Medical Marijuana: Twitter vs FAERS Data

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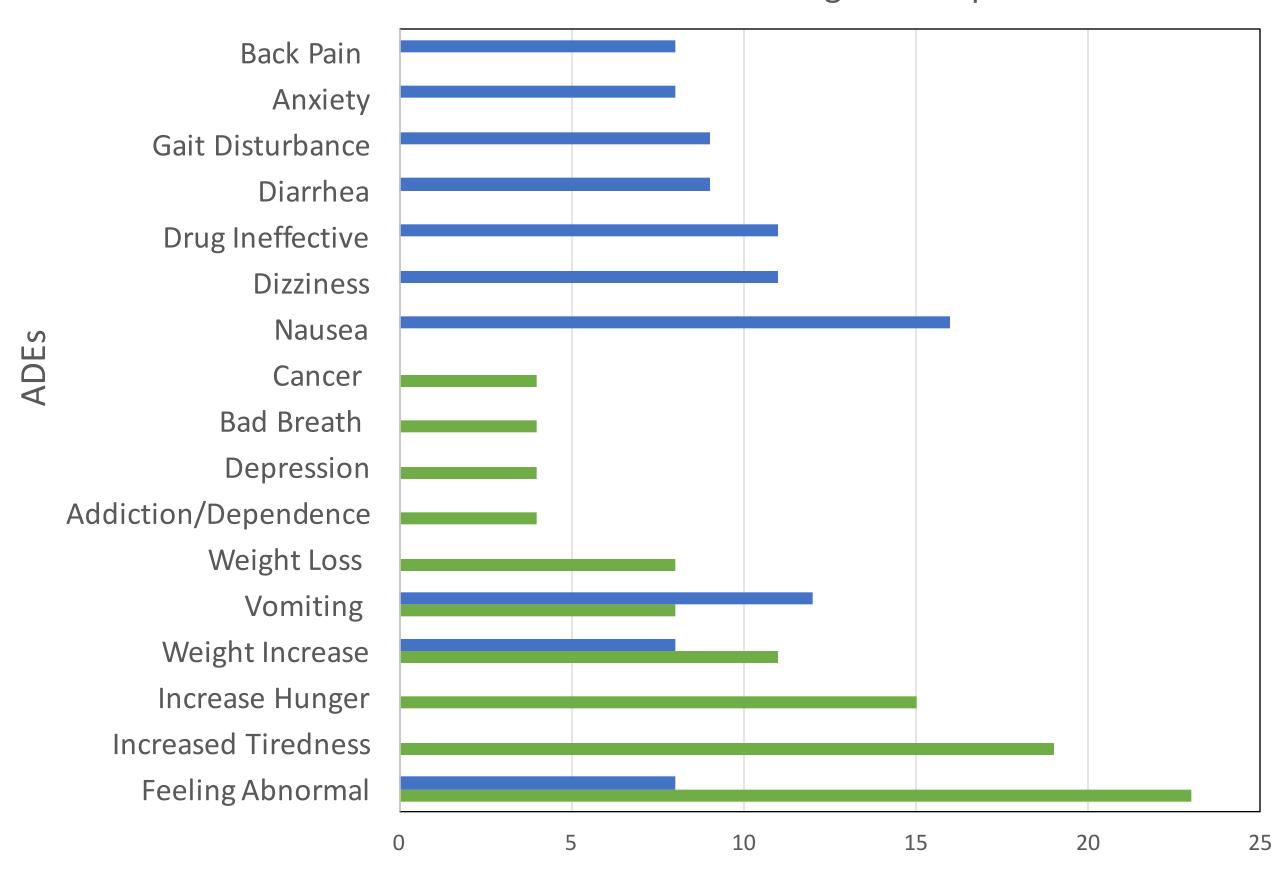Birlson, E; Mickow, A; Neligan, R; O'Malley, M

Introduction

Medical marijuana was chosen in order to research it as a new form of treatment for epilepsy. We will compare 300 random tweets collected between 01/01/2016 to 01/01/2017 to the side effects on FDA Adverse Event Reporting System (FAERS).

Twitter Events vs. FAERS Events as Percentages for Top 10 ADEs

Percentage of Occurrence

■ FAERS ■ Twitter

FAERS Data

Analysis of Data:
- Total number of reported ADEs: 145
- Top 10 ADEs used: 87
- Medical marijuana has only 145 ADEs reported because it is a newer, controversial drug.
- The FAERS data was collected from 1/2013 to 5/2016

Twitter Data

Analysis of Tweets:
- 17% (52) of 300 Tweets contained at least one ADE.
- 52 ADEs were reported
- Collected from 1/1/2016-12/31/2016

Top 10 Twitter ADEs

SIDE EFFECTS	NUMBER OF REPORTS
Feeling Abnormal	12
Increased Tiredness	10
Increased Hunger	8
Weight Increase	6
Weight Loss	4
Vomiting	4
Bad Breath	2
Addiction/ Dependence	2
Depression	2
Cancer	2

Top 10 FAERS ADEs

SIDE EFFECTS	NUMBER OF REPORTS
Nausea	14
Vomiting	10
Dizziness	9
Drug Ineffective	9
Diarrhea	8
Gait Disturbance	8
Anxiety	7
Back Pain	7
Feeling Abnormal	7
Weight increases	7

Conclusions

- The most frequently reported adverse drug event (ADE) on Twitter was mood change and this was not reported on FAERS.
- The most frequently reported ADE on FAERS was nausea. This was not reported on Twitter.
- The ADEs reported on FAERS were referencing the effects of marijuana for medical use only, where as on Twitter many people may have been taking it recreationally. This would contribute to the differences in side effects due to the differences in doses.
- On twitter, symptoms that are seen as embarrassing may not be reported as much as those that are not.
- One limitation of our project is that we did not compare the same date range between Twitter and FAERS. Another limitation to our data is that we did not use the same number of ADEs for each, however they were close enough to not skew our data dramatically.