
Prescribing Medications for Chronic Pain Management: The State of Education in Florida Medical Schools and Residency Programs

Wyndham A. Bonett, BS; Katherine Perdomo, MPH, CHES; Suzanne C. Baker, MA; Marshall B. Kapp, JD, MPH

ABSTRACT

The purpose of this study was to assess the state of chronic, non-cancer pain management education in Florida medical schools and residency programs. Surveys were developed and distributed to Florida allopathic and osteopathic medical schools. One survey was specific to students and residents and one to faculty. Confidence in their general education, as well as in treating patients with chronic, non-cancer pain, was measured. A majority of medical students and residents (59.5%), in addition to a majority of faculty (58.1%), agreed or strongly agree that more clinical time needs to be dedicated to chronic, non-cancer pain management education. Students, residents, and faculty suggested offering more lectures, online modules, workshops, and clinical scenarios as ways to improve the current educational environment. Results demonstrate that while Florida medical schools and residency programs provide education on chronic, non-cancer pain management, there is still room for improvement. Increased communication between institutions and standardizing competencies related to pain management may prove beneficial.

Florida Public Health Review, 2017; 14, 22-32.

BACKGROUND

Opioid prescription abuse is a continuing problem in the United States, affecting millions of Americans (Centers for Disease Control and Prevention [CDC], 2016). Because medical education lays the foundation for future physicians, it is a major factor in addressing the opioid prescription abuse problem. This article discusses how education can improve physician confidence in managing chronic, non-cancer pain, with a focus on Florida medical schools and residency programs.

Chronic Pain and the Opioid Epidemic

Chronic pain is defined as “pain that typically lasts >3 months or past the time of normal tissue healing” (Dowell, Haegerich, & Chou, 2016). Chronic pain has proven to lower patient quality of life (Stewart et al., 1989) and is also a pervasive part of many American lives. Conservative estimates show at least 100 million Americans suffer from chronic pain (Institute of Medicine of the National Academies, 2011), with a disproportionate percentage of that population being geriatric. In nursing homes, 45-80% of residents have some form of chronic pain, while 40-50% of the residents actually get prescribed analgesics (Gloth, 2001). Florida’s elderly population in 2014 was 19.1%, an increase from 17.3% in 2010 (U.S. Census Bureau, 2015). Since chronic pain is

associated with elderly patients, an increasing population of geriatric patients brings an increased need for pain management.

Among the different forms of chronic pain management, opioids have become a staple. Unfortunately, abuse of opioid prescriptions has become a serious issue. According to the Centers for Disease Control and Prevention (CDC), Florida suffered from a 61% increase in drug overdoses from 2003 to 2009, from 1,804 deaths to 2,905 deaths (Johnson, Paulozzi, Porucznik, Mack, & Herter, 2014). Oxycodone, an opioid, and alprazolam, a benzodiazepine, were the two most abused drugs in the state. In 2010, with regard to volume, 98 of the top 100 prescribers of oxycodone in the U.S. were in Florida. While the rate of overdoses in Florida were highest among 45-54 year olds, the second highest age group was greater than 55 years old (Johnson et al., 2014).

The Regulatory Environment

Over the past decade, policies and regulations have been set in place at both the federal and state levels that are intended to prevent inappropriate prescribing in order to battle this opioid epidemic. In 2011, the Drug Enforcement Administration (DEA), along with local police forces, began Operation Pill Nation, in which they raided a large number of pain clinics. As

a result, many arrests, closures, and property seizures took place (U.S. Drug Enforcement Administration, 2011). As of 2013, a few states have enacted some sort of law that regulates “pill mills,” loosely monitored pain management clinics that are associated with high levels of opioid prescriptions (Ala. Code § 34-24-602; Fla. Stat. Ann. § 458.3265(1)(a)(2); Fla. Stat. Ann. § 459.0137(1)(a)(2); Ga. Code Ann. § 43-34-281; 902 Ky. Admin. Regs. 20:420E (Sec. 10) (eff. 2012); La. Admin. Code tit. 48, pt. I, § 7815(B), 30-17 Miss. Code R. § 2640:1.15 (B) (eff. 2012); Ohio Admin. Code 4731-29-01(B)(1); Tenn. Code Ann. § 63-1-306(c) (eff. 2011); Tex. Admin. Code § 195.3; W. Va. Code Ann. § 16-5H-6(a)).

