During the past decade, organ donation has been stagnant in Canada. Recently, proposed standards for a regulated system of financial incentives for organ donation were published. Many of the prerequisites for such a system are established in Canada, and a recent survey of Canadians indicated general support for the use of incentives to increase organ donation. In order to determine the priority that should be placed on financial incentives in Canada, an overview of organ donation and the demand for transplantation is presented, followed by a review of legal and pragmatic considerations. Based on these considerations, strategies to improve the system, including the use of financial incentives, are proposed (Box 1).

The ethical arguments for and against the use of financial incentives have been debated extensively in the literature and are not revisited here. Instead, the focus on practical considerations related to potential implementation of financial incentives for organ donation in the Canadian context should provide a fresh perspective on this polarizing issue and may inform decision making in Canada and other countries considering this complex subject.

**ORGANIZATION OF ORGAN DONATION IN CANADA**

Although the federal government in Canada is partially responsible for funding health care, oversight and administration of health services, including organ donation, are the responsibility of provincial and territorial governments. Within provinces, deceased donor services are managed by organ procurement organizations (OPOs), while living donor services are managed by individual hospitals. Although OPOs informally collaborate, there is no national oversight of these organizations. The federal government is responsible for safety, but there is no federal oversight of system performance or framework for continuous quality improvement. Canadian Blood Services recently was tasked with the responsibility to coordinate a limited number of organs, such as investment in health care resources to support deceased donor organ donation and introduction of a remuneration framework for the work of deceased organ donation, should be prioritized for implementation. Financial incentives that may be permitted under existing legislation and that pose little risk to existing donation sources should be advanced, including the following: payment of funeral expenses for potential donors who register their decision on organ donation during life (irrespective of the decision to donate or actual organ donation) and removal of disincentives for directed and paired exchange living donation, such as payment of wages, payment for pain and suffering related to the donor surgery, and payment of directed living kidney donors for participation in Canada’s paired exchange program. In contrast, it would be premature to contemplate a regulated system of organ sales that would require a paradigm shift in the current approach to organ donation and legislative change to implement.
of interprovincial initiatives to improve system performance, including establishment of a national living kidney donor paired exchange program.

**POTENTIAL TO INCREASE DONATIONS**

There has been no significant increase in deceased or living kidney donation in Canada in the last decade (2012 deceased and living donor rate per million, 14.9 and 15.1, respectively), and patients continue to wait 3-10 years for a deceased donor kidney transplant. Using the metric of deceased donor rate per million, Canada ranks behind the United States, France, and the United Kingdom in deceased donation.

Unlike the United States, where information on potential deceased donors and conversion of potential donors to actual donors is collected routinely and publically available, there is limited information about the efficiency of the deceased donor system in Canada. In an analysis of administrative data of all in-hospital deaths in 2005-2008 in Canada (with the exception of Quebec), 1%-2% of all in-hospital deaths involved potential organ donors (ie, ventilated patients aged 18-60 years, with head trauma or stroke as the cause of death, without contraindications for organ donation). During this time, only 1,067 of the estimated 5,310 potential deceased donors actually donated organs (conversion, 20%). Although this estimate must be interpreted with the understanding that hospital discharge data are limited by the accuracy and completeness of medical diagnostic codes applied to hospital separations, it nonetheless suggests significant potential to increase the number of deceased donors. Recent events in the province of British Columbia suggest that these estimates may be realistic: a change in the administration of British Columbia’s OPO, together with targeted investments in organ donation services and development of a donation after circulatory death program, produced a dramatic 40% increase in deceased organ donors in that province during a short 2-year period.

It is harder to determine the potential to increase living organ donation in Canada. When ranked by the living donor rate per million population, Canada places in the top third of all countries internationally. However, there is considerable regional variation in the use of living donation (range, 6.1-18.6 per million population in 2011), suggesting significant potential to increase living donation in Canada.

**DEMAND FOR ORGAN TRANSPLANTATION**

In 2011, there were 4,484 Canadians waiting for an organ transplant in Canada, including 3,406 kidney transplant candidates. Notably, the waiting list in Canada is increasing at a slower pace than that in the United States. For example, between 2002 and 2011, the waiting listing for all organs in the United States increased by 47% compared to only 15% in Canada, whereas the increase in the kidney transplant waiting list was 78% in the United States compared to 15% in Canada.

