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Modernizing Public Health Testing Services for Sexually Transmitted and Blood-borne Infections in Ontario: The GetaKit Project

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Abstract

In light of increasing rates of sexually transmitted and blood-borne infections (STBBIs) in Canada, as a group comprised primarily of frontline health care workers, we undertook a health care practice reform in Ontario to establish the first nurse-led asynchronous online STBBI testing platform, known as GetaKit.ca. The website offered clinically indicated testing for STBBIs based on public health guidelines and resources for preventative health services. Services operated in collaboration with public health units, who acted as local ordering providers for STBBI testing and facilitated linkage to care services for persons with positive test results or who required additional health follow-up. Results from the first 12 months of operating GetaKit.ca showed high uptake of this service, with 3,497 orders for STBBI testing from eligible persons, of whom 59% belonged to an equity denied group. A total of 83 new diagnoses (positivity rate of 2.4%) were identified in persons who completed testing via GetaKit.ca, all of whom were linked to treatment and care through their respective health units. We interpret these findings to suggest that our reform was able to expand access to persons with undiagnosed STBBIs.

En tant que groupe composé principalement de travailleurs de santé de première ligne confronté à la persistance et à l'augmentation des taux d'infections transmises sexuellement et par le sang (ITSS) au Canada, nous avons entrepris une réforme des pratiques de soins de santé en Ontario afin d'établir la première plateforme asynchrone de dépistage des ITSS en ligne dirigée par des infirmières, connue sous le nom de GetaKit.ca. Le site propose des tests de dépistage des ITSS cliniquement indiqués, basés sur les directives de santé publique, ainsi que des ressources pour les services de santé préventifs. Les services fonctionnent en collaboration avec les agences de santé publique, qui agissent en tant que prestataires locaux et facilitent le lien avec les services de soins pour les personnes dont les résultats de test sont positifs ou qui ont besoin d'un suivi médical supplémentaire. Les résultats des 12 premiers mois de fonctionnement de GetaKit.ca ont montré un taux élevé d'utilisation de ce service, avec 3 497 commandes de tests de dépistage des ITSS pour des personnes éligibles, dont 59 % appartenaient à un groupe défavorisé sur le plan de l'équité. Au total, 83 nouveaux diagnostics (taux de positivité de 2,4 %) ont été identifiés chez les personnes ayant effectué un test via GetaKit.ca, qui se sont toutes vues prescrire un traitement et des soins par l'intermédiaire de leurs unités de santé respectives. Nous interprétons ces résultats comme suggérant que notre réforme a été en mesure d'élargir l'accès aux personnes souffrant d'ITSS non diagnostiquées.

Key Messages

- GetaKit.ca was the first asynchronous platform to exist in Ontario to recommend and offer STBBI testing and sexual health prevention services based on an individual's reported risk practices and in accordance with public health guidelines.
- To ensure GetaKit.ca participants had access to clinically relevant care, we established partnerships with local public health units that would have one of their practitioners (nurse practitioner or physician) act as the ordering provider for test requisitions. The local public health units would also provide direct linkage to care for any person in their area with positive test results.
- In collaboration with the Public Health Ontario laboratory, we engaged in research to validate the at-home self-collection of extragenital swabs for gonorrhea and chlamydia screening.
- In the first 12 months of offering STBBI testing services through GetaKit.ca, we established partnerships with 10 public health units to offer over 3,500 tests to residents of Ontario, of whom 59% reported belonging to an equity denied group at elevated risk for STBBI.

