Clinicians' panel management self-efficacy to support their patients' smoking cessation and hypertension control needs

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Abstract

Panel management, a set of tools and processes for proactively caring for patient populations, has potential to reduce morbidity and improve outcomes between office visits. We examined primary care staff's self-efficacy in implementing panel management, its correlates, and an intervention's impact on this self-efficacy. Primary care teams at two Veterans Health Administration (VA) hospitals were assigned to control or intervention conditions. Staff were surveyed at baseline and post-intervention, with a random subset interviewed post-intervention. Panel management self-efficacy was higher among staff participating in the panel management intervention. Self-efficacy was significantly correlated with sufficient training, aspects of team member interaction, and frequency of panel management use. Panel management self-efficacy was modest among primary care staff at two VA hospitals. Team level interventions may improve primary care staff's confidence in practicing panel management, with this greater confidence related to greater team involvement with, and use of panel management.

Keywords

Self-efficacy, Panel management, Chronic disease management, Prevention, Primary care

INTRODUCTION

Traditionally, medical practice has focused on individual, visit-based approaches to care. In this practice model, providers respond to a patient's acute health problems, leaving little time for prevention and management of chronic conditions. As a result, it has been estimated that only 55 % of adults receive recommended preventive services, and lifestyle counseling is among the tasks least likely to be completed during a visit [1, 2]. Physicians cannot close this gap in preventive services alone. A primary care physician with 2,000 patients would need 18 h per day to ensure that every patient receives all the recommended preventive screenings and treatment for chronic diseases [2, 3]. Additional support to enhance primary care practices is warranted.

As a main component of "practice facilitation" [4], panel management is a promising approach to expand

Implications

Practice: Team-based interventions can enhance clinicians' confidence in implementing panel management for their patient populations.

Policy: To be successful, structural changes, such as the shift to Patient-Centered Medical Home models and the introduction of electronic health records systems, need to be accompanied by efforts to address barriers and deficiencies in clinician self-efficacy in adopting panel management.

Research: Further investigation is needed to (1) determine the comparative effectiveness of incorporating non-clinician panel managers into primary care teams versus supporting teams to implement strategies themselves, and (2) examine the relationships between clinician panel management self-efficacy, implementation, and patient outcomes.

the practice's reach and implementation of preventive health services, in which the primary care team systematically identifies care gaps and offers proactive outreach services to their patient panel [5]. This proactive outreach is not limited to office visits. Instead, patients can be contacted, as needed, by telephone, mail, in-person or via e-mail to provide follow-up care, referrals, counseling, and reminders, thereby offering flexibility and more continuous care. Panel management has been shown to improve health outcomes among patients with a range of conditions, including lowering glycosylated hemoglobin levels in patients with diabetes [6–8], and improving smoking cessation rates [9] and self-reported quit attempts by patients who use tobacco products [10]. Panel management has also been shown to enhance care processes, increasing the rates of vaccination and bone density screenings [11], as well as screenings for colorectal and breast cancer [12–18].

Despite its promise, panel management has yet to be fully adopted into clinical practice. It has been hypothesized that barriers to its adoption include limited dedicated staff time, lack of informatics tools to

track patient outcomes and identify care gaps, lack of structured protocols and allocations of tasks among team members, and a lack of skills or training in its use [5]. The ongoing shift in primary care to patient-centered medical homes represents an important opportunity to incorporate panel management into practice. In this shift, physicians are assigned panels of patients, work with interdisciplinary teams, and have new tools to monitor patient outcomes that address at least some of the barriers to increased panel management use.

The nature of panel management implementation within a specific primary care team, like the adoption and practice of other health support strategies, is affected by the unique characteristics of the team and its individual members [19]. Skill in performing panel management is one such critical characteristic, and self-efficacy, the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations, has been shown to have great influence on performance in many occupational fields [20]. Notably, occupational self-efficacy has been found to be a significant predictor of team effectiveness [21]. Because self-efficacy is a psychological attribute that can be learned and improved [20, 22], there is potential for growth of panel management self-efficacy in individuals within teams.

