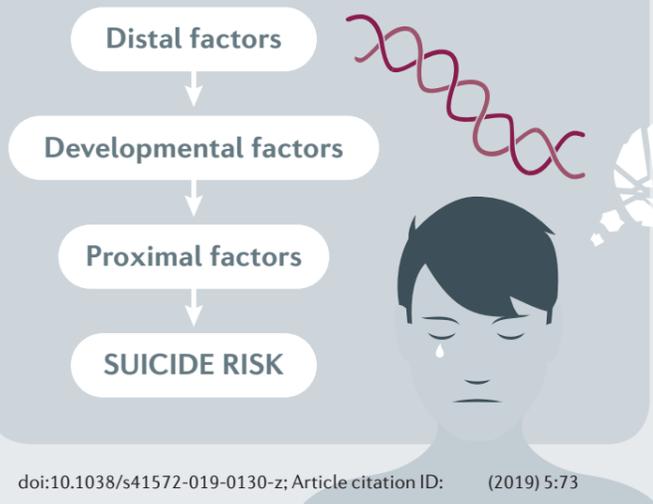


For the Primer, visit doi:10.1038/s41572-019-0121-0

➔ The WHO estimates ~785,000 suicides (that is, the act of intentionally ending one's own life) occur annually. Suicide and suicidal behaviours are important public health issues that still require further research and public awareness.

**MECHANISMS**

Risk factors for suicide can be classified as distal (or predisposing), developmental (or mediating) and proximal (or precipitating) factors, depending on their temporal association with suicide. Distal factors include, among others, familial or genetic predisposition to suicide and early life adversity (that is, physical or sexual abuse, or neglect, during childhood). The link between these factors and suicide is at least partially mediated by other developmental factors, which can include specific personality traits (such as anxiety and impulsive-aggressive traits) and cognitive deficits (such as reduced problem-solving ability, impaired memory and reduced positive future thinking). Factors that associate closely with suicide and are seen as precipitating or facilitating it (proximal factors) include psychiatric disorders (of which major depressive disorder, bipolar disorder, substance use disorder and schizophrenia predominate) and other factors (such as psychological pain, recent bereavement, financial losses and social isolation, among others).



**PREVENTION**

Indicated interventions target people who already exhibit suicidal thoughts or behaviours. Examples include psychological or pharmacological therapies and telephone crisis services (also known as 'hotlines').

**PHARMACOLOGICAL THERAPY**

**PSYCHOLOGICAL THERAPY**

**TELEPHONE CRISIS SERVICES**



Selective interventions target people at increased risk of suicidal thoughts or behaviours but who do not currently experience these behaviours (such as individuals with psychiatric disorders). Examples of this type of intervention include pharmacological therapies and supportive environments in schools that target specific populations of children.

**EPIDEMIOLOGY**

The incidence of suicide varies substantially between countries; rates are relatively high in Russia, South Korea and eastern Europe, and low in the Middle East and some regions of south and central America. Globally, for every death by suicide, ~20 people are estimated to make suicide attempts, although the precise ratio varies between countries.



! Although rates of suicide attempts are higher in females, the rates of suicide deaths are 2-3 times higher in males.

**RESPONSIBLE REPORTING**

**MEDIA CAMPAIGNS**



**RESOURCES FOR SOCIAL MEDIA**

Universal interventions target the entire population and include restricting access to means, promoting the use of guidelines for media organizations to promote the responsible reporting of suicide and resources for social media.

**SUPPORTIVE SCHOOL ENVIRONMENTS**



! For a list of global crisis centres visit [https://www.iasp.info/resources/Crisis\\_Centres/](https://www.iasp.info/resources/Crisis_Centres/)

**SCREENING**

Screening for suicide risk in the emergency department or in primary care settings is important, given that the last clinical contact of many individuals who die by suicide is in these settings. As no

single risk factor can predict whether an individual will transition from suicidal ideation to suicidal behaviour and suicide, several factors should be assessed simultaneously. Available screening tools include

computerized adaptive tests, which are semi-personalized based on an individual's response to questions, and machine learning of electronic health records to identify precursors of suicidal behaviour.

**MANAGEMENT**

Long-term psychosocial interventions, such as cognitive therapy or cognitive behavioural therapy, that target suicidal thoughts and behaviours have been shown to reduce the incidence of self harm in one systematic review and meta-analysis. Brief interventions, such as caring contacts and crisis response planning, can reduce the incidence of suicide in those released from inpatient treatment facilities or after discharge from the emergency room. Pharmacological therapies for suicide include lithium and clozapine, which is approved for the prevention of suicide in people with schizophrenia. Some studies evaluating the use of ketamine, selective serotonin-reuptake inhibitors and buprenorphine have demonstrated positive results, although further studies are required.