The degree to which the waiting list accurately reflects the need for transplantation in Canada is difficult to assess. There were 23,188 patients treated with dialysis in Canada in 2010, and 3,362 (15%) were wait-listed. In comparison, 21% of the 405,267 patients treated with dialysis in the United States in 2010 were wait-listed. This suggests more conservative selection of patients for wait-listing in Canada. Although all eligible patients may not be represented on the Canadian waiting list, it is evident that the gap between the supply of transplantable organs and the demand for transplantation is smaller in Canada than it is in the United States. Furthermore, with fewer than 3,500 wait-listed kidney transplant candidates and hundreds of unrecognized potential donors annually, it is conceivable that the need for organ transplantation could be met if potential donors were converted more efficiently to actual donors.

**PROBLEMS WITH THE CANADIAN ORGAN DONATION SYSTEM**

The provincial organization of deceased donor services is not well suited for sharing of best practices and there are few mechanisms to share advances in deceased donor identification, consent, and management. This contributes to wide provincial variation in deceased donor performance and waiting times. For example, in an analysis of regional variations in transplantation access among incident dialysis patients in 1996-2000, the median predicted waiting time for a nondiabetic patient younger than 40 years follows: 3.1 years in Alberta; 7.8 years in British Columbia; and 8.0 years in
Ontario. Figure 1 shows the wide variation in median waiting times of kidney transplant recipients in different regions in 2009-2011. Similarly, in some provinces, donation after circulatory death donors account for ≥20% of deceased donors, whereas in other provinces, such protocols have yet to be implemented. The provincial oversight of OPOs also limits the collection of standardized national data to inform system improvement. Information on potential deceased donors and converting potential organ donors to actual donors is collected provincially, but not coordinated nationally, and is not available within a transparent reporting process to allow interprovincial comparisons. Detailed collection of this information has proved useful in increasing organ donation in other countries. The only mechanism to obtain national information on system performance is through the Canadian Organ Replacement Register, which is a voluntary data system.

The available national information suggests that identification and referral of potential deceased organ donors rather than failure to consent potential donors is a major issue limiting deceased donation in Canada. Specifically, data obtained directly from each of the provincial OPOs indicate that only 35% of medically eligible donors in Canada are referred for organ donation, but that 90% of referred donors consent to donation and are converted to actual donors. These data are consistent with survey responses showing that >73% of Canadians support deceased organ donation and intended to donate their organs. In contrast, examination of living donation in Canada suggests significant advantages over other countries such as the United States, including the provision of life-long publically funded universal health care. Programs to reimburse expenses related to living donation and provide some compensation for lost wages have been established in most provinces. However, the greater than 3-fold regional variation in the use of living donation among provinces suggests significant opportunities to increase living donation. Of note, provinces with higher rates of deceased donation appear to have lower rates of living donation, suggesting that health system-related factors rather than regional differences in public acceptance of organ donation underlie this dramatic regional variation.

**FINANCIAL INCENTIVES**

**Canadian Legislation**

In order to discuss the feasibility of strategies incorporating financial incentives to increase organ donation, it is necessary to review Canadian legislation and public opinion regarding this issue.
Each Canadian province has its own legislation that effectively bans the sale of organs and tissues. However, it is evident that some practices (ie, reimbursement of donation-related expenses) have been implemented, although a secondary objective of such programs is to increase the number of organs available for transplantation. Canadian legislation intends to prevent individuals from profiting from the sale of organs and tissues. In contrast, payments to living donors for costs related to donation (eg, travel, child care, and elder care costs and time away from work) are distinguished because they are considered reimbursements rather than benefits. There is lack of clarity on what is and what is not permissible under Canadian law and incentives that are designed as either reimbursements or perhaps compensation for sacrifices related to organ donation might be permitted.

