



ASTS

American Society of
Transplant Surgeons

ASTS Position Statement on a 5-minute observation period

“In organ donation after circulatory death (DCD), a mandatory waiting period following cessation of circulation is observed to ensure that autoresuscitation does not occur. This period is often referred to as the “observation period”. A multicenter prospective study published in the New England Journal of Medicine demonstrated that the longest duration from pulselessness to autoresuscitation was 4 minutes and 20 seconds. The ASTS strives to expand organ donation in a manner that safeguards donor dignity and respect, while maximizing the potential to save lives. Based on the best available evidence, the ASTS recommends a 5-minute waiting time following cessation of circulation to ensure that autoresuscitation does not occur.”

Donation after circulatory death (DCD) donors differ from donation after brain death (DBD) donors in that they undergo a period of inherent donor warm ischemia time due to cessation of circulation prior to organ recovery. A large body of evidence demonstrates that the duration of this warm ischemia correlates with increased organ injury and, ultimately, inferior transplant outcomes. Accordingly, DCD protocols have been designed to minimize ischemia time as much as possible while respecting the ethical and procedural requirements of the DCD process.

In the United States, standard practice has included a mandatory waiting period after cessation of circulation to ensure that autoresuscitation does not occur. Historically, organ procurement organizations (OPOs) have incorporated heterogeneous waiting times ranging from 2 to 5 minutes, as reflected in the following key guidelines and evidence:

2009 (ASTS Statement): Based on recommendations from the Society of Critical Care Medicine and the Institute of Medicine, ASTS noted [1]:

“The Society of Critical Care Medicine recommends at least 2 min of observation [2], and the Institute of Medicine recommends 5 min [3–5]. Until additional information is available, the duration of the waiting period shall be compliant with local OPO and donor hospital policies (2- to 5-min period).”

2021 (NEJM study): A multicenter study of 631 adults undergoing planned withdrawal of life-sustaining measures examined the incidence and timing of autoresuscitation. The longest observed interval from pulselessness to spontaneous resumption of cardiac electrical or pulsatile activity was 4 minutes and 20 seconds [6].

2023 (ASTS Guideline Update):

“A waiting period is observed following circulatory arrest prior to moving forward with a donation to ensure that autoresuscitation does not occur. Some DCD policies define the waiting period as a time-out period after the declaration of death. Whether the declaration of death in the DCD setting requires a prior waiting period (following cessation of cardiorespiratory function) or such a declaration requires a subsequent time-out period, in no instance shall organ procurement proceed until both the waiting period and declaration of death are completed. In the United States, most



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DCD protocols have no-touch times that vary between 2 and 5 minutes. Previous studies have reported no cases of autoresuscitation beyond 5 minutes.” [7]

2025 (Current ASTS Recommendation): Based on the best available evidence, ASTS recommends a standardized 5-minute waiting time following cessation of circulation to ensure that autoresuscitation does not occur.

[1] Reich DJ, Mulligan DC, Abt PL, Pruett TL, Abecassis MM, D'Alessandro A, Pomfret EA, Freeman RB, Markmann JF, Hanto DW, Matas AJ, Roberts JP, Merion RM, Klintmalm GB; ASTS Standards on Organ Transplantation Committee. ASTS recommended practice guidelines for controlled donation after cardiac death organ procurement and transplantation. *Am J Transplant*. 2009 Sep;9(9):2004-11.

[2] Ethics Committee, American College of Critical Care Medicine; Society of Critical Care Medicine. Recommendations for nonheartbeating organ donation. A position paper by the Ethics Committee, American College of Critical Care Medicine, Society of Critical Care Medicine. *Crit Care Med*, 29 (2001), pp. 1826-1831.

[3] Institute of Medicine. Non-heart-beating organ transplantation: Medical and ethical issues in procurement. Washington, DC: National Academy Press, 1997: 104.

[4] Institute of Medicine. Non-heart-beating organ transplantation: Practice and protocols. Washington, DC: National Academy Press, 2000: 174.

[5] Institute of Medicine. Organ donation: Opportunities for action. Washington, DC: National Academy Press, 2006: 358.

[6] Dhanani S, Hornby L, van Beinum A, Scales NB, Hogue M, Baker A, Beed S, Boyd JG, Chandler JA, Chassé M, D'Aragon F, Dezfulian C, Doig CJ, Duska F, Friedrich JO, Gardiner D, Gofton T, Harvey D, Herry C, Isac G, Kramer AH, Kutsogiannis DJ, Maslove DM, Meade M, Mehta S, Munshi L, Norton L, Pagliarello G, Ramsay T, Rusinova K, Scales D, Schmidt M, Seely A, Shahin J, Slessarev M, So D, Talbot H, van Mook WNKA, Waldauf P, Weiss M, Wind JT, Shemie SD; Canadian Critical Care Trials Group; Canadian Donation and Transplantation Research Program. Resumption of Cardiac Activity after Withdrawal of Life-Sustaining Measures. *N Engl J Med*. 2021 Jan 28;384(4):345-352.

[7] Croome KP, Barbas AS, Whitson B, Zarrinpar A, Taner T, Lo D, MacConmara M, Kim J, Kennealey PT, Bromberg JS, Washburn K, Agopian VG, Stegall M, Quintini C; American Society of Transplant Surgeons Scientific Studies Committee. American Society of Transplant Surgeons recommendations on best practices in donation after circulatory death organ procurement. *Am J Transplant*. 2023 Feb;23(2):171-179.