Table 1

*Review of the Literature about Barriers and Facilitators for NPs’ Management of Chronic Pain*

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| **Studies exploring Barriers and Facilitators for NPs’ management of chronic pain** |
| **Author (Year)****Title** | **Purpose****Research Design** | **Sample****Characteristic,****Setting** | **Sample selection,** **Inclusion & Exclusion Criteria** | **Barriers & Facilitators** | **Conclusions** | **Level of the Evidence** |
| **Andrilla et al. (2020)**Prescribing practices of NPs and PAs waivered to prescribe buprenorphine and the barriers they experience prescribing buprenorphine | **Objectives** To describe the buprenorphine prescribing practices of NPs and PAs and compare the barriers rural and urban provider face delivering treatment **Design:** Nonexperimental  | **Sample** * NPs and PAs (N=1057)
* Of in scope, 614 providers (NPs: N=498; PAs: N=116) responded to yield a 46.3% response rate overall (NPs= 46.6%; PAs= 45.1%)

**Setting*** Seattle (Washington)
 | **Sample selection*** Among all rural NPs and PAs using the October 2018 DEA list of providers with a waiver to prescribe buprenorphine, a random sample of 500 urban NPs and PAs were surveyed
 | **Barriers*** The most common barrier, cited by half of providers, was concerns about diversion and medication misuse

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)
* Lack of physician support or collaboration (*p<*0.0001)
* Comparing rural and urban respondents, more rural NPs and PAs reported resistance from their practice partners than urban NPs and physicians. (*p=.0195*)

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)

More NPs practicing in less restricted practice states than restricted practice identified lack of specialty backup as a barrier (*p=.0074*) | * Of the waivered NPs and PAs, 80.3% reported having prescribed buprenorphine and 71.1% said they are currently accepting new patients with opioid use disorder
* NPs and PAs face many of the same barriers to providing buprenorphine as physicians have reported
* Interventions to address these barriers have the potential to benefit all providers with the waiver to prescribe buprenorphine
 | **Level of Evidence:** Level Ⅲ(Dang & Dearholt, 2017)**Evidence Quality: Good****Limitations*** The response rate of 46.3% may introduce nonrespondent bias in the estimates. A greater percentage of providers with a 100 patients waiver responded than those with a 30 patients waiver (P=0.0332).
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| **Craig-Rodriguez et al. (2017)**Transitioning Florida NPs to opioid prescribing | **Objectives** This article describes a study conducted prior to passage of controlled substance prescribing legislation in Florida that assessed whether a knowledge gap existed for Florida’s ARNPs in the assessment, treatment, and monitoring of patients receiving opioids for chronic pain.**Design:** Nonexperimental  | **Sample** * APRNs (N=1511)

**Setting*** Florida
 | **Inclusion & Exclusion*** Inclusion: willingness to participate in a web-based needs assessment survey
* ARNPs with active license, a public email address and who were employed in Florida.

**Analysis*** Descriptive statistics were utilized
* A power analysis was conducted.
 | **Barriers** * Phase 1 (Prior to the implementation of Schedule II–IV prescriptive authority): internal and external barriers because of the authority
* Phase 2,3: authority barrier excluded
* Phase4: poorly prepared by their initial educational preparation to prescribe controlled substances.
 | * Significant gap in knowledge and confidence among Florida NPs who have not had previous training in opioid prescribing or DEA registration.
* Respondents with prior opioid training and those who worked in the pain management setting also reported fewer prescribing limitations in all five knowledge domains; federal and state guidelines; opioid classes and proper doses; risk assessment skills; monitoring of treatment; confidence in dealing with challenges of opioid prescribing.
 | **Level of Evidence:** Level Ⅲ(Dang & Dearholt, 2017)**Evidence Quality: Good****Limitations*** Pilot study was not conducted during the reviewed questionnaire. Difficulty to compare with responders and nonresponders because of the online survey form.
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| **Franklin et al. (2013)**Changes in opioid prescribing for chronic pain in Washington state. | **Objectives** To conduct a survey of primary care physicians and advanced registered NPs in WA focused on changes in practice patterns and use of support tools in the prescription of opioids for the treatment of chronic noncancer pain. **Design:** Nonexperimental study  | **Sample** * Primary care physicians and APRN (N=856)
* APRNs (N=425)

**Setting:** Washington State | **Sample Selection*** A convenience sample of primary care providers in WA was obtained from diverse geographic regions and health care organizations.
* The web-based anonymous survey was conducted in March-Aug 2011.
 | **Barriers** * Majority of providers (72.3% overall;

73.1% of physicians) reported being very concerned about overdose, addiction, dependence, ordiversion.**Facilitators** * Affiliation with a healthcare organization providing opioid prescription guidelines and access to pain consultation
* The great majority of all groups thought that specific

innovative methods of consultation or assistance,such as telephone or video consultation with experts,would be helpful. * Nearly 90% reported that webbased continuing medical education training would be useful.

  | **Results findings*** Compared with physicians, fewer ARNPs had read and/or applied the guideline (40.1% of ARNPs vs.

