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A Survey of Opioid Medication Stewardship Practices at Academic Medical Centers

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Abstract

Purpose: The results of a survey of academic medical centers assessing the presence and description of opioid stewardship activities. **Methods:** Academic medical centers within the Vizient University Health System Consortium Pharmacy Network were asked to complete a survey related to opioid stewardship activities. The survey consisted of 30 questions aimed at identifying current opioid stewardship practices among hospitals and health systems. **Results:** There were 27 respondents to the survey. Only 42.3% of respondents have opioid stewardship activities in place. Opioid stewardship practices are primarily linked to either formal consult services or the role of a clinical pharmacy specialist. Very few institutions have opioid stewardship embedded into the daily practice of clinical pharmacists. Just over half of respondents have pharmacists as part of a pain consult team. Principle roles of pharmacists on consult teams include provider education, patient education, and optimization of therapy outside of a collaborative practice or prescribing role. Over half of the respondents participating in stewardship maintain a pharmacist's role in monitoring surgery and postoperative opioid prescribing. The majority of respondents have opioid medication policies in place to address range orders, smart pump programming of opioids, limits on meperidine use, and cumulative limits on acetaminophen dosing. **Conclusion:** There are limited examples of pharmacy services related to opioid stewardship. The authors believe this is a pharmacy practice model that will evolve with the national attention to the opioid epidemic and new Joint Commission Standards.

Keywords

opioid, pain, stewardship, narcotic

Introduction

It is widely recognized there is an opioid abuse epidemic in America. Drug overdose deaths are the leading cause of injury death in the United States.[1] Since 1999, the rate of overdose deaths involving opioids has nearly quadrupled.[2] More than 650 000 opioid prescriptions are dispensed in the US daily and it is estimated the opioid epidemic costs 55 billion dollars per year in health and social costs.[3]

Fighting this epidemic is a national priority for the US Department of Health and Human Services.[4] This priority is highlighted by the Centers for Disease Control and Prevention's publication in March 2016 of guidelines for prescribing opioids for chronic pain outside of active cancer treatment, palliative care, and end-of-life treatment. One of the principle strategies to combat the epidemic is the improvement in widespread prescribing practices for opioids.[1] Health care providers, including pharmacists, across the nation will be asked to exhibit leadership in curbing opioid prescribing for common conditions.

The Joint Commission has established standards to reflect the growing concern in health care around the abuse and mismanagement of opioids. The newly revised standards specifically direct that hospitals analyze data collected on pain assessment and pain management to identify areas that need change to increase safety and quality for patients.

The concept of *opioid stewardship* has come to the forefront, much like the concept of antimicrobial stewardship did as a standard practice to promote wise and safe use

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Table 1. Survey Respondents Versus Vizient Academic Medical Center Cohort.

Variable	Survey respondents (n = 27)	Vizient academic medical center cohort (n = 69)
Average operating beds	714 (SD = 201)	665 (SD = 246)
Average patient discharges per year	8701 (SD = 2682)	8160 (SD = 3019)
Average medicare case mix index	1.91 (SD = 0.17)	1.94 (SD = 0.25)

of antimicrobial agents. Although opioid stewardship remains undefined, its fundamentals are focused on improving prescribing practices to promote the appropriate and safe use of opioids for pain management and identifying strategies for managing individuals who are at high risk of becoming dependent on opioids.

Purpose

In anticipation of new guidelines and requirements for the use of opioids in medical practice settings, the authors set out to discover and describe current practices for opioid stewardship. A work group conducted a survey to characterize current practices of academic medical centers in opioid stewardship to identify gaps and create a platform for new initiatives in health system practice.

Methods

Vizient University Health System Consortium Pharmacy Network is a collaborative of academic medical centers and affiliate hospitals across the United States. The Pharmacy Practice Advancement Committee of the Vizient Consortium Pharmacy Network serves as a coordinating body to explore the advancement of pharmacy practices within health systems. The Pharmacy Practice Advancement Committee of the Vizient Consortium Pharmacy Network is composed of clinical pharmacy specialists and generalists, pharmacy administrators, and pharmacy resident volunteers. A work group convened to develop the survey questions of most interest in assessing the current state of opioid stewardship efforts in academic medical centers. Surveys were distributed through use of the Pharmacy Directors Vizient University Health System Consortium Pharmacy Network list-serve with responses solicited for 8 weeks. The committee developed, distributed, and analyzed the results of the survey.

