID-19 outbreak.

3.7 pandemic containment

As of March 11, 2021, there were 380,986 COVID-19 tests completed in Nova Scotia with 1,665 confirmed cases and 65 deaths¹⁴. In the absence of available public health contact tracing data, the extent to which virtual care did or did not contribute to pandemic containment could not be measured for this report.

3.8 efficiency of care

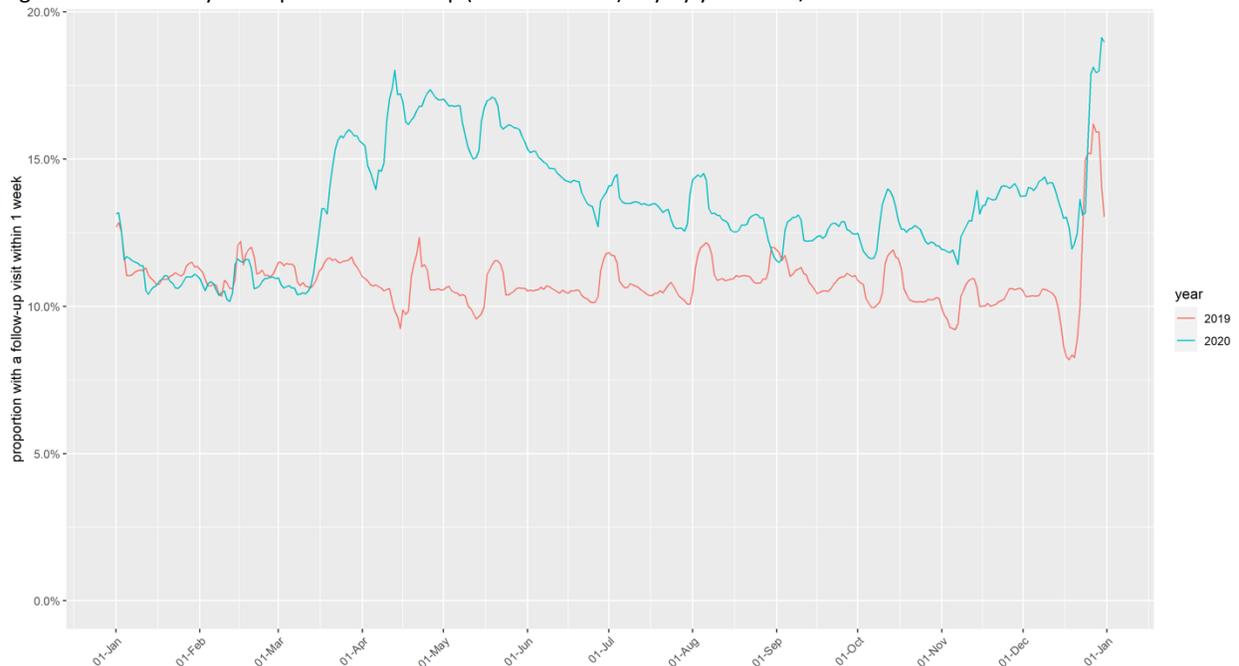
For more than a decade, introducing the use of virtual care to achieve efficiencies in the delivery of physician services has been a priority across Canada and the focus of considerable effort in Nova Scotia. There is extensive research supporting the case for virtual care as one solution to improve access by patients to doctors.

If measured by the volume of services billed by physicians, there is no demonstrated physician efficiency gain in the data that compares service activity in 2020 as compared to 2019. In fact, overall volume of services provided was lower in 2020.

In order to determine the extent to which the introduction of virtual modalities to the delivery of care may have account for overall service volume reduction during the pandemic, this study looked at the change in rate of 1-week follow-up with the same provider in 2020 as compared to the 2019 baseline sample of claims. The rationale for this indicator was that requiring follow-up within the same week would not likely involve the opportunity for the doctor to review new information about the medical concern (test results, consultation feedback etc.). A follow-up visit within this period could suggest than an initial virtual visit was insufficient to complete the clinical encounter.

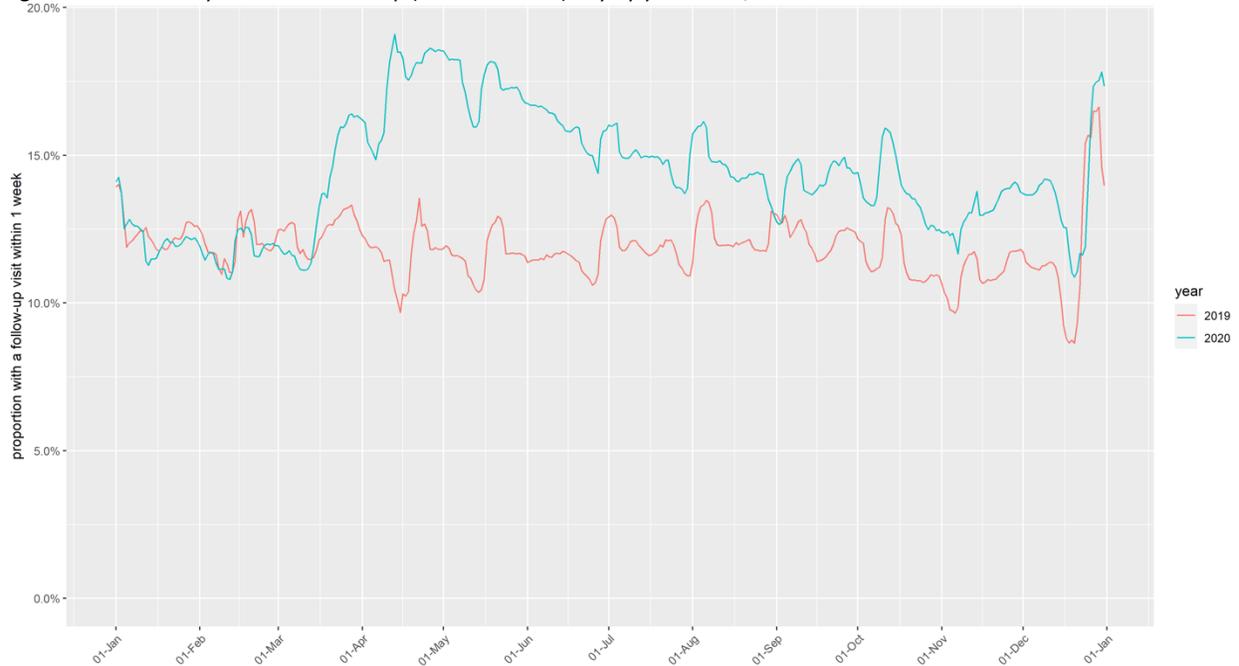
Figure 35 shows the rate of follow-up within 1 week with the same doctor. In March 2020 there was a steep rise in rate of 1-week follow-up. The 2020 trendline begins to decline in mid-May but remains steadily higher than the rate of follow-up with the same provider for the remainder of 2020 as compared to the previous year.

Figure 35: Rate of any same-provider follow-up (virtual and F2F) day by year 2019 / 2020



To understand the rate of 1-wk follow-up with the same doctor in a primary health care setting, similar data was extracted to look at GP-only billing information (figure 36). The rate of follow-up spiked in March/April, coinciding with the state of emergency declaration. It trends downward over the summer but remains consistently higher than the rate of follow-up in 2019.

Figure 36: Rate of any same-GP follow-up (virtual and F2F) day by year 2019 / 2020



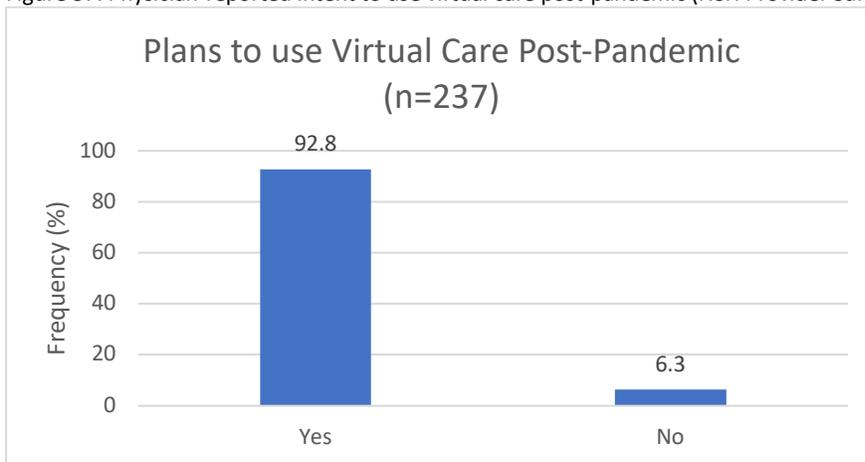
Efficiency of care was a dominant theme in the open-comments field of the NSH provider survey. Many physicians indicated that use of virtual care in their practice model could reduce wait times and create capacity for in-person care (for example, with reduced no-shows and cancellations). It was noted by other physicians that a virtual visit should be paid on par with in-person care because both types of patient encounter generally take the same amount of time. Exceptions to experiencing efficiency related to the use of video-based virtual care (specifically Zoom), however physicians providing mental health services reported value using video. It was noted that a benefit of virtual care was practice time saving in disinfection and physical distancing protocols that are required with in-person care. It was also noted that many efficiencies were experienced by patients who were able to receive the care they needed without a visit to the clinic.

