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Integrating a Functional Assessment Tool for Chronic Pain in Primary Care

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Abstract

Background: Chronic pain is prevalent in the United States. Frequently, rural primary care providers must manage patients' chronic pain and any associated long-term opioids. Best evidence-based practices recommend, and in some cases state guidelines require, periodic functional assessment, for which the CDC endorses the PEG assessment scale.

Purpose: To integrate the PEG assessment scale into a rural, primary care practice and evaluate sustainability in following best evidence-based practice guidelines.

Methods: A one-year retrospective chart review determined the baseline quality and frequency of functional assessment. A pre-implementation survey was distributed to providers to assess knowledge of opioid prescribing guidelines and their perceived applicability and importance to practice. The PEG assessment scale was implemented in a six-week series of PDSA cycles. Weekly retrospective chart reviews evaluated rate of completion. A post-implementation survey was sent to providers to gauge satisfaction and feasibility of continued use.

Results: Implementation increased the percentage of patients with chronic pain managed on long-term opioids with a validated and standardized functional assessment from 0% (N=95) pre-implementation to 63.53% (n=71). Providers endorsed the feasibility and sustainability of using the PEG assessment scale with intent to continue use after project completion.

Conclusions/Implications for Practice: Clinical staff supported utility of the PEG assessment scale despite not reaching the target average completion rate of 75%. The tool not only supports guideline compliant care but provides a more comprehensive assessment, helps open conversations about impacts of pain and goals of care, and helps direct changes in pain management regimens to support function.

Keywords: Chronic pain, opioids, rural primary care, guidelines, functionality, PEG assessment scale.

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Problem Description & Background

The National Health Interview survey in 2019 reported 20.4% of adults in the United States experience chronic pain (Dahlhamer et al., 2021). Approximately one in 14 experienced "high impact" chronic pain (CDC, 2022). "High impact" chronic pain is defined by pain everyday (or most days) during the past three months that impairs life and work activities. Chronic pain presents an enormous burden on various levels, including a significant level of morbidity and mortality (Gebke et al., 2022). This population is at an increased risk of anxiety, depression, suicidal ideation, low self-esteem, divorce, substance abuse, and impaired physical functioning (Cohen et al., 2021; CDC, 2022). This level of dysfunction contributes to impairments in overall quality of life (QoL). Chronic pain creates a significant economic burden in the United States, with total expenditures for both cost of health care and lost productivity totaling over five to six billion dollars a year (Gebke et al., 2022; Kroenke et al., 2014). Overall, chronic pain is one of the leading causes of disability in the United States and a primary reason individuals seek medical care (Bifulco et al., 2021; CDC, 2022).

Primary care providers (PCPs) are at the frontline of chronic pain management (Gebke et al., 2022). Despite the poor evidence to support opioid use for chronic pain patients, a large percentage of this population continues long-term opioid therapy (LTOT) as a plan of care. In 2019, 22.1% of adults in the U.S. with chronic pain used prescription opioids in the past three months (Dahlhamer et al., 2021). Since the labeling of pain as the "fifth vital sign" in the late 1990s, the number of new opioid prescriptions has quadrupled (Quanbeck et al., 2018 & AAFP, 2021). Disproportionately, 80% of opioids produced worldwide are consumed by the United States, and PCPs prescribe almost half of the opioids dispensed (Dydyk et al., 2021; Witt et al., 2018 & Quanbeck et al, 2018). In 2020, this totaled approximately 143 million opioid

prescriptions (CDC, 2022). The rate and use of opioid prescribing in primary care varies by geography, with higher rates in rural areas versus urban areas (Witt et al., 2018). This geographical variation is present even after adjusting for factors such as socioeconomic and sociodemographic differences (Dahlhamer et al., 2021). Chronic pain is a complex phenomenon influenced by multiple factors and this complexity makes effective management challenging (CDC, 2022). Effective management often requires specialized, multimodal management plans. Unfortunately, the resources available in urban areas to support PCPs, such as specialty pain clinics are often not present or difficult to access in rural areas.

Access to specialty pain care is a significant issue in rural northern Vermont. Northern Vermont has three specialty pain clinics; however, they are all located in urban areas. This geographic distribution acts as a barrier for patients in rural areas of the state. The travel time can be 45 minutes to an hour or more one way, which is challenging on rural roads with inclement weather, financial barriers with gas and vehicle maintenance prices, and a lack of public transportation. In addition to the transportation barriers, these clinics have long wait times of months for appointments. As a result, most of these patients continue to be managed solely in the primary care setting.

Research on chronic pain has focused on determining the applicability, efficacy, and safety of long-term opioid use (Kroenke et al., 2014). Evidence-based clinical practice guidelines have been formulated to promote safe and effective opioid prescribing (Quanbeck et al., 2018 & Liebschutz et al., 2017). One of the commonly referenced guidelines in literature is the *CDC's Guideline for Prescribing Opioids for Chronic Pain* released in 2016 and updated in 2022. The primary intent of the CDC guideline was to improve the safety and effectiveness of pain

treatment, reduce the risk associated with LTOT, and improve communication between patients and providers about the risks and benefits of LTOT (CDC, 2016; CDC, 2022).

Available Knowledge

Guidelines

Literature supports using standardized, validated tools to guide safe and effective treatment of chronic pain (Bifulco et al., 2021, Gebke et al., 2022). Evidence supports a comprehensive assessment that incorporates the ability to assess pain-related function, including the impact on emotions and physical function (CDC, 2022). Pain and function should be measured at baseline and then regularly throughout chronic pain management (CDC, 2016; CDC, 2022). The benefits and harms of LTOT should be evaluated at least every three months. LTOT is recommended to be continued only if a "clinically meaningful improvement in pain and function" is determined. The CDC recommends the Pain, Enjoyment of life, and General activity (PEG or PEG-3) assessment scale (Appendix A) to evaluate the impact of the current treatment regimen on pain and function. It is important to note function is not limited to physical function, but also includes emotional and social functioning as it is likely an unrealistic goal of treatment for improvement in physical functioning for a patient with chronic pain attributed to spinal cord trauma (AAFP, 2021). A 30% or more reduction in the PEG-3 score is considered a clinically meaningful improvement in pain and function and this evaluation can help justify a decision for continued LTOT or adjustments in pain management. Appropriate evaluation of pain and therapy response includes the ability to monitor measurable treatment outcomes with focus on optimization of function and quality of life. There should be a continued discussion of patient-centered goals, risks versus benefits, and improvements in function. If opioids are prescribed for

long-term therapy, the lowest effective dose to achieve functional improvement should be used while following all guideline recommendations for safe prescribing (AAFP, 2021).

In addition to the CDC guidelines, Vermont has a set of prescribing laws. The Vermont prescribing laws outlined by the Vermont Department of Health also specify the need for functional assessment as part of opioid prescribing guidelines for chronic pain (VDH, 2019). If the Morphine Milligram Equivalents (MME) per day is more than 90, a functional exam must be present in the patient's chart. This evaluation must be present with the direct specification that justifies the use of the current opioid dosage. Although the VDH does not specify a functional assessment tool, the document defines a functional examination as including the patient's ability to complete necessary daily activities as well as domains of physical, social, and psychological well-being. The PEG assessment scale could assist with providing physical documentation of the specified functional assessment within patient charts. In addition, the PEG-3 allows for an objective measure to track patient response to the management regimen overtime.

PEG Assessment Scale Validation

A single-item assessment of pain intensity used independently is inadequate for the assessment of chronic pain (Krebs et al., 2009). Multidimensional assessment tools and pain measures are favored in literature and by the LTOT guidelines. A variety of assessment tools are available, however, many are too long and complex to be practical in a primary care setting. As a result, Krebs et al. (2009) designed a more concise and validated assessment tool from one of the well utilized and tested tools known as the Brief Pain Inventory (BPI) to provide a multidimensional assessment tool feasible for use in primary care.

The authors chose one item from each of the three primary domains of the BPI. The three items selected include the assessment of average pain intensity (P), interference with enjoyment

of life (E), and interference with general activity (G). Within the evaluation, the PEG assessment scale was found to have good reliability and validity comparable to the BPI (Appendix C). The PEG assessment scale was also determined to be sensitive to changes in pain. Overall, the authors supported the practicality of the PEG-3 in primary care to assist in monitoring and assessing chronic pain.

Additional Literature Supporting the PEG Assessment Scale

A recent study by Roldan-Majewski et al. (2022) supported the use of multidimensional assessment tools to assess chronic pain as these tools address both pain intensity and pain interference. Pain interference is an important aspect of pain assessment as it may have more impact on quality of life than pain intensity. Roldan-Majewski et al (2022) evaluated the PEG assessment scale for diagnostic accuracy and internal consistency for grading the impact of chronic orofacial pain. The PEG-3 was compared to the long standing Graded Chronic Pain Scale v.2 (GCPS). The authors concluded the PEG-3 has diagnostic accuracy comparable to the GCPS (Appendix A). The PEG assessment scale was able to differentiate disabling or dysfunctional pain from individuals with nondisabling or functional pain. The authors stated the PEG-3 also had benefits over the GCPS. These advantages included shorter recall period of symptoms (one week versus one month with GCPS), easier to interpret, and shorter length. PEG-3 has excellent discriminative properties and is successfully used to detect changes in pain intensity and function during follow-up in patients receiving chronic opioid therapy.

Another study of relevance to support the use of the PEG-3 as the functional assessment tool of choice is a randomized clinical trial by Kean et al (2016). Within the study, different pain interference measures were evaluated for sensitivity to change and responsiveness to treatment. The assessment tools evaluated were the PROMIS Pain Interference short forms, BPI, PEG

assessment scale, and the SF-36 Bodily Pain subscale. The PEG-3 and BPI demonstrated greater responsiveness than the PROMIS and SF-36 (Appendix C). Overall, the PEG-3 and BPI could detect clinical change in pain. Clinical change in pain includes responsiveness to treatment, the ability of the measure to detect change accurately, and sensitivity to change.

In addition, the SPACE randomized control trial comparing opioid versus non-opioid medications on pain related function, pain intensity, and adverse effects used the PEG assessment scale as an outcome measure (Krebs et al., 2018). The PEG-3 was used as one of the assessment tools to measure pain severity and pain-related function between the two study groups over the 12-month duration of the study. The care was provided in a stepwise algorithm for both the opioid and non-opioid intervention groups. The medications were adjusted or escalated based on the PEG-3 scores to achieve a target of improved function and decreased pain intensity.

The use of the PEG-3 was supported in an article by Gebke et al. (2022). The results of PEG-3 can be used to evaluate the response to therapy. The authors advised obtaining a baseline evaluation using PEG-3 and doing a repeat screen to assess the effectiveness of the treatment plans. A green light for continuing the current treatment regimen is at least a 30% reduction in the overall PEG-3 score. The use of multidimensional screening tools such as this help monitor the goal of improved physical and emotional function of patients with chronic pain.

Theoretical Framework

The use of theoretical frameworks can support the development of change and work as a road map to connect all the aspects of the project. The conceptual framework chosen to facilitate the process of development and implementation for this project is Kurt Lewin's Change Model. Lewin's model lays out a three-stage framework to assist in implementing change (Allen, 2016).

The three stages include unfreezing, changing, and refreezing. The first stage of unfreezing is the preparatory phase. The second stage of changing is the direct implementation of the interventions to facilitate the desired change. Last, the third stage of refreezing is support of sustainability for the change.

The unfreezing stage is arguably the most important phase of change (Allen, 2016). This phase forms the foundation of this project. Before implementing the change, attention must be given to determine the underpinnings for implementing the change. This phase is predominately devoted to formulating the rationale for the change project and determining the potential barriers and supports to implementation (See Appendix F). It is important to ensure clear understanding of the current status quo, why the change is beneficial or necessary, and evaluation of the restraining and driving forces (Allen, 2016). Deviations from supported elements of the opioid prescribing guidelines for chronic pain and the need for a full assessment of the risk and benefits of continued prescribing is a key driving factor for this project.

Rationale & Specific Aims

Evidence supports, Vermont law requires a functional assessment, and the CDC specifically recommends use of a validated functional assessment tool when prescribing long-term opioids. This project's purpose is to integrate the PEG assessment scale into a small, rural primary care practice previously not using a formal, validated functional assessment tool.

Specifically, the three project aims are:

1. The primary aim is the completion and documentation of the PEG-3 in patient charts. For chronic pain patients who are managed on LTOT where a functional assessment is required, there will be an average PEG-3 completion rate of 75% by November 30, 2022.

2. The secondary aim is to achieve an increase in the completion rate with each PDSA cycle across the time series to facilitate achieving the primary goal of an average completion rate of 75% over the duration of the project.
3. The tertiary aim is for implementation to occur with feasibility and sustainability. By the end of the implementation period, at least half of the providers will support the effectiveness and feasibility of the PEG-3 for functional assessments in chronic pain patients.

Methodology

Context

The site of this quality improvement project is a private family medicine practice located in rural northern Vermont. The practice is very small with only two nurse practitioners, two licensed nursing assistants (LNAs), one medication assisted therapy (MAT) nurse, two front desk staff, and one lab sampling technician. The practice had 95 patients with chronic pain managed on LTOT at the start of the project. The practice currently used elements of the CDC safe prescribing guidelines such as signed opioid contracts, urine drug screens (UDS), and routine verification on the Vermont Prescription Monitoring System (VPMS). In addition, the practice aimed to do a non-structured, unstandardized assessment of overall well-being and function, documented in the appointment note, but no formal assessment is performed or documented with a standardized and validated screening tool like the PEG assessment scale.

