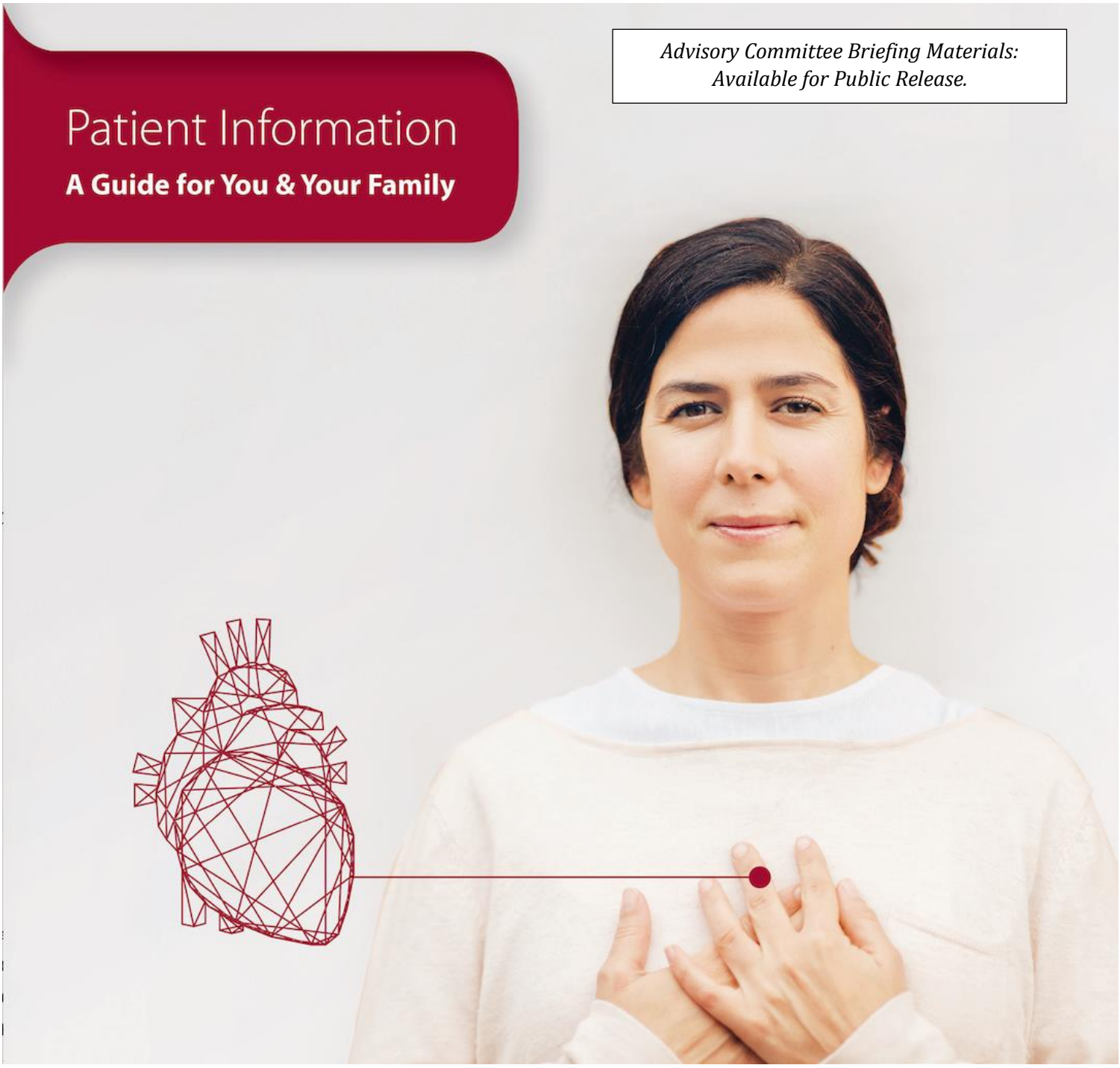
TransMedics®
Bringing new life to organ transplant

Heart Transplantation with the

Organ Care System (OCS™) Heart System:

Advisory Committee Briefing Materials:
Available for Public Release.