Some research has examined the correlates of occupational and clinician self-efficacy in various contexts, demonstrating that greater knowledge and level of expertise in a domain, and exposure to similar tasks, influences perceptions of self-efficacy among persons providing support and/or services for others [23–26]. Similarly, knowledge and experience in the field [27–29] and attitudes toward it [30, 31] are key supporting factors of clinician self-efficacy in physical and mental health care. The quality of the interactions among team members is another contributing factor to team-related self-efficacy [32]. In addition, there is emerging evidence linking clinician self-efficacy to patient care outcomes. In particular, clinicians with greater self-efficacy for the performance of preventive health screenings (tobacco use, seat belt use, alcohol use, etc.) had higher rates of self-reported and independently verified screening [33, 34].

However, little is known about self-efficacy in panel management among primary care clinicians, or whether an intervention to support panel management implementation would increase their self-efficacy. We hypothesized that clinicians' panel management self-efficacy would increase with such an intervention because of greater exposure to the processes and skills of panel management. We further hypothesized that panel management self-efficacy would be related to panel management education and training, team member interaction, attitudes toward panel management, and self-reported frequency of panel management use. A greater understanding of panel management clinician self-efficacy can inform interventions to foster its growth, thereby potentiating its impact on improving patient outcomes.

METHODS

Study design

Data used in this secondary analysis were collected from participating clinical staff in 2011 and 2012, as part of a Veterans Health Administration (VA)-funded study (Program for Research on the Outcomes of VA Education (PROVE)) of panel management. PROVE was a cluster-randomized trial of panel management support on outcomes in smoking cessation and hypertension control within the VA's primary care team model. Teams were randomly allocated to receive monthly panel data only (control group) or to receive panel management support in addition to panel data (intervention group). Randomization was done at the level of the primary care team to minimize contamination.

Setting and participants

The study took place at the primary care clinics of the Brooklyn and Manhattan campuses of the VA New York Harbor Healthcare System. In 2009, the Veterans Health Administration (VA) launched a national initiative to transform each of its more than 250 primary care clinics into patient-centered medical homes, establishing Patient Aligned Care Teams (PACT) nationwide to provide primary care to veterans [35, 36]. These newly established PACTs consist of 1–5 Primary Care Clinicians (PCPs), a Registered Nurse (RN) Care Manager, a Licensed Practical Nurse (LPN), and a clerk, supported by an extended team including a pharmacist, social worker, psychologist, and nutritionist. Each team is responsible for the care of an assigned panel of up to 1,200 patients, and new database tools have been established to help teams monitor and manage the health of their panels. At the VA New York Harbor, a total of 20 PACTs (10 from each campus) participated in the study, encompassing 44 PCPs and 18 RN care managers. One PCP declined to participate in the study and was excluded. Of the 20 participating teams, 8 were randomized into the control arm of the study and 12 teams were randomized into the intervention arm. In a few cases, LPNs and clerks were shared across a few teams.

Panel management support intervention

During the PROVE study, each intervention team had a panel management assistant (PMA) join the team to facilitate panel management strategies. Half of the intervention teams ($n=6$) also received brief team-based education on panel management (1.5 h over 8 months). For the purposes of this analysis, all 12 teams assigned to panel management support were analyzed together.

The PMAs were college graduates with no formal clinical training, but with excellent computer, database, and communication skills. It was thought that such a mix of background and skills would enable generalizing the model, if shown to be successful, to a variety of settings in which a PMA with clinical

training may not be available. Prior to the intervention, the PMAs were trained to use the VA's electronic medical record (EMR), conduct motivational interviewing, and use panel management outreach strategies. They were also given an overview of hypertension and smoking cessation management. PMAs extended the reach of the team and allowed PACT staff to focus on clinical tasks. Previous research has indicated that patients are receptive to outreach from non-clinical staff as long as they feel the efforts were directed and supervised by their physicians [5].

Each of the six PMAs worked 20 h per week and supported two PACTs during the 8-month intervention. PMAs attended regular PACT meetings to present lists of patients with gaps in care and potential panel management strategies that they could implement to address the care gaps. They used a pre-defined panel management toolkit of strategies to enhance panel-wide outcomes in smoking cessation and hypertension, such as (a) contacting patients with recently prescribed nicotine replacement therapy (NRT) to offer motivational counseling and troubleshoot barriers for use and (b) contacting patients with unfilled hypertension prescriptions to troubleshoot barriers, or mailing them information about VA resources for physical activity and lifestyle modification [37]. To provide this support, PMAs reached out directly to patients with gaps in care via mail and telephone to provide counseling regarding lifestyle change and medication adherence, reminders about follow-up care, and referrals to VA services for smoking cessation and hypertension control.

