



Suicide Surveillance System Evaluation, Belize, 2017-2021

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Abstract

Background: Globally, suicide was the fourth leading cause of death among ages 15-29 in 2019. The major risk factor for suicide is a previous attempt. Accurate identification is needed for risk mitigation. The Belize Health Information System (BHIS) is an electronic record-keeping service installed in all public health facilities in the country. The aim was to evaluate the sensitivity, specificity, and predictive value positive (PVP) of the BHIS as a suicide surveillance system. **Population and Methods:** Using the 10th Revision, International Classification of Diseases, (ICD-10), encounters and deaths with an intentional self-harm diagnosis code (X60 to X84.99) were extracted. This data was compared to data processed using Belize's Suicide Validation Tool, which uses supplementary data to assist review and validation of suicide episodes. Sensitivity, specificity, and PVP for morbidity and mortality were calculated. Completeness of supplementary data was also calculated. **Results:** One hundred fifty suicides and 583 attempts were reported during the period, a 4:1 male-to-female suicide ratio. 83 (55.3%) suicides were in 15-34 age group, Belize district reported 42 (28%) suicides. The sensitivity, specificity, and PVP for BHIS mortality data were high: 92.7%, ~99.99%, 97.9% respectively. Sensitivity and PVP figures for morbidity were poor: 50.9% and 42.3% respectively. Specificity was ~99.99%, as most non-suicide events were accurately coded as non-suicides. Regarding supplementary data, 52.2% of psychiatric encounters between 2017 and 2021 had a coded diagnosis and 89.9% had at least one associated clinical note. Overall, 58.9% of all encounters in the period had associated clinical notes. **Conclusion:** The BHIS has good-quality mortality data. The low sensitivity and PVP for morbidity data indicate many false negatives and false positives. Poor data quality, insufficient use of the note module and the lack of capture of all suicidal episodes leads to the major risk factor for suicide not being captured adequately and potentially mitigated. Liaison with the private sector, where BHIS is not utilized, is recommended to expand coverage of suicide morbidity surveillance. ICD-10 coding training is recommended to improve data quality and completeness.

Key words: suicide; public health surveillance; evaluation; Belize.

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