

Stakeholder Perspective on Opioid Stewardship After Prostatectomy: Evaluating Barriers and Facilitators From the Pennsylvania Urology Regional Collaborative



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OBJECTIVE	To evaluate existing practice patterns and potential barriers to implementing opioid stewardship protocols after robot-assisted prostatectomies among providers in the Pennsylvania Urology Regional Collaborative.
METHODS	The Pennsylvania Urology Regional Collaborative (PURC) is a voluntary quality improvement initiative of 11 academic and community urology practices in Pennsylvania and New Jersey representing 97 urologists. PURC distributed a web-based survey of 24 questions, with 74 respondents, including 56 attendings, 11 residents, and 7 advanced practice providers.
RESULTS	More pills were prescribed if there was a default number of pills from the electronic health record (median 30) than if the number of pills was manually placed ($P = .01$). Only 8% discussed how to dispose of opioids with their patients, and less than a third of respondents discussed postoperative pain expectations or risks of opioid use. Patient level risk factors were often not reviewed, as 42% did not ask about previous opioid exposure.
CONCLUSION	This study revealed extensive knowledge disparities among providers about opioid stewardship and significant gaps in the evidence-to-practice continuum of care. In the next year, PURC will be implementing targeted interventions to augment provider education, establish clear pathways for opioid disposal, improve utilization of known resources and implement opioid reduction protocols in all participating sites. UROLOGY 145: 120–126, 2020. © 2020 Elsevier Inc.

Opioid addiction is a public health crisis. In 2016, opioid use disorder affected 2.1 million Americans leading to over 42,000 overdose deaths; 17,000 of which involved a prescription opioid.¹ Not only

is addiction linked to increased morbidity and mortality, but also has social and economic consequences. Pennsylvania has been hit especially hard, having the fourth highest rate of overdose in the United States.²

Surgeons are at the forefront of this problem. Of patients obtaining long-term opioid therapy at a pain clinic, nearly one-third report that their initial prescription was from a surgeon.³ In addition, prescribed opioids are often unused, with many patients using fewer than half the amount prescribed and up to 90% of patients having leftover opioids.^{4,5} Unused medication poses a risk for nonmedical usage, diversion, and unintentional overdose.

Surgeons are in a unique position to help combat the opioid epidemic. There have been significant surgeon-led efforts to define safe and appropriate opioid prescribing practices.^{6,7} Recently, Patel et al⁷ found that patients only utilized 10% of the oral morphine equivalents (OME)

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that were prescribed after radical prostatectomies. However, efforts to implement protocols to reduce opioid prescriptions have had variable degrees of success and the barriers and facilitators to implementing opioid stewardship among surgeons have not been clearly evaluated. Therefore, we sought to evaluate existing practice patterns and potential barriers to implementing opioid stewardship protocols among providers in the Pennsylvania Urology Regional Collaborative (PURC).

MATERIALS AND METHODS

Established in February 2015, the PURC is a voluntary quality improvement initiative of academic and community urology practices in Pennsylvania and New Jersey, designed to improve the quality of care for men with prostate cancer. Participating practices submit data into the PURC registry on various prostate cancer quality measures, including biopsy, imaging, treatment, radical prostatectomy, cancer characteristics, and volume. To date, the eleven (11) participating practices representing 97 active urologists have performed approximately 4116 radical prostatectomies. Of the approximately 1200 prostatectomies performed annually, 95%-98% were done with robotic-assistance.

Survey Construction

On July 2, 2019, PURC distributed a web-based survey to all 97 actively participating urologic surgeons in the 9 organizations participating in PURC via email. Recognizing that opioid prescribing is often performed by healthcare professionals who were not attending surgeons, the data abstractors within the PURC collaborative further distributed the survey to physician trainees and advanced practice providers. The survey was open for 16 days, closing on July 17, 2019. The survey asked 24 questions in total (see [Appendix](#)), gathering demographic information from the providers including hospital role, years of practice, and type of practice. For years of practice, this would mean how many years the respondent has been faculty, or how many years practicing as an advanced practice providers (APP), or how many years as a resident.

The survey also sought to evaluate the prescribers' beliefs on the relationship between opioid prescribing patterns and addiction, current level of opioid education or training, how they screened their patients for opioid dependence risk factors, personal prescribing patterns post prostatectomy, and strategies that they use to minimize opioid utilization.