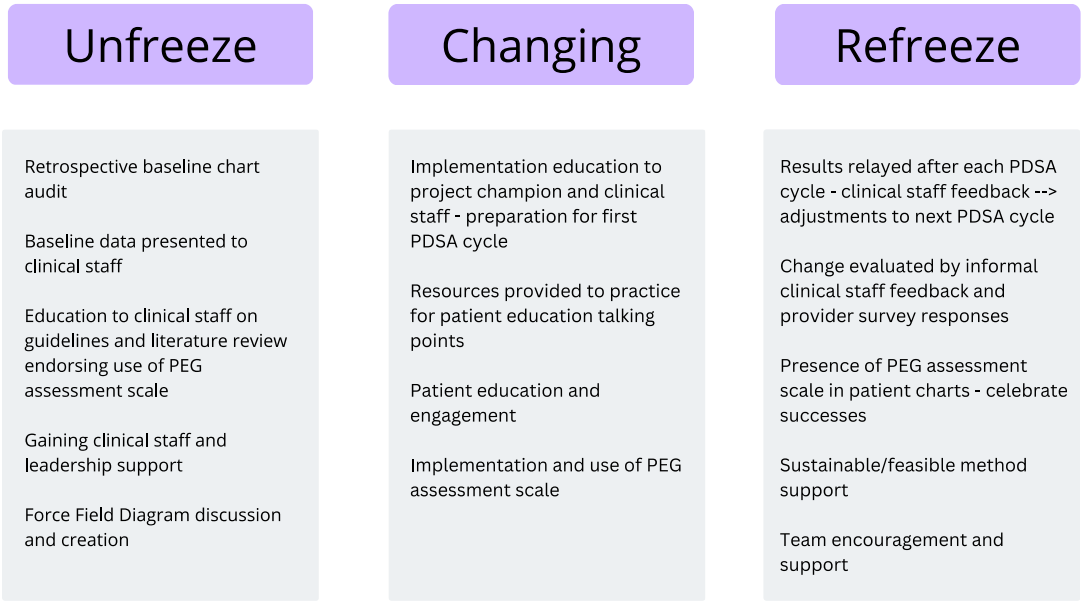
Interventions & Tools

To support a structured, standardized, and validated assessment of function in chronic pain patients on LTOT to increase reflection of the safe prescribing guidelines and Vermont law, the PEG assessment scale was integrated into the practice site mentioned above. The

implementation was structured using Lewin's Change Model (Figure 1) in combination with the methodology design of Plan-Do-Study-Act (PDSA) cycles over a six-week period.

Figure 1

Lewin's Change Theory Model in Application to This Project



Note. PEG assessment scale implementation plan and methodology laid out in the context of the Lewin's Change Theory Model for contextual guidance and project structure.

Pre and post implementation surveys were created using a variety of Likert scale style questions, rating questions, select all that apply, and open-ended questions. The surveys were designed to evaluate provider knowledge of the current guidelines, attitudes towards validated functional assessment tools in general and the PEG-3 specifically, thoughts on their current method of assessment, and perceived barriers to implementation. Many of the statements or questions are associated with a four-point Likert type scale with a range of strongly disagree to strongly agree and very unsatisfied to very satisfied (depending on the question type). The neutral option was not provided to help eliminate ambiguity of responses. Both surveys were formally Beta Tested

by a quality improvement expert, a pharmacist with a high level of content knowledge on this topic, and a practicing NP (see Appendix D). Prior to initiating the use of the PEG assessment scale, the pre-implementation survey was distributed to the NPs via hand-delivered paper surveys. Each survey had a different colored dot in the bottom right-hand corner corresponding to a key the primary investigator had so the survey could be matched to the post implementation survey. After the completion of the initial survey, the method for administration of the PEG assessment scale in PDSA cycle one was created (see Appendix G for process flowchart). From this point, after each one-week PDSA cycle (duration of beginning of day Tuesday to end of day Monday) is completed, feedback was sought from the clinical staff at the practice and based on the feedback, adjustments were made and implemented in the next PDSA cycle (see Appendix G for subsequent flowcharts). This method was continued until an efficient and effective process ensued that demonstrated sustainability for the site. The NPs were then provided the post implementation survey with the color match to their pre-implementation survey. The post survey evaluated attitudes towards the PEG assessment scale implementation, including satisfaction, feasibility, sustainability, and usefulness for practice.

Study of the Intervention

A list of patients with chronic pain on LTOT was compiled from both a VPMS report and a documented log by the practice owner. For the 95 patients identified, a pre-implementation retrospective chart audit was performed. For each patient chart, the Morphine Milliequivalent (MME) per day, status of PEG-3 presence (or other validated functional assessment tool), and documentation of function for each month from July 2021 to July of 2022 was collected and tracked on an Excel spreadsheet. This baseline information was reviewed to conclude on the overall current state and quality of functional assessment and documentation. Implementation

was initiated with the first PDSA cycle on October 18, 2022. At the end of the first cycle, the provider schedule was reviewed on the shared practice Google doc to determine a list of eligible patients who should have received and completed the PEG assessment scale at their visit. Eligibility was determined if the patient had a diagnosis of chronic pain, was managed on LTOT, and had not completed the PEG assessment scale in a prior cycle. Retrospective chart review of these charts was then completed to evaluate adherence to documentation and assessment standards including the presence of a completed PEG-3 and functional documentation within the provider's appointment note. At the end of the implementation period, the pre-implementation data and post implementation data was analyzed using Excel and presented to the site. A formal post implementation survey was administered at the end of the implementation period to aid in evaluating feasibility and sustainability of the PEG-3 process and satisfaction of the use of PEG-3 in comparison to the previous method of functional assessment and documentation. This information was used collectively to draw conclusions of the implementation of the PEG assessment scale and summarize recommendations for future practice implications.

Measures

This QI project has three primary measures to evaluate success. One measure is the presence and documentation of the PEG assessment scale within patient charts. Using comparative design post implementation percentages were evaluated in relation to pre-implementation percentages. Success was deemed if the aim of an average completion rate of 75% of charts of chronic pain patients seen during the implementation period had a completed PEG-3 present. With a secondary measure of success of improvement in completion overtime with each PDSA cycle. This steady progression helps draw conclusions on the methodology and success of the project overtime. The third measure is of provider satisfaction and perception of

feasibility for continued administration after the project period. This was measured by the responses on the initial formal survey being re-administered as a post-implementation survey. Satisfaction and usefulness were rated using a four-point Likert Scale with four representing strongly agree and one meaning strongly disagree.

Analysis

The data populated and tracked within Excel throughout the pre, interim, and post implementation periods were analyzed using descriptive statistics. A count of the number of completed PEG assessment scales obtained from retrospective chart review during each PDSA cycle in comparison to the number of eligible patients for the cycle period was used to calculate the PEG-3 completion rate for each PDSA cycle. This is presented as a completion percentage and displayed on a bar chart with a target line of 75% present. This visual representation allows the project performance to be tracked overtime through the time series of PDSA cycles with an individual bar for each cycle. The survey results for Likert type questions were analyzed via the use of a simple frequency table and bar graphs. The bar graphs highlight trends and facilitate comparisons of the provider responses where appropriate. The surveys were also analyzed using qualitative data analysis. The open-ended questions were evaluated to gain insight into the providers personal thoughts regarding PEG-3 use and perceived barriers to adherence. Patterns and themes in these free-text style responses were determined to help draw conclusions and influence change recommendations necessary for future practice.

Ethical Considerations

According to the policy defining activities which constitute research at the University of Vermont/University of Vermont Health Network, this work met criteria for operational improvement activities not requiring IRB review (see Appendix E). Permission for the use of the

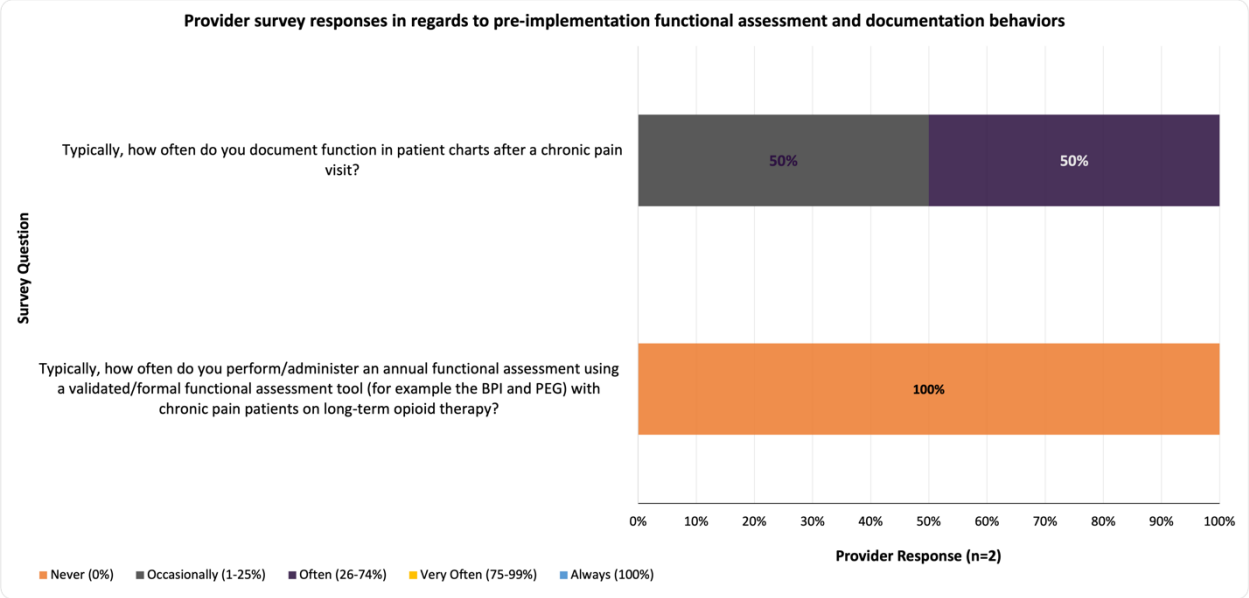
PEG assessment scale for this quality improvement project was obtained from the primary author of the original validation article (Appendix B). Data collection was collected in accordance with the Health Insurance Portability and Accountability Act and all data obtained is de-identified and password protected on a computer which only the primary investigator has access to ensure patient confidentiality and protection of health information. The QI team has no conflicts of interest to report.

Results

Baseline

The providers felt they knew the Vermont rules and the national guidelines for prescribing opioids for chronic pain "well" (n=1) and "very well" (n=1). Despite this result, the providers never used a validated/formal functional assessment tool with their patients to help track function and measure the response and efficacy to the current treatment regimen (Figure 2). Instead, they relied solely on subjective evaluation of ability to complete activities of daily living (ADLs), self-perceived quality of life (QoL), sleep quality, and ability to work. The frequency of this documentation style varied across providers (Figure 2). Retrospective chart review supported these responses.

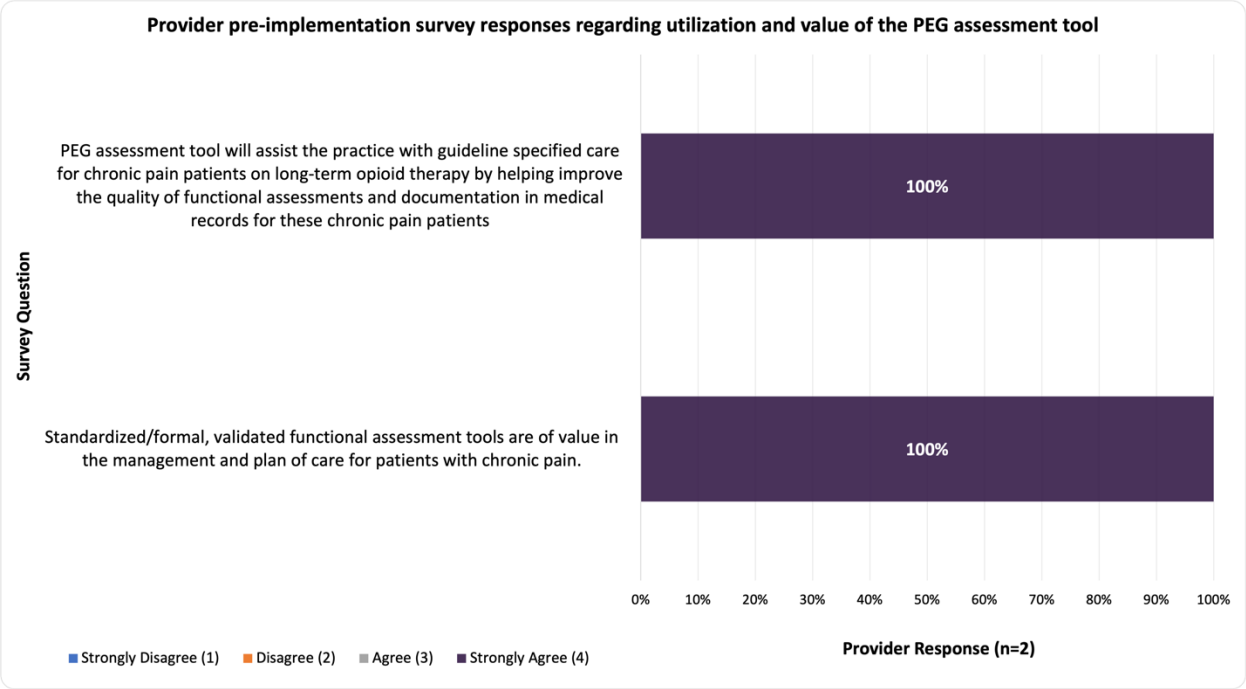
Figure 2



Note. Comparison of provider responses to pre-implementation survey questions evaluating baseline evaluation of function in chronic pain patients managed on long-term opioids.

However, the providers felt “unsatisfied” (n=1) and “fairly satisfied” (n=1) with the current method of assessment and documentation. They subsequently felt a standardized, formal, validated functional assessment tool, like the PEG-3, would be of value in the management of patients with chronic pain (Figure 3). Open question survey responses stated an assessment tool would help with assessment, documentation, and provide a quantitative measure of function and efficacy of current medication regimens (for all survey questions and responses see Appendix H).