Florida is among these states, setting new requirements for “pill mills” across the state in 2010. Florida law requires these clinics to register with the state and list a physician as the designated owner (Fla. Stat. §§ 458.3265, 459.0137). Another measure taken by the Florida government consisted of implementing a prescription drug monitoring program (PDMP), labeled E-FORCSE, which stores a patient’s prescription information and provides this information to a patient’s physician and pharmacist. This program has reduced prescription drug abuse across Florida (Fla. Stat. § 893.055). In 2011, Florida legislated to require that prescriptions for controlled substances be written on a counterfeit-resistant pad or electronically prescribed (Fla. Stat. § 456.42). Simultaneously, Florida enacted another law that provides definitions relevant to controlled substance prescribing and requires physicians, podiatrists, dentists, physician assistants, and advanced registered nurse practitioners to designate themselves as controlled substance prescribing practitioners (Fla. Stat. § 456.44). Florida’s legislative action proved to be effective, as prescription drug mortality rate decreased by 23% from 2010 to 2012 (Rutkow et al., 2015).

Whereas the regulatory environment surrounding analgesic prescriptions has lowered opioid overdose deaths, it may also have had unintended consequences. Many physicians have become reluctant to prescribe opioids even when prescription may be in the best interest of the patient. Some physicians fear scrutiny or legal action while others do not want to contribute to the substance abuse numbers (American Academy of Family Physicians [AAFP], 2015).

Optimizing medical practice dictates that other avenues beyond regulation must be explored to address the pain management issue. Medical education is one factor that plays a major role in confronting this crisis and can increase physician confidence in treating chronic pain patients (O’Rourke, Chen, Genao, Panda, & Cykert, 2007).

Medical education is the key for training future physicians to effectively and appropriately manage chronic pain, including but not limited to opioid prescription. In 2016, the Association of American Medical Colleges (AAMC) released a list of 60 medical schools that pledged to “promote clinical innovations in care to combat opioid dependence” (Association of American Medical Colleges [AAMC], 2016, March 29). Among these schools, four are in Florida. It has been reported that, in general, medical education does not encompass enough teaching on pain management, adding to the problem of inadequate pain treatment (Institute of Medicine of the National Academies, 2011).

Realization of the importance of medical education in addressing the atmosphere of an “opioid epidemic,” (Medical Daily, 2016; The Guardian, 2016; Luthra, 2016) plus a growing geriatric population in Florida (Reynolds, J., Gunderson, J., & Bamford, M., 2015), were the reasons for this study.

METHODS

Two survey instruments were developed, one for the faculty of medical schools and residency programs, and one for medical students and residents. Information about the studies was distributed to the dean of every medical school in Florida, with the request that each dean invite his or her respective medical students, residents, and faculty to participate in the survey. The survey was available to participants via a Qualtrics link and responses were submitted anonymously.

This study relied on self-reported data by respondents and no externally validated scales were used. The questions for the survey were developed based on extensive research on opioid prescription abuse. The primary goal was to measure student and resident confidence in their general education as well as specifically in chronic, non-cancer pain management and then compare this information to faculty perception on student and resident confidence. Another goal of this study was to determine whether enough material was being offered and taught on pain management, how this material was delivered, and what suggestions, if any, students, residents and faculty had to offer to improve or change the current educational environment. This research was approved by the Florida State University Human Subjects Committee.

RESULTS

Nine medical schools were surveyed. Responses were received from all schools; however, four of the schools had three or fewer participants. Participants included 98 faculty, 141 medical students, and 19 residents.

Table 1. Faculty Demographics		
Age		
	<i>n</i>	<i>Percentage</i>
30-39	24	24
40-49	20	20
50-59	36	36
60-69	15	15
70 or older	5	5
Total	100	100
Sex		
	<i>n</i>	<i>Percentage</i>
Male	61	61
Female	39	39
Total	100	100
Race		
	<i>n</i>	<i>Percentage*</i>
White	87	88
Black or African-American	3	3
Asian	8	8
American Indian or Alaskan Native	0	0
Native Hawaiian or Pacific Islander	1	1
Total	99	100
Ethnicity		
	<i>n</i>	<i>Percentage</i>
Hispanic/Latino	15	15
Non-Hispanic/Latino	85	85
Total	100	100

Table 2. Years as a Medical Educator		
	<i>n</i>	<i>Percentage*</i>
1-5	34	34.7
6-10	23	23.5
11-15	7	7.1
16-20	7	7.1
21-25	13	13.3
26-30	6	6.1
31 or more	8	8.3
Total	98	100.1
*Total percentages may not add to 100% due to rounding		