The primary objective of the survey was to characterize the beliefs and potential barriers implementing an opioid reduction protocol. Therefore, we wanted to include information from a wide variety of providers including urologists who do not perform surgeries. We also wanted to investigate current practice patterns for opioid prescription after robotic prostatectomies. Minimally invasive surgeries, such as robot-assisted prostatectomies, may be associated with decreased pain requirements than open surgeries,⁸ and are optimal targets for implementing protocols to reduce opioid prescriptions after surgery.⁹ To investigate practice patterns and identify potential "pressure points" to implement changes that would change routine clinical practice, we asked specific questions (Questions 3, 10, 15, 16, 17, 19, 20, see [Appendix](#)) regarding postprostatectomy prescribing patterns. For these questions, we only included the responses from those surgeons who were performing prostatectomies (N = 37).

RESULTS

Study Population

The PURC coordinating center at first distributed the survey to 97 active providers in the 9 organizations participating in PURC. Of the 97 attending surgeons, 56 (58%) completed the survey. The survey was then sent to an additional 18 APP and 19 resident physicians, from which an additional 18 (nonattending) prescribers (49%) completed the survey. This was an overall response rate of 55% (74/134). Of the 74 total responders, 56 identified as Attendings (76%), 11 as Residents (15%), and 7 (10%) as APPs. Of the surgeons surveyed, 37/56 (66%) performed robotic prostatectomies, with 20 (54%) performing 1-4 prostatectomies per month and 10 (27%) performing more than 10 prostatectomies per month. Of the 37 surgeons, 20 (54%) were fellowship-trained in urologic-oncology or were performing open radical prostatectomies. Of the 37 surgeons, all of those surveyed who were performing open prostatectomies were also doing robotic prostatectomies. Thirty-eight percent of the respondents have been in practice for 0-5 years, with 41% in practice for 10 years or more. Seventy-five percent of the respondents were from an academic practice. When comparing surgeons who completed the survey versus those who did not, the median number of years in practice for those who did not complete the survey was 20 years (IQR 7-28) versus 13 years (IQR 9-29) for those who completed the survey, but there was no statistically significant difference ($P = .4$).

Beliefs and Education

Overall, the vast majority of the respondents believed that opioid addiction is a major concern and that opioid prescriptions have played a large part in exacerbating the situation ([Fig. 1](#)). Of those who completed the survey, 93% believed that opioid prescriptions have contributed to the current opioid abuse epidemic and 93% believed that opioid addiction is a concern in their area. Of note, 11% believed that the patients used the majority of their prescribed opioids, and an additional 21% were neutral.

Education on opioid stewardship was prevalent among our providers. One hundred percent of the respondents had received some opioid education, with 75% receiving 3 hours or more in the past year. This education came from 28 different sources, with the majority utilizing resources from the Pennsylvania State Board of Medicine and online sources. Less than 9% accessed available educational resources through the American Urologic Association. Forty-three percent have not had any training to address stigma or bias against patients with an opioid use disorder.

Practice Patterns

In general for all surveyed providers, 42% of the respondents said that they do not ask the patients directly about their opioid use history and only 48% always checked the Prescription Drug Monitoring Program (PDMP) before prescribing opioids. Screening was not often performed prior to prescribing opioids; many providers did not check for risk factors for opioid dependence – indeed, 57% of providers did not screen for previous history of opioid abuse, 73% did not check for mental health disorders, and more than 80% did not screen for a history of chronic pain, fibromyalgia, or adolescent sexual abuse.

When evaluating prescribing practices for surgeons performing prostatectomies (N = 37), 68% did not discuss the risk of opioid use with their patients. The majority of surgeons did discuss