Messages-clés

- *GetaKit.ca a été la première plateforme asynchrone de dépistage des IST en Ontario recommandant et offrant des services de prévention en matière de santé sexuelle en fonction des pratiques à risque déclarées par une personne et conformément aux lignes directrices en matière de santé publique.*
- *Pour s'assurer que les participants à GetaKit.ca aient accès à des soins cliniquement pertinents, nous avons établi des partenariats avec des unités de santé publique locales mettaient à disposition un de leurs praticiens (infirmière praticienne ou médecin) pour répondre aux demandes de tests. Les unités locales de santé publique devaient également fournir un lien direct vers les soins pour toute personne de leur région dont les résultats de test seraient positifs.*
- *En collaboration avec le laboratoire de Santé publique Ontario, nous avons entrepris des recherches pour valider l'auto-prélèvement à domicile d'écouvillons extragénitaux pour le dépistage des IST.*

- *Au cours des 12 premiers mois de fonctionnement des services de dépistage des ITSS par l'entremise de GetaKit.ca, nous avons établi des partenariats avec 10 unités de santé publique afin d'offrir plus de 3 500 tests aux résidents de l'Ontario, dont 59 % ont déclaré appartenir à un groupe exclu de l'équité et présentant un risque élevé d'ITSS.*

1 BRIEF DESCRIPTION OF THE HEALTH POLICY REFORM

Due to increasing rates of sexually transmitted and blood-borne infections (STBBIs) in Ontario, a group comprising (1) practicing nurse researchers from the University of Ottawa and (2) frontline nurses and nurse practitioners from Ottawa Public Health implemented an online STBBI testing platform (Public Health Ontario [PHO] 2024a; 2024b; 2024c). This reform, known as "The GetaKit Project" (herein: GetaKit.ca), provided access to clinically indicated laboratory-based testing for STBBIs, including urine, throat, and rectal swabs for chlamydia and gonorrhea; blood-based testing for syphilis, hepatitis C, and HIV; and HIV self-tests. A key attribute of this reform was that access to STBBI testing was clinically asynchronous, meaning that patients would submit their requests for testing at any time of day, seven days per week, and a nurse would review — and approve, reject, or modify — the person's request at another time (i.e., during business hours).

The goal in establishing this health care practice reform was to increase STBBI screening, diagnosis, and treatment, and subsequent linkage to care for residents of Ontario, with a particular focus on persons from equity-denied groups and those who are most affected by STBBIs. The groups we consequently focused on included gay, bi, trans, and other men who have sex with men (gbMSM), persons of African, Caribbean, or Black ethnicities (ACB), members of Indigenous communities, and persons who use drugs (PWUD). Our rationale for implementing this reform for these groups was that these persons, first, are disproportionately burdened by STBBIs in Ontario (PHO 2024a; 2024b), and second, experience stigmatization during in-person health care access (Cooke and Shields 2024; Watts and O'Byrne 2019; Williams et al. 2024). Research has moreover shown that members of these communities would likely use online services for STBBI testing, were they to be available (Dulai et al. 2024; Montiel et al. 2024). The virtual nature of the system also created a way to provide more equitable access to STBBI testing for persons who reside in rural regions.

In brief, GetaKit.ca required that potential users completed a questionnaire, which screened them using an automated risk assessment algorithm to recommend tests and services based on (1) their reported population and sexual and substance use practices, and (2) the time since their last testing and exposure(s) (O'Byrne et al. 2021b). While timing of last STBBI screen was self-reported, the system would record prior testing for patients who had completed orders to improve accuracy of report (in that, patients could not indicate they had never been tested if test results were recorded in their GetaKit.ca file). The GetaKit.ca user would then opt in or out of recommended tests and submit an order. All requests for testing were asynchronously reviewed by a nurse to ensure the tests were clinically relevant, after which the test requisitions and swab collection kits (if applicable) would be released to the individual. This person would then attend a local specimen collection centre to drop off collected swab specimens and/or provide a urine and/or blood sample.

Once this testing was complete, the laboratories would send results back to GetaKit.ca, where a nurse would review all test results and release these to the individual. When a positive test result was reported, participating health units would directly contact the person to arrange an in-person appointment for assessment and treatment.

The implementation of this health care practice reform was unique because (1) the system operated using algorithms to determine eligibility based on clinical guidelines developed by a team of sexual health nurses and (2) it was the first Internet-based STBBI testing platform to exist in Ontario.