3.9 'pathway to care' innovation

Virtual care has been the subject of interest among patients, providers and policy makers alike for several years. Innovations have been slow to become mainstream practice, largely owing to barriers of physician compensation models, interoperability of virtual care solutions and licensure restrictions¹⁵. In the face of public health imperatives to limit physical contact, health systems around the world pivoted quickly to encourage the use of virtual care options for health service delivery. The utilization data presented in section 3.1 demonstrates that shift. Similarly, data collected by NSH regarding the physician shift to virtual care and use of modalities in section 3.2 also explores the rate of virtual care uptake in Nova Scotia.

To understand the potential for virtual care to become a mainstream tool in a post-pandemic health care system, physicians were asked whether they plan to continue using virtual care in their medical practice. The vast majority (92.8%) of physicians surveyed indicated that they plan to use virtual care post-pandemic; 6.3% reported that they do not plan to provide services virtually (figure 37).

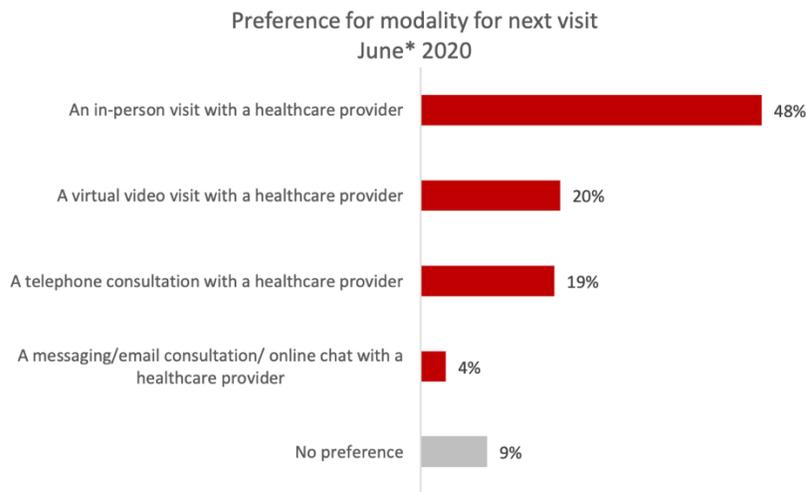
Figure 37: Physician-reported intent to use virtual care post-pandemic (NSH Provider Survey, physician responses)



A dominant theme in the open-ended comments provided by physician respondents was in regard to the necessity of a funding model to compensate doctors for providing patient care virtually in a future state health system.

To understand the inclination of patients to choose a virtual care pathway to receive service from a healthcare provider, patients were asked in the CHI survey about their preference of modality for their next visit (figure 38). Almost half (48%) of patient respondents reported preference for an in-person visit, with about one-in-five reporting a preference for a video or phone-based encounter. Four percent (4%) indicated a preference for text-based contact.

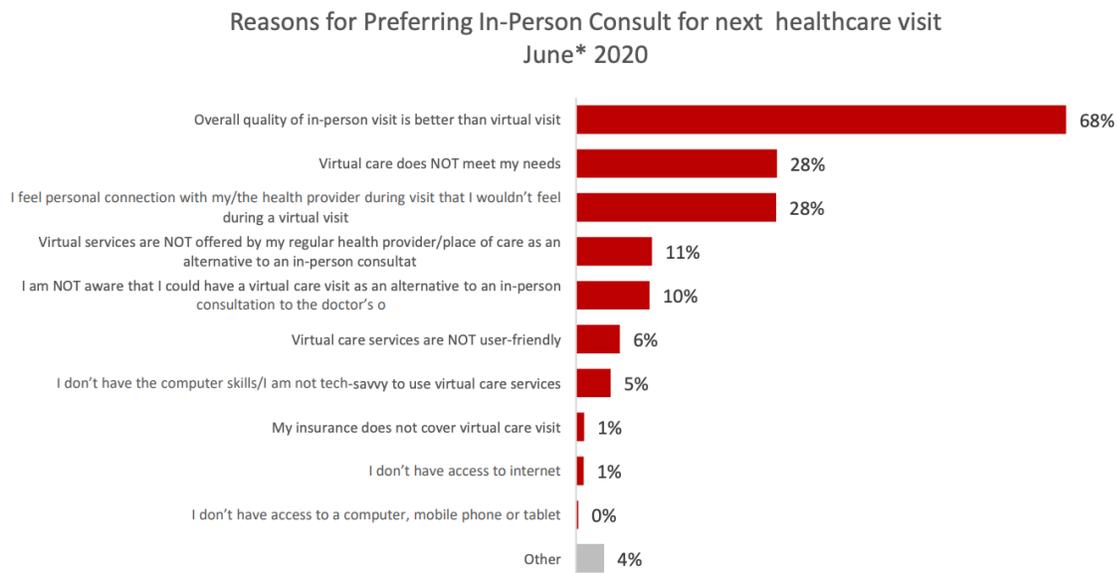
Figure 38: Patient preference of modality for next visit (CHI)



With regard to virtual care innovations in patient email and text communication, Nova Scotians who underwent a COVID-19 test were invited to provide their electronic contact information to receive negative test notifications. Since December 2020, on average about three-quarters of people signed up for this service, but since mid-February this sign-up rate has increased to 82%. Of those, 84% have gone on to access their negative result on the website. As of March 11, 2021, the program had sent 217,863 emails.

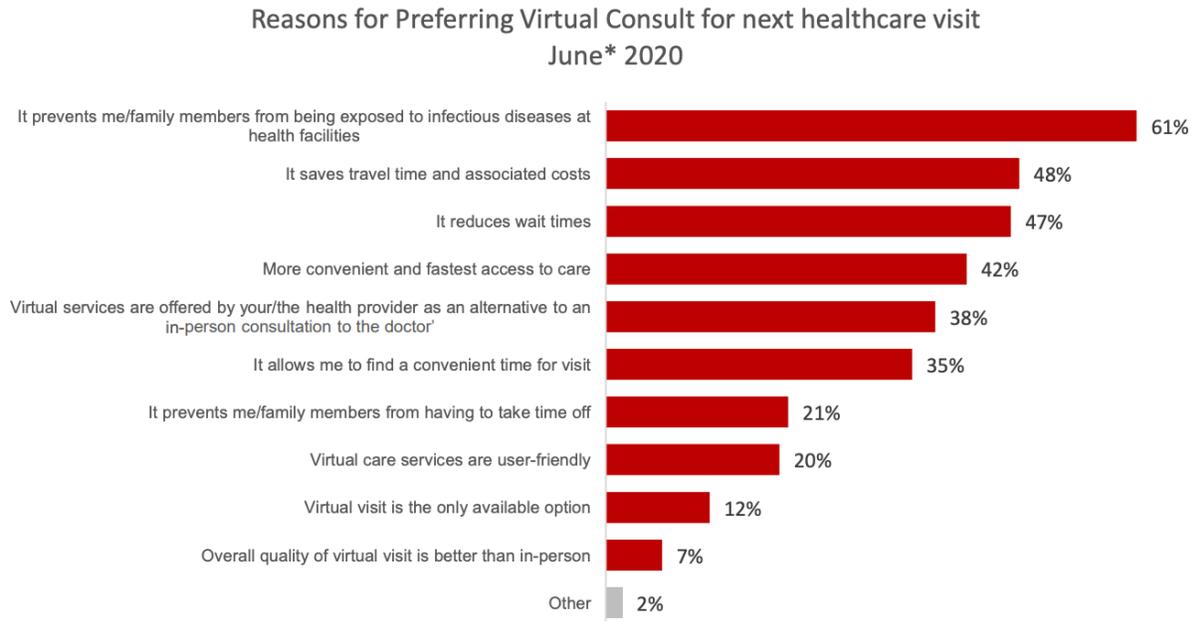
When asked to identify the reasons for preferring an in-person visit for their next encounter with a healthcare provider (figure 39), 68% of patient respondents indicated that the overall quality of an in-person visit is better than a virtual visit.

Figure 39: Patient reasons for preferring in-person consult for next healthcare visit (CHI)



When asked to identify the reasons for preferring a virtual visit for their next encounter with a healthcare provider, 61% of patient respondents indicated the desire to prevent exposure to infectious diseases. Other factors that were identified by at least 35% of respondents related to convenience, patient cost saving and ease of access, as detailed in figure 40.

Figure 40: Patient reasons for preferring virtual consult for next healthcare visit (CHI)



4.0 Analysis and Discussion

This study set out to explore the question: to what extent did enabling virtual care help patients and doctors avoid the need for in-person clinical encounters during the COVID-19 pandemic response, and what lessons could inform future state policy regarding unintended consequences and unexpected benefits? The following sections discuss the data findings based on the intended short-term outcomes as set out in the logic model.

This study draws heavily from MSI billing data and the use of new fee codes created and implemented in response to a rapidly developing pandemic situation. The abrupt change to billing code guidelines may or may not have been implemented accurately by practices in their claims submissions. Some of the virtual care billings required free text field entry of a service identifier, which is at risk of inconsistency and free-entry error. Furthermore, there is anecdotal feedback from doctors that, since virtual care was paid at the same rate as F2F, some practices may not have updated their claims coding to reflect the virtual care modifier or identifiers. In those cases, service claims for virtual care would have been captured as in-person care in the MSI data.

