

# Suicide—turning the tide

Suicide is a devastating public health problem, afflicting individuals, families, and societies. Fortunately, continuous striving by the World Health Organization to strengthen suicide prevention efforts is paying off. The annual number of suicide deaths decreased from 1 million to 800,000 worldwide during recent decades. A gloomy exception to this trend is the increasing rate of suicide in the United States (14.0 per 100,000 in 2017). But Denmark's experience offers some hope that prevention of suicide is possible. Why has its decline in suicide been steeper than in most other countries?

Historically, the Danish suicide rate was among the highest in the world. In 1980, it was 38 per 100,000 inhabitants over 15 years of age (Hungary's rate was 52 per 100,000). But the Danish rate then began to decline, reaching 11.4 per 100,000 in 2007, roughly where it still stands today. This is among the lowest in high-income countries.

Denmark's strategy for tackling suicide was multipronged and spanned decades. One of the most effective elements was restricting access to dangerous means of suicide. The government initiated restrictions on the availability of medication with high case fatalities, such as sedatives (barbiturates) and opioids (dextropropoxyphene), and introduced less-toxic antidepressants (such as selective serotonin reuptake inhibitors). Removal of carbon monoxide from household gas and the introduction of catalytic converters in car exhaust systems (to reduce the emission of toxic concentrations of carbon monoxide) are likely to have been beneficial. In addition, restrictions on firearm availability and regulations requiring that weapons and ammunition be stored separately and locked up probably aided the decline. Psychiatric wards that were redesigned to eliminate opportunity are also thought to be a valuable contributing factor.

As in other Nordic countries, the Danish tax-based, universal, and free health care system has included mental health since its introduction in 1933. All citizens have access to free psychiatric care, including separate psychiatric emergency rooms, early intervention services for young people with psychosis, and specialized treatment for anxiety and depression. A decline ob-

served in the suicide rate among people with mental illnesses over recent decades might be related to better outpatient treatments, which have seen a 66% increase in capacity since 2000.

Denmark also implemented initiatives to reach those who are at immediate high risk. For instance, Suicide Prevention Clinics have offered counseling, therapy, and practical support to persons with suicidal ideation or behavior nationwide since 2007. This therapy has been linked to long-term reductions in fatal (29%) and non-fatal (18%) suicidal acts. A Psychiatric Emergency Outreach team provides support to people in a severe crisis by having a psychiatrist and an ambulance on call 7 days a week. The Strengthening Outpatient Care After Discharge (SAFE) project recently began offering home visits and family support to patients discharged from a psychiatric hospital. In addition, the Danish nonprofit organization Lifeline is a suicide hotline that offers anonymous counseling by trained volunteers.

Can Denmark do even better? Further reductions in suicide could be achieved through targeted interventions for selected risk groups. Denmark has an abundance of unique, complete, and individual-level register data, which cover the entire nation and can be linked together through a personal identifier, thus providing excellent opportunities to pinpoint high-risk groups. These in-

clude populations with mental or somatic symptom disorders (including alcohol and substance abuse), as well as people experiencing social adversities and marginalized groups, such as homeless individuals, children in foster care, people living in sheltered housing and nursing homes, and incarcerated individuals. Careful monitoring of vulnerable groups and community awareness initiatives will hopefully reduce the national suicide rate even further.

The Danish example shows that suicide prevention initiatives save lives. It seems that universal initiatives that address large groups might have secured the largest gains. The body of evidence on effective efforts is substantial, and policy-makers should start using this knowledge to take charge and reduce suicide numbers.

—Merete Nordentoft and Annette Erlangsen

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# Science

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*Science* **365** (6455), 725.

DOI: 10.1126/science.aaz1568

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