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Title of Project
Use of HIT to Increase Primary Care Access in Medicaid Patients

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Inclusive Dates of Project
9-1-2011 through 12-31-14

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Acknowledgement of Agency Support
This project was supported by grant number R21HS020693 from the Agency for Healthcare Research and Quality. The content is solely the responsibility of the authors and does not necessarily represent the official views of the Agency for Healthcare Research and Quality.

Grant Award Number
R21HS020693

STRUCTURED ABSTRACT

Purpose: To use HIT to improve primary care access for Medicaid patients
Scope: Medicaid patients often use the ED instead of primary care for non-urgent and routine care.
Methods: Mixed method RCT. Data sources: Electronic Medical Record (EMR), satisfaction surveys, focus groups, and focused interviews. Intervention employed an integrated EMR to schedule follow-up PCP appointments for Medicaid patients during ED visits, to notify PCPs of scheduled visits, and to provide primary care practices with patient record access.
Results: 28% of intervention patients attended at least one primary care visit at 3-month follow-up (13% in the comparison group). 62% patient no-show rate. Intervention group had 2.5 times the odds of attending a PCP visit at the 3-month follow-up compared to comparison group (95% CI: 1.05, 6.02, p=0.037). Not significant by 12 months post randomization (p=0.166). Themes of patient use of ED included convenience, logistics, finances, and low health literacy. System change is necessary but not sufficient to impart change in patients' care-seeking behavior. Need to address socio-economic barriers to improve primary care utilization over a preference for the ED in Medicaid patients.
Key Words: HIT, Medicaid, Primary care, ED

PURPOSE

Using health information technology (HIT), this project served to develop, implement, and evaluate an Emergency Department (ED)-Primary Care Provider (PCP) Connector Program that aimed to: 1) improve access to primary care for non-urgent and routine health services for Medicaid patients; and 2) improve coordination of care across transitions in healthcare settings by the use of electronic exchange of health information. In a randomized controlled trial of this intervention, we assessed whether the program makes a difference on the basis of both quantitative and qualitative assessments, including measures of ED utilization, assessments of patient satisfaction, and evaluations of physicians' opinions about the program's ability to improve communication between the ED and PCP settings. The project had the following two specific aims and associated research hypotheses:

Study Aim 1: To develop, implement, and evaluate an ED-PCP Connector program using a HIT-based intervention to reduce ED utilization and increase primary care access for Medicaid patients who do not have a regular source of primary care.

Hypothesis 1: Medicaid patients referred from the ED to PCP offices through the ED-PCP Connector program will keep their follow-up appointments, maintain ongoing relationships with the PCP offices, and will utilize the ED less often than those not included in the program.

Study Aim 2: To improve Medicaid patients' satisfaction with care and improve communications between the ED and PCPs through use of an ED-PCP Connector program.

Hypothesis 2: Medicaid patients referred through the ED-PCP Connector program will have higher satisfaction with care and their PCPs will experience improved communication during patient transitions compared to the experiences of patients and the physicians of patients not involved in the program.

SCOPE

The Emergency Department (ED) is often used by Medicaid patients for non-urgent or routine health services, resulting in increased costs to health systems and society and reduced quality of care. A common reason for inappropriate ED use by Medicaid patients is a lack of regular access to primary care physicians (PCPs). Programs designed to address this issue generally take the approach of arranging follow-up appointments or improving communication between the ED and PCP. In this study we aimed to determine whether an HIT intervention could both improve access to primary care for Medicaid enrollees who did not have a usual source of care and increase the flow of clinical information between the ED and PCP offices. The study was conducted at an urban academic medical center in the Midwest.

METHODS

Study Design: We designed, implemented and evaluated an ED - PCP Connector Program using mixed method analysis. Patients were randomized to receiving the intervention (the ED-PCP connector program) or to a comparison group. This intervention program used an integrated electronic medical record (EMR) system to schedule follow-up PCP appointments for Medicaid patients during ED visits, to notify PCPs of the upcoming scheduled visits, and to provide primary care practices with access to patients' records. The blinded for review Institutional Review Board approved this study.

