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# Heart transplantation in Norway – experiences and challenges

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INVITERT KOMMENTAR

GRY DAHLE

[g\\_dahle@hotmail.com](mailto:g_dahle@hotmail.com)

Gry Dahle PhD, specialist in cardiothoracic surgery at Oslo University Hospital. She is currently on leave from this position and is assistant head of the Emergency Department, Akershus University Hospital. She is a member of the Norwegian Medical Association Professional Board, president of the International Society for Minimally Invasive Cardiothoracic Surgery and a member of the EACTS Task Force for Heart Failure.

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## **Heart transplantation is an established treatment in Norway, but organ availability continues to be a limiting factor.**

The first heart transplant in Norway was performed in 1983, marking not only the beginning of a new era in heart surgery in the country but also a medical and societal milestone. Four decades later, Norway's history of heart transplantation is distinguished by groundbreaking surgical achievements, exemplary interdisciplinary collaboration and, not least, continuous advances that have given new life to hundreds of patients [\(1\)](#).

The early years were associated with high risk. Despite technical success in the operating theatre, complications such as graft rejection and infection were common. The introduction of modern immunosuppressive therapy, along with improved monitoring and postoperative care, gradually improved outcomes, as demonstrated in the study by Andreassen et al. in this edition of the Journal of the Norwegian Medical Association [\(1\)](#). Today, heart transplantation in Norway is a well-established treatment for end-stage heart failure, with survival rates on a par with leading international centres.

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Heart transplantation requires close collaboration between cardiologists, anaesthesiologists, intensive care clinicians, infectious disease specialists, immunologists, pharmacologists, nurses and physiotherapists – a comprehensive chain of care in which every link is critical to patient survival. Each transplant also depends on the donor and their family, whose consent to donate gives the gift of life. Without this, progress in the field would not have been possible.

The limited availability of donor organs remains a major constraint [\(2\)](#). Donor selection criteria vary considerably between centres and are often subjective, resulting in substantial differences in the proportion of unused organs. Each unused organ represents a patient on the waiting list who is denied a potentially life-saving opportunity. This highlights the ongoing need to optimise donor selection, logistics and coordination between donor teams and transplant centres. There are also marked differences in the utilisation of organs: in Europe, over 40 % of donor hearts from individuals over 60 years of age are used, compared with just 3.2 % in the United States. This practice, however, is associated with higher morbidity and mortality among recipients in Eurotransplant compared with the US registries [\(2\)](#).

On 3 September this year, Norway established the National Competence Service for Organ Donation [\(3\)](#). Its purpose is to ensure that all donor hospitals in the country have the expertise and infrastructure to fulfil this mandate. The overall donor rate is expected to increase by up to 30 %. Reducing the number of unused organs is a key area for improvement in the years ahead. This challenge encompasses not only medical precision but also ethical stewardship of the donor's gift. Emerging techniques, such as normothermic regional perfusion (NRP) in controlled donation after circulatory death (cDCD), may enable the use of organs previously considered unsuitable [\(4, 5\)](#). Furthermore, ex vivo perfusion allows for more thorough evaluation and optimisation of organs prior to transplantation.

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The coming years are expected to bring significant developments in the field. Mechanical circulatory support devices, such as ventricular assist devices (VADs), are already used as a bridge to transplantation or as definitive therapy. However, only one system is currently available in Norway, and VAD therapy is associated with significant adverse effects [\(6, 7\)](#). Research is also advancing rapidly in immunomodulation, gene editing and xenotransplantation, which could potentially increase organ availability and reduce the need for immunosuppression, thereby minimising associated adverse effects. To date, xenotransplantation has been unsuccessful due to strong immune responses. Many patients now live for several decades after transplantation, but remain at

risk of complications such as renal failure, malignancy and chronic rejection. A future challenge is therefore not only to prolong life but also to ensure the best possible quality of life over time.

The 40-year milestone of heart transplantation in Norway is, first and foremost, an opportunity to honour the patients, donors, their families and the medical teams who have made this possible. It also serves as a reminder that medical advances are never final; they require continuous research, critical reflection and ethical vigilance. The coming decades will bring new opportunities, but also new dilemmas. Our responsibility as doctors is to address these challenges with the same combination of clinical expertise and ethical awareness that has characterised the past 40 years.

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