



An Interprofessional Approach to Chronic Pain Management and Education

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BACKGROUND AND OBJECTIVES: The opioid epidemic highlights the importance of evidence-based practices in the management of chronic pain and the need for improved resident education focused on chronic pain treatment and controlled substance use. We present the development, implementation, and outcomes of a novel, long-standing interprofessional safe prescribing committee (SPC) and resulting policy, protocol, and longitudinal curriculum to address patient care and educational gaps in chronic pain management for residents in training.

METHODS: The SPC developed and implemented an opioid prescribing policy, protocol, and longitudinal curriculum in a single, community-based residency program. We conducted a postcurriculum survey for resident graduates to assess impact of knowledge gained. We conducted a retrospective chart review for patients on chronic opioid therapy to assess change in morphine equivalent dosing (MED) and pain scores pre- and postintervention.

RESULTS: A postcurriculum survey was completed by 20/26 (77%) graduates; 18/20 (90%) felt well-equipped to manage chronic pain based on their residency training experience. We completed a retrospective chart review on 57 patients. We found a significant decrease in MED (-20.34 [SE 5.12], $P<.0001$) at intervention visit with MED reductions maintained through the postintervention period (-9.43 per year additional decrease [SE 5.25], $P=.073$). We observed improvement in postintervention pain scores ($P=.017$).

CONCLUSIONS: Our study illustrates the effectiveness of an interprofessional committee in lowering prescribed opioid doses and enhancing chronic pain education in a community-based residency setting.

(Fam Med. 2022;54(1):47-53.)
doi: 10.22454/FamMed.2022.753618

knowledge of pain assessment and treatment.⁷⁻¹⁰ The creation of multidisciplinary or interprofessional teams tasked with implementing clinic or system-based opioid prescribing protocols with regular review of opioid prescribing practices is associated with a reduction in morphine equivalent dosing (MED) and/or improved adherence to clinical guidelines.¹¹⁻¹⁶ We hypothesized that a resident-focused opioid prescribing curriculum, coupled with an interprofessional committee to protocolize and review opioid prescribing practices in training, could address the educational gap and prescriber discomfort in chronic pain management. We also hypothesized that this curriculum and committee would standardize opioid prescribing practice to align with evidence-based, best practice guidelines for chronic pain management.¹⁷ Here, we describe the development, implementation, and outcomes of a novel, long-standing interprofessional safe prescribing committee (SPC) and resulting policy, protocol, and longitudinal curriculum to address

The opioid epidemic resulted in alarming rates of death over the last two decades.¹⁻³ More than half of primary care physicians report discomfort managing chronic pain and rate their residency training in chronic pain management as insufficient.⁴⁻⁶ In recent years, many

residency programs developed and implemented chronic pain curricula, dedicated pain clinics, and/or standardized patient encounters.⁷⁻¹⁰ These measures resulted in decreased physician stress, improved attitudes toward patients with chronic pain, and improved

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patient care and educational gaps in chronic pain management for residents in training.

Methods

The HCA-HealthOne Institutional Review Board in Denver, Colorado, deemed this study exempt.

Safe Prescribing Committee

Development and Composition.

In 2011, we developed an SPC at our community-based, university-affiliated family medicine residency clinic serving an urban underserved population. Initial committee responsibilities included (1) development and implementation of a policy to ensure that evidence-based care was provided to patients on chronic opioid therapy (COT), and (2) providing resident education on evidence-based practices for chronic pain management and opioid prescribing.¹⁸ Committee members included a family medicine faculty physician, clinical pharmacist, clinical psychologist, sitting resident member appointed for a 12-month term, a monthly rotating

resident member, a member of the residency program’s quality improvement committee, and a clinical social worker and/or patient care coordinator.

Clinic Policy and Toolbox.