GLOSSARY

Term	Meaning
Adverse Event	Unwanted and usually harmful outcomes; they can be classified as serious or non-serious
Cold Storage Preservation	The practice of storing organs at a lower temperature in a preservation solution, usually on ice in a cooler, during transport from the donor to the recipient in order to slow down the deterioration of the organ before it is transplanted
Heart Failure	Failure of the heart to pump enough blood to meet the needs of the body
Heart Transplantation	A surgical transplant procedure that takes a working heart from a recently deceased organ donor and implants it into a patient with end-stage heart failure
Left Ventricular Assist Device (LVAD)	A pump inserted into your heart during a surgical procedure used to assist the heart in pumping blood in people who have weakened hearts
Medical Device	A machine or instrument used to prevent or treat disease
OCS™ Heart System	A system designed to resuscitate, preserve, and assess a donated heart outside of the human body from the time of placement on the system to transplant into the recipient
Primary Graft Dysfunction (PGD)	A life threatening complication of heart transplantation that occurs within 24 hours after transplant surgery. It may be mild, moderate or severe
SAE	Serious Adverse Event

ABOUT THIS BOOKLET

This booklet is for patients like you who are on the heart transplant waiting list. It contains information that will help you and your family learn about a new way to preserve hearts before transplantation using the TransMedics® OCS™ Heart System.

If you have questions about the OCS™ Heart System that are not answered in this booklet, please ask your doctor.

This booklet is for general information only. It is not intended to tell you everything you need to know about a heart transplant. Your doctor is the best person to ask about your general health, your condition, and about your heart transplant.

WHAT IS THE OCS™ HEART SYSTEM?

The OCS™ Heart System is a portable organ perfusion and monitoring medical device intended to preserve a donated heart in a near-physiologic, beating and perfused state, while continually monitoring and optimizing heart function for eventual transplantation into the recipient.

The OCS™ Heart System is fully contained and portable. Everything needed to keep the donated heart in a beating, near-physiologic state is within the system. The system runs on AC, as well as battery power, for easy transport in a car, helicopter, or airplane.

HOW THE OCS™ HEART SYSTEM WORKS

The OCS™ Heart System allows for a new method of donor heart preservation.

Instead of being placed in a bag of solution on ice in a cooler, donated hearts are placed in the OCS™ Heart System, which keeps them warm and beating as in the human body. The system circulates oxygenated, nutrient-rich blood through the beating heart from the time it is placed on the machine at the site of donation until they are removed from the machine for transplant into the patient.

The system is designed to:

- Keep the heart warm and oxygenated during preservation from the donor to the recipient
- Allow the heart to beat during preservation more closely mimicking its natural state
- Allow your doctor to assess and continuously monitor the condition of the heart prior to transplantation.

Because hearts are kept oxygenated and beating, the OCS™ Heart System reduces the injurious time during which there is a lack of oxygenated blood supply to the heart. This is the major difference when comparing the OCS™ Heart System to storing the heart in a bag of preservation solution on ice. An extended period of lack of blood supply to the heart is

associated with injuries to the heart that could negatively impact post-transplant clinical outcomes. The OCS™ Heart technology allows doctors to use more donated hearts for transplantation because the OCS™ Heart System minimizes the damage that occurs during cold storage on ice and also because the OCS™ Heart System allows your doctor to monitor the donor heart before transplantation.

WHO IS ELIGIBLE FOR THE OCS™ HEART SYSTEM

Any adult who has been registered on the waiting list for a heart transplant is eligible to receive a donor heart preserved using the OCS™ Heart System.

Indications for Use

The TransMedics® Organ Care System (OCS™) Heart System is a portable extracorporeal heart perfusion and monitoring system indicated for the resuscitation, preservation, and assessment of donor hearts in a near-physiologic, normothermic and beating state intended for a potential transplant recipient. OCS Heart is indicated for donor hearts with one or more of the following characteristics:

- Expected cross-clamp or ischemic time ≥ 4 hours due to donor or recipient characteristics (e.g., donor-recipient geographical distance, expected recipient surgical time); or
- Expected cross-clamp or ischemic time ≥ 2 hours AND one or more of the following:
  - Donor Age ≥ 55 years; or
  - Donors with history cardiac arrest and downtime ≥ 20 minutes; or
  - Donor history of alcoholism; or
  - Donor history of diabetes; or
  - Donor Left Ventricular Ejection Fraction (LVEF) ≤ 50% but ≥ 40%; or
  - Donor history of Left Ventricular Hypertrophy (LVH) (septal or posterior wall thickness of >12 ≤ 16 mm); or
  - Donor angiogram with luminal irregularities but no significant coronary artery disease (CAD).