Survey data collected from participating PCPs and RN care managers

We surveyed PCPs and RN Care Managers at baseline, before the PROVE intervention began in 2011, and again post-intervention in 2012. We did not survey other members of the teams (including LPNs and clerks) due to potential contamination. Some of these staff were shared across multiple teams as the clinics were restructured, and some had limited computer access for completion of an online survey. After receiving assurances regarding the voluntary nature of the research and the confidentiality of responses, participating RN Care Managers and PCPs completed a 20-min online survey. The questionnaire collected demographic and work-related information, including participants' gender, age, occupation (RN Care Manager or PCP), practice site (Brooklyn or Manhattan), years at the VA, years at the primary care clinic at the VA, and number of days of the week worked at the primary care clinic. The survey asked respondents about their self-efficacy with regard to panel management; their experience with and knowledge about panel management; their attitudes toward panel management; their team interactions; and their implementation of panel management in patient care.

Key measures

Panel management clinician self-efficacy

Using information gathered from informal discussions about panel management with PCPs, RNs, and other VA primary care staff, we created the Panel Management Clinician Self-Efficacy Scale (Table 1). The Scale included six items that addressed clinicians' confidence in supporting patients in need of smoking cessation support and hypertension control. Such items concerned clinicians' perceived self-efficacy to view patients with hypertension and patients who smoked as having distinct needs; to use data to address the particular needs of specific patient populations in the panel; to plan care for all patients in the panel, including those who do not show up for care; to plan care for patients outside of the clinic visit when appropriate; and to target patients in the panel with poor outcomes. Each item used an 11-point scale from 0 to 10 that measured the level of clinician confidence, ranging from not confident at all to completely confident, respectively. A score on the Panel Management Clinician Self-Efficacy Scale for each respondent was obtained by averaging the scores on each of the individual items.

Potential correlates of panel management clinician self-efficacy

We assessed the association of post-intervention clinician self-efficacy with clinician attitudes, experiences, and reported behaviors (Table 2). Each of these five potential correlates was a single item assessed post-intervention.

Qualitative data collected from clinical staff post-intervention

To further understand the potential correlates of panel management clinician self-efficacy, as well as the experiences of PCPs and RNs implementing panel management within PACT, in-depth interviews were conducted with a random sample of 6 PCPs and 4 RNs in the intervention group at the end of the 8-month trial. In order to gain a deeper understanding of their experiences with panel management and working with a PMA, these interviews were conducted with clinicians who had participated in the intervention. Participants were asked about their panel management-related experiences and their knowledge of this novel approach to patient care, as well as their experiences working within their teams and with their PMAs.

Data analysis

After computing descriptive statistics to summarize participants' demographic and work-related characteristics, we assessed the reliability, factor structure, range, and variability of the Panel Management Clinician Self-Efficacy Scale. While controlling for Panel Management Clinician Self-Efficacy Scale scores at baseline, we then examined whether the

Table 1 | Panel management self-efficacy instrument on an 11-point Likert scale (0=not confident at all; 10=completely confident)

	PCP: average score (range) ^a	RN care manager: average score (range) ^a
I can view my hypertensive patients as defined sub-groups with distinct needs	6.6 (3.0–10.0)	6.3 (5.0–10.0)
I can view my smoking patients as defined sub-groups with distinct needs	6.1 (2.0–10.0)	5.7 (4.0–8.0)
I can use available data to identify the particular needs of specific populations of patients in our panel	6.2 (3.0–10.0)	6.2 (5.0–9.0)
I can come up with specific strategies for targeting patients in our panel with poor outcomes	5.9 (2.0–10.0)	5.3 (2.0–9.0)
I can plan care for our entire panel of patients, not just those who show up for care	4.8 (1.0–8.0)	5.1 (3.0–9.0)
I can plan care for patients outside of the clinic visit when appropriate	6.2 (2.0–10.0)	5.5 (3.0–9.0)

^a Assessed post-intervention among intervention group participants

Panel Management Clinician Self-Efficacy Scale scores post-intervention differed significantly according to whether the participant was assigned to the control or intervention arm of the study. As suggested by past research on self-efficacy, we also computed Pearson correlation coefficients for potential correlates of post-intervention Panel Management Clinician Self-Efficacy Scale scores for clinicians assigned to the intervention condition. Quantitative analyses were conducted using IBM PASW Version 20.

