

Supplementary Appendix

Table 1. Summary of identified review articles

Study Author (Year)	Design and Focus	Study Context and Population	Findings around Efficiency, Financing and Access
Self-sampling for STIs			
Canadian Agency for Drugs and Technologies in Health (2016) ¹	Government-conducted health technology assessment review with a focus on the effectiveness and cost-effectiveness of testing for STIs in women using self-collected versus clinician-collected samples	Two economic evaluation studies identified from the United States	<p>Cost and Efficiency: Both identified studies suggested that self-collected samples were more cost-effective than clinician-collected samples from a healthcare payer perspective. Careful interpretation cautioned due to the moderate levels of evidence used as assumptions in the economic models.</p> <p>In one study, the self-administered internet-based home self-sampling intervention for women for STIs (namely chlamydia, gonorrhoea, and trichomoniasis infections) was found to be more costly but also more effective at detecting STIs than clinic-based sampling, making it a potentially more cost-effective option (\$1,281 vs \$1,593 per STI detected) ².</p> <p>The second study compared a home self-sampling intervention for chlamydia to a clinic-based one, but also factored in the screening validity of the two approaches and the related medical costs averted through the prevention of pelvic inflammatory disease and complications of untreated chlamydia infection. Self-sampling intervention was both less costly than the clinic-based model, when downstream costs were considered (\$860,000 vs \$902,000), and more effective (303 vs 232 positive chlamydia cases detected) ³.</p> <p>Financing: Both studies took a US healthcare payer perspective, with limited applicability to the Canadian decision-making context.</p> <p>Access: None reported</p>
Madzima et al (2017) ⁴	Critical literature review on the acceptability, feasibility, and uptake of self-sampling for human papillomavirus (HPV)	One study with an economic analysis among the 43 studies identified mainly from Europe and North America that focused on never-screened or Under-screened populations	<p>Cost and Efficiency: One economic evaluation was identified from the Netherlands, which found a similar cost per CIN grade 2 or higher lesion detected for the self-sampling method compared to conventional screening using the Pap test (€8,836 vs €7,599 [\$13 134 vs \$11 295]). The authors conclude that it is unlikely that HPV self-sampling would lead to additional costs for national screening programmes, but the cost-effectiveness of HPV self-sampling would need to be further assessed on a country-specific basis.</p> <p>Financing: Self-sampling test kits were provided free of charge to users in the identified studies. The authors recommend that these kits should be financed by governments as part of national screening programmes.</p>

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			<p>Access: Studies found a high yield of positive test results for high-risk HPV strains among under-screened women, who were reached with the self-sampling intervention. The authors conclude that HPV self-sampling is a convenient and cost-effective method to increase screening participation among hard-to-reach women, including women of low socioeconomic status and immigrant women, given its low patient cost (free in these studies), convenience (home-based), less discomfort (swab vs Pap test), and privacy.</p>
HIV Self-Testing			
Johnson et al (2017) ⁵	<p>Systematic review and meta-analysis comparing the effect of HIV self-testing to standard HIV testing</p>	<p>5 RCT studies identified from Kenya, Australia, USA and Hong Kong SAR</p> <p>Studies focused on the male partners of pregnant or post-partum women attending ante-natal or post-natal care (in Kenya); and men who have sex with men (in the other countries)</p>	<p>Costs and Efficiency: None reported</p> <p>Financing: Oral-fluid rapid tests for HIV self-testing were provided free in these studies.</p> <p>Access: HIV self-testing doubled the uptake of testing (RR= 2.12 (95%CI 1.51-2.98) in two RCTs), the frequency of testing (Rate ratio= 1.88 (95% CI 1.17-3.01) in 3 RCTs) and the likelihood of an HIV-positive diagnosis among men (RR = 2.02 (95% CI: 0.37, 10.76, 5.32) in two RCTs). The authors conclude that there is moderate quality evidence that HIV self-testing can increase HIV testing uptake and low-quality evidence that it can increase testing frequency.</p>
Stevens et al (2018) ⁶	<p>Literature review on the acceptability, feasibility, and effectiveness of HIV self-testing</p> <p>Literature review (n=28 studies between 2007-2015)</p> <p>HIV Self-Testing (HST) kits Instruction and/or supervision of self-testing participants varied widely (written,</p>	<p>10 costing studies among the 28 studies identified from 11 countries (Uganda, Malawi, Kenya, South Africa, Brazil, China, Peru, Canada, Spain, USA and Singapore)</p> <p>Study populations:</p> <ul style="list-style-type: none"> ▪ General population: adults, heterosexual couples, emergency 	<p>Costs and Efficiency: Studies that considered the cost of HIV self-test kits reported considerable variation by country and method of test distribution.</p> <p>Financing: The amounts that participants were willing to pay for the test kit varied by country; \$0-10 in South Africa and Kenya; \$7-30 (median = \$17) in high income countries; \$5 median for a vending machine approach to dispensing HST kits in the US. The cost of most HIV self-test kits was found to exceed what individuals were willing to pay, given the availability of free or reduced-price HIV testing in many health facilities, using a more accurate test.</p> <p>Access: Studies reported that the acceptability of HIV self-testing was high due to the convenience and privacy it offered in a home setting, particularly in areas with higher HIV stigma in sub-Saharan Africa. This suggest potential to increase access to testing and care, particularly among stigmatised, vulnerable and hard-to-reach populations. Studies also</p>