Figure 3

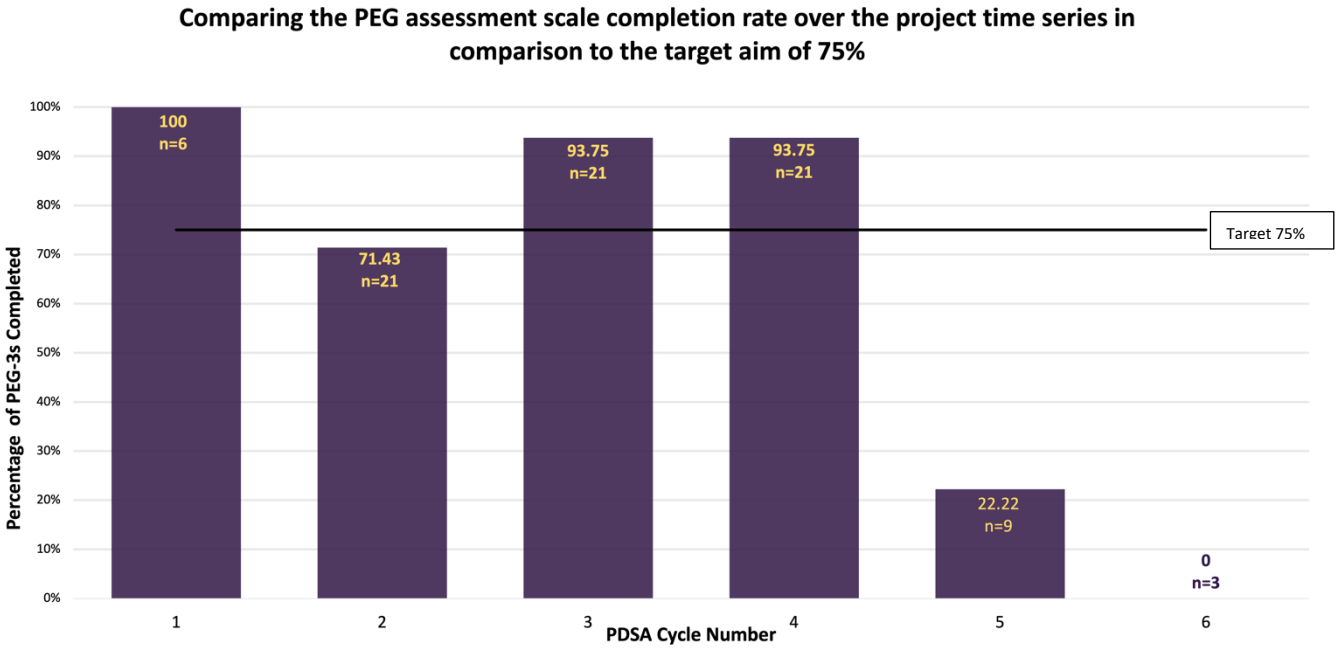


Note. Comparison of provider responses to pre-implementation survey questions evaluating utility of the PEG assessment scale for functional assessments and treatment regimen response monitoring in chronic pain patients managed on long-term opioids.

PDSA Cycles

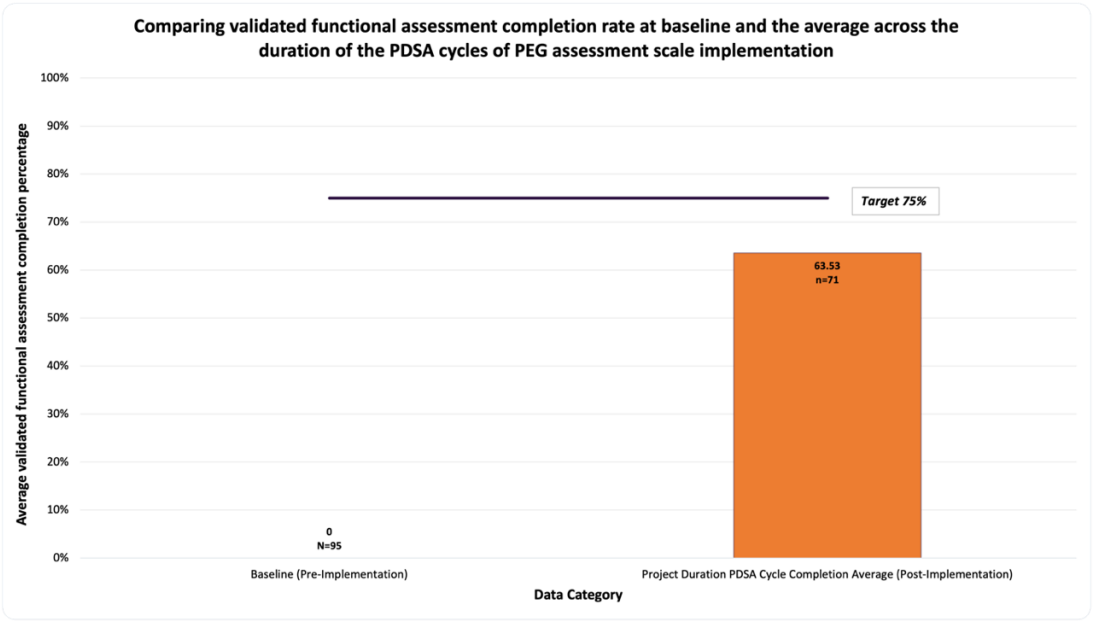
The PEG assessment scale completion rate for eligible patients varied across the six-week PDSA time series (Figure 4). Initially, the completion rate was nearly at or above the target rate of 75%, but the completion rate dropped substantially from PDSA cycle four to five and then again from cycle five to six (Figure 4). The poor completion rate across the last two weeks of the time series resulted in a PEG assessment scale completion average across the six-week implementation period of 11.47% below the target aim of 75% (Figure 5). However, in comparison to the baseline percentage of 0%, the completion rate of a validated assessment tool is substantially higher than prior to the project (Figure 5).

Figure 4



Note. Comparing the completion percentage of the PEG-3 for each PDSA cycle across the time series of the project and in comparison to the project aim of a target completion rate of 75%. Total eligible patients n=71, total completed PEG-3 n=53.

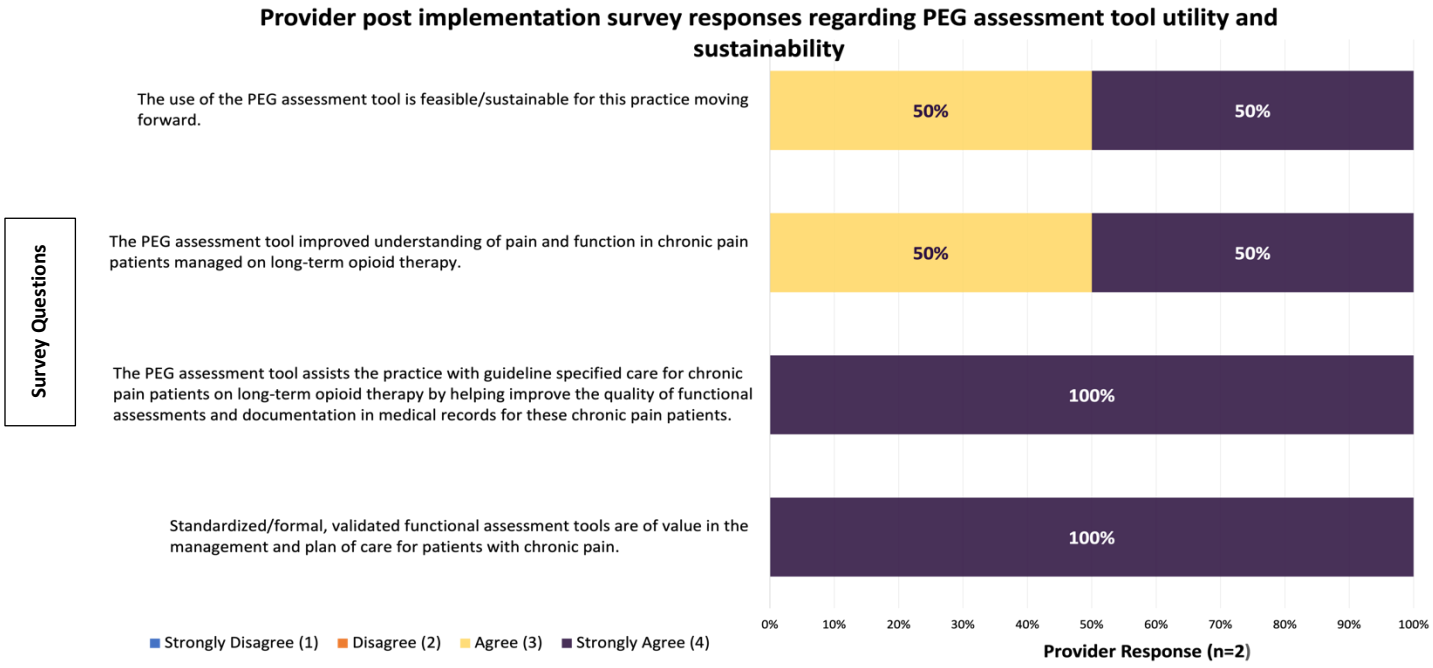
Figure 5



Note. Comparing the baseline standardized/validated functional assessment completion percentage from pre-implementation chart audit (n=95) to the average completion percentage of the PEG assessment scale over the six-week time series (n=71).

Despite the average completion percentage falling below the target aim, the providers were fairly satisfied (n=1) or very satisfied (n=1) with the use of the PEG assessment scale. The PEG-3 was felt to be useful in complying with guideline specified care, managing the plan of care for patients with chronic pain, and assisting with understanding of pain and function in this population (Figure 6). The providers felt the use of the PEG assessment scale was a feasible and sustainable way to formally assess function and treatment response in chronic pain, while supporting the necessary documentation requirements (Figure 6). Both providers responded "definitely yes" to using the PEG assessment scale at least annually with their patients in the future.

Figure 6



Note. Comparison of provider responses to post implementation survey questions evaluating utility of the PEG assessment scale for functional assessments and treatment regimen response monitoring in chronic pain patients managed on long-term opioids.

Discussion

Summary

Overall, the rate of formal and validated functional assessments for chronic pain patients managed on LTOT increased from baseline by 63.53% with the implementation of the PEG assessment scale. Although the average completion rate across the six PDSA cycles did not reach the target aim of 75%, and multiple challenges prevented a steady increase in the completion rate across the time series, the completion rate for the first four weeks was strong and staff voiced positive support of the PEG assessment scale. The providers vocalized positive utility of the PEG-3 in managing chronic pain patients on LTOT, feasibility and sustainability of the scale as a functional assessment tool, and "definitely had" intent to continue using the tool in the future. Despite only the tertiary aim being achieved, the general purpose of the project to integrate the PEG assessment scale into a small rural primary care practice to assist with compliance of the Vermont prescribing rules and CDC prescribing guidelines of a formal functional assessment tool was achieved. One provider's satisfaction with the assessment and documentation method of function in chronic pain patients improved from unsatisfied to very satisfied. They stated, "The tool is simple to implement and opened discussions re: goals of care. We were able to modify prescriptions as a result of this discussion including tapering if appropriate or modifying the pain management regimens." The other provider felt the PEG-3 was useful and helped augment the assessment and documentation of function in chronic pain patients.

Interpretation & Impact of the Project

The providers' responses regarding the utility of the PEG assessment scale align similarly with supporting evidence and claims of the tool found in the literature review. Not only is the tool quick and easy to use, making it practical for use in primary care, but it also allows for providers to track progress of response to treatment in a more objective manner. This objective,

formal, validated, and consistent nature of assessment helps satisfy the recommendation for assessment and re-assessment of pain and function in chronic pain patients, especially those managed on LTOT. Using functional assessment tools like the PEG-3, assist with guideline compliant care and can help support and justify the continued use of opioids via documentation of treatment response. As mentioned throughout the literature, function should be considered a primary goal of management for chronic pain patients, and it is important to remember function can improve even in the presence of pain. By using a comprehensive tool, like the PEG-3, that assesses pain, function, and emotional well-being, a more complete picture of the patient's pain can be gathered. This formal and consistent assessment is a key component of opioid tapers, discontinuation plans, and a transition to a multimodal chronic pain management plan supported by the literature.

Barriers to Anticipated Outcomes

The facilitators and support of the project have been discussed prior to this point, but it would be remiss not to discuss the differences between the anticipated outcome of reaching the target aim and falling short of goal. Despite adjusting for barriers with slight alterations in the process flow for the PDSA cycles (Appendix G) some challenges persisted. The major barriers included losing staff, lack of staff, time constraints, no electronic health record (EHR), and having only one internal project champion.

In cycle two (PEG-3 completion of 71.43%), the small test of change was completed and the additional two providers within the office were added and not yet fully abreast of the implementation process. Additionally, one of the providers ended practice at the site at the end of cycle two. During cycles five (PEG-3 completion of 22.22%) and six (PEG-3 completion of 0%) the office faced the pressures posed by losing the third provider and vacation absence of clinical

staff, including the internal project champion. Practice-wide challenges caused by provider and staff changes, time constraints, and patient volume limited the site's capacity to implement the PEG assessment scale. In addition to these challenges, two patients declined participation in the quality improvement project in cycle five. Ultimately, the remaining providers expressed it may have been a less than opportune time for the practice to implement procedural changes.

As the cycles progressed, some patients treated for chronic pain did not meet protocol for completion of the PEG-3, having already completed it in a prior PDSA cycle. In addition, the use of paper charts made it challenging for staff to identify patients who did or did not meet criteria for completing a formal functional assessment. The team tried to adjust for this by writing the PEG-3 completion date on the front cover of the patient chart and on a separate document containing vital signs, as well as highlighting the patients still needing to complete the PEG-3 in pink. Unfortunately, the LNA responsible for rooming did not always have access to the patient's chart because the provider was using it, and there often was not time in the busy schedule to review the separate document.

Limitations

To start, the results of this quality improvement project lack transferability to the diverse population of chronic pain patients, practice sites, or universal sample of providers. Transferability is restrained by implementation of this project into only one small practice site in rural Vermont with no EHR system. The project is also limited by a small sample of participating clinicians (n=2) and a short implementation period. Six weeks only represents a snapshot in time. Ideally, the practice would have a year to complete the PEG assessment scale at least once on all appropriate patients. Therefore, if the practice was busy one month and unable to complete the PEG-3 with the patient, it would not negatively impact their completion

percentage because they would have multiple other opportunities to complete it outside the constraints of a quality improvement project.

