



An Intolerable Burden: Suicide, Intended Self-Injury and Diabetes

Katharine Barnard-Kelly, Diana Naranjo, Shideh Majidi, Halis Akturk, Marc Breton, Philippe Courtet, Emilie Olié, Rayhan Lal, Nicole Johnson, Mark Atkinson, et al.

► To cite this version:

Katharine Barnard-Kelly, Diana Naranjo, Shideh Majidi, Halis Akturk, Marc Breton, et al.. An Intolerable Burden: Suicide, Intended Self-Injury and Diabetes. Canadian Journal of Diabetes, 2020, 44 (6), pp.541-544. <10.1016/j.jcjd.2020.01.008>. <hal-03529838>

HAL Id: hal-03529838

<https://hal.science/hal-03529838v1>

Submitted on 3 Oct 2024

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Copyright - All rights reserved



Published in final edited form as:

Can J Diabetes. 2020 August ; 44(6): 541–544. doi:10.1016/j.jcjd.2020.01.008.

An Intolerable Burden: Suicide, Intended Self-Injury and Diabetes

Katharine D. Barnard-Kelly, PhD^{a,b,*}, Diana Naranjo, PhD^c, Shideh Majidi, MD^d, Halis K. Akturk, MD^d, Marc Breton, PhD^e, Philippe Courtet, MD^f, Emilie Olié, MD^f, Rayhan A. Lal, MD^c, Nicole Johnson, PhD^g, Mark Atkinson, MD^h, Eric Renard, MD^{i,j}

^aFaculty of Health and Social Science, Bournemouth University, Fareham, Hampshire, United Kingdom

^bBHR, Ltd, Fareham, Hampshire, United Kingdom

^cStanford Diabetes Research Center, Stanford, California, United States

^dBarbara Davis Center for Diabetes, University of Colorado, Aurora, Colorado, United States

^eCenter for Diabetes Technology, University of Virginia, Charlottesville, Virginia, United States

^fPsychiatric Emergency and Acute Care, Lapeyronie Hospital, University of Montpellier, Montpellier, France

^gJDRF, New York, New York, United States

^hDepartment of Pathology, Immunology and Laboratory Medicine, University of Florida, Florida, United States

ⁱDepartment of Endocrinology, Diabetes, and Nutrition, Montpellier University Hospital, Montpellier, France

^jInstitute of Functional Genomics, CNRS, INSERM, University of Montpellier, Montpellier, France

Diabetes—Its Major Forms, Treatments and Impact on Lifestyle

Diabetes mellitus can refer to any 1 of a series of metabolic disorders having a common feature of inadequate insulin production capable of maintaining appropriate glycemic levels (1). Type 2 diabetes mellitus (T2D) represents the most common form of the disease, affecting some 90% to 95% of those diagnosed with the disorder (1). With rising rates of obesity, a diagnosis of T2D increasingly occurs in adolescents and early adulthood (1), but largely remains a disease of adults. In contrast, type 1 diabetes mellitus (T1D) is an autoimmune disorder in which the body's immune system destroys the insulin-producing beta cells, rendering a situation in which individuals become dependent on lifelong

* Address for correspondence: Katharine Barnard-Kelly PhD, Faculty of Health and Social Science, Bournemouth University, Fareham, Hampshire PO16 8EG, United Kingdom. katharinebarnard@bhr ltd.com.

Author Contributions

KBK wrote the first draft of the manuscript. All other authors wrote text based on their multidisciplinary expertise. All authors reviewed and edited the manuscript.

Author Disclosures

Conflicts of interest: None.

exogenous insulin replacement (2). Once thought a disease largely of “juveniles” (i.e. children and adolescents), thanks to improvements in diagnostic tools and disease definitions, T1D can be diagnosed in persons of any age (2).

Successful integration of lifestyle modifications, technologies and pharmacologic treatments have shown remarkable success in achieving metabolic goals of improved care. Recent data suggest that these new treatment regimens have led to marked reductions in the frequency of most disease-related complications historically ascribed to the disorder, including retinopathy, nephropathy and neuropathy (3,4). However, even with improvements in diabetes management, the emotional and psychological burden of diabetes is often not focused on or considered. The aim of this report was to provide an overview of some of the evidence related to unacceptably high suicide rates in people with diabetes mellitus and to outline some of the key associated challenges.

