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Modernizing Operations to Improve Efficiency and Refine the Role and Mission of STI Clinics

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Like all aspects of healthcare, efforts to provide clinical services for persons at risk for sexually transmitted infections (STI) are constrained by resource limitations. Categorical STI clinics have long played a central role in the provision of STI care in many parts of the world. However, in the United States, these clinics face an uncertain future. Some policy makers believe that the clinics, long tasked with caring for a predominantly uninsured population, will become obsolete as healthcare reform assures that all Americans have health insurance and access to primary care. We believe that STI clinics should continue to exist even after the Affordable Care Act (ACA) is fully implemented in the U.S..¹ Nations such as the United Kingdom, Canada, the Netherlands and Australia, all of which have had universal healthcare for decades, have found it necessary to sustain national networks of STI clinics, and we believe that the U.S. will also continue to need these clinics in the years to come. But the traditional model of service delivery provided in STI clinics must evolve.^{1, 2} The goal of this evolution should be to improve efficiency and quality of care while maximizing population-level impact and focusing on medical and public health needs that the rest of the healthcare system cannot address.

The objective of improving clinical efficiency is to eliminate demand for unnecessary services and decrease unit costs while simultaneously sustaining or improving objective measures of care quality and patient satisfaction. Over the last several years, a rapidly expanding literature has described a variety of testing-focused “express” visit models in STI clinics. These models typically involve triaging asymptomatic patients to a lower cost, less time-intensive clinical service,^{3–7} and have often been aided by technological innovations, such as computer-assisted self-registration,⁸ computer-assisted self-interview to collect medical history,^{7, 9–11} and internet-based provision of testing results.¹² Such innovations are designed primarily to increase efficiency, but also have the capacity to improve the quality of care, for example by using electronic health record data to promote indicated testing and treatment and to diminish the use of services with minimal or no personal or public health impact.⁶ Efficiency may be further enhanced by offering patients the option to self-collect anatomic swabs for bacterial STI screening, essentially task-shifting this clinical activity from staff to patients, which may improve case detection in the process.^{13–15} At least one clinic has essentially removed clinicians from the process of screening asymptomatic patients by using a computer interview to offer eligible patients the option to obtain packets for specimen self-collection from a vending machine.¹⁶

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Do such strategies effectively and substantially improve clinic efficiency and/or quality of care? The Denver Metro Health (STI) Clinic reported that a web-based test results system effectively decreased the proportion of patients who called the clinic for results while maintaining the proportion of patients who received their results.¹² The DHMC investigators also reported that implementation of express visits in their clinic reached 24% of clinic patients in the evaluation period and resulted in a 39% time savings for male patients and 56% time savings for female patients.⁴ The New York City Department of Health and Mental Hygiene reported that implementation of express visits across its 10-clinic system was followed by increased detection of gonorrhea and chlamydial infection, an increase in the percent of patients treated within 30 days of their clinic visit (92.1% to 95.9%) and a decrease in the median time to treatment (14 days to 10 days).⁶ The Melbourne Sexual Health Centre (MSHC) pioneered the use of CASI in routine clinical care, but reported no difference in mean consultation times pre- and post-CASI implementation.¹¹

In this issue of *Sexually Transmitted Diseases*, Knight and colleagues report an evaluation of the Xpress STI screening clinic in the Sydney Sexual Health Centre (SSHC).¹⁷ The Xpress clinic incorporates multiple interventions designed to increase clinic efficiency. The process begins with standardized nurse determination of eligibility for express care, and eligible patients are offered a choice as to whether or not to accept express care. The Xpress clinic uses CASI to obtain risk and sexual history and to deliver education and pre-test information to patients. After CASI, patients collect their own genital and rectal swabs and an enrolled nurse, who operates under the direction and supervision of a registered nurse, collects blood samples and pharyngeal swabs. The SSHC model of express care differs from many others described to date in that it employs separate staff to complete express care.

The authors compared the first 5 months of the Xpress STI screening clinic to the same 5 months of the prior year. With implementation of the Xpress clinic, the total number of patient visits in the SSHC increased by 11%; 13% of patients in the Xpress period were seen in the Xpress clinic. Total staff hours increased by 13%, but due to the lower pay of Xpress clinic staff, the overall cost per patient seen in the SSHC decreased by 6%. Although the mean visit length in the Xpress clinic was approximately half that of routine clinic visits (21 versus 40 minutes), introduction of the Xpress clinic had only a minimal impact on overall median length of patient stay and wait times in the clinic, largely because the Xpress clinic operated at 40% capacity. The authors identify underutilization as the primary factor that limited the impact of the Xpress clinic on overall clinic efficiency and postulate that this was due to requiring all new MSM patients to have HIV pretest counseling in the routine clinic and to the lack of Xpress clinic promotion outside the SSHC patient population.

This study is among the most rigorous evaluations published to date of an intervention designed to increase efficiency of an STI clinic's operations. The investigators tracked times for all major steps of the patient journey through clinic, clinical staff hours worked, and salaries associated with staff hours over the entire 10 month evaluation period. They documented patient eligibility for and uptake of Xpress clinic services. However, the intervention's impact was modest, and the study results beg the question "Was it worth it?"

