

# Incidence of Acute Respiratory Distress Secondary to Opioid Morphine Equivalent Dose Among a Medicaid Population

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## Introduction

Medicaid recipients are prescribed opioids at twice the rate of non-Medicaid patients. Providers may be unsure and patients may be unaware of the risk of acute respiratory distress (RD) with opioids. Based on pain guidelines and data analysis, state programs can implement morphine equivalent (ME) dosing limits that promote safe use of opioids.

## Objective

Describe trends in acute RD among recipients with and without a history of RD for three ME dose ranges.

## Methods

Medicaid recipients continuously eligible from January 1, 2014 to December 31, 2015 were identified via claims data. Individuals who had opioid utilization in 2014 were excluded. Those remaining were divided into four groups:

Group 1 did not fill an opioid in 2015

Group 2 filled an opioid with a daily dose of <50mg ME

Group 3 filled an opioid between 50mg and 89mg ME

Group 4 filled an opioid  $\geq$  90mg ME

Recipients with non-opioid claims during 2015 served as the control.

Respiratory distress was defined by ICD-9 and ICD-10 diagnosis codes for acute respiratory failure or acute respiratory distress syndrome. The baseline incidence of acute RD was assessed 7 days to 14 days before the first opioid fill in 2015. The incidence of acute RD was compared for all groups during the three weeks following the first opioid fill. The groups were further analyzed by separating the recipients with and without a history of any RD in 2014.

## Results

A total of 233,924 recipients were eligible for the study. Group 1 included 211,510 recipients, Group 2 included 19,330 recipients, Group 3 included 1,941 recipients, and Group 4 included 1,143 recipients.

The incidence of acute respiratory distress among recipients (with and without prior RD) was similar across the three-week time period for Groups 1, 2, and 3; while Group 4 saw an increase in acute RD from 1.05% at baseline to 3.10% in week 2. In the subgroup with no history of RD, the incidence of acute RD mirrored that of all combined recipients. Those who had a ME  $\geq$ 90mg (Group 4) increased from 0.92% at baseline to 1.55% in week 2. However, in recipients with a prior history of RD both Groups 3 and 4 saw increases in acute RD through week 3. The increase from baseline to week 3 was 5.08% to 14.41% for Group 3 and 18.92% to 29.73% for Group 4.

## Conclusion

The data indicates rates of acute RD increase most at a daily opioid ME  $\geq$ 90mg, and the rate of acute RD is higher among recipients with a history of RD. Medicaid programs should implement daily opioid ME limits for recipients, including those at high-risk due to prior history of RD, to improve safe use of opioids.

Table 1: Baseline Study Demographics

	No RD History	RD History
1 Control Patients	194,610	16,900
2 ME Dose <50 mg/day	17,940	1,390
3 ME Dose 50-89mg/day	1,823	118
4 ME Dose $\geq$ 90 mg/day	1,106	37
Males	74,164	6,184
Females	141,315	12,261
Average Age	47.02	52.96
Sub Total	215,479	18,445
Total		233,924

Figure 1: Overall Acute RD by Week of Onset Since Opioid Fill

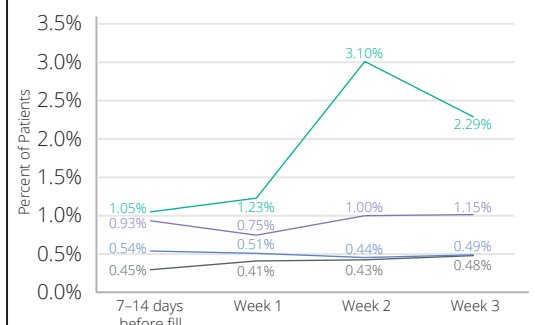


Figure 2: Acute RD by Week of Onset Since Opioid Fill – No Previous History of RD in Past Year

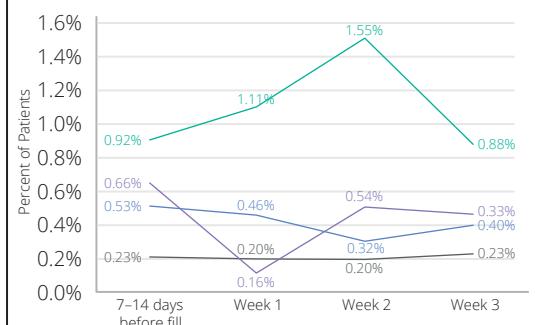


Figure 3: Acute RD by Week of Onset Since Opioid Fill – History of RD in past Year

