Prescribers have played an important role in the development of the opioid epidemic. Efforts to reduce the oversupply of prescription opioids are underway in the form of guidelines and legislation. Such efforts must be part of a larger public health approach that supports best practices and access to addiction treatment.

There is universal agreement that prescribers have played an important role in the development of the opioid epidemic that plagues North Carolina and the nation by overprescribing opioid medications. Though overdoses increasingly include heroin, fentanyl, and fentanyl analogues, and heroin is increasingly credited as the initiating opioid, prescribing continues to be a factor [1, 2]. As a whole, the medical community was slow to address the issue in a unified, aggressive way and, as a result, federal and state agencies as well as legislatures have moved forward with policies to limit access to prescribed opioids in an effort to reduce overdoses.

Several factors have contributed to the overreliance on opioids for the treatment of chronic pain. Starting in the late 1980s, the medical establishment came under criticism from patient advocacy and other groups for undertreating both malignant and non-malignant pain. Pain became a 5th vital sign and until 2017, Medicare structured reimbursement to hospitals in part on how thoroughly pain was eliminated [3]. As a result, opioid medications were heavily prescribed, and physicians were incentivized to utilize them.

Concurrently, new opioid formulations were developed and aggressively marketed to prescribers. Industry funded, low-quality research fueled the misperception that when taken for pain, these medications had little addiction potential [4, 5]. More recently opioid distributors, regulators, and lawmakers have all been denounced for their role in flooding the community with opioid medications [6].

As prescriptions increased, so did overdose (OD) deaths. Between 1999 and 2016 in North Carolina, commonly prescribed opioid medications were a factor (respectively) in 70 and 620 unintentional poisoning deaths, an almost 9-fold increase [7]. In the same time period, prescription and illicit opioid deaths increased even more dramatically, particularly between 2010 and 2016, due to illicit opioids (see Figure 1) [8]. Prescribers have been rightly implicated in the development of the problem and there have been a multitude of strategies to alter prescribing rates, volumes, and dosages. Several parameters have shown improvement (patients receiving greater than 90 morphine milligram equivalents, patients using multiple pharmacies and prescribers) [9, 10], but the decrease has not come without consequences.

Predictably, there has been backlash that patients with clearly legitimate pain conditions no longer have access to the medications that enable them to function and lead productive lives as a significant number of prescribers abruptly discontinued prescribing and/or discharged patients. In addition, as access has been squeezed, increased use of illegal—and more accessible and affordable—substances such as heroin and fentanyl have dramatically increased. These illicit substances are proving less predictable, more powerful, and thus more dangerous.

Acute Pain

Though initiatives addressing opioid overuse have focused on non-malignant chronic pain, prescribers of opioids for acute pain play an important role in the prevention of downstream opioid misuse. Acute pain, defined as pain lasting less than 3 to 6 months, includes most injuries and post-surgical pain. The pain is protective in nature and usually resolves as the injury heals. In many situations, non-opioid medications are overlooked in favor of opioids, which have commonly been prescribed in unnecessarily high doses and amounts. This overreliance extends across virtually all medical and dental settings. Clearly, patients prescribed these medications are at increased risk of developing dependence and addiction. Research indicates a strong association between post-surgical opioid prescriptions and opioid misuse, with risk increasing with each refill [11, 12]. These practices also lead to large amounts of unused medicines in homes and communities that end up in the hands of friends, families, and others. Specialty groups and departments are acknowledging and addressing the issue of overprescribing.
At UNC Health Care, for example, the Enhanced Recovery After Surgery initiative minimizes the role of intraoperative and post-operative opioids. At Duke University Hospital, a perioperative pain clinic focuses on aggressive management of opioids before and after surgery, leading to reductions in chronic opioid exposure and use.

**Chronic Pain**

Non-malignant chronic pain is the focus of most efforts to stem the epidemic. Chronic pain is highly prevalent and is often complicated as it can be a symptom of a specific condition, but also a separate disease unto itself. It is defined as pain that does not resolve in 3 to 6 months, continues after the injury or illness has resolved, and has no protective function. First-line treatment generally consists of non-opioid pharmacology and other modalities such as physical therapy and counseling. Opioids may be considered for patients who have not achieved acceptable pain relief or improved function with an adequate trial of non-opioid first-line agents, and only if benefits outweigh risks. Improved function rather than pain level is the desired end point.

A brief review of the 3 types of pain will be helpful as the role of opioids varies between categories.

**Different Strategies for Different Types of Pain**

Nociceptive pain arises from damage of somatic tissue due to trauma or inflammation and opioids play a role in the acute phase of treatment, but a very limited role thereafter. Cochrane reviews have shown the combination of 200 mg ibuprofen/500 mg acetaminophen is one of the strongest pain reliever combinations available, more effective than low-dose opioids alone for chronic pain conditions such as back pain [13, 14]. Other studies indicate no major difference between opioid and non-opioid approaches [15]. In terms of OD risk, however, the safety profile is stronger for non-opioids and atypical opioid agents, the latter including tapentadol and buprenorphine (Belbuca or Butrans). Though name brand, Belbuca is currently covered by NC Medicaid. Due to their safety, there is building pressure to make this group of opioids more available, and they should be considered for use whenever possible.

Neuropathic pain arises from damaged or dysfunctional nerve fibers. It includes nerve damage due to any type of compression, diabetes, chemotherapy, multiple sclerosis, and other conditions. First-line treatment includes anticonvulsants, antidepressants, and treatment of the underlying disorder.

Hypersensitivity or central sensitization is pain undergoing enhanced reception without identifiable nerve or tissue damage. This results from pain itself modifying the central nervous system’s response to pain and touch. It is common in a variety of conditions (eg, fibromyalgia, irritable bowel syndrome, chronic tension headache), but can occur with any chronic pain condition. Treatment includes antidepres-
sants, anticonvulsants, and cognitive behavioral therapy.