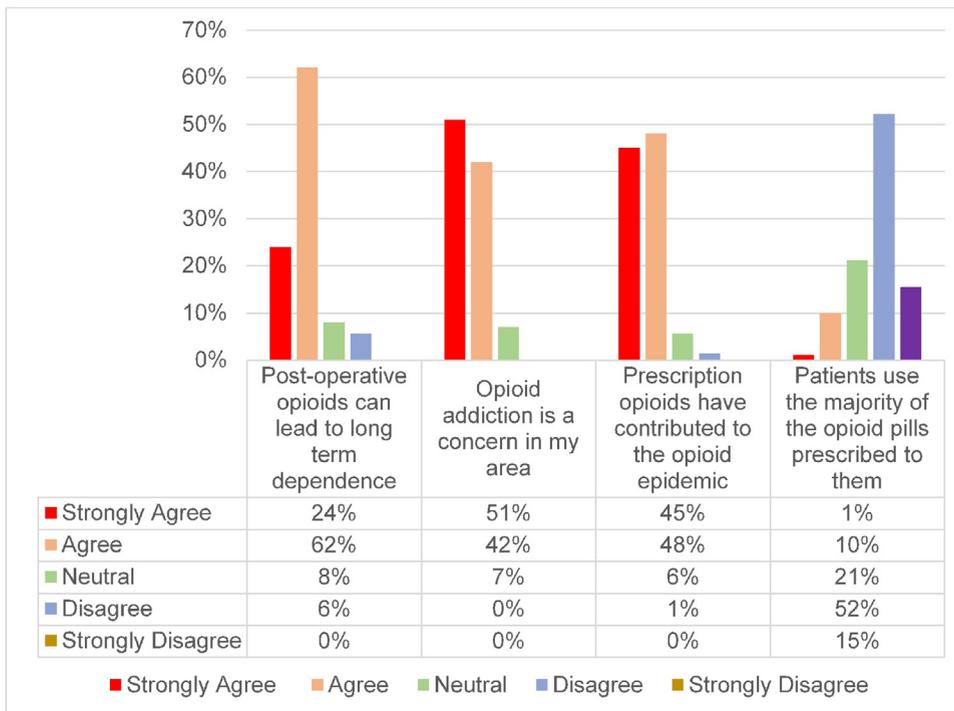


Figure 1. Beliefs about opioid epidemic (n = 71). (Color version available online.)

pain expectations following surgery (86%) and nonopioid pain management options (78%), (Fig. 2). Notably, 89% of providers did not discuss how the patient should properly dispose of unused opioids.

Of the surgeons performing prostatectomies, 51% noted that there is a default number of opioid pills in the electronic health record (EHR) prescribed for prostatectomy patients from an order set, with a median of 30 pills prescribed (interquartile range [IQR] 25-35). 74% of the surgeons (14/19) who had a default setting in the EHR were prescribing 25 pills or more, whereas none of the surgeons who had to manually input the

number of pills were prescribing more than 20 pills, and 72% (13/18) were prescribing 10 pills or less ($P = .01$). Of the residents surveyed, the median number of pills prescribed was 0 (IQR 0-10). Of the APPs surveyed, the median number of pills prescribed was 30 (IQR 25-30).

Barriers to Implementation

Finally, the results of the survey demonstrated that there are several important barriers to opioid stewardship. Once such barrier is the lack of standardized opioid prescribing recommendations or guidelines. Seventy-five percent (75%) of providers do not

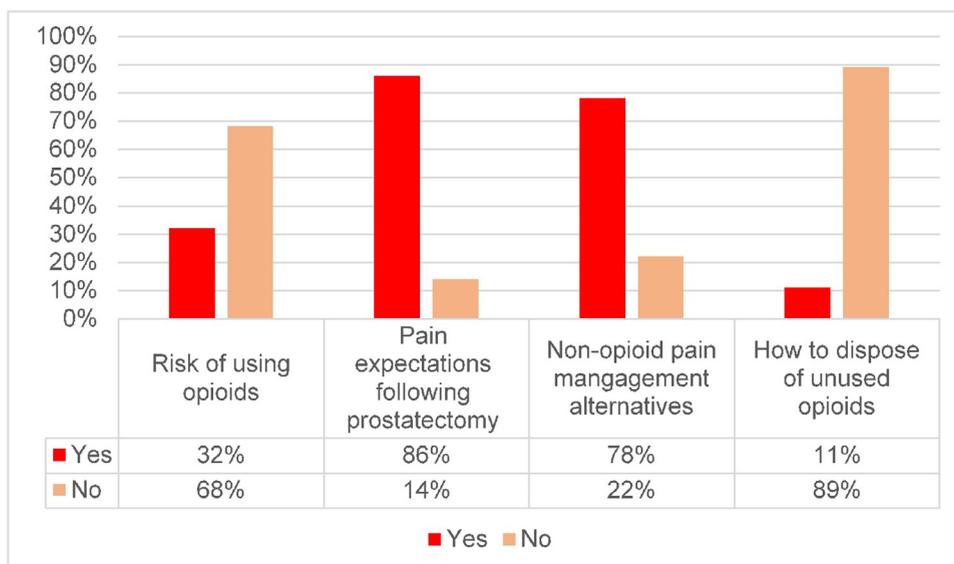


Figure 2. Discussion between patient and provider: "Prior to prostatectomy, does your patient receive education on the following?" (n = 37). (Color version available online.)