Conclusions/Implications for Practice

Safe and effective prescribing of opioids is a must. The outcomes of this project help demonstrate that the use of a formal, standardized, and validated functional assessment tool, like the PEG-3, helps support best practice recommendations for chronic pain management with long-term opioids. The PEG-3 provides a comprehensive assessment of pain and function and allows monitoring of progress and response to pain management therapy over time (CDC, 2022). Through monitoring of therapy response, providers can work with patients to individualize pain management plans, including adjustments as necessary. The PEG-3 helps the provider and the patient to consider if opioids are continuing to help meet treatment goals in terms of pain intensity and multi-domain functionality. However, a multifaceted approach will be needed to facilitate desired success and sustainability of the PEG assessment scale. Based on team collaboration and survey analysis, the following implications for practice are recommended:

1. Expansion of the PEG assessment scale administration responsibility from the project champion and other LNA to all clinical practice staff.
2. Establish a multifaceted flagging system for patients who are due/eligible for the completion of the PEG assessment scale. This could include the combined use of the Google doc, creation of a master list of patients and the date they last completed the PEG-3 and writing the completion date on the front cover of the paper charts.
3. Incorporate the PEG assessment scale into the natural flow for administration of other necessary elements of prescribing LTOT, such as making packets of the PEG assessment scale and pain contracts and administering them together starting at the first of the year.

4. Further enhance the importance of the PEG assessment scale to all clinical staff, not just providers.

The practice desires to provide evidence-based, guideline compliant care to all patients in every aspect of care, not just chronic pain care. The practice owner has been working to achieve these goals since buying the practice at the beginning of 2022. Prior to this project, the site satisfied all other rules and guidelines for prescribing LTOT for chronic pain. The two providers have been working on tapering inherited patients to the recommended daily MME of 90 or less. Finding a way to sustain the use of the PEG-3 within the practice will help enhance guideline compliant care and provide a consistent nature to chronic pain assessment. The comprehensive nature of the PEG-3 provides a more detailed picture of the overall status of the patient and how their pain impacts their life and goals of care. Incorporating this helps to tailor pain management regimens to be more individualized. The multidimensional nature of the PEG assessment scale also opens the door for further conversations in the patient-provider relationship regarding realistic goals of care. To further optimize the utility of the PEG-3, providers can use the tool more than once annually, such as to help justify a taper or support a dose increase by comparing current scores to prior scores. A 30% improvement in the PEG-3 score is generally classified as meaningful (Gebke et al., 2022).

This project has clinical significance as it is the responsibility of advanced practice providers to maintain competence in practice rules, prescribing laws, evidence-based practice models, and guideline specified care. Practices must move fluidly with these changes to ensure the practitioner provides the highest quality of care possible to patients across the whole care spectrum. Although chronic pain is not fully understood, making management difficult, studies show LTOT may not be the most effective treatment regimen, and carries a higher risk profile

than the wide range of other modalities available. For these reasons, it is imperative providers aim to comply with all guidelines for chronic pain management and opioid prescribing and perform comprehensive assessments as an initial step towards understanding chronic pain and its implications. Through implementation of the best-available evidence providers help support equitable access to safe and effective pain management with emphasis on pain related function.

Other Information

Funding

No major funding was needed or received for this quality improvement project. The paper and ink needed for the printing of the PEG assessment scales was both self-funded and practice funded. There are no outside organizations or commercial interests invested in this project.

References

AAFP. (2021). *AAFP chronic pain toolkit*. Retrieved March 6, 2022 from https://www.aafp.org/dam/AAFP/documents/patient_care/pain_management/cpm-toolkit.pdf

Allen, B. (2016). Effective design, implementation and management of change in healthcare. *Nursing Standard*, 31(3), 58-68. 10.7748/ns/2016.e10375

Bifulco, L., Anderson, D.R., Blankson, M.L., Channamsetty, A., Blaz, J.W., Nguyen-Louie, T.T., & Scholle, S.H. (2021). *JAMA*, 4(7), 1-11. 10.1001/jamanetworkopen.2021.18495.

CDC. (2016). *Guideline for prescribing opioids for chronic pain*. Retrieved March 6, 2022 from www.cdc.gov/drugoverdose/prescribing/guideline.html

CDC. (2022). CDC clinical practice guideline for prescribing opioids in pain – United States, 2022. *Morbidity and Mortality Weekly Report*, 71(3), 1-100.

Cohen, S.P., Vase, L., & Hooten, W.M. (2021). Chronic pain: An update on burden, best practices, and new advances. *Lancet*, 397, 2082-2097.

Dahlhamer, J.M., Connor, E.M., Bose, J., Lucas, J.W., & Zelaya C.E. (2021). Prescription opioid use among adults with chronic pain: United States, 2019. *National Health Statistics Reports*, 162, 1-9. https://dx.doi.org/10.15620/cdc:107641

Dydyk, A.M., Sizemore, D.C., Trachsel, L.A., Conermann, T., & Porter, B.R. (2021). *Vermont controlled substance abuse, diversion, storage, disposal, monitoring, and legal issues.* StatPearls Publishing.

Gebke, K.B., McCarberg, B., Shaw, E., Turk, D.C., Wright, W.L., & Semel, D. (2022). A practical guide to recognize, assess, treat and evaluate (RATE) primary care patients with chronic pain. *Postgraduate Medicine*. https://doi.org/10.1080/00325481

Kean, J., Monahan, P.O., Kroenke, K., Wu, J., Yu, Z., Stump, T.E., & Krebs, E.E. (2016). Comparative responsiveness to the PROMIS pain interference short forms, brief pain inventory, PEG, and SF-36 bodily pain subscale. *Medical Care,* 54(4), 414-421.

Krebs, E.E., Gravely, A., Nugent, S., Jensen, A.C., DeRonne, B., Goldsmith, E.S., Kroenke, K., Bair, M.J., Noorbaloochi, S. (2018). Effect of opioid vs. nonopioid medications on pain-related function in patients with chronic back pain or hip or knee osteoarthritis pain: The SPACE randomized clinical trial. *JAMA,* 319(9), 872-882. 10.1001/jama.2018.0899

Krebs, E.E., Lorenz, K.A., Bair, M.J., Damush, T.M., Wu, J., Sutherland, J.M., Asch, S.M., & Kroenke, K. (2009). Development and initial validation of the PEG, a three-item scale assessing pain intensity and interference. *Journal of General Internal Medicine,* 24(6), 733-738. 10.1007/s11606-009-0981-1

Kroenke, K., Krebs, E.E., Wu, J., Yu, Z., Chumbler, N.R., & Blair, M.J. (2104). Telecare collaborative management of chronic pain in primary care: A randomized clinical trial. *JAMA,* 312(3), 240-248. 10.1001/jama.2014.7689

Liebschutz, J.M., Xuan, Z., Shanahan, C.W., LaRochelle, M., Keosaian, J., Beers, D., Guara, G., O'Connor, K., Alford, D.P., Paker, V., Weiss, R.D., Samet, J.H., Crosson, J., Chushman, P.A., & Lasser, K.E. (2017). Improving adherence to long-term opioid therapy guidelines to reduce opioid misuse in primary care. *JAMA International Medicine,* 177(9), 1265-1272. 10.1001/jamainternmed.2017.2468

Quanbeck, A., Brown, R.T., Zgierska, A.E., Jacobson, N., Robinson, J.M., Johnson, R.A., Deo, B.M., Madden, L., Tuan, W., & Alagoz, E. (2018). A randomized matched-pairs study of feasibility, acceptability, and effectiveness of systems consultation: A novel

implementation strategy for adopting clinical guidelines for opioid prescribing in primary care. *Implementation Science,* 13(21), 1-13. 10.1186/s13012-018-0713-1

Roldan-Majewski, C., Broedel, E., von Korff, M., Rammelsberg, P., Schindler, H.J., Giannakopoulos, N.N. (2022). Diagnostic accuracy of the Pain (P), Enjoyment (E), and General activity (G) scale, a three-item questionnaire, for grading the impact of orofacial pain-related dysfunction. *Pain,* 163, e540-e546. http://dx.doi.org/10.1097/j.pain.0000000000002406

VDH. (01 March 2019). *Rule governing the prescribing of opioids for pain.* Retrieved March 6, 2022 from https://www.healthvermont.gov/sites/default/files/documents/pdf/REG_opioids-prescribing-for-pain.pdf

Witt, T.J., Deyo-Svendsen, M.E., Mason, E.R., Deming, J.R., Stygar, K.K., Rosas, S.L., Phillips, M.R., & Dabrh, A.M. (2018). A model for improving adherence to prescribing guidelines for chronic opioid therapy in rural primary care. *Mayo Clinic Proceedings: Innovations, Quality & Outcomes,* 2(4), 317-323. https://doi.org/10.1016/j.mayocpiqo.2018.09.004

Appendix A

PEG Scale Assessing Pain Intensity and Interference (Pain, Enjoyment, General Activity)

1. What number best describes your pain on average in the past week?

0	1	2	3	4	5	6	7	8	9	10
No Pain										Pain as bad as you can imagine

2. What number best describes how, during the past week, pain has interfered with your enjoyment of life?

0	1	2	3	4	5	6	7	8	9	10
	Does not interfere									Completely interferes

3. What number best describes how, during the past week, pain has interfered with your general activity?

0	1	2	3	4	5	6	7	8	9	10
	Does not interfere									Completely interferes

Computing the PEG Score.

Add the responses to the three questions, then divide by three to get a mean score (out of 10) on overall impact of points.

Using the PEG Score.

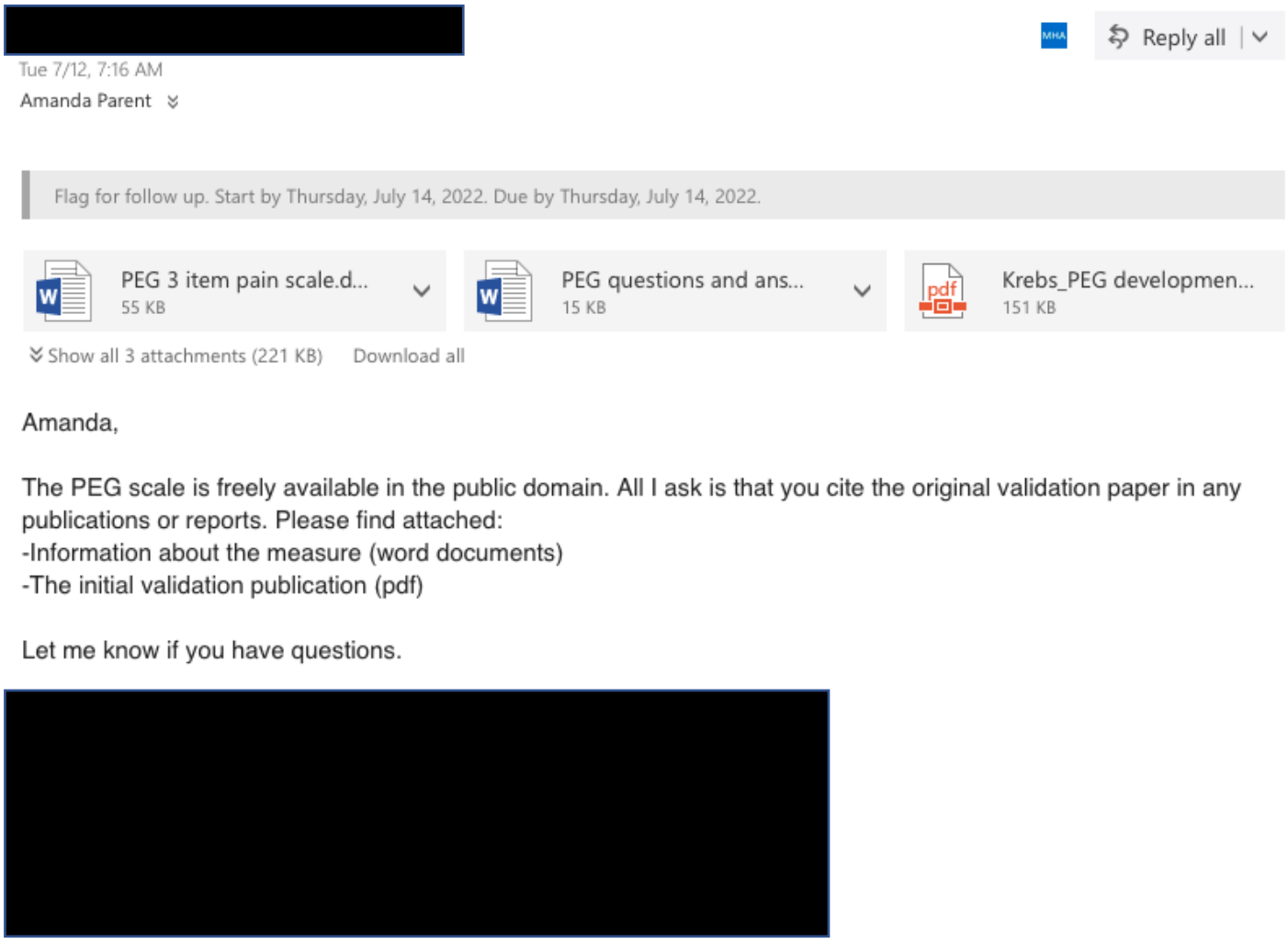
The score is best used to track an individual's changes over time. The initiation of therapy should result in the individual's score decreasing over time.

Source.

Krebs, E. E., Lorenz, K. A., Bair, M. J., Damush, T. M., Wu, J., Sutherland, J. M., Asch S, Kroenke, K. (2009). Development and Initial Validation of the PEG, a Three-item Scale Assessing Pain Intensity and Interference. Journal of General Internal Medicine, 24(6), 733–738. http://doi.org/10.1007/s11606-009-0981-1

Appendix B

Validated permission to use PEG Assessment Scale for this DNP project.


[redacted]

Tue 7/12, 7:16 AM

Amanda Parent

Reply all

Flag for follow up. Start by Thursday, July 14, 2022. Due by Thursday, July 14, 2022.

PEG 3 item pain scale.d... 55 KB

PEG questions and ans... 15 KB

Krebs_PEG developmen... 151 KB

Show all 3 attachments (221 KB) Download all

Amanda,

The PEG scale is freely available in the public domain. All I ask is that you cite the original validation paper in any publications or reports. Please find attached:
-Information about the measure (word documents)
-The initial validation publication (pdf)

Let me know if you have questions.

