

# Abuse and Diversion of Buprenorphine/Naloxone Oral Film Relative to Other Buprenorphine Formulations

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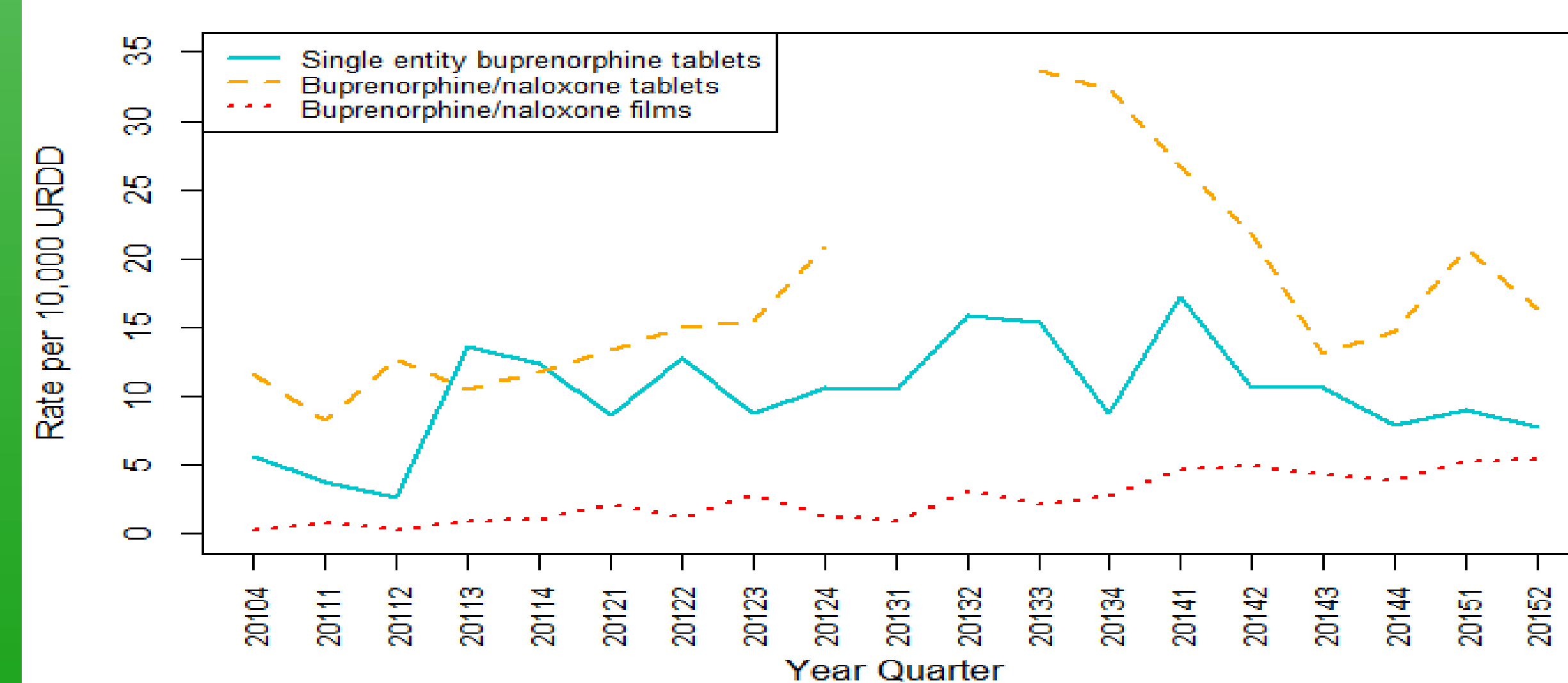
## Background

- This study examines whether abuse and diversion rates of buprenorphine/naloxone films differ from other buprenorphine formulations intended for treatment of opioid dependence [single entity (SE) tablets and combination buprenorphine/naloxone tablets].

