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Evaluation of a Patient Communication Program and Patient Appointment Reminder Calls in a Community Health Center Setting

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Background and Significance

Missed patient appointments at community health centers can cause several clinical and operational issues. These include: lost revenue, which few health centers can afford; disruptions in care continuity; limitations in a health center's ability to respond to same-day appointment requests; increased wait times.

The medical home model recognizes these challenges and establishes patient access as a core element. Identifying effective and feasible strategies to reduce the no-show rate is a critical component of this.

The Massachusetts League of Community Health Centers, the University of Massachusetts Medical School (UMMS), and the Edward M. Kennedy Community Health Center (Kennedy CHC) came together to develop solutions to reduce the no-show rate. Together, they launched a Patient Communications Pilot Program, which included outsourcing patient communications functions to a state-of-the-art call center operated by UHealthSolutions, an affiliate of UMMS.

Evaluation Aims

- Assess how the pilot program was implemented, specifically the operational and organizational steps taken to initiate and sustain the program.
- Examine the performance of the appointment reminder system based on select intermediate and outcome measures, including reminder call disposition and appointment status.
- Determine how patients who do not show for their appointments differ from those who do, in terms of reminder call disposition and patient characteristics.

Grant funding for research and evaluation provided by the UMMS Commonwealth Medicine Internal Grants Initiative.

The Patient Communications Pilot Program was developed in collaboration with the Commonwealth Purchasing Group.

Qualitative Data Analysis

In addressing the first aim, we used qualitative methods to examine program implementation from the perspective of key informants at Kennedy CHC. We conducted eight one-hour, semi-structured phone interviews (N = 9 informants). Following a thorough review of the interview notes, we coded each for content and used pattern-matching to identify key themes.

DATA SOURCE	DATA COLLECTION	INTERVIEW ANALYSIS
<ul style="list-style-type: none"> Key personnel at Kennedy CHC: administrators, clinicians, and support staff 	<ul style="list-style-type: none"> One-hour telephone interviews Semi-structured interview guides 	<ul style="list-style-type: none"> Content coding and pattern matching

Quantitative Data Analysis

We employed quantitative methods to address both the second and third evaluation aims. We assessed the performance of the appointment reminder system based on several intermediate, descriptive measures derived from patient call disposition data

routinely collected by UMMS. Data were obtained for appointment reminder calls initiated during a six-month period from July–December 2012. To understand associations between call reminders, patient characteristics, and no-shows, we examined a sample of call disposition data from UMMS combined with patient demographic and appointment status data from Kennedy CHC, collected over a consecutive two-week period during February–March 2013. Our analysis employed both descriptive and multivariate methods.

DATA SOURCE	SAMPLE	DESCRIPTIVE ANALYSIS	MULTIVARIATE ANALYSIS
<ul style="list-style-type: none"> Call disposition records from UMMS Patient demographic and appointment status records from Kennedy CHC 	<ul style="list-style-type: none"> Six-month call disposition data (July–Dec. 2012) Two-week call disposition data merged with patient demographic and appointment status data (Feb.–Mar. 2013) 	<ul style="list-style-type: none"> Call disposition rates Comparison of demographic characteristics and call disposition of show and no-show patients 	<p>Dependent variable:</p> <ul style="list-style-type: none"> Appointment status (show vs. no-show) <p>Independent variables:</p> <ul style="list-style-type: none"> Call disposition Patient age, gender, race/ethnicity, and language Appointment date, service type, and location

Key Informant Interviews

Results

Implementation was facilitated by:

