
11-8-2024

Toward Facilitating the Collection and Utilization of Patient-reported Outcomes in the Military Health System: Lessons Learned from a Pragmatic Clinical Trial on Physical Therapy Management for Low Back Pain

Emma H. Beisheim-Ryan

Brad D. Hendershot

Timothy C. Mauntel

Sara R. Gorczynski

Ryan W. Smith

See next page for additional authors

Follow this and additional works at: https://digitalcommons.chapman.edu/pt_articles



Part of the [Physical Therapy Commons](#)

Toward Facilitating the Collection and Utilization of Patient-reported Outcomes in the Military Health System: Lessons Learned from a Pragmatic Clinical Trial on Physical Therapy Management for Low Back Pain

Comments

This article was originally published in *Pain Medicine*, volume 25, issue supplement 1, in 2024.

<https://doi.org/10.1093/pm/pnae059>


Copyright

This work is written by (a) US Government employee(s) and is in the public domain in the US.

Authors

Emma H. Beisheim-Ryan, Brad D. Hendershot, Timothy C. Mauntel, Sara R. Gorczynski, Ryan W. Smith, Andrea Crunkhorn, Shawn Farrokhi, and Christopher L. Dearth

Toward facilitating the collection and utilization of patient-reported outcomes in the Military Health System: Lessons learned from a pragmatic clinical trial on physical therapy management for low back pain

Emma H. Beisheim-Ryan , PT, DPT, PhD^{*,1,2}, Brad D. Hendershot, PhD^{1,3,4}, Timothy C. Mauntel, PhD, ATC^{1,4,5}, Sara R. Gorczynski, PT, DPT^{2,6}, Ryan W. Smith, PT, DPT^{2,6}, Andrea Crunkhorn, PT, DPT^{1,3,4}, Shawn Farrokhi, PT, PhD⁷, Christopher L. Dearth, PhD^{1,3,4}

¹Extremity Trauma and Amputation Center of Excellence, Defense Health Agency, Falls Church, VA 22042, United States

²Naval Medical Center San Diego, San Diego, CA 92134, United States

³Walter Reed National Military Medical Center, Bethesda, MD 20814, United States

⁴Uniformed Services University of the Health Sciences, Bethesda, MD 20814, United States

⁵Womack Army Medical Center, Fort Liberty, NC 28310, United States

⁶The Henry M. Jackson Foundation for the Advancement of Military Medicine Inc., Bethesda, MD 20817, United States

⁷Department of Physical Therapy, Chapman University, Irvine, CA 92618, United States

*Corresponding author: Naval Medical Center San Diego, 34800 Bob Wilson Drive, San Diego, CA 92134, USA. Email: Emma.h.beisheim-ryan.civ@health.mil

In pursuit of delivering “the right care to the right patient at the right time,” the Military Health System (MHS) advocates for collecting and using patient-reported outcomes (PROs) to help demonstrate value-based care.¹ PROs identify patients’ perceptions of their health, function, and well-being, which can enhance patient-centered communication and guide data-driven health-care.² The MHS recognizes the value of incorporating PRO data into clinical decision-making and has established a number of platforms for PRO collection across health conditions (eg, behavioral health, traumatic brain injury, musculoskeletal injuries). The Military Orthopedics Tracking Injuries and Outcomes Network (MOTION)³ was started as a research endeavor specific to collecting PROs relevant to postsurgical conditions, which later expanded to cover rehabilitation settings and all musculoskeletal injuries. In MHS physical therapy clinics, the Defense Health Agency’s Clinical Assessment Management Portal (CAMP), a digital PRO collection platform, enables point-of-care capture of MOTION-recommended PROs.

Despite the recognized value of PRO data in informing clinical care, the MHS faces challenges to clinical PRO implementation. First, the duality of the TRICARE Health Plan as direct care within Department of Defense (DOD) facilities and private sector care outside of DOD control prevents consistent PRO collection among patients who intermittently access non-DOD care.¹ Within the direct care system, the highly transient nature of military service creates unique challenges for routine access to healthcare services and limits continuous engagement with new clinical initiatives.⁴ Finally, despite the availability of PRO collection platforms across health conditions, PRO data collection has not been a standardized aspect of MHS care. Thus, there are critical needs for patient, provider, and system-wide guidance to ease PRO implementation and facilitate data-informed care.¹

PROs should be reliable; valid; and condition-, patient-, and setting-specific.² PROs should be regularly assessed throughout care episodes and administered via digital, user-friendly platforms that minimize clinical workflow disruption. To optimize PRO collection in pragmatic clinical research trials, the Pain Management Collaboratory (PMC) recommends standardizing and digitally integrating PROs directly into DOD data collection systems⁵ to align research processes with existing clinical workflows.⁵ This commentary provides lessons-learned from adopting these recommendations as part of our PMC pragmatic clinical trial, Resolving the Burden of Low Back Pain in Military Service Members and Veterans (RESOLVE),⁶ alongside actionable recommendations for facilitating real-time PRO implementation in the MHS.