70.9% of physicians; *P <* .01).* More physicians compared with ARNPs reported having access to opioid prescribing policies

and tools in their clinics (68.1% vs. 48.5%; *P <* .01) and electronic prescription records linked to electronic health records (84.1% vs. 62.5%; *P* < .01) that could assist in supporting appropriate opioid use.* Physicians were more likely than ARNPs to report prescribing opioids to ≥50% of their patients (39.8% of physicians vs. 21.7% of ARNPs; *P* <.01).
* Twice as many ARNPs (5.8%) ad physicians (2.1%) reported they had stopped prescribing opioids for chronic noncancer pain. The reasons for these differences are not clear (*P* =.03).
 | **Level of Evidence:** Level Ⅲ(Dang & Dearholt, 2017)**Evidence Quality: High****Limitations*** Use of a convenience sample and a low response rate.
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| **Mack (2018)**Food and Drug Administration upscheduling of hydrocodone and the effects on nurse practitioner pain management practices. | **Objectives** To examine the effect of upscheduling of hydrocodone combination medications on pain management practices of advanced practiced registered nurses in Oklahoma**Design:** Qualitative study  | **Sample** * Advanced practiced registered nurses (APRN)

(N=25) **Setting*** Oklahoma
 | **Inclusion & Exclusion*** Eligibility criteria: APRNs who held a minimum of a master’s degree as an APRN and had authorization to practice and prescribed in Oklahoma.
* Exclusion criteria: any APRN who did not hold a minimum of a master’s degree or was not nationally certified.

**Analysis*** Thematic analysis was used in qualitative study.
* A phenomenological approach to address the research questions.
 | **Barriers** * The FDA’s upscheduling of hydrocodone combination medications created barriers to effective pain management in the primary care setting
* Increased patient referrals
* Limitations in treatment options
* Increased health care costs

**Facilitators*** Nurse practitioner regulation
* Impact of on-site physician
* Alternative therapies
* Complementary medicine
* Interventional medicine
* Advanced NP authority would increase patient access to care and decrease healthcare costs
 | * The upscheduling of hydrocodone combination medications has greatly affected the pain management practices of advanced NPs, and leading to increased referrals.
 | **Level of Evidence:** Level Ⅲ(Dang & Dearholt, 2017)**Evidence Quality: Good****Limitations**Validity of the data analysis. The primary investigator consulted with an expert qualitative researcher to conduct member checks, review, and confirm identified themes and to conduct an overall audit of the qualitative research study.  |
| **Mazurenko et al. (2020)**Clinical perspectives on hospitals’ role in the opioid epidemic | **Objectives** To examine clinical perspectives on the role of hospitals in the opioid epidemic **Design:** Nonexperimental Qualitative study | **Sample** Clinicians from acute care hospitals (N=23)* Hospitalists (Physicians) (N=12)
* Inpatient nurses (N=9)
* Inpatient NPs (N=2)

NPs are all female and white**Setting*** 6 different acute care hospitals in the Midwestern United States.
 | **Inclusion Criteria** 1) full-time employment within the health system,2) an active medical license.As described in our prior work**Sample Selection*** Semi-structured, in-person interviews between September 2017 and August 2019
 | **Barriers** * Majority of clinicians believed hospitals contribute to the opioid epidemic. Mechanisms of hospital contribution to the opioid epidemic.
* Multiple clinicians cited Center for Medicare and Medicaid Services’ (CMS) reimbursement policy and the Joint Commission’s report of pain as the “fifth vital sign” as influencing inappropriate opioid use as drivers of inappropriate opioid prescribing in hospitals.
* Numerous clinicians stated that opioids are inappropriately administered in the emergency department (ED), potentially as **a mechanism to facilitate discharge and prevent re-admission**.
* Many clinicians described how overreliance on **pre-populated pain care orders for surgical (orthopedic) patients,** may be contributing to inappropriate opioid use in the hospital.