When Should the OCS™ Heart System Not be Used (Contraindications)

The OCS™ Heart System should not be used to preserve donor hearts if any of the following conditions exist.

- Moderate to severe aortic valve incompetence in donor heart
- Observed myocardial contusion on donor heart
- Known unrepaired interatrial or interventricular defects including patent foramen ovale.

RISKS AND BENEFITS

Potential Risks of Using the OCS™ Heart System

All surgical procedures and medical devices have potential risks. The potential surgical risks of a transplant with a donor heart preserved on the OCS™ Heart System are the same as those with a normal transplant procedure using cold storage preservation. There is a risk of receiving a heart that does not function properly after transplant. There is also a risk that the donor heart may be damaged during preservation.

It is possible that after preservation on the OCS™ Heart System, your doctor may decide that the donor heart should not be transplanted. If this happens, your transplant surgery may be cancelled, and you will have to wait for another donor heart to become available.

The OCS™ Heart System will be continuously monitored by a trained team during the preservation time on the OCS™. However, it is possible that the OCS™ Heart System will not work properly, or the medical team may make an error which could lead to damage of the donor heart.

Your doctor can discuss with you the potential risks that may be associated with your heart transplant surgery.

Benefits - How the OCS™ Heart System Can Help You

A clinical study was conducted at 9 hospitals in the U.S. called the OCS Heart EXPAND trial. A total of 75 patients were transplanted with donor hearts preserved on OCS™ Heart System. A second study of these same type of donor hearts was performed called the OCS Heart EXPAND Continued Access Protocol (CAP). Forty-one (41) patients have been studied in the OCS Heart EXPAND CAP to date. The results of the OCS Heart EXPAND trial and OCS Heart EXPAND CAP demonstrated several clinical benefits that were associated with using the OCS™ Heart System. Key benefits included:

- Successful transplantation of 80-91% of the donor hearts that were preserved on the OCS™ Heart System. These were donor hearts that are not usually transplanted in the U.S., which means that the OCS™ Heart System made more hearts available for transplantation.
- The percentage of patients experiencing severe Primary Graft Dysfunction (PGD) was low (approximately 2-11%). Severe PGD is a life-threatening complication of heart transplantation that occurs within 24 hours after transplant surgery and requires implantation of a mechanical assist device, such as a Ventricular Assist Device (VAD).
- Survival of patients who received OCS hearts through 12-months post-transplant was similar to patients who received standard donor hearts preserved on ice.

CLINICAL EXPERIENCE WITH THE OCS™ HEART SYSTEM

Overview of Clinical Studies

A clinical trial was conducted to study the safety and effectiveness of the OCS™ Heart System to support FDA approval. This trial, called the OCS Heart EXPAND trial, was conducted to evaluate donor heart preservation on the OCS™ Heart System for certain donor hearts, those that are seldom used today without the OCS™ Heart System. The study involved 75 patients who had a heart transplant across 9 centers in the U.S.

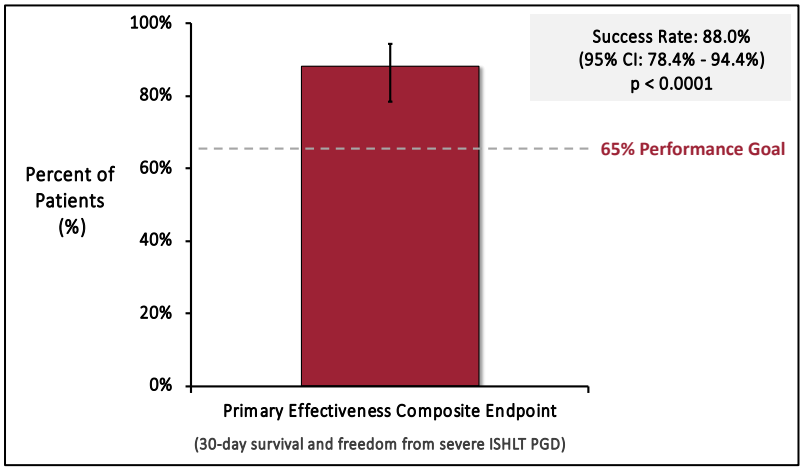
A second study, called the OCS Heart EXPAND CAP, was also performed with 41 patients who had a heart transplant at 6 centers in the U.S.

