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Navigating to health: Evaluation of a community health center patient navigation program

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Introduction

Patient navigation is a process by which an individual, a Patient Navigator, guides patients in overcoming barriers to health care access and utilization. Little evidence exists regarding reach and impact of Patient Navigators for chronic disease management. This study evaluated a Patient Navigator program aimed at optimizing health care utilization among ethnically diverse patients with diabetes and/or hypertension at a community health center (CHC). Trained Patient Navigators contacted eligible patients who had not seen a primary care provider (PCP) for ≥6 months. Outcomes included number of patients reached by Patient Navigators and seen by PCPs after Patient Navigator contact. Distributions and frequencies of outcomes pre- and post-call were compared.

A total of 215 patients had ≥1 call attempt from Patient Navigators. Of these, 74 were additionally contacted via mailed letters or at the time of a CHC visit. Among the 45 patients reached, 77.8% scheduled an appointment through the Patient Navigator. These patients had higher rates of PCP visits 6 months post-call (90%) than those not reached (42.2%) (p < 0.0001).

Findings emphasize the value of direct telephone contact in patient health care re-engagement and may inform the development of future Patient Navigator programs to improve reach and effectiveness.

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Keywords:
Community health center
Patient navigator
Program evaluation
Patient engagement

Patient Navigators are trained, lay health care workers who guide patients in overcoming barriers to health care access and utilization. Little evidence exists regarding reach and impact of Patient Navigators for chronic disease management. This study evaluated a Patient Navigator program aimed at optimizing health care utilization among ethnically diverse patients with diabetes and/or hypertension at a community health center (CHC). Trained Patient Navigators contacted eligible patients who had not seen a primary care provider (PCP) for ≥6 months. Outcomes included number of patients reached by Patient Navigators and seen by PCPs after Patient Navigator contact. Distributions and frequencies of outcomes pre- and post-call were compared.

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screenings and treatment. Studies show evidence of effectiveness of in-
person and telephone-based patient navigation in improving access to
cancer screening, diagnosis, and treatment in racial/ethnic minority
populations (Paskett et al., 2011; Jandorf et al., 2005; Leone et al.,
2013; Glick et al., 2012; Naylor et al., 2012), and a recent review indicat-
ed that patient navigation may also be cost-effective for serving low-
income patients (Donaldson et al., 2012). While evidence of their ef-
cacy is strongest in the area of cancer screening and follow-up (Robinson-
White et al., 2010; Phillips et al., 2011; Paskett et al., 2006), the role of Patient Navigators is expanding to target other chronic dis-
ease and health outcomes (Carrasquillo et al., 2014). However, the
reach and impact of Patient Navigators in chronic disease management
are not well understood.

Given limited resources of community health centers (CHC), persist-
ent health disparities, and high health care costs, evaluation of Patient Navigation programs is critical to inform practice and practice and opti-
mize resource utilization. This study aimed to evaluate the reach and
impact of a CHC-based Patient Navigation program on patient engage-
ment outcomes, including frequency and type of medical visits attended, among patients with type 2 diabetes and/or hypertension who had not been seen by a primary care provider in the previous six
months.

Methods

Study site and patient population

The study site was a CHC offering comprehensive services (primary
care, medical specialties, dental, behavioral health and social services) to
over 25,000 patients in Massachusetts. The ethnically diverse patient
population is predominantly of immigrant and/or refugee backgrounds
(38% from Central or South American countries, 16% from Puerto Rico,
6% from African countries, and 10% from other countries), representing
94 different languages spoken (Spanish (34%), Portuguese (26%), and
English (26%) as the most common languages of preference). Most pa-
ients are low-income (77% at or below the federal poverty level), and
35% are uninsured.

Patient navigation program description

Initiated in 2009, the Patient Navigation program aimed to re-
engage patients with type 2 diabetes and/or hypertension who had
not been seen by a primary care provider (PCP) in the previous six
months. Patient Navigators were three women, ages ranging between
25 and 44, who were members of the community serviced by the
CHC. Two of them were bilingual (English/Spanish), Patient Navigators
were trained by a health care team consisting of registered nurses certi-
fied in diabetes education, behavioral health clinicians, and managed
care staff. Navigators also completed an established community health
worker training program that covered chronic illness education, moti-
vational interviewing skills, health insurance, and appointment sched-
uling. Patient Navigator responsibilities included contacting patients
by phone, building rapport, delivering patient-centered education
about the importance of follow up care, scheduling an appointment
with their PCP or chronic disease nurse (CDN), assessing need for spe-
cialist referrals, identifying challenges to health care access, and provid-
ing assistance to overcoming these challenges.