Public Opinion

There is limited contemporary information regarding Canadian public attitudes toward the use of incentives in Canada. In a recent survey of more than 2,000 Canadians, Barnieh et al reported general acceptance of financial incentives for both deceased (≈70%) and living (≈40%) donors. However, differentiating the most strongly supported types of incentives is important. For deceased donors, the most strongly supported incentive was reimbursing funeral expenses, whereas direct payment was supported by only <30%. For living donors, the most strongly supported incentive was reimbursing expenses and lost wages, whereas direct cash payments were supported by only 45% of respondents. Overall, these results suggest general support for financial incentives, but limitations on the type of incentive that would be accepted.

Pragmatic Considerations

It is unknown whether financial incentives will increase the number of organs available for transplantation in Canada. According to the crowding out motivation theory, payment for organs could compromise intrinsic motivation and decrease existing organ donations for which no payment currently is provided. The proposed standards for a regulated system of financial incentives excludes payment for directed donations to guard against the risk of corruption, increasing the likelihood that adoption of financial incentives could crowd out existing unpaid donations. The extent of crowding out also is unknown. For example, it is unknown whether the introduction of financial incentives for one type of donation (ie, living donation) also would compromise existing unpaid deceased donations.

The theoretical concerns of crowding out do not preclude consideration of financial incentives, but have direct implications for the design of strategies involving incentives. For example, although there is little empirical evidence that the value of the financial incentive is related to the risk of crowding out, it is intuitive that this risk might be greater with the use of large cash payments. Further, the frequently proposed strategy to provide a financial incentive to all donors to protect against the risk of crowding out would limit the value of the incentive that could be provided from an economic perspective.

Undertaking a change in Canadian legislation that currently precludes the provision of any valuable consideration in exchange for an organ would be a heroic undertaking. This practical barrier limits the design of any strategy to implement or even pilot test the use of financial incentives in Canada. Strategies that might be finessed under existing legislation may fail simply because the incentive was not of sufficient value to motivate individuals to donate organs.

These considerations limit enthusiasm for strategies such as a regulated system of organ sales as proposed by Matas et al and make it difficult to design incentive-based strategies that would be permissible under existing legislation, would not compromise existing unpaid donations, and still would increase the number of transplantable organs.

POTENTIAL SOLUTIONS

Canadians strongly support organ donation and there appears to be significant potential to increase deceased organ donation. Therefore, the primary emphasis should be implementation of strategies to increase the efficiency of the existing deceased organ donation system (see Box 1).

Establish a National Organ Donation System

Canada’s provincially administered organ donation system does not promote interprovincial collaboration or transparency of processes. Although some provinces have made concerted efforts to improve performance, the lack of national oversight is an obvious factor that precludes a coordinated sustained effort to improve the system. The establishment of the Canadian Blood Service to develop interprovincial initiatives, such as the living kidney donor paired exchange program, has been a welcome development, but the mandate of this organization does not include oversight of the provincially administered donation systems. A national system with mandatory reporting would provide the necessary transparency and accountability to identify and
test the impact of strategies to improve system performance.

Establish an Appropriate Remuneration Framework to Support Donation

In the publically funded Canadian health care system, the economic benefits of organ donation are underemphasized, resulting in a lack of investment in deceased organ donation services. Hospitals receive little or no direct compensation for identifying deceased donors. The lack of a payment for organ acquisition means that there are few dedicated resources for donor management and potential donors must be managed with available health resources. This leads to the misperception that scarce hospital resources are being diverted away from critically ill patients in urgent need of care to support organ donation. Even in provinces in which some limited payment for donor services is provided, payments are applied to global hospital budgets and are not dedicated to enhancement of donor services. Lack of reimbursement for donor management services also precludes the development of specialized donor management expertise. As a result, physicians often are placed in the difficult position of having to approach, consent, and provide donor management services for critically ill patients whose lives they were previously trying to save. It perhaps is not surprising that potential deceased donors are not identified or consented when the Canadian system continues to piggy-back donation services onto an existing health infrastructure that is already operating at maximal capacity.

Potential deceased donors should be recognized as a potential health resource, and dedicated financial investments should be made to maximize attainment of this resource. Hospitals should be fully reimbursed for health care expenditures related to all aspects of organ donation, including the organization and implementation of programs related to the identification, consent, and facilitation of organ donation. Funds also should be provided to establish and maintain dedicated resources to enable the work of organ donation and avoid competition for resources required for the care of other critically ill patients. Appropriate remuneration of health professionals for organ donation services would minimize the need for the treating physicians to also take on the care of potential donors. Concerns that implementation of such a remuneration framework would lead to potential coercion of donor families should be allayed because many of these strategies have long been implemented successfully in the United States.