[redacted]

Appendix C

Citation	Purpose	Design	Methodology	Sample/Setting	Tools & Major Variables Studied	Analysis & Findings	Limitations & Conclusions	Level & Quality of Evidence
Kean et al., 2016	Compare the sensitivity of change and responsiveness to pain intervention of the PROMIS Pain Interference short forms, BPI, PEG, and SF-36 Bodily Pain subscale. Assess pain interference measures for sensitivity to change in the combined control/intervention samples and responsiveness to treatment compared to a control group.	Randomized Clinical Trial	Standardized response means (SRM), standardized effect sizes (SES), and area under the curve (AUC) used to assess changes between baseline pain assessments and 3-month assessments. Compared to reference standard of a single item "How would you describe your pain now, compared to how you were when you started in our study?" Evaluated responsiveness to SCOPE intervention Post hoc analysis t test	n=250 (final n = 244) Age: 26-65 yrs (Mean = 55.1 yrs) Persistent musculoskeletal pain participants Collaborative telecare management Combined control and intervention group (optimized analgesic therapy) vs. Control group Primary Care	PROMIS (The Patient-Reported Outcomes Measurement Information System) Pain Interference short forms Brief Pain Inventory (BPI) 3-item PEG SF-36 Bodily Pain subscale Comparing sensitivity to change and responsiveness to intervention between the tools. Evaluated using SRM, SES, AUC. SRM = measure magnitude of sensitivity to change between	BPI, PEG, and SF-36 Bodily pain measures = more sensitive to patient-reported global change than the PROMIS short forms All BPI variants and the PEG showed greater responsiveness than all PROMS variants and the SF-36	BPI and PEG scales were better able to detect change in pain than the SF-36 and PROMIS A critical property of pain outcome measures is their ability to detect change, especially in clinical settings A composite score Is preferred Clinical change includes 1. Responsiveness to treatment 2. Ability of measure to accurately detect change 3. Sensitivity to change Results did not seem to result from content differences between the short forms Limitations:	JHNEBP Research Appraisal Tool: Level I Quality Rating: B

					baseline and 3 months on each of the scales SES = effect size measures between group differences of change		Overlapping confidence intervals = few differences were statistically significant – an effect of the size of the study sample? Timing of when the scales were administered during the interview varied – but respondent burden was similar Generalizability is somewhat limited Limitations may make results less robust – open to slight interpretation	
Liebschutz et al., 2017	Improve long-term opioid guideline adherence to the CDC clinical guidelines released in 2016 that include: 1. Signed patient-clinician agreement 2. UDT 3. PDMPs 4. Functional assessment tools	Clustered-Randomized Clinical Trial	Random assignment of Either a multicomponent intervention known as TOPCARE or electronic decision tools alone. Randomization done at clinician level. Randomization done by SAS software with allocation concealment to research assistants	4 safety-net primary care practices are urban Boston 53 primary care providers 985 participating patients (all receiving long-term opioid therapy for pain) • 519 men • 466 women • Average age 54.7 yrs • Mean MEDD 57.8	TOPCARE involved use of a nurse care manager, electronic registry, academic detailing, and electronic decision tools Nurse conducts many of the guideline measures including initial and ongoing patient assessments of	Analyzed based on intent-to-treat principle Compared measures for each outcome for the intervention vs control groups – stratified intervention status with a P=0.05 level Potential confounding controlled by identification	The multicomponent intervention improved adherence to guideline-recommended monitoring of opioids, but further research is needed to determine if this adherence reduces opioid-related risks Adherence to guidelines for opioid monitoring and safety tripled in the TOPCARE intervention group Nurse involvement is a crucial component of	JHNEBP Research Appraisal Tool: Level I Quality Rating: A

	Adhere to these guidelines to mitigate risks of long-term opioid therapy Focus on improving guideline-concordant monitoring by implementing recommended CDC strategies		Interventions trialed for 1 year.		pain, addiction, and opioid misuse risk Versus just electronic decision tools Primary outcomes were measure of documentation of guideline-concordant care and reduction of early opioid refills Secondary outcomes included opioid dose reduction (10% decrease in MEDD by end of 1 year) And/or opioid treatment discontinuation	with bivariate analyses At the 12-month follow-up the TOPCARE intervention resulted in significant differences in all outcomes except early refills The mean time to discontinuation of opioids was shorter for intervention patients Greater proportion of patients in intervention group had a 10% reduction in MEDD compared to control group	the TOPCARE model and successfully applied to improve opioid prescribing safety and pain management Nurse involvement benefits could be linked to fundamental nursing functions such as comprehensive assessments Limitations: Only using EHR for patient data Inability to measure unintended consequences Unclear if decrease in dosage/discontinuation was linked to more judicious and careful prescribing and monitoring/assessment or more fear	
Krebs et al., 2018	Compare opioid vs. nonopioid medications on pain related function, pain intensity, and adverse effects over 12 months in patients with chronic back, hip, or knee pain.	Randomized Control Trial (Pragmatic)	Patient sample collected Patients initially evaluated to quantify pain severity by the use of PEG scale, with 5 or more being moderate and qualifying for trial.	Patients from Veteran Affairs primary care clinics Chronic pain that was moderate to severe despite analgesic use N=240	PEG & BPI to measure pain severity and pain-related function Secondary outcome measures with the following tools: Veterans RAND	Analysis with two-sided t tests and X^2 for between-group comparisons of primary and secondary outcomes Statistical significance	Opioid treatment for chronic pain was not superior to nonopioid medications for improving pain-related function over 12 months No support from this study to initiate opioid therapy for moderate to	JHNEBP Research Appraisal Tool: Level I Quality Rating: A

	Evaluate long-term pain, function, and quality-of-life outcomes.		Randomized via SAS version 9.4 to either opioid treatment group, or non-opioid group Medications delivered using a collaborative pain care model Both intervention groups had treatment protocols with 3 different steps in care Individual functional goals and medications reviewed by pharmacist Medications were adjusted within the assigned groups to achieve targets of improved PEG scores and progress to individual goals BPI interference scale and BPI severity scale used to measure primary outcome – 1 point improvement was clinically important	Mean age = 58.3 yrs	11-item Roland-Morris Disability Questionnaire PHQ-8 GAD-7 PROMIS Migraine Disability Assessment questionnaire Arizona Sexual Experience Scale Multidimensional Fatigue Inventory	threshold was P value less than 0.05 Post hoc sensitivity analysis adjusting for smoking status Findings: No significant difference in pain-related function between the 2 groups over 12 months (P=0.58) Pain intensity was significantly better in the nonopioid group over 12 months (P=0.03) Functional response (30% or more improvement in BPI) in 59% of opioid treated patients vs 60.7% in nonopioid group Opioid group with significantly more medication-	severe chronic back, hip, or knee pain Limitations: No masking of patients due to the complexity of the interventions Primary outcome measures were patient-reported → reporting bias potential VA clinic as sample/setting may inhibit generalizability, particularly linked to the sex distribution of predominantly males in these settings	

						related symptoms than the nonopioid group (P=0.03), 0.9 [95%CI, 0.3 to 1.5]		
Krebs et al., 2009 (Original Validation of PEG)	Validate a brief and straightforward multidimensional pain measure to improve assessment of chronic pain in primary care. Inadequate pain assessment is a barrier to adequate/appropriate pain management and single item assessments provide limited information, but multidimensional pain measures like the BPI that are used in specialty and research settings are impractical for primary care due to time constraints. Goal = develop an ultra-brief pain measure derived from the BPI and assess its reliability, validity, and responsiveness	Experimental Study	Using data from SCAMP study to initially develop and validate and HELP-vets study to confirm reliability and validity Developed shortened scale through a consensus-based process with use of statistical data, literature review, and expert opinion. Chose 3 questions with 1 to represent each of the domains for the BPI 1. pain intensity 2. physical functioning 3. emotional functioning Reliability through Cronbach's coefficient alpha Validity through Pearsons correlation coefficients	Study 1 • n=500 • primary care patients with chronic pain • Indianapolis • Mean age 59 yrs Study 2 • n=646 • ambulatory care clinics • veterans • California counties • Mean age 63 yrs	PEG BPI Chronic Pain Grade (CPG) Roland disability scale SF-36 Functional Morbidity Index The Pain Global Rating of Change Measures = Reliability via Cronbach's coefficient alpha Validity via Persona correlation coefficient to compare PEG to other tools Responsiveness with measures of global rating of	Reliability Study 1 α = 0.73 and study 2 α = 0.89 Validity Study 1 r = 0.60-0.89 Study 2 r = 0.77-0.95 Comparable to BPI PEG was sensitive to change – determined those with and without improvement in pain at 6 months SRM at 6 months based on global rating of change were similar for PEG & BPI PEG (1.20, 95%CI 0.96, 1.44)	PEG shown to be a reliable and valid measure of pain in primary care patients with chronic pain PEG is comparable to the BPI in terms of responsiveness to pain change Differentiated well between patients with improved pain and function those without Shortened version of BPI (the PEG) is useful and practical for chronic pain assessment in primary care and ambulatory care settings Built from the basis of the BPI is a strength as the BPI us a widely used instrument with validation in many patient populations, settings, and languages	JHNEBP Research Appraisal Tool: Level I Quality Rating: A

			Responsiveness of PEG and BPI compared via ES and SRM for each measure		change and serial CPGs	BPI severity (1.04, 95%CI 0.80, 1.28) BPI interference (1.13, 95% CI 0.89, 1.37) For all measures of improvement ES and SRM were consistent with large effect.	Major limitations come from the use of the two different studies… Study 1: • Over-representation of patients with depression However, the authors do say that the variety in study 2 enhances the generalizability of the findings Study 2: • Cross-sectional • Fewer pain measures to assess validity Large representation of VA patients – may impact generalizability	
Roldan-Majewski et al., 2022	To examine diagnostic accuracy and internal consistency of the PEG questionnaire for grading the impact of nonodontogenic orofacial pain.	Prospective Cohort Study	Prepared with the Standards for Reporting of Diagnostic Accuracy Studies (STARD) 2 groups of patients identified via standard reference test 1. Functional no/low disability orofacial pain	Patients who attended Prosthodontics Department of Heidelberg University Hospital n=271 eligible Mean age 43.1 yrs (All > or equal to 18 years)	Tools = PEG GCPS V.2 PHQ-9 Measures = Cronbach α for internal consistency of PEG	Statistical analysis with SPSS Version 25.0 P-values smaller than 0.05 as statistically significant Pain-related disability and the overall PEG score showed	Diagnostic accuracy of the PEG scale is adequate when compared to long established tools such as the GCPS v.2 scale Discriminative properties of PEG are adequate to differentiate patients with disabling dysfunctional chronic orofacial pain and those	JHNEBP Research Appraisal Tool: Level II Quality Rating: B

			2. Dysfunctional mild or severe disability pain All filled out the PEG questionnaire, Graded Chronic Pain Scale V.2 (GCPS V.2) and the PHQ-9 Data was transferred to excel sheet by a blinded person Internal consistency of PEG score tested with Cronbach α Validity of PEG with sensitivity, specificity, precision, and accuracy calculated together with 95% Wilson score confidence intervals Average PEG score compared with average GCPS v.2 on receiver operating characteristic curve for specificity and sensitivity Differences between the two groups examined by Kruskal-Wallis test	All needing treatment for orofacial pain without a dental origin	Spearman correlation	strong and positive correlation (Spearman p = 0.77, P<0.001) High internal consistency of PEG (Cronbach α = 0.86	with nondisabling or functional pain Several advantages to PEG: • Brevity and easier interpretation • Shorter recall period – might increase patient confidence in describing pain • Successfully used on previous studies to evaluate patients receiving chronic opioid therapy • Excellent discriminative properties Limitations = No follow-up tests to evaluate ability of PEG to detect changes in pain status Only one sample with orofacial pain	

Appendix D

Compiled Beta-Tester Feedback

Beta-Tester #1 = Doctorally prepared pharmacist involved in the Vermont Academic Detailing Team who helps facilitate education and improvement for opioids prescribing for chronic pain among Vermont prescribers

Pre-Survey:

- Will you have some kind of identifier to be able to like pre-post surveys? (this is idea if possible)
- **Question #1:** Do you want a 1-sentence definition or leave this vague? The 3 Vermont rule/guidelines that come to mind for me are:
    - Rule Governing the Prescribing of Opioids for Pain
    - VPMS Rule
    - CDC Guidelines
- **Question #3:** This is a tricky question, especially since not all of the question 2 items above are true. If you want to know if providers feel like the rules are important, maybe move this right after question 1 and sad "how important are the current Vermont rule/guidelines for opioid prescribing? (to you? To your patients?)
- **Question #6:** Do you want to specify "patients"? Chronic pain patients? Patients on opioids?
- **Question #9:** Do you want to know how often providers specifically use PEG? E.g. if I use PEG in 100% of my chronic pain patients at baseline, I'm not sure how I would answer questions 9-11.
- **Question #11:** I generally like a final question (could be only on the post survey if you like: What else would you like to say about (insert whatever you like – PEG, opioids, etc.)? This information may help inform your analysis and or future projects. Plus, also add a thank you 😊

Post-Survey

- These are great, but you may want to repeat some of the pre-survey questions so that you can evaluate pre-post changes. For example, your current question 2, 4, and 7.
- **Question #3:** This is loaded as it implies someone implemented PEG. What if someone didn't OR what if someone was already doing this 100% of the time?

General Survey Feedback

- Since the PEG is your focus, I would love to see 2 identical questions both in the pre-and-post surveys. This will let you directly compare the impact of your project (assuming you can link specified provider surveys).
- Some variation of these two questions:

- How often do you currently preform/administer a validated annual functional assessment to patients with chronic pain? (the % categories were fine)
- The PEG is an example of a validated annual functional assessment tool. How often do you currently perform/administer the PEG to patients with chronic pain? (the % categories were fine)

Beta-Tester #2 = Research Professor and Quality Improvement Expert (specific interest in primary care)

General:

- Surveys can assess change only if you repeat questions in pre and post surveys.
- Try to shorten to 5-10 questions if possible.
- Pair the surveys for pre and post so you can compare responses.

Pre-Survey:

- **Question #1:** Instead of saying "How well do you feel you know" say "How well do you know"
- **Question #3:** Remove "do you think" from the question. Or re-word to say something like "How important are the current Vermont rules/guidelines for opioid prescribing to you?
  - **However, really might consider just eliminating this question completely.**
- Repeat question #5 ("Standardized/validated functionality assessment tools are of value in the management of patients with chronic pain.") in the post-survey.
- **Question #6:** Use the word typically instead of currently. Currently could be misinterpreted.
- **Question #7:** Same as for #6.
- **Question #8:** This is a good question to address satisfaction but need to repeat this question in post survey to compare and measure satisfaction/feasibility – which is one of your aims.
- **Question #9:** Consider eliminating question. It overlaps with questions 10 and 11. Best to choose just one out these three questions as they are redundant. It is important to ask an attitude question related to PEG, however, it is important to remember at this point the site has already signed up to participate in this QI project, so really, they agree it is a worthwhile change.
  - Whichever of the three attitude questions you choose, make sure to repeat it in the post survey.