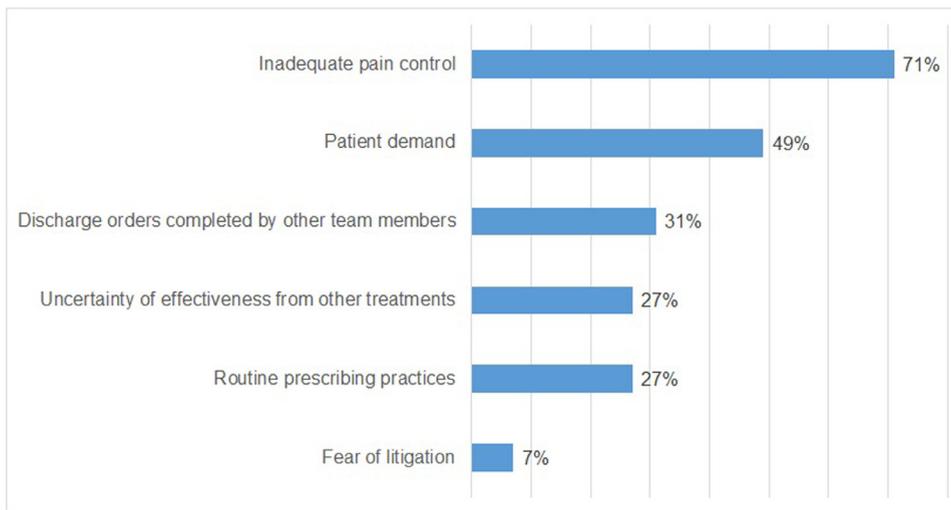


Figure 3. Barriers to an opioid reduction protocol after a radical prostatectomy (n = 37). (Color version available online.)

use any of the known prescribing recommendations to provide adequate pain relief utilizing opioid alternatives. When surgeons who performed prostatectomies were asked about potential barriers to decreasing or stopping opioid prescriptions after prostatectomies, 68% were concerned about inadequate pain control and 35% were uncertain about the effectiveness of nonopioid medications (Fig. 3). Patient factors were important to consider, as 51% reported that patient demand for opioids was a significant barrier. Very few (5%) were concerned of litigation for inadequate pain control. About a third of respondents replied that logistical issues were a significant barrier, as 30% reported that opioids were given as part of routine practice and 19% reported that the opioid prescriptions were handled by a healthcare surrogate for the primary surgeon.

DISCUSSION

This study is one of the first to describe existing opioid prescribing practices among a broad spectrum of urologists, and to characterize some of the barriers for implementing opioid reduction pathways. Several important findings should be emphasized. Although most providers were aware of the opioid crisis and had received hours of opioid stewardship education, overprescribing of opioids after robot-assisted prostatectomy was still prevalent. In one large trial of open and robotic prostatectomies, Patel et al⁷ showed that 50% of their patients required only 3 tablets or less of 5 mg oxycodone (22.5 OME) and about 80% required <15 tablets (112.5 OME). Many studies have shown the potential risk of an opioid oversupply, as 60%-90% of prescribed opioids remain unused after surgery,^{5,7,10,11} and less than 10% of patients dispose of opioids or know how to dispose of them.^{5,7} Fifty percent of opioid abusers did not have a personal prescription for opioids but had immediate family members who were previously prescribed opioids.¹² Simple strategies to highlight and facilitate the disposal process for unused opioids can drastically decrease the potential risk for opioid abuse.

