Appendix 1

Medications to treat substance use disorders

a. Opioid Use Disorder (OUD)

Medication choice for adults with OUD is primarily driven by 1) patient preference and 2) access. For instance, if there is no opioid treatment program available near a patient's home or if the patient will be discharging to a nursing facility and is unable to access methadone at the facility, we are unlikely to offer it as on option, however, we discuss all available treatment options with each patient.

Methadone – In general, we follow methadone induction and stabilization guidelines as outlined by the American Society of Addiction Medicine Methadone Action Group (Baxter et al. 2013). Following these guidelines, we do not offer an initial dose greater than 30mg. However, the hospital setting allows us to easily assess the patient 3 to 4 hours after the initial dose, when methadone effects are peaking. If there is no sedation and the patient is still symptomatic, we will often give another 10mg for a total of 40mg the first day. Conversely, the multiple comorbidities of many hospitalized patients (e.g. COPD, use of other centrally acting medications, kyphoscoliosis) often leads us to dose more conservatively than we otherwise would in a healthier, ambulatory population. An alternative dosing regimen would be to start with 10mg as the initial dose and repeat dose every 8-12 hours for a maximum of 40mg. Patients who have lower opioid tolerance, such as those with a prescription OUD, may find benefit from starting at a lower dose of 5mg (Chou et al. 2014). **Providers cannot legally write a prescription for methadone for the treatment of OUD on discharge** (Harrison Narcotics Tax Act 1914). Therefore, it is important, whenever possible, to provide a dose in the hospital on the day of discharge and to ensure follow-up at a methadone treatment center the following day.

Buprenorphine – In a hospital setting, providers do not need a DATA waiver to begin buprenorphine. However, because they have not been trained in the use of buprenorphine, many are not familiar with the induction process. We have created an electronic order set that links to the Clinical Opioid Withdrawal Scale (COWS) (Wesson and Ling 2003) for nurses to assess opioid withdrawal and that begins the induction process in a protocolized manner once the COWS score is greater than 10. If a patient is transitioning from a longer acting medication, like methadone, to buprenorphine, we generally wait 48 hours before buprenorphine induction. Once triggered, the induction protocol follows induction guidelines as outlined by the PCSS and SAMHSA's TIP 63, Part 3 (Gunderson 2018, SAMHSA 2018).

Before induction, we use supportive medications, as outlined in both guidelines, to address symptoms of withdrawal. **A DATA waived provider must write the prescription for buprenorphine on discharge.**

Naltrexone ER – Hospital administration of naltrexone ER is less common than opioid agonist therapy given prevalence of acute pain, patient preference, and the need sufficient opioid-free window prior to administration.

If there is concern for recent opioid use or potential for precipitated withdrawal based on history, physical exam, hospital or emergency department medication administration record, or urine drug screen, we conduct a naloxone challenge and/or wait before initiating naltrexone (Providers Clinical Support System 2018). There are several induction strategies if opioids are present prior to administration (Sullivan et al. 2017; Gunderson 2018, Rudolf et al. 2018; SAMHSA 2018).

b. Alcohol Use Disorder

Medication choice for adults with AUD is primarily driven by 1) patient preference and 2) comorbidities. For instance, patients with acute hepatitis and liver function tests greater than 5 times the upper limit of normal should not start naltrexone. Acamprosate – which is renally cleared – should be avoided if glomerular filtration rate (GFR) is less than 30 and dose adjusted for GFR 30-55. If a patient has no history of opioid use and is interested in beginning naltrexone, we conduct a urine drug screen (UDS). If it the UDS is negative for opioids (a contraindication to naltrexone initiation), we proceed with initiation of oral naltrexone or extended release naltrexone injection. If there is concern for recent opioid use or potential for precipitated withdrawal based on history, physical exam, hospital or emergency department medication administration record, or urine drug screen, we conduct a naloxone challenge and/or wait before initiating naltrexone (Sullivan et al. 2017; Gunderson 2018; Rudolf et al., 2018; SAMHSA 2018).

We find the article by Jonas et al. (2014) and Johnson (2018) useful references and guides to the use of medications for alcohol use disorder.

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