Table 3. Faculty Medical Specialty		
Specialty	<i>n</i>	<i>Percentage*</i>
Family Medicine	18	18.9
Internal Medicine	9	9.5
Surgery	7	7.4
Pediatrics	7	7.4
Behavioral Health/Psychiatry	7	7.4
Obstetrics/Gynecology	6	6.3
Emergency Medicine	5	5.3
Anesthesiology/Pain Medicine	5	5.3
Geriatrics/Palliative Medicine	5	5.3
Oncology	3	3.2
Pharmacy	2	2.1
Biochemistry	2	2.1
Pathology	2	2.1
Other	17	17.9
Total	95	100.2

*Total percentages may not add to 100% due to rounding

Table 4. Medical Student and Resident Demographics		
Age		
	<i>n</i>	<i>Percentage*</i>
20-24	50	31
25-29	83	51.6
30-34	20	12.4
35-39	6	3.7
40 or older	2	1.2
Total	161	99.9
*Total percentages may not add to 100% due to rounding		
Sex		
	<i>n</i>	<i>Percentage</i>
Male	80	49.7
Female	81	50.3
Total	161	100
Race		
	<i>n</i>	<i>Percentage</i>
White	121	76.1
Black or African-American	7	4.4
Asian	31	19.5
American Indian or Alaskan Native	0	0
Native Hawaiian or Pacific Islander	0	0
Total	159	100
Ethnicity		
	<i>n</i>	<i>Percentage</i>
Hispanic/Latino	19	11.9
Non-Hispanic/Latino	141	88.1
Total	160	100

Table 5. Medical Student and Resident Education Level		
Education Status		
	<i>n</i>	<i>Percentage</i>
Medical Student	141	88.1
Resident	19	11.9
Total	160	100
Expected Graduation Year		
	<i>n</i>	<i>Percentage</i>
2017	35	49.3
2018	11	15.5
2019	25	35.2
2020	0	0
Total	71	100

Table 6. Medical Student and Resident Specialty or Area of Interest		
	<i>n</i>	<i>Percentage</i>
Internal Medicine	28	36.8
Surgery	16	21.1
Emergency Medicine	8	10.5
Gynecology	8	10.5
Orthopedic Surgery	7	9.2
Family Medicine	6	7.9
Psychiatry	3	4
Total	76	100

Among the faculty respondents, 61% were male, 15% were Hispanic, and 88% were white or Caucasian. The majority (58%) of the faculty respondents teach medical students and 42% teach residents. Tables 1-4 present descriptive information about medical students and faculty.

For medical student and resident respondents, 49.7% were male, 11.9% were Hispanic, 76.1% were white or Caucasian, and the majority (51.6%) were 25-29 years old. Approximately 88% of respondents were medical students, with 49.3% graduating in 2017. Tables 5 and 6 provide additional information about medical students and residents.

A majority of medical students and residents (59.5%), as well as faculty (58.1%), agree or strongly agree that more clinical time needs to be dedicated to chronic, non-cancer pain management education (Tables 7 and 8).

A majority of medical students and residents (56.8%), as well as medical school faculty (64.2%) and resident faculty (61%), reported that their associated institutions provide some level of chronic, non-cancer pain management education. The primary mode of delivery is lectures, followed by clinical scenarios (Tables 9, 10, and 11). Medical school faculty teach the subject through clinical scenarios and lectures almost equally, however resident faculty present twice as many lectures as they do clinical scenarios on the subject.

Additionally, 13.6% of faculty agreed or strongly agreed their students were competent in caring for patients with chronic, non-cancer pain. In comparison, 22.8% of residents and students agreed or strongly agreed they felt competent caring for these patients.