The Challenges of Living With Diabetes

Without question, diabetes mellitus is a psychologically demanding chronic disease (4). People with diabetes live daily with issues related to dietary management, exercise, pharmacologic intervention, self-monitoring of glucose as well as psychological and behavioural management. Indeed, the status of glycemic control and one's ability to achieve it may significantly affect the psychosocial responses of patients to diabetes (5). This challenge, along with the delivery of appropriate care, is often not limited to the patients themselves, but extended to family members, coworkers, teachers and other associated individuals. Thus, collectively creating an environment poised for depression by way of questions of self-worth (6), strength of relationships (7), fear for the future (8) and potential for employment and educational opportunities (9), and more.

An Intolerable Burden

A systematic review by Pompili et al (5) showed that individuals with T1D and T2D have nearly a doubled risk of suicide compared with the general population. In addition, diabetes is known to be associated with greater suicidal ideation, with increased levels of hopelessness and higher rates of depression (5). The World Health Organisation has estimated the number of suicide attempts is at least 20-fold higher than the number of recorded deaths among those with diabetes (10).

There are also associated financial consequences. Specifically, there were 44,965 suicides in the United States in 2016, costing \$11.8 billion in lost productivity (11,12), even before including the cost of emergency room visits for nonsuicidal intentional selfinjury (ISI). Hence, the financial impact of such high numbers of suicides in people with diabetes on such figures would appear clear. Moreover, suicidal incidents increased dramatically by 42% between 2001 and 2016 (13). The impact of diabetes is not limited to suicides alone as nonsuicidal self-injuries, such as cutting, burning, head-banging, scratching, asphyxiation, poisoning and self-hitting, must also be considered (14,15). Of the annual 800,000 suicide deaths worldwide, half exhibited prior ISI (16).

When focusing on T1D, it is evident that the high suicide risk is present across ethnic groups. Also, T1D patients have been reported to be 3- or 4-fold more likely to attempt suicide than those without diabetes (13.3% vs 3.5%) (17). Studies in youth and adults showed higher rates of depression among those with T1D vs those without (18–22). Presence of depressive symptoms in individuals with T1D is associated with worse glycemic control (21,22) and increased emergency room visits and hospitalizations in youth with T1D compared to those without depressive symptoms (22,23). Risks of ISI for those with T1D are approximately doubled (24–27).

Unfortunately, there is also evidence to suggest that the rates of suicide are grossly underestimated in diabetes patients due to poor coding and reporting. Many of the national systems for suicide prevention surveillance (10) include data coded using the *International Classification of Diseases* (15). The ICD, maintained by the World Health Organisation, provides an international standard for classification of diseases and medical conditions. Hedegaard et al (15) explained some of the issues related to documentation and coding (Table 1).

Furthermore, industry coding schemes may not accurately reflect suicide or ISI. The Medical Device Reporting regulation (21 CFR Part 803) (28) contains mandatory requirements for manufacturers, importers and device user facilities to report certain device-related adverse events and product problems to the United States Food and Drug Administration. Manufacturers are required to report to the Food and Drug Administration when they learn that their devices may have caused or contributed to a death or serious injury. However, it is possible that a suicide is entirely unrelated to the device, but rather that the device is simply the mechanism by which the individual took their own life (e.g. insulin overdose). The burden of diabetes can be overwhelming for many and the easy availability of a potentially lethal drug, such as insulin, provides the opportunity for those so minded to take their own life.

Suicidal Risk Factors in Diabetes

Rapid advancements in therapies and technologies for diabetes management are not always matched by positive real-world clinical outcomes. Furthermore, the relationship between psychological well-being, psychosocial functioning, device use and diabetes is complex and multifaceted. In addition, socioeconomic inequalities further compound the challenges in terms of inequality and access to such technologies. It has long been argued that those in greatest need (i.e. low social position) are least likely to receive appropriate health care (29). Several factors have been suggested as to why low social status increases suicide risk. These include powerlessness, social exclusion, poor mental health, unhealthy lifestyle, stigma, disrespect and more adverse life experiences (30).

