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## Effects of electronic psychiatric consultations on primary care provider perceptions of mental health care: Survey results from a randomized evaluation

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### A B S T R A C T

**Background:** Primary care is the main point-of-entry for identifying and treating mental health problems. This research examines the effect of a new model of supporting primary care providers (PCPs) treating mental health disorders, the electronic consultation (eConsults), a standard process for communication between PCPs and psychiatrists through an electronic health records system.

**Methods:** A cluster-randomized evaluation of the psychiatric eConsults model, as implemented in a large integrated delivery system. Web survey data before and after the implementation of psychiatric eConsults were collected on PCPs' perceptions of their capability and skill to deliver mental health services, and analyzed with linear regression models.

**Results:** At baseline PCPs had mixed assessments of perceived support for delivering mental health services and of the availability of specialist consultations, but had relatively high perceived self-efficacy and skill for identifying, diagnosing and treating depression. PCPs in the Treatment group had statistically significant 18%, 13%, and 16% improvements in perceived support for diagnosing mental health problems, making treatment decisions, and changing treatment regimens, respectively; and 24% improved perceived ease of access to consultations for mental health, compared to the Control group. Evidence of effects on self-efficacy and perceived skill around depression was more limited.

**Conclusions:** The psychiatric eConsults model improved PCPs' perceptions of support for delivering mental health care and perceptions of access to specialist consultations.

**Implications:** Electronic consultations may be a promising approach to support the delivery of mental health services in primary care settings.

**Level of evidence:** Pre- and post-intervention web surveys from a cluster-randomized trial.

### 1. Introduction

Primary care is the health care system's main point-of-entry for identifying and treating mental health disorders.<sup>1</sup> This carries several advantages, since primary care is accessible to patients, can carry less stigma than seeing a mental health specialist, and because many common mental illnesses can be competently treated in the primary care setting. However, primary care providers (PCPs) struggle to address their patients' mental health needs. Mental disorders frequently go undiagnosed, untreated, or inadequately managed in the primary care setting.<sup>2</sup> These shortcomings persist for a variety of

reasons: PCPs are overburdened and don't have time to address mental health<sup>3</sup>, PCPs are not adequately equipped to deal with certain types of mental health problems<sup>4,5</sup>, or PCPs don't have sufficient access to mental health specialist resources.<sup>6</sup>

When PCPs need support in the diagnosis, treatment, or management of a patient's mental health problems, several options are typically available. The PCP can seek a "curbside consultation" from a mental health specialist colleague, the PCP can refer the patient to specialty services, or the PCP can attempt to proceed on their own without specialist input. A recent review highlights many shortcomings of these choices.<sup>7</sup> PCPs may not have co-located specialist colleagues,

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may not have relationships with specialists, or specialist colleagues may be unavailable for a curbside consultation. Referrals to specialists may take a long time due to a limited supply of psychiatrists, are frequently unnecessary (i.e., could have been handled by the PCP), are relatively expensive, can lead to miscommunications between the PCP and the specialist, and frequently are not completed by the patient.<sup>7</sup> Finally, if a PCP proceeds without specialist input, diagnostic and treatment decisions may be suboptimal, particularly for rarer, more complicated, or more severe cases.<sup>5</sup>

Innovative models to support the delivery of mental health services in primary care settings may therefore hold significant promise for improving care for people with mental illness. A relatively new model of supporting specialty care conditions in primary care settings is the electronic consultation, which has been defined as “an asynchronous consultative communication between providers occurring within a shared EHR (electronic health records system) or secure web-based platform.”<sup>8</sup> Electronic consultations are increasingly being used in primary care settings to support physical health specialty conditions, for consultations with a range of specialties such as rheumatology, gastroenterology, and cardiology.<sup>9–13</sup> The electronic consultations model could have several benefits.<sup>7</sup> It could deliver faster feedback to a PCP than a traditional “curbside consultation,” since the PCP and the specialist do not need to meet in person, or even at the same time.<sup>14</sup> It could allow care to proceed faster than waiting for a specialty referral (many of which are not even completed by patients), and by avoiding referral there may be less fragmentation and greater care continuity with fewer chances for subsequent miscommunication between providers.