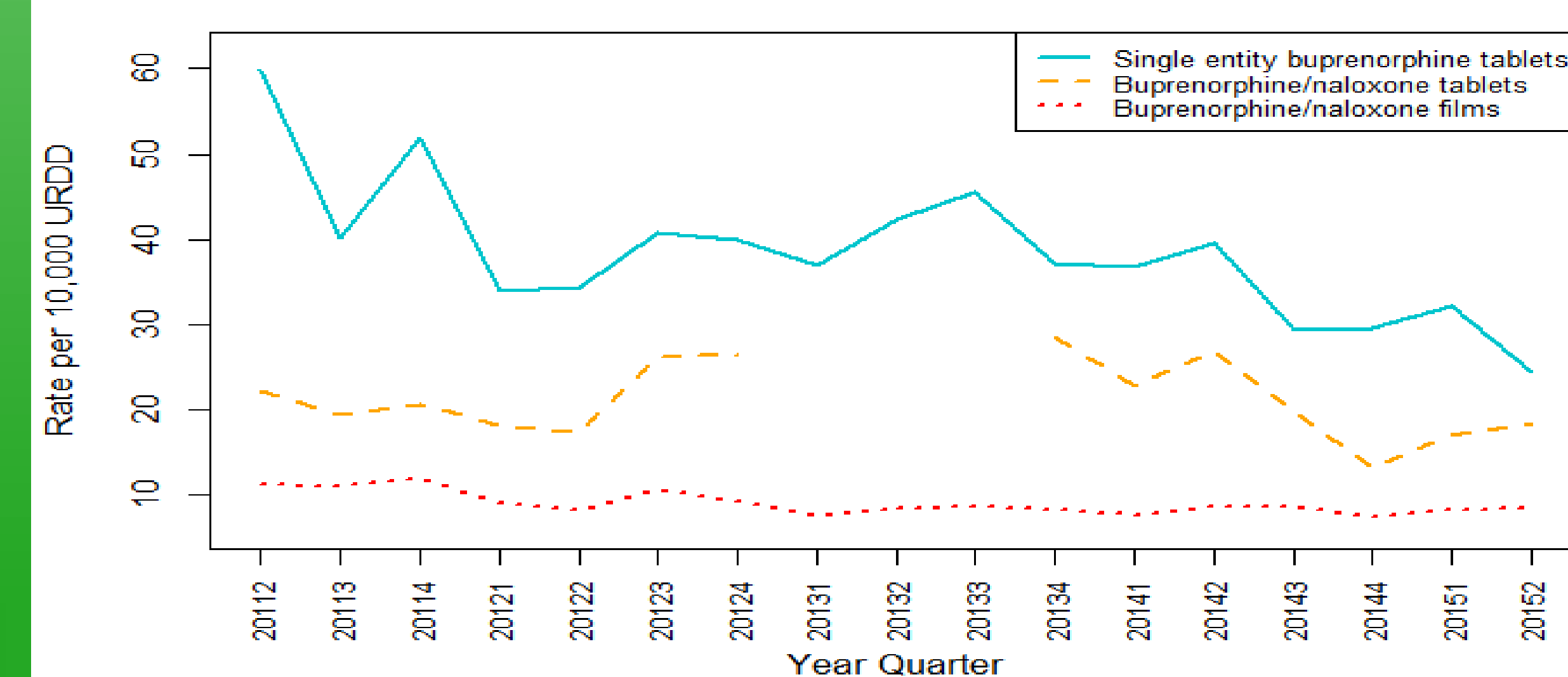
## Methods

- Data available from the Researched Abuse, Diversion, and Addiction-Related Surveillance (RADARS®) System Drug Diversion Program and the Opioid Treatment and Survey of Key Informants' Patients (SKIP) Programs (Treatment Center Programs) combined were analyzed.
- Time periods where buprenorphine/naloxone tablets other than Suboxone® were available, but not included on surveys were excluded from the buprenorphine/naloxone tablet slopes. These quarters are shown in Figures 1 and 2.
- Rates per unique recipients of dispensed drug (URDD), a measure of drug availability, were calculated and scaled per 10,000.
- Poisson regression analysis with drug specific dispersion parameters was used to compare differences in intercepts (expected rate in 2015Q2) and slopes (average quarterly change in rates).