More specifically, 4 suicide risk factors have been identified:

1. Pressures within communities, including stigma, poor social cohesion, deprivation and lack of safety.
2. Inappropriate reporting and representation of suicidal behaviour in the media.

3. The quality of response from services, including insufficient focus on the prevention, identification, assessment of needs and access to mental health treatment.
4. Stress on individuals, including family breakdown, low educational qualifications, insecurity of employment and alcohol and substance misuse (30).

In addition to these risk factors, chronic illness, including diabetes, significantly increases the risk of suicidal behaviours and completed suicides (30). However, social inequality is only 1 important factor. T1D and suicidal vulnerability are also associated with cognitive impairments as well as structural and functional changes in the brain (31). This finding raises the question of whether shared neurobiologic mechanisms may, in part, explain this association. Glycemic dysregulation may reflect impairments in decision-making. For example, efficiency in decision-making (as measured by the Iowa Gambling Task [IGT]) among teens with T1D represents a neurocognitive risk factor for subsequent glycemic dysregulation. Whereas IGT performance was unrelated to glycemic control at baseline, IGT total score was related to changes in glycated hemoglobin across time during 1 year of follow up (8). Further research demonstrated that poor glycemic control is associated with decision-making function according to both behavioural results and brain activity in the ventromedial prefrontal and orbitofrontal cortices in patients with T2D (32). Disadvantageous decision-making has been reported as a putative endophenotype for suicide (33). Decision-making impairments in past suicide attempters have also been demonstrated using IGT (34–36). Such actions are prone to heritability (37), occur in a trait-like manner and have a neurobiologic substrate, as demonstrated by functional changes in prefrontal cortex in patients with history of suicidal act (35,38) and relatives of suicide completers (39).

Patients with T1D having experienced severe hypoglycemia within the previous month persistently perform more poorly in Stroop Task testing than patients without such a history (40). During hypoglycemia, individuals with T1D demonstrate decreased ability with “reading” and “colour recognition” in Stroop Task testing, although “interference” scores improved (41). A range of executive functions could separate depressed patients from healthy controls, but the Stroop Task, which measures inhibition, distinguishes suicide attempters from nonattempters (42). In comparison to nonattempters, suicide attempters have a poorer interference score—that is, time to read the colour-word interference sheet minus time to name the colour of each block sheet (42). As suicidal behaviour/ideation has been associated with hyperglycemia (43–45), and hypoglycemia has been associated with improvement of Stroop interference, we may expect that hyperglycemia in T1D would increase the risk of a suicide attempt by altered executive functions. This possibility deserves to be studied.

In addition, the context in which people living with diabetes find themselves cannot be underestimated given that the nature of this disorder is innately challenging. Polonsky (46), for example, described diabetes distress and burnout as reflecting the capacity of the condition “to exhaust, to worry, to frustrate and to expedite personal crises of both body and mind.” Furthermore, according to Graham (47), it is feasible that the role of self-harm emerges as a transient self-therapy, offering a fleeting, yet powerful, governance of one’s

body and emotional state. This glimpse of perceived personal control over an otherwise controllable condition presents relief from the relentless demands, stigma and presence of diabetes. Graham et al further argue that self-harm's various putative functions take on new meaning and relevance when viewed in the context of the uniquely and uncannily predatory disease that is diabetes. Diabetes differs from other health conditions in that it potentially brings with it shame, a threat of limited life and disability, alongside time-consuming daily tasks and unwelcome health complications. The stigma associated with diabetes has been well reported (48). In an attempt to tackle this stigma, new guidelines were introduced in 2018, entitled "Language Matters." These guidelines highlighted the importance of the language used when speaking with or about people with diabetes. The document provided practical examples of appropriate language to encourage positive interactions with people living with diabetes and subsequently reduce stigma and lead to positive outcomes (49).