However, the degree to which electronic consultations actually affects PCPs’ delivery of care is not well-understood. To our knowledge electronic consultations have not been widely used as a tool to support mental health services in primary care, and two recent reviews conclude that the literature evaluating the effects of the electronic consultations model is sparse.<sup>8,15</sup> Some of the existing literature on electronic consultations focuses on describing how different electronic consultations models are implemented in different care environments and the implications for workflow.<sup>8</sup> Evidence on outcomes of electronic consultations is more limited – for example, pre-post comparisons in a safety net health setting suggested that medical and surgical electronic consultations improved appropriateness of referrals, time to specialty services, and quality of interprovider communication.<sup>11,13</sup> Only one randomized evaluation of the electronic consultation models has been completed, and focused on cardiology care in an underserved population. Among 26 PCPs, access to an electronic consultation accelerated patients’ access to cardiology referral.<sup>16</sup> In this research we assess the effects of an electronic consultations model for mental health services on PCPs’ perceptions of their capability and skill to deliver mental health services. We examine survey data from a randomized evaluation of a new psychiatric electronic consultations model in a large integrated delivery system.

## 2. The eConsults intervention

The setting for this study is the primary care clinics of Allina Health, a large, integrated delivery system serving the greater Twin Cities metropolitan area. In the 12 months prior to the study, Allina Health served over 1.1 million unique patients. Allina Health’s population is geographically-diverse: 20% of patients served were rural, 15% were urban, and 62% were suburban. The population is also diverse by payer-type: 16% of patients were covered by Medicaid, 19% were covered by Medicare, 60% were commercially-insured, and the remaining 5% were uninsured or covered by a different payer. The racial/ethnic composition of Allina Health’s patients matches the demographics of its service region, which is less diverse than the rest of the country: 80% of patients were white, 7% were black, and only 3%

reported Hispanic/Latino ethnicity. Allina Health’s PCPs include physicians, osteopaths, nurse practitioners, and physician’s assistants.

## 3. Methods

### 3.1. Intervention

The psychiatric electronic consultation intervention under investigation was called “eConsults,” and has two key components: the introduction of the eConsult capability via the EHR system, and the financial incentive for psychiatrists to participate. PCPs have the option within the EHR of ordering an eConsult on behalf of their patients, which allows the PCP to ask specific questions about a particular patient’s care. The request is routed to the service region’s psychiatry pool (Allina Health has seven service regions), and the psychiatrists respond to each eConsult request in the order they are received. Upon initiating the eConsult, the psychiatrist will review the patient’s records and respond with their treatment considerations within one business day, and the PCP proceeds with implementation of the recommendations with consideration of the patient’s relevant prior history and current clinical status. The psychiatrist receives 0.75 work relative value units (wRVUs) for providing this service, approximately the equivalent of \$50. All communications for the eConsult are routed through Allina Health’s EHR system. Patients were not billed for eConsults. The eConsult was designed as a one-time interprovider communication, but providers could subsequently communicate about the patient if they wanted, and an eConsult could also potentially lead to a faster psychiatry referral if the consulting psychiatrist considered it necessary.

### 3.2. Randomization

This study uses a cluster-randomized rollout design, where the cluster is the primary care clinic.<sup>17</sup> Forty-five clinics were randomly assigned to an intervention and control group using stratified randomization, where the stratum was whether or not the clinic had co-located mental health services. The eConsults initiative was rolled out to the 22 clinics in the Intervention group during August 2015. As part of the rollout, Allina Health’s psychiatrists visited the primary care clinics to introduce themselves to PCPs. The 23 Control group clinics practiced care-as-usual until they received eConsults nine months after the first month of the Intervention group’s rollout was complete, in June 2016. [Table 1](#) describes averages of key characteristics of the Treatment and Control clinics in the 12 months prior to the start of the study, that were provided to the research team in aggregated form by the delivery system at the time of randomization. None of these key characteristics were significantly different between the Treatment and Control clinics, suggesting that the randomization was successful.

**Table 1**

Characteristics of the treatment and control group clinics in the 12 months prior to the eConsults intervention.

	Treatment	Control	P-Value
# of clinics	22	23	
# of PCPs per Clinic	8.09	8.87	0.924
% of patients w/depression diagnosis with completed depression screening	91.50%	92.10%	0.832
% of patients w/depression diagnosis who had PHQ 9 of < 10 after 6 months	43.30%	42.70%	0.795
# of annual mental health referrals/PCP	47.00	49.10	0.640
% with Co-located MH services	36.40%	34.80%	0.912

Note: Data come from clinic-level average information provided by Allina Health at the time of randomization

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