We believe the answer to this question is an emphatic "Yes". Like studies undertaken in Denver, New York, and Melbourne, the observed benefits were not overwhelming, but there was evidence of benefit. Major changes in clinic procedures and staffing are incremental by nature, and their full impact may not be immediately apparent. Both STI clinic staff and the patients they serve require time to adapt. Moreover, in some instances, the introduction of a new approach or technology (e.g. a new triage system) may require a new staffing model to realize its full effect. In other words, changes may have synergistic, long-term effects that are difficult to discern when first introduced. The Sydney group noted that although the

Xpress clinic was initially underutilized, uptake increased in the three months following the study period, demonstrating that the effect of their intervention was likely underestimated in the initial evaluation.

The imperative to improve clinical operations should ideally generate an implementation research agenda. In the table below we put forth several questions related to STI clinic operations that are amenable to study, organized around the goals of improving efficiency, quality, and population-level impact. At least in the U.S., progress addressing these questions is by no means certain. Research in this area does not clearly align with traditional areas of interest for the National Institutes of Health. The Centers for Disease Control and Prevention (CDC) has very limited funding to support STI-related extramural research, though perhaps the central role of STI clinics in HIV case-finding could justify some use of more abundant HIV-related funding to support research in this area. Also, the Patient-Centered Outcomes Research Institute is a relatively new source of potential funding for research on improving STI clinic operations as part of the larger health care system. Ideally, efforts to improve clinic operations would involve the development of products (e.g. clinic CASI and results reporting systems) that foster dissemination to other clinics and drive down costs.

STI clinics continue to be the most important single sites for the diagnosis of HIV and syphilis in many U.S. cities.¹ Patients often prefer to receive care in these clinics,¹⁸ the care provided is often superior to that available elsewhere,¹⁹ and the clinics play a central role in clinical research,²⁰ public health surveillance activities,^{21–23} STI clinical training, and workforce development. International experience, as well as recent experience in Massachusetts,²⁴ where well over 90% of the population is insured, suggests that demand for services in these clinics is likely to persist after the ACA is implemented. Our goal as public health professionals, researchers, and clinicians should be to improve these clinics and promote their focus on the unique roles they can play in STI care, prevention, and research.

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TABLE

Key Operational Research Questions Related to STI Clinic Efficiency

Goal	Tactic	Research questions
Improve efficiency of care	Triage of asymptomatic patients to express care	<ul style="list-style-type: none"> Is computerized or clinician triage more cost-effective in identifying persons for lower intensity, lower cost services? How does the impact and accuracy of CASI triage vary across diverse patient populations? Does triage cost-effectively decrease clinician time spent on low priority issues? Does express care decrease unit costs?
		<ul style="list-style-type: none"> What is the most cost-effective staffing model for express care? Does the use of internet-based appointment scheduling or mobile phone applications for scheduling improve clinic efficiency and/or patient access to services? Do alternative strategies such as wave scheduling or open-access scheduling decrease clinician down-time or patient wait-times compared to walk-in visits?
		<ul style="list-style-type: none"> Does express care affect patient satisfaction?
		<ul style="list-style-type: none"> Do alternate scheduling models affect patient satisfaction compared to walk-in visits? Do alternative staffing models that make greater use of less highly educated staff affect patient satisfaction compared to traditional models that rely on highly trained medical professionals?
Improve quality of care	Triage of asymptomatic patients to express care	<ul style="list-style-type: none"> Can CASI-based counseling be integrated into routine practice, and does it improve patient knowledge, impact behavior, or affect biological outcomes?
		<ul style="list-style-type: none"> Does automated decision support increase appropriate use and/or decrease inappropriate use of testing? Does it improve vaccination and appropriate use of other ancillary services?
	Alternative staffing and scheduling models	<ul style="list-style-type: none"> Can automated reminders increase appropriate medical follow-up?
		<ul style="list-style-type: none"> Can electronic reminders increase clinic utilization by MSM, sex workers, persons with a history of STI, and other priority populations? How widely can these reminders be disseminated? Can express care increase re-screening rates or frequency of routine screening in priority populations?
Improve population-level impact	Increase service utilization among persons at highest risk for morbidity and disease transmission	<ul style="list-style-type: none"> How can lower risk persons and non-priority populations best be triaged to receive services outside of STI clinics?
Improve population-level impact	Triage lower risk persons	

Goal	Tactic	Research questions
Improve population-level impact	Disseminate innovations	<ul style="list-style-type: none">• Can we develop a marketable CASI product for use in diverse settings, and can that product evolve to meet changing demands?
	Improve integration of STI clinics into national surveillance systems	<ul style="list-style-type: none">• Can we increase uniform data collection and enhance biological specimen collection for public health STI surveillance?
	Integrate STI clinics into research	<ul style="list-style-type: none">• How can STI clinics best be organized as a resource for research?

STI, sexually transmitted infection; CASI, computer-assisted self-interview