Post-Survey:

- **Question #1:** This is the match to question #10 of the pre-survey. State the question in the same words and use for pre and post survey to address attitude towards PEG.
- **Question #2:** This is a key question to your post survey.
- **Question #3:** similar to question #6 from pre-survey. Make wording the same.
- **Question #5:** This is also an important question for your post survey.

- **Question #6:** change to something more similar to "tell me why you answered the way you did" rather than only asking if they do not plan to use the PEG in the future.

Beta-Tester #3 = General Primary Care Family Nurse Practitioner (DNP)

Pre-Survey:

- Perhaps add a little introduction to the top of the survey, including the purpose of the survey and the approximate length (i.e. there are X # of questions and it is expected that this survey will take approximately X # of minutes to complete)
- **Question #1:** Wonder if there should be an option for unfamiliar/haven't encountered these?
- **Question #3:** Instead of "not really important", maybe use "somewhat important" for wording.
- **Question #4:** Is this intended to be a SATA question?
- **Question #6:** Is this for all patients or just patients treated for chronic pain? And are percentages relating to the number of patients or frequency for each patient (i.e. in 25% of patients vs. 25% of the time for each patient)?
- **Question #9:** For fist use of the acronym PEG, fully expand on the name.

Post-Survey:

- Similar suggestion – perhaps a blurb that describes the survey purpose, number of questions and expected time to complete the survey. If results will be made available to participants, perhaps make a note of that on the survey. Also, an email for question might be good.
- I am not sure if you intended for formatting to be different on each survey, but the pre-survey was all displayed at the same time, which allows for a person to go back to previous questions. The post-survey is not presented in that way – each question is presented individually, and it is not possible to scroll back (if someone rethinks their answer or accidently clicks forward)

Appendix E

To: Amanda B. Parent, RN
From: Research Protections Office
Date: May 6, 2022
Sponsor: Margaret Aitken, DNP
RE: Integrating a functionality tool for chronic pain patients in primary care

Thank you for completing the Research Not Requiring IRB Review Self-Determination Tool. The **proposed activity DOES NOT meet the regulatory definition of research** under 45 CFR 46.102(d):

(d) Research means a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge.

Therefore, this research **does not require IRB review and approval**.

Note: If this is a sponsored project (projects that are managed through SPA), please be prepared to provide a copy of this document to the SPA Award Acceptance Officer.

Determinations made utilizing the self-determination tool require that for any publications, conferences, sponsors, etc., the project be accompanied by the following statement "According to the policy defining activities which constitute research at the University of Vermont/University of Vermont Health Network, this work met criteria for operational improvement activities exempt from IRB review."

Recipient Data:
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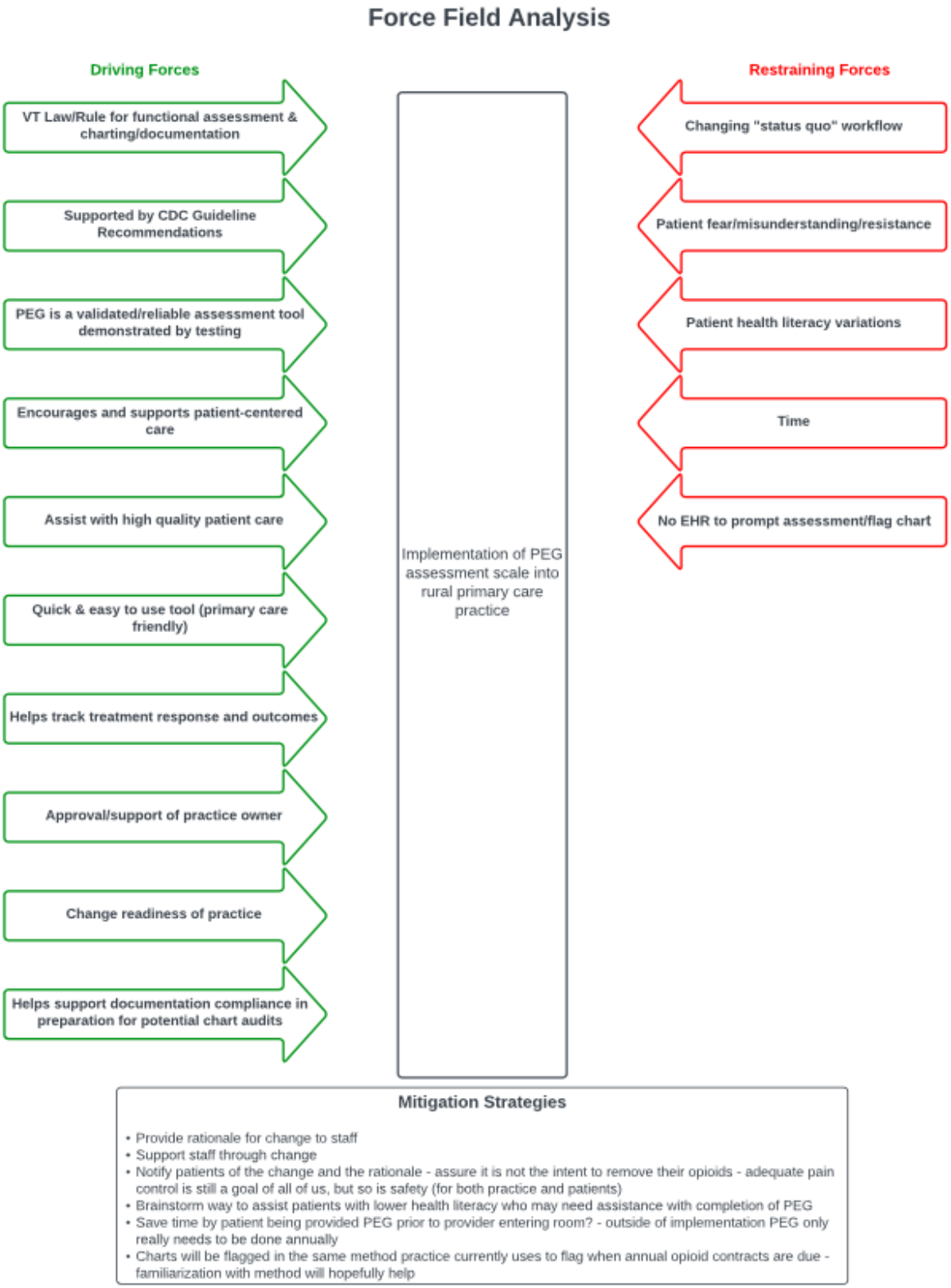
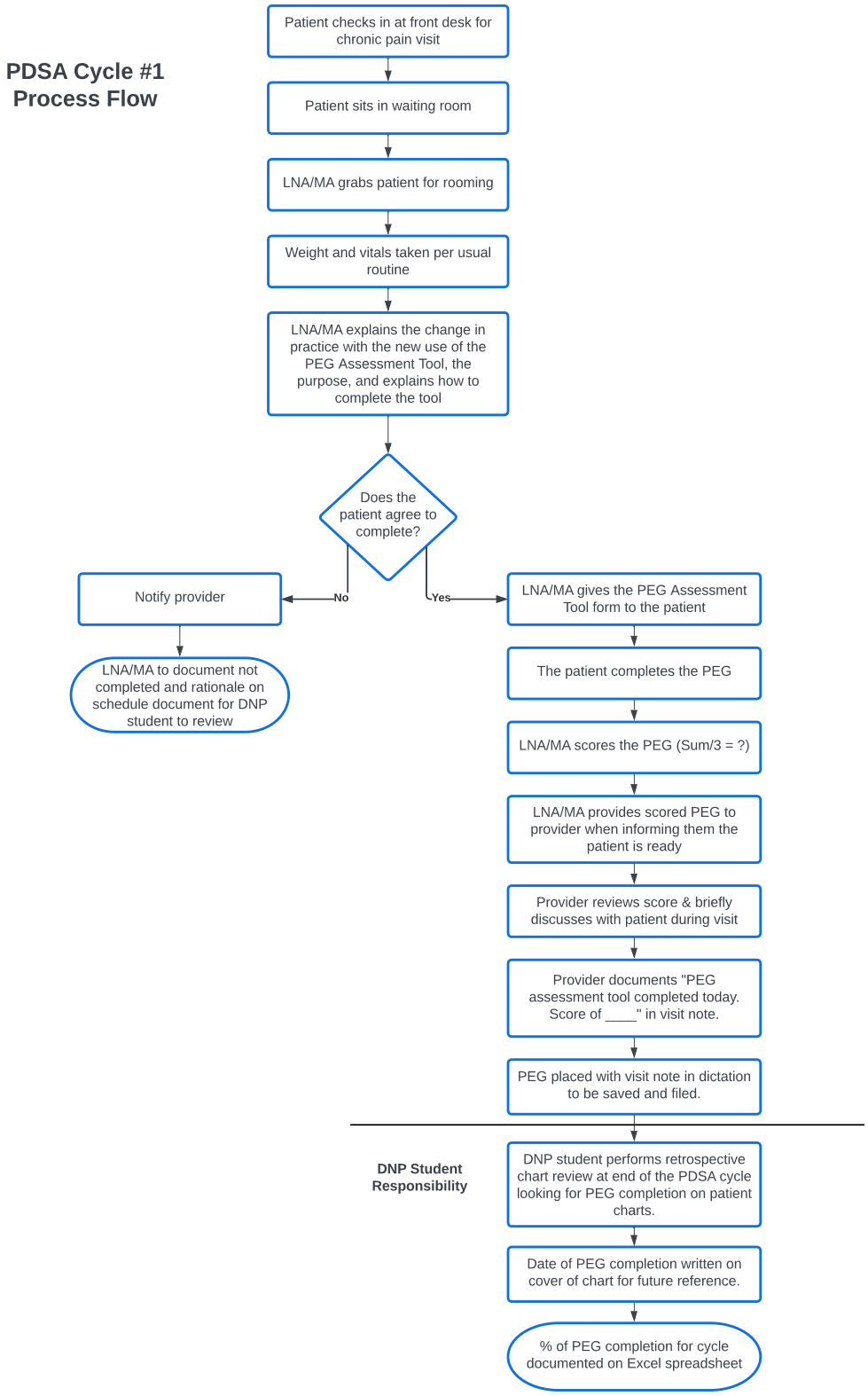
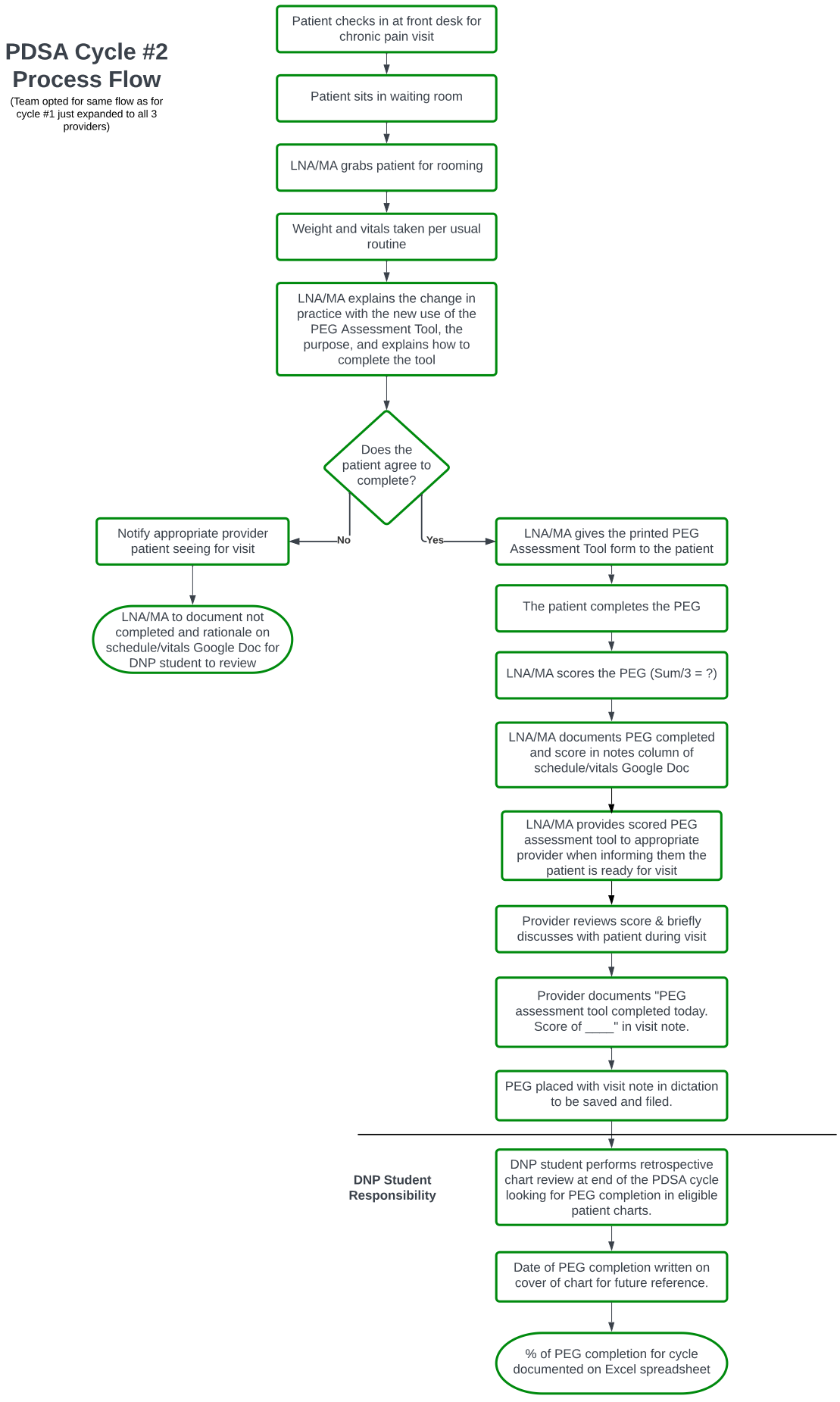
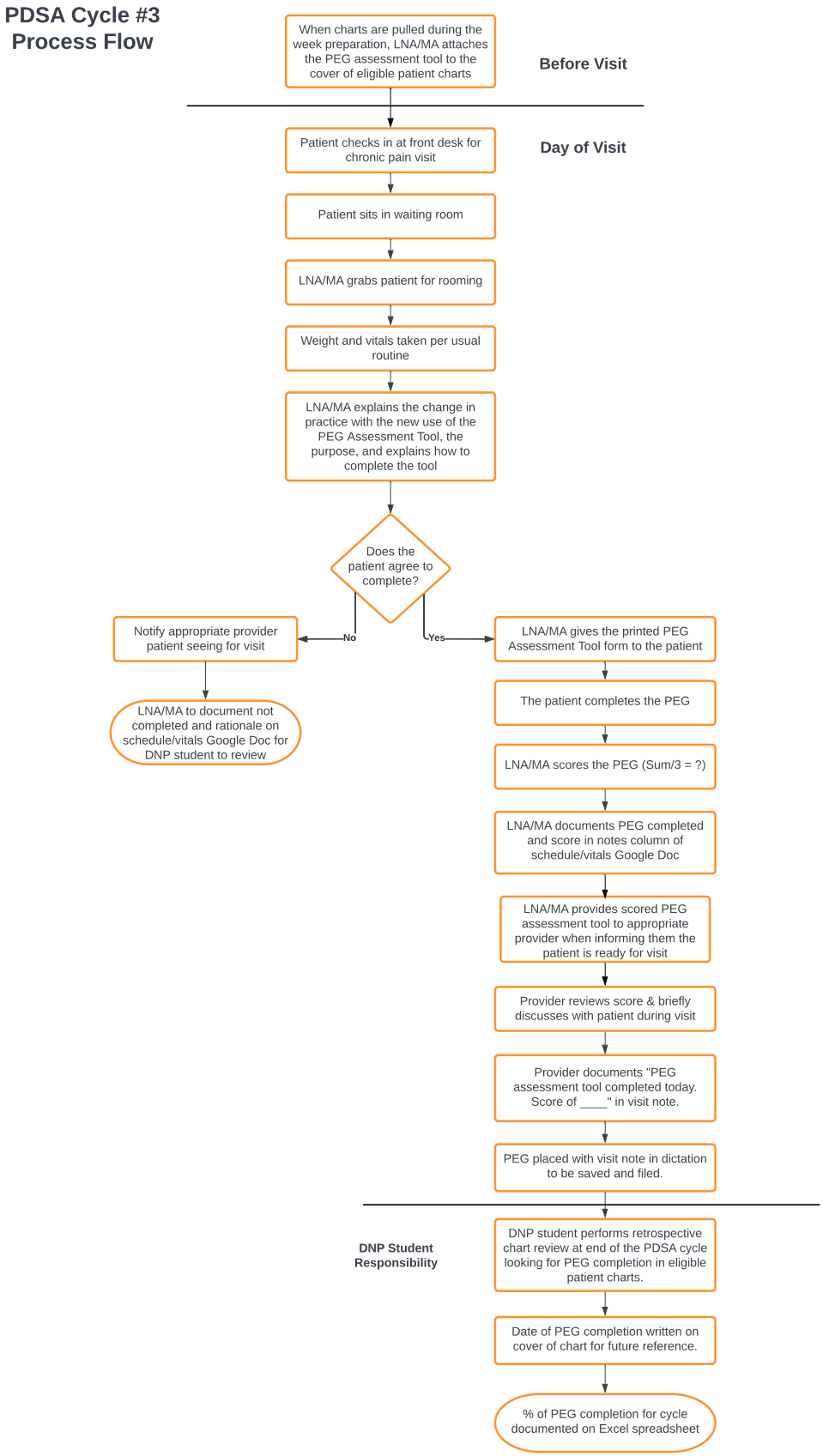
Appendix F