	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Insufficient Knowledge		Total	
	<i>n</i>	<i>Percentage</i>	<i>n</i>	<i>Percentage</i>	<i>n</i>	<i>Percentage</i>	<i>n</i>	<i>Percentage</i>	<i>n</i>	<i>Percentage</i>	<i>n</i>	<i>Percentage</i>	<i>n</i>	<i>Percentage*</i>
In general, I feel the curriculum has adequately prepared the students/residents in treating patients.	6	7.4	11	13.6	31	38.3	11	13.6	5	6.2	17	21	81	100.1
Our curriculum gave appropriate time to the regulations and legalities of chronic, non-cancer pain management, including education on proper use and utilization of Florida's prescription monitoring program.	6	7.4	19	23.5	24	29.6	9	11.1	1	1.2	22	27.1	81	99.9
Students/residents gain sufficient knowledge to be competent in caring for patients with reported chronic, non-cancer pain issues.	7	8.6	17	21	29	35.8	8	9.9	3	3.7	17	21	81	100
More time should be dedicated to clinical chronic, non-cancer pain management training.	1	1.2	2	2.5	14	17.3	22	27.2	25	30.9	17	21	81	100.1

*Total percentages may not add to 100% due to rounding

	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Insufficient Knowledge		Total	
	<i>n</i>	<i>Percentage</i>	<i>n</i>	<i>Percentage</i>	<i>n</i>	<i>Percentage</i>	<i>n</i>	<i>Percentage</i>	<i>n</i>	<i>Percentage</i>	<i>n</i>	<i>Percentage</i>	<i>n</i>	<i>Percentage*</i>
In general, I feel confident in treating patients.	1	0.7	3	2.2	56	40.9	32	23.4	27	19.7	18	13.1	137	100
The curriculum gave appropriate time to the regulations and legalities of chronic, non-cancer pain management, including education on proper utilization of Florida's prescription monitoring program.	8	5.8	32	23.3	51	37.2	17	12.4	5	3.7	24	17.5	137	99.9
I gained a sufficient amount of knowledge to be competent in caring for patients with reported chronic, non-cancer pain issues.	5	3.7	23	16.9	55	40.4	23	16.9	8	5.9	22	16.2	136	100
More time should be dedicated to clinical chronic, non-cancer pain management training.	0	0	5	3.7	36	26.5	46	33.8	35	25.7	14	10.3	136	100

*Total percentages may not add to 100% due to rounding

Table 9. Delivery of Chronic, Non-Cancer Pain Management Education According to Medical School Faculty		
	<i>n</i>	<i>Percentage*</i>
Lectures	26	78.8
Reading	14	42.4
Pamphlets	2	6.1
Clinical Scenarios	24	72.7
Other	9	27.3
*Respondents selected all methods of delivery applicable.		

Table 10. Delivery of Chronic, Non-Cancer Pain Management Education According to Resident Faculty		
	<i>n</i>	<i>Percentage*</i>
Lectures	17	85
Reading	7	35
Pamphlets	0	0
Clinical Scenarios	9	45
Other	5	25
*Respondents selected all methods of delivery applicable.		

Table 11. Delivery of Chronic, Non-Cancer Pain Management Education According to Students and Residents		
	<i>n</i>	<i>Percentage*</i>
Lectures	64	80
Reading	28	35
Pamphlets	4	5
Clinical Scenarios	35	43.8
Other	4	5
*Respondents selected all methods of delivery applicable.		

Student, Resident, and Faculty Recommendations

Survey instruments included space for suggestions on how to improve chronic, non-cancer pain management education in medical schools and residency programs. Faculty responses addressed the different stages of the pain management process, as well as the process as a whole. When a patient is first evaluated, one of the crucial components of creating a treatment plan is a thorough history and physical exam. There were suggestions that more didactic training should be presented on gathering this patient information, specifically their functional status and their psycho-social history. This is imperative for monitoring progress as it allows the physician a baseline for the patient.

To address actual treatment strategies, faculty suggested focusing on evidence-based, multimodal forms of treatment, as there was an understanding that pain patients are often very complex and the sources of pain can be multifactorial. They

emphasized nonopioid and nonpharmacologic forms of care, including addressing the psychological aspect of pain. To quote one response, “so much of effective pain management hinges on affirming patient experiences, promoting self-empowerment, and providing relief from the sense of hopelessness that chronic pain often foments.” Some believed it would be advantageous to use workshops with multidisciplinary lecturers, such as pharmacists, nurses, lawyers, or pain specialists. Online modules were suggested at the medical school level, as well as clinical cases and scenarios at both medical school and resident levels. Additionally, there was a push for more clinical experience for 3rd and 4th year medical students in their rotations. For example, some suggested offering a rotation through a pain management clinic or a rehabilitation facility would be appropriate. This would allow students to see the real life complexity of many pain patients first hand. Another suggestion was to provide residents with

“cheat sheets” of appropriate pain management treatments for common chronic pain conditions.