The results of these studies show that the OCS™ Heart System is safe and effective in preserving donor hearts for transplantation.

Primary Effectiveness Endpoint

The primary effectiveness endpoint was a combination of patient survival through 30 days post-transplantation and freedom from severe PGD within the first 24 hours. This study met the primary endpoint, which means that statistically it exceeded the goal of 65% success (Figure 1). The results demonstrate that even though the hearts were from donors that are usually not used for transplant today, the OCS™ Heart System was able to successfully preserve these hearts and the patients who received them had good results after their transplant surgery.

Figure 1: Primary Effectiveness Endpoint of the OCS Heart EXPAND Trial



Safety Endpoint

The primary safety endpoint for the OCS Heart EXPAND trial was the number of heart graft-related serious adverse events (HGRSAEs) per subject through the first 30 days post-transplant. The mean number of HGRSAEs per subject was less than one. About 15% of patients experienced moderate or severe PGD. One patient had a graft that failed and needed another transplant.

Serious adverse events were typical for patients undergoing heart transplantation, and do not raise any signals for concern in comparison to standard cold storage.

Patient Survival

At 30 days after transplant, 95% of the patients who received OCS™ hearts survived, and, at 6 months, about 88% of patients survived while at 12 months, 84% of patients survived. Of the 12 patients who died through the first year after transplant, 4 died for reasons related to their heart graft. The other patients died due to pre-existing conditions or other causes that were not related to donor heart preservation.

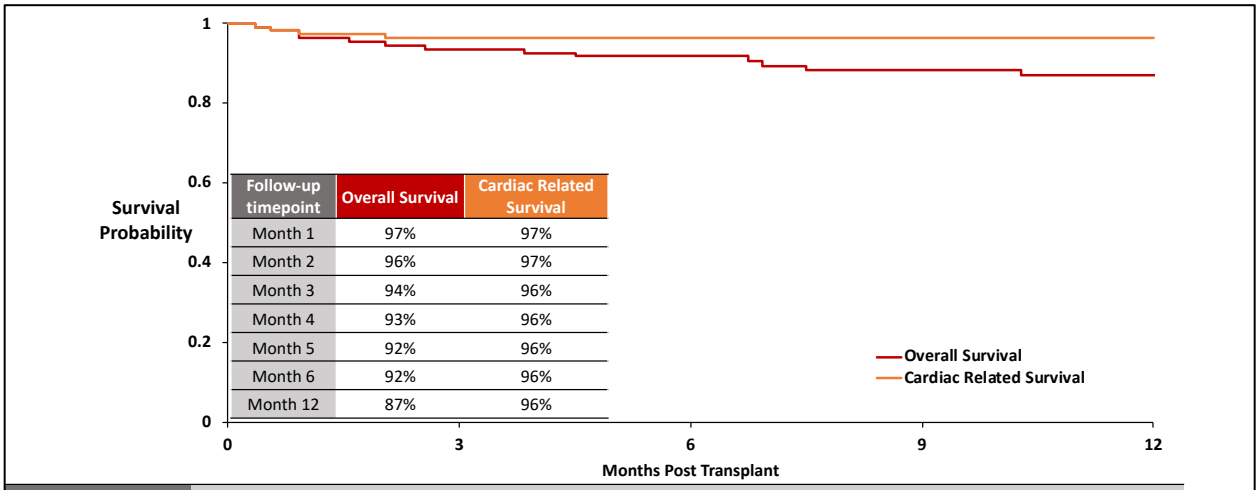
OCS Heart EXPAND CAP

Currently, 41 patients have been transplanted in the OCS Heart EXPAND CAP. The summary results of the OCS Heart EXPAND CAP are:

- 45 donor hearts were enrolled and assessed on the OCS™ Heart System and 91% (41 of 45 donor hearts) were successfully transplanted.
- The first 41 transplanted patients have reached a minimum of 30-day follow-up and all survived (100% survival at 30 days).
- The rate of severe PGD was 2.4%.
- The rate of HGRSAEs was similar to the OCS Heart EXPAND trial.