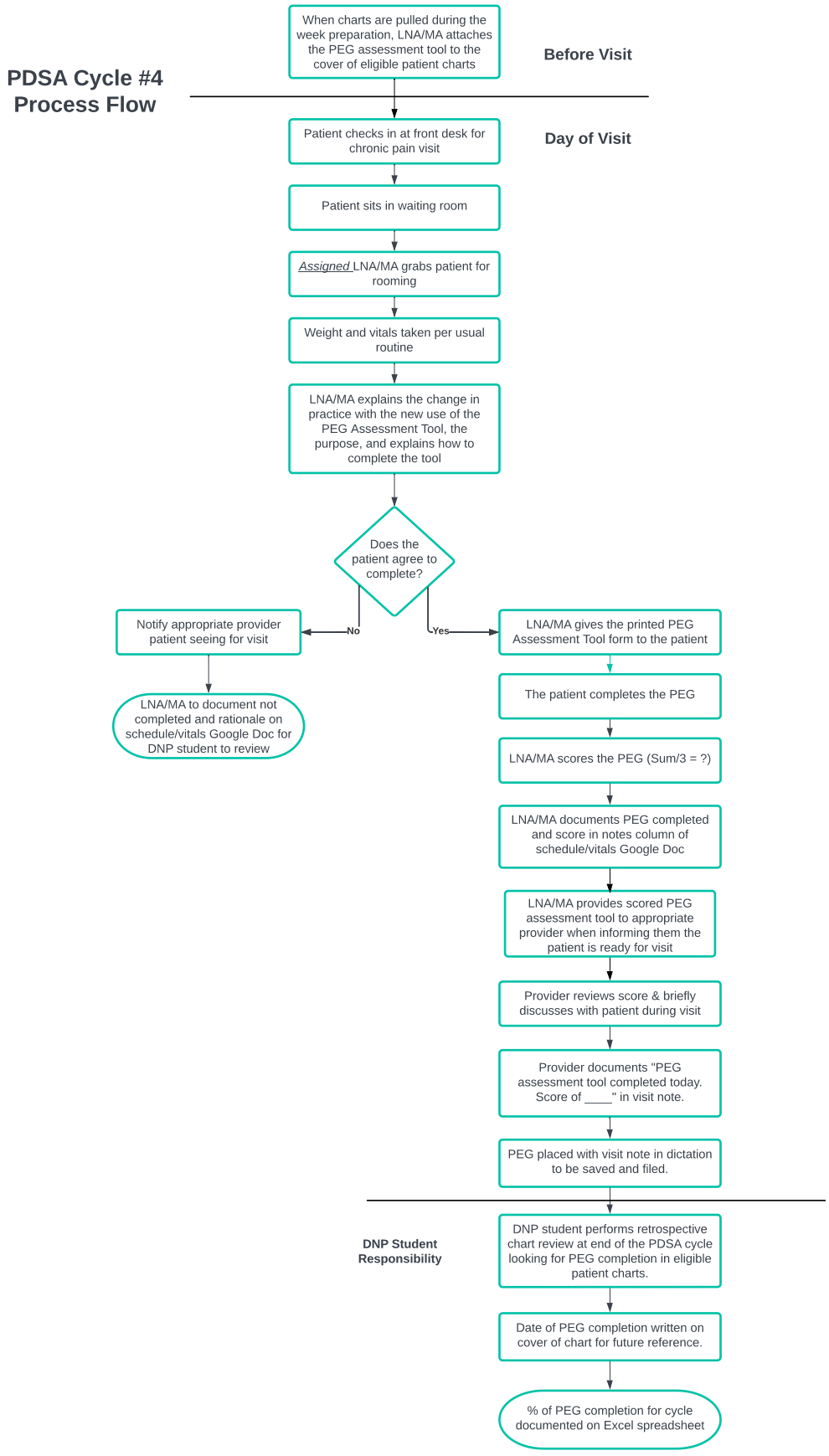

Force Field Analysis
Driving Forces
VT Law/Rule for functional assessment & charting/documentation
Supported by CDC Guideline Recommendations
PEG is a validated/reliable assessment tool demonstrated by testing
Encourages and supports patient-centered care
Assist with high quality patient care
Quick & easy to use tool (primary care friendly)
Helps track treatment response and outcomes
Approval/support of practice owner
Change readiness of practice
Helps support documentation compliance in preparation for potential chart audits
Implementation of PEG assessment scale into rural primary care practice
Restraining Forces
Changing "status quo" workflow
Patient fear/misunderstanding/resistance
Patient health literacy variations
Time
No EHR to prompt assessment/flag chart
Mitigation Strategies
• Provide rationale for change to staff
• Support staff through change
• Notify patients of the change and the rationale - assure it is not the intent to remove their opioids - adequate pain control is still a goal of all of us, but so is safety (for both practice and patients)
• Brainstorm way to assist patients with lower health literacy who may need assistance with completion of PEG
• Save time by patient being provided PEG prior to provider entering room? - outside of implementation PEG only really needs to be done annually
• Charts will be flagged in the same method practice currently uses to flag when annual opioid contracts are due - familiarization with method will hopefully help