Non-pharmacologic interventions like physical therapy, cognitive behavioral therapy, biofeedback, and yoga are especially important in the treatment of neuropathic and hypersensitivity pain. In the most difficult cases, when there is inadequate response to non-opioid treatments, a trial of opioids may be considered. It should be remembered that pain can actually be increased through the use of opioids, as with opioid-induced hyperalgesia.

**Opioid Prescribing Guidelines/Policy**

The Centers for Disease Control issued the CDC Guidelines for Prescription Opioids for Chronic Pain in July 2016 and it became the guiding document for many state boards. The guidelines cover when to initiate or continue opioids; opioid selection, dosage, duration, follow-up, and discontinuation; and assessing risk and addressing harms. Prominent elements include risk assessment/stratification, treatment agreements, Controlled Substance Reporting System (CSRS) usage, functional improvement as treatment outcome, monitoring, naloxone co-prescribing, and identification and referral for suspected substance use disorder (SUD) [16].

The North Carolina Medical Board (NCMB) adopted the CDC guidelines in January 2017. Other professional boards in North Carolina similarly adapted their guidelines to line up with the NCMB and CDC. The NCMB also has an oversight function and has been actively providing resources, guidance, and statewide training on the guidelines and the prescribing expectations of the Board [17].
DHHS has been actively addressing the problem in a number of ways, most recently via the North Carolina Opioid Action Plan developed by the Opioid Prescription Drug Abuse Advisory Committee [18]. Two additional opioid prescribing initiatives in North Carolina include the Medicaid Prescription Narcotic Lock-In Program and the Strengthen Opioid Misuse Prevention (STOP) Act passed in early 2017. The STOP Act addresses prescribing of Schedule II and III opioids and narcotics and puts into place several measures to increase safety. Among the stipulations, which continue to be phased in, are mandatory use of the CSRS, electronic prescribing, limitations on prescriptions for acute pain, and timelier dispenser reporting [17].

These and other guidelines and legislation are conscientious attempts to provide safety measures for prescribers, and hence, patients. They lay out what is considered best practice and have gotten the attention of those prescribers who continued to use opioids less carefully. Operationalizing the guidelines is less straightforward. The major obstacle cited by prescribers is lack of time. Performing an adequate assessment, establishing treatment agreements, checking the CSRS, performing urine drug screens for ongoing monitoring, and coordinating with other doctors identified by the CSRS all take time. Many primary care practices in North Carolina are small and staffing is inadequate to assist with these activities. In addition, some physicians see opioids
as the primary tool in their pain toolbox. Insurance coverage for alternative therapies like physical therapy, yoga, and counseling is often inadequate, and many communities lack those services. Further, many prescribers are not equipped to handle complex patients who have SUD and/or mental health (and other) comorbidities and have difficulty referring as the expertise does not exist in their communities. There is also stigma and considerable—though unfounded—pessimism about the effectiveness of SUD treatment, even when those resources are available.

Not surprisingly, this is fertile ground for unintended consequences. The NCMB receives complaints regularly about patients being abruptly discharged or having their opioids precipitously reduced. Some physicians have even decided to not prescribe opioids at all. As a result, patients have lost access and present to new practitioners with complicated behavioral health comorbidity, on high doses and/or on other controlled (and/or illicit) substances, especially benzodiazepines. As access to prescription opioids has become harder, more patients seek relief on the street, accessing both prescription opioids and much deadlier illicit opioids.

Another issue is that the evidence base for many of the risk assessment and mitigation strategies is lacking [19]. This includes what many consider arbitrary dosage units and schedules [20, 21] and lack of clarity about the relative efficacy of opioids. A 2017 paper by Tayeb et al makes the case that opioid efficacy trials are being held to a different standard. Non-opioid pharmacology and behavioral interventions, if considered with the same criteria, show no greater efficacy than opioids. It also suggests that the significant morbidity and mortality from non-opioid pain relievers has not been considered fully [15]. This in no way lessens the urgency of safer prescribing but does reflect the lack of scientific rigor of some of the recommendations.

Prescriber Role

Prescribers played a prominent role in the development of the opioid epidemic and they are a critical part of a larger public health response. Though prescribing metrics are improving, rates vary greatly between counties (ranging from 35 to over 150 pills dispensed per person per year) [22] and there are increased deaths in counties with high rates (see Figure 2) [23], speaking to the need for further outreach and training, but also perhaps the need for resources that are generally scarce in rural counties. Mundkur et al caution against relying too heavily on restricting the prescription opioid supply, especially in the context of the growing dangers of substitution with illicit opioids [20]. Attention to
dosage units and volume must not distract from more comprehensive public health approaches which include supporting best practices and expanding access to SUD treatment.

There are steps virtually all clinicians can take. Screening tools for behavioral health comorbidities require minimal practitioner time and boost the effectiveness of chronic disease management. Establishing realistic goals, targeting function and not pain, and putting parameters in place that keep patients and prescribers safe takes time, but these discussions early in treatment can result in a much healthier, more satisfying, and more productive doctor-patient relationship. Monitoring functions can be delegated, as can patient education on safe storage and disposal. Co-prescribing naloxone when opioids are prescribed is not labor or time intensive.

Prescribers can also advocate for tools and systems (including payment systems) that support more optimal pain care as well as increased high-quality prevention, early identification, and SUD treatment services. The medical community can and must more aggressively address this public health crisis.

Sara McCWen, MD, MPH executive director, Governor’s Institute, Raleigh, North Carolina.

Steven Prakken, MD assistant professor in anesthesiology, director of Medical Pain Service, Duke University School of Medicine, Durham, North Carolina.

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