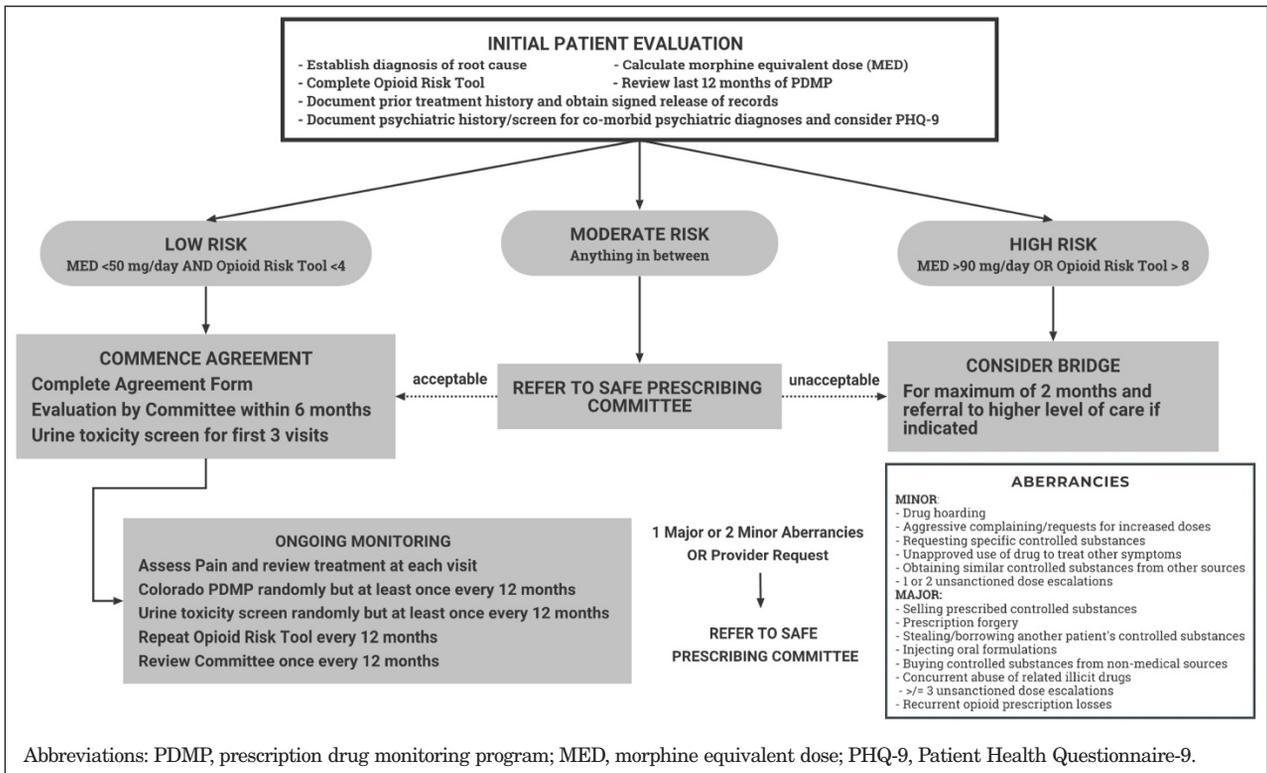
Informed by evidence-based guidelines and expert consensus addressing chronic pain management and opioid prescribing, the SPC developed a Safe Prescribing Policy and a prescriber’s toolbox containing easily accessible documents.^{17,19–23} The toolbox included several documents from the policy, including (1) the Safe Prescribing Protocol for initial patient evaluation and risk stratification developed by the SPC (Figure 1), (2) a copy of our pain management agreement to be reviewed by the patient and treating physician, (3) instructions for ongoing monitoring of patients on COT and, (4) prescribing information including opioid conversion and equianalgesic dosing tools.^{17,19–23} These documents were printed and placed in a binder labeled “Pain Management Toolbox”

in our preceptor room with electronic copies stored on a shared drive.

Committee Workshops.

The SPC implemented monthly workshops where quality-based reviews of individual patient cases were discussed. All patients on COT were placed on a secure, clinic-based registry and were intermittently reviewed to ensure consistency with SPC guidelines. Physicians also referred patient cases to SPC workshops for consultation. A minimum of four members of the interprofessional team were required for the committee workshops to occur. Quarterly, the workshops were held as part of the usual didactic curriculum with all available faculty and residents in attendance. Residents had the opportunity to participate in SPC workshops, with resident committee members attending monthly. Resident and faculty physicians were assigned cases to review several days before scheduled workshops and were expected to present the cases for discussion. Risk stratification

Figure 1: Safe Prescribing Protocol



by Opioid Risk Tool and morphine equivalent dosing (MED), aberrancies, care concerns, and proposed plan moving forward were included in summaries and documented for care teams.^{17,19–25} All patient care recommendations including assessment or treatment for mental health conditions, use of adjuvants and/or nonopioid treatment options for chronic pain management, treatment recommendations for not-optimally-controlled comorbid health conditions like diabetes, opioid overdose prevention, and tapering indications and recommendations for those who were high risk were noted on the secure registry and sent to the treating and/or primary care physician via the electronic medical record.