The survey consisted of 30 questions aimed at identifying current opioid stewardship practices in academic medical centers. Seven of the questions were general in nature and aimed at identifying what types of stewardship activities were taking place, what type of educational efforts were present, and information regarding any existing limitations on prescribing opioids. Ten questions were aimed at discovering the role of the pharmacist in consult services, collaborative practice agreements, or prescribing practices allowed by hospital policy. Five questions were asked directly about stewardship activities provided. One question asked to describe hospital policies aimed at safe prescribing practices for opioids. The remainder of the questions were demographic in nature.

Results

A total of 288 academic medical centers were sent the survey in October 2016. There were 27 responses from hospital pharmacy administrators, a response rate of 9.4%. All responses represented separate academic medical centers. There were 11 respondents from the Midwest region, 6 respondents from the Northeast region, 1 from the Northwest region, 1 from the South region, 4 from the Southeast region, 3 from the Southwest region, and 1 from the West region.

Because all the respondents were academic medical centers, we conducted an analysis of the number of operating beds, patient discharges, and Medicare case mix indices of survey respondents, in comparison to all the academic medical centers within the Vizient network. These demographic results are represented in Table 1.

Practice Model

Responses to survey questions regarding prescribing and education are represented in Table 2. The vast majority of survey respondents (96.1%) cite pharmacists may access prescription drug monitoring programs (PDMPs). PDMPs, electronic databases tracking controlled substance prescriptions in a state, are designed to be interventional in opioid prescribing and monitoring of at-risk behaviors. General opioid stewardship practice model questions with responses are represented in the Table 3.

Consult Services

The survey asked whether there is a pharmacist who was part of a pain consult service. Only 14 academic medical centers indicated there was a pharmacist on a pain consults service (52%). Other members of the consult team include a medical doctor (n = 9), nurse or clinical nurse specialist (n = 4), advanced practitioner (n = 7), physical therapist (n = 1), anesthesiologist (n = 8), psychologist (n = 3), and social worker (n = 1). A number of "yes/no" questions were asked to gauge the scope of practice of the pharmacist on the pain consult team. Responses are represented in Table 4. The

Table 2. Prescribing and Education.

Survey question[a]	Yes response	No response
Can pharmacists who are involved in direct patient care in your institution access the prescription drug monitoring program (PDMP) database?	25 (96.1%)	1 (3.9%)
Are there restrictions to the prescription drug monitoring program database access by pharmacists?	6 (23.1%)[b]	20 (76.9%)
Are the restrictions noted above based upon state legislation?	9 (34.6%)	17 (65.4%)
Does your hospital have prescribing limitations on medication quantities?	10 (38.5%)	16 (61.5%)
Does your hospital have prescribing limitations on total milligrams per dose?	3 (11.5%)[c]	23 (88.5%)
Does your hospital have a policy that requires education of providers and/or caregivers about safe opioid prescribing?	7 (26.9%)[d]	19 (73.1%)

[a]One site left all these questions blank.
[b]The 2 restrictions identified included the need to register with the state and the intent to provide care to a patient or prescribe medications.
[c]One institution had both limitations on quantities and total milligrams per dose.
[d]The majority of these programs were aimed toward physicians.

Table 3. Opioid Stewardship Practice Model.

Opioid stewardship practice model	Respondents with this practice model (n = 27)
Collaborative practice activities or agreements (outside of consults and stewardship monitoring)	6 (22.2%)
Stewardship program (monitoring utilization, interventions when appropriate)	6 (22.2%)
Consult services (direct engagement with the patient upon consultation)	14 (51.9%)
Transition of care for discharge planning	6 (22.2%)
Preoperative clinic activities	2 (7.4%)
Specialty service-specific (pharmacy specialist on a particular team incorporates pain recommendations into practice)	14 (51.8%)

survey asked what the activities the pharmacist engaged in while on the consult team. Responses are listed in Table 5.