Analysis of the qualitative, semi-structured interview recordings first involved transcription of the interviews, with any identifying information removed. Transcripts were reviewed and coded using thematic analysis by three independent reviewers [38]. Upon reaching a consensus, transcripts were independently recoded based on the final codebook. A consensus meeting between the three reviewers was held to agree on final themes among the transcripts.

RESULTS

Participating clinicians

Of the 61 eligible clinical staff, 39 (64 %) completed both the baseline and post-intervention surveys, including 10/18 nurses and 29/43 primary care clinicians (the latter including 25/36 physicians, 3/6 nurse practitioners, and 1/1 physician assistant) who participated in the study. Of these, 20 were at site 1 and 19 at site 2, 65 % were female, and most were between the ages of 35 and 44 years (30 %) or between 45 and 64 years (65 %). About half had been with the VA for 11 to 20 years (35 %) or more than 20 years (16 %), and 46 % had worked in the VA primary care clinic for 11 years or more. Most worked in the primary care clinic 2 to 3 days per week (22 %) or 4 or more days per week (60 %).

A total of 12 survey participants (2 RN Care Managers and 10 PCPs) were in the control arm of the trial and so did not receive support in the form of a PMA, while the remaining 27 participants (8 RN Care

Table 2 | Potential correlates of panel management self-efficacy. Each item but the last was assessed using a 5-point Likert scale (1=strongly disagree; 5=strongly agree)

	PCP: average score and range ^a	RN care manager: average score and range ^a
PM Education: "I have had sufficient education and training in panel management"	4.0 (2–5)	2.9 (1–4)
Team time: "Our team has enough time and opportunity to discuss panel management plans and activities"	2.6 (1–5)	2.4 (1–4)
Team review: "We have enough time and opportunity to review the effectiveness of our panel management strategies together"	2.6 (1–5)	2.5 (1–4)
PM Attitudes: "Panel management is critical for improving the health of patients"	4.0 (1–5)	3.3 (1–5)
PM Use: "I routinely use PM to care for my panel of patients" (re-categorized to 0=infrequent use (i.e., strongly disagreed, disagreed or was neutral about the statement) and 1=moderate to frequent use (i.e., agreed or strongly agreed with the statement))	0.46 (0–1)	0.5 (0–1)

^a Assessed post-intervention among intervention group participants

Managers and 19 PCPs) were in the trial's intervention arm and so did receive PMA support. Participants in the intervention arm were more likely to respond to the survey than those in the control arm (71 % vs. 52 %).

PM Clinician Self-Efficacy Scale

At baseline and follow up, the Panel Management Clinician Self-Efficacy Scale was reliable (Cronbach's alphas of 0.932 and 0.918, respectively), with one factor explaining a large proportion of variance in the Scale (74.6 % at baseline and 71.2 % at follow up, respectively). Scale scores for all respondents at baseline ranged from 0.83 to 10.0, with an average of 5.9 out of a possible 10, and a standard deviation of 2.3. At follow up post-intervention, scores for all participants ranged from 2.8 to 8.8, with an average score of 5.8 and a standard deviation of 1.9.

Impact of working with a panel management assistant on panel management clinician self-efficacy

The average panel management self-efficacy score for clinicians in the intervention group increased from 5.6 at baseline to 6.2 post-intervention, while average scores for the control group decreased from 6.6 to 5.2. The change in average score for panel management self-efficacy for the intervention group (0.6) differed from the change for the control group (−1.4), with a Cohen's *d* value of 0.8 for the mean difference between the two groups. The 1.0-point difference in Panel Management Clinician Self-Efficacy Scale scores between the two arms at baseline was not statistically significant ($p=0.22$). As can be seen in Table 3, in a linear regression analysis that controlled for baseline Panel Management Clinician Self-Efficacy Scale scores, intervention condition (control or intervention) was found to be a statistically significant predictor of follow up Panel Management Clinician Self-Efficacy Scale scores. There were no statistically significant differences in self-efficacy scores (at baseline or follow up) by role (RN or PCP), gender, age, or length of time at the VA. These variables were not included in the regression analysis.

Potential correlates of panel management self-efficacy for participants in the intervention Arm

Analysis of semi-structured interviews with six PCPs (five MDs and one NP) and four RN Care Managers assigned to the intervention arm enabled a better understanding of potential correlates of clinicians' panel

management self-efficacy. These potential correlates, suggested by the literature on self-efficacy, were major themes that emerged from the interviews and included attitudes toward panel management, use of panel management, need for sufficient panel management education and training, and team member interaction. Table 4 contains some representative quotes from the interviews, organized by themes and sub-themes.