Additional evidence that casts doubt on the accuracy of virtual care billing volumes are the results from a Provider Survey administered by Nova Scotia Health¹⁶, which yielded feedback from 259 physicians. When asked “what % of your visits were virtual”, with 49.4% reporting that 80% or more of their services were provided virtually during the first wave of the pandemic (and 79.1% reporting that 50% or more of their services were provided virtually) – the vast majority using the telephone as the primary virtual modality. **While the total physician service counts presented are reliable, it is believed that the proportion of virtual care is under-reported throughout the data.**

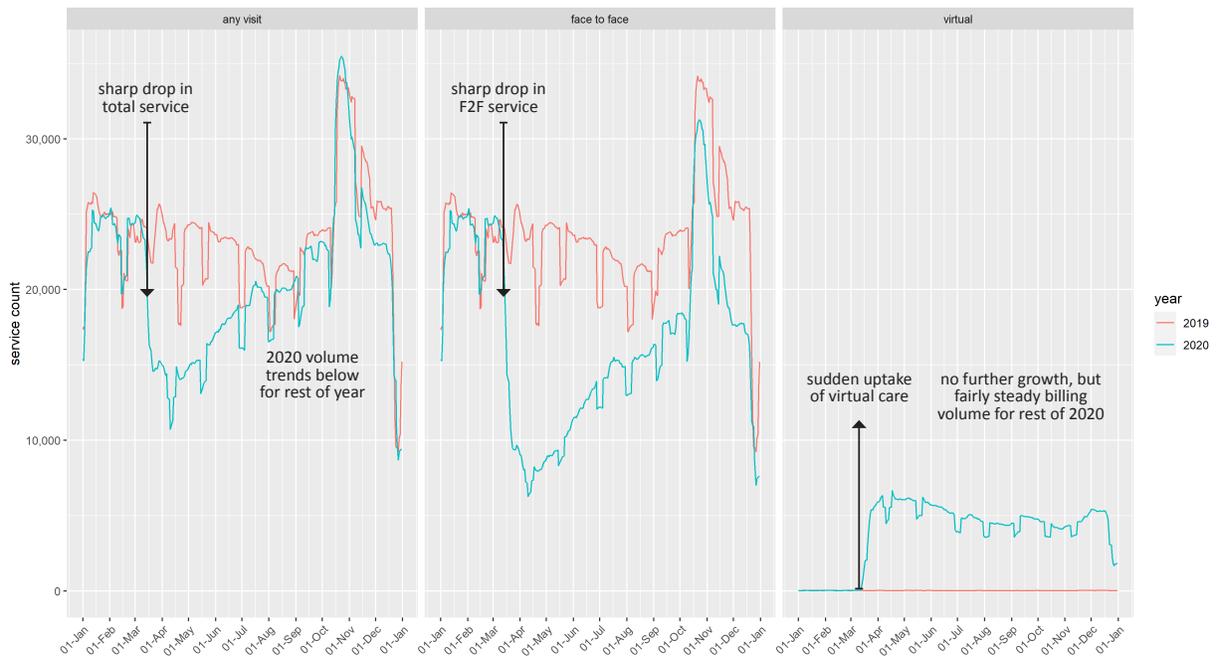
4.1 ACCESS TO CARE: Did virtual care contribute to access to physician services?

In March 2020, physician billing data tells a story of rapid uptake of virtual care in the delivery of patient services in Nova Scotia. This coincides with the introduction of new MSI billing codes and guidelines, which were created in response to the COVID-19 state of emergency situation. Public health measures and the provincial state of emergency required a societal shift to isolation. Those services deemed essential needed to operate within strict social distancing and infection control guidelines. This had a direct impact on how physicians delivered care to their patients. Walk-in clinics were excluded from virtual care fee code eligibility, so one group not expected to benefit from virtual care access to GP services during the pandemic is the “unattached patient” cohort (approximately 60,000 Nova Scotians).

In 2020 between March 1 and December 31, about 18.5% of physician services were billed as virtual care. Between the same period in 2019, less than 1% of physician services were billed as being delivered virtually. This translates into **approximately 1.5M virtual care services that were billed in 2020 with a value of about \$73M**. By comparison, fewer than 10,000 virtual care services were billed during 2019, representing a value of less than \$400K.

Notwithstanding the sharp rise in volume of virtual care services billed by physicians in **2020**, there was a **drop in overall volume of physician service by about 12%** as compared to the previous year. Figure 41 shows the sudden drop in overall service volume in March 2020 as compared to 2019 and the fact that overall service volumes continue to trend lower for the rest of the year.

Figure 41: Analysis of physician service count (7-day moving average) vs day by year, all physicians (total, F2F and virtual)



Zone-level data shows that the proportion of total services billed by doctors was similar across the province. Doctors located in Central Zone billed the highest proportion of their workload as being delivered virtually (~20%); physicians located in Northern Zone had the lowest proportion of services billed as being delivered virtually (~16%). The fact that there is a greater number of specialists in Central Zone providing services to patients across the province may explain this range. This is consistent with the finding that slightly more virtual care services were delivered to rural patients as compared to those living in large urban centres.

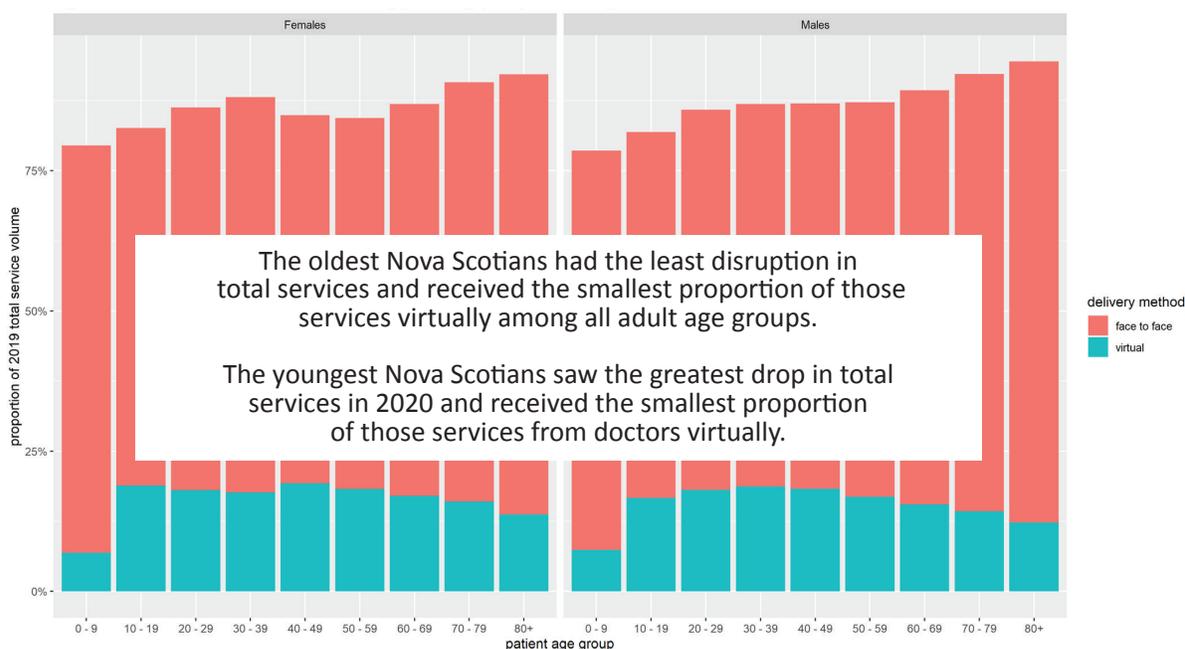
While a higher number of services was delivered virtually to rural patients, those living in rural areas received a lower proportion of their physician services through virtual care as compared to those living in large urban centres. Further study is required to understand if this utilization pattern is distributed evenly across all rural Nova Scotia or if there are localized barriers making access to virtual care a greater challenge for some patients and/or some areas of the province. These barriers are important to understand if the greater benefit of virtual care as a rural health care access solution is to be realized.

Looking at service utilization trends across patient gender and age demographics, **all patient groups received fewer physician services in 2020 as compared to 2019.** The proportion of drop in service volume was the greatest for the 0-9 age group, which was also the age group receiving the smallest proportion of their care virtually. This may be explained by pediatric care being more procedurally based ('well baby' check-ups, childhood immunizations, developmental monitoring and the need for

accurate weight and height measurements for therapeutic decision making). It is also possible that because children have low rates of chronic and complex illness, their health service needs could be deferred.

The proportion of drop in total service volume was the least for the oldest patient groups and the most for the youngest. When looking at the breakdown of how adult patients received care, after the 40-49 age group there was a steadily declining proportion of virtual care provided to subsequently older patient groups. Patients 80 years and older were the least likely to access their doctor virtually, with men even less likely than women. In other words, **the oldest patients were proportionally impacted the least in terms of their access to physician services in 2020 but were also the most likely to see their doctor in person** (figure 42).

