

## Transparency of Appropriateness Criteria

We read with concern the 2009 Appropriate Use Criteria for Cardiac Radionuclide Imaging (1), the 2009 Appropriateness Criteria for Coronary Revascularization (2), and the 2008 Appropriateness Criteria for Stress Echocardiography (3) published in the *Journal* in the past year. Although appropriateness criteria are seemingly well-intentioned and designed to discourage overuse of certain procedures, these documents brought to mind the story of how George Washington's doctors contributed to his rapid demise (4). The former president contracted probable epiglottitis, for which his 2 senior physicians prescribed 6 to 8 pints of bloodletting. The third physician (the junior member of the team at age 37 years) recognized upper airway obstruction and recommended tracheotomy—an accepted therapy for this condition. He was overruled, and the elder clinicians proceeded with blood removal until Mr. Washington's struggling subsided and he died peacefully.

Although this story may feel distant to contemporary medical practice, in our opinion the experience of George Washington provides a sobering reminder of the dangers of expert opinion without adequate scientific evidence. Recent analyses by leading cardiovascular investigators have noted the lack of a rigorous evidence base for many of the guideline recommendations, as nearly 50% are Level of Evidence: C (based upon expert opinion, case studies, or standards of care) (5). The recent proliferation of appropriateness criteria for various cardiovascular conditions and procedures are based on these same guidelines, and we should carefully evaluate the paltry scientific evidence upon which substantial portions of these guidelines are based. In addition, many physicians are becoming increasingly concerned about the application of these documents in courtrooms for legal proceedings and by insurance carriers seeking to deny reimbursement based on therapies not specifically conforming to the current definition of “appropriate” care.

We therefore suggest that all contributors to appropriateness criteria, guidelines, and scientific statements work diligently to remove recommendations from these documents regarding therapies not supported by consistent scientific literature. Alternatively, these statements should be downgraded from recommendations to suggestions, or descriptions of contemporary practice patterns, as a means of bringing greater transparency to the lack of data on which they are founded. After all, George Washington was treated “appropriately” but with a therapy supported by Level of Evidence: C (expert opinion). We should avoid pitting one set of experts against another when attempting to provide individualized, patient-centered care, which by definition cannot involve identical therapies for different patients. To legislate care in any other manner would be “inappropriate.”

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## Reply

The Appropriate Use Criteria (AUC) Task Force appreciates the concerns raised by Stolker and colleagues regarding the use of expert opinion in setting practice standards such as AUC, guidelines, and other clinical standards (1–3) and wishes to respond to the important issues raised.

The case of bloodletting related to the death of George Washington indeed provides an important example of the cautions that must be taken when practicing medicine by expert opinion. George Washington himself was a proponent of bloodletting and advocated for its use. In fact, the first course of bloodletting was undertaken by Mr. Rawlins, the estate overseer, at the behest of Washington. When Mr. Rawlins, not a physician, showed agitation in administering the therapy, Washington stated, “Don't be afraid. The orifice is not large enough. More, more” (4). Subsequent attempts by his physicians then drained a total of more than 50% of his blood volume over the course of 13 h. Shortly after Washington's death, Dr. James Bricknell disagreed with the extent of bloodletting, although his sentiments were withheld from the public until they were published in 1903. “Estimating the quantity of blood removed to be 82 ounces, he bemoaned the lack of clinical wisdom and appropriateness” (4). “Very few of the most robust young men in the world could survive such a loss of blood; but the body of an aged person must be so exhausted, and all his power so weakened by it as to make his death speedy and inevitable” (5). Ironically, the journal *Science* in 2004 reported that the practice of bloodletting may have had a scientific basis after all, as it removed a crucial ingredient for the growth of certain types of infection (6).

Washington's case is not only a lesson in relying too heavily on any given set of experts, but in total a caution about attempts to practice heroic medicine or take any medical intervention beyond

acceptable limits (7). Medicine should not be performed solely at the behest of a demanding patient to receive the latest intervention, by physicians acting on anecdotal effectiveness, or by extending the use of any treatment beyond reasonable limits (overuse). AUC documents attempt to provide reasonable guidance to inform all of the preceding situations. In particular, they caution against the use of interventions when a lack of benefit is expected based on either evidence or expert opinion. Unfortunately, few studies are undertaken to demonstrate a lack of effectiveness, so AUC must often rely on observational studies, especially epidemiology-based population risk studies (Level of Evidence: B). As population studies are never precise enough to apply to all individual patients, AUC documents supplement these studies with expert opinion (Level of Evidence: C).

All alternatives are unsatisfactory: Stolker and colleagues mention that lawyers and insurance companies might set these standards through individual case review and blanket coverage standards, or physicians could act only in cases for which there is sufficient evidence. In this case, the definition of “sufficient” becomes elusive. Even the alternative therapy offered by Dr. Dick, Washington’s third physician, was overruled due to a lack of comparative evidence to the standard at the time.

The exercise of clinical judgment is required to practice evidence-based medicine, even in the best of circumstances, with copious available data. The criteria are an earnest attempt to provide expert guidance based on the best available evidence. As stated within all AUC, these documents are not intended to supersede the clinical judgment of a practitioner and should not intrude into the patient-physician relationship. Instead, these documents are an attempt by the profession to guide patient care and the use of societal resources in such a way that its members can uphold an oath even older than the time of Washington that states that we shall first do no harm.

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