Opioid Stewardship Activities

Survey respondents were asked who performs opioid stewardship activities. The majority of respondents do not participate in solicited opioid stewardship activities (15 of 26; 57.7%). Of note, one respondent marked all 5 answers; therefore, they were excluded from these data. Since they checked "No one performs stewardship activities," the following questions were not available to them for response. Of those participating, a majority have a pharmacy pain specialist or a clinical pharmacist perform such responsibilities. Of the respondents, 4 sites utilize 2 or more of the pharmacy positions to conduct opioid stewardship efforts.

Survey respondents were asked what reports are used to assess prescribing patterns and utilization of opioids. Of 11 institutions participating in opioid stewardship, 9 provided responses regarding report utilization. Reports such as utilization by care area are more commonly utilized than provider-specific or prescription-specific data. Other common monitoring strategies include dosages prescribed and the use of long-acting oral agents or opioid infusions.

Respondents were asked to pick from a list of opioid stewardship medication monitoring activities, Table 6, and to check all that are performed at their institution. Of the respondents, all conduct 2 or more of the pain stewardship activities. One institution did not articulate specific activities but stated stewardship activities are adjunctive for their pharmacy pain specialist. The specialist completes respective activities as appropriate through consult services and/or drug utilization evaluations. In terms of breadth of services, a majority complete 6 to 8 of the provided activities. Activities such as long-acting opioid review, fentanyl patch review, opioid-induced constipation therapy, high-dose oral opioid review, injectable to oral medication conversions, patient-controlled analgesia (PCA) monitoring, and opioid infusion monitoring were the most commonly performed.

Respondents were asked if the organization has a role for the pharmacist in pain management in the surgery patient population. Of 11 institutions participating in opioid stewardship, 6 provided responses related to surgery patient populations. Of the respondents, more than half maintain 2 or more roles within the surgery patient population. Most institutions maintained pharmacist roles within the inpatient setting. All respondents who participate in pain management within the surgical setting have a pharmacist in the postoperative inpatient setting to facilitate stewardship efforts.

Of 6 participating in pain management within the surgery patient population, activities did not vary throughout. All respondents who participate in pain management within the surgical setting have a pharmacist involved in the optimization of pharmacotherapy and opioid stewardship. A majority additionally participate in medication history and medication reconciliation functions (4 of 6; 66.7%). Other roles pharmacists may play include medication de-escalation and review of nonpharmacologic therapies as well. The most robust survey respondent (eg, most affirmative answers to services

Table 4. Scope of Practice of a Pharmacist within a Pain Consult Service (n = 14).

Question	"Yes" response	"No" response
Can the pharmacist complete patient care notes?	14 (100%)	0 (0%)
Do the notes have to be cosigned (attested) by a physician or advance practice nurse for billing purposes?	3 (21.4%)	11 (78.6%)
Can a pharmacist complete an initial consult?	3 (21.4%)	11 (78.6%)
Can a pharmacist complete a follow-up consult?	3 (21.4%)	11 (78.6%)
Can the pharmacist prescribe noncontrolled medications per a collaborative practice agreement or policy?	6 (42.9%)	8 (57.1%)
Can the pharmacist prescribe controlled medications per a collaborative practice agreement or policy?	6 (42.9%)	8 (57.1%)
Can a pharmacist change or modify controlled medication orders per collaborative practice agreement or policy (eg, change oxycodone/acetaminophen to separate drug components)?	6 (42.9%)	8 (57.1%)

Table 5. Activities of the Pharmacist on the Pain Consult Team (n = 14).

Activity	Pharmacist engaged in this activity
Patient education	13 (92.9%)
Provider education	12 (85.7%)
Optimize therapy for nonpharmacologic therapies	9 (64.3%)
Optimize therapy for pharmacologic therapies	14 (100%)
Opioid stewardship (monitoring utilization, interventions when appropriate)	10 (71.4%)
Substance use disorder management	4 (28.6%)
Prehospitalization assessment	3 (21.4%)
Postsurgical consultation and de-escalation	3 (21.4%)
Discharge coordination	5 (35.7%)

provided by pharmacists) also has pharmacist involvement in substance use disorders.