Figure 42: Analysis of 2020/2019 service volume ratio by patient age, sex (virtual and F2F)



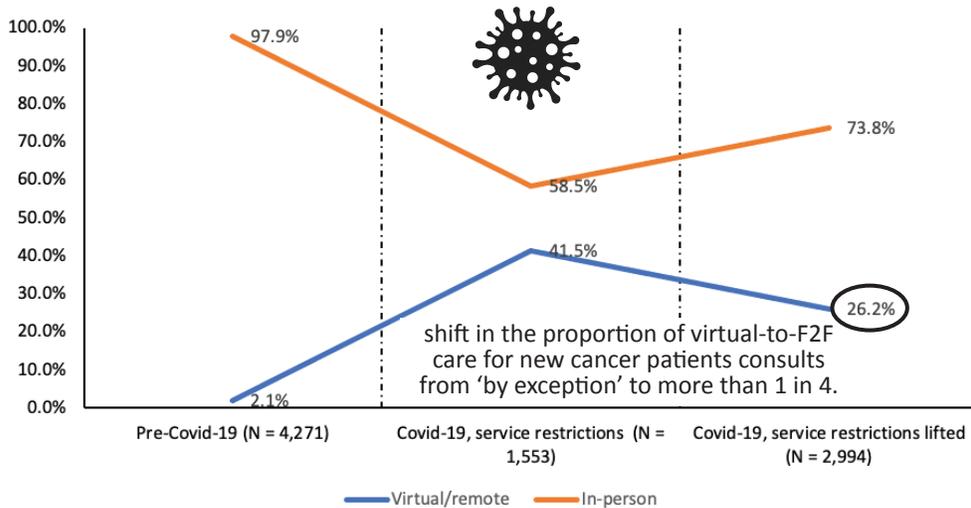
Patients in the 20-49 age groups received a higher proportion of their services from doctors virtually compared to all other age groups except for females aged 10-19.

To understand how patients with expected health service needs may have been impacted by a reduction in access to physician care after March 2020, this study used population grouper categories developed by CIHI to examine their utilization patterns. Aggregated data for patients receiving services for cancer, chronic issues, intermittent illness and reproductive care was reviewed. The volume of virtual care services received by patients in these groups represent a significant proportion of all virtual care services provided by doctors in the province. Patient groupings that received the most virtual care were for those with chronic issues (~625K virtual services) and intermittent illness (almost 500K virtual services).

A further probe of patient access to cancer care services was possible based on provincial program data that included pre-COVID-19 baseline virtual care utilization data. For patients having their first contact with the cancer care program before the pandemic, 98% of new consults were provided in-

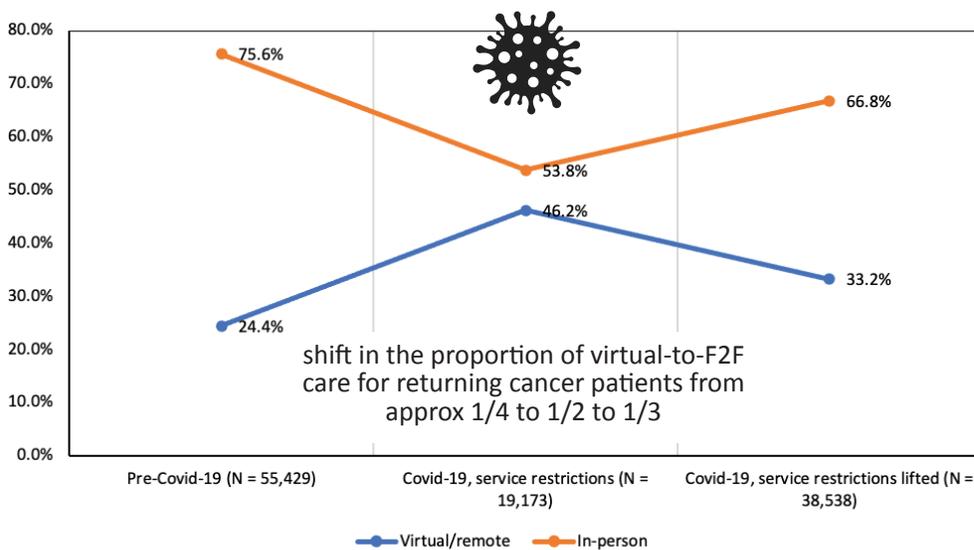
person. During the service restriction period, the rate that virtual care was used for new cancer care consults increased from 2% to 42%. Once the service restrictions were lifted, virtual care continued to be the modality for providing new consults at a rate of 26% (figure 43).

Figure 43: Change in virtual/remote cancer care with new consults



For patients who were already in the cancer care program, about 24% of their care was provided virtually before the pandemic. During the service restriction period the rate of virtual care use almost doubled to 46% for returning cancer patients. After the service restrictions were lifted, returning patients continued to receive a higher proportion of their care virtually than they did before the pandemic (figure 44).

Figure 44: Change in virtual/remote cancer care with returning patients



Given that returning cancer care patients received a slightly higher proportion of their care virtually than did those newly entering the program, **virtual care appears to be somewhat more appropriate when the patient and provider have an established relationship.** It also appears that the Cancer Program may have discovered an expanded role for virtual care with new patient referrals as compared to pre-pandemic practice. **Virtual care as first contact may be appropriate in a specialist service where the provider has the benefit of referral information that includes medical history, diagnosis and test results, which would be the case in a cancer care consultation.**

When looking at the total volume change of physician services by speciality from 2019 to 2020 (figure 45) and the shift to virtual care, there are some apparent trends. Those specialties (such as emergency medicine, diagnostic radiology and pathology) that are predominantly procedure-based and providing little interval or follow-up care made the least use of virtual care. For some specialties, such as general practitioner and psychiatry, a significant proportion of their patient care was provided virtually.

Figure 45: Service volume by speciality, visit type (face-to-face and virtual) and year, as billed



Table 6 quantifies the service volume difference by specialty.

Table 6 2020 / 2019 physician service volume difference

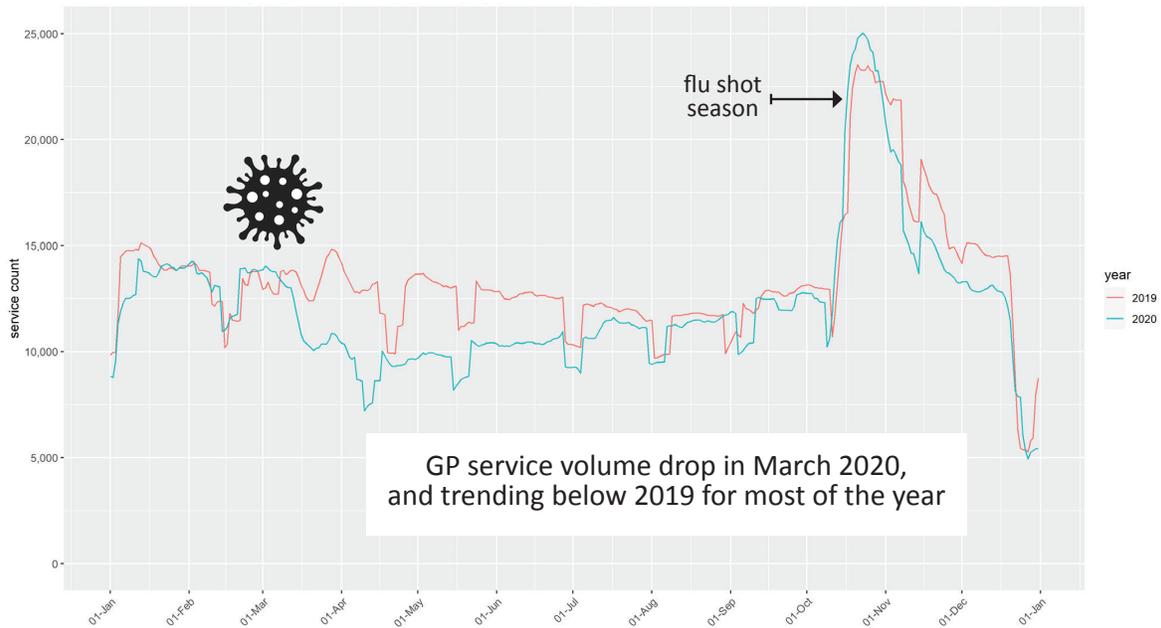
PROVIDER SPECIALTY	2019 service count	2020 service count	2020 service count difference	2020 % reduction in volume
ANAESTHESIA	134,684	124,945	-9,739	-7%
CARDIOLOGY	222,246	223,536	1,290	1%
DIAGNOSTIC RADIOLOGY	1,192,519	973,016	-219,503	-18%
EMERGENCY MEDICINE	50,086	52,158	2,072	4%
GENERAL PRACTITIONER	4,768,682	4,346,631	-422,051	-9%
INTERNAL MEDICINE	430,057	417,813	-12,244	-3%
OBSTETRICS AND GYNAECOLOGY	210,623	181,306	-29,317	-14%
OPHTHALMOLOGY	380,078	306,811	-73,267	-19%
PATHOLOGY	238,865	157,863	-81,002	-34%
PEDIATRICS	137,237	118,307	-18,930	-14%
PSYCHIATRY	44,431	42,764	-1,667	-4%
RADIATION ONCOLOGY	10,740	10,286	-454	-4%
SURGERY	420,950	340,378	-80,572	-19%
UROLOGY	99,320	93,766	-5,554	-6%
All physicians	8,340,518	7,389,580	950,938 fewer physician services provided in 2020	

While there was a significant uptake of virtual care by doctors, there was an overall reduction of about 12% in the total volume of services patients received in 2020 as compared to 2019. The % variation across specialty types may be explained in part by non-essential service cancellations, changes in physician capacity or changes in patient care seeking behaviour. Those specialty areas that are more procedure-based and require physical contact to provide clinical care are also less able to shift their workload to virtual care modalities. **In general, those specialty areas experiencing the greatest disruption to prior year service volume (pathology, ophthalmology, surgery, diagnostic radiology) were the ones least able to shift service delivery from F2F to virtual in 2020.**

The general practitioner specialist group is the one providing the highest number of physician services to patients overall and also accounts for the greatest number of doctors. **Of the ~1.5M virtual care services provided by all doctors in 2020, general practitioners delivered more than 2/3 of them.** This demonstrates the extent to which general practitioners play an important role in virtual care.