2 HISTORY AND CONTEXT

Beginning in March 2020, access to STBBI testing in Ontario was reduced due to stay-at-home requirements and coinciding restrictions on in-person health care services throughout the COVID-19 pandemic (Government of Ontario 2020). During this time, many public health-operated STBBI clinics and primary care clinics either closed entirely or limited in-person services such that they were unable to offer routine STI screening services. At the time of this reform, many of these clinics remained closed or continued to operate at reduced capacity (Ryu et al. 2023).

Despite these barriers to testing, treatment, and care, observed rates of STBBIs in Ontario remained significant throughout the COVID-19 pandemic. While the rates and numbers of gonorrhea and chlamydia infections decreased (likely partly due to decreased access to testing and, consequently, decreases in case finding during the pandemic), they rebounded in 2022 and have continued to climb since that time; meanwhile, the rates of infectious syphilis continued to climb without any decreases at any point (PHO 2024a; 2024b; 2024c). With most of our team working as frontline clinicians during COVID-19, this health care reform was established based on an emergent need identified in clinical practice. Research from before the emergence of COVID-19, moreover, established that gbMSM, ACB, and Indigenous persons in Ontario were interested in access to STBBI testing from an online platform (Dulai et al. 2024). The pandemic thus became the impetus to implement the reform that community members had long been asking for.

GetaKit.ca initially launched in July 2020 as a pilot project offering HIV self-tests, first in Ottawa and then across Ontario (O'Byrne et al. 2021a). This project has ongoing ethics approval from the University of Ottawa Research Ethics Board. Having started as a pilot project, we had the web-based infrastructure created to complete sexual health assessments, offer testing, generate requisitions, and mail out materials and resources for testing (O'Byrne et al. 2021b). In expanding GetaKit.ca to offer STBBI screening services, our primary aim was to ensure individuals who accessed our website would receive the same services online as they would during an in-person STI screening visit, including (1) clinically relevant testing based on risk practices – such as laboratory-based urine tests and extragenital swabs (pharynx and rectum) for chlamydia and gonorrhea and blood tests for

HIV, syphilis, and hepatitis C; (2) linkage-to-care for persons with positive test results; and (3) resources for sexual health prevention services, such as vaccinations, contraception, HIV pre-exposure prophylaxis (PrEP), and STI post-exposure prophylaxis (i.e., doxycycline post-exposure prophylaxis, also known as DoxyPEP) (Ontario HIV Treatment Network 2023; Public Health Agency of Canada 2024).

Achieving our program aims required collaboration with key stakeholders at the provincial level (i.e., Ontario Ministry of Health, Public Health Ontario) and the local level (i.e., public health units, private laboratories). At the provincial level, our primary obstacle was that health regulations under the *Laboratory and Specimen Collection Centre Licensing Act, 1990*, mandated that laboratories could only examine specimens "at the request of a legally qualified medical practitioner" or "at the request of a registered nurse who holds an extended certificate of registration under the *Nursing Act, 1991*" (i.e., a nurse practitioner) (Canadian Legal Information Institute 2022). Completely automated access to laboratory-based STBBI testing, as exists through the GetCheckedOnline program in British Columbia, is not permissible in Ontario because the creation of requisitions for testing is automated through a website (Montiel et al. 2024). In Ontario, health regulations require that a health care provider "requests" STBBI testing, which includes reviewing and approving (or rejecting or modifying) patient requests for such services. Other regulations on extragenital testing for chlamydia and gonorrhea screening also existed prior to the reform, which required that extragenital swabs had to be collected in a clinical setting (PHO 2022).

Given these stipulations, we encountered some hesitancy in implementing our reform until we could ensure the appropriate pathways were in place to extend STBBI services from clinical settings to an asynchronous online platform, which included at-home specimen collection. At the local level, we required buy-in from public health units who wished to offer testing via GetaKit.ca to ensure two items: (1) that there was a nurse practitioner or physician in each jurisdiction who would act as an ordering provider for tests, and (2) that there was a treatment centre for any person with a positive test result. We also required collaboration with private laboratories in areas that used GetaKit.ca to ensure that the processing of and reporting of test results would occur correctly. Finally, we required ongoing funding to maintain operations because, at the time of this reform, nurse practitioners could not bill for health care services under the provincial Schedule of Benefits and physicians could not bill for these services because the care being provided was asynchronous (Ontario 2024). In other words, nurse practitioners and physicians could not obtain compensation for services rendered through GetaKit.ca.