Suicide Attempt Survivor Experiences

Choosing to reveal such a personal event can be a difficult decision. Previous negative experiences with disclosure is a prime reason for nondisclosure of current suicidal thoughts (50). In addition, perceived disincentives for suicidal ideation disclosure include fear of practical implications outside of therapy, such as involuntary hospitalization, over- and underreactions, stigma and futility, are all contributing factors to a person becoming less likely to ask for help in the future (51). In addition, many suicide attempt survivors worry that their disclosure will overwhelm or burden their family members (52).

Beyond the internal factors impacting disclosure, such as discomfort or difficulty finding the words, the interpretation or reaction of others included accusations of attention-seeking, harsh judgement and stigma (52). Individuals report being extremely good at hiding their suicidal ideation from friends and family (52). This results in some support systems being unable to recognize symptoms and intervene. Those individuals who do manage to find the "right words" report how helpful the experience of sharing had been (52), and some report disclosing their stories could help overcome the stigma in their social network.

Overcoming the Challenges of Living With Diabetes and Reducing Suicidal Risk

There are examples of routine screening and existing care pathways to combat diabetes distress, ISI and suicide, but best practice is isolated and far from common practice. This is despite the American Diabetes Association's recommended screening for psychological comorbidities including depression as part of routine care (53,54). A handful of academic centres have implemented a suicide risk assessment protocol in their pediatric T1D clinic to determine risk level in those with positive suicidal ideation on the depression screen of the Patient Health Questionnaire-9. The suicide risk assessment is conducted by a psychologist, social worker or physician, and has been found to be feasible to implement in a routine clinical setting.

In conclusion, it is clear that a multifaceted approach is required to address this pressing public health issue. This report is a call to action to:

- Urge stakeholders to ensure coding of ISI and suicide are accurately reported. Clear guidelines should be developed and implemented across all areas of health care, including industry, that include appropriate coding of ISI and suicide. Only through accurate measurement can the exact scale be known and enable effective mechanisms to improve support available.
- Encourage routine screening for depression and diabetes distress in diabetes care. The Patient Health Questionnaire-9 screening tool should be introduced across routine clinical care for all patients, on a minimum of an annual basis.
- Encourage conversations around depression/distress/self-inflicted injury (including suicide) to reduce stigma and improve opportunities to intervene effectively. All health-care professionals should be aware of the increased prevalence of ISI and suicide in diabetes. Training should be provided to enable health-care professionals to initiate conversations delicately and tactfully around this sensitive topic.

References

1. American Diabetes Association. Diagnosis and classification of diabetes mellitus. *Diabetes Care* 2009;32(Suppl. 1):S62–7. [PubMed: 19118289]
2. Atkinson M, Eisenbarth DS, Michels AW. Type 1 diabetes. *Lancet* 2014;383:69–82. [PubMed: 23890997]
3. Gregg EW, Yanfeng L, Wang J, et al. Changes in diabetes-related complications in the United States, 1990–2010. *N Engl J Med* 2014;370:1514–23. [PubMed: 24738668]
4. Gregg EW, Cheng YJ, Srinivasan M, et al. Trends in cause-specific mortality among adults with and without diagnosed diabetes in the USA: An epidemiological analysis of linked national survey and vital statistics data. *Lancet* 2018;391:2430–40. [PubMed: 29784146]
5. Tareen RS, Tareen K. Psychosocial aspects of diabetes management: Dilemma of diabetes distress. *Transl Paediatr* 2017;6:383–96.
6. Pompili M, Forte A, Lester D, et al. Suicide risk in type 1 diabetes mellitus: A systematic review. *J Psychosom Res* 2014;76:352–60. [PubMed: 24745775]
7. Caprara GV, Alessandri G, Barbaranelli C, Vecchione M. The longitudinal relations between self-esteem and affective self-regulatory efficacy. *J Res Pers* 2013;47:859–70.
8. Barnard-Kelly KD, Naranjo D, Majidi S, et al. Suicide and self-inflicted injury in diabetes: A balancing act. *J Diabetes Sci Technol* 2019 (in press).
9. Herzer M, Hood KK. Anxiety symptoms in adolescents with type 1 diabetes: Association with blood glucose monitoring and glycemic control. *J Pediatr Psychol* 2010;35:415–25. [PubMed: 19684117]
10. American Diabetes Association. Diabetes and employment. *Diabetes Care* 2014;37(Suppl. 1):S112–7. [PubMed: 24357206]
11. World Health Organisation. International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10). Geneva: WHO, 2016.
12. Xu J, Murphy SL, Kochanek MA, Bastian B, Arias E. Deaths: Final data for 2016. 7 26, 2018 https://www.cdc.gov/nchs/data/nvsr/nvsr67/nvsr67_05.pdf. Accessed December 20, 2019.
13. Goldsmith K, Pellmar TC, Kleinman AM, Bunney WE. Reducing suicide: A national imperative. 2020 <https://www.nap.edu/catalog/10398/reducing-suicide-a-national-imperative>. Accessed December 20, 2019.
14. Stone DM, Simon TR, Fowler KA, et al. Vital signs: Trends in state suicide rates—United States, 1999–2016 and circumstances contributing to suicide—27 states, 2015 Weekly/6 8, 2018/67(22);617–24.
15. Cipriano A, Cella S, Cotrufo P. Nonsuicidal self-injury: A systemic review. *Front Psychol* 2017;8:1946. [PubMed: 29167651]