Despite the high rate of uptake of virtual care among general practitioners, **of the 950,938 fewer physician services delivered in 2020, about half are accounted for in the general practitioner service volume difference.** This is also the access point to the health care system (other than emergency care) that is primarily driven by patient demand. Figure 46 shows that the GP service billings drop in March 2020 and remain below 2019 volumes for most of the remainder of the year.

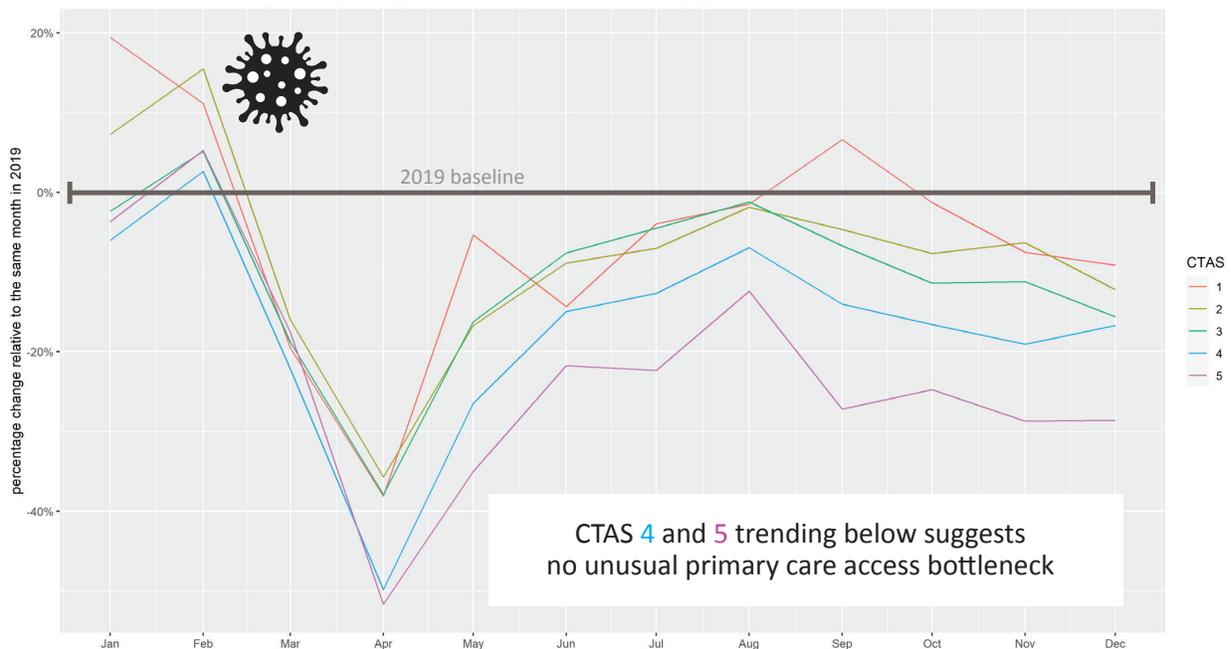
Figure 46: Analysis of 2020 GP service volume drop



To explore whether the variance in GP service volume represents barriers to access or a change in patient demand, emergency department (ED) utilization was reviewed. Access to virtual care is generally expected to have limited, if any, impact on higher acuity ED presentations, as the vast majority of those ED visits are for issues that require in-person service. However, data on low-acuity ED presentations may represent the type of service need that could be addressed by primary care providers, and serve as a proxy for the extent to which patients had appropriate access to service by primary care providers (virtually or in-person).

Looking at ED service volume trends for CTAS scores 4 and 5 (which represent health concerns that are low acuity and could be addressed in a primary health care setting), there is a similar drop in March service volumes but it does not appear that GP service reduction generally pushed patients to emergency departments to access that care (figure 47). Instead, it appears that the reduction in service volume for this level of care likelier reflects a shift in patient health seeking behaviour.

Figure 47: Analysis of 2020 ED service volume change, by CTAS level



A study conducted by Canada Health Infoway suggests that such a shift in patient health seeking behaviour could have been a significant factor in the 2020 health service volume drop, finding that more than 1 in 10 Canadians who experienced a health concern during the pandemic failed to access care for it. About one-third of those people chose not to seek care because they were afraid of contracting an infectious disease and about one-quarter took care of the problem on their own.

4.2 AVOIDS NEED FOR IN-PERSON VISIT: Did virtual care contribute to avoiding the need for in-person visits?

The rationale for enabling the delivery of virtual care by physicians was to create an access pathway for patients that avoided as much in-person contact during the pandemic as possible. MSI communication to all Nova Scotia doctors set out this imperative:

“In view of the extenuating circumstances and recommendations for social distancing, and in order to promote continued delivery of patient care as seamlessly as possible, effective March 13th, 2020 all office based non-procedural services that are normally rendered in a face to face setting will be permitted to be reported whether they are provided in person, by telephone, via telehealth network, or via a PHIA compliant virtual care platform. Such services would include limited visits, consultations, psychotherapy, and counselling where appropriate to be delivered in a synchronous non-face to face encounter. Long Term Care, Residential Care, and Hospice services normally rendered face to face due to medical necessity could be reported using this format. During this interim measure these services will be paid at the same rate as they would be if delivered face to face.”

Billing guidelines excluded walk-in clinics from being able to claim for virtual care. As such, the analysis in this study excludes possible benefit of virtual care to unattached patients seeking general practitioner services during the pandemic.

Research conducted by NSH in 2020 found that, among physician survey respondents (n=259), almost half reported using virtual care for at least 80% of their service delivery at the height of the pandemic. Similarly, nearly 40% of physician survey respondents reported delivering 10% or less of their services through in-person visits. As that survey was conducted as part of NSH virtual care analysis, it may have attracted respondents with a particular interest in virtual care who are not representative of the broader physician community. Notably, this proportion of virtual-to-in person care is not consistent with MSI billing data, although the quality of the billing data is in question. The only conclusion to be drawn is that many physicians adopted virtual care quickly and some physicians used it a great deal.

Respondent feedback indicated that the telephone was most often used to provide virtual care and video-based care was used very little. **Almost 66% of physicians reported using the telephone to provide virtual care 80% or more of the time; 65% of respondents said they use video less than 10% of the time.**

The low uptake of video-based virtual care technology reported in the NSH provider survey is consistent with Zoom utilization data over the pandemic period. The total number of Zoom calls for patient care by all physician specialities between March and December 2020 was 21,556, which represents 1.4% of the total number of virtual care services billed during this period. The one specialist group that stands out in a high rate of Zoom use is psychiatry, which collectively made more than 10,000 video calls to patients. This accounts for almost one-quarter of that group's total service volume in 2020. **This may suggest that video-based technologies are particularly amenable to mental health service delivery.**

Regarding the extent to which physicians perceive virtual care to be an appropriate alternative to in-person care, a dominant theme in the open-ended feedback made by physician respondents the NSH survey spoke to that issue. The utility of virtual care as a pandemic-related infectious disease control measure was widely recognized by physicians. In other words, virtual care service delivery did avoid the need for some in-person visits. **While the pandemic often created a forced-choice situation to receive care, many physicians expressed the view that under normal circumstances, patients should always be given the option of having an in-person visit.** The use of virtual care modernizes physician service delivery. It was regarded to be a contemporary equivalent to the traditional home visit and improves continuity of care and patient access when distance is a barrier. Virtual care was noted to have benefit with the use of home monitoring devices, which can also be used to avoid the need for in-person visits for routine care. However, virtual care was not preferred when meeting patients for the first time and appears to have greatest value in follow-up or interval care encounters.

Overall, it appears that physicians feel that the ideal practice model is one that includes a blend of virtual and F2F service delivery. **Guidelines are needed to ensure that evidence informs best practice in determining when virtual care is an acceptable alternative to in-person care.**

From the patient perspective, the CHI survey of Canadians found that the main reason people received health services virtually was because it was the only available option to them (55% of respondents). When patients had the power of choice to receive care virtually, the concern about exposure to infectious disease was the most frequently cited reason to avoid an in-person visit (32% of respondents).

The main reason given by patients who reported having sought in-person care was the opinion that virtual care was not appropriate to address their health concern (48%). Twenty-one percent (21%) reported the opinion that in-person care is higher quality than virtual care. Overall, patient feedback is consistent with physician feedback **that virtual care is good for some visits but doesn't replace all visits. Similarly, virtual care has benefit for some patients but not all.**

MSI data tells us that virtual visits avoided 1,447,046 in-person encounters between doctors and patients in 2020. Given the extenuating circumstances of the pandemic at the time of this study, it is not possible to determine if this volume of virtual care activity would have occurred if not for the imperative to be physically distanced. Furthermore, the extent to which the quality of these virtual care visits met the same standard as in-person care is unknown.