3 THE POLICY-MAKING PROCESS

3.1 Provincial reforms

To implement this health care practice reform, we sought to address the potential barriers to implementation identified at both the provincial and local levels. Beginning at the provincial level, we engaged with stakeholders in the Ontario Ministry of Health, Office of the Chief Medical Officer of Health, and Public Health Ontario to ensure the platform met the necessary clinical requirements for providing STBBI services online. Compliance was established in the following ways: (1) we required that any person seeking STBBI screening or testing through GetaKit.ca would complete a risk assessment questionnaire, which, based on the system's algorithm, provided tailored recommendations for tests and sexual health prevention services; (2) we ensured that all requests for testing, including responses to the risk assessment and recommended tests/services were reviewed by a nurse (under delegation from a nurse practitioner) prior to releasing test requisitions, and (3) we ensured that there was a dedicated clinic in each participating health unit that would provide care for persons with positive test results (Ontario HIV Treatment Network 2023; PHAC 2024). In establishing our service as an *asynchronous* STBBI testing platform — as opposed to a virtual care clinic — we ensured that testing was in fact *requested* by a health care professional in Ontario who is authorized to order such testing. It also ensured that testing only occurred when it was clinically indicated, not just when persons wanted testing.

Another policy we sought to change at the provincial level related to extragenital swab collection being restricted to clinical settings. Under Health Canada licensure for extragenital testing for gonorrhea and chlamydia, we were not initially able to provide screening for chlamydia and gonorrhea in the pharynx or rectum – which are most commonly asymptomatic infections, and which are recommended as part of comprehensive STBBI testing for certain populations (Public Health Ontario 2022; Public Health Agency of Canada 2024). The importance of such non-genital screening is further highlighted by research in Ottawa, which identified that upwards of 70% of chlamydia and gonorrhea infections in gbMSM were exclusively located in extragenital sites (and thus would be missed on urine screening alone) (Friedman and O'Byrne 2020). This policy limitation was identified as a major threat to providing clinically appropriate care, as excluding extragenital screening could have resulted in missed diagnosis and treatment for those at elevated risk of chlamydia or gonorrhea infections.

To address this issue for extragenital swabs, clinician researchers from GetaKit.ca in partnership with Public Health Ontario and Ottawa Public Health conducted a study of at-home, self-collected extragenital swabs for chlamydia and gonorrhea screening. Our goal was to determine if at-home self-swabs were non-inferior to swabs collected in clinic, and, if equal, to accredit the Ontario laboratory systems to accept and analyze these swabs. As part of this validation study, we asked patients booked for STBBI testing services at

Ottawa Public Health's Sexual Health Clinic to complete pharyngeal and/or rectal swabs at-home prior to their appointment and then to repeat these tests in our clinic. Results from this study showed that at-home self-collected swabs had an overall accuracy >99.0% for pharyngeal/rectal gonorrhea and pharyngeal chlamydia and 97.8% accuracy for rectal chlamydia, thus demonstrating non-inferiority to swabs collected in clinical settings (Orser et al. 2024). The study findings were sufficient for GetaKit.ca to receive approval to offer at-home extragenital swabs to eligible participants; these findings have subsequently been used to change provincial regulations on at-home collection for extragenital testing in Ontario.