**Figure 1. Drug Diversion Program Cases per 10,000 URDD**



**Figure 2. Treatment Center Programs Cases per 10,000 URDD**



**Table 1. Drug Diversion Program Intercepts and Slopes per 10,000 URDD**

Drug Group	Expected Rate in 2015Q2 (95% CI)	Ratio of Intercepts (95% CI), p-value	Slope (95% CI), p-value	Difference in Slope p-value
Buprenorphine/naloxone films	5.99 (4.85, 7.40)	Reference	1.12 (1.09, 1.16), <0.001	
Single entity buprenorphine tablets	10.86 (8.23, 14.34)	1.81 (1.28, 2.57), <0.001	1.01 (0.98, 1.04), 0.732	<0.001
Buprenorphine/naloxone tablets	22.49 (17.04, 29.69)	3.76 (2.65, 5.33), <0.001	1.04 (1.02, 1.07), 0.001	<0.001

**Table 2. Treatment Center Programs Intercepts and Slopes per 10,000 URDD**

Drug Group	Expected Rate in 2015Q2 (95% CI)	Ratio of Intercepts (95% CI), p-value	Slope (95% CI), p-value	Difference in Slope p-value
Buprenorphine/naloxone films	7.72 (7.08, 8.41)	Reference	0.98 (0.97, 0.99), <0.001	
Single entity buprenorphine tablets	29.40 (25.77, 33.54)	3.81 (3.26, 4.46), <0.001	0.97 (0.96, 0.98), <0.001	0.154
Buprenorphine/naloxone tablets	19.53 (16.04, 23.77)	2.53 (2.04, 3.14), <0.001	0.99 (0.98, 1.01), 0.512	0.275

## Results

### Drug Diversion

- The expected 2015Q2 rate was 5.99 reports/10,000 URDD (95% CI: 4.85-7.40) for buprenorphine/naloxone films (Table 1).
- This was significantly less than single entity buprenorphine tablets (10.86/10,000 URDD, 95% CI: 8.23-14.34, p<0.001) and buprenorphine/naloxone tablets (22.49/10,000 URDD, 95% CI: 17.04-29.69, p<0.001) (Table 1).
- However, diversion reports of buprenorphine/naloxone film increased 12% (95% CI: 9-16%) each quarter between October 2010 and June 2015, single-entity buprenorphine tablets increased non-significantly 1% (95% CI: -2%-4%) and buprenorphine/naloxone tablets increased 4% (95% CI: 2-7%) each quarter (Table 1).
- The increase for buprenorphine/naloxone film was significantly greater than trends for other buprenorphine formulations (Table 1).

### Treatment Center Programs

- The expected rate in 2015Q2 was 7.72 abuse cases/10,000 URDD (95% CI: 7.08-8.41) for the buprenorphine/naloxone film, significantly less than single-entity buprenorphine (29.40/10,000 URDD (95% CI: 25.77-33.54, p<0.001) and buprenorphine/naloxone tablets (19.53/10,000 URDD, 95% CI: 16.04-23.77, p<0.001) (Table 2).
- Abuse rates decreased significantly 2% (95% CI: 1-3%, p<0.001) per quarter for buprenorphine/naloxone film and for single-entity buprenorphine tablets 3% (95% CI: 2-4%, p<0.001). Buprenorphine/naloxone tablets showed a non-significant decrease of 1% (95% CI: -2-1%, p=0.512) (Table 2).

## Conclusions

- Buprenorphine/naloxone film was found less frequently in diversion reports and was endorsed less frequently by persons entering treatment for substance abuse than other forms of buprenorphine after adjusting for drug availability.