4.3 SATISFACTION (PATIENT): Were patients satisfied receiving virtual care services? Did different virtual care modalities have different levels of patient satisfaction?

The predominant virtual care modality used in the Nova Scotia health system during the pandemic was the telephone. There was very little uptake among physicians of the Zoom (video) solution that was procured by the province for provider use. This appears to be the experience across Canada, with telephone emerging as the technology innovation for virtual care during the pandemic.

Canada Health Infoway has been leading consumer research in the virtual care space for many years. At the onset of the COVID-19 pandemic, it commissioned weekly COVID-19 tracking surveys aimed at generating insights about Canadians' health care experiences during COVID-19. CHI reported that in general, **when virtual care can replace a F2F visit, patients appear to be highly satisfied with the experience of a telephone encounter. Patients are somewhat less likely to express satisfaction with video-based virtual care and have the highest preference for in-person care.**

The Canadian Medical Association has also been involved in the study of how virtual care can benefit patients in Canada. They also found that, second to in-person visits, patients rate telephone-based virtual care as the most favourable modality. Patients who used a video platform for virtual care expressed high levels of satisfaction but, as was also the case in Nova Scotia, this technology was not widely used. Given the very low uptake of this modality, it is not certain if patient satisfaction is expressing an early adopter perspective.

A dominant theme of physician responses to the provider survey conducted by NSH about virtual care was a very high level of patient satisfaction and desire to continue offering their patients this pathway to care. Telephone was identified most frequently as the virtual care modality of use, with a number of physicians reporting that they had used the telephone for patient care prior to the pandemic. Patient groups that physicians identified as being particularly appreciative of the convenience of telephone-based care included the elderly, those with mobility challenges, patients in rural areas challenged by distance to care and patients with frequent service needs. Physicians were also aware of cost and time savings for patients who can avoid a trip for in-person care. Overall, physicians conveyed that **patient feedback reflects a desire to continue having access to virtual care.**

4.4 SATISFACTION (Physician): Were physicians satisfied delivering care virtually? What virtual care modalities did physicians use, and why?

Based on physician feedback to the NSH provider survey, **more than 8 out of 10 doctors were satisfied or very satisfied using virtual care.** The reasons for their satisfaction included improved efficiency of care, ease of billing, improved follow-up, greater scheduling flexibility and patient appreciation.

Regarding areas of dissatisfaction, physicians raised issues regarding challenges with video technology (connectivity, infrastructure and ease of use), lack of change management and inefficiency of appointment logistics that required doctors to take on administrative functions. Negative feedback regarding the telephone raised the issue of patient distraction during the virtual visit.

Several physicians noted that virtual care was a necessary pandemic tool, but look forward to returning to a higher proportion of in-person care.

There is insufficient data to understand if the high rate of use of the telephone indicates a higher level of satisfaction using the phone, or if this was the least disruptive shift to the most familiar technology.

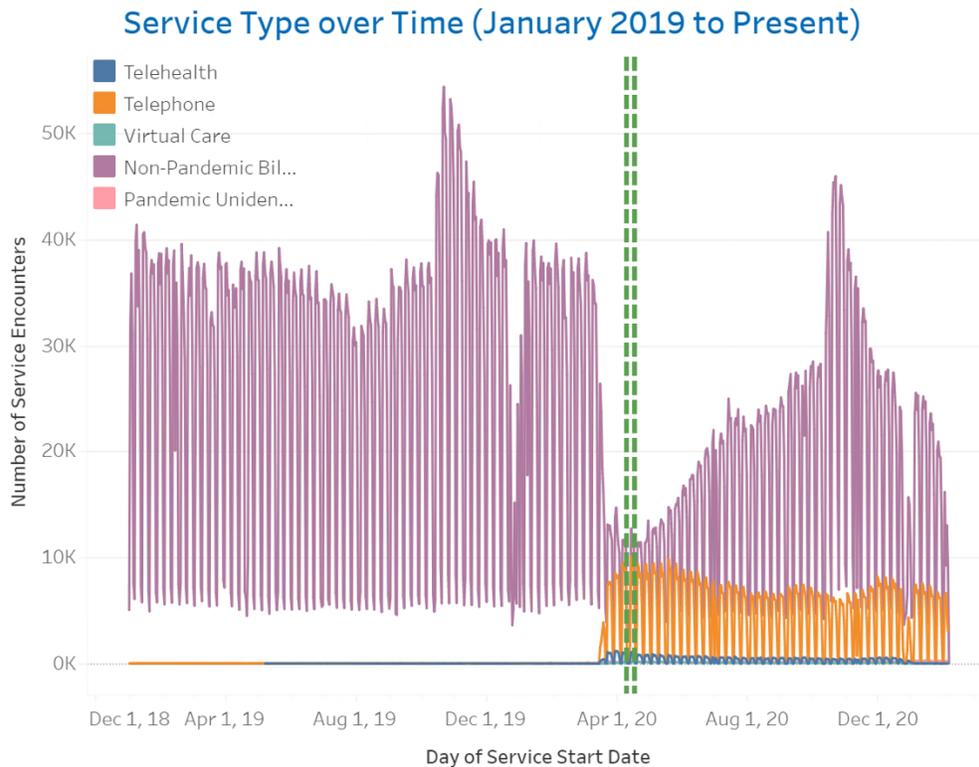
4.5 MINIMIZE INTERRUPTION TO PHYSICIAN SERVICE DELIVERY: Did virtual care enable practices to sustain their delivery of patient services during the pandemic?

For patients, the shift to virtual care during the pandemic was intended to minimize disruption of access to care. For physicians, creating new fee codes for virtual care and getting these services paid on par with F2F care was intended to minimize disruption to services they provide.

The most direct impact on the ability of physicians to provide in-person care occurred when they were required to self-isolate. Like many Nova Scotians, doctors often travel during March break, which in 2020 roughly coincided with the emerging public health crisis. According to data from NSH Medical Affairs, from March 13 to May 11 2020, there were **151 physicians who were required to self-isolate for 14 days due to travel or based on other precautionary public health guidelines. Of those, 100 doctors provided patient care virtually.** This capacity continued over the course of 2020, enabling those physicians who needed to self-isolate due to public health guidelines to shift at least some of their work to virtual care. MSI data shows that physicians in all specialty areas provided some virtual care.

Looking at MSI billing data for 2020, approximately \$73M virtual care services were claimed using the new fee codes. As noted in earlier in this study, it is suspected that the proportion of service that was provided by doctors virtually is under-reported in the claims data.

Figure 48: Service type over time (January 2019 to present)



Physician feedback to the NSH provider survey indicated that **the ability to claim for virtual care on par with F2F service was an immediate enabler for this shift in modality of care.** Physicians also noted that the lack of a non-F2F compensation model prior to the pandemic was a fundamental barrier to the virtual care they would have liked to provide. This barrier is reflected in the fact that less than 1% of physician care was provided virtually in 2019. **With the virtual care fee codes created in 2020, this proportion of care shifted to 18.5% of physician service volume, with no lag in uptake.**

4.6 PPE SAVINGS: To what extent did providing care virtually save material costs of PPE?

An analysis of per-encounter PPE supply cost savings achieved by replacing in-person visits with virtual care found that in 2020, between \$1,070,814.04 and \$1,765,396.12 PPE material costs were avoided. The logic model behind this study set out to understand PPE savings in the context of provider benefit. Many of the material costs of PPE requirements were absorbed by Nova Scotia's centralized COVID-19 inventory and were not a direct expense to practices¹⁷. The costs avoided in this regard are more relevantly viewed as a health system benefit. However, **working safely in a clinical environment the requires more than wearing more PPE and includes limiting visitors, adhering to strict hand washing, social distancing and enhanced cleaning protocols. All of these things take time to implement and adhere to, and represents an unquantified capacity cost to physicians.**

4.7 PANDEMIC CONTAINMENT: Did virtual care contribute to reduced risk of community spread?

A fundamental public health infection control strategy during the pandemic was to limit physical contact and encourage people to stay home. As such, each of the 1,447,046 virtual care encounters between patients and their physician that happened in 2020 all represent the avoidance of a trip to the doctor's office. Deconstructing that pathway, each trip would have involved multiple touch points from the moment the patient left home to when they returned. Each of these excursions puts patients, practice teams and the community at large at risk. While it is not possible to determine from the available data the extent to which avoiding in-person visits contributed to the reduced risk of community spread, **virtual care was expressly used by patients and doctors as a protective measure during the pandemic.**

4.8 EFFICIENCY OF CARE: Does virtual care create efficiencies in the delivery of services? Do different modalities of virtual care enable more or less physician practice efficiency?

The Nova Scotia DHW enabled the temporary virtual care fee codes in March 2020 as a pandemic emergency measure to protect access for patients to physician services by avoiding the need for in person care. **The shift in virtual care activity accounted for approximately 1.5M physician services, 18.5% of total physician services and \$73M in total physician billing.** While this is a significant proportion of overall physician activity, and exponential growth in the use of virtual care as compared to 2019, these data likely under-represent the full extent to which virtual care was used by doctors.

