Objective:
To explore the possibility of identifying suicide related risk factors through Twitter conversations by matching on geographic suicide rates from vital statistics data.

Methods:
At-risk tweets were filtered from the Twitter stream using keywords and phrases created from suicide risk factors and warning signs. Tweets were grouped by state and at-risk tweeter rates were calculated. Rates of suicide tweets were compared against national data of actual suicide rates provided by the Centers for Disease Control and Prevention.

Results:
A total of 1,659,274 tweets were analyzed over a three-month period with 37,717 identified as at-risk for suicide. States with the highest at-risk tweeter rates tended to be in the midwestern and western states such as Alaska (0.709), New Mexico (0.663), Idaho (0.637), South Dakota (0.633), and Montana (0.637). States with the lowest at-risk tweeter rates tended to be in the south and eastern states such as Louisiana (0.232), Maryland (0.239), Pennsylvania (0.260), Delaware (0.265), and the District of Columbia (0.278). Results revealed a strong correlation when comparing state-by-state at-risk tweeter rates with the age-adjusted state-by-state suicide rates from the CDC's National Vital Statistics System, (r=0.61, p < 0.001).

Summary and Significance:
Twitter may be a viable tool for real time monitoring of suicide risk factors on a large scale. This study demonstrates that individuals who are at-risk for suicide may be detected through social media.