

Title:

## Comparing the impact of diabetes on individuals

## LESSON 4

**Subject area/discipline:** Interdisciplinary

**Grade level:** 7-12

**Suggested time:**

Synchronously (on-line or face-to-face): 150 minutes

Asynchronously: 150 minutes

### OVERARCHING CRITICAL INQUIRY QUESTION:

What are the most essential attributes for ground-breaking scientists who impact the future in positive ways?

### OVERARCHING CRITICAL INQUIRY TASK:

Tell a compelling story of the discovery of insulin in a way that can inspire powerful future actions to a selected audience using the most appropriate medium.

### Lesson critical inquiry question

Does diabetes impact the lives of all people in an equitable way?

### Lesson critical inquiry task

Create a social media post using a platform of your choice to share the 3 most powerful actions that should be taken to equitably improve the health of people diagnosed with diabetes.

### Central ideas/learning goals

- Diabetes impacts lives in many different ways
- When managed equitably more people with diabetes can live better lives
- Medical research has led to developments that have significantly improved the physical well-being of those living with diabetes but more needs to be done for this to be equitable
- Personal stories can help others to understand the how life circumstances variations in peoples' lives affect the degree to which diabetes impacts their health

### Related concepts

- Comorbidity
- Equity
- Evidence
- Significance

### Key competencies

- Analysis of personal stories
- Synthesis of insights from various stories
- Prospective thinking
- Communication of scientific ideas clearly, succinctly and appropriately for a specific purpose and audience.
- Iterative thinking
- Compassionate thinking\*

**\*Teacher Note:** Compassionate thinking is defined as the thinking behaviour required to understand of the suffering of self and others and deciding how to best act to alleviate that suffering.

### Lesson overview

In this lesson students consider factors that impact the personal life circumstances of various people and how those factors complicate the effects of living with diabetes. They then read case studies of Canadians from the past and the present who have lived with diabetes and compare their life stories. Considering the evidence revealed by the stories, students determine the most important changes required to ensure equitable access to social and health supports that ensure the effects of living with diabetes are reduced as much as possible. Students use the evidence and insights they gather to construct a statement on the need for actions that help all those living with diabetes minimize its effects.

### Materials and preparation required

- [\*Appendix 1: Comparing the effects of diabetes\*](#)
- [\*Appendix 2: Diabetes Backgrounder\*](#)
- [\*Appendix 3: Assessing the impact of personal life circumstances on health and comorbidity\*](#)

### Opportunities for Differentiation

- Provide a variety of ways for students to share their recommended actions

### Launch the learning

Provide students with [Appendix 1: Assessing Impact](#). Ask them to indicate on the thermometer how significantly they believe diabetes impacted on the physical well-being of four different Canadians a) someone living in poverty with Type 1 Diabetes; b) someone from a middle-class family with Type 2 Diabetes; c) an overweight male in their 50's with Type 2 diabetes; d) a 12 year old boy with Type 1 Diabetes. To indicate the impact provide students with four dots of different colours (red=living in poverty; green=middle class; yellow=overweight male; blue=12 year old boy). If the lesson is being experienced online have students use annotations to place the four colour dots on the thermometer.

### Set the task

Inform students that they will be using details from the personal stories of Canadians with diabetes to illustrate the degree to which their personal circumstances either helped them to live with diabetes or exacerbated issues related to their physical well-being. Considering what is learned from the personal stories of Canadians, students will create a call to action that suggested three important actions that should be taken to ensure all Canadians with diabetes have equitable opportunities to live relatively healthy lives. Students can determine the form of their call to action (letter, poster, video etc.)

### Review the impact of diabetes on personal health

Inform students that diabetes impacts several aspects of a person's life especially their diet, health, activities. Provide students with a copy of [Appendix 2: Diabetes Backgrounder](#). Encourage students to review the information that can be found at the link provided on the backgrounder and to assemble 4-6 important and relevant points that help them to understand the symptoms, treatments and complications relating to diabetes.

### Introduce the concept of comorbidity

Provide students with the following definition of “comorbidity”:

*A comorbidity is a physical or mental disease or condition that coexists with a primary disease. In the case of diabetes common comorbidities include high blood pressure, obesity, depression, liver disease and sleep apnea. Comorbidities can either complicate the effects of diabetes or can contribute to the development of Type 2 diabetes.*

Ask students to identify which of the following statements could reflect a comorbidity for someone with diabetes and which would not. Invite students to share their answer along with their reasoning.