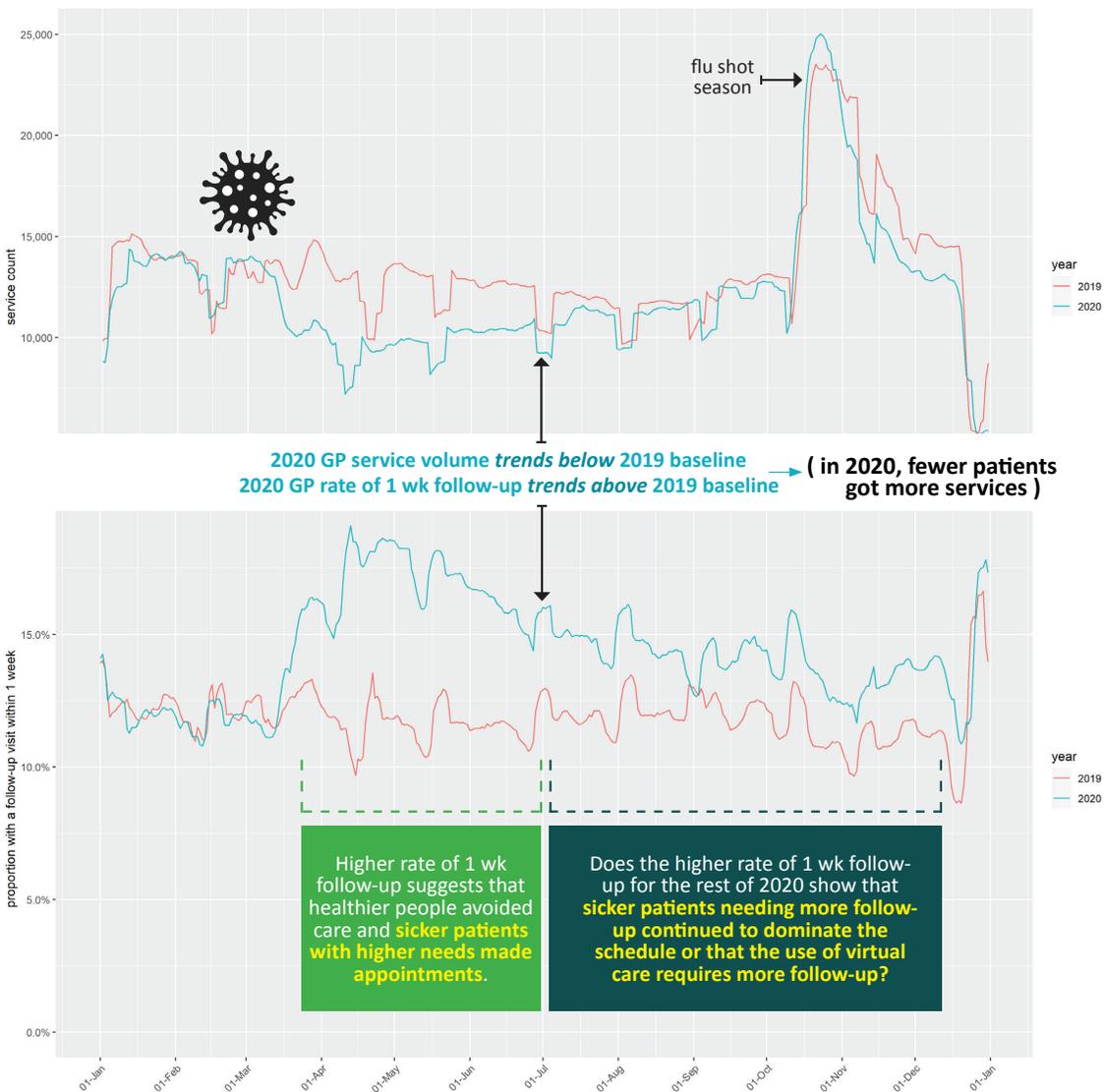
The new billing guidelines allowed for telephone and video-based care to replace all F2F care when clinically appropriate. Because telephone and video-based care are both synchronous forms of virtual care (minute-for-minute and requiring a booked appointment for patient and provider to attend together), no efficiency gain would be expected for the physician. This was acknowledged by DHW in the dollar-for-dollar value of compensation for these virtual care codes. However, a dominant theme in the comments shared by physicians responding to the NSH Provider Survey on Virtual Care was that **many doctors felt they were able to see more patients sooner because of the efficiencies created with virtual care.**

A review of billing and service utilization data clearly demonstrates a pandemic shockwave in March 2020 that resulted in steep drop in service volumes across the entire health system. It also shows the **immediate uptake of virtual care, and a fairly rapid re-stabilization of physician service delivery, albeit trending lower than 2019 service volumes for the remainder of the year.** Service volume rates in 2020 may have been impacted by numerous variables such as program closures, changes in patient inclination to seek care and adherence to infection control protocols in between F2F visits that may limit the ability of physicians maintain pre-pandemic throughput.

Overall, the objective of protecting the ability of patients access to their doctors during the pandemic was achieved, with the vast majority of physicians in the province shifting their service model to include virtual care. Not surprisingly, specialty groups that are largely procedure-based were able to shift the least of their clinical service volume to virtual care. Even among these groups, however, **there was feedback among procedure-based specialists that their use of virtual care for follow-up created improved access for patients and was a quality improvement to their practice.**

Among GP practices, the increased rate of 1-week follow-up was significant in the March-June 2020 service period, which corresponds with the sharp overall drop of service (figure 49). This may suggest that people were avoiding or deferring medical care and that the rate of 1-week follow-up is skewed based on a change in patient profile (complex care patients dominating the schedule). Evidence of this change in patient healthcare-seeking behaviour is found in national surveys and Nova Scotia utilization data that shows the patients who received the most service in 2020 were in the oldest age groups and with the most complex conditions. ED utilization data also shows that low acuity patients were staying away in that period.

Figure 49: Analysis of 2020 rate of GP 1-wk follow-up



Once public health restrictions began to lift in the summer, the GP service volume and their rate of follow-up trend lines began to return to their 2019 baseline levels. However, the 2020 GP service volume continues to trend below baseline (a 9% service count reduction over the year) and their follow-

up rate continues to trend above. **This means that in 2020, fewer patients got a higher concentration of services.**

What the data does not tell is if the overall reduction in GP service volume was because of a drop in patient demand (people continued to avoid or defer seeking care) or if GPs were working at lower capacity in the pandemic environment. We also do not know how long patients waited to get an appointment with their GP in either year. More frequent follow-up within one week may be an indicator of faster access for a service that, before, patients would have needed to wait more than one week to get. This would be a story of an efficiency gain. On the other hand, the data may be showing that the use of virtual care leads to more follow-up. This would be the story of an efficiency loss.

A dominant theme in open-ended comments by physicians to the NSH provider survey regarding their experience with virtual care was the impact on efficiency. Respondent feedback was mixed, but weighted more heavily toward positive perceptions of service capacity gains and reduced wait times for their patients. It was noted by many that virtual care resulted in efficiencies for patients and that rates of no-shows had decreased. However, some respondents found that telephone-based services took them longer to provide than F2F visits. There was also feedback that Zoom appointment logistics created inefficiencies for physicians.

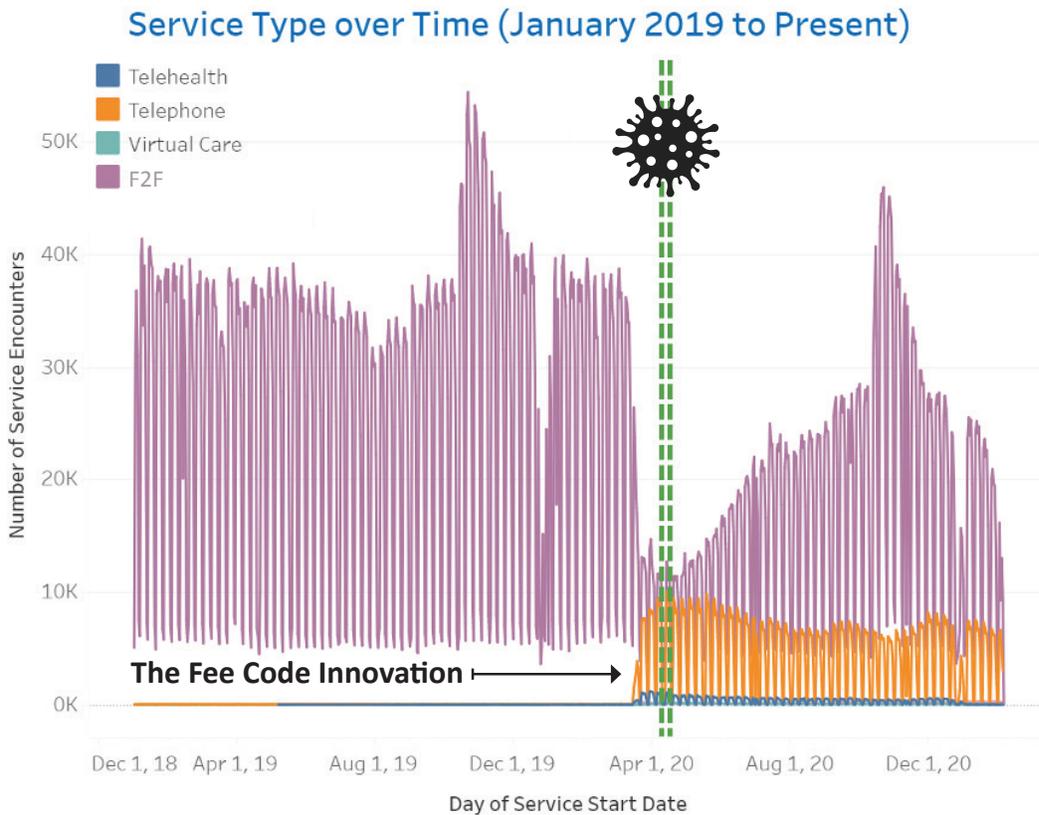
4.9 'PATHWAY TO CARE' INNOVATION: Did virtual care enable an alternative pathway to care?

