Clinical Decision Support for Individualized Opioid Prescription after Caesarean Birth

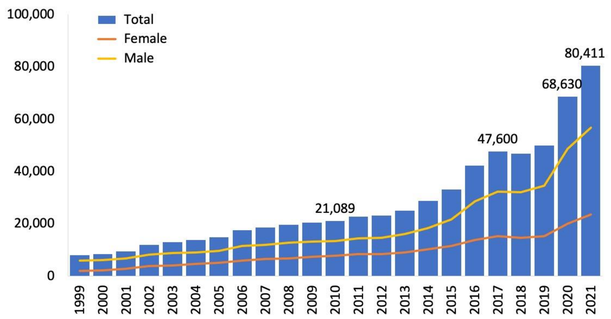
Donald G. Sengstack, MS, Allison B. McCoy, PhD, ACHIP, FAMIA, Sarah S. Osmundson, MD, MS

VCLIC CORE TEAM

PROBLEM

Historically, mothers who have delivered via cesarean section have been given a uniform prescription of 30 tablets of 5mg hydrocodone independent of individual need. Patients rarely need 30 tablets of hydrocodone after discharge, so this practice often resulted in the overprescription of opioids.

Figure 3. National Overdose Deaths Involving Any Opioid*, Number Among All Ages, by Gender, 1999-2021



*Among deaths with drug overdose as the underlying cause, the "any opioid" subcategory was determined by the following ICD-10 multiple cause-of-death codes: natural and semi-synthetic opioids (T40.2), methadone (T40.3), other synthetic opioids (other than methadone) (T40.4), or heroin (T40.1). Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999-2021 on CDC WONDER Online Database, released 1/2023.

METHODS

Dr. Osmundson's team developed a predictive model that uses three input variables (inpatient MME, depression, and tobacco use) to generate a recommendation for the number of opioid tablets an individual patient should be prescribed at discharge.

Table 2: Predicted mean MME[1] use after discharge based on sample inpatient opioid use

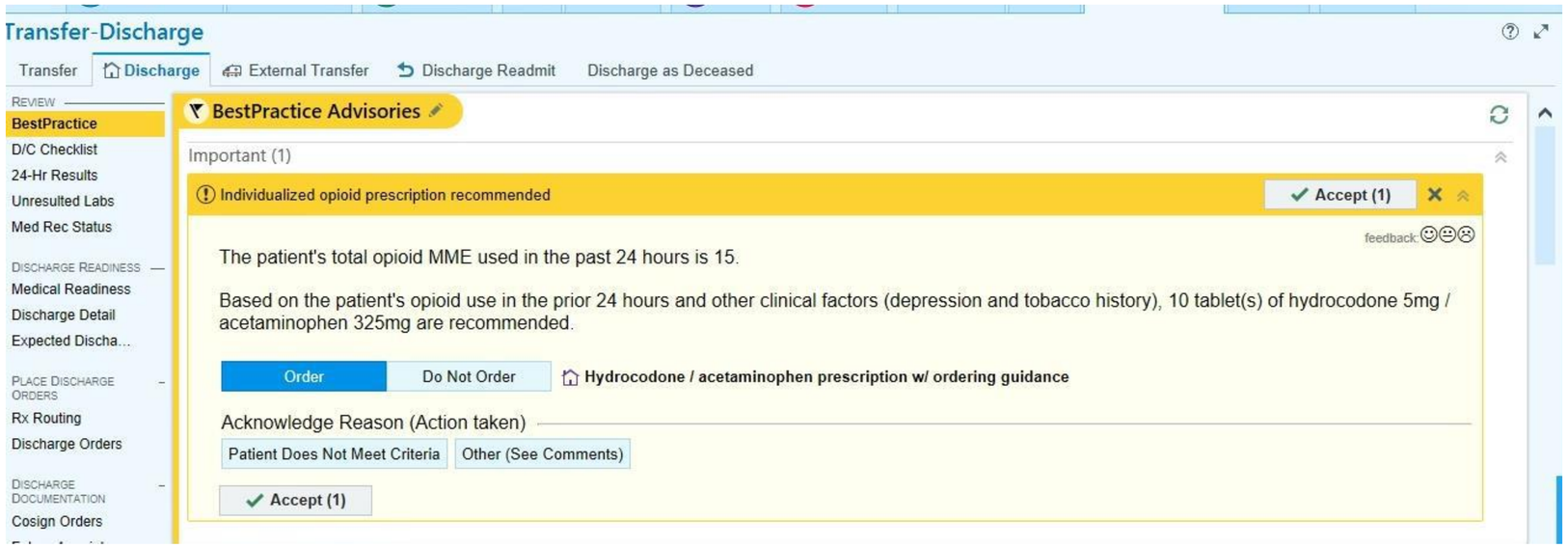
Inpatient opioid (MME) used[2]	Depression	Tobacco Use	Predicted Mean MME used	Predicted Mean tablets[3] used
0	No	No	9.8	2
0	Yes	No	16.1	3
0	No	Yes	21.5	4
0	Yes	Yes	32.1	6
10	No	No	38.1	8
10	Yes	No	52.8	11
10	No	Yes	63.4	13
10	Yes	Yes	81.3	16
20	No	No	54.5	11
20	Yes	No	71.6	14
20	No	Yes	83.3	17
20	Yes	Yes	101.2	20

[1]MME = Morphine Milligram Equivalents of opioid
[2]MME used in the 24 hours prior to hospital discharge
[3]Based on assumption that tablet type is hydrocodone 5mg

SOLUTION

Our team developed a BestPractice Advisory to implement the predictive model into the EHR. The BestPractice Advisory (right) shows the prescribing clinician the recommended number of opioid tablets to prescribe in the discharge navigator and in the order panel based on each individual patient's need.

The patient in the example was only recommended 10 tablets of hydrocodone 5mg. Without the intervention of the BPA, this patient, who only needed 10 tablets, would have been prescribed 30 tablets.



VANDERBILT CLINICAL INFORMATICS CENTER

Please contact the corresponding author at donald.sengstack@vumc.org

VANDERBILT UNIVERSITY MEDICAL CENTER