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Ten reasons to make cord blood stem cells a public good

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New parents can be forgiven for succumbing to the fear-inducing advertisements that some of Canada's dozen private cord blood banks are running on national television and in brochures being handed out in hospitals. Who would not want to protect their child from life-threatening illness in the future, even at a cost of $850 or more to harvest stem cells from the newborn's umbilical cord and an annual storage fee of $100 for the next decade?

The truth, however, is that the probability of any child receiving its own cord blood as a transplant within the first 10 years of storage is vanishingly small.[1] In current practice, most transplants of stem cells come from a sibling.[2]

Rather than focusing on worried parents, we would do much better to focus on creating public good from cord blood. Here are 10 reasons why Canada needs to create a national public bank for cord blood stem cells:

1. All of us, especially our children, would have equal access to stem cells from cord blood for the treatment of childhood leukemia and lymphoma.
2. One large public bank could collect and store cord blood from infants whose stem cells represent the many combinations of human leukocyte antigen (HLA) groups. Typing these antigens, the marker proteins on leukocytes and tissues, is critical to ensure a match between recipient cells and potential donor cells, a critical factor in the success of a transplant and especially important within small-population ethnic groups.
3. Canada's ethnic diversity is constantly increasing. As unions form between people of different ethnic groups, unique HLA sets result. This makes it harder for the offspring of those unions — for example, the child of an Innu–white mother and a Metis father — to find matching stem cells. As hard as it sometimes is now, just ask yourself if your grandchildren will be able to find a match!
4. The requirements for HLA matches are less stringent for stem cells from cord blood than for those from bone marrow, resulting in more frequent successful matches. Stem cells from cord blood engraft better than those derived from bone marrow, producing a better final effect for the number of stem cells available.
5. Unlike harvesting bone marrow, cord blood can be harvested without pain or harm to either the mother or child, provided that the infant does not need the extra blood at delivery. A public nationwide bank would reduce the time, cost and inconvenience of harvesting these cells from a living donor.
6. Canadian Blood Services already funds and operates a registry of donors for bone marrow stem cells. The same technology, informatics and communication networks could be readily adapted for a public cord blood bank.
7. A public bank of cord cells could allow umbilical stem cells that cannot be used for transplant to be used for promising new avenues of research.
8. A Canadian bank would be subject to our own safety standards rather than having to rely on those of other countries.
9. A Canadian bank would increase the probability of a match inside the country, substantially reducing the current cost of US$25 000 per cord for importing stem cells. (Adult transplants usually require cells from at least 2 cords.)
10. By establishing our own bank, we would participate as an equal partner in the exchanges of ideas, best practices and new ideas among the approximately 60 foreign banks.

Quebec understands the importance of this investment. Through Héma-Québec, it has been successfully running a voluntary public bank for the past 5 years.[3] Canadian Blood Services, federally regulated but provincially funded, wants to do the same.[4] Our national blood services clearly has the capacity for harvesting, typing, storing and distributing blood products. They also have the expertise to acquire or develop the information technology that would enable them to participate in searches among the international registries.

Canadian Blood Services has submitted a proposal and cost analysis to the provincial ministries of health. With an annual budget at the Canadian Blood Services of $950 million compared to the estimated negligible costs of starting a cord bank in the range of $5 million and annual running costs under $3 million, the delay cannot be about the money. So what is the problem? It seems that this initiative has stalled because of interprovincial disagreements. Canadian Blood Services has been asked repeatedly for studies and analysis about irrelevant details. Informed parents already understand that cord blood stem cells can provide a valuable treatment for childhood leukemia and that the prospect for other future uses for all is important. If even countries with limited resources, such as Argentina, China and Mexico, have national banks, it is high time that Canadian provinces collaborate in creating this public good.

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