

FAST FACTS AND CONCEPTS # 292
DO NOT RESUSCITATE ORDERS IN AN OPERATING ROOM SETTING
David Dugan MD and Jay Riseman, MD, FACS

Background Because of the rapid physiologic changes that may occur inside of an operating room (OR), patients and families may be unaware of the resuscitative efforts and management plans that may happen inside of them. Many health care institutions have practices and policies which automatically suspend do-not-resuscitate (DNR) orders when patients go to the OR. This Fast Fact will review ethical considerations and positions of major medical organizations regarding such policies and DNR orders in the OR in general.

Policies The Association of Perioperative Registered Nurses (1), the American College of Surgeons (ACS) (2), and the American Society of Anesthesiology (ASA) (3) all have position statements on the status of DNR orders in ORs. There is firm agreement among them that health care institutions should promote opportunities for a careful, informed discussion about potential resuscitative measures between the patient (or surrogate), surgical, and anesthesia teams, before a planned procedure in order that a treatment approach best matches the patient's goals of care and medical situation. There also is agreement that policies which automatically suspend DNR orders in the OR are inappropriate if the policy does not mandate an informed consent discussion with the patient/surrogate, or factor in the risk/benefit profile of the intervention.

Causes and Outcomes of Cardiac Arrest in the OR National in-hospital resuscitation registry data suggests that survival from CPR is higher in the perioperative setting versus other in-hospital setting: asystole 30.5% vs. 10%; pulseless electrical activity 26.4% vs 10%; pulseless VT/VF 41.9% vs approximately 34% (4,5). The overall frequency of major perioperative cardiac events in patients undergoing non-cardiac surgery is likely between 2-6% depending on the study (6). Cardiac arrest rates attributable to anesthesia is likely much lower -- approximately 0.5 per 10,000 (7). In a single center study, 35% of cardiac arrests in the OR were due to bleeding, 43.9% were related to cardiac causes, and 21.1% were attributable to other causes, with hemorrhage having the poorest outcome (7).

Balancing Ethical Precepts Patient autonomy is paramount to ethical decision-making. Indeed, concerns about differential treatment once a

DNR order is in place may make a patient hesitant to pursue such a directive (8). Still, there are considerations that may lead surgical teams and anesthesiologists to hesitate when adopting “no resuscitation efforts” especially for risky surgeries. Anesthesiologists are often resuscitating patients in an ongoing fashion via titration of vasopressors and other life sustaining therapies; hence there may not be a clear line between normal anesthesia management and intra-operative resuscitation. Surgical teams may view their primary objective in the OR as to provide care that sustains survival during the procedure. Thus, intra-operative deaths in the setting of a DNR order may not only contribute to feelings of guilt, but may also lead to quality reviews and a negative impact on quality metrics such as 30 day mortality rates. Regardless, most important to achieving balance among these concerns is an open discussion among relevant parties that allows patients to negotiate their treatment preferences whilst attaining the input of the anesthesia and surgical teams with regards to how specific treatment preferences may affect their care during the proposed procedure.

Required Reconsideration of DNR Orders Instead of a policy that leads either to the automatic enforcement or cancellation of a DNR order in the OR, the American College of Surgeons (ACS) recommends that a “required reconsideration of DNR orders” discussion be incorporated systematically prior to a proposed procedure (2). During such a discussion, the surgical/anesthesia team should clearly delineate to the patient or surrogate which resuscitative efforts are felt to be essential to the success of the proposed procedure and which are not. They should also describe the challenges in discerning routine anesthesia management in the OR from resuscitative efforts as well as the more favorable outcomes of cardiac arrests in the OR. Based upon the patient/surrogate’s goals of treatment and the nature of the surgical procedure, the intent of such a discussion is to achieve a mutually agreeable operative and peri-operative management approach. Potential outcomes could include (3):

1. The DNR order is rescinded during surgery and the perioperative period and the patient consents to the use of any resuscitation procedure needed to treat the clinical events that occur.
2. The original DNR order is maintained and prior treatment limitations are upheld.
3. The DNR order is modified such that limited attempts at resuscitation are clearly defined with regards to specific procedures.
4. The patient and surrogate allow the anesthesiologist and surgical team to use clinical judgment in determining which resuscitation procedures are

appropriate in the context of the situation and the patient's stated goals of care.

Changes or clarifications should be documented in the medical records and discussed with the members of the operating room staff.