16. Hedegaard H, Schoenbaum M, Claassen C, Crosby A, Holland K, Proescholdbell S. Issues in developing a surveillance case definition for nonfatal suicide attempt and intentional self-harm using International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) coded data. *Natl Health Stat Rep* 2018;108:1–19.
17. Cooper J, Kapur N, Webb R, et al. Suicide after deliberate self-harm: A 4-year cohort study. *Am J Psychiatry* 2005;162:297–303. [PubMed: 15677594]
18. Roy A, Roy M, Janal M. Suicide attempts and ideation in African-American type 1 diabetic patients. *Psychiatry Res* 2010;179:53–6. [PubMed: 20630602]
19. Hood KK, Beavers DP, Yi-Frazier J, et al. Depressive symptoms in children and adolescents with type 1 diabetes: Association with diabetes-specific characteristics. *Diabetes Care* 2006;29:1389–91. [PubMed: 16732028]
20. Hilliard ME, Herzer M, Dolan LM, Hood KK. Psychological screening in adolescents with type 1 diabetes predicts outcomes one year later. *Diabetes Res Clin Pract* 2011;94:39–44. [PubMed: 21665313]
21. McGrady ME, Hood KK. Depressive symptoms in adolescents with type 1 diabetes: Associations with longitudinal outcomes. *Diabetes Res Clin Pract* 2010;88:e35–7. [PubMed: 20451278]
22. Egbunu I, Trief PM, Roe C, Weinstock RS. Glycemic outcomes related to depression in adults with type 1 diabetes. *J Health Psychol* 2020 (In press).
23. Trief PM, Foster NC, Chaytor N, et al. Longitudinal changes in depression symptoms and glycemia in adults with type 1 diabetes. *Diabetes Care* 2019;42:1194–201. [PubMed: 31221694]
24. Stewart SM, Rao U, Emslie GJ, Klein D, White PC. Depressive symptomology predict hospitalization for adolescents with type 1 diabetes mellitus. *Pediatrics* 2005;115:1315–9. [PubMed: 15867041]
25. Lofman S, Hakko H, Mainio A, Timonen M, Rasanen P. Characteristics of suicide among diabetes patients: A population based study of suicide victims in northern Finland. *J Psychosom Res* 2012;73:268–71. [PubMed: 22980531]
26. Ferro MA, Rhodes AE, Kimber M, et al. Suicidal behaviour among adolescents and young adults with self-reported chronic illness. *Can J Psychiatry* 2017;62:845–53. [PubMed: 28814100]
27. Fuller-Thomson E, Sawyer J-L. Lifetime prevalence of suicidal ideation in a representative sample of Canadians with type 1 diabetes. *Diabetes Res Clin Pract* 2009;83:e9–11. [PubMed: 19070912]
28. Data and Surveillance Task Force of the National Action Alliance for Suicide Prevention. Improving national data systems for surveillance of suicide-related events. *Am J Prev Med* 2014;47(Suppl. 2):S122–9. [PubMed: 25145729]
29. FDA MAUDE–Manufacturer and User Facility Device Experience Database. <https://www.fda.gov/medical-devices/mandatory-reporting-requirements-manufacturers-importers-and-device-user-facilities/manufacture-and-user-facility-device-experience-database-maude>. Accessed October 15, 2019.
30. Hart JT. The inverse care law. *Lancet* 1971;297:405–12.
31. Prevention of suicide and self-harm. <https://khub.net/documents/20212707/24967686/Prevention+of+suicide+and+self-harm++research+briefing/00fc999c-94a8-42e3-bb5d-6f681dfab59d?version=1.0>. Accessed October 15, 2019.
32. Suchy Y, Turner SL, Queen TL, et al. The relation of questionnaire and performance-based measures of executive functioning with type 1 diabetes outcomes among late adolescents. *Health Psychol* 2016;35:661–9.
33. Sun DM, Ma Y, Sun ZB, et al. Decision-making in primary onset middle-age type 2 diabetes mellitus: A BOLD-fMRI study. *Sci Rep* 2017;7:10246. [PubMed: 28860463]
34. Courtet P, Gottesman II, Jolant F, Gould TD. The neuroscience of suicidal behaviors: What can we expect from endophenotype strategies? *Transl Psychiatry* 2011;1:e7. [PubMed: 21761009]
35. Jollant F, Bellivier F, Leboyer M, et al. Impaired decision making in suicide attempters. *Am J Psychiatry* 2005;162:304–10. [PubMed: 15677595]
36. Jollant F, Lawrence NS, Olie E, et al. Decreased activation of lateral orbitofrontal cortex during risky choices under uncertainty is associated with disadvantageous decision-making and suicidal behavior. *Neuroimage* 2010;51:1275–81. [PubMed: 20302946]