RESOLVE is a multisite, randomized, stepped-wedge clinical trial conducted in partnership with 4 DOD and 2 Department of Veterans Affairs outpatient rehabilitation facilities.⁶ RESOLVE aims to enhance outcomes among patients with low back pain by training physical therapists to provide psychologically informed, Clinical Practice Guideline-adherent treatment strategies⁷ and reinforcing their use via monitoring and feedback processes. For RESOLVE, the Oswestry Disability Index,⁸ Defense and Veterans Pain Rating Scale,⁹ and Subgroups for Targeted Treatment (STarT) Back Screening Tool¹⁰ were digitally collected using CAMP within seven days of initial physical therapy evaluation and every subsequent 2 weeks during an episode of care. As part of standard care and at the direction of clinic leadership, project-supported staff identified patients receiving low-back-pain-related evaluations, distributed CAMP links via email, and sent completion reminders. To facilitate physical therapists’ use of PRO data as part of RESOLVE, project-supported staff uploaded baseline PROs directly into electronic health records for immediate review and

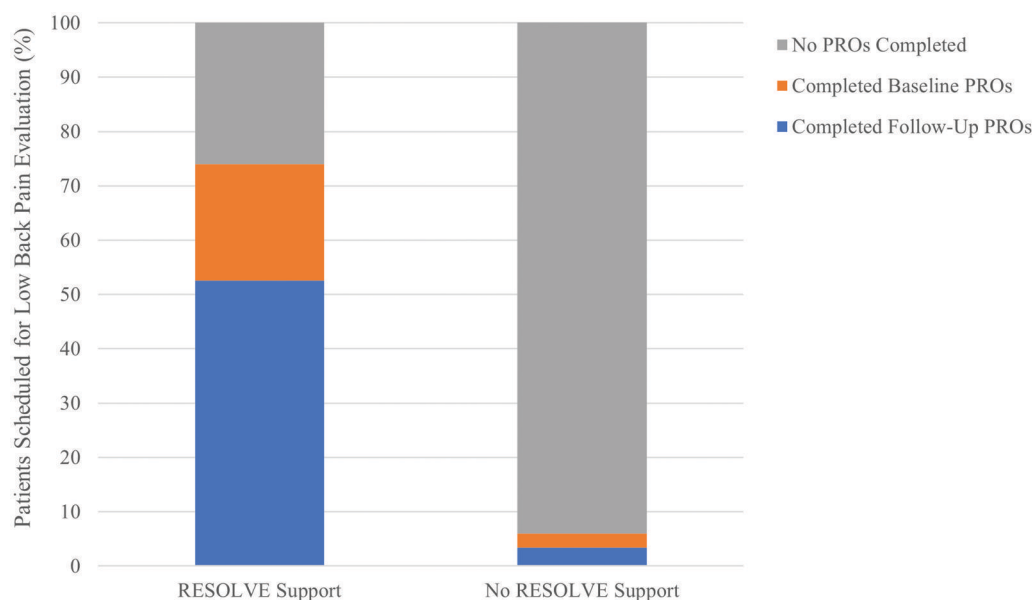


Figure 1. Patient-reported outcome measure (PRO) completion rates among patients scheduled for physical therapy evaluations for low back pain at MHS facilities participating in the RESOLVE pragmatic clinical trial across periods of full project-supported staffing (“RESOLVE Support”) and as staffing was reduced as RESOLVE neared completion (“No RESOLVE Support”). MHS = Military Health System.

interpretation. PRO data were also analyzed by project-supported biostatisticians, who generated and distributed individualized feedback reports to physical therapists monthly. Feedback reports quantified physical therapists’ treatment procedures as well as the proportion of their patients who reported clinically meaningful changes in low-back-pain-related PROs over each month-long period.