Ethical or Professional Conflict When any member of the team disagrees with the management approach established, he or she may withdraw from the patient's care in a nonjudgmental fashion. If agreement on a surgical care strategy cannot be achieved, the surgeon should consider a referral to another surgeon or institution, and/or provide an alternative for care. In such scenarios, assistance from palliative care and/or bioethics consult teams may be of assistance to patients and clinicians.

Authors' Affiliations: University of Kansas Medical Center, Kansas City, KS; Kansas City Hospice and Palliative Care, Kansas City, MO

References

1. AORN Position Statement on Perioperative Care of Patients with Do-Not-Resuscitate or Allow-Natural-Death Orders. Available at: https://www.aorn.org/Clinical_Practice/Position_Statements/Position_Statements.aspx. Accessed 11/6/2014.
2. American College of Surgeons. Statement on Advance Directives by Patients: "Do Not Resuscitate" in the Operating room. Bulletin of the American College of Surgeons. 2014;99(1):42-43.
3. Ethical Guidelines for the Anesthesia Care of Patients with Do-Not-Resuscitate Orders or Other Directives that Limit Treatment. American Society of Anesthesiologists. Last amended on October 16, 2013 Available at: <https://www.asahq.org/coveo.aspx?q=ethical%20guidelines%20DNR>. Accessed 11/2/2014.
4. Ramachandran SK, Mhyre J, Kheterpal S, Christensen RE, Tallman K, Morris M, Chan PS. Predictors of survival from perioperative cardiopulmonary arrests: a retrospective analysis of 2,524 events from the get with the guidelines-resuscitation registry. *Anesthesiology*. 2013; 119:1322-39.
5. Peberdy MA, Kaye W, Ornato JP, Larkin GL, Nadkarni V, Mancini ME, Berg RA, Nichol G, Lane-Trullt T. Cardiopulmonary resuscitation of adults in the hospital: a report of 14,720 cardiac arrests from the National Registry of Cardiopulmonary Resuscitation. *Resuscitation*. 2003; 58: 297-308.

6. Devereaux PJ, Goldman L, et al. Perioperative cardiac events in patients undergoing noncardiac surgery: a review of the magnitude of the problem, the pathophysiology of the events and methods to estimate and communicate risk. *CMAJ* 2005; 173(6):627-34.
7. Sprung, J., Warner, M.E., Contreras, M.G., Schroeder, D.R., Beighley, C.M., Wilson, G.A., Warner, D.O. "Predictors of survival following cardiac arrest in patients undergoing noncardiac surgery: a study of 518,294 patients at a tertiary referral center." *Anesthesiology*. 2003; 99:259-69
8. Ewanchuk M, Brindley PG. Perioperative do-not-resuscitate orders – doing ‘nothing’ when ‘something’ can be done. *Critical Care*. 2006;10(4):219.

Conflict of Interest: The authors have disclosed no relevant conflicts of interest.

Version History: First published electronically February 2015; the Causes and Outcomes of Cardiac Arrest in the OR section was updated in November 2018 in response to an attentive reader who noticed a factual error.

Fast Facts and Concepts are edited by Sean Marks MD (Medical College of Wisconsin) and associate editor Drew A Rosielle MD (University of Minnesota Medical School), with the generous support of a volunteer peer-review editorial board, and are made available online by the Center to Advance Palliative Care (www.capc.org). Fast Facts and Concepts are editorially independent of the Center to Advance Palliative Care, and the authors of each individual Fast Fact are solely responsible for that Fast Fact's content. The full set of Fast Facts are available at <http://www.capc.org/fast-facts/> along with contact information, and how to reference Fast Facts.

Copyright: All Fast Facts and Concepts are published under a Creative Commons Attribution-NonCommercial 4.0 International Copyright (<http://creativecommons.org/licenses/by-nc/4.0/>). Fast Facts can only be copied and distributed for non-commercial, educational purposes. If you adapt or distribute a Fast Fact, let us know!

Disclaimer: Fast Facts and Concepts provide educational information for health care professionals. This information is not medical advice. Fast Facts are not continually updated, and new safety information may emerge after a Fast Fact is published. Health care providers should always exercise their own independent clinical judgment and consult other relevant and up-to-date experts and resources. Some Fast Facts cite the use of a product in a dosage, for an indication, or in a manner other than

that recommended in the product labeling. Accordingly, the official prescribing information should be consulted before any such product is used.