

## READING GROUP GUIDE

for

### **BREAKTHROUGH: *Elizabeth Hughes, the Discovery of Insulin, and the Making of a Medical Miracle* by Thea Cooper and Arthur Ainsberg**

*In 1919, when eleven-year-old Elizabeth Hughes is diagnosed with juvenile diabetes, it is essentially a death sentence. The only accepted treatment—starvation—whittles her down to forty-five pounds of skin and bones. It is the discovery of insulin, by Canadian researchers Frederick Banting and Charles Best, that saves her life—and the lives of diabetics around the world. **BREAKTHROUGH** details one of the most important scientific discoveries of our time, bringing to life those who made it happen and those whose lives were changed forever.*

1. A few months after the initial batch of newspaper stories reporting her miraculous recovery, Elizabeth Hughes chose to disappear from the public eye and keep her diabetes and treatments a secret for the rest of her life, even from her own children until they were eighteen-years-old. Why do you think she made that decision? Does looking at the context of that era and her circumstances help explain it?
2. Elizabeth strives for “normalcy.” How do you define normalcy? Is there such a thing?
3. When Charles Evans Hughes ponders whether he should call President Harding on Elizabeth’s behalf, he wonders “[w]as his responsibility to the principles he had sworn to abide by greater than his responsibility to his daughter? One was broad, the other deep. Which was the greater good?” (186) What is your opinion?
4. When Banting attempts to secure research funding and a lab, he is rebuffed because his theories have been tested and failed before. His response is, “I’m not trying to be original. I’m trying to find something that works!” (67) What lessons can we learn from his ultimate success?
5. Discuss the nature of the rivalry between Banting and Macleod. Are such professional rivalries ultimately productive or counterproductive?
6. Consider these reflections about Charles Evans Hughes: “Living is by necessity a process of continuous loss. As we live we lose time, we lose innocence, we lose family and friends, we lose memories and the longer we live the more we lose. Ultimately, we lose the process of losing itself, which is what living is to begin with.” (212) Do you agree? How are we defined by our losses?
7. Banting once told an audience, “We do not know whence ideas come, but the importance of the idea in medical research cannot be overestimated. From the nature of things ideas do not come from prosperity, affluence and contentment, but rather from the blackness of despair, not in the bright light of day, ...but rather in the quiet, undisturbed hours of

midnight...when one can be alone to think....” (229) Do you agree with Banting’s view of the nature of ideas? If so, what does this mean for modern scientific breakthroughs?

8. Frederick Allen, like Banting, appeared to place financial compensation second to the goal of patient treatment. For example, when writing the budget for the Physiatrie Institute, Allen did not include a personal salary in the budget. The *New York Times* reported that “patients in all degrees of financial circumstances” could find help at the Institute. Yet Allen often felt conflicted with his job as a doctor caring for patients, and raising the funds to keep the Institute open. It says in the book that “he resented the need to split his time and energy between what he considered to be his real work and that greedy ancillary endeavor which was the work of supporting the work.” (109) Are these roles necessarily at odds with one another? Do you think this conflict remains in modern medicine?
9. Throughout the book, Antoinette and Charles Evans Hughes are portrayed as sympathetic parents who dearly love their daughter. Yet, after bringing her to Toronto to be treated by Dr. Banting—with what was then an experimental treatment that could save her life or hasten her death—Charles and Antoinette sail for Brazil. It is with Dr. Banting and her nurse, Blanche, that Elizabeth spends the most crucial and precarious time of her young life. Were you surprised that her parents would leave her in Toronto? What does this say about the familial relationships of the time period, and how might that relationship have affected Elizabeth’s perception of her disease? Why do you think she didn’t stay in contact with Blanche or Dr. Banting after she recovered her health?
10. Ultimately the intervention of Eli Lilly enables the mass production of insulin in the book. Considered a radical idea at the time, Lilly believed the future of pharmaceutical manufacturing lay in fundamental biological research, saying “Ideas don’t cure people. Drugs cure people . . . That’s why we must bring the research scientists and the drug manufacturers together.” Do you think this statement still holds true today? Would greater cooperation mean further advancements?
11. We get an extensive overview of the world in **BREAKTHROUGH**, including the political and social circumstances, and the myriad of conditions that led to, and at times hindered, the scientific advancement. What are some of the events that inadvertently affected this medical breakthrough? How precarious was the discovery? At what point can it be said that fate intervened?
12. How did reading this book affect, if at all, your view of what it’s like to live with a chronic condition? Did it change your view of the research or pharmaceutical production side of the equation?