Patient Navigators were instructed to prioritize appointment sched-
uling with PCPs and CDNs. After patients were connected to the PCP or
CDN and attended their visits, Patient Navigators worked with the med-
ical team to schedule other necessary visits and as per plan of care. The
protocol for Patient Navigators’ contact efforts for unreachable patients
included two outreach calls spaced one week apart. If unsuccessful in
reaching patients, Patient Navigator mailed outreach letters one week
after the second call. If outreach efforts remained unsuccessful at one
month, Patient Navigators consulted with patients’ PCP regarding next
steps, such as an outreach home visit, a mailed certified letter, or no fol-
low up. Patient navigators were salaried CHC employees. The program
was funded by a third party payer and funds from this study.

Study eligibility criteria

The study sampling frame included all patients targeted by the Pa-

tient Navigator program. Patients were eligible for the program if they
had a diagnosis of type 2 diabetes and/or hypertension and were “un-
engaged” with their medical care, defined as not having seen by a PCP
in the previous six months.

Data collection

Patient Navigation program records (2009–2013) were screened by
trained research staff to identify all patients with ≥1 documented tele-
phone call attempt from Patient Navigators. Data from these patients
were then systematically abstracted from electronic health records
using an abstraction form developed and pre-tested by our research

team prior to its use. Trained research assistants abstracted data of in-

terest from eligible participants’ medical records. De-identified data
were entered into a dataset and cross-checked and validated indepen-
dently against medical records by a research coordinator.

Measures

Data abstracted included: type of Patient Navigator contact attempts
(i.e., telephone calls, letters, reminders, in-person meetings), outcomes
of telephone contact attempts (i.e., directly reached and appointment
scheduled, directly reached with no appointment scheduled, unable to
reach with a message left, unable to reach with no message left), and
frequency and type of medical visits (i.e., primary care visit with PCP
and/or CDN, specialty care (e.g., optometry, podiatry, nutritionist, men-
tal health, social services), urgent care, emergency department follow-
up visit, or non-routine appointment) in the 12 months prior to and
six months following the first Patient Navigator telephone contact at-
tempt. Socio-demographics characteristics included: gender, race, eth-
nicity, nativity, and need for interpreter services (yes/no).

Statistical analysis

Distributions for continuous variables and frequencies for categori-

cal variables were computed to describe the study sample. Patients
were grouped into four groups by Patient Navigator initial attempted
telephone contact results: reached by Patient Navigator (e.g., patient di-
rectly answered the phone and spoke with the Patient Navigator) with
an appointment scheduled; reached by Patient Navigator with no ap-
pointment scheduled; unable to be reached with message left; unable
to be reached with no message left. Chi-squared tests were used to
make comparisons across these four groups. Medical visits that occurred
pre- and post-Patient Navigator initial telephone contact attempt were
compared in terms of number and type of visit. All statistical analyses
were conducted using SAS version 9.3. All study procedures and proto-
cols were approved by the University of Massachusetts Medical School
Institutional Review Board and the Edward M. Kennedy Community
Health Center Quality Care Committee.

Results

Two hundred and fifteen patients were targeted by the Patient
Navigator and thus were eligible for study inclusion (45.1% male). The
mean age of the cohort was 63.4 years (SD = 12.7) and ranged from
20 to 87 years. The majority identified as Latino (57.7%), reported
Spanish as their primary language (53.9%), needed a language interpret-
er (75.4%), and represented numerous countries of nativity. No
significant differences in patient socio-demographics by Patient Navigator phone contact outcomes were observed (see Table 1). Fig. 1 describes the sample by Patient Navigator contact status and health care utilization (≥1) in the 6 months following the first Patient Navigator telephone call attempt. All patients received an initial call attempt from the Patient Navigator, with very few patients (n = 10; 4.6%) having documented additional call attempts (number of additional calls made by the Patient Navigator ranged from 1 to 4 for these patients).

![Study Sample (N=215)](image)

**Table 1**

Patient demographic characteristics for the cohort and by outcome of Patient Navigator (PN) telephone contact attempt among patients (N = 215) in a Massachusetts Community Health Center (2009–2013).