Policy

All respondents had policies reflecting the use of opioid medications in the academic medical center. Specific policies present are listed in Table 7. The most commonly reported policies include prohibition of range frequencies, mandatory smart pump programming for PCA and opioid infusions, and daily limits on acetaminophen cumulative dose regardless of dosage forms. All respondents state no policy exists within their institutions permitting automatic ordering of naloxone with processed opioid orders.

Discussion

This survey was intended to discover the presence of opioid stewardship activities in academic medical centers. Most of the respondents indicated they have access to state PDMP database with limited restrictions. Approximately 36% of respondents had implemented quantity limits on opioid prescribing. These limits were implemented in response to either state legislation or self-imposed policies. In responses relating to practice models, respondents indicated their opioid stewardship programs are primarily linked to formal consult services or the role of a clinical pharmacy specialist. There are few examples where stewardship activities are embedded into the general practice of the pharmacist. Just over half of the respondents indicated a pharmacist is a member of the pain consult team. Only a minority of respondents indicated the pharmacist's scope of practice allowed them to provide consults, bill, or prescribe medications. The principle roles of pharmacists on consult teams were provider education, patient education, and optimization of therapy outside of a collaborative practice or prescribing role. This dynamic may change when pharmacists are recognized as providers.

The majority of respondents do not have an opioid stewardship program. Those who do use a variety of reporting mechanisms to discover utilization and assess appropriateness of high-risk agents such as opioid infusions, fentanyl patches, opioid-induced constipation medications, high dose oral opioids, and long-acting oral agents.

Over half of respondents participating in stewardship programs maintain a role in the surgery patient population. It is known that pain after surgical operations is commonly treated with opioid agents. In fact, nearly 40% of prescriptions written by surgeons are opioids.[5] It is also believed that postsurgical opioid use is a "stepping-stone" to long term use and possible addiction.[1] Most of the opioid stewardship activities revealed in this survey were limited to postoperative pain management. The authors propose preoperative planning for postsurgical pain may be a vital future role for the pharmacist's role in limiting over-prescribing of pain medications.

The majority of respondents had policies in place to address range orders, range frequencies, smart pump programming of opioids infusions and PCA, limits on meperidine use, and cumulative limits on acetaminophen dosages. Only a minority had policies on limiting hydromorphone

Table 6. Opioid Stewardship Medication Monitoring Activities (n = 11).

Activity		Pharmacist engaged in this activity
Review for appropriate utilization	PCA continuous infusions plus bolus doses	6 (54.5%)
	Intravenous opioid infusions	6 (54.5%)
	IV push pain medication in the last 24h	3 (27.3%)
	Oral high dose opioids (>40 mg morphine per day)	8 (72.7%)
	Opioid induced constipation medications	9 (81.8%)
	Long acting oral opioid use (MS Contin™, OxyContin™)	9 (81.8%)
	Fentanyl patch	10 (90.9%)
Conversion from Intravenous to oral pain medication		8 (72.7%)
IV naloxone use in the last 24-h review for adverse events/over-sedation		5 (45.5%)
Epidural/intrathecal pump reconciliation		4 (36.4%)
Postsurgical evaluation for de-escalation of pain medications (without a consult)		3 (27.3%)
Other		2 (18.2%)

Note. PCA = patient-controlled analgesia.

Table 7. Policies present in Survey Respondent hospitals.