Nova Scotia has embarked upon many virtual care pilot projects over many years, involving a range of synchronous and asynchronous communication technologies as well as remote monitoring for patient care. A lesson learned through many of these innovations is that practices will not adopt technology if doctors cannot be paid to use it.

In March 2020, in response to the pandemic imperative for people to stay home and avoid all non-essential in-person contact, DHW created new fee codes for doctors to pivot from in-clinic to virtual care. The change in proportion of physician services that were delivered virtually in 2019 as compared to 2020 – from less than 1% to almost one-in-five – shows that **paying physicians for providing virtual care had the immediate effect of creating an alternative pathway to care.**

In the shift, the alternative pathway was primarily the telephone. **The majority of physicians who billed for virtual care used the telephone to provide these services 80% of the time.** An exception was psychiatry, which made up almost half of the total number of Zoom calls for patient care. This represented about one-quarter of their total service volume in 2020. This may reflect that **video-based virtual care is particularly amenable to mental health service delivery.**

Figure 50: The Fee Code Innovation / uptake of virtual care in Nova Scotia



Overall, more than 9 out of 10 Nova Scotia physicians surveyed reported that they intend to continue using virtual care after the pandemic. Doctors also had the perception that patients wish to continue having access to this pathway to care. Recent national polling by Canada Health Infoway found that patients are satisfied with the virtual care they received but when asked their preference for the next visit type, almost half wanted it to be in-person. **This suggests that virtual care is a valued option among patients, but they want it to be a choice in their pathway to care.**

Based on the rate that patients provided email addresses to receive a notification about their COVID-19 test result being available, and following a link to get that result, **it appears that the majority of Nova Scotia patients are amenable to engaging with health services online.** Since December 2020, on average about three-quarters of people signed up for this service, but since mid-February this sign-up rate has increased to 82%. Of those, 84% have gone on to access their negative result on the website. As of March 11, 2021, public health had sent 217,863 emails.

5.0 Conclusion

The DHW's objective to protect patient access to physician services during the pandemic by creating temporary virtual care fee codes was generally achieved. Notwithstanding an immediate and significant uptake of virtual care, there were fewer physician services provided overall in 2020.

Findings of note:

- The DHW policy to pay physicians for providing services to patients virtually during the pandemic was an effective strategy, creating a pathway to care that avoided the need for in-person encounters as a protective measure during the pandemic. Utilization showed this to be the case for at least 18.5% of the work they do, though it is believed this proportion of virtual care was under-reported in the data.
- Synchronous care (telephone and video-based) was funded on-par with F2F, reflecting no expectation of efficiency other than it would mean patients could avoid leaving their home to visit the doctor.
- Patients across Canada report high levels of satisfaction. Doctors also report being satisfied. Virtual care was used during the pandemic more than patients or doctors would like to under normal circumstances, but both appreciated having a virtual pathway to care during extraordinary times.
- Virtual care is appropriate some of the time, but not all of the time. It is used by some patients more than others, and by some specialist groups more than others. Patients and doctors would both like to have the option to use virtual care when things get 'back to normal', having found benefit to patients and to the work physicians do.
- The older you are, the less likely you were to get a health service virtually in Nova Scotia. If you live in a large urban centre, you were more likely to get a health service virtually. Follow-up and interval care seem to be where the greatest utility for virtual care was found.
- Doctors did more follow-up care in 2020 than in 2019. It could not be concluded the extent to which the pandemic changed the work doctors do (patients were sicker and services took longer to provide), or if virtual care changed the way doctors work (extra steps were required to complete care encounters due to new workflows).
- About 12% fewer services were delivered in 2020 by doctors overall (as compared to 2019), and because we know doctors were doing more follow-up care, this means fewer patients received a higher concentration of services in 2020.
- It is not known whether the service volume was lower because of physician capacity or patient demand. Emergency Department data, however, indicates that patients did not shift from GP practices to emergency departments when seeking care. This suggests that it is likelier some patients avoided seeking care altogether.
- The downstream impacts of those who deferred seeking care are not known. What is known is that the health system was strained to meet demand before the pandemic. With the combination of a backlog of cancelled procedures, a possible surge of patients who present later and sicker, and the pre-pandemic capacity issues, it may be expected that the health system will experience an even greater strain on resources.

NOTES

- ¹ Nova Scotia Medical Services Insurance, “Physician’s Bulletin”. Vol. LXV, Issue 3 (March 18,2020). http://files.clickdimensions.com/doctorsnscom-alexjpd/documents/march-18-2020-bulletin-covid-19-1.pdf?_cldee=YmFyYi5qb2huc29uQGRvY3RvcnNucy5jb20%3d&recipientid=contact-c7f2d9a807cce5119400005056a904d2-e4183914a7f348b99d778080f6bfdffe&esid=3b073d75-fc6d-ea11-943f-005056884853
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- ³ <https://www150.statcan.gc.ca/n1/pub/92-151-g/2011001/tech-eng.htm>
- ⁴ <https://www150.statcan.gc.ca/n1/pub/92-154-g/92-154-g2015001-eng.htm>
- ⁵ Nova Scotia Health (2021). Nova Scotia Unattached Patient Registry Data. https://www.nshealth.ca/sites/nshealth.ca/files/finding_a_primary_care_provider_in_nova_scotia_report_mar_2021.pdf
- ⁶ Canada Health Infoway (September 2020). “Canadians’ Health Care Experiences During COVID-19”. <https://www.infoway-inforoute.ca/en/component/edocman/3828-canadians-health-care-experiences-during-covid-19/view-document?Itemid=0>
- ⁷ Nova Scotia Cancer Care program clinical service providers include physicians and other professional disciplines.
- ⁸ Tomblin Murphy, G., Sampalli, T., Sheriko, J., Guk, J., Mclsaac, K., Koto, P., Meier, D., Theriault, C., Sim, M., Embrett, M., Packer, T., Enderlein, C., Sahijwala, V., deMello, M., Sheppard, D., Rubenstein, D., Clegg, J., MacNeil, R., Martin-Misener, R., Sheppard-LeMoine, D., Curran, J., Cassidy, C., Christian, E., Pyra, K., Wentzell, L., Wozney, L., Laplante, M., Harding, R., Hollenhorst, H., O’Connor, L., Zelmer, J., Murdoch, J., Akbari, M. et al. (2020). “A rapid review of virtual care implementation in Nova Scotia during COVID-19 to help inform a future strategy in the province”. Nova Scotia Health, October 2020.
- ⁹ Ibid.
- ¹⁰ Canada Health Infoway (September 2020). “Canadians’ Health Care Experiences During COVID-19”. <https://www.infoway-inforoute.ca/en/component/edocman/3828-canadians-health-care-experiences-during-covid-19/view-document?Itemid=0>
- ¹¹ Canadian Medical Association (May 2020). “What Canadians Think About Virtual Health Care”. <https://www.cma.ca/sites/default/files/pdf/virtual-care/cma-virtual-care-public-poll-june-2020-e.pdf>
- ¹² Canadian Institute for Health Information (November 2020). “How COVID-19 affected physician services” <https://www.cihi.ca/en/covid-19-resources/impact-of-covid-19-on-canadas-health-care-systems/how-covid-19-affected-physician-services>
- ¹³ <https://www.canada.ca/en/public-health/services/publications/diseases-conditions/routine-practices-precautions-healthcare-associated-infections.html>
- ¹⁴ (Public) Nova Scotia COVID-19 Dashboard. <https://experience.arcgis.com/experience/204d6ed723244dfbb763ca3f913c5cad>
- ¹⁵ CMA (August 2019). “Virtual Care in Canada: Discussion Paper”, CMA Health Summit.
- ¹⁶ Tomblin Murphy, G., Sampalli, T., Sheriko, J., Guk, J., Mclsaac, K., Koto, P., Meier, D., Theriault, C., Sim, M., Embrett, M., Packer, T., Enderlein, C., Sahijwala, V., deMello, M., Sheppard, D., Rubenstein, D., Clegg, J., MacNeil, R., Martin-Misener, R., Sheppard-LeMoine, D., Curran, J., Cassidy, C., Christian, E., Pyra, K., Wentzell, L., Wozney, L., Laplante, M., Harding, R., Hollenhorst, H., O’Connor, L., Zelmer, J., Murdoch, J., Akbari, M. et al. (2020). “A rapid review of virtual care implementation in Nova Scotia during COVID-19 to help inform a future strategy in the province”. Nova Scotia Health, October 2020.
- ¹⁷ Doctors Nova Scotia, Coronavirus update (October 20, 2020). <https://doctorsns.com/page/coronavirus-update-20Oct2020>