A recurring theme throughout chronic, non-cancer pain management is proper communication not only between the physician and the patient, but among members of the treatment team (e.g., physicians, pharmacists, nurses, and others). Florida’s prescription drug monitoring program, E-FORCSE, was repeatedly referenced. Some faculty suggest a tutorial with the program for both students and residents, while others specified it should be taught to residents. It is believed that utilization of this PDMP will allow an increased level of interdisciplinary communication. There were also multiple suggestions to teach future physicians to monitor patients through regular follow-up visits. It was advised to track progress through some evidence-based tool. There was a push to include drug diversion and abuse mitigation strategies in lectures. One response pointed out that students needed to understand the difference between dependence and addiction. Lastly, faculty repeatedly referred to teaching from the guidelines recently released by the CDC on prescribing opioids for chronic pain.

Student and resident suggestions strikingly mirrored those of the faculty. There was an overall request for more education, specifically in the forms of lectures, online modules, workshops, and clinical scenarios. As with the faculty, multiple responses suggested pain clinic rotations and more standardized patient type of encounters. Another parallel to faculty suggestions was to have online modules. One student suggested having “a short, fun, and concise online educational video series with a short questionnaire at the end for first year medical students to get initial exposure without being overwhelming.” This leads to the question of the right time for pain management education. Some students and residents did not believe it was necessary until residency, some not until rotations and clerkships, and others thought it should be taught year one of medical school. The faculty responses dealing with the proper time for pain management education also varied.

DISCUSSION

Licensing Exams

Proper education on pain management is necessary to prepare physicians to pass medical licensing exams. All United States Medical Licensing Examination (USMLE) Step exams include the topics of somatoform pain disorder, neurologic pain disorders (e.g., fibromyalgia, postherpetic neuralgia, and trigeminal neuralgia), myofascial pain syndrome, and low back pain, among others (USMLE, 2016). The National Board of Medical Examiners (NBME) exams also include exam topics relevant to proper pain education. For example, within the neuroscience

section of the NBME exam, 1%-5% of questions cover principles of therapies (National Board of Medical Examiners, 2016). The fact that these topics are on the licensing exams emphasizes the need for adequate coverage in medical education.

Competencies

The Accreditation Council for Graduate Medical Education (ACGME) has adopted a standardized set of six core competencies that every accredited residency program must cover: patient care, medical knowledge, practice-based learning and improvement, interpersonal communication skills, professionalism, and systems-based practice. Depending on the residency program specialty, milestones have been created to assess resident performance within these six core competencies. These milestones are considered a “framework” and do not “represent the entirety of the dimensions of the six domains of physician competency” (Accreditation Council for Graduate Medical Education [ACGME], 2015b). These milestones are not specific to any disease, rather, they are all encompassing qualities and practices that a passing evaluation will require.

The internal medicine milestones, for example, do not specify dealing with any form of pain management, per se, but they do include generalized practices necessary to provide proper treatment. One milestone is: “works effectively within an interprofessional team (e.g., peers, consultants, nursing, ancillary professionals and other support personnel)” (ACGME, 2015b). For this milestone, a resident considered ready for unsupervised practice “actively engages in team meetings and collaborative decision-making” (ACGME, 2015b). This aligns with the recommendation to utilize multimodal therapies (Dowell et al., 2016) as well as the idea that interdisciplinary rehabilitation is effective in the treatment of chronic pain patients (Kurlinsky, Perez, Lacayo, & Sletten, 2016).

Family medicine residencies including a milestone on chronic conditions is another example of an alignment with appropriate practices. One evaluation under this milestone is the level at which a resident “engages the patient in the self-management of his or her chronic condition” (ACGME, 2015a). It is fundamental to educate providers on the self-management of chronic pain (Institute of Medicine of the National Academies, 2011), considering these patients are living with pain that often will never completely be alleviated.

Most Florida medical schools also follow the ACGME core competencies, or some variation of them (Florida State University [FSU] College of Medicine, 2016; Florida Atlantic University [FAU] Charles E. Schmidt College of Medicine, 2016; University of Central Florida [UCF] College of Medicine, 2016; University of Florida [UF] College

of Medicine, 2016; Florida International University [FIU] Herbert Wertheim College of Medicine, 2016; University of South Florida [USF], 2013). Two Florida schools varied slightly from the ACGME competencies by breaking them down and elaborating on them. Similar to a residency program, the medical schools have developed their own milestone equivalents within these core competencies. These milestones also are not specific to any disease, but are generalized practices and qualities that the schools expect from students.