Increase Opportunities for Donation Consent

Consent for organ donation should be incorporated into the routine health management of Canadians. For example, primary care physicians could be remunerated for counseling and obtaining consent for organ donation during routine clinical encounters. Available information suggests that few family physicians counsel patients regarding organ donation, despite the majority agreeing it was within the scope of their practice.20 There is evidence that when primary care physicians engage patients in end-of-life care planning, more patients complete advance care directives.21,22 Payment of primary care physicians for counseling and recording of an individual’s wishes regarding organ donation would help ensure that consent for donation was informed and would reduce the likelihood that consent would be revoked by family members in the event of neurologic brain death.

Similarly, consent for organ donation should be sought at the time of any hospital admission and should be integrated with routine end-of-life care planning. Providing opportunities for Canadians to discuss and register their decisions regarding organ donation during routine health care interactions would increase the level of comfort with this subject in the lay public. “Normalizing” consent for organ donation could improve acceptance and uptake of organ donation within the Canadian population and is a strategy that has been used successfully in other areas (eg, promotion of HIV [human immunodeficiency virus] testing).23

Provide Incentives for Registration of Donation Wishes

Identification of potential organ donors admitted to Canadian hospitals appears to be the major issue limiting deceased donation in Canada. Implementation of opt-out strategies (ie, presumed consent legislation), in which an individual is considered to be an organ donor unless they have prespecified otherwise, is one strategy to increase identification of potential organ donors. However, opt-out strategies contravene the expectation of autonomy held by most individuals, donor families, and health professionals and are unlikely to be supported in Canada.24 Further, it is evident from the Spanish experience that adoption of presumed consent legislation had little impact on deceased organ donation until improvements to organ donation services were implemented.25

In contrast, strategies that involve providing an incentive to register for deceased organ donation offer an opportunity to increase identification of potential donors while respecting the principal of autonomy. Strategies in which a reward is provided only in the event of potential organ donation (eg, neurologic brain
death) are the most economically feasible. These strategies may be viewed as noncoercive because the decision to donate is provided by the individual during life and therefore is separated in time from the act of donation, the likelihood of potential donation is remote, and the individual will not personally benefit. Providing the incentive irrespective of the decision to donate and whether donation actually takes place further reduces the risk of coercion.

The recently publicized Israeli model that provides registered organ donors with priority access to deceased donor transplantation is one example of this approach that has been associated with a preliminary increase in donation. The model was designed specifically to counteract the negative public perception of organ donation that was created in part by those who refused organ donation on religious grounds, but were willing to accept life-saving deceased donor transplants. Although providing special access to deceased donor transplants to registered donors might be justified in Israel, prioritization for transplantation based on nonmedical considerations potentially is discriminatory and likely would not be accepted in Canada. The provision of other types of incentives, such as a modest contribution toward funeral expenses or a charitable donation in the name of the deceased donor, would be favored because the penalty for nonregistration would be limited to nonreceipt of a reward rather than possible exclusion from life-saving transplantation. Although large incentives including payment of money to the families of deceased donors may increase the likelihood of donor registration, this approach could be coercive and may trigger feelings of guilt in the family, paradoxically causing the family to override the consent for donation.

Providing an incentive for donor registration also should prompt improvements to the organ donation system. Individuals who registered their intention regarding organ donation would have to be assured that they would be identified in the event of potential organ donation, that their wishes to donate would be upheld, and that the reward would be provided. Placing this responsibility on the health care system would require development of mechanisms to ensure that all potential deceased donors admitted to Canadian hospitals are identified.

Ideally, implementation of a strategy to reward donor registration also would include development of knowledge translation activities to ensure that all Canadians receive appropriate information to facilitate an informed decision. Similarly, mechanisms to enable individuals to easily register their intention to donate would be needed. This was precisely the experience in the Israel, where the introduction of a reward for donor registration was accompanied by a number of other initiatives to enhance public awareness and enable registration for organ donation. An upfront capital investment would be required to implement this strategy with the understanding that an increase in organ donation may not be recognized until many years after implementation.