The OCS Heart EXPAND CAP results provide additional support that the OCS™ Heart System is safe and effective in preserving donor hearts for transplantation. Patients in the OCS Heart EXPAND trial and OCS Heart EXPAND CAP combined have survival of 92% at 6 months and 87% survival at 12 months. Patient survival overall and cardiac-related survival for the OCS Heart EXPAND trial and EXPAND CAP are shown in Figure 2 below.

Figure 2: Patient Survival (overall) and Cardiac-Related Survival for OCS Heart EXPAND and OCS Heart EXPAND CAP Patients through 12 Months after Transplant



Follow-up timepoint	Overall Survival	Cardiac Related Survival
Month 1	97%	97%
Month 2	96%	97%
Month 3	94%	96%
Month 4	93%	96%
Month 5	92%	96%
Month 6	92%	96%
Month 12	87%	96%

Follow-up Timepoint	Month 0	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 12
Overall Survival	116	111	100	98	97	96	85	65
Cardiac Related Survival	116	111	100	98	97	96	85	65

Other Findings

TransMedics completed an earlier clinical study of the OCS™ Heart System called the PROCEED II trial. The PROCEED II was a randomized clinical trial that compared the safety and effectiveness of the OCS™ Heart System to cold storage standard of care for donor heart preservation (Control). The PROCEED II trial was designed in 2006 and was the first ever trial designed for ex-vivo donor organ perfusion in the U.S. This was an older trial, and there were differences in the design of the device and in the techniques used after the donor heart was removed from the OCS™ Heart System compared to the OCS Heart EXPAND trial.

The PROCEED II trial met its primary endpoint and showed statistical non-inferiority to standard of care donor hearts preserved using cold storage. The incidence of serious adverse events related to the heart graft in the OCS arm was shown to be non-inferior to the Control group.

Since this study was completed years ago, long-term 5-year follow-up data are available through a national database, established by the United Network for Organ Sharing (UNOS). The data show lower overall survival for the OCS patients compared to the control patients, with 19 patients dying through 5 years after transplant in the OCS group compared to 11 patients in the Cold Storage control group. However, the number of patients who died for reasons related to their heart graft was the same for the two groups. This is the only study that reported decreased patient survival following the use of the OCS™ Heart System and this finding was not observed in other long-term studies of the OCS™ Heart System performed outside the U.S. and published in peer-reviewed journals.

WHAT TO EXPECT DURING YOUR TREATMENT USING THE OCS™ HEART SYSTEM

Before the Heart Transplant Procedure

As the recipient, you do not have to do anything differently to undergo transplantation with the donor heart preserved using the OCS™ Heart System as compared to the donor heart preserved using cold storage. Your doctor and care team will describe all steps necessary for your transplant procedure.

Before your surgery, a trained team will retrieve the donor organ. The donor heart will be placed in the OCS™ Heart System and supplied with warm, oxygenated, nutrient-rich blood-based solution. The donor heart will begin beating, and remain on the OCS™ Heart System during preservation and transportation to the hospital. The team will monitor the condition of the heart throughout the preservation period.

During and After the Heart Transplant Procedure

Heart transplantation with hearts preserved using the OCS™ Heart System is identical to a transplant in which the donor heart is preserved using cold storage. Your care after surgery is exactly the same as it would be if you had received a heart that was preserved using the standard approach of cold storage.

CONTACT INFORMATION

For more information on a heart transplant with the OCS™ Heart System, please contact TransMedics, Inc. by mail, by phone, or online as shown below.

By Mail: TransMedics, Inc.
200 Minuteman Road
Suite 302
Andover, MA 01810
By Phone: In the United States: 978.552.0900
Online: www.transmedics.com

See the OCS™ Heart User Guide for indications, contraindications, warnings, precautions, and adverse events.

CAUTION: Federal Law (USA) restricts this device to sale by or on the order of a physician.

TransMedics, Inc.
200 Minuteman Road
Suite 302
Andover, MA 01810
1-978-552-0900
info@transmedics.com
www.transmedics.com

TransMedics®
Bringing new life to organ transplant