Table 2

*Themes Detailing the Barriers, Facilitators, and Related Factors for NPs’ Opioid Management*

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| **Study,****sample, and setting** | **Level of the Evidence** | **Themes detailing the Barriers, Facilitators, and Related Factors for NPs’ Opioid Management** |
| **Nurse practitioner education** | **Patient subjectivity and patient education** | **Systemic change****and alternative treatment access** | **Interprofessional collaboration**  | **Nurse practitioner prescriptive authority** | **Practice environment** |
| **Andrilla et al. (2020)**498 NPs and 116 PAsTotal (N=614)Seattle, WA | **Level of Evidence:** Level Ⅲ(Dang & Dearholt, 2017)**Evidence Quality: Good** |  |  | Barriers to incorporating buprenorphine treatment involving prescription experience[Never prescribed vs Previously prescribed]* Resistance from practice partners (*p<*0.0001)
* Clinic policies (*p<*0.0001)
 | Barriers to incorporating buprenorphine treatment involving rural location* Lack of specialized backup for complex problems (*p*<0.05)
* Lack of mental health or psychosocial support services (*p*<0.05)

Barriers to incorporating buprenorphine treatment involving prescription experience[Never prescribed vs Previously prescribed]* Lack of physician support or collaboration (*p<*0.0001)

More NPs practicing in less restricted practice states than restricted practice identified lack of specialty backup as a barrier (*p=.0074*)Comparing rural and urban respondents, more rural NPs and PAs reported resistance from their practice partners than urban NPs and physicians. (*p=.0195*) |  |  |
| **Craig-Rodriguez et al. (2017)**1511 APRNsTotal (N=1511)Florida State | **Level of Evidence:** Level Ⅲ(Dang & Dearholt, 2017)**Evidence Quality: Good** | Barriers to prescribing opioids* Poor educational preparation for prescribing controlled substances
* Significantly lower knowledge and confidence in NPs lacking previous training in opioid prescription or lacking DEA registration
 |  |  |  | Barriers to prescribing opioids* NPs could not prescribe opioids prior to implementation of schedule Ⅱ-Ⅳ prescriptive authority
* NPs still lack this prescriptive authority in some states
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|  **Franklin et al. (2013)** 425 (39% of total) APRNsand Physicians Total (N=856)Washington State | **Level of Evidence:** Level Ⅲ(Dang & Dearholt, 2017)**Evidence Quality: High** | Facilitators for opioid management* Affiliation with a healthcare organization providing opioid prescription guidelines and access to pain consultation
* Provision of web-based continuing medical education training
 |  |  | Facilitators for opioid management* Availability of innovative consultation or assistance methods such as telephone or video consultations with experts
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| **Mack (2018)**25 APRN Total (N=25)Oklahoma State | **Level of Evidence:** Level Ⅲ(Dang & Dearholt, 2017)**Evidence Quality: Good** |  |  | Facilitators for managing pain after upscheduling of HCMs.* Availability of alternative therapies such as complementary medicine and interventional medicine

Barriers to alternative treatment* Authority (Referring a patient to physical therapy requires a signature from the APRNs’ collaborating physician)
 | Facilitators for managing pain after upscheduling of HCMs.* Having on-site physicians in states with restricted NP authority
 | Facilitators for NPs’ opioid prescription * Advanced NP authority would increase patient access to care and decrease healthcare costs.

