**APPENDIX 2:**

# Uptake of FDA Drug Safety Communication Messages about Zolpidem in Social Media

**Sinha MS, Freifeld CC, Brownstein JS, Donneyong M, Rausch P, Lappin BM, Zhou EH, Dal Pan GJ, Pawar AM, Hwang TJ, Avorn J, Kesselheim AS**

Twitter

**Table 1: Daily Twitter Adverse Event posts about zolpidem/Ambien, Oct 2012-August 2013**

| Interrupted time trend of ***zolpidem-containing products***: $R^2$ = **0.39** | Effect Estimate | Standard Error | P Value |
|---|---|---|---|
| Intercept | 26.02 | 2.42 | <.0001 |
| Baseline trend | 0.34 | 0.04 | <.0001 |
| Change in counts of posts at DSC1 | 0.02 | 3.29 | 0.99 |
| Change in counts of posts per day after DSC1 | -0.43 | 0.05 | <.0001 |
| Change in counts of posts at DSC2 | 2.14 | 3.25 | 0.51 |
| Change in counts of posts per day after DSC2 | -0.12 | 0.05 | 0.01 |
| Regression model: Counts of zolpidem posts = $\beta_0 + \beta_1 time_t + \beta_2(post\ DSC1)_t + \beta_3(time\ post\ DSC1)_t + \beta_4(post\ DSC2)_t + \beta_5(time\ post\ DSC2)_t + e_t$ | | | |

| **Chow test** | | |
|---|---|---|
| Break Point | F Value | Pr > F |
| 1/10/2013 | 100.05 | <.0001 |
| 5/14/2013 | 57.72 | <.0001 |

**Table 2: Daily Twitter Mention posts about zolpidem/Ambien, Oct 2012-August 2013**

| Interrupted time trend of ***zolpidem-containing products***: $R^2$ = **0.24** | Effect Estimate | Standard Error | P Value |
|---|---|---|---|
| Intercept | 445.88 | 23.50 | <.0001 |
| Baseline trend | 0.10 | 0.40 | 0.80 |
| Change in counts of posts at DSC1 | 109.48 | 31.38 | 0.01 |
| Change in counts of posts per day after DSC1 | -1.30 | 0.50 | 0.01 |
| Change in counts of posts at DSC2 | 12.09 | 30.73 | 0.69 |
| Change in counts of posts per day after DSC2 | -0.05 | 0.46 | 0.91 |
| Regression model: Counts of zolpidem posts = $\beta_0 + \beta_1 time_t + \beta_2(post\ DSC1)_t + \beta_3(time\ post\ DSC1)_t + \beta_4(post\ DSC2)_t + \beta_5(time\ post\ DSC2)_t + e_t$ | | | |

| **Chow test** | | |
|---|---|---|
| Break Point | F Value | Pr > F |
| 1/10/2013 | 27.9 | <.0001 |
| 5/14/2013 | 14.82 | <.0001 |

Facebook

**Table 3: Daily Facebook Adverse Event posts about zolpidem/Ambien**

| Interrupted time trend of ***zolpidem-containing products***: $R^2$ = **0.51** | Effect Estimate | Standard Error | P Value |
|---|---|---|---|
| Intercept | 3.63 | 0.89 | <.0001 |
| Baseline trend | -0.02 | 0.02 | 0.24 |
| Change in counts of posts at DSC1 | 8.10 | 1.16 | <.0001 |
| Change in counts of posts per day after DSC1 | 0.04 | 0.02 | 0.04 |
| Change in counts of posts at DSC2 | -0.28 | 1.10 | 0.80 |
| Change in counts of posts per day after DSC2 | -0.02 | 0.02 | 0.36 |
| Regression model: Counts of zolpidem posts = $\beta_0 + \beta_1 time_t + \beta_2(post\ DSC1)_t + \beta_3(time\ post\ DSC1)_t + \beta_4(post\ DSC2)_t + \beta_5(time\ post\ DSC2)_t + e_t$ | | | |

| **Chow test** | | |
|---|---|---|
| Break Point | F Value | Pr > F |
| 1/10/2013 | 41.28 | <.0001 |
| 5/14/2013 | 14.21 | <.0001 |

**Table 4: Daily Facebook Mention posts about zolpidem/Ambien**

| Interrupted time trend of ***zolpidem-containing products***: $R^2$ = **0.56** | Effect Estimate | Standard Error | P Value |
|---|---|---|---|
| Intercept | 51.04 | 8.19 | <.0001 |
| Baseline trend | -0.38 | 0.16 | 0.02 |
| Change in counts of posts at DSC1 | 126.07 | 10.69 | <.0001 |
| Change in counts of posts per day after DSC1 | 0.14 | 0.19 | 0.44 |
| Change in counts of posts at DSC2 | -0.26 | 10.09 | 0.98 |
| Change in counts of posts per day after DSC2 | 0.48 | 0.15 | 0.01 |
| Regression model: Counts of zolpidem posts = $\beta_0 + \beta_1 time_t + \beta_2(post\ DSC1)_t + \beta_3(time\ post\ DSC1)_t + \beta_4(post\ DSC2)_t + \beta_5(time\ post\ DSC2)_t + e_t$ | | | |

| **Chow test** | | |
|---|---|---|
| Break Point | F Value | Pr > F |
| 1/10/2013 | 87.74 | <.0001 |
| 5/14/2013 | 13.2 | <.0001 |

Google

**Table 5: Weekly Searches for zolpidem/Ambien on Google, scaled to 100**

| Interrupted time trend of ***zolpidem-containing products***: $R^2$ = **0.27** | Effect Estimate | Standard Error | P Value |
|---|---|---|---|
| Intercept | 59.55 | 3.59 | <.0001 |
| Baseline trend | 0.64 | 0.39 | 0.11 |
| Change in weekly searches at DSC1 | -3.74 | 4.67 | 0.43 |
| Change in weekly searches after DSC1 | -0.90 | 0.51 | 0.09 |
| Change in weekly searches at DSC2 | -6.43 | 4.63 | 0.17 |
| Change in weekly searches after DSC2 | 0.56 | 0.49 | 0.25 |
| Regression model: Counts of zolpidem posts = $\beta_0 + \beta_1 time_t + \beta_2(post\ DSC1)_t + \beta_3(time\ post\ DSC1)_t + \beta_4(post\ DSC2)_t + \beta_5(time\ post\ DSC2)_t + e_t$ | | | |

| **Chow test** | | |
|---|---|---|
| Break Point | F Value | Pr > F |
| 1/10/2013 | 8.44 | 0.0008 |
| 5/14/2013 | 1.9 | 0.1615 |