Pain management policy	Policy present (n = 27)
Prohibition of range dosage orders for pain medications without objective measures to determine the correct dose (eg, pain scores)	16 (59.3%)
Prohibition of range frequency orders for pain medications without objective measures to determine the correct dose (eg, pain scores)	10 (37.0%)
Prohibition of range dosages (ie, not allowed at all)	11 (40.7%)
Prohibition of range frequencies (ie, not allowed at all)	18 (66.7%)
Limit hydromorphone bolus doses to less than 1 mg	2 (7.4%)
Limitation of use of PCA infusion plus bolus dosing to opioid tolerant patients	7 (25.9%)
End tidal CO_2 monitoring of patient on narcotics	3 (11.1%)
Renal monitoring by the pharmacist in patients on morphine and oxycodone	6 (22.2%)
Requiring smart pump programming for PCA	19 (70.4%)
Requiring smart pump programming for opioid infusions	18 (66.7%)
Cumulative daily limit on acetaminophen dosages	17 (63.0%)
Automatic renal dosing for injectable NSAIDs	6 (22.2%)
Narcotic prescription automatically triggers prescription for naloxone	0 (0.0%)
Limitations for the use of meperidine	14 (51.9%)
Limitations for the use of buprenorphine	6 (22.2%)
Limitations for the use of methadone	4 (14.8%)

Note. PCA = patient-controlled analgesia; NSAID = nonsteroidal antiinflammatory drugs.

dosages, end tidal CO_2 monitoring of patients on opioids, renal dosing of nonsteroidal medications, or limitations on methadone use. The authors believe these activities are all good practices for a stewardship program. A new standard for opioid stewardship was released by the Joint Commission in 2017. These new standards will potentially require monitoring of opioid prescribing patterns and promoting access to nonpharmacologic pain treatment modalities. The new standards will also include practices during and after hospitalization that promote safe utilization of opioids and diversion prevention. Some examples include standards to identify high-risk patients, maintain equipment available to monitor high-risk patients, facilitate clinician access to PDMP databases and encourage their use prior to prescribing opioids, and educate patients and families regarding the safe use, storage, and disposal of opioids.[6]

The authors believe to meet the needs of patients in pain management and comply with new regulatory standards the role of the pharmacist needs to evolve to move toward a generalist pain stewardship model, whereby pharmacists are allowed by collaborative practice agreements or scope of practice to optimize therapy outside of a pain consult service. There is an opportunity for professional and societal support to help advance pharmacist stewardship activities in medical centers. Examples include support certification programs for development of skills and knowledge like antimicrobial stewardship certificates, expansion of Palliative Care/Pain Management Residency programs, guidelines for definitions of pain management and opioid best practices, and toolkits for implementation of these practices in a variety of health care settings.

A limitation of the study is the low response rate. The authors believe the low response rate may be attributed to lack of time to respond, lack of interest/comfort in sharing practices, or the medical center does not have services or policies in place for opioid management. Another limitation includes the disparity in knowledge of all opioid practices by survey respondent for the medical center. A common language was adopted in distribution of the survey; however, interpretation of terms may lead to uncertainty in provided answers. The survey was distributed in

October 2016. The survey results may not be reflective of the current activities and initiatives that medical centers have implemented since the national attention to the opioid epidemic in the past 18 months.

Conclusion

This survey reveals less than half of the survey respondents in academic medical centers have opioid stewardship programs in place. New Joint Commission standards, as well as an intense national focus on opioid addiction, provide an opportunity for pharmacy leadership, including coleadership with physicians in this practice. The opportunities for pharmacists are vast and include ensuring appropriate and safe pain management protocols for both acute and chronic pain, individualized pain management assessments and interventions, screening patients prior to surgery to determine if they may be opioid naïve or have history or potential for substance abuse, ensuring proper escalation of pain management strategies, actively participating in an interdisciplinary pain management team, serving as educational resources for provider staff, overseeing a chronic pain management clinic, and becoming knowledgeable of nonpharmacologic interventions such as physical therapy, therapeutic massage and acupuncture. Lastly and most important is ensuring patient education prior to discharge for proper use and disposal of medications. Core elements of an opioid stewardship program should mimic the Antimicrobial Stewardship example and include leadership commitment, accountability, drug expertise, interventions, tracking, reporting, and education.

More examples of comprehensive practice models with collaborative practice or prescriptive authority elements are needed. There is a professional and societal need for expansion of opioid stewardship pharmacy practice models.

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