

Title: The benefits of a commercial virtual transitional pain service for a veteran: A case study in the perioperative arthroplasty setting

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Synopsis: Transitional pain services (TPS) can be effective in addressing chronic postsurgical pain and opioid tapering; however, it has not been used widely or within a solely virtual setting. Using a commercial virtual transitional pain (vTPS) service which identifies patients for chronic pain and opioid dependency risk prior to surgery, we present a case study on a veteran undergoing TJA. Our findings show that providing comprehensive pain management care, including pre- and post-surgery psychological support for a veteran who is at medium-to-high relative risk for chronic pain and opioid dependency after TJA is effective through a virtual TPS program.

## Background

Total joint arthroplasty (TJA) has been shown to reduce pain and improve mobility; however, around 20% of patients continue to experience chronic pain after surgery. 1 Chronic pain is a major risk factor for continued opioid use after surgery, with around 10% of patients who were not on opioids prior to surgery developing persistent opioid use (using for 90 days post-op) after TJA. 2 Furthermore, TJA is a common surgery amongst U.S. veterans, with veterans needing these surgeries at a rate of two times more than civilians of the same age. 3 However, less is known about chronic pain and persistent opioid use after TJA amongst this vulnerable patient population. Transitional pain service (TPS) is a multimodal approach to address chronic postsurgical pain and ultimately chronic opioid dependency. 4 Effective TPS should (1) provide comprehensive pre- and postoperative pain management for patients who are at high risk of developing chronic postsurgical pain, (2) manage opioid medication after discharge, and (3) improve coping and functioning in the immediate and long term to provide as high a quality of life as possible. 5,6 Although TPS has shown to be effective in addressing chronic postsurgical pain and opioid tapering and there is a call to implement it within the US healthcare system, 7, it has not been used widely or within a solely virtual setting. Using a commercial virtual transitional pain (vTPS) service which identifies patients for chronic pain and opioid dependency risk prior to surgery, we present a case study on a veteran undergoing TJA who received comprehensive pain management care which included pre- and post-surgery psychological support.

## Approach

The patient was recruited from a cohort of TJA patients receiving care at the VA Palo Alto Medical. After consent, the patient was matched with a licensed therapist associated with the commercial platform to deliver the vTPS program. The patient received surgery preparedness

care using cognitive behavioral therapy protocols for anxiety for 4 weeks prior to the TJA. Furthermore, the patient was informed that he would be guided in tapering off of his prescribed opioids after surgery with the same licensed therapist. After the TJA, the patient received psychological pain management care using cognitive behavioral therapy protocols for pain for 4 weeks after the TJA. The patient also engaged in a 90-day postoperative follow-up. During the preoperative and postoperative care, and follow-up appointment, the patient also responded to validated surveys on depression (PHQ-9), anxiety (GAD-7), pain (KOOS-Pain), quality of life (KOOS-QoL), pain catastrophizing (PCS), and reported overall opioid use.

## Results

The patient is a 72 year old Caucasian male veteran undergoing total right hip arthroplasty. He had a total left hip arthroplasty two years prior to the current TJA surgery (2021). The patient reported a strong support system, and denied childhood abuse, family history of mental health issues or substance use issues. However, the patient did report a past history of nicotine, marijuana, cocaine and mushroom (psilocybin) use. He also reported a past history of alcohol dependence for 35 years. At his first preoperative vTPS appointment, he reported moderate pain (KOOS-Pain = 60) with some pain catastrophizing (PCS =3), and minimal depressive (PHQ9 = 3) and anxiety (GAD7 = 1) symptoms. His overall quality of life was assessed to have moderately severe impairments (KOOS-QoL = 33). Based on this patient history, he was identified at medium-to-high increased relative risk compared to others undergoing the same surgery. 6, 8

Within the 4-week postoperative vTPS journey, the patient reported a complete reduction in pain catastrophizing (PCS = 0), pain levels (KOOS-Pain = 100), and depressive symptomatology (PHQ9 = 0). He also reported experiencing minimal anxiety symptoms (GAD7 = 1) and improved quality of life (KOOS-QoL = 75). Along with these behavioral health improvements, the patient reduced his opioid use from 22.5 MME to 0 MME within the 4 weeks. At the 90-day follow-up these behavioral health improvements, reduction in pain and pain thoughts, and complete taper from opioids were sustained.

## Conclusion

Providing care for a patient who is at increased risk for the development of chronic post surgical pain and persistent postoperative opioid use after TJA can be done through a virtual TPS program and may reduce the risk of developing post surgical pain and persistent opioid use. Healthcare systems should consider offering enhanced perioperative care through a virtual TPS program. From the authors list, three are funded by and have equity in the commercial sponsor of this study.

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