Barriers for managing pain * FDA’s upscheduling of hydrocodone prevented NPs from prescribing it under their state authority
* Upscheduling resulted in limited options for pain treatment, more referrals to pain management specialists, increased healthcare costs
* Upscheduling limited the number of providers who provided most primary healthcare for patients
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| **Mazurenko et al. (2020)**2 NPsand PhysiciansTotal (N=23) The US Midwestern | **Level of Evidence:** Level Ⅲ(Dang & Dearholt, 2017)**Evidence Quality: Good** | Facilitators for managing opioids* Educating medical staff about appropriate opioid prescription practices, particularly for patients with complex chronic conditions
 | Facilitators for managing opioids* Educating patients about negative consequences of long-term opioid use and setting realistic pain expectations
 | Facilitators for managing opioids* Strengthening hospital leadership efforts to decrease inappropriate opioid use
* Consistently checking the state prescription drug monitoring program to prevent inappropriate opioid prescription for non-surgical inpatients
 |  |  | Barriers tomanaging opioids* Hospitals contributing to opioid epidemic
* For example, emergency department staff are challenged to identify the degree of patient pain, lack established patient relationships, and have severe time constraints
* Pre-populated pain care orders for surgical patients result in opioid overprescription
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| **Merlin et al. (2019)**24 NPs and Physicians Total (N=157) The US | **Level of Evidence:** Level Ⅲ(Dang & Dearholt, 2017)**Evidence Quality: Good** |  | Barriers for managing opioids* Patients’ perceived stigma about opioid use and low health literacy; time constraints in clinics
 | Barriers for managing opioids* Lack of insurance reimbursements for nonpharmacologic therapies for pain
* Palliative care providers’ lack of systems based approaches and training addiction treatment
 | Factors for managing opioids for cancer survivors with chronic pain prescribed long-term opioid therapy* Access to providers with expertise complementary to palliative care and a team-based approach to caring for patients within the palliative practice

Barriers for managing opioids for cancer survivors with chronic pain prescribed long-term opioid therapy* Lack of access to providers with complementary expertise
* Concerning attitudes toward complementary expertise providers toward patients
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| **Nikpour et al. (2021)**128 NPsTotal (N=128)The US | **Level of Evidence:** Level Ⅲ(Dang & Dearholt, 2017)**Evidence Quality: High** | Factors impact on managing chronic pain * MSN prepared NP were significantly likely to report finding it difficult to manage pain most or all of the time compared to DNP prepared NPs.
* Education level was significantly associate with NPs’ feeling prepared.
 | Barriers for managing chronic pain * Patients’ unwillingness to use nonpharmacologic strategies associated with referring patient acupuncture, chiropractic care, and massage.
 | Barriers for managing chronic pain * Low access to nonpharmacologic methods of pain care
* Low insurance coverage
 |  | Barriers for managing chronic pain * Authority by states limit their state practice environment

Facilitators for managing chronic pain * NPs with full practice authority were less likely to report being inhibited by prescriptive authority laws than those without such authority (*p* =.06)
 | Factors impact on managing chronic pain* NPs who treated patients younger than 65 only were significantly likely to use acupuncture than NPs who treat patients 65 and older.
* NPs in specialty care settings were significantly more likely to use opioids than primary care NPs.
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| **Spitz et al. (2011)**3 NPsand PhysiciansTotal (N=26)New York City, NY | **Level of Evidence:** Level Ⅲ(Dang & Dearholt, 2017)**Evidence Quality: Good** | Facilitators for opioid prescription* Provider and Patient education

Barriers for opioid management* Provider level barriers of lack of education in main management
 | Facilitators for opioid prescription* Provider and Patient education

Barriers for opioid management* Provider level barriers of Subjectivity of pain
* Patient/ family member reluctance to try opioid and concerns about opioid abuse by family members/caregivers.
 | Facilitators for opioid prescription* Studies, demonstrating long-term benefit
* Validated tools for assessing risk or dosing for comorbidities
* Improved conversion methods
 | Facilitators for opioid prescription * Peer support
 | Barriers for opioid prescription* Concern about regulatory and or legal sanctions (all NPs)
 | Facilitators for opioid prescription* 73% of physicians and NPs reported being much more comfortable prescribing opioids to patients receiving palliative or hospice care as compared to patients receiving treatment for chronic pain.
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| **St Marie, B. (2016)**20 APRN Total (N=20)The US | **Level of Evidence:** Level Ⅲ(Dang & Dearholt, 2017)**Evidence Quality: Good** | Factors impact on managing chronic pain* Educating colleagues in healthcare on this care
 | Facilitators for managing chronic pain * Educating patients and guiding them through the process of behavior change.
* Applying risk strategies to keep their patients safe.

Barriers for managing chronic pain * Patient preference to take medications rather than nonmedical interventions.
 | Barriers for managing chronic pain * Difficulty to accessing nonmedical modalities for managing pain
* Insurance coverage
* Geographic access to providers of nonmedical modalities,
 | Barriers for managing chronic pain * Shifting patient to APRN, made them felt uncomfortable with little support
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