37. Bridge JA, McBee-Strayer SM, Cannon EA, et al. Impaired decision making in adolescent suicide attempters. *J Am Acad Child Adolesc Psychiatry* 2012;51:394–403. [PubMed: 22449645]
38. Hoehne A, Richard-Devantoy S, Ding Y, Turecki G, Jollant F. First-degree relatives of suicide completers may have impaired decision-making but functional cognitive control. *J Psychiatr Res* 2015;68:192–7. [PubMed: 26228419]
39. Olie E, Ding Y, le Bars E, et al. Processing of decision-making and social threat in patients with history of suicidal attempt: A neuroimaging replication study. *Psychiatry Res* 2015;234:369–77. [PubMed: 26483212]
40. Ding Y, Pereira F, Hoehne A, Beaulieu MM, Lepage M, Turecki G, Jollant F. Altered brain processing of decision-making in healthy first-degree biological relatives of suicide completers. *Mol Psychiatry* 2017;22:1149–54.
41. Strachan MW, Deary IJ, Ewing FM, Frier BM. Recovery of cognitive function and mood after severe hypoglycemia in adults with insulin-treated diabetes. *Diabetes Care* 2000;23:305–12. [PubMed: 10868856]
42. Kelly D, Hamilton JK, Riddell MC. Blood glucose levels and performance in a sports cAMP for adolescents with type 1 diabetes mellitus: A field study. *Int J Pediatr* 2010;2010:216167. [PubMed: 20811595]
43. Richard-Devantoy S, Berlim MT, Jollant F. A meta-analysis of neuropsychological markers of vulnerability to suicidal behavior in mood disorders. *Psychol Med* 2014;44:1663–73. [PubMed: 24016405]
44. Conti C, Mennitto C, Di Francesco G, Fraticelli F, Vitacolonna E, Fulcheri M. Clinical characteristics of diabetes mellitus and suicide risk. *Front Psychiatry* 2017;8:40. [PubMed: 28348533]
45. Koponen H, Kautiainen H, Leppänen E, Mäntyselkä P, Vanhala M. Association between suicidal behaviour and impaired glucose metabolism in depressive disorders. *BMC Psychiatry* 2015;15:163. [PubMed: 26199013]
46. Bot M, Pouwer F, de Jonge P, Tack CJ, Geelhoed-Duijvestijn PH, Snoek FJ. Differential associations between depressive symptoms and glycaemic control in outpatients with diabetes. *Diabet Med* 2013;30:e115–22. [PubMed: 23181742]
47. Polonsky WH. *Diabetes Burnout*. New York: McGraw-Hill, 1999.
48. Graham R. Diabetes and self-harm: Understanding and addressing the problem. *Pract Diabetes* 2014;31.
49. Browne JL, Ventura A, Mosely K, Speight J. ‘I call it the blame and shame disease’: A qualitative study about perceptions of social stigma surrounding type 2 diabetes. *BMJ Open* 2013;3:e003384.
50. NHS England Language Matters. Language and diabetes. 6 2018 <https://www.england.nhs.uk/publication/language-matters-language-and-diabetes>. Accessed December 20, 2019.
51. Frey LM, Fulginiti A, Lezine D, Cerel J. The decision-making process for disclosing suicidal ideation and behavior to family and friends. *Fam Relat* 2018;67:414–27.
52. Sheehan L, Oexle N, Armas SA, et al. Benefits and risks of suicide disclosure. *Soc Sci Med* 2019;223:16–23. [PubMed: 30690334]
53. Maple M, Frey LM, McKay K, Coker S, Grey S. “Nobody hears a silent cry for help”: Suicide attempt survivors’ experiences of disclosing during and after a crisis. *Arch Suicide Res* 2019 (in press).
54. Diabetes Canada 2018 clinical practice guidelines for the prevention and management of diabetes in Canada. *Can J Diabetes* 2018;42(suppl 1):S1–S326. [PubMed: 29650079]
55. Young-Hyman D, de Groot M, Hill-Briggs F, Gonzalez JS, Hood K, Peyrot M. Psychosocial care for people with diabetes: A position statement of the American Diabetes Association. *Diabetes Care* 2016;39:2126–40. [PubMed: 27879358]
56. Centers for Disease Control and Prevention, Centers for Medicare & Medicaid Services. ICD-10-CM official guidelines for coding and reporting. 2017 <https://www.cms.gov/Medicare/Coding/ICD10/Downloads/2017-ICD-10-CM-Guide-lines.pdf>. Accessed December 20, 2019.
57. Rhodes AE, Links PS, Streiner DL, Dawe I, Cass D, Janes S. Do hospital E-codes consistently capture suicidal behaviour? *Chronic Dis Can* 2002;23:139–45. [PubMed: 12517321]