Figure 1 presents PRO completion rates across the 4 participating DOD facilities with full project staffing (“RESOLVE Support”) and with reduced project-supported staffing as RESOLVE approached its conclusion (“No RESOLVE Support”). With RESOLVE support, 74% (3020/4083) of patients who were scheduled for low-back-pain-related physical therapy evaluations completed baseline PROs, of whom 71% (2156/3020) completed at least 1 set of follow-up PROs. However, when project-supported staffing was reduced, only 6% of patients (49/875) completed baseline PROs, of whom 57% (28/49) completed at least 1 set of follow-up PROs. This reduction was observed despite the availability of similar PRO collection strategies across periods (eg, digital QR codes, emailed follow-up links).¹ This dramatic decline highlights the discrepancy between existing systems for PRO implementation and their real-world adoption in MHS physical therapy clinics, leading us to propose the following recommendations:

Recommendation 1: Garner multi-level clinical and DOD leadership support to catalyze and reward widespread PRO implementation. We invite leaders to (1) mandate MHS-wide PRO collection to demonstrate their prioritization of patient well-being and capture valuable components of military medical readiness, and (2) establish MHS-wide standards and expectations for PRO use when treating musculoskeletal injuries. Considering the transient nature of MHS facility leadership, instituting system-wide implementation guidance will provide enduring processes for sustained PRO collection. Leveraging the expertise of subject matter experts (eg, clinical specialty leaders, researchers, patient advocates), MHS leaders can establish evidence-based clinical recommendations and guidelines that capitalize on approved resources for data collection (eg, CAMP). Early adoption in clinical practice

can be further facilitated by offering tangible incentives that reward PRO collection. In the civilian sector, these incentives come from alternative payment models that tie reimbursement to PRO collection and positive patient outcomes.² Within the MHS, clinics who excel at collecting PROs may be rewarded with awards or performance-based bonuses.

Beyond mandating PRO collection, it is equally crucial for MHS leaders to establish guidance on how providers can use PROs to inform patient-centered care. Examples include using PROs as (1) screening tools to identify patients who may benefit from specific treatment interventions or external referral or (2) re-evaluation tools to identify significant changes in status and determine implications for continued treatment. Data collection platforms may be leveraged to generate and embed dashboards that incorporate reference data and clinical-decision-making guidance, similar to the RESOLVE feedback reports, or to signal patient-specific referral needs or significant status changes. Once guidance is established through mandates and standardized processes, local clinic leadership can further demonstrate their support by utilizing PROs in their own clinical care or showcasing PRO metrics.

Recommendation 2: Engage with MHS healthcare providers and staff as pivotal partners in PRO implementation. During RESOLVE, physical therapists valued the education and feedback surrounding PROs but articulated barriers to interpreting and using data within existing clinical workflows. Common barriers among healthcare providers include time constraints, conflicting priorities, concerns about stagnant outcomes, and lack of perceived clinical benefit. Similarly, patients may not complete PROs if they perceive their PRO data are not being used to enhance their care. Addressing these barriers requires specific strategies, including allocating protected time for PRO administration and review; establishing a culture that prioritizes PROs and does not impose repercussions for limited clinical progress; and training on interpreting available PRO metrics to guide clinical decisions. Beyond these common barriers, providers may face additional hurdles when facilitating PRO completion among active-duty Service members, who may perceive

stigma surrounding their healthcare needs. Overcoming healthcare-related stigma requires intentional, psychologically informed patient education that emphasizes the importance of PROs in guiding treatment decisions. Healthcare providers must be trained to effectively communicate with patients regarding the importance of sharing their perspectives, beliefs, and experiences; and they must receive guidance and resources for directing patients to services outside their expertise (eg, mental health services).

Healthcare provider “champions” are critical assets to address local clinic barriers to PRO implementation. Ideal champions are internal role models who intrinsically support PRO integration, use them in their own practice, offer strategies to peers, and educate patients on their importance. Additionally, champions play a vital role in overcoming nuanced team-specific barriers to implementing MHS-wide directives.

Recommendation 3: Leverage established MHS data collection platforms by fostering clinical workflows that support their adoption. Patient, provider, and front desk staff unfamiliarity with PRO platforms was evident in RESOLVE, suggesting additional efforts are needed to improve platform visibility and usability in clinical care. CAMP integration with electronic health records would enable providers to more efficiently review and use PROs. Weak Wi-Fi and cellular signals at participating clinics impeded patients’ ability to complete digital PROs in real-time; thus, digitally disseminating PROs to be completed remotely before appointments may ease in-clinic collection. Additionally, a dedicated network computer with CAMP access and/or mobile hotspots could support onsite collection, with front desk staff support to assist patients who may be unfamiliar with digital platforms. Finally, given the breadth of global and condition-specific PROs available, PRO collection must be streamlined to minimize burden. Data platforms can be configured to first present PROs assessing global outcomes, then branch into condition-specific measures based on patients’ primary condition.