Regarding their *attitudes toward panel management*, the majority (8/10) of the PCPs and RN Care Managers interviewed felt that panel management was a good approach that could improve patient outcomes. Most (3/4) of the RN Care Managers appreciated panel management as a way to better understand their patients' needs, often seeing patterns emerge that could not be detected at the individual patient level. However, thinking about populations of patients rather than individuals was not without tradeoffs and tension. For one RN Care Manager, focusing on patient populations rather than on individual relationships with patients was contrary to her understanding of nursing practice. It was also challenging to implement alongside her one-on-one interactions with patients.

When discussing the *use of panel management*, 6/10 of those interviewed indicated that they found panel management at least somewhat difficult to implement in practice. Both PCPs and RN Care Managers struggled to find the time to do panel management activities themselves. RN Care Managers, in particular, found panel level data to be overwhelming and challenging to access, manage, and use. In the instances where the clinical teams were able to implement panel management strategies, usually with the assistance of the PMA, they valued the approach and found it useful. However, the lack of time and competing urgent clinical tasks left a majority of the staff unsure about how they would continue to make panel management a part of their regular practice.

In terms of *panel management education and training*, 5/10 of the clinicians received supplemental education about panel management. Among those that received training, 3/5 clinicians found the panel management resources useful, although difficult to apply to their practice and complex panels of patients. The other five clinicians who received no education sessions as a part of the study felt that they had limited guidance on how best to implement panel management and work with their newly formed teams to allocate responsibilities.

Most (8/10) of the participating staff found working in a team and *the team member interaction* to be useful both for implementing panel management and for

Table 3 | Linear regression analysis examining the role of intervention condition on Panel Management Clinician Self-Efficacy Scale scores at follow up ($N=39$)

	Beta	T	Sig.
Constant		1.93	0.06
Intervention (vs. control)	0.32	2.02	0.05
Baseline Panel Management Clinician Self-Efficacy Scale	0.32	2.08	0.05

Dependent variable: follow up Panel Management Clinician Self-Efficacy Scale

Table 4 | Potential correlates of panel management self efficacy: themes and sub-themes from PCP and RN care manager interviews

Theme	Sub-theme	Illustrative quotations from PCPs and RN care managers
Attitudes toward panel management	Effectiveness of panel management	<p>"In terms of panel management, you know that's been useful to look at how...to look at your practice and how you are practicing as a whole as opposed to on an individual basis. It's been useful and I'm probably not using it at 100 % efficiency, probably not even close. But at least we're thinking more about it." (PCP)</p> <p>"With the tools that we now have, with the Almanac and hopefully with the data warehouse, you can really know who your patients are, really think of them as a big group and try and figure out ways to improve the care for everybody. Not just the 1 or 2 who actually come in." (PCP)</p> <p>"I think the patients are feeling better. It's a good thing for them because their needs are being met." (RN)</p>
	Tradeoffs	<p>"...it's just kind of labor intensive for very little gain. But I think that there is great potential for panel management." (PCP)</p> <p>"...then there's panel management, and I was like, 'well what is that?' I guess I'm old school, but I'm used to nursing individuals, not statistics, so it's kind of difficult in that respect. Like do you want your patients to know you? To trust you? Or do you just want his blood pressure to be within the normal range?" (RN)</p>
	Use of panel management	<p>"I would like to be able to have some time, uninterrupted, to do this panel management... But I find I'm doing more...I have a lot of frequent fliers so I deal with them more often than the whole picture. And so with the constant interruptions and the phone calls, and this meeting, and let's do this now... If you don't give me any time to settle, to figure out how to do it, then it's not going to be done or it's not going to be done well." (RN)</p> <p>"...Cause one panel of mine is about 850 patients. You can't keep track of every single person." (RN)</p> <p>"It's new. It is overwhelming. Like I knew the patients and there is just a lot of data coming at you all the time. So I take a day off, I'll come back and I have to spend an hour digging through every lab, every x-ray, every scan, every consultant's note, every ER visit, everything. So it's a lot of data coming in. And you're doing multitasking which is good and not good." (PCP)</p>
	Practice change	<p>"I think panel management is useful. I think it's effective. In the long run, it should show that it will be effective. And I think probably the most important aspect of panel management is that it gets us to stop and take stock of our patient panel and see, oh wow, I didn't realize that 15 % of my patients have uncontrolled hypertension. What am I doing about it? Or out of those 15 %, half of them missed their last appointment. So just the fact that it gets you to stop for a minute and think about things. Cause a lot of times during the day you don't really have time to stop and think, you just go. Next patient, next patient, next patient, next phone call, next lab, next this. The next thing you know, the day is over and you want to get home for dinner.... The recognition is good. We're just going to have to find time and a means to make it a regular part of our practice." (PCP)</p> <p>"It's nice to have a means to look into your panel and say 'oh these are my outliers and how am I failing them?', or you know, how are they failing themselves?" (PCP)</p>
Education and training about PACT and panel management	Limited formal training	<p>"I mean we only had one education session on PACT, which was a one day introductory course." (PCP)</p> <p>"We weren't told exactly what to do, we sort of incorporated [the PMA] into our team meetings, which we have twice a month." (PCP)</p>
	Usefulness of panel management training provided	<p>"You know, I think that, to me, you know the understanding of how I was going to do panel management, I don't think was there before I had somebody to sort of help guide it." (PCP)</p> <p>"[the panel management educator] presented either a theoretical patient who has some issues that's affecting optimizing their healthcare and asks us how would we approach it, how could we remedy it or we talk about some of our patients and he's interested to hear our approach in terms of how we're dealing with issues, managing patients across all members of our team. And so a lot of it is problem solving to some extent and also seeing what we're doing." (PCP)</p>
	Team meetings	<p>"... a lot of our issues do revolve around improving patient-specific issues. Blood pressure is a very common one obviously. And [the PMA] had a list of our panel of patients for whom their blood pressures are out of control or she's identified that they are not refilling their medications or they missed their last appointment. And so she presents that to us and we work on a plan with her: whether she'll call them and see what's happening, when they</p>