Key Messages

- Suicide prevalence in people with diabetes represents a serious public health issue that must be addressed.
- Improved coding of suicide and suicidal attempts is needed to ensure accurate reporting of such events.
- Routine screening for psychological well-being for people with diabetes is required, as advocated by the American Diabetes Association.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 1.

ICD-10-CM coding

1. The assignment of ICD-10-CM codes is based on how events and conditions are documented in the medical record (55). However, the way findings are documented may vary based on a clinician's experience and interpretation of a given patient's presentation. Use of standard clinical case definitions may vary from clinician to clinician or facility to facility. In the case of a suicide attempt or intentional self-harm, concern by the patient on their own behalf, or by the clinician on the patient's behalf, regarding the stigma that might result if an event is recorded a particular way may influence how the event is described in medical documentation. If the medical record does not provide sufficient supporting documentation, an ICD-10-CM code for intentional self-harm might not be assigned.
2. Administrative data sets for hospitalizations and ED visits can vary in the completeness and quality of ICD coding, particularly with regard to external cause codes. Federal mandates require health-care providers to include diagnosis codes when submitting electronic claims for reimbursement; however, there is no requirement to report external cause codes. Because external cause codes are essential for identifying cases involving suicide attempts and intentional self-harm, it is important to know the completeness of external cause coding in the data set used for analysis. If a high proportion of injury records lack an external cause code, the counts of cases involving suicide attempts and intentional self-harm could be underestimated (56,57).
3. Information on both the mechanism and the intent of the injury or poisoning is needed to appropriately assign an external cause code. Injury events can be unintentional (accidental) or involve intentional harm to oneself or intentional harm inflicted by another person. When the intent of the injury is not known or not well documented in the medical record, codes for undetermined intent may be assigned.

ED, emergency department; ICD-10-CM, International Classification of Diseases, Tenth Revision—Clinical Modification.