Patient Recruitment: Patients with Medicaid were recruited from the "minor" side of the emergency department where individuals were seen for routine, non-urgent medical problems as determined by ED protocol and that did not require observation or admission. Patients with a confirmed cognitive deficit or psychiatric disorders other than anxiety or depression were not eligible to participate. After reviewing details of the study, addressing questions from patients, and obtaining documented informed consent, a trained research assistant (RA) administered a baseline survey and randomly assigned the patient to the intervention or comparison group.

Intervention Group: If randomized to the intervention group, the RA used the EMR to schedule an appointment at a primary care practice location. The subject chose the location, date, and gender of the physician they would like to see. The participant was given an appointment reminder card and directions to their chosen practice location. The RA then sent an electronic message through the EMR to the physician with whom the patient was scheduled to provide the patient name, medical record number, date and time of the scheduled appointment, the reason for the ED visit and that the patient was part of the ED-PCP Connector study.

Comparison Group: If randomized to the comparison group, the patient received a handout to aid in selecting and scheduling an appointment with a PCP and was asked to make an appointment with a PCP to establish care. The handout listed the primary care practices and providers within the health system that were accepting new patients, and included primary care practices' addresses and phone numbers.

Data Collection

Quantitative—Patients. Patients completed a survey prior to randomization to collect demographic and health status information, including age, gender, race, ethnicity, marital status, education, employment and profession, household income, and insurance coverage. Additional quantitative data was extracted from a medical record review at 3 months, 6 months and 12 months post-randomization. Collected data included scheduled or completed visits to primary care (date, location, diagnosis) as well as return visits to the ED (date, location, admission, diagnosis).

Qualitative—Patients. A subset of patients from the study sample agreed to be contacted for follow-up interviews. All interviews were recorded and transcribed verbatim.

Qualitative—Non-patients. Providers, staff and administrators from both the ED and primary care offices who participated in the study were also contacted for follow-up interviews. All interviews were recorded and transcribed verbatim.

Limitations: Healthcare utilization variables could only be collected within the study's health system. We did not have access to any data on patient visits to primary care providers or EDs outside of the AMC's EMR, thus we were unable to track out-of-system utilization. In addition, because the ED-PCP Connector Program was designed to have minimal impact on medical staff time, non-patient participants were only minimally aware that they had been involved with the program. While most interviewees voiced support for this type of program and recognized its potential benefits, they were unable to directly link their comments or perceptions to experiences with the program.

RESULTS

Study Participants: A total of 140 patients participated in our study, including 72 in the intervention group and 68 in the comparison group. In addition, we interviewed a total of 23 patients and 29 providers, administrators and staff to learn more about their experiences with the ED-PCP Connector Program Participating patients were asked about the program and whether it was helpful, as well as for their perspectives about access to primary care in general. Non-patients were asked about the use of HIT to facilitate communications about care, and about possible reasons Medicaid enrollees might use the ED for non-urgent concerns.

Table 1: Participant Demographics for the Intervention and Control Groups	**Intervention**		**Control**		**Pearson's Chi Square**
	N	%	N	%	
Total Participants	72	51.4	68	48.6	
Gender					
Female	55	76.4	47	69.1	
Male	17	23.6	21	30.9	
Item Nonresponse	0	0.0	0	0.0	
Race/Ethnicity					0.188
White	8	11.1	16	23.5	

