

Opening the door to donation for thousands affected by restrictions related to human variant of “mad cow” disease



What was achieved?

Thousands of people across Canada who have spent time in countries affected by variant Creutzfeldt-Jakob Disease (vCJD) — the human variant of bovine spongiform encephalopathy (BSE), commonly known as “mad cow” disease — are now eligible to donate blood and plasma for the first time in decades. In 2023, Canadian Blood Services received Health Canada approval to update eligibility criteria that prevented people from donating if they had lived or spent time in the United Kingdom, Republic of Ireland, or France during the 1980s and 1990s.

vCJD is a rare, fatal disease that can be transmitted through blood; it may be contracted by eating beef and beef products from animals with BSE. People with vCJD may be infected for many years before showing symptoms. In the 1990s, when a link between eating contaminated beef and vCJD was first established and cases of vCJD were peaking overseas, Canadian Blood Services and blood operators around the world put criteria in place that made people who had spent time in vCJD-affected countries ineligible to donate.



How was this achieved?

Three essential elements contributed to this landmark change in eligibility criteria:

- **Surveillance:** The decision to remove the eligibility criteria related to vCJD was informed by nearly 30 years of comprehensive surveillance conducted in Canada and around the world. Surveillance activities showed a significant decrease in cases of vCJD in recent years; cases of vCJD peaked in 2000 and have been in decline ever since. The last two reported cases of vCJD in the general population in the United Kingdom were in 2013 and 2016. There have been no cases of vCJD transmission by transfusion since 2006.
- **Risk modelling:** Our epidemiology and surveillance team, in collaboration with Héma-Québec, developed a risk simulation model to assess the risk of vCJD transmission through blood donations in Canada, assuming current eligibility criteria related to vCJD were removed (Pozzo di Borgo et al., 2023).

Results showed minimal risk, with no contaminated blood donations predicted in the base case scenario over 85 years of follow-up. Even in the most pessimistic scenario, the estimated risk of vCJD transmission was extremely low (<1 in 16 million donations). These findings suggested that the eligibility criteria related to vCJD could be removed without compromising the safety of the blood supply.

- **Learning from other blood operators:** We also reviewed available research (including Seed et al., 2018; Stratton et al., 1997; Yang et al., 2017) that showed the risk of vCJD transmission through transfusion was minimal. Advances in manufacturing have also reduced the risk of vCJD transmission. For example, over 20 years ago Canadian Blood Services introduced leukoreduction, a step in the blood manufacturing process that removes white blood cells (leukocytes) from blood components. Studies suggest leukoreduction reduces the risk of vCJD transmission by transfusion, based on experiences in the United Kingdom, where there have been no cases of transfusion-transmitted vCJD since the introduction of universal leukoreduction, as well as evidence from experimental animal studies. Canadian Blood Services' decision to remove eligibility criteria related to vCJD was aligned with similar changes made by blood operators globally, including the United States (2022), Australia (2022), and Israel (2023).

After Health Canada approved our research-informed submission to remove eligibility criteria related to vCJD, we officially implemented the change. Canadian Blood Services communicated the updated eligibility criteria and promoted donation in many ways. Thousands of potential donors were encouraged to schedule appointments to donate as of Dec. 4, 2023. A recruitment campaign began in January 2024 to raise awareness about the updated eligibility criteria among donors who had been previously deferred from donating.



Dr. Isra Levy, vice-president, medical affairs and innovation, pictured with donor centre supervisor Amanda Marcantonio, makes his first blood donation. A former U.K. resident, he became eligible to donate after the change in eligibility criteria related to vCJD.

What was the impact and outcome?

Canadian Blood Services removed eligibility criteria related to vCJD on Nov. 27, 2023. Héma-Québec also removed eligibility criteria related to vCJD following our collaboration. At Canadian Blood Services, our strategic recruitment campaign was incredibly successful in boosting donor recruitment. In a little over four months, 11,158 blood donations were made possible because of the eligibility change.

Our proactive approach to donor recruitment and outreach contributed to filling thousands of appointment slots across Canada, ensuring a steady supply of lifesaving blood products for patients in need. This change also promoted inclusion and a sense of solidarity among potential donors. The removal of eligibility criteria related to vCJD marked a major shift driven by scientific research, community engagement, and a commitment to advancing public health.

Bibliography

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