**Facilitators** * Educating medical staff about appropriate opioid prescription practices, particularly for patients with complex chronic conditions
* Educating patients about negative consequences of using opioids long-term and setting realistic pain expectations
* Strengthening the 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
 | * Hospital based clinicians perceived that hospitals are contributing to the opioid epidemic.
* Emergency department is a location of particular importance for administrators to introduce interventions to limit inappropriate opioid prescribing.
 | **Level of Evidence:** Level Ⅲ(Dang & Dearholt, 2017)**Evidence Quality: Good****Limitations*** 6 different acute are hospitals were all part of a single healthcare system in a Midwestern state. Thus findings may not generalize to other hospital settings.
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| **Merlin et al. (2019)**Managing chronic pain in cancer survivors prescribed long-term opioid therapy: A national survey of ambulatory palliative care providers | **Objectives** To explore palliative care providers’ experiences with managing chronic pain in cancer survivors prescribed long term opioid therapy**Design:** Nonexperimental study | **Sample** Providers (N=157)* Physicians (MDs &DOs)83%
* NPs 15% (N=24)

**Setting*** US
* Ambulatory palliative care setting
 | **Inclusion Criteria** * Whether they are a physician, NPs, or PAs.
* Whether they provide direct patient care to adults in an outpatient palliative care clinic (including precepting residents and/or fellows)
* Whether they are at least 18 years old
* Whether they provide outpatient palliative care to patients with a history of cancer who are not at the end of life (life expectancy of more than 6 months), including survivors who have completed cancer treatment, are in clinical remission, are under cancer surveillance only, who are not in active treatment and are not at the end of life
* Whether they manage pain that lasts more than three months in such patients.
 | **Barriers** * The lack of systems-based approaches and training in addiction treatment.
* The lack of access to providers with complementary expertise and concerns about the attitudes of these providers toward the patients in question.
* Payment-related barriers such as lack of reimbursement for nonpharmacologic therapies for pain, patient factors such as perceived stigma and low literacy, and time constraints in clinic.
* Patients’ perceived stigma about opioid use and low health literacy; time constraints in clinics

**Facilitators** * Access to providers with expertise complementary

 to palliative care (e.g., addiction, pain) * A team-based approach to caring for patients within

 the palliative practice* Highlighting the need to develop continuing medical

education in managing opioid misuse and addiction. | * Palliative care providers are comfortable with many aspects of managing chronic pain in cancer survivors on long-term opioid therapy.
* Participants were confident (7-8/10) managing the most commonly encountered opioid misuse behaviors and in their ability to recommend nonpharmacologic and nonopioid pharmacologic treatments for chronic pain (10/10).
* They were least confident prescribing naloxone or managing addiction (5/10); only 27% reported having training or systems in place to address addiction. Only 13% had a waiver to prescribe buprenorphine.
 | **Level of Evidence:** Level Ⅲ(Dang & Dearholt, 2017)**Evidence Quality: Good****Limitations*** Most respondents were white and were from academic medical centers.
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| **Nikpour et al. (2021)**Assessing practice patterns and influential factors for NPs who manage chronic pain | **Objectives** To understand the experiences of NPs who manage chronic pain, andto examine how these experiences impact NP prescribing patterns in chronic pain management.**Design:** Nonexperimental  | **Sample** NP (N=128) * White (77.5%)
* Female (95.5%)
* Prepared at the M.S.N. level (62.5%)
* Worked in a primary

care setting (62.5%).A total of 110 (85.9%) of the 128 NPs providedpractice authority information. Among the 110 NPs, 36 (32.7%) reportedfull, 47 (42.7%) reported reduced, and 27 (24.6%) reported restricted practice authority status.**Setting*** US
 | **Sample Selection*** Collected survey data from NPs who manage chronic pain in an outpatient setting using a convenience sample at the AANP annual conference in June 2019.
* The authors developed the 31-item NP Chronic Pain

  | **Barriers*** M.S.N.-prepared NPs were significantly likely to report finding it difficult to manage pain most or all of the time when compared to D.N.P.-prepared NPs (p=04).
* Education level was significantly associated with NPs reporting feeling prepared by their education and training to manage chronic pain (p=.004).
* NPs with full practice authority were more likely to report being able to their full extent than NPs without full practice (p <.01).
* NPs in specialty care settings were more likely to utilize opioids (p<.01)
* Primary care NPs were significantly more likely to use NSAIDs (P<.01) and Tylenol (p=.05)
* Patient unwillingness to try nonpharmacologic strategies was significantly associated with NPs reporting referring patients some of the time or less to acupuncture (p=.03), chiropractic

care (p < .01), and massage (p =.03).* NPs who treated patients younger than 65 only were significantly more likely to use acupuncture than NPs who treated patients 65 and older (p = .03).
* Low access to nonpharmacologic methods of pain care
* Low insurance coverage
 | * NPs experience a variety of challenges in managing chronic pain, including regulatory barriers, difficulties pursuing non-pharmacologic methods of care, and concern about opioid-related adverse events.
* No difference in prescription of chronic pain therapies between NPs of varying practice authority statuses. (p<.01)
 | **Level of Evidence:** Level Ⅲ(Dang & Dearholt, 2017)**Evidence Quality: High****Limitations*** Study does not capture every possible type of chronic pain therapy.
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| **Spitz et al. (2011)**Primary care providers’ perspective on prescribing opioids to older adults with chronic non-cancer pain: A qualitative study | **Objectives** To describe primary care providers’ experiences and attitudes towards, as well as perceived barriers and facilitators to prescribing opioids as a treatment for chronic pain among older adults. **Design:** Nonexperimental Qualitative, cross-sectional study | **Sample** * Physicians (MDs &DOs) (N=23)
* NPs (N=3)

**Setting*** Two academically affiliated primary care practices
* Three community health centers
* **Located in New York city**
 | **Inclusion Criteria** * All physicians and NPs providing care in the above practices were eligible
* participants employed opioids as therapy for some of their older patients with chronic pain.
* No exclusion criteria were employed.