Curriculum Development. The SPC developed a longitudinal curriculum to educate resident trainees on best practices for chronic pain management (Figure 2).^{17,19–29} The longitudinal curriculum consisted of a combination of lectures, online

modules, SPC workshops, and longitudinal patient care in our residency-based clinic with 1:1 precepting. In addition to faculty preceptors, faculty members of the SPC, including a clinical pharmacist and psychologist, were available to answer questions on chronic pain management during clinic in real-time utilizing evidence-based guidelines, expert consensus materials, and the Safe Prescribing Policy, Protocol, and other toolbox materials as resources. Part of our longitudinal curriculum involved incorporating topics of chronic pain management, substance use/misuse, risk management, and patient safety into our regular 18-month recurring longitudinal didactics curriculum. To address the impact of race and/or socioeconomic disparities, we also incorporated experiential activities into our curriculum such as community site visits as well as small-group and reflection activities centered around documentaries on the opioid epidemic and high-risk groups.

Learner Outcomes: Curriculum Assessment

To assess the learner impact of our interventions, we sent an anonymous, voluntary survey to all eligible resident graduates. To qualify for survey participation, graduates must have completed at least the first 2 years of the SPC curriculum and graduated residency between 2015 and 2019. Survey items were developed using an iterative review process by a group of faculty medical educators. To ensure confidentiality, the only demographic information collected was year of residency graduation. The electronic survey link was sent in September 2020, with a reminder sent 1 week later.³⁰

