

Correlates of Patient Portal Enrollment and Activation in Primary Care Pediatrics

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ABSTRACT

OBJECTIVE: To identify the demographic, practice site, and clinical predictors of patient portal enrollment and activation among a pediatric primary care population.

METHODS: We conducted a cross-sectional analysis of the primary care database of an academic children's hospital that introduced a patient portal in December 2007.

RESULTS: We analyzed data for 84,015 children. Over a 4-year period, 38% enrolled in the portal; of these, 26% activated the account. The adjusted odds of portal enrollment was lower for adolescents, Medicaid recipients, low-income families, Asian or other race, and Hispanic ethnicity, and higher for patients with more office encounters, and presence of autism on the problem list. Once enrolled, the odds of portal activation [adjusted odds ratio (95% confidence interval)] was decreased for: Medicaid [0.55 (0.50–0.61)] and uninsured [0.79 (0.64–0.97)] (vs private insurance), black [0.53 (0.49–0.57)] and other [0.80 (0.71–0.91)] (vs white race), Hispanic ethnicity [0.77 (0.62–0.97)], and increased for: infant age [1.26 (1.15–1.37)]

(vs school age), attendance at a resident continuity practice site [1.91 (1.23–2.97)], living further away from the practice (vs under 2 miles)[4.5–8.8 miles: 1.14 (1.02–1.29); more than 8.8 miles: 1.19 (1.07–1.33)], having more office encounters (vs 1–3) [4–7 encounters: 1.40 (1.24–1.59); 8–12 encounters: 1.58 (1.38–1.81); 13+ encounters: 2.09 (1.72–2.55)], and having 3 or more items on the problem list (vs 0) [1.19 (1.07–1.33)].

CONCLUSIONS: Sociodemographic disparities exist in patient portal enrollment/activation in primary care pediatrics. Attendance at a resident continuity practice site, living farther away from the practice, having more office encounters, and having more problem list items increased the odds of portal activation.

KEYWORDS: digital divide; disparities; electronic health records; Medicaid; patient portal

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WHAT'S NEW

We demonstrate sociodemographic disparities in patient portal enrollment/activation in primary care pediatrics. Attendance at a resident continuity practice site, living farther away from the practice, having more office encounters, and having more problem list items increased the odds of portal activation.

THE INCREASING USE of the Internet to access health information^{1–5} and the increased use of electronic health records (EHR) has developed more recently into conversations about “meaningful use” of the EHR.⁶ One example of meaningful use that leverages the EHR with the public's interest in using the Internet to access health information is the development of the electronic patient portal. The electronic patient portal uses an Internet-based interface to provide patients with access to health information from their own electronic health records and offers an additional mode of communication with health care providers.

Studies evaluating the use of patient portals report improved communication with the clinic,^{7,8} patient perception that the portal saved a phone call or office visit,⁷ and higher overall satisfaction with care.^{7,8} However, an existing digital divide with regard to Internet access and use may exacerbate health care disparities between advantaged and disadvantaged populations.^{9–14} There have been few reports of electronic portal use in pediatrics.^{2,15–17} Among children with chronic diseases, African American families and Medicaid recipients were less likely to use a portal.¹⁵ However, we are aware of no studies that have looked at electronic portal use among the general pediatric population.

The objective of this study was to identify the demographic, practice site, and clinical predictors of portal enrollment and activation among a pediatric primary care population. We hypothesized that portal enrollment and activation would be higher among guardians of younger children (eg, frequency of need to schedule visits, obtain immunization records) who live further away from their primary care practice (more convenient means of

communication) with higher socioeconomic status (digital divide). We also hypothesized that primary care practice site characteristics may also influence portal enrollment and use, and that guardians of children with a chronic disease would be more likely to enroll in and use the portal. Finally, we sought to describe the ways that participants used the patient portal.