<table>
<thead>
<tr>
<th>Overall study sample (N = 215)</th>
<th>Reached by PN and appointment scheduled by PN (n = 45)</th>
<th>Reached by PN and NO appointment scheduled by PN (n = 12)</th>
<th>Not reached by PN and message left (n = 92)</th>
<th>Not reached by PN and NO message left (n = 66)</th>
<th>p-Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>97 (45.1%)</td>
<td>22 (48.9%)</td>
<td>39 (42.4%)</td>
<td>30 (45.4%)</td>
<td>0.88</td>
</tr>
<tr>
<td>Female</td>
<td>118 (54.9%)</td>
<td>43 (91.1%)</td>
<td>43 (91.1%)</td>
<td>46 (70.6%)</td>
<td></td>
</tr>
<tr>
<td>Primary language</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>41 (19.1%)</td>
<td>11 (24.4%)</td>
<td>3 (25.0%)</td>
<td>18 (19.6%)</td>
<td>0.66</td>
</tr>
<tr>
<td>Spanish</td>
<td>116 (54.0%)</td>
<td>24 (53.3%)</td>
<td>6 (50.0%)</td>
<td>48 (52.2%)</td>
<td></td>
</tr>
<tr>
<td>Portuguese</td>
<td>37 (17.1%)</td>
<td>6 (13.3%)</td>
<td>2 (16.7%)</td>
<td>15 (16.3%)</td>
<td>0.30</td>
</tr>
<tr>
<td>Other</td>
<td>21 (9.8%)</td>
<td>4 (8.8%)</td>
<td>1 (8.3%)</td>
<td>11 (12.0%)</td>
<td></td>
</tr>
<tr>
<td>Interpreted needed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>124 (57.7%)</td>
<td>28 (62.2%)</td>
<td>5 (55.4%)</td>
<td>28 (59.1%)</td>
<td>0.19</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>142 (66.0%)</td>
<td>24 (53.3%)</td>
<td>63 (68.5%)</td>
<td>47 (71.2%)</td>
<td>0.05</td>
</tr>
<tr>
<td>Black</td>
<td>65 (30.2%)</td>
<td>18 (40.0%)</td>
<td>26 (28.3%)</td>
<td>18 (27.3%)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>8 (3.7%)</td>
<td>3 (6.7%)</td>
<td>3 (3.3%)</td>
<td>4 (5.9%)</td>
<td></td>
</tr>
<tr>
<td>Nationality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Puerto Rican</td>
<td>62 (28.8%)</td>
<td>15 (33.3%)</td>
<td>25 (27.2%)</td>
<td>17 (25.8%)</td>
<td>0.30</td>
</tr>
<tr>
<td>Brazilian</td>
<td>38 (17.7%)</td>
<td>6 (13.3%)</td>
<td>15 (16.3%)</td>
<td>15 (22.7%)</td>
<td></td>
</tr>
<tr>
<td>C. American</td>
<td>22 (10.2%)</td>
<td>4 (8.8%)</td>
<td>9 (9.8%)</td>
<td>9 (13.6%)</td>
<td></td>
</tr>
<tr>
<td>Ghanaian</td>
<td>23 (10.7%)</td>
<td>4 (8.8%)</td>
<td>12 (13.0%)</td>
<td>7 (10.6%)</td>
<td></td>
</tr>
<tr>
<td>S. American</td>
<td>19 (8.8%)</td>
<td>4 (8.8%)</td>
<td>9 (9.8%)</td>
<td>5 (7.6%)</td>
<td></td>
</tr>
<tr>
<td>African</td>
<td>17 (7.9%)</td>
<td>5 (11.1%)</td>
<td>8 (8.7%)</td>
<td>3 (4.6%)</td>
<td></td>
</tr>
<tr>
<td>Dominican</td>
<td>14 (6.5%)</td>
<td>2 (4.4%)</td>
<td>6 (6.5%)</td>
<td>5 (7.6%)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>20 (9.2%)</td>
<td>5 (11.1%)</td>
<td>8 (8.8%)</td>
<td>5 (7.6%)</td>
<td></td>
</tr>
<tr>
<td>* p-Values are from chi-squared tests.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Fig. 1.** Flow chart of Patient Navigator contact status and appointment show rate attempt among patients (N = 215) in a Massachusetts Community Health Center (2009–2013). *Reached denotes able to be directly contacted by Patient Navigator via phone. **Additional contact by the Patient Navigator included mailing an outreach letter to the patient and/or meeting the patient in-person when he or she came to the community health center for a visit.
(see Fig. 1). Approximately a third (n = 74; 34.4%) of patients received some type of additional contact (outreach letter mailed to patient’s residence and/or Patient Navigator met with patient when he or she came to the CHC for a visit) from the Patient Navigator.