The legality of payment of a posthumous reward such as funeral expenses directly from the government to the funeral home would have to be established in Canada. Payment of funeral expenses might be allowed if this incentive was positioned as a gift for contributing to Canadian society rather than a valuable benefit in exchange for organ donation. Importantly, providing the reward to potential donors based solely on registration of a decision regarding organ donation during life, independent of whether the decision was to donate or not donate and independent of actual organ donation, is an essential feature that distinguishes this strategy from other strategies involving payment for organs.

The potential for this strategy to crowd out altruistic deceased donations would appear to be low, especially if the incentive (i.e., funeral expenses) was presented successfully to the public as a gift rather than a payment. In addition, providing the ability to register for deceased organ donation without receiving the incentive, as well as allowing families the option to decline payment of funeral expenses in the event of donation, also may help mitigate this risk. The effect of this strategy on living donation also should be considered. Implementation could lead to the perception that living donation is somehow less important, and a parallel effort to promote living donation may be needed. Although providing a reward for deceased donor registration is unproved, we believe this strategy is consistent with Canadian values and has the potential to both increase public awareness and indirectly improve the identification of potential donors in the Canadian system.

Consider Compensation for Living Donor Pain and Suffering

Elimination of disincentives for living donation, including full reimbursement for lost wages, is noncontroversial. However, the acceptability of extending compensation to include payment for pain and suffering related to the donor surgery is uncertain. Although what is and is not allowed under existing law still requires further examination, extending compensation in a manner that seeks to more fully reimburse the donor may be permissible. Specifically, a system that is aimed at providing funds that would seek to put the donor in a financial
position that he or she would have been in “but for” the donation, and a true removal of disincentives. Although removing all disincentives to living donation is a laudable goal and should be pursued, whether this will increase living donation in Canada is unclear. Removing disincentives is likely to enable donation among those already predisposed to donate (ie, because of some emotional connection to the recipient), but it is less likely to motivate donation from a new pool of donors who otherwise would not consider live donation. The available information suggests that strategies to remove disincentives to living donation (ie, reimbursement of donation-related expenses) may be inadequate to increase living donations. In a survey of 181 living kidney donors in British Columbia, Canada, who had received reimbursements for out-of-pocket expenses incurred while donating a kidney, as well as payment for lost wages (up to $350/wk for 8 weeks), 100% of respondents thought the program should continue, but only 36% indicated that they might not have donated without the presence of the program. In another recent study, legislation to provide modest financial support (including paid and unpaid leave or tax credits) for living donors in the United States had no overall impact on the rate of living kidney donation (though there was a measurable increase in unrelated donations).

Provide Incentives for Living Donor Paired Exchange

Removing disincentives to participate in Canada’s living donor paired exchange program to encourage participation of biologically compatible living donors and their recipients in this program is an intriguing possibility that should be considered. In this proposed strategy, medically suitable and approved biologically compatible living donors and their recipients would be offered additional compensation to participate in the living donor paired exchange program. Increasing the number of participants in paired exchange programs increases the number of transplants that can be facilitated by this mechanism. The payment would be provided to compensate participants for the inconvenience of participation in the paired exchange program (ie, for donor travel or delaying donor surgery to accommodate the completion of multiple living donor transplants on the same surgical day). Providing a financial reward for participation might even be considered in this limited scenario because restricting eligibility to individuals who had made an a priori decision to donate an organ and had been approved for directed donation would limit the risk of donor coercion.

SUMMARY

There is significant capacity to increase organ donation in Canada and potentially to fulfill the need for transplantation in this country. Canada has not made a coordinated systematic attempt to increase the efficiency of its deceased donor system and therefore abandoning the present system in which no payment for organs is provided in favor of an unproven payment-based system would be premature. Instead, feasible strategies to increase the identification and conversion of potential deceased donors to actual donors, facilitate interprovincial cooperation, encourage decision making regarding organ donation, and remove disincentives to live donation are proposed. These include strategies involving the use of financial incentives that carry a low risk of coercion and are unlikely to threaten existing sources of donation. Although these recommendations are opinion based and unique to Canada, they may be useful in informing efforts to increase organ donation in other jurisdictions.

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