**Analysis**All focus groups were audiotape recorded, transcribed, and analyzed via directed content analysis.  | **Barriers*** Fear of causing harm (77%): The most commonly reported barrier to initiating opioid therapy.
* Pain subjectivity (62%): Often associated with an inability to establish an organic cause of pain.
* Concerns about regulatory and/or legal sanctions (9%): All three NPs voiced substantial apprehension about possible sanctions because of writing a high volume of prescriptions, often refilling prescriptions on days the patient’s physician was not present in the practice.
* Perceived Patient-Level Barriers to Opioid Use (69%): many older patients were very reluctant to take opioids because of multiple concerns. 12% reported older patients’ family members functioned as a barrier at times by voicing their own concerns about having the patient take an opioid. More than half (58%) reported that “stigma” was a barrier, causing many patients to avoid opioid therapy altogether.

**Facilitators*** Establishing the long-term safety and efficacy of these medications
* Generating improved prescribing methods
* Implementing provider and patient educational interventions
* Patient and caregiver educational interventions.
* Validated tools to identify high risk older patients and evidence-based methods to help calculate appropriate starting doses for older patients with comorbidities
* Peer support (i.e., the ability to quickly consult a colleague possessing pain management expertise.)
 | * 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.
 | **Level of Evidence:** Level Ⅲ(Dang & Dearholt, 2017)**Evidence Quality: Good****Limitations*** Because of group dynamics and the participants’ relationship as colleagues, data may not have accurately captured the full extent of participants’ views on this topic.
* The sample was small, non-random, and limited to providers at two academically affiliated and three community base primary care practice.
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| **St Marie, B. (2016)** The Experiences of Advanced Practice Nurses Caring for Patients with Substance Use Disorder and Chronic Pain. | **Objectives** To examine APRNs; experiences and perceptions while caring for patients with coexisting SUD and chronic pain. **Design:** Qualitative study  | **Participants:** APRN (N=20) * All women
* 10.7 years

mean number of years working with patients with coexcisting SUD* Patients

charactereistics coexcisting SUD and chronic pain **Setting*** US
 | **Inclusion Criteria*** APRN experienced in treating individuals with coexisting SUD and chronic pain, either as inpaitents or outpatient setting
* APRNs licensd with prescriptive authority of schedule II and III controlled substances and who prescribed opioids fro patients with chronic pain.
* APRNS who spoke English and were willing to be interviewed for 90 minutes.

**Sample Selection*** Recruited nationwide through the American Society for Pain Management Nursing list serve
 | **[Barriers]*** A tendency to shift patients from other healthcare providers into the participants’ practices. Patients were referred by other healthcare providers to the APRNs’ practice because the original providers lacked time or were restricted from this type of care by the healthcare system, policies, or regulations.
* Difficulties to access nonmedical modalities to help pain- insurance, geographic access to providers of nonmedical modalities, patients desire to take a medication for pain

**Facilitators*** The role of the APRN.
* Educating patient: emphasized the education of patients on the parameters of their care.
* Maintaining a therapeutic relationship was a focus in the APRNs care
* Applying risk strategies to keep their patients safe: The APRNs implemented risk strategies to
* Educating colleagues in healthcare: The APRNs instructed and mentored others in the practice of safe pain management, including the use of risk tools so that safe plans were implemented with appropriate monitors.
 | * APRNs in this study used their knowledge and skills to educate patients on behavioral changes that reduce pain, as well as to educate other healthcare providers on managing pain.
* Treating pain when SUD was active or in remission: Continue to treat patient manage their pain without opioids when opioids produced problems
* Using caution when prescribing opioids: keep the dose escalations within reasonable ranges. Balance pain medicines with nonmedical modalities
* Managing acute pain: aggressive management of acute pain.
* Caring for the whole person; collaboration with patients and listening to patients’ stories.
* Working in unison with the healthcare team: working with interdisciplinary healthcare team
 | **Level of Evidence:** Level Ⅲ(Dang & Dearholt, 2017)**Evidence Quality: Good****Limitations*** Finding could not generalized beyond this sample of APRNs who were active members of pain management organizations.
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