Figure 2: Safe Prescribing Curriculum and Timeline

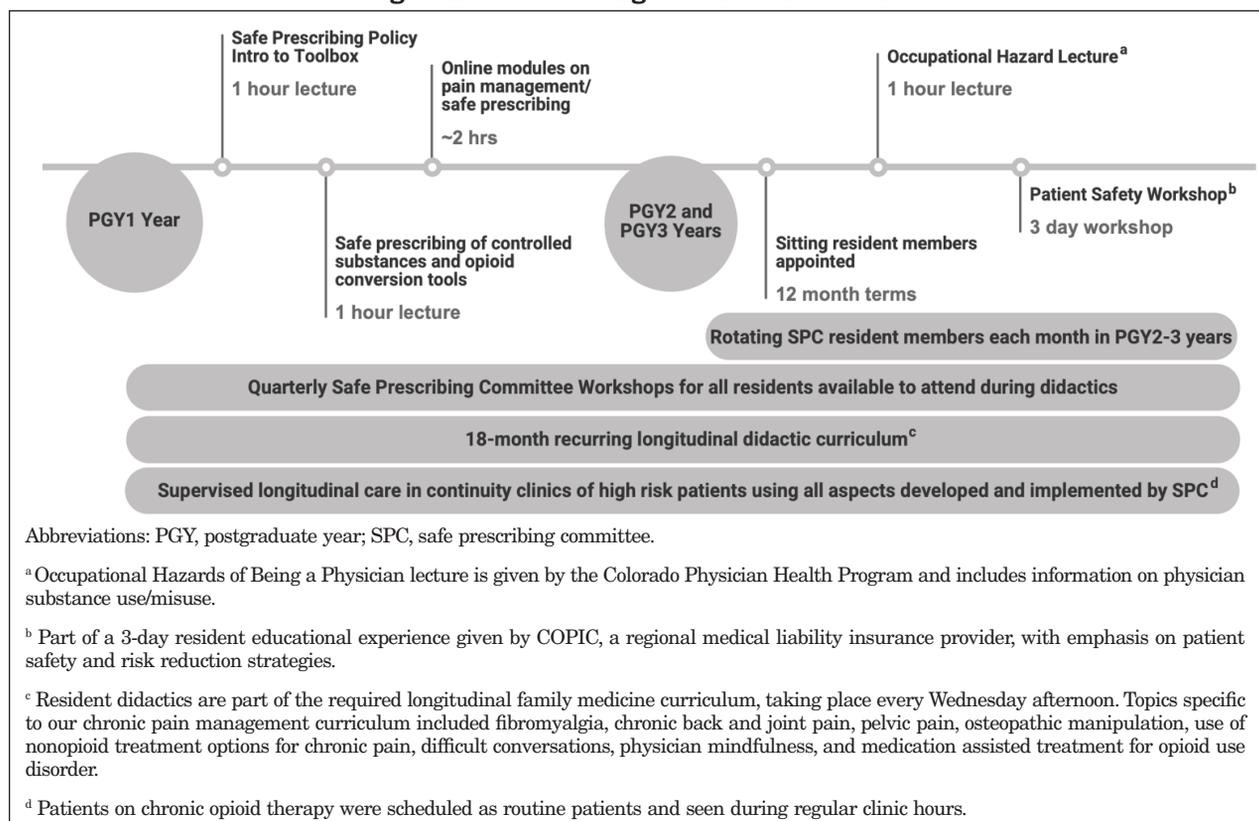


Table 1: Postcurriculum Resident Survey Results, n=20

| Average Likert Score for Safe Prescribing Committee Interventions ^a | Mean (SD) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| The safe prescribing longitudinal curriculum was overall a valuable experience to my education. | 4.85 (0.36) |
| The safe prescribing committee provided a valuable educational experience on safe prescribing practices and recommendations. | 4.65 (0.48) |
| The safe prescribing committee provided a valuable patient care/safety resource to my clinical practice in residency. | 4.65 (0.48) |
| I routinely use the knowledge and skills gained from residency in the management of chronic pain to include patient care practices and use of high-risk medications and controlled substances. | 4.5 (0.5) |
| I feel well equipped to manage chronic pain and high-risk medications related to chronic pain management in my current clinical practice based on my residency training experience. | 4.45 (0.67) |
| The knowledge and skills learned during my residency training has helped me safely care for patients with chronic pain in my current practice. | 4.75 (0.43) |
| Most Helpful Aspects Offered by Safe Prescribing Committee ^b | n (%) |
| Safe prescribing committee policy/toolbox to reference when needed | 15 (75) |
| Safe prescribing committee workshop care management recommendations | 13 (65) |
| Participation in the safe prescribing committee workshops/case reviews | 10 (50) |
| Longitudinal safe prescribing committee didactic curriculum | 10 (50) |

^a 1=strongly disagree, 5=strongly agree

^b Nonmutually-exclusive category options.

Patient Outcomes: Change in Morphine Equivalent Doses and Pain Scores

Patients on COT were identified by the registry utilized at SPC workshops. A retrospective chart review to assess changes in MED pre/post-SPC implementation was conducted between June 2018 and September 2018. Those with a cancer diagnosis or with no care documented prior to SPC implementation were excluded. Morphine equivalent doses were calculated using Centers for Disease Control and Prevention conversion factors.²³ Pain scores recorded during patient care visits using a numerical rating scale from 0 (no pain) to 10 (worst pain) were also reviewed and analyzed.³¹ Each visit was designated as preintervention (visits prior to initial SPC review), intervention (visit immediately following initial SPC review), or postintervention (all visits after intervention visit). To account for those who were discontinued or dismissed without getting a refill prescription for opioids, second to last visit pain scores and MED were used, with last-visit MED (generally 0) set to missing for

these patients. General linear mixed effects models were used to analyze the repeated measures within patients over time, adjusting for age and gender.

Results

Learner Outcomes

A total of 30 previous resident learners participated in aspects of our curriculum; 26 graduates qualified for survey participation and 20/26 (77%) completed the survey. Of these, five (25%) graduated in 2015, three (15%) in 2016, three (15%) in 2017, six (30%) in 2018, and three (15%) in 2019. All survey respondents agreed or strongly agreed that the longitudinal safe prescribing curriculum was a valuable experience to their education and routinely use the knowledge and skills gained from residency in their current clinical practice, with 18/20 (90%) noting that they feel well-equipped to manage chronic pain and high-risk medications related to chronic pain management in their clinical practice based on their residency training experience. Postcurriculum resident survey results are listed in Table 1.