Other influences exist in medical school curricula. In 1998, the AAMC released the Medical School Objective Project to “reach general consensus within the medical education community on the skills, attitudes, and knowledge that graduating medical students should possess” (Association of American Medical Colleges, 2016). In Florida, only the University of Central Florida (UCF) College of Medicine and the University of Florida (UF) College of Medicine have included this as an influence on their websites. These, too, are general guidelines and not specific to any particular disease. Some schools specify the treatment of chronic conditions within the curriculum, such as the Florida State University (FSU) College of Medicine. One of FSU’s objectives within the competencies is to “recognize the scientific basis of health, disease, and medicine in the management of common, chronic and high impact medical conditions” (FSU College of Medicine, 2016). The UCF College of Medicine and the Florida International University (FIU) Herbert Wertheim College of Medicine also specify the management of chronic conditions within their competencies (UCF College of Medicine, 2016b; FIU Herbert Wertheim College of Medicine, 2015). In addition to their competencies, the UCF College of Medicine presents “Longitudinal Curricular Themes,” including a section on “Geriatrics and Principles of Palliative Care.” Whereas there is some overlap between palliative care and chronic, non-cancer pain management, the two have separate management plans. Nonetheless, one goal that may overlap is to “discuss the etiology of pain and the diagnostic and therapeutic strategies for evaluation and management of pain” (UCF College of Medicine, 2016a).

In 2015, the Medical Education Working Group (composed of the four Massachusetts medical school deans, with leadership from the Massachusetts Department of Public Health and the Massachusetts Medical Society) co-developed ten core competencies for the prevention and management of prescription drug misuse (Massachusetts Department of Public Health, 2015). The Group perceived that, although the four Massachusetts medical schools taught components of prescription drug management and misuse prevention, there was no consistency from school to school (Antman et al., 2016). These

ten competencies have already been implemented in the four Massachusetts medical schools. The Group suggests that its next step is establishing these competencies in residency programs.

Florida medical schools and residency programs provide education on chronic, non-cancer pain management. Still, they educate from broad competencies that are inconsistent from school to school and program to program when it comes to specifics. Consistency in pain management education, such as achieved in Massachusetts, could greatly benefit Florida’s medical education programs.

To aid Florida medical educators, the authors created a PowerPoint model presentation containing many of the survey respondents’ suggestions. For example, the CDC guidelines and recommendations are a prominent part of the slide set (Dowell et al., 2016). The “Pain average, interference with Enjoyment of life and General activity” (PEG) scale for monitoring progress that the CDC referenced, as well as the “cheat sheets” that CDC has created for common chronic pain sources, are featured in the presentation. Also, some of the legal issues involved are covered as well as an overview of Florida’s E-FORCSE program. The model presentation is by no means comprehensive, but rather is offered for educators to use as a foundation, and possibly fit into a lecture series as faculty at any particular medical school deems appropriate. The presentation is adaptable for use in other states and is available to educators upon request.

Limitations

We distributed this survey to students and residents in all years of training. Thus, any pain management education that occurs at an institution which a survey respondent had yet to receive would not be accounted for. This may have produced skewed results.

In addition, not enough specialties were given as options for student and resident respondents. An “other” option might have been appropriate. Also, the survey failed to assess how often institutions requested student and resident feedback regarding the teaching of pain management.

Lastly, self-report bias may be present in this study. This could lead students, residents, and faculty to respond to questions in a way they feel is more positive for their institution than the facts support.

IMPLICATIONS FOR PRACTICE

Florida’s medical schools and residency programs have room to improve in teaching their students and residents about chronic, non-cancer pain management. A large percentage of faculty, students, and residents in Florida medical schools do not feel that their education equips them with a sufficient level of competence to treat patients with chronic, non-cancer pain. In addition to standard lectures,

including more clinical time (e.g., clinical scenarios and standardized patients), online modules, and material on the legalities of prescribing opioids could help medical students and residents become more confident in treating these patients. There is also evidence that increased communication between institutions and standardizing competencies related to pain management may prove beneficial.