	want to come in, or we'll call them or she'll send out a mailer. So we come up with a coordinated plan on how to address the patients that she's identified." (PCP)
	"...it doesn't feel like we've created, all of us together, an atmosphere where it's just about creatively thinking about the problems and problem solving... I think that there's a lack of a sense of creatively processing this and how could we do work as a team? ... it doesn't seem like we're really working as a group to come up with these creative ideas. We're just participating on this schedule and doing what this plan is." (PCP)
	"Everybody is doing their little piece here, their little piece there. But at the team meetings we do try and bring it all together. But sometimes I wonder if this piece isn't being addressed particularly well." (PCP)
Role function and task allocation	"And so I think the hardest part has just been letting go...being ok with delegating some things. ... it's not so much the responsibility that I've had trouble delegating, it's more feeling like I'm adding to somebody else's work. ...the RN care manager and I have been working well together and I feel like that's actually been good...the clerk...it's been fine. I feel like we could be a better team." (PCP)
	"... I know the doctors feel a lot better with PACT because they feel like they're not so alone. That they have other people helping them with their problematic patients. You have more eyes looking at it and more ideas on how to deal with the problems or the problem patients." (RN)
	"I'm starting to really let go of a lot of the work that I did that did not require my skills at all." (PCP)

their clinical practice, more broadly. The new meeting structure that accompanied the transition to PACT was generally found to be helpful. It afforded the staff dedicated time for coordination and problem solving. However, without specific guidance, some teams struggled to optimize and use the time effectively. Both the RN Care Managers and PCPs felt that the PACT structure relieved PCPs of some tasks, and allowed for delegation as well as more support from other team members and PCPs. However, while more allocation of responsibilities for patient care was found to be helpful for PCPs, some PCPs were also concerned that the RNs were becoming overworked due to some staff shortages and a lack of clarity about the care manager role.

Statistical correlates of panel management self-efficacy for participants in the intervention condition

Although scores on the Panel Management Clinician Self-Efficacy Scale were higher for intervention condition participants than for control condition participants at follow up (6.2 vs. 5.2, respectively), there was considerable variation in the scores within that group. We therefore statistically examined the correlates of panel management clinician self-efficacy among those who had worked with a PMA. This statistical examination enabled an understanding of which factors most influence panel management self-efficacy and may inform future interventions. As can be seen in Table 5, and consistent with our hypotheses, panel management clinician self-efficacy was correlated with sufficient panel management education and training, aspects of team member interaction, and frequency of panel management use. However, panel management clinician self-efficacy was not correlated with attitudes toward panel management.

