MAYO CLINIC

SPECIAL ARTICLE

Ten Common Questions (and Their Answers) on Medical Futility

Keith M. Swetz, MD, MA; Christopher M. Burkle, MD, JD; Keith H. Berge, MD; and William L. Lanier, MD

Abstract

The term *medical futility* is frequently used when discussing complex clinical scenarios and throughout the medical, legal, and ethics literature. However, we propose that health care professionals and others often use this term inaccurately and imprecisely, without fully appreciating the powerful, often visceral, response that the term can evoke. This article introduces and answers 10 common questions regarding medical futility in an effort to define, clarify, and explore the implications of the term. We discuss multiple domains related to futility, including the biological, ethical, legal, societal, and financial considerations that have a bearing on definitions and actions. Finally, we encourage empathetic communication among clinicians, patients, and families and emphasize how dialogue that seeks an understanding of multiple points of view is critically important in preventing or attenuating conflict among the involved parties.

 ■ Mayo Clin Proc. 2014;■■(■):1-17

From the Department of Medicine, Section of Palliative Medicine and Biomedical Ethics Program (K.M.S.), and Department of Anesthesiology (C.M.B., K.H.B., W.L.L.), Mayo Clinic, Rochester, MN.

Futile medical care and disagreements (eg, among physicians, family members, and others) about whether an individual patient's health care is futile constitute the main ethical health care–related challenges faced by the public today.[1] Despite progressive efforts to prevent disputes, conflicts will likely continue to increase as the aged population increases[1,2] and if patients are offered a list of treatment options—and treatment and technology imperatives—in a misdirected, inappropriate, and wasteful fashion.[3] In these instances, the term *medical futility* is often used. The following article attempts to provide health care practitioners and the public with an overview of this topic by introducing 10 questions regarding *medical futility* and offering answers to those questions on the basis of the existing literature, common values gleaned from multiple relevant fields (eg, medicine, ethics, economics, and the law), and the authors' own experiences. The ultimate goal of this overview is to provide readers information on the common concepts, language, and controversies to enhance future discussions and debate.

QUESTION 1: WHAT IS THE DEFINITION OF MEDICAL FUTILITY?

The term *medical futility* is often invoked when an otherwise curative or disease-arresting therapy or intervention is directed toward a seriously ill patient who has a low likelihood of recovery. Merriam-Webster's Dictionary defines *futile* as "serving no useful purpose; completely ineffective," but it does not contain a separate listing for *medical futility*.[4] Despite the relevance and importance of these terms to discussions within contemporary medicine, ethics, and economics, *medical futility* is often underaddressed, and opportunities exist to educate those direly in need of information.[1]

Medical writers, clinicians, and ethicists have noted that definitions of medical futility (herein referred to simply as *futility*) can be "confusing, inconsistent, and controversial"[5] because the definition is often slanted to reflect the definer's point of view. Any working definition of *futility* should be accessible to users with different backgrounds and testable against existing standards and practices.

For example, Schneiderman et al[6] considered *experience* and *quantity* in their definition of medical futility: "when physicians conclude (either through personal experience, experiences shared with colleagues, or consideration of reported empiric data) that in the last 100 cases, a medical treatment has been useless, they should regard that treatment as futile." Alternatively, Youngner[7] defined futility via 3 major domains: quantitative (as with Schneiderman et al[6]), qualitative, and physiologic.

Physiologic futility examines whether a treatment or technology is efficacious in meeting its intended purpose on a given patient. Clinicians are typically the arbiters of physiologic futility, which is relatively easy to assess in an objective manner. Examples include whether a ventricular assist device is effectively supporting cardiac output and reversing cardiogenic shock or whether hemodialysis is adequately replacing renal function.

In contrast, the quantitative and qualitative aspects of futility are often challenging for clinicians to parse out because these aspects rely on value judgments on the quality of life and its role in assessing the virtue of longevity.[7] What a patient or surrogate defines as quality or quantity may differ from the clinician's perspective, and one can argue that qualitative futility is only met if a treatment does not allow a patient to live his/her life according to his/her goals, preferences, and values, which we believe cannot be determined clinically or by how the last 100 patients responded in a given situation.

Clinicians are best able to accurately comment on the physiologic aspects of medical care that are not value laden.[7] With this tension, the American Medical Association Council on Ethical and Judicial Affairs attempted to be more definitive but recognized the limitations of defining futility as a value-based concept; instead, they determined that "a fully objective and concrete definition of futility is unattainable."[8] Reflecting on the difficulty in defining other elusive terms, such as *love* and *art*, Kwiecinski[8] commented that "most physicians now know it [futility] when they see it." Acknowledging these difficulties, we introduce, as a framework for the remainder of our discussion, the following recognizably noncomprehensive definition of medical futility: excessive (in terms of effort and finances) medical intervention with little prospect of altering a patient's ultimate clinical outcome.

QUESTION 2: HOW DO CHALLENGES IN PROGNOSTICATION CONTRIBUTE TO MEDICAL FUTILITY?

Just as it is difficult to precisely define futility, it is difficult to define how often care is provided that is deemed futile, particularly when analyzed from the perspective of observers' diverse views on what is and is not futile care. A crude approximation can be surmised because 25% of US Medicare dollars are spent in the final year of life. This reasoning is somewhat circular, however, in that sick people require health care resources, sicker people require more expensive resources, and the sicker one is, the more likely one is to die. Although it is impossible to be certain that someone has entered the final year of life, multiple prognostic scoring systems have been developed to more precisely predict the likelihood of patients' survival when they are receiving intensive care. Although tools such as the Acute Physiology and Chronic Health Evaluation (APACHE) have tried to link physiology, resource utilization, and likelihood of death, they have failed to be definitively useful for this role, particularly when applied to outcome in a single patient.[9-11]

Berge et al[12] used the physiologic data–based APACHE III system in an effort to identify futile medical care by looking at a group of extremely ill intensive care unit (ICU) patients (ie, study patients had predicted single-day mortality rates of $\geq$95% on 2 consecutive days). A total of 248 patients (0.68%) of 38,165 ICU admissions achieved this status. In fact, the survival rates exceeded the predicted rates by a significant margin, with 23% surviving to hospital discharge. However, all but one of these patients was ranked as "severely disabled" at discharge, and most (90%) died within the subsequent year, never having left a skilled nursing facility.[12] Interestingly, Berge et al reported that the opinions of experienced ICU physicians (as recorded in narrative notes within the hospital record) appeared to more accurately predict individual patient's survival than did the most finely calibrated, then-state-of-the-art, computer-based prognostic scoring system (ie, APACHE III). The report of Berge et al documents that although prognostic scoring systems are increasingly used to attempt to predict the clinical course of the sickest patients, they still are unable to determine when an individual therapy is futile.[12] A review of these and other scoring systems, including the Simplified Acute Physiology Score 3 and the Mortality Probability Model 3, reveals that these models may predict mortality reasonably well at a population level but tend to be less effective for individual patient prognostication.[13] Taken together, clinicians and the prognostic tools they use are limited in their ability to predict outcomes for individual patients, which can lead to uncertainty and

Mayo Clin Proc. ■ XXX 2014;■■(■):1-17 ■ http://dx.doi.org/10.1016/j.mayocp.2014.02.005
www.mayoclinicproceedings.org