3.2 Local reforms

At a local level, we engaged with local public health units in Ontario who wished to use GetaKit.ca to provide services within their respective areas. Since GetaKit.ca was the first service in Ontario to provide asynchronous online access to STBBI testing services, we needed to ensure that potential participants would receive the same quality of clinical care as if they had attended an in-person sexual health clinic. In implementing GetaKit.ca, public health units had to establish local pathways for treatment for their patients, including identifying a local ordering provider and designating staff from their public health case management teams or sexual health clinics who would complete follow-up and linkage to care for persons with positive test results. Interested health units that could not provide fulsome follow-up pathways for treatment, follow-up, and care were not eligible to use GetaKit.ca. Registered nurses from GetaKit.ca also provided training to health and allied staff from each health unit on system operations and results management to ensure follow-up was congruent across all sites. These local efforts helped ensure that, regardless of a person's risk factors or geographic location, they would have equitable access to STBBI testing, diagnosis, follow-up, and treatment.

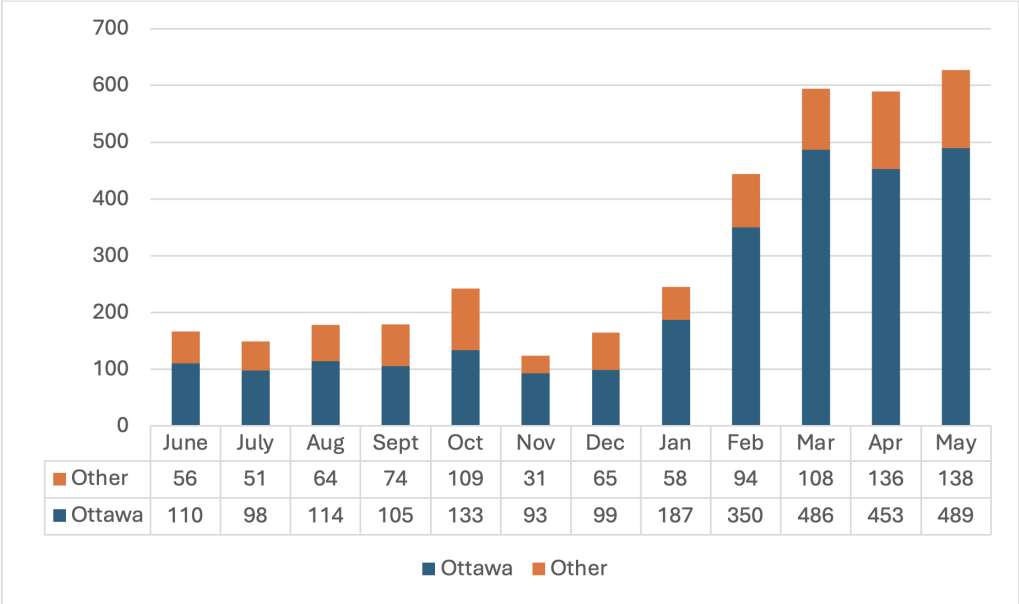
Funding was obtained from the Ontario HIV Treatment Network and Public Health Ontario (through a Locally Driven Collaborative Projects program grant) to launch GetaKit.ca as a pilot project. Funding for website upgrades was obtained from the Public Health Agency of Canada. These funders had no involvement in the design or operations of the pilot project, but provided resources for website development/operations, shipping (for swabs and requisitions), and staffing for a registered nurse to review/approve test requests and complete centralized results review/entry for all test results received from each respective GetaKit.ca site.

4 IMPLEMENTATION AND EVALUATION

GetaKit.ca began offering STBBI testing services on 1 June 2023 in Ottawa, Ontario. As part of this initial launch, we offered urine chlamydia and gonorrhea testing in collaboration with Ottawa Public Health. Within two months, Kingston, Frontenac and Lennox

& Addington Public Health and Renfrew County & District Health Unit also launched services in their respective areas. In September 2023, GetaKit.ca began offering serologic testing for HIV, syphilis, and hepatitis C; extragenital swabs for chlamydia and gonorrhea screening were added in December 2023 following final evaluation of the validation study. This seven-month period was a soft-launch, during which time additional tests and testing became available. We also did not advertise the STBBI component of GetaKit.ca during that time. Online promotion began in winter 2024 via social media, health units' websites, and mainstream media releases. As of 3 June 2024, an additional eight public health units throughout Ontario began using GetaKit.ca to offer STBBI testing services in their areas, including North Bay Parry Sound District Health Unit; Leeds, Grenville & Lanark District Health Unit; Hastings Prince Edward Public Health; Peterborough Public Health; Windsor Essex County Health Unit; Peel Public Health; and Middlesex-London Health Unit.