In conclusion, PRO data are essential to providing high-quality, personalized care in any healthcare system. Lessons learned from RESOLVE suggest existing collection platforms may have suboptimal adoption and utilization without dedicated research support. Opportunities to overcome barriers to PRO implementation include multi-level partner engagement, mandates and standardized guidelines, and training in existing digital capabilities. By maximizing PRO collection and use, we strengthen our ability to holistically support Service members and all MHS beneficiaries, addressing their immediate medical readiness needs and long-term health.

Acknowledgments

This study protocol referenced in this work was approved by the Naval Medical Center San Diego Institutional Review Board approval (NMCS.D.2018.0034). I am a federal employee of the US Government. This work was prepared as part of my official duties. Title 17 U.S.C. 105 provides that copyright protection under this title is not available for any work of the US Government. Title 17 U.S.C. 101 defines a US Government work as work prepared by a military service member or employee of the US Government as part of that person’s official duties. The views expressed herein are those of the authors and do not necessarily reflect the official policy or position of the Departments of the Army, Navy, Defense, Veterans Affairs, The Henry M. Jackson Foundation for the Advancement of Military

Medicine Inc., nor the United States Government. The authors certify that they have no affiliations with or financial involvement in any organization or entity with a direct financial interest in the subject matter or materials discussed in the article. This study is a product of the Pain Management Collaboratory. For more information about the Collaboratory, visit <https://painmanagementcollaboratory.org/>.

Funding

The US Army Medical Research Acquisition Activity, 820 Chandler Street, Fort Detrick MD 21702–5014 is the awarding and administering acquisition office. This work was supported by the Assistant Secretary of Defense for Health Affairs endorsed by the Department of Defense, through the Pain Management Collaboratory—Pragmatic Clinical Trials Demonstration Projects under Award No. W81XWH-18–2-0007.

Conflicts of interest: E.H.B.R.: None to declare. B.D.H.: None to declare. T.C.M.: None to declare. S.R.G.: None to declare. R.W.S.: None to declare. A.C.: None to declare. S.F.: None to declare. C.L.D.: None to declare.

Supplement statement

This article appears as part of the supplement entitled “Pain Management Collaboratory: Updates, Lessons Learned, and Future Directions.”

This manuscript is a product of the Pain Management Collaboratory. For more information about the Collaboratory, visit <https://painmanagementcollaboratory.org/>.

References

1. Schaettle PR, Kaplan RS, Lee VS, et al. Mobilizing the U.S. Military’s TRICARE program for value-based care: a report from the defense health board. *Mil Med.* 2022;187(1-2):12-16.
2. Keeney T, Kumar A, Erler KS, et al. Making the case for patient-reported outcome measures in big-data rehabilitation research: implications for optimizing patient-centered care. *Arch Phys Med Rehabil.* 2022;103(5S):S140-S145.
3. Mauntel TC, Tenan MS, Freedman BA, et al. The military orthopedics tracking injuries and outcomes network: a solution for improving musculoskeletal care in the military health system. *Mil Med.* 2022;187(3-4):e282-e289.
4. Rhon DI, Oh RC, Teyhen DS. Challenges with engaging military stakeholders for clinical research at the point of care in the U.S. Military Health System. *Mil Med.* 2022;187(7-8):209-214.
5. Ali J, Antonelli M, Bastian L, et al. Optimizing the impact of pragmatic clinical trials for veteran and military populations: lessons from the pain management collaboratory. *Mil Med.* 2022;187(7-8):179-185.
6. Farrokhi S, Russell Esposito E, McPherson D, et al. Resolving the burden of low back pain in military service members and veterans (RESOLVE): protocol for a multisite pragmatic clinical trial. *Pain Med.* 2020;21(suppl 2):S45-S52.
7. George SZ, Fritz JM, Silfes SP, et al. Interventions for the management of acute and chronic low back pain: revision 2021. *J Orthop Sports Phys Ther.* 2021;51(11):CPG1-CPG60.
8. Roland M, Fairbank J. The Roland-Morris disability questionnaire and the Oswestry disability questionnaire. *Spine (Phila Pa 1976).* 2000;25(24):3115-3124.
9. Polomano RC, Galloway KT, Kent ML, et al. Psychometric testing of the Defense and Veterans Pain Rating Scale (DVPRS): a new pain scale for military population. *Pain Med.* 2016;17(8):1505-1519.
10. Hill JC, Dunn KM, Lewis M, et al. A primary care back pain screening tool: Identifying patient subgroups for initial treatment. *Arthritis Rheum.* 2008;59(5):632-641.

Published by Oxford University Press on behalf of the American Academy of Pain Medicine.

This work is written by (a) US Government employee(s) and is in the public domain in the US.

Pain Medicine, 2024, 25, S11–S13

<https://doi.org/10.1093/pm/pnae059>

Commentary