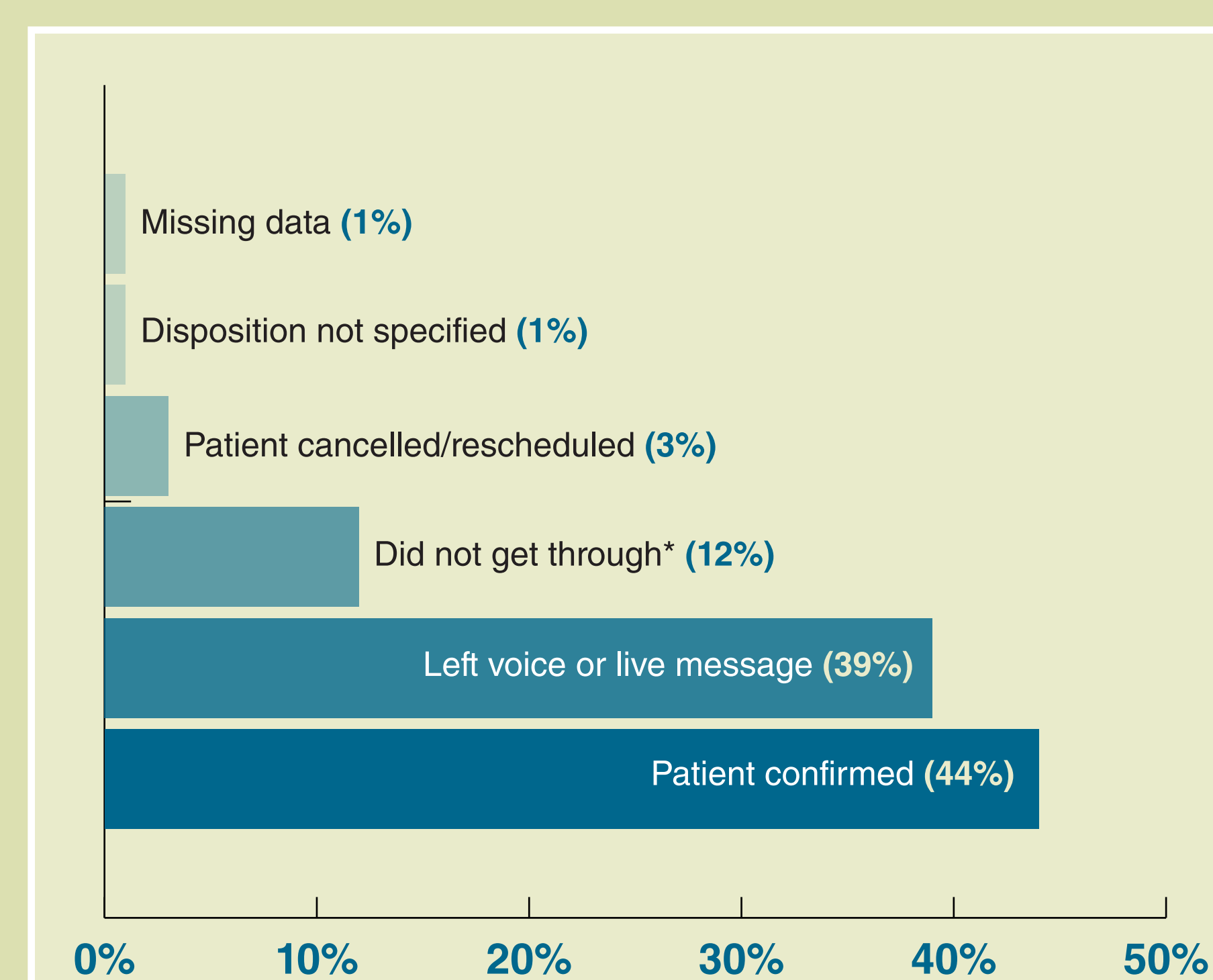
- Cultural alignment within the health center toward centralization and quality improvement
- Leadership and key stakeholder support
- Technical capacity resulting from an existing electronic health record and practice management system

Implementation was challenged by:

- Extensive call protocol development and maintenance
- Remote call center limitations pertaining to tracking personnel at phone extensions
- Ongoing call center staff training to ensure adherence to call protocols and routing procedures

Descriptive Analysis

Call Disposition, Six Months
(N=77,002 appointments)



Multivariate Analysis

Probability of Keeping Appointment (N=4,506)

	Odds Ratio	95% CI Lower-Upper	P-Value
Age (reference = 20-44)			
≤ 9	0.834	0.646 1.078	0.1651
10 - 19	0.779	0.598 1.016	0.0653
45 - 64	1.452	1.215 1.734	<0.0001
65+	1.583	1.167 2.148	0.0032
Gender (reference = male)			
Female	1.002	0.86 1.166	0.984
Race (reference = white)			
Black	1.051	0.851 1.298	0.6412
Multi-Racial	1.105	0.868 1.408	0.4176
Asian	1.48	0.958 2.288	0.0772
Other	0.573	0.254 1.293	0.1803
Ethnicity (reference = non-Hispanic)			
Hispanic	0.95	0.777 1.161	0.6134
Language (reference = English)			
Spanish	1.265	1.009 1.586	0.0412
Portuguese	1.388	1.062 1.814	0.0164
Other	1.368	0.983 1.902	0.0628
Day of the week (reference = Wednesday)			
Monday	0.814	0.651 1.018	0.071
Tuesday	0.903	0.711 1.147	0.4031
Thursday	0.807	0.635 1.025	0.0791
Friday	0.816	0.603 1.105	0.1886
Saturday	0.802	0.516 1.246	0.3268
Location (reference = Worcester)			
Clinton	1.62	1.087 2.413	0.0178
Framingham	1.914	1.445 2.535	<0.0001
Call Disposition (reference = could not get through)			
Patient confirmed	3.15	2.527 3.927	<0.0001
Left message (person)	1.935	1.367 2.741	0.0002
Left message (voicemail)	1.846	1.471 2.316	<0.0001
Other	0.689	0.367 1.292	0.2452
Type of Service (reference = medical visit)			
Behavioral Health	1.038	0.819 1.316	0.758
Dental Visit	0.857	0.696 1.056	0.1485
Other	0.473	0.379 0.591	<0.0001

Evaluation Findings

The evaluation findings suggest that patients are **more likely** to attend their appointments if they are older than 44 years (versus 20-44 years), speak a primary language other than English, or receive a reminder call that either confirms their appointment or leaves a message (versus a reminder call that cannot get through). The findings also suggest that patients are **less likely** to show for their appointment if the appointment is for specialty care (compared to routine medical care), or the appointment is scheduled for a Monday or Thursday (versus Wednesday).