In the first 12 months (1 June 2023 – 30 May 2024) of offering STBBI services, 3,700 requests for testing were submitted to GetaKit.ca, of which 95% (n=3,497/3,700) were eligible for testing based on current clinical practice guidelines in Ontario and Canada. See Figure 1 for an overview of STBBI orders through GetaKit.ca over this one-year period.



	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Other	56	51	64	74	109	31	65	58	94	108	136	138
Ottawa	110	98	114	105	133	93	99	187	350	486	453	489

Figure 1: Number of Orders for STBBI Testing through GetaKit.ca by Month

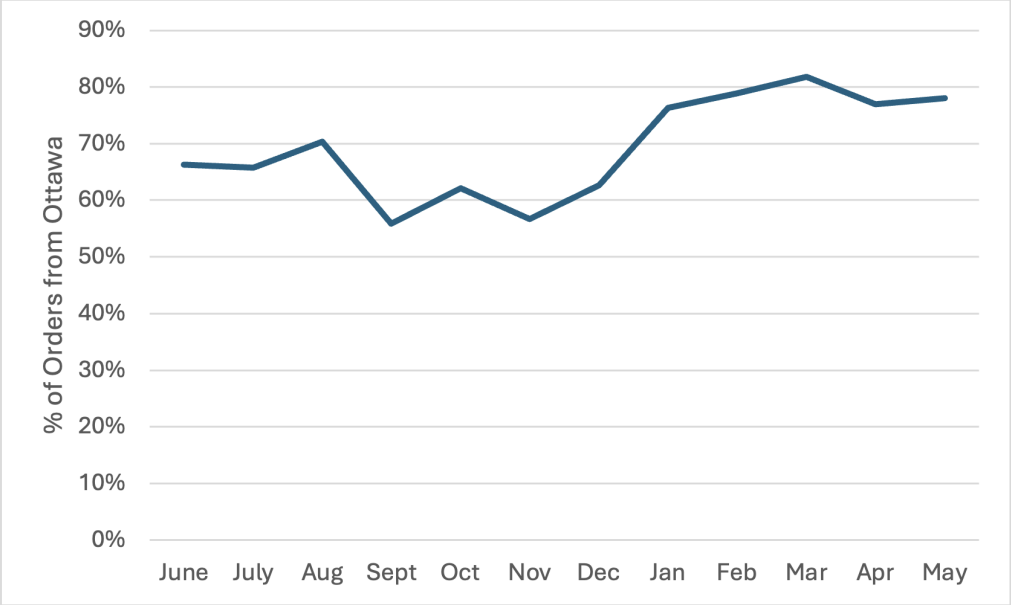


Figure 2: Percentage of GetaKit.ca Orders by Month from Ottawa

Overall, 74% (n=2,575/3,497) of orders came from persons who lived in Ottawa, which climbed slightly over the course of the project, as shown in Figures 1 and 2. Furthermore, 5% (n=2,058/3,497) of orders came from persons who belonged to the groups most affected by HIV. For gender, 59% (n=2,060/3,497) were from cis male users, 40% (n=1,398/3,497) from cis female users, and 1% (n=43/3,497) from persons who identified as trans. For sexual orientation, 50% (n=1,761/3,497) of orders were from users who reported being heterosexual, 32% (n=1,122/3,497) from users who reported being gbMSM, and 14% (n=481/3,497) from users who reported being gay, bi, or a woman who has sex with women. For ethnicity, 56% (n=1,954/3,497) of orders were placed by persons who reported being white, 14% (n=486/3,497) from users who identified as ACB, and 2% (n=71/3,497) from users who identified as members of Indigenous communities.