DISCUSSION

Although the increase was not statistically significant, the research demonstrated that having the support of a PMA was associated with an increase in clinician panel management self-efficacy. In particular, while study participants reported moderate panel management self-efficacy before and after the intervention, panel management self-efficacy improved among clinicians randomized to the intervention group. Post-intervention self-efficacy of PCPs and RN Care Managers in the intervention group was associated with the use of proactive panel management care.

We found support for most of our hypothesized correlates of panel management clinician self-efficacy among intervention participants following the intervention. Panel management self-efficacy scores were higher among clinicians who reported that they had sufficient education and training in panel management, had enough time and opportunity to discuss panel management plans and activities, and had

Table 5 | Correlates of clinician panel management (PM) self-efficacy at follow up for intervention participants (N=27)

	Post PM self-efficacy	PM education	Team time	Team review	PM attitudes	PM use
Post PM self-efficacy	1	0.443*	0.494**	0.462*	0.197	0.513**
PM education		1	0.183	0.139	0.306	0.209
Team time			1	0.924**	-0.011	0.273
Team review				1	-0.077	0.248
PM attitudes					1	0.448*
PM use						1

* $P \leq 0.05$; ** $P \leq 0.01$

enough time and opportunity to review the effectiveness of their panel management strategies together. From the qualitative data, we found that providers valued education and trainings, although it was generally limited. Staff interviewed also suggested that realigning individual roles within the teams and implementing creative collaboration remain challenges. Several providers acknowledged the benefits of working in a team. However, the extent to which participants agreed with the statement, “Panel management is critical for improving the health of patients” was not significantly correlated with the Panel Management Self-Efficacy score at follow up for intervention participants. This latter finding is consistent with that of Litaker and colleagues, who found neither consistent nor substantive associations between clinicians’ self-efficacy and attitudes in a study examining cardiovascular prevention [39]. Interviews with the providers illuminated challenges in treating patients as a population instead of as individuals, including the large amount of time needed to implement panel management, making it especially difficult for large, complex patient panels.

Adding a PMA to clinical teams correlated with a modest, but significant improvement in reported panel management clinician self-efficacy. Working with a PMA might increase self-efficacy in a variety of ways, including improving definitions of panel management tasks; helping with the allocation of roles and tasks; ensuring that meeting time is used to discuss panel management; facilitating team member interactions; and offering teams the opportunity to observe the completion of panel management strategies that range from identifying patients to conducting outreach, follow up, and monitoring.

Panel management self-efficacy may have declined in the control group for various reasons. VA’s PACT initiative increased the expectation of performing panel management for all clinicians through directives from the VA Central Office as well as brief training experiences as PACT was implemented. Clinicians in the control group did not have the support of a PMA and had to incorporate panel management tasks into their regular work flow. These clinicians may have reported decreased self-efficacy as they recognized the challenges of learning and adding these new tasks without additional support.

CONCLUSION

Limitations—Generalizability of these results may be limited by the small sample size at only two VA campuses, a 64 % survey response rate, and the lower response rate among those in the control group. Additionally, the implementation of our survey coincided with the initial rollout of VA’s PACT model for primary care. The ensuing changes in staff roles, responsibilities, and expectations may have confounded our results. We also acknowledge as a limitation of the study the lack of psychometric data to support the use of the self-efficacy measure beyond that reported in this study. Future research is clearly needed to validate and further refine the self-efficacy measure among other PCP staff and assess its stability over time.

Future Directions—In spite of these limitations, this study provides preliminary understanding of the value of a PMA in increasing panel management clinician self-efficacy, and identifies correlates of this self-efficacy for those who had PMA support. Further research is needed to examine relationships between panel management clinician self-efficacy, panel management implementation, and patient outcomes, as well as the cost effectiveness of the panel management approach so that patients can be supported optimally and efficiently to improve and maintain their health.

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Adherence to ethical standards: The VA New York Harbor’s Institutional Review Board and Research and Development Committee approved the study. Informed consent for surveys and interviews was obtained from all participants, with additional consent obtained for audio recording. All study procedures, including the informed consent process, were conducted in accordance with the ethical standards of the responsible VA Institutional Review Board, national policies and the Helsinki Declaration of 1975, as revised in 2000.

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