Multiple clinician-mediated and organizational level interventions have been implemented to reduce postsurgical opioid prescriptions with dramatic results. Randomized controlled trials showed that directed interventions and clinical decision support can decrease opioid pill descriptions by 50%-80%, while maintaining 90%-95% patient pain control satisfaction rates.^{6,9,13-16} For urological procedures, the utilization of minimally invasive surgeries and local anesthetics have been shown to dramatically improve pain control and decrease the need for opioids.¹⁷⁻¹⁹ One prospective study utilized a multimodal approach of local blocks, gabapentin, acetaminophen, and ibuprofen (or ketorolac), and were able to discharge 68% of robotic prostatectomy and nephrectomy patients without any opioids.⁹ In our experience, many of the providers surveyed were not certain of the efficacy of nonopioid alternatives. Therefore, educating providers on the success of alternative protocols and increasing the studies done on the implementation of these protocols will be an essential step in improving opioid stewardship.

Another important finding was that most of the providers did not screen patients effectively. The overwhelming majority of providers, in some cases exceeding 80%-90%, did not check for known risk factors for opioid abuse, such as previous exposure, mental health disorders or a history of chronic pain. In addition, although checking PDMP is mandatory in Pennsylvania, less than half of the providers always checked the PDMP system before prescribing opioids. Opioid use before abdominopelvic surgeries is common, ranging from 20% to 40% in several large studies,^{20,21} and the long-term risk of opioid abuse increases sharply with each prescription and exposure to opioids.²² In addition, preoperative use of opioids has been associated with increased perioperative complications including infections and ileus, readmissions, and health care expenditures.^{21,23} Improving screening of previous risk factors for opioid abuse and prior opioid

exposure can help improve perioperative outcomes and prevent opioid dependence and presents an ideal opportunity for provider education.

PDMPs are currently available in 49 states. In 40 of those states, there are mandatory use laws to review patients' prescription drug history before prescribing controlled substances, though the requirements for utilization vary from state to state. Although there have been conflicting data on the impact of PDMP utilization on outcomes in states where PDMP review is voluntary,^{24,25} states that have mandatory use policies have demonstrated about a 20%-40% decrease in opioid prescriptions and a 20%-30% decrease in opioid-related admissions.²⁶⁻²⁸ Many practices and electronic health record programs now have built in access to different PDMPs to facilitate utilization. Understanding how to fit PDMP reviews into the clinical workflow without increasing the workload is important to improve opioid stewardship.

Finally, technology could be utilized to facilitate opioid stewardship, by making the "right" choice the "easy" choice. For example, the programming of the EHR can be changed to reduce the default number of pills or to remove the default option altogether. Adjusting the default choices on the EHR can lead to dramatic improvements in influenza vaccination rates, generic prescription rates, breast and colorectal cancer screening rates, and reduce unnecessary imaging.^{29,30} These provider-facing "nudges," or changes to the infrastructure to facilitate evidence-based choices, could contribute to a dramatic decrease in the number of pills prescribed. Additionally, the use of electronic prescriptions for controlled substances can facilitate an opioid-free discharge pathway, with electronic prescriptions sent if clinically needed without the need for the patient to return for a physical script.

There are several key limitations to this study that warrant discussion. First, this is a survey of providers practice patterns and beliefs and are subject to recall biases inherent in this type of study. However, this cohort represents a relatively large sample of providers across a diverse patient and practice population and provides interesting data to build possible interventions. Second, this study includes practices within Pennsylvania and New Jersey and may be subject to regional differences in practice patterns or other confounding factors. However, since the opioid epidemic has reached all corners of the country, more scholarship and investigation needs to be done to help improve patient outcomes. There is a low response rate among other nonattending providers such as APPs and residents. Although we had set out to do a broad evaluation of facilitators and barriers to implementing an opioid protocol for the key relevant stakeholders, such as APPs and residents who often do the bulk of the postoperative prescriptions, we were not able to recruit enough volunteers for this survey from that cohort. Despite the low completion rate from that population, we still learn valuable information about some of the potential barriers and key pressure points that can affect practice change and will influence