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	pictorial, and/or video instructions, as well as demonstrations and/or supervision)	room patients, and university students <ul style="list-style-type: none"> ▪ Key populations: MSM, transgender women, and female sex workers ▪ Vulnerable populations: at risk adults, fisherfolk, healthcare workers, and voluntary counselling and testing clients 	found that factors that increased one's ability to successfully perform or interpret an HIV self-test included a higher education level, training prior to taking the test, younger age, prior history with HIV testing, and location of the study site in an upper-income neighbourhood.
Self-management for NCDs			
Panagioti et al. (2014) ⁷	Systematic review and meta-analysis of the effect of self-management support interventions among patients with long-term conditions on healthcare utilisation and costs	184 RCT studies identified mostly from the US and Europe (studies from LMICs were excluded) Study populations: adults with a (or a mix of) long-term condition(s), such as diabetes, asthma, coronary heart disease, and mental health conditions	<p>Costs and Efficiency: The bulk of studies found that self-management support was associated with improved health outcomes and lower hospital use, but also higher costs. Self-management of respiratory and cardiovascular problems had strongest evidence of reduced healthcare utilisation and total cost. Otherwise, only a minority of self-management interventions were found to reduce healthcare utilisation, while compromising patient outcomes. Lower quality studies with higher risk of bias were more likely to report cost savings.</p> <p>Financing: None reported</p> <p>Access: None reported</p>
Van Der Krieke et al (2014) ⁸	Systematic review of the clinical outcomes and cost-effectiveness of e-mental health self-management interventions tailored to	1 study with an economic analysis among the 28 studies identified from the United States, European countries,	Costs and Efficiency: E-mental health self-care services were found to be at least as effective as usual care or non-technological approaches (particularly medication management e-mental health services had large effects), but the only economic analysis identified also reported increased short-term costs. The one study that conducted an economic analysis reported higher costs in the intervention arm, because computers had to be purchased for service users who did not have them in their homes, and there was also an additional cost of

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	the individual user (including the following components: psychoeducation, medication management, communication and shared decision making, management of daily functioning, lifestyle management, peer support, and real-time self-monitoring)	Australia, Canada and South Korea, focused on individuals with psychotic disorders	<p>transportation of service users to locations with computer facilities. In some studies, although costs were not analysed, a reduction of costs seemed plausible, as in the case of text message reminders that significantly decreased the number of missed appointments with clinicians. The authors found that there was insufficient evidence to draw any conclusions on the cost-effectiveness of these interventions.</p> <p>Financing: None reported</p> <p>Access: Most studies had no special requirements for users' access to and experience with technological devices, although two clinical trials required access to the Internet or a mobile phone. Ensuring access for the most vulnerable service users increased costs for e-mental health services.</p>
Glueckhauf & Lustria (2008) ⁹	Literature review on the health outcomes of e-health self-management interventions for patients with chronic illnesses	<p>5 studies with an economic analysis among the 71 RCT studies identified from several countries</p> <p>Study population: individuals diagnosed with a chronic disease (e.g. diabetes, cancer, CVD, PTSD) for an average of 1 year</p>	<p>Costs and Efficiency: The studies with economic analyses reported mixed findings on the cost and cost-effectiveness implications of these interventions. Three studies estimated cost savings from delivering e-health self-management interventions compared to usual care or in-person alternatives. However, one of the studies evaluating a self-help intervention for smoking cessation found that this reduced cost was associated with lower quit rates; while the other two studies of a self-management intervention for CVD and a telephone-based self-management intervention for HIV found only slight or no improvements in intervention outcomes respectively. Another study reported no significant difference in hospitalisation rates and costs from telephone-based case management following heart failure, and a web-based self-management intervention for CVD patients reported significantly fewer cardiovascular events and a 213% return on investment.</p> <p>The authors concluded that the limited number and low quality of cost-effectiveness analyses performed in telehealth evaluations was a major shortcoming of the evidence base.</p> <p>Financing: None reported</p> <p>Access: The authors conclude that information and communication technologies can extend access to specialised health professionals, which may be particularly relevant for vulnerable populations in hard-to-reach areas or patients with rare debilitating diseases.</p>

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Jackson et al (2017) ¹⁰	Systematic review of the impact on quality of care of financial incentives for supported self-management of asthma and diabetes	<p>12 studies identified from USA, UK, and Canada</p> <p>Study populations: healthcare professionals and healthcare organisations incentivised to provide self-management, and individuals with asthma or diabetes receiving care at those organizations</p>	<p>Costs and Efficiency: Study findings were mixed. Most found no effect (7) or a positive effect of financial incentives (5) on organisational process or disease control outcomes. Only one study found a negative effect on the proportion of patients with HbA1c testing. The size of the incentive, exception reporting and the socio-economic status of patients were found to influence outcomes. The size of the incentive, exception reporting and the socio-economic status of patients were found to influence outcomes.</p> <p>Financing: Features of the schemes included: penalty-based (avoidance as motivator), bonus payments (positive motivator), pay for performance based on achieving targets, and mixed penalty and reward elements; reimbursement of self-management education costs.</p> <p>Access: Two studies concluded that health facilities in lower socio-economic status areas required additional support to overcome access barriers.</p>

References

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