Vanishing Canadians

Timothy Rowe, MB, BS, FRCSC
Editor-in-Chief

Take a look around at your fellow Canadians, because they are slowly disappearing. All of the scenarios projected by Statistics Canada about population growth in Canada over the next 50 years show a “negative increase” (you’ve got to love bureaucratic language) in the number of births minus deaths.1 In the low-growth scenario for the Canadian population, the first year in which there will be more deaths than births could be as early as 2020; if a high-growth scenario appears, it could be as late as 2046. But it’s going to happen. The Canadian population has been growing more from immigration than from natural increase for more than ten years. If Canada loses any of its appeal for immigrants, we could be a shrinking nation. And as the average age of Canadians continues to rise, the economy, and our standard of living, will decline. It’s not a happy prospect.

Death rates are largely beyond our control, but birth rates are not. And even the high-growth scenario of Statistics Canada describes a fertility rate of 1.7 children per woman, insufficient to maintain stable population numbers.1 Why is it that Canadians are not reproducing? It seems that everyone has an opinion about this: selfish men, inadequate social support policies, and the sheer costs of raising children are all blamed. Yet changes in social policies don’t seem to achieve much. Quebec’s Allowance for Newborn Children, introduced in 1988, paid families increasing amounts of money for each child born, by 1992 paying up to $8000 for a third child. But the results of this policy did not reach expectations; the program was cancelled in 1997, and its funding was reassigned to a new provincial daycare program. Currently, the fertility rate in Quebec is the same as in the rest of Canada.

The most plausible reason for the declining birth rate is the effect of the so-called opportunity costs of having children. As incomes have risen, and the interchangeability of men and women in the workplace has increased, so the time spent in having and raising children has become more expensive. Having children increasingly will detract from work and leisure time. Viewed internationally, rich countries see declining birth rates and poorer countries don’t. So long as incomes continue to rise in Canada, any financial incentives to have children are likely to produce results only in disadvantaged sections of the population. The consequences of this for Canada’s social fabric are unknown.

Canada’s medical practitioners are in a position to influence the country’s birth rate, not by providing incentives for people to reproduce, but by maximizing the potential for those who want to have children to be able to do so. This means using the best methods possible to manage infertility and, possibly more importantly, ensuring that everyone understands the association between female age and fertility. For Canadian women, the average maternal age and the average age at first birth have both been rising for a couple of decades, reflecting the decision to delay childbirth; and not all planned pregnancies actually occur if the delay is too long. Many women postpone pregnancy with the confidence that reproductive technology will be able to reverse any age-related decline in their ability to conceive. But according to a computer simulation model of reproduction, assisted reproductive technology has the potential to recover only half of the births lost by postponing a first attempt at pregnancy from age 30 to 35 years, and less than 30% of those lost after postponing from age 35 to 40 years.3 Thus, women who choose to delay childbearing must be made aware that we are not currently able to reverse all the effects of age by using technology.

The underlying causes for declining fertility as women age include reductions in oocyte number and quality, increasingly frequent disorders of ovulation, increasing pregnancy wastage (partly reflecting a higher risk of embryonic aneuploidy) and increasing rates of pregnancy complications.4 Although we begin to understand the mechanisms by which these events affect fertility, we remain unable to reverse them with risk-free interventions.

But in time we may indeed be able to do so. The cryopreservation of sperm has been an established technique for years,
so that men who undergo voluntary or involuntary sterilization at a young age have been able to preserve their potential to become fathers; some have even become fathers posthumously. Preserving oocytes or ovarian tissue is more hazardous, but potentially more valuable, because of the possibility of avoiding age-related deterioration in oocyte function. However, the practicality of cryopreserving ovarian tissue remains to be proven, because reports of pregnancies occurring in women after reimplantation of frozen-thawed ovarian tissue are few, and the possibility that such pregnancies do not arise from this tissue cannot be refuted. At present, we cannot assume that the risks of retrieving and cryopreserving ovarian tissue in healthy young women, while small, are offset by the certainty that normal fertility will be restored after thawing of the tissue. If we are able to demonstrate that ovarian tissue from healthy young women is capable of functioning normally after extraction, cryopreservation, thawing and reimplantation, it will indeed be a new reproductive era.

The challenge to boost fertility rates in this country is undeniable. But Canada has a tradition of approaching matters of reproductive technology with the utmost caution. Nevertheless, the fact remains that social policies to promote reproduction in this country have not reversed the slowing of reproductive growth. It’s time for technology to step forward, and for our public policy makers to boost their support of reproductive research—or Canada’s “negative increase” will make it a very different country.

REFERENCES