METHODS

DESIGN, SETTING, AND PARTICIPANTS

We conducted a retrospective cross-sectional analysis of deidentified data from the primary care database of an academic children's hospital. This study was classified as exempt by the institutional review board of Nemours. We retrieved the data for all unique patients assessed in 13 Nemours Delaware Valley primary care practices beginning December 1, 2007, through November 30, 2011.

MYNEMOURS PATIENT PORTAL

Beginning December 2007, a patient portal site (MyNemours) was introduced at staff meetings at each primary care practice. MyNemours (<http://www.nemours.org/content/nemours/wwwv2/patientfamily/mynemours.html>) integrates access to personal health information with access to services. The portal serves as an Internet gateway that enables parents and their children access to their protected health information online, including the problem list diagnoses, medication list, and laboratory results released by the doctor (from the hospital EHR). Additionally, the MyNemours portal provides interactive services such as the ability to refill prescriptions, schedule appointments, ask the doctor questions, print immunization records and copies of completed letters (school notes, health appraisals), and make a customer service comment or request.

PROCEDURES FOR ENROLLMENT IN THE MYNEMOURS PATIENT PORTAL

As part of the rollout of MyNemours, front desk staff and physician teams at each practice site met to discuss and develop strategies for introducing the portal to patients and families, completing the required user agreements and assents, and generating MyNemours access codes. Local strategies varied among practice sites and included brochures/posters in the waiting area or examination rooms, introduction by the front desk staff, schedulers, clinic nurse, or medical assistants either during phone calls or while rooming patients, and introduction by clinicians during office visits. Patients and legal guardians of patients (seen in the practice within the previous 2 years) were invited to enroll (patients) or obtain proxy access (legal guardians) to the patient's MyNemours account. In order to preserve adolescents' confidentiality for treatments protected by state laws, legal guardians' proxy access becomes limited on the patient's 12th birthday by excluding access to the medication list. Full access may be regained if the adolescent signs an independent assent. Legal guardians' proxy access automatically expires on the patient's 18th

birthday. Proxy access can be maintained beyond the patient's 18th birthday in cases of diminished capacity.

User/assent agreements were completed either during a clinic visit or via the Nemours Web site. Once agreements were signed, clinic staff (front desk, medical assistant, or EMR support personnel) generated an access code, which was e-mailed to the user with instructions and a link to the MyNemours portal log (<https://mynemours.nemours.org/>). Initially, completed user agreements/assents were batched and sent to Nemours Health Informatics personnel to generate access codes; over time, clinics developed strategies to generate access codes on site.

MEASURES: DEPENDENT VARIABLES

ENROLLMENT IN MYNEMOURS

For each unique patient who had at least one visit in one of the primary care practices, we retrieved data about whether a MyNemours access code had ever been generated.

ACTIVATION OF THE MYNEMOURS ACCOUNT

For each unique patient who had at least one visit in one of the primary care practices, we retrieved data about whether any user had ever logged onto their MyNemours account.

USE OF MYNEMOURS

We retrieved data for the aggregate number of hits annually by type of patient portal activity, for all MyNemours users for the years 2008, 2009, 2010, and 2011.

MEASURES: INDEPENDENT VARIABLES

DEMOGRAPHICS

To test demographic variation in enrollment and activation of the portal, we retrieved the patient's date of birth, type of insurance, race, ethnicity, and home address.

PRACTICE CHARACTERISTICS

For each patient, we retrieved the practice site and practice site address.

CLINICAL DATA

As a proxy for the presence of a chronic disease, we retrieved the following variables for each unique patient: total number of visits at the practice over the study period, number of items on the patient's problem list in the EHR, and the presence (yes/no) of each of the following conditions on the problem list as defined by the relevant diagnosis codes: asthma (493.x), attention-deficit/hyperactivity disorder (ADHD) (314.x), autism (299.x), and cerebral palsy (343.x).

ANALYSES

For each patient, we calculated their age as of December 31, 2011. Because we hypothesized that pediatric portal enrollment and use would vary on the basis of the varying needs of infants/preschoolers versus school-age children

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