A pilot project to identify individuals who died from suicide and visited an ED before death

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Objective

To explore the use of ED syndromic surveillance data to retrospectively identify individuals who died from suicide and visited an ED before death in order to improve suicide surveillance and inform planning and prevention efforts in Salt Lake County, Utah.

Introduction

In 2015, suicide was the 8th leading cause of death in Salt Lake County, Utah, and has recently been identified as a priority public health issue. For suicide, suicide ideation and suicide attempts surveillance, Salt Lake County Health Department staff use National Violent Death Reporting System (NVDRS) mortality data to monitor historical trends and vital records mortality data and ESSENCE ED encounter morbidity data to monitor trends and populations in real time. To improve surveillance and better identify populations at higher risk of suicide, we tested whether we could retrospectively identify residents who died from suicide and visited an ED in the year before death.

Methods

Data for all ESSENCE ED encounters from January 1, 2016, through June 30, 2017, were downloaded from the National Syndromic Surveillance Program BioSense platform. Salt Lake County residents who died from suicide from January 1, 2017, through June 30, 2017, were linked to this ESSENCE dataset using date of birth and zip code. We performed chart reviews of the matched patients' ED encounters and collected sociodemographic (name, residence, race, ethnicity, marital status, military service, sexual orientation), socioeconomic status (education, occupation) and suicide risk factor data (social isolation, addiction, physical health, relationship, financial, job, school, criminal, civil legal problems, eviction or housing problem, recent suicide or other death of family/friend, current depressed mood, current or recent mental health diagnosis and/or treatment, current alcohol or other substance use disorder, perpetrator or victim of interpersonal violence, history of abuse, and history of suicide ideation, plan and attempt). We used descriptive epidemiology to describe risk factors and circumstances.

Results

Fifteen Salt Lake County residents who died from suicide from January 1, 2017, through June 30, 2017, matched individuals in the ESSENCE ED dataset by date of birth and zip code. Upon chart review, 14/15 matched by medical record number; the remaining patient was excluded due to medical record number mismatch. Ultimately, 13% (14/105) of Salt Lake County residents who died from suicide from January 1, 2017, through June 30, 2017, were identified in ESSENCE as having visited an ED in the year before death. Among them, they visited an ED a total of 30 times. Based on chart review of 13/14 of these individuals, the most common suicide risk factors or circumstances were physical health problem (62%), current mental health diagnosis (62%), history of suicidal thoughts (54%) and current depressed mood (54%). The correlation between risk factors identified from ESSENCE and those identified from NVDRS was moderate ($r = 0.57$).

Conclusions

It is possible to identify individuals who died from suicide and visited an ED before death. We are encouraged by the result that common risk factors found via chart review are similar to those we have found in our historical analyses of NVDRS suicide data. This risk factor information adds valuable context to real-time surveillance of suicide, suicide ideation and suicide attempts. Next steps in this pilot are to complete the final chart review and develop and test triage note search queries to monitor suicide and suicidal thoughts and behavior and identify populations who have these common risk factors and may be at higher risk for suicide. It should be noted that during this work, several facilities' data feeds dropped and the quantity of data decreased dramatically. That we were still able to identify 13% of our residents who died from suicide in ESSENCE despite the large loss of data suggests the true percentage is likely to be much higher once facilities are re-onboarded. This gives us confidence that we will be able to develop a reliable ESSENCE query for suicide risk factors specific to our residents.

Keywords

suicide; ESSENCE; Syndromic surveillance; real-time

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