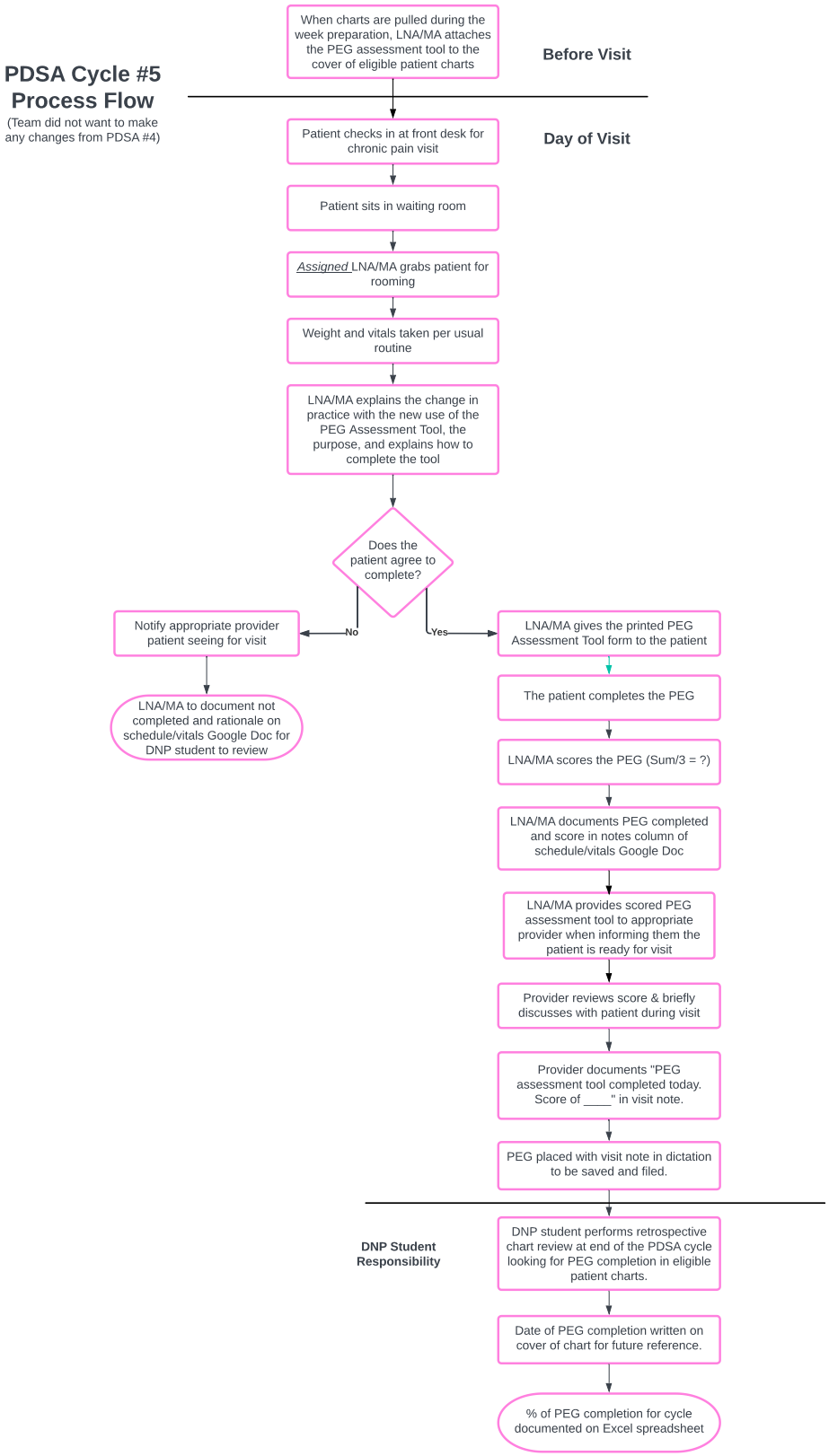
Appendix G

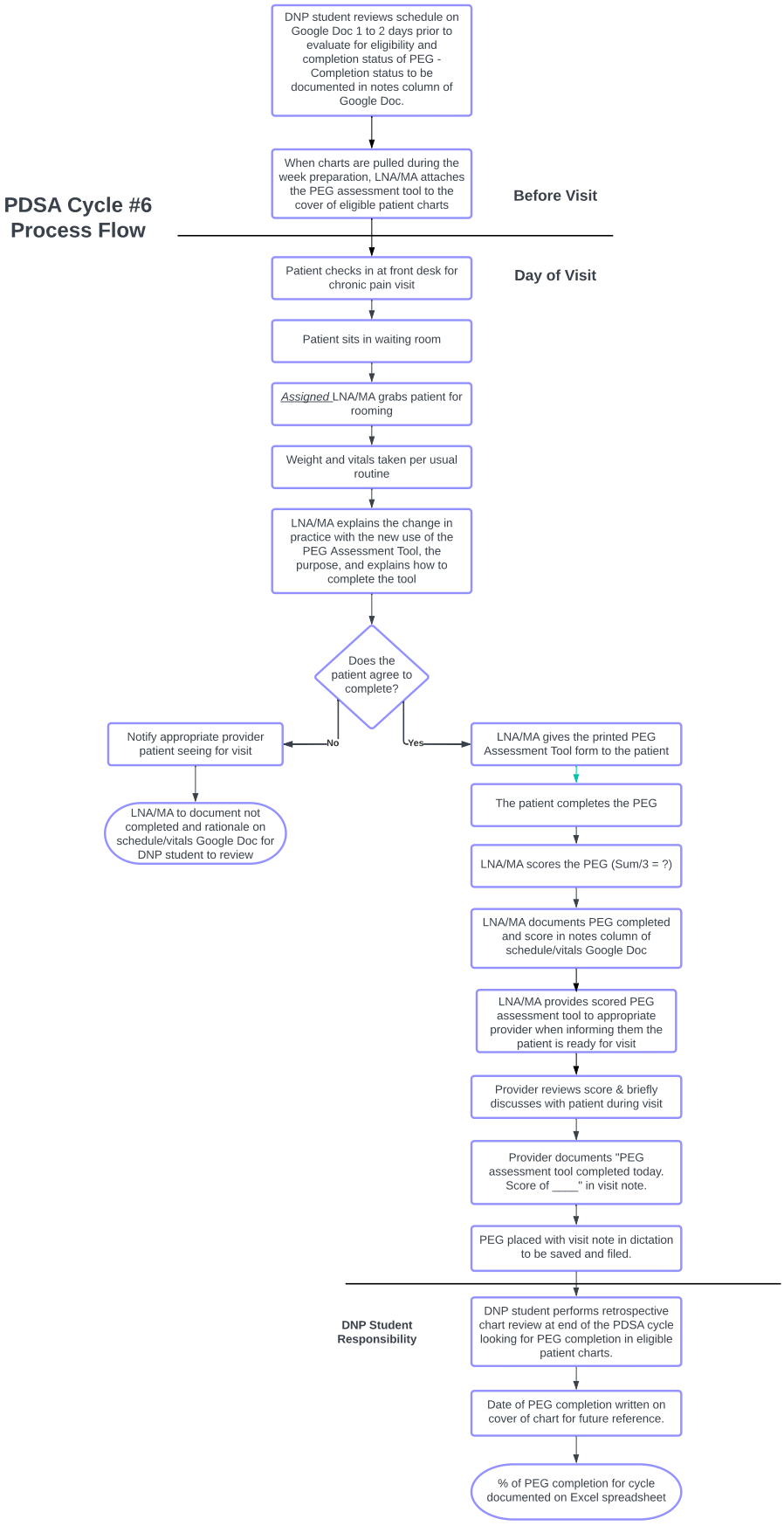

PDSA Cycle #1
Process Flow
Patient checks in at front desk for chronic pain visit
Patient sits in waiting room
LNA/MA grabs patient for rooming
Weight and vitals taken per usual routine
LNA/MA explains the change in practice with the new use of the PEG Assessment Tool, the purpose, and explains how to complete the tool
Does the patient agree to complete?
No
Yes
Notify provider
LNA/MA to document not completed and rationale on schedule document for DNP student to review
LNA/MA gives the PEG Assessment Tool form to the patient
The patient completes the PEG
LNA/MA scores the PEG (Sum/3 = ?)
LNA/MA provides scored PEG to provider when informing them the patient is ready
Provider reviews score & briefly discusses with patient during visit
Provider documents "PEG assessment tool completed today. Score of ____" in visit note.
PEG placed with visit note in dictation to be saved and filed.
DNP Student Responsibility
DNP student performs retrospective chart review at end of the PDSA cycle looking for PEG completion on patient charts.
Date of PEG completion written on cover of chart for future reference.
% of PEG completion for cycle documented on Excel spreadsheet


PDSA Cycle #2
Process Flow
(Team opted for same flow as for cycle #1 just expanded to all 3 providers)
Patient checks in at front desk for chronic pain visit
Patient sits in waiting room
LNA/MA grabs patient for rooming
Weight and vitals taken per usual routine
LNA/MA explains the change in practice with the new use of the PEG Assessment Tool, the purpose, and explains how to complete the tool
Does the patient agree to complete?
No
Yes
Notify appropriate provider patient seeing for visit
LNA/MA to document not completed and rationale on schedule/vitals Google Doc for DNP student to review
LNA/MA gives the printed PEG Assessment Tool form to the patient
The patient completes the PEG
LNA/MA scores the PEG (Sum/3 = ?)
LNA/MA documents PEG completed and score in notes column of schedule/vitals Google Doc
LNA/MA provides scored PEG assessment tool to appropriate provider when informing them the patient is ready for visit
Provider reviews score & briefly discusses with patient during visit
Provider documents "PEG assessment tool completed today. Score of ____" in visit note.
PEG placed with visit note in dictation to be saved and filed.
DNP Student Responsibility
DNP student performs retrospective chart review at end of the PDSA cycle looking for PEG completion in eligible patient charts.
Date of PEG completion written on cover of chart for future reference.
% of PEG completion for cycle documented on Excel spreadsheet


PDSA Cycle #3
Process Flow
When charts are pulled during the week preparation, LNA/MA attaches the PEG assessment tool to the cover of eligible patient charts
Before Visit
Patient checks in at front desk for chronic pain visit
Day of Visit
Patient sits in waiting room
LNA/MA grabs patient for rooming
Weight and vitals taken per usual routine
LNA/MA explains the change in practice with the new use of the PEG Assessment Tool, the purpose, and explains how to complete the tool
Does the patient agree to complete?
No
Yes
Notify appropriate provider patient seeing for visit
LNA/MA to document not completed and rationale on schedule/vitals Google Doc for DNP student to review
LNA/MA gives the printed PEG Assessment Tool form to the patient
The patient completes the PEG
LNA/MA scores the PEG (Sum/3 = ?)
LNA/MA documents PEG completed and score in notes column of schedule/vitals Google Doc
LNA/MA provides scored PEG assessment tool to appropriate provider when informing them the patient is ready for visit
Provider reviews score & briefly discusses with patient during visit
Provider documents "PEG assessment tool completed today. Score of ____" in visit note.
PEG placed with visit note in dictation to be saved and filed.
DNP Student Responsibility
DNP student performs retrospective chart review at end of the PDSA cycle looking for PEG completion in eligible patient charts.
Date of PEG completion written on cover of chart for future reference.
% of PEG completion for cycle documented on Excel spreadsheet


PDSA Cycle #4
Process Flow
When charts are pulled during the week preparation, LNA/MA attaches the PEG assessment tool to the cover of eligible patient charts
Before Visit
Patient checks in at front desk for chronic pain visit
Day of Visit
Patient sits in waiting room
Assigned LNA/MA grabs patient for rooming
Weight and vitals taken per usual routine
LNA/MA explains the change in practice with the new use of the PEG Assessment Tool, the purpose, and explains how to complete the tool
Does the patient agree to complete?
No
Yes
Notify appropriate provider patient seeing for visit
LNA/MA to document not completed and rationale on schedule/vitals Google Doc for DNP student to review
LNA/MA gives the printed PEG Assessment Tool form to the patient
The patient completes the PEG
LNA/MA scores the PEG (Sum/3 = ?)
LNA/MA documents PEG completed and score in notes column of schedule/vitals Google Doc
LNA/MA provides scored PEG assessment tool to appropriate provider when informing them the patient is ready for visit
Provider reviews score & briefly discusses with patient during visit
Provider documents "PEG assessment tool completed today. Score of ____ " in visit note.
PEG placed with visit note in dictation to be saved and filed.
DNP Student Responsibility
DNP student performs retrospective chart review at end of the PDSA cycle looking for PEG completion in eligible patient charts.
Date of PEG completion written on cover of chart for future reference.
% of PEG completion for cycle documented on Excel spreadsheet


PDSA Cycle #5
Process Flow
(Team did not want to make any changes from PDSA #4)
When charts are pulled during the week preparation, LNA/MA attaches the PEG assessment tool to the cover of eligible patient charts
Before Visit
Day of Visit
Patient checks in at front desk for chronic pain visit
Patient sits in waiting room
Assigned LNA/MA grabs patient for rooming
Weight and vitals taken per usual routine
LNA/MA explains the change in practice with the new use of the PEG Assessment Tool, the purpose, and explains how to complete the tool
Does the patient agree to complete?
No
Yes
Notify appropriate provider patient seeing for visit
LNA/MA to document not completed and rationale on schedule/vitals Google Doc for DNP student to review
LNA/MA gives the printed PEG Assessment Tool form to the patient
The patient completes the PEG
LNA/MA scores the PEG (Sum/3 = ?)
LNA/MA documents PEG completed and score in notes column of schedule/vitals Google Doc
LNA/MA provides scored PEG assessment tool to appropriate provider when informing them the patient is ready for visit
Provider reviews score & briefly discusses with patient during visit
Provider documents "PEG assessment tool completed today. Score of ____" in visit note.
PEG placed with visit note in dictation to be saved and filed.
DNP Student Responsibility
DNP student performs retrospective chart review at end of the PDSA cycle looking for PEG completion in eligible patient charts.
Date of PEG completion written on cover of chart for future reference.
% of PEG completion for cycle documented on Excel spreadsheet


PDSA Cycle #6
Process Flow
Before Visit
Day of Visit
DNP Student
Responsibility
DNP student reviews schedule on Google Doc 1 to 2 days prior to evaluate for eligibility and completion status of PEG - Completion status to be documented in notes column of Google Doc.
When charts are pulled during the week preparation, LNA/MA attaches the PEG assessment tool to the cover of eligible patient charts
Patient checks in at front desk for chronic pain visit
Patient sits in waiting room
Assigned LNA/MA grabs patient for rooming
Weight and vitals taken per usual routine
LNA/MA explains the change in practice with the new use of the PEG Assessment Tool, the purpose, and explains how to complete the tool
Does the patient agree to complete?
No
Yes
Notify appropriate provider patient seeing for visit
LNA/MA to document not completed and rationale on schedule/vitals Google Doc for DNP student to review
LNA/MA gives the printed PEG Assessment Tool form to the patient
The patient completes the PEG
LNA/MA scores the PEG (Sum/3 = ?)
LNA/MA documents PEG completed and score in notes column of schedule/vitals Google Doc
LNA/MA provides scored PEG assessment tool to appropriate provider when informing them the patient is ready for visit
Provider reviews score & briefly discusses with patient during visit
Provider documents "PEG assessment tool completed today. Score of ____" in visit note.
PEG placed with visit note in dictation to be saved and filed.
DNP student performs retrospective chart review at end of the PDSA cycle looking for PEG completion in eligible patient charts.
Date of PEG completion written on cover of chart for future reference.
% of PEG completion for cycle documented on Excel spreadsheet

Appendix H

Pre-Implementation Survey Responses

Question/Statement	Provider 1 Response	Provider 2 Response
How well do you know the current guidelines and Vermont rules (*VT Rules governing the prescribing of opioids for pain, VPMS Rule, and CDC 2016 Guidelines for opioid prescribing*) **for opioid prescribing for chronic pain?**	4 (Very Well)	3 (Well)
Which of the following are among current guidelines and Vermont rules for opioid prescribing? (SELECT ALL THAT APPLY)	A,b,c,e,f,g,h	A,b,c,e,f,g,h
Standardized/formal, validated functional assessment tools are of value in the management and plan of care for patients with chronic pain.	4 (Strongly Agree)	4 (Strongly Agree)
Typically, how often do you perform/administer an annual functional assessment using a validated/formal functional assessment tool (for example the BPI and PEG are validated/formal functional assessment tool) **with chronic pain patients on long-term opioid therapy?**	0% (Never)	0% (Never)
If you use a validated/formal functional assessment tool, which one do you use *(if you do not use one, please leave blank)***?**	N/A	N/A
Typically, how often do you document function in patient charts after a chronic pain visit?	1-25% (Occasionally)	26-74% (Often)
If you typically document function in patient charts, how do you perform your assessment and provide documentation?	Ask patients about their ADLs, QoL (self-perceived), sleep, and ability to work. Subjective – 0 objective	Asking about abilities to complete ADLs
What is your satisfaction level with the most current assessment/documentation	2 (Unsatisfied)	3 (Fairly Satisfied)

method of function for chronic pain patients on long-term opioid therapy at your practice?		
Why did you rate your satisfaction level in *question 8* the way you did?	"I would love to have a quantitative measure of function and efficacy of current medication regimens."	"Having an assessment tool would help with documentation/assessment."
The PEG assessment tool will assist the practice with guideline specified care for chronic pain patients on long-term opioid therapy by helping improve the quality of functional assessments and documentation in medical records for these chronic pain patients	4 (Strongly Agree)	4 (Strongly Agree)
What else would you like to say about your current method of functional assessment and documentation or the PEG assessment tool?	"I think this would be a great practice/quality improvement change that would benefit both providers and patients."	No comment

Post Implementation Survey

Question/Statement	Provider 1 Response	Provider 2 Response
The PEG assessment tool assists the practice with guideline specified care for chronic pain patients on long-term opioid therapy by helping improve the quality of functional assessments and documentation in medical records for these chronic pain patients.	4 (Strongly Agree)	4 (Strongly Agree)
Standardized/formal, validated functional assessment tools are of value in the management and plan of care for patients with chronic pain.	4 (Strongly Agree)	4 (Strongly Agree)
The PEG assessment tool improved understanding of pain and function in chronic pain patients managed on long-term opioid therapy.	3 (Agree)	4 (Strongly Agree)
The use of the PEG assessment tool is feasible/sustainable for this practice moving forward.	4 (Strongly Agree)	3 (Agree)

Typically, how often do you document function in patient charts after a chronic pain visit? (*now since implementation of PEG*)	75-99% (Very Often)	26-75% (Often)
What is your satisfaction level with the most current assessment/documentation method of function (the PEG) for chronic pain patients on long-term opioid therapy at your practice?	4 (Very Satisfied)	3 (Fairly Satisfied)
Do you plan to continue to use the PEG assessment tool <u>at least annually</u> to assess, document, and track function of chronic pain patients on long-term opioid therapy moving forward?	4 (Definitely Yes)	4 (Definitely Yes)
Please explain why you answered the way you did in the question above.	"The tool is simple to implement and opened discussions re: goals of care. We were able to modify prescriptions as a result of this discussion including tapering if appropriate or modifying the pain management regiments. The patients did not seem bothered by the change. ?; we received no push back."	"Having the PEG tool helps add to the assessment of a patient w/chronic pain. Overall, I think the PEG tool was helpful/useful in assessing patients. Unfortunately, the tool was implemented at a poor time in the clinic. I think that the patient load increased due to losing a provider at the office and this impacted the implementation of the PEG tool."