1. A cut finger from peeling an apple
2. A heart-attack
3. Poor diet leading to weight gain
4. A severe response to Covid-19
5. Food poisoning

### Establish criteria for assessing the degree to which personal life circumstances\* help or harm the health of people with diabetes.

*\*Teacher Note: Personal life circumstances refer to social and economic realities of each individuals' life. For example, their income level, marital/family status, social standing, level of education, nature of employment and so on.*

Present students with the following criteria to be used in assessing the degree of impact of personal life circumstances. Remind students when examining evidence to consider each of the criteria as a continuum. For example, were additional health issues slightly more likely to occur or highly more likely? Or, were they slightly or much less likely?

Criteria for significant impact of personal life circumstances:

- Increases or decreases the likelihood of additional health issues (e.g. quality of sleep, quality of diet, stress level)
- Deepens or lessens the impact of existing health conditions
- Shortens or lengthens life expectancy

### **Introduce thinking strategy to assist in case study analysis**

Share [Appendix 3: Assessing the impact of personal life circumstances on health and comorbidity](#) by posting it online or projecting it in class. Provide students with a case study students to read independently about someone who lives with diabetes. Examples can be found on the Defining Moments Canada website, or a celebrity such as Max Domi can be reference.

Once students have read a case study, model the use of the Appendix 3 by presenting a partially completed sheet and reviewing the sample evidence, inferences and conclusions. If necessary, review inferencing using material for lesson 3.

Invite students to suggest relevant additional evidence that can be extracted from the case study. As students identify relevant evidence, encourage them to suggest a sound inference that can be drawn from the evidence.

Once a body of evidence and inferences have been gathered ask students to share the degree to which someone's personal life circumstances can either help or hinder their ability to live a healthy life while living with diabetes. Ensure students support their assessment of significance by citing 2-3 relevant insights they have drawn from the case study.

### **Build background knowledge through the use of case studies**

Provide pairs or groups of 3 students with one Diabetes Case Study. (There are six historical case studies providing details of the impact of diabetes on people prior to and immediately after the discovery of insulin and six contemporary case studies providing details on the impact of diabetes on the lives of people from various backgrounds.) Also provide the students with a copy of [Appendix 3: Assessing the impact of personal circumstance on health and comorbidity](#).

6 historical stories, Pilot, Hockey player, Father and Daughter, Indigenous, Poverty

Encourage students to independently read their assigned case study.

After reading the case study, ask students to collaboratively identify relevant evidence and match the evidence to the most appropriate criteria on the Assessing the impact of personal circumstance on health and comorbidity chart.

As each piece of evidence is identified and added to the chart, remind students to discuss possible inferences that can be drawn.

Once the students have completed their careful analysis of their case study remind them to draw a conclusion on the degree to which the individual's personal circumstance either helped or hinder their ability to live a healthy life while living with diabetes.

### **Share Case Study Conclusions**

Provide each group the opportunity to share the conclusions they have drawn based on their assigned case study. Remind students to establish context by sharing with their peers, details of their case study including name, when they lived, and any other helpful details. Then ask that they share their conclusions ensuring they provide relevant details to support their assessments.

### **Encourage Iterative Thinking\***

Invite students to re-visit the Thermometer to consider if they would change their assessment of how significantly diabetes impacted people's lives. Remind them that they are to provide reasoning with evidence from the case studies to support why they would or would not alter their assessment.

*\*Iterative thinking refers to thinking that is incremental in nature. Students are invited to consider an initial response to a question or challenge and then to reflect on that response as their learning progresses. When reflecting on their response students could affirm their position/idea; revise their response; or extend their thinking.*

### **Select the most powerful actions and helpful details, evidence or quotes**

To finish the lesson, remind students that their lesson task is to Identify the 3 most powerful and equitable actions that should be taken to minimize the effects of diabetes on everyone. Ask them to consider the various actions suggested by the groups based on their assigned case studies and to select the 3 actions they believe will make the most important difference. To determine the three most important actions, encourage students to consider which actions would:

- Ensure an equitable impact on improving people's health and life
- Have a wide-spread impact
- Have a lasting impact
- Would make a significant difference to individuals health

Also, remind them that their over-arching challenge is to "Tell a compelling story of the discovery of insulin in a way that can inspire powerful future actions to a selected audience using the most appropriate medium." Remind them that the inclusion of details, evidence and quotes from personal accounts can help to add an important human dimension to their story and ask that they select the three most powerful details, evidence or quotes from personal accounts that they have encountered in the lesson.