

Fig. 3. Simulation of clinical use of RBC units per 1000 population (based on age-distributed variation in blood usage [as RBC units] in Finland between 2002 and 2006).

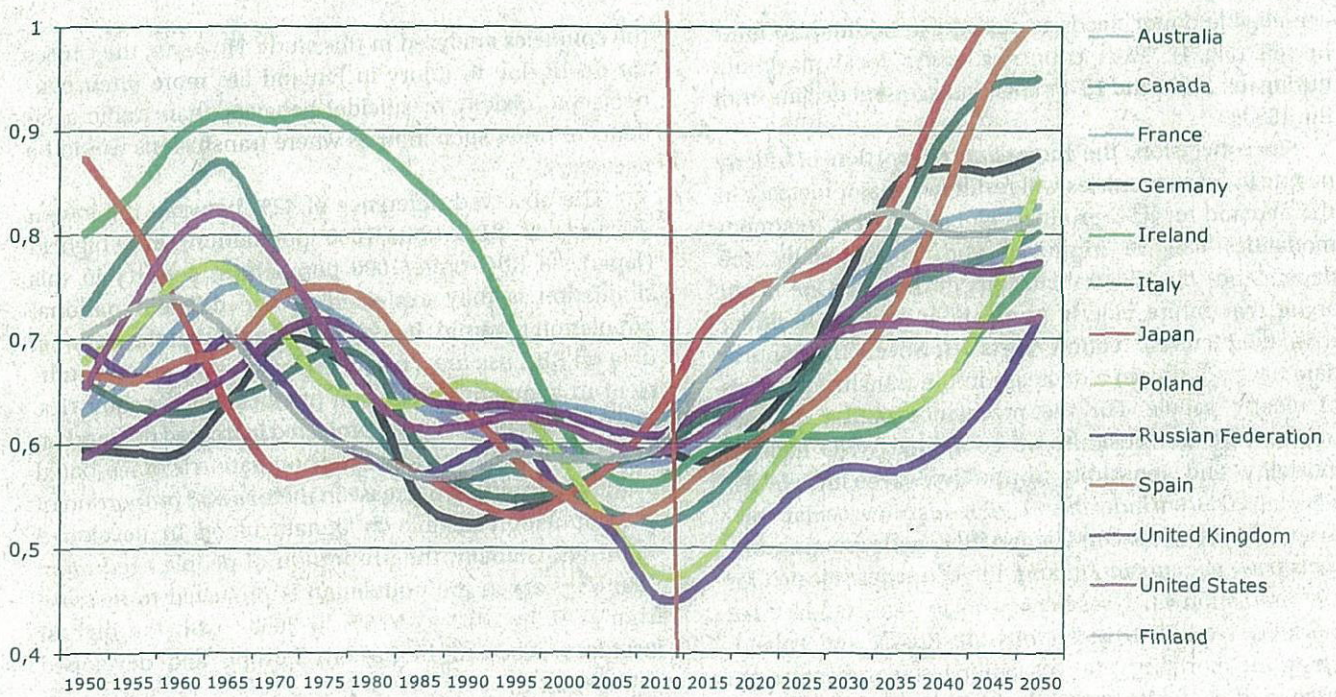


Fig. 4. Blood-dependency ratio in selected countries 1950 to 2050: ratio of age-eligible (18-65 years) to age-noneligible blood donors in the population.

TABLE 1. Age-standardized mortality rate for different causes per 100,000 population year 2004

Location	Cancer	Cardiovascular diseases	Injuries	Noncommunicable diseases
Canada	135	131	33	374
United States of America	133	179	50	450
Finland	113	185	64	405
France	154	123	45	387
Germany	135	199	28	429
Ireland	155	190	30	459
Italy	132	155	29	372
Poland	177	314	54	583
Russian Federation	142	645	218	904
Spain	131	131	30	379
United Kingdom	147	175	26	441
Australia	126	136	32	355
Japan	120	103	39	284

countries a local maximum was exceeded during the 1960s and 1970s and a subsequent decline until the 1990s. This suggests that the recruitment of donors has been easier from year to year than during a period of constant ratio. For the future, these projections show an increasing trend for the blood-dependency ratio, suggesting that it will be more difficult to recruit blood donors, exacerbated by the fact that recruitment levels have been relatively good in recent years. Although recruitment of blood donors may appear to have been relatively easy and high in recent years, historically this has not been the case and it is unlikely to be so in the future, as most local blood services will attest. The eligible donor population is limited and radical actions to address this, such as extending the age limits for donation, may have to become a reality in some countries. Already in the United Kingdom, Australia, and some US states, the upper age limit of 70 years for not accepting blood from existing donors has been removed. Also extension of the younger age limit to 17 years has been implemented in some donor centers in Denmark, the United Kingdom, and the United States.

If current efforts to maintain effective national blood services are not enough to serve the changing population demographic and if increasing demands for blood products cannot be met, we may need to consider unprecedented measures. It may include reversing certain donor deferrals, such as previous transfusions or living in certain countries, or even exporting blood from country to country, to meet what is now an established and imperative health care need.

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest relevant to the manuscript submitted to *TRANSFUSION*.

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