Table 1: Participant Demographics for the Intervention and Control Groups	**Intervention**		**Control**		**Pearson's Chi Square**
African American	59	81.9	46	67.7	
Hispanic/Asian/Other	4	5.6	5	7.4	
Item Nonresponse (a)	1	1.4	1	1.5	
Age					0.587
18 to 25 years old	28	38.9	23	33.8	
26 to 30 years old	15	20.8	21	30.9	
31 to 50 years old	26	36.1	19	27.9	
Over 50 years old	3	4.2	4	5.9	
Item Nonresponse	0	0.0	1	1.5	
Marital Status					0.994
Married or long-term cohabitation	11	15.3	10	14.7	
Divorced/Widowed/Separated	15	20.8	13	19.1	
Never Married	44	61.1	40	58.8	
Item Nonresponse	2	2.8	5	7.4	
Education					0.567
Some high school or less	18	25.0	21	30.9	
High school graduate	26	36.1	19	27.9	
Some college or more	27	37.5	25	36.8	
Item Nonresponse	1	1.4	3	4.4	
Employment					0.714
Full-time	16	22.2	12	17.7	
Part-time	10	13.9	12	17.7	
Unemployed (b)	43	59.7	40	58.8	
Item Nonresponse	3	4.2	4	5.9	
Yearly Income					0.175
Less than $14,000	38	52.8	42	61.8	
$14,000 or more	22	30.6	14	20.6	
Item Nonresponse	12	16.7	12	17.7	
Uninsured in the past year					**0.027**
Yes	12	17.7	23	33.8	
No	56	77.8	44	64.7	
Item Nonresponse	4	5.6	1	1.5	
Two or more comorbidities (c)					0.768
Yes	25	34.7	21	47.1	
No	34	47.2	32	47.1	
Item Nonresponse	13	18.1	15	22.1	

Table 1: Participant Demographics for the Intervention and Control Groups	**Intervention**		**Control**		**Pearson's Chi Square**
Notes: a) Item Nonresponse includes both missing data and the "prefer not to answer" response selection; b) Unemployed includes respondents looking for work, keeping house full-time, students, not working due to health reasons and retired; c) From a list of 10 prevalent chronic conditions.					

Primary care and ED utilization were tracked during the 12-month study period for all patient participants. Just over one-quarter (28%) of intervention patients attended at least one primary care visit at 3-month follow-up, compared to 13% of patients in the comparison group. Notably, for intervention group patients, not all Connector Program-scheduled appointments were kept; there was a 62% patient no-show rate and providers canceled 15% of the initially scheduled appointments.

Patients in the intervention group had 2.5 times the odds of attending a PCP visit at the 3-month follow-up relative to patients in the comparison group (95% CI: 1.05, 6.02, p=0.037). This difference was not significant by 12 months post randomization (p=0.166). Across the study, there was no significant difference in the rate of attending a primary care visit in the first 3 months on the basis of any measured demographic variables. Similarly, there was no significant difference in the number of non-urgent ED visits by study group, or by reporting a PCP visit by the 3-month follow-up (p>0.05).

Primary Care and ED Utilization, by Study Group Arm

	Intervention		**Control**	
	N	%	N	%
Primary Care (PC) Visit(s)				
At least 1 PC visit at 3 month follow-up	**20**	**27.8**	**9**	**13.2**
At least 1 PC visit at 12 month follow-up	21	29.2	13	19.1
Attended Initially Scheduled Visit				
Yes	12	16.7	N/A	
No - Patient Cancelled	4	5.6		
No - Patient No Show	45	62.5		
No - Provider Cancellation	11	15.3		
For No above:				
Patient rescheduled initial visit			N/A	
Yes	8	13.3		
No - never rescheduled	43	71.7		
No - Patient No Show	9	15.0		
No - Provider Cancellation	0	0.0		
2 or more PC visits by end of study	**10**	**13.9**	**4**	**5.9**
Emergency Department Visit(s)				
Any non-urgent visit by 3-month follow-up	23	31.9	16	23.5
Any non-urgent visit between 3 and 6 months	**25**	**34.7**	**12**	**20.6**

Any non-urgent visit between 6 and 12 months	31	43.1	21	30.9
Note: (a) Primary care appointments and ED visits could only be tracked for encounters within the study's health system. Bold denotes a significant different between groups at $p < 0.05$.				

While the program reportedly helped patients with appointment scheduling, developing a relationship with a PCP, and getting primary care in an appropriate setting, interviewees also explained how barriers to primary care access hindered their ability to successfully use the program. Commonly mentioned barriers to attending a primary care appointment included lack of transportation and a need for childcare. When patients were asked specifically why they had not attend the scheduled primary care appointment, patients referred to a resolution of symptoms that brought them to the ED and/or a lack of a need to follow-up.