Lastly, medical education does not end after residency. For physicians, especially those in primary care, continuing medical education (CME) specific to pain management and proper opioid prescribing is recommended (Institute of Medicine of the National Academies, 2011). Florida physicians are required to have at least 40 CME credits every two years (Florida Board of Medicine, 2016). Through the Substance Abuse and Mental Health Services Administration (SAMHSA), physicians can take advantage of federally funded programs to obtain education in prescribing opioids. Through these programs, every generation of physician can manage pain with the newest guidelines and recommendations. According to the survey results presented here, some students believed that while proper pain management treatments may be known, there is a culture of using opioids as a first-line treatment that may prove to be an obstacle for appropriate treatment. Continuing education may lead to a change in the culture surrounding opioid prescribing.

Acknowledgements

This project was supported by the Charles R. Mathews Scholarship for Geriatrics Education and Research through the Florida State University Department of Geriatrics.

REFERENCES

American Academy of Family Physicians. (2015). Recommended curriculum guidelines for family medicine residents chronic pain management. Retrieved from http://www.aafp.org/dam/AAFP/documents/medical_education_residency/program_directors/Reprint286_Pain.pdf.

Antman, K.H., Berman, H.A., Flotte, T.R., Flier, J., Dimitri, D.M., & Bharel, M. (2016). Developing core competencies for the prevention and management of prescription drug misuse: A medical education collaboration in Massachusetts. *Academic Medicine*, 91(10), 1348-1351. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/?otool=fsu&term=antman+berman+massachusetts&search=Search>.

Association of American Medical Colleges. (2016, March 29). Statement on Addressing the Opioid Epidemic [Letter]. Retrieved from <https://www.aamc.org/download/457660/data/aamcstatementonaddressingtheopioidepidemic.pdf>.

Association of American Medical Colleges. (2016). Medical school objectives project (MSOP). Retrieved from <https://www.aamc.org/initiatives/msop/>.

Centers for Disease Control and Prevention. (2016). Drug overdose deaths in the United States hit record numbers in 2014. Retrieved from <https://www.cdc.gov/drugoverdose/epidemic/>.

Dowell, D., Haegerich, T.M., & Chou, R. (2016). CDC guideline for prescribing opioids for chronic pain – United States, 2016. *Morbidity and Mortality Weekly Report*, 65(1), 1-49. Retrieved from <http://www.cdc.gov/mmwr/volumes/65/rr/rr6501e1.htm>.

Florida Atlantic University Charles E. Schmidt College of Medicine. (2016). General competencies and educational programs. Retrieved from http://med.fau.edu/pdfs/Competencies_FAU_COM.pdf.

Florida Board of Medicine. (2016). Medical doctor – unrestricted. Retrieved from <http://flboardofmedicine.gov/renewals/medical-doctor-unrestricted/>.

Florida International University Herbert Wertheim College of Medicine. (2016). MD curriculum educational program objectives. Retrieved from http://medicine.fiu.edu/assets/docs/educational_program_objectives.pdf.

Florida International University Herbert Wertheim College of Medicine. (2015). Medical student handbook 2015-2016. Retrieved from <http://medicine.fiu.edu/handbook/handbook.pdf>.

Florida State University College of Medicine. (2016). Educational program objectives. Retrieved from <http://med.fsu.edu/index.cfm?page=medicalEducation.institComp>.

Gloth, F.M. III. (2001). Pain management in older adults: Prevention and treatment. *Journal of the American Geriatrics Society*, 49(2), 188-199.

Institute of Medicine of the National Academies. (2011). Relieving pain in America: A blueprint for transforming prevention, care, education, and research. Retrieved from <https://www.nationalacademies.org/hmd/~media/Files/Report%20Files/2011/Relieving-Pain-in-America-A-Blueprint-for-Transforming-Prevention-Care-Education-Research/Pain%20Research%202011%20Report%20Brief.pdf>.

Johnson, H., Paulozzi, L., Porucznik, C., Mack, K., & Herter, B. (2014). Decline in drug overdose deaths after state policy changes – Florida, 2010–2012. *Morbidity and Mortality Weekly Report*, 63, 557-577. Retrieved from <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6326a3.htm#Tab2>.

Kurlinsky, S., Perez, R.B., Lacayo, E.R., & Sletten, C.D. (2016). The efficacy of interdisciplinary rehabilitation for improving function in people with

chronic pain. *Pain Research and Treatment*, 26, 7217684. Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4875999/>.

Luthra, S. (2016). Opioid epidemic fueling hospitalizations, hospital costs. *Health News Florida*. Available from <http://health.wusf.usf.edu/post/opioid-epidemic-fueling-hospitalizations-hospital-costs#stream/0>.