Of the patients who were reached by the Patient Navigator on the initial call attempt (n = 45), most (77.8%) scheduled an appointment through the Patient Navigator. Of those who were reached but who did not schedule an appointment (n = 12), over half (58.3%) reported that they were no longer patients of the CHC. The majority of the overall sample (n = 158; 75.3%) were not directly reached by the Patient Navigator via telephone. Messages were left via voicemail or with a family member for 58.2% of these participants. Reasons for the Patient Navigator not leaving a message included: disconnected phone number, wrong phone number, patient no longer seen at the CHC, and patient change of residence.

Over half (52.4%) of the study sample had 1 or more visits to the CHC post-Patient Navigator call, excluding those who were identified as no longer patients at the CHC or had changed residence (n = 9). The proportion of patients attending at least one CHC visit in the 6 months following the first initial Patient Navigator call attempt was highest for those reached and who scheduled an appointment at the first call attempt (91.1%), followed by those reached with no appointment scheduled (80%); those unable to be reached with a message left (41.3%); and those unable to be reached with no message left (39.1%) (p < 0.0001).

Table 2 presents distributions of medical visits by outcome of Patient Navigator initial call and medical visit type within the 12 months preceding and the six months following the initial call attempt. Visits were categorized by the following types: PCP visits, CDN visits, specialty visits (e.g., optometry, podiatry, nutritionist, mental health, social services, or other), urgent care, emergency department follow-up, non-routine appointments, and no visits. Due to the small number of patients who had visits with CDNs only, visits with specialist(s), urgent care, emergency department follow-up, and non-routine visits, categories were further broken down as follows: 1) patients who only came to the CHC for PCP visits; 2) patients who had PCP and CDN visits; 3) patients who had specialist(s) visit(s) or other specialist visit type combination (e.g., specialist visit and/or one or more of the following: urgent care visit, emergency department follow-up, or non-routine appointment); and 4) no visits.

In the 12 months prior to the Patient Navigator initial call attempt, 73.9% of patients came to the CHC for a PCP visit, with 35.8% of patients having visits with their PCP only and 38.1% having visits with their PCP and CDN. Nearly one-fifth (17.7%) of patients did not come in for a visit, and very few patients (8.4%) had specialty visits only or a specialty visit combination (e.g., specialty visit and urgent care visit). Patients who were ultimately unreachable by the Patient Navigator were overrepresented in the category of no visits in the 12 months preceding the initial call attempt (47.5%) compared to reached patients (8.3%) (p = 0.0024).

In the six months following the Patient Navigator initial call attempt, 26.7% of patients had visits with a PCP only, 20.9% had visits with both PCP and the CDN, and 4.9% had visits with a specialist(s). Patients reached by the Patient Navigator and who scheduled an appointment during the call had significantly higher rates of visits with their PCP or their PCP and CDN than patients who were unreachable (p’s < 0.05). Few patients had visits with specialist(s) only or specialty combination visit (4–5%) across all groups, and these rates did not differ by Patient Navigator contact status. Patients not reached by the Patient Navigator, regardless of whether or not a message was left, had high rates of not having any medical visit (58–61%) than patients who were reached (9–20%). The majority of patients reached by the Patient Navigator had a visit with their PCP first (64%) before seeing other providers, compared to 27.6% who were not reached (p < 0.0001) (results not shown in tables).

**Discussion**

Findings from this quantitative evaluation of a Patient Navigator program targeting at-risk patients with type 2 diabetes and/or hypertension provide insight on program reach and effectiveness on an ethnically diverse, multi-lingual, transient patient population. Study findings indicate that, when they are able to reach patients directly, Patient Navigators may be effective in re-engaging patients with diabetes and/or hypertension in receiving primary care. Most patients who scheduled appointments during the Patient Navigator call attended a visit with their PCP or CDN within the following six months, confirming that the program accomplished its purpose of re-engaging reached patients. These results emphasize the value of direct engagement with patients over the phone as a re-engagement strategy, suggesting that direct phone contact with the Patient Navigator may have facilitated a stronger personal connection or enhanced greater self-care motivation from patients than simply receiving a message left via voicemail or with a family member. Patient Navigators are bilingual, bicultural community members; these characteristics are presumed to foster rapport with patients in a manner salient to patients.

This study also showed that the majority of patients were not directly reached by a single call from the Patient Navigator, consistent with previous findings of difficulties reaching CHC patients (Rosal et al., 2010).

This finding emphasizes the importance of multiple call attempts on different days, at varying times, including evenings, to increase reach.