Patient Outcomes

Between October 2011 and February 2018, 230 patients on COT were added to the registry; 57 patients had care documented before and after SPC initiation. Patient demographics and outcomes are listed in Table 2. Patients had an average of 23.4 (SD=19.5) visits (median=17 [IQR 7, 37.5]). All 57 patients had MED and pain scores documented and included in analysis. We found a small, nonsignificant change in MED during the preintervention period (-1.24 per year [se 7.38], $P=.867$). At the time of committee review, we found a significant decrease in MED (-20.34 [SE 5.12], $P<.0001$) with postintervention MED reductions maintained through the postintervention period (-9.43 per year additional decrease [SE 5.25], $P=.073$). Simple pre/post comparison of MED indicated that significant overall decrease ($P=.001$; Figure 3). Even with decrease in MED, adjusted postintervention pain scores (all postintervention pain scores, adjusted for clustering of observations within individuals) were significantly improved compared to preintervention pain scores (all

Table 2: Patient Demographics and Outcomes

| Characteristic, n=57 | Mean (SD) or n (%) |
|-------------------------------------------------------------------------------------------|---------------------|
| Age at Baseline, Mean (SD) | 48.8 (12.4) |
| Gender Identity ^a , n (%) | |
| Female | 41 (71.9%) |
| Male | 16 (28.1%) |
| Opioid Risk Tool Score, Mean (SD) ^b | 4.29 (3.28) |
| Low risk (0-3) | 20 (35.1%) |
| Moderate risk (4-7) | 14 (24.6%) |
| High risk (>= 8) | 8 (14.0%) |
| Score missing from chart | 15 (26.3%) |
| Chronic Pain Diagnosis, ^c n (%) | |
| Chronic back pain or degenerative disc disease | 31 (54.4%) |
| Osteoarthritis or other joint pain | 20 (35.1%) |
| Fibromyalgia | 13 (22.8%) |
| Chronic neck pain | 9 (15.8%) |
| Rheumatologic condition | 9 (15.8%) |
| Chronic abdominal or pelvic pain | 8 (14.0%) |
| Peripheral neuropathy | 5 (8.8%) |
| Osteogenesis imperfecta | 2 (3.5%) |
| Other | 2 (3.5%) |
| Morphine Equivalent Dose Prior to Intervention, Mean (SD) | 149.1 (192.6) |
| Median (IQR) | 67.5 (36.25, 180.0) |
| Morphine Equivalent Dose at Last Patient Visit, Mean (SD) | 81.1 (88.8) |
| Median (IQR) | 42.5 (22.5, 90) |
| Pain Score Prior to Intervention, Mean (SD) | 6.7 (2.7) |
| Pain Score at Last Patient Visit, Mean (SD) | 6.16 (2.95) |
| Final Patient Outcome, n (%) | |
| Patient transferred care to new primary care practice | 14 (24.6%) |
| Controlled substance discontinued and patient did not return | 12 (21.1%) |
| Transfer to pain specialist for higher level of care or for opioid use disorder treatment | 12 (21.1%) |
| Continued care until study completion | 9 (15.8%) |
| Lost to follow up | 6 (10.5%) |
| Dismissed from practice | 3 (5.3%) |
| Natural death (not related to opioid use) | 1 (1.8%) |

Abbreviations: SD, standard deviation; IQR, interquartile range.

^a One transgender patient categorized to their gender identity.

^b n=42 as 15 scores missing from chart.

^c Nonmutually exclusive categories with numbers adding to more than 100%. Several patients had more than one diagnosis listed for their chronic pain: 27 (47%) had two diagnoses and seven (12%) had three or more; 23 (40%) had only one diagnosis listed.

preintervention pain scores, adjusted for clustering of observations within individuals; adjusted pre: 6.90 [SE 0.31], adjusted post: 6.56 [SE] 0.31; $P=.017$).