Massachusetts Department of Public Health. (2015). Medical education core competencies for the prevention and management of prescription drug misuse. Retrieved from <http://www.mass.gov/eohhs/docs/dph/stop-addiction/governors-medical-education-working-group-core-competencies.pdf>.

Medical Daily. (2016). Florida's pill mill laws hope to address state's opioid epidemic by cutting down on pain medication prescriptions. Retrieved from <http://www.medicaldaily.com/opioid-epidemic-pain-medication-pill-mill-388549>.

National Board of Medical Examiners. (2016). Subject examinations content outlines and sample items. Retrieved from http://www.nbme.org/pdf/SubjectExams/SE_ContentOutlineandSampleItems.pdf.

O'Rorke, J.E., Chen, I., Genao, I., Panda, M., & Cykert, S. (2007). Physicians' comfort in caring for patients with chronic nonmalignant pain. *American Journal of the Medical Sciences*, 333(2), 93-100.

Reynolds, J., Gunderson, J., & Bamford, M. (2015). Florida's aging population: Critical issues for Florida's future. *Pepper Institute on Aging and Public Policy*. Retrieved from <http://pepperinstitute.fsu.edu/content/download/215348/1843848>.

Rutkow, L., Chang, H.Y., Daubresse, M., Webster, D.W., Stuart, E.A., & Alexander, G.C. (2015). Effect of Florida's prescription drug monitoring program and pill mill laws on opioid prescribing and use. *JAMA*, 175(10), 1642-1649.

Stewart, A.L., Greenfield, S., Hays, R.D., Wells, K., Rogers, W.H., Berry, S.D., McGlynn, E.A., & Ware, J.E. Jr. (1989) Functional status and well-being of patients with chronic conditions: Results from the medical outcomes study. *JAMA*, 262(7), 907-913.

The Accreditation Council for Graduate Medical Education. (2015a). The family medicine milestone project. Retrieved from <https://www.acgme.org/Portals/0/PDFs/Milestones/FamilyMedicineMilestones.pdf>.

The Accreditation Council for Graduate Medical Education. (2015b). The internal medicine milestone project. Retrieved from <http://www.acgme.org/portals/0/pdfs/milestones/internalmedicinemilestones.pdf>.

The Guardian. (2016). How cracking down on America's painkiller capital led to a heroin crisis.

Retrieved from <https://www.theguardian.com/science/2016/may/25/opioid-epidemic-prescription-painkillers-heroin-addiction>.

U.S. Census Bureau. (2015). QuickFacts Florida. Retrieved from <http://www.census.gov/quickfacts/table/PST045215/12>.

U.S. Drug Enforcement Administration. (2011). DEA-led operation pill nation targets rogue pain clinics in South Florida. Retrieved from <https://www.dea.gov/divisions/mia/2011/mia022411.shtml>.

USMLE. (2016). USMLE Content Outline. Retrieved from <http://www.usmle.org/pdfs/usmlecontentoutline.pdf>.

University of Central Florida College of Medicine. (2016a). Longitudinal curricular themes. Retrieved from <https://med.ucf.edu/academics/md-program/longitudinal-curricular-themes/>.

University of Central Florida College of Medicine. (2016b). Program objectives. Retrieved from: <https://med.ucf.edu/academics/md-program/program-objectives/>.

University of Florida College of Medicine. (2016). Medical education program curriculum overview. Retrieved from <https://oea.sites.medinfo.ufl.edu/files/2016/03/Medical-Education-Program-Curriculum-Overview.pdf>.

University of South Florida, Health. (2013). MD core program objectives. Retrieved from <http://health.usf.edu/medicine/mdprogram/core/objectives.htm>.

Wyndham A. Bonett (corresponding author) is a second-year medical student at the Florida State University College of Medicine, Tallahassee, FL. Email at wab11@med.fsu.edu. Katherine Perdomo is a JD candidate at the Florida State University College of Law, Tallahassee, FL. Email at kp09k@my.fsu.edu. Suzanne C. Baker is Research Program Director, Department of Geriatrics, Florida State University College of Medicine, Tallahassee, FL. Email at suzanne.baker@med.fsu.edu. Marshall B. Kapp is Director, Center for Innovative Collaboration in Medicine and Law Florida State University College of Medicine and College of Law, Tallahassee, FL. Email at marshall.kapp@med.fsu.edu. Copyright 2017 by the *Florida Public Health Review*.