**Table 2**

<table>
<thead>
<tr>
<th>12 months prior to Patient Navigator initial call (N = 215)</th>
<th>6 months post Patient Navigator initial call (N = 206)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reached by PN and appointment scheduled by PN</td>
<td>Reached by PN and appointment scheduled by PN</td>
</tr>
<tr>
<td>Reached by PN and no appointment scheduled by PN</td>
<td>Reached by PN and no appointment scheduled by PN</td>
</tr>
<tr>
<td>Not reached by PN and message left</td>
<td>Not reached by PN and message left</td>
</tr>
<tr>
<td>Not reached by PN and no message left</td>
<td>Not reached by PN and no message left</td>
</tr>
<tr>
<td>p-Value</td>
<td>p-Value</td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td>N = 45</td>
<td>N = 5</td>
</tr>
<tr>
<td>N = 12</td>
<td>N = 12</td>
</tr>
<tr>
<td>N = 92</td>
<td>N = 92</td>
</tr>
<tr>
<td>N = 66</td>
<td>N = 64</td>
</tr>
<tr>
<td>PCP visit ONLY</td>
<td>18 (40.0%)</td>
</tr>
<tr>
<td>PCP + CDN visit</td>
<td>24 (53.3%)</td>
</tr>
<tr>
<td>Specialty visits only or specialty visit combination&lt;sup&gt;b&lt;/sup&gt;</td>
<td>3 (6.7%)</td>
</tr>
<tr>
<td>No visits</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>N = 215</td>
<td>N = 206</td>
</tr>
</tbody>
</table>

PCP = primary care provider.
CDN = chronic disease nurse.
<sup>a</sup> p-values are from Χ² tests.
<sup>b</sup> Specialty visit types included: optometry, podiatry, nutritionist, mental health, social services, or other. Other visit type combinations included any combination of specialty visits and/or visits to the following: urgent care; emergency department follow-up; or non-routine appointment (visits with PCPs or CDNs not included in the specialty visit combination category).
However, results showed that less than one-third of patients had more than one documented call attempt, indicating that the majority of patients who were unable to be reached during the initial Patient Navigator call did not receive any type of follow-up attempt. This finding may be explained by the multiple roles and competing demands (e.g., serving as interpreters, providing technical and administrative assistance, arranging health care visits and transportation, reminding patients of appointments, assistance with insurance and associated costs) (Paskett et al., 2011; Jean-Pierre et al., 2011) that Patient Navigators are often faced with. Finally, the high rate of unreachable patients may reflect, at least partially, the highly transient nature of our patient population and their nativity status (foreign-born).

Systems that support Patient Navigators and oversee the implementation of systematic protocols for contacting patients may be critical for maximizing the effectiveness of similar programs. Another strategy for facilitating reach involves expanding Patient Navigator activities to proactively interact with patients at the time of health visits. Establishing this face-to-face connection with patients may increase likelihood of reaching and engaging patients who may ultimately disengage from their care, or perhaps even prevent patient disengagement, but this model has not been tested. Strengths of this study are the inclusion of an ethnically diverse and predominantly non-English-speaking patient population (thus reaching populations often not included in clinical trials) and targeting adults at risk for poor hypertension and type 2 diabetes management, thus contributing to the literature on the role of Patient Navigators in chronic disease management. Findings should be interpreted with caution given study limitations, such as the absence of a comparison group, inadequate follow-up time to determine the association of the Patient Navigator program with health outcomes, and lack of generalizability to other populations. Additional studies examining the type of Patient Navigator activities that are of greatest benefit to patient outreach and engagement are needed.

**Conclusion**

Guiding and empowering patients to actively process health information and appropriate utilization of the health care system may be essential in improving health care delivery and outcomes and eliminating disparities. Findings from this study may guide future processes and decisions regarding the integration of Patient Navigators within medical teams and population-based medicine guidelines to effectively manage community and population health. Additional studies, including randomized controlled trials, are needed to evaluate efficacy of Patient Navigator programs on patient engagement in chronic disease management.

**Conflict of interest statement**

The authors declare that there are no conflicts of interests.

**Acknowledgments**

We thank the Patient Navigators for their roles in implementing the program, the Edward M. Kennedy Community Health Center staff for their roles in study recruitment and assisting with data collection and program evaluation, and Margaret Ramos Miller, Jonathan Kassira, Antonia Doherty, Emily Etzel, and David Estabrook for their roles in data abstraction and entry. The Patient Navigator program was funded by Tufts Health Plan and the University of Massachusetts Worcester Prevention Research Center (CDC cooperative agreement number U48 DP001933). This research was funded by the University of Massachusetts Worcester Prevention Research Center (U48 DP001933).

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