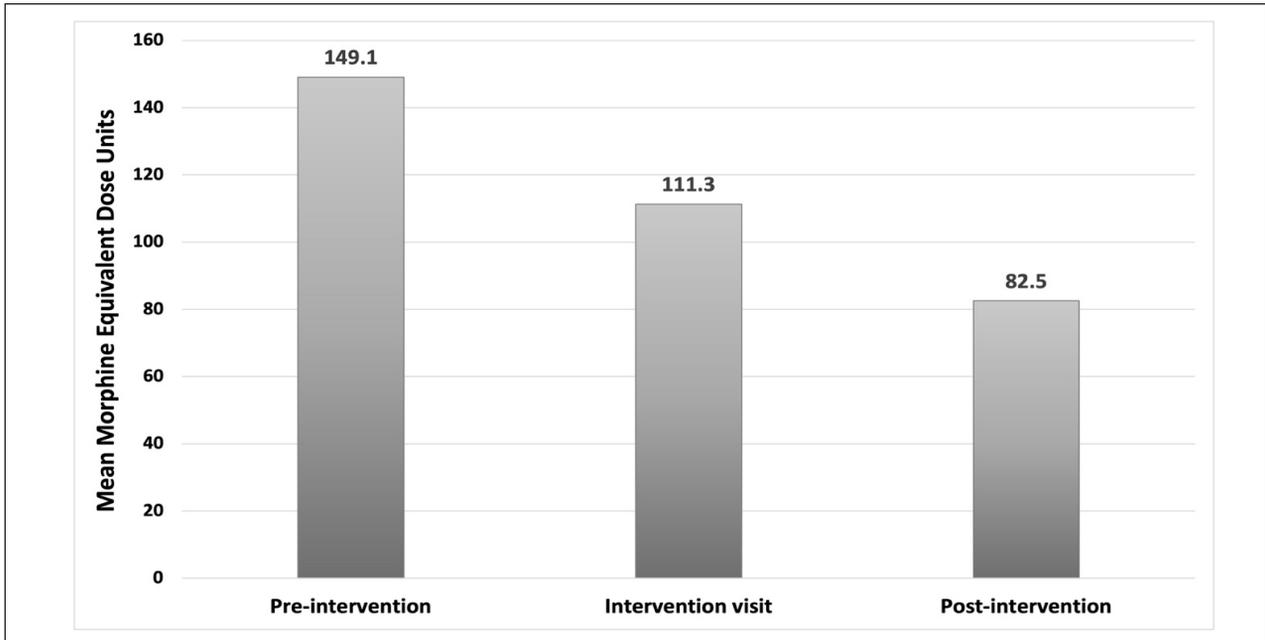
Discussion

Our study complements the existing literature demonstrating the effectiveness of an interprofessional committee in the management of high-risk patients on opioids.^{11-13,15,16}

Our study extends the literature by demonstrating the effectiveness of an SPC on resident education.

The SPC faced some challenges. Regular monthly workshops were sometimes difficult to schedule,

Figure 3: Average Morphine Equivalent Dose Units Over Time



particularly with all members of the committee present. To circumvent this, only four members were required to be in attendance, and workshops were scheduled in a recurring fashion. In addition, quarterly workshops during didactics made the scheduling process easier and more efficient. Buy-in from a small number of faculty concerned about preserving their autonomy was also difficult initially. Therefore, we emphasized the consultation component and referenced available evidence-based resources in our recommendations. Both physician and patient satisfaction are areas worth exploring in future studies.

Our study has several limitations. Although our anonymous resident graduate survey response rate was 77%, the response rate may be biased in that resident graduates with strong feelings on the subject matter may have been more likely to respond. Also, the SPC was implemented at a single, community-based program serving an urban underserved patient population. This setting may not be generalizable to other patient populations. In addition, only 15.8% of patients included in this study continued care until

study completion. About 21% did not return following opioid discontinuation, and 5% were dismissed from our practice. All attempts to gradually decrease doses were made, except for significant aberrancies such as prescription forgery. Those with suspected substance use disorders were referred for specialized care. Attrition rate for patients on COT receiving care in a residency clinic setting should be further investigated to ensure interventions such as these do not have unintended consequences. Lastly, the SPC and its interventions were initiated before medication assisted treatment (MAT) implementation became highly encouraged for family physicians, including residents in training.³² Future studies should include MAT as part of the longitudinal training experience.

The implementation of our SPC and resulting policy, protocol, and longitudinal curriculum illustrates the effectiveness of an interprofessional committee in lowering prescribed opioid doses and enhancing chronic pain education in a community-based residency setting, and can be a roadmap with proven efficacy and measurable outcomes. Future studies can focus on confirming these

findings in a variety of settings to fit the needs of different practices and patient populations.

FINANCIAL SUPPORT: This publication was supported by NIH/NCATS Colorado CTSA Grant Number UL1 TR002535. Its contents are the authors' sole responsibility and do not necessarily represent official NIH views.

PRESENTATIONS: A poster presentation containing data from this manuscript was presented virtually at the 2021 Society of Teachers of Family Medicine Annual Spring Conference and limited preliminary data and outline of committee policies were presented at the Collaborative Family Healthcare Association 15th Annual Conference in Broomfield, Colorado in 2013.

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