From these 3,497 orders, we distributed 1,941 HIV self-tests and provided requisitions for 2,271 episodes of laboratory-based STBBI testing. We did not have information on the number of tests completed locally before and after the system was implemented. For the HIV self-tests, 1,102 people reported results back, of which 4 were positive (positivity rate of 0.2% overall, 0.36% for reported results). For the laboratory-based testing, we received results for 76% (n=1,722/2,271) of orders — signalling a high follow-through and completion rate for this testing. From these 1,722 orders, we completed the following testing: 1,624 tests for gonorrhea and chlamydia, 1,294 tests for syphilis, 1,121 tests for HIV, and 144 tests for hepatitis C. From these tests, we obtained the following positive results: 17 for gonorrhea (positivity rate of 1%), 56 for chlamydia (positivity rate of 3.4%), 23 results

for syphilis, of which 4 were new infections (positivity rate of 0.3%), 0 for HIV serology (positivity rate of 0%), and 2 for hepatitis C (positivity rate of 1.4%).

At the health systems level, these findings suggest both cost and time savings. To operate this project, we had a 0.6 full-time equivalent nurse (at a cost of $75,000 in total compensation, including salary and benefits), plus shipping costs of $15,000. If the 3,700 requests for testing that were processed through GetaKit.ca had been billed to the Ontario Health Insurance Plan (OHIP), the cost would have been $140,415 (using the A007 Intermediate Assessment billing code at $37.95) or $259,370 (using the K028 STD management billing code at $70.10) (Ontario 2024). We were thus able to offer testing through GetaKit.ca at 35-64% the current cost to deliver these services in Ontario. Task shifting STBBI testing to nurses thus reduced costs due to lower remuneration rates. Regarding time savings, these 3,700 episodes of testing would have required 1,850 hours of clinical time (assuming 30-minute appointments — as is required for the usage of the K028 code and as is the standard in sexual health clinics in Ontario) (Ontario 2024). We thus diverted care for one full-time equivalent nurse using only a 0.6 full-time equivalent nurse, again generating efficiencies in health care service delivery regarding the costs of delivering care and health human resources. These time savings arose because clients had pre-filled standardized risk assessment questionnaires, been offered clinically indicated testing, and had opted in/out of such testing. The system, moreover, would then generate all required requisitions.

We take these findings to signal that offering STBBI testing through a system like GetaKit.ca can both generate health systems efficiencies and create an access point for patients with undiagnosed STBBIs. In the context of increased and increasing rates of STBBI testing, such health care practice reforms are required. Future evaluations of this reform should also compare testing rates pre-and-post implementation to determine if the online platform had any impact on overall testing uptake locally.

5 STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS

Table 1: SWOT Analysis

Strengths	Weaknesses
• Services are locally accessible, and follow-up/treatment is locally driven. • Access to care is available at-home; potential participants do not have book appointments or travel long distances. • Reduces barriers to obtaining testing, including stigma or discrimination based on race, ethnicity, sex, gender, or sexual orientation. • Generates costs and health human resource savings.	• Requires home address, access to internet, and moderate computer literacy. • Not equally accessible throughout Ontario; access is limited to public health units who have a dedicated provider/follow-up plan. • Access restricted by specimen collection centre availability to drop off specimens in rural areas. • Operating as a research study; some potential participants may decline to access testing on this basis.
Opportunities	**Threats**
• Increase rapid testing access for persons at risk of STBBI. • Linkage to care pathways create opportunities for rapid access to treatment and other prevention services. • The service can identify undiagnosed infections and ultimately limit or reverse rising STBBI rates. • Create regulatory changes that decrease the need for health care providers to manually review all orders – which would make the system even more efficient and cost effective. • Ability to scale-up the intervention to broader coverage in Ontario.	• Services not charged under the provincial Schedule of Benefits, so funding from external sources is required. • Nurse practitioners cannot bill the province for services rendered under the provincial Schedule of Benefits and physicians cannot bill for services that are provided asynchronously (and thus, may risk some loss of income). • Current regulatory context in Ontario requires that a health care provider review orders. • Persons who access site and request services, but never complete testing could have undiagnosed infections.

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