how we implement our protocols to improve patient care. Unfortunately, we do not have all the demographic information for the providers, APPs, and residents that are involved with PURC. We do have information about the years in practice for the attending urologists. Overall the median number of years in practice for those who did not complete the survey was 20 years (IQR 7-28) versus 13 years (IQR 9-29) who completed the survey, but there was no statistically significant difference ($P = .4$). The results of this survey may not be generalizable to the population, as Pennsylvania as a whole has had significant issues with opioid abuse and related deaths, and in response some of the hospitals in the PURC collaborative had already made substantial efforts to decrease opioid prescriptions. This survey is not a validated questionnaire. As this was one of the first attempts to look at a qualitative analysis of our prostatectomy patients, future studies will hopefully help form validated questionnaires and survey tools to evaluate barriers and facilitators for implementation of an opioid stewardship protocol in a postsurgical setting. Finally, we were not able to associate providers' beliefs with their actual practice patterns and patient outcomes. More investigations will need to be done in order to substantiate our findings and improve collaborative efforts to reduce opioid overprescribing. Over the next year, PURC will be implementing opioid disposal and opioid reduction pathways across all PURC sites in an effort to reduce opioid overprescription and improve patient outcomes.

CONCLUSION

This study revealed extensive knowledge disparities among providers about opioid stewardship and significant gaps in the evidence-to-practice continuum of care. With future studies, we hope to establish a better understanding of the context for providers in prescribing opioids, provide decision support to improve opioid stewardship and reduce waste, and improve opportunities to decrease the risk of opioid overexposure for patients. In the next year, PURC will be implementing targeted interventions to augment provider education, establish clear pathways for opioid disposal, improve utilization of known resources and implement opioid reduction protocols in all participating sites.

SUPPLEMENTARY MATERIALS

Supplementary material associated with this article can be found in the online version at <https://doi.org/10.1016/j.urology.2020.05.096>.

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EDITORIAL COMMENT



Opioid analgesia is a cornerstone in perioperative pain management, yet this opioid exposure is a known risk factor for developing persistent opioid use and contributes to opioid abuse and diversion.^{1,2} The 2018 American Urological Association Quality Improvement Summit emphasized opioid stewardship as a multipronged approach: understanding postoperative pain, identifying high-risk patients and expectations about pain control, and the role of urologists in the opioid crisis.³

However, a lack of granular data at an individual provider level remains a barrier to implementing effective opioid reduction interventions. Additionally, engaging surgeons in meaningful practice changes to decrease opioid prescribing has proven difficult.^{2,4} Surgical collaboratives may be uniquely positioned to address this gap due to their ability to engage surgeons, gather and share data, compare results, evaluate outcomes, and identify best practices among peer groups. This activated platform facilitates dissemination of educational materials and guidelines, facilitates professional development, and provides a peer-to-peer support system for troubleshooting barriers.^{5,6}

In the present study, Lee et al performed a web-based survey evaluating opioid education, perceptions, and prescribing patterns of urology clinicians (n = 74) participating in the Pennsylvania Urology Regional Collaborative. The respondents were primarily attending urologists (76%) from academic practices (75%) who had previously received structured opioid education (100%) from a variety (n = 28) of different sources (less than 9% from American Urological Association).

The results of this study provide an objective measure of the substantial gap remaining between evidence and practice change. There was general belief that opioid addiction is a concern regionally, that the majority of patients do not use all prescribed opioids and that prescribers have contributed to the

opioid epidemic. Despite this, only half of providers screened for preoperative patient risk factors for opioid dependence, one third discussed the risk of opioid abuse and only 8% discussed disposal of unused opioids. Barriers to minimizing opioid prescribing included electronic health record defaults (51%), low use of opioid alternatives (75%) due to concern for inadequate pain control (68%), uncertainty about nonopioid pain control (35%), and patient preference (51%). The study is limited by its relatively low-response rate (58%) and reliance on self-reported data making is susceptible to response, recall, and social desirability biases. Additionally, regional variability in opioid prescribing may limit the generalizability of these findings.²

Despite these limitations, this study provides a valuable perspective on the power of surgical collaboratives to engage surgeons in practice change. Our efforts in the Surgical Collaborative of Wisconsin as well as other collaboratives have demonstrated encouraging results in evidence-based reduction of narcotic use postoperatively, indicating that this platform may be best suited to overcome the sluggish uptake of evidence based practice change needed to improve perioperative opioid stewardship.⁵⁻⁷ Now that these initial barriers have been identified among urologists, we look forward to seeing how Pennsylvania Urology Regional Collaborative applies this information to make meaningful change in their communities and whether this can be reproduced in other regional collaboratives or national organizations.

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