Provider, Administrator and Staff Perceptions about ED and Primary Care Use
When asked for their perspectives about the use of HIT to facilitate ED/PCP communications ED providers noted that they used the EMR to determine whether a presenting patient had a PCP, as well as to locate an appropriate provider for a referral if the patient did not already have a provider. They also discussed the ease of viewing a patient's history in the EMR, and how that differed when patients were seen outside the AMC's health system. Primary care providers appreciated the ability to view a patient's ED history and experience, and also noted that the information was more complete and accessible when the patient was seen in the health system's ED.

A majority of non-patient interviewees commented that patients' lack of understanding about the ED and emergent concerns was likely a major contributor to non-urgent ED use as was the fact that no appointment is required and results of testing are immediately known. Also mentioned were the lack of copays required of Medicaid patients as well as perceptions that patients might not have easy access to a PCP, thus leading them to seek care in the ED instead of in a primary care setting.

We found that the use of HIT as part of our ED-PCP Connector Program intervention was modestly effective at addressing the problem of helping Medicaid patients obtain primary care appointments. For about one-quarter of our study population (28%), scheduling a visit was an effective means for this subset of patients to initiate use of primary care. At the same time, for a smaller subset of our comparison group (13%), simply providing a list of providers was sufficient to encourage PC use. For the majority of study patients, however, the intervention did not decrease ED visits nor increase PC use. Further, we found no significant difference in utilization of either type of service for either group at the end of our study's twelve-month follow-up period.

In our study, we used HIT to schedule a PCP appointment for the patient in real time thereby both bypassing the phone queue and eliminating potential negative experiences new Medicaid patients may face when calling a PCP office. While this intervention effectively closed the communication loop between the ED provider and the newly-established PCP, we found that this system change was not enough to change patients' care-seeking behavior over the longer term.

To effectively achieve the goal of deterring ED use for non-urgent needs and instead encourage Medicaid patients to visit primary care offices, we must also address the social and health services barriers that impact a patient's ability to attend a PC visit. Issues such as the need for after-hours care, transportation, and provider cancellations can hinder patients' efforts to access primary care. In addition, it will likely be necessary for providers to develop mechanisms to address socio-economic barriers such as the need for child care, consistent transportation to and from appointments, and implementation of non-traditional hours so as to be available during the time frame that the working poor are not actually at work. While HIT can help overcome initial access barriers for this cohort of patients, it is not sufficient to ensure appropriate ED use and establishment of a long-term personal physician relationship that is needed to foster the delivery of truly patient-centered care.

We found that while this HIT intervention linked Medicaid patients directly with guaranteed primary care appointments and facilitated communications among providers, not all patients attended their scheduled appointments, nor did ED utilization drop over the long-term. Our results suggest that it is necessary to not only provide a referral to a PCP, but also to evaluate if the patient attended their scheduled appointment, and to determine whether the patient established the primary care office as a source of care for non-urgent concerns. Although removal of system barriers is necessary to increase access to primary care for the Medicaid population, it is not sufficient. Further research should be undertaken to improve our understanding of "the reasons behind the reasons" driving ED use over primary care.

LIST OF PUBLICATIONS AND PRODUCTS

Conference presentations

Hefner J, Lehman J, Taylor CA, McAlearney AS, Wexler RK, Sieck C. Use of an HIT scheduling intervention to increase primary care access for Medicaid patients. North American Primary Care Research Group; 2014 Nov 21; New York, New York.

Sieck C, Hefner J, Lehman J, McAlearney AS, Wexler RK. Use of an HIT scheduling intervention to increase primary care access for Medicaid patients: Patient, provider, and administrator perspectives. North American Primary Care Research Group; 2014 Nov 21; New York, New York.

Wexler RK, Hefner J, Lehman J, McAlearney AS, Sieck C, Taylor CA. Practice and policy implications of an intervention implemented to increase primary care access for Medicaid patients. North American Primary Care Research Group; 2014 Nov 21; New York, New York.

Manuscript

The manuscript documenting these findings is currently under review.