

Table 1. Risk Index for Overdose or Serious Opioid-Induced Respiratory Depression (RIOSORD).*

Question	Points for Positive Response
In the past 6 mo, has the patient had a health care visit (outpatient, inpatient, or emergency department) involving any of the following health conditions?†	
Substance use disorder (abuse or dependence), including alcohol, amphetamines, antidepressants, cannabis, cocaine, hallucinogens, opioids, and sedatives	25
Bipolar disorder or schizophrenia	10
Stroke or other cerebrovascular disease	9
Kidney disease with clinically significant renal impairment	8
Heart failure	7
Nonmalignant pancreatic disease (e.g., acute or chronic pancreatitis)	7
Chronic pulmonary disease (e.g., emphysema, chronic bronchitis, asthma, pneumoconiosis, asbestosis)	5
Recurrent headache (e.g., migraine)	5
Does the patient use any of the following substances?‡	
Fentanyl	13
Morphine	11
Methadone	10
Hydromorphone	7
Does the patient use an extended-release or long-acting formulation of any prescription opioid?‡	5
Prescription benzodiazepine (e.g., diazepam, alprazolam)	9
Prescription antidepressant (e.g., fluoxetine, citalopram, venlafaxine, amitriptyline)	8
Is the patient's current maximum prescribed daily morphine-equivalent dose ≥ 100 mg for all opioids used on a regular basis?	7
Total possible score	146

* This questionnaire was adapted from Zedler et al.¹⁷ with permission from Oxford University Press. The index was validated in 36,166 patients (7234 cases and 28,932 controls) who received an opioid prescription from 2009 to 2013, as recorded in a claims database of a commercially insured health plan. Data on how scores were used to calculate the probability of respiratory depression are provided in Table 2.

† The condition does not have to be the primary reason for the visit, but it should be entered in the chart or electronic health record as one of the reasons for the visit or diagnosis.

‡ Extended-release or long-acting formulations and certain opioid active ingredients were significantly and independently associated with the likelihood of overdose. As such, each formulation and each active ingredient are included and scored as independent factors in the risk index. For example, methadone and an extended-release formulation of fentanyl receive risk points for both the active ingredient and the formulation. A short-acting formulation of fentanyl receives points for the active ingredient only. Risk points for formulations are counted only once, regardless of the number of opioid products that the patient consumes.