

Standards, Guidelines, Science, and Consensus

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These comments were begun on an aircraft during my return from the largest consensus-building conference in today's medical world—the revision of the *Standards and Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiac Care* of the American Heart Association (AHA). The principal objective of this consensus-building conference was to bring the Standards and Guidelines into line with changes in the scientific knowledge gained since the last such conference (1985). In order to facilitate this task, the content areas of this well-defined area of medical practice were subdivided and assigned to panels of experts who preconference, developed recommendations that were presented to the 500 (one-fourth from outside the United States) participants in this conference for their input. Following this conference, the panels of experts reconvene to complete the codification of the revised Standards and Guidelines. And then, after an extensive approval process by the AHA and the Editors of the Journals who have agreed to publish the output, these recommendations will be published as the new Standards and Guidelines. New materials will be developed and published to facilitate training to these revised Standards. And, regardless of the whether AHA wishes to accept the fact or not, they will comprise the *minimum standards* upon which all training and practice in this well-circumscribed area of medicine will be based and judged.

As the aircraft soared high above the Mississippi River, I mused: How are standards for medical practice established? What do they mean? What is the difference between a standard and a guideline? How much Science really is involved? What if the science is inadequate to give us all the answers we need? And, if all of our practice is based on Science, then why is there a need for consensus? These questions have bothered me for a long time, and it seemed “Standards” and “Guidelines” have been used interchangeably.

So, my first step upon my return home was to seek definitions.

Standard—something established by authority, custom, or general consent as a model or example; a *criterion*; something set up and established by authority as a rule for the measure of quantity, weight, extent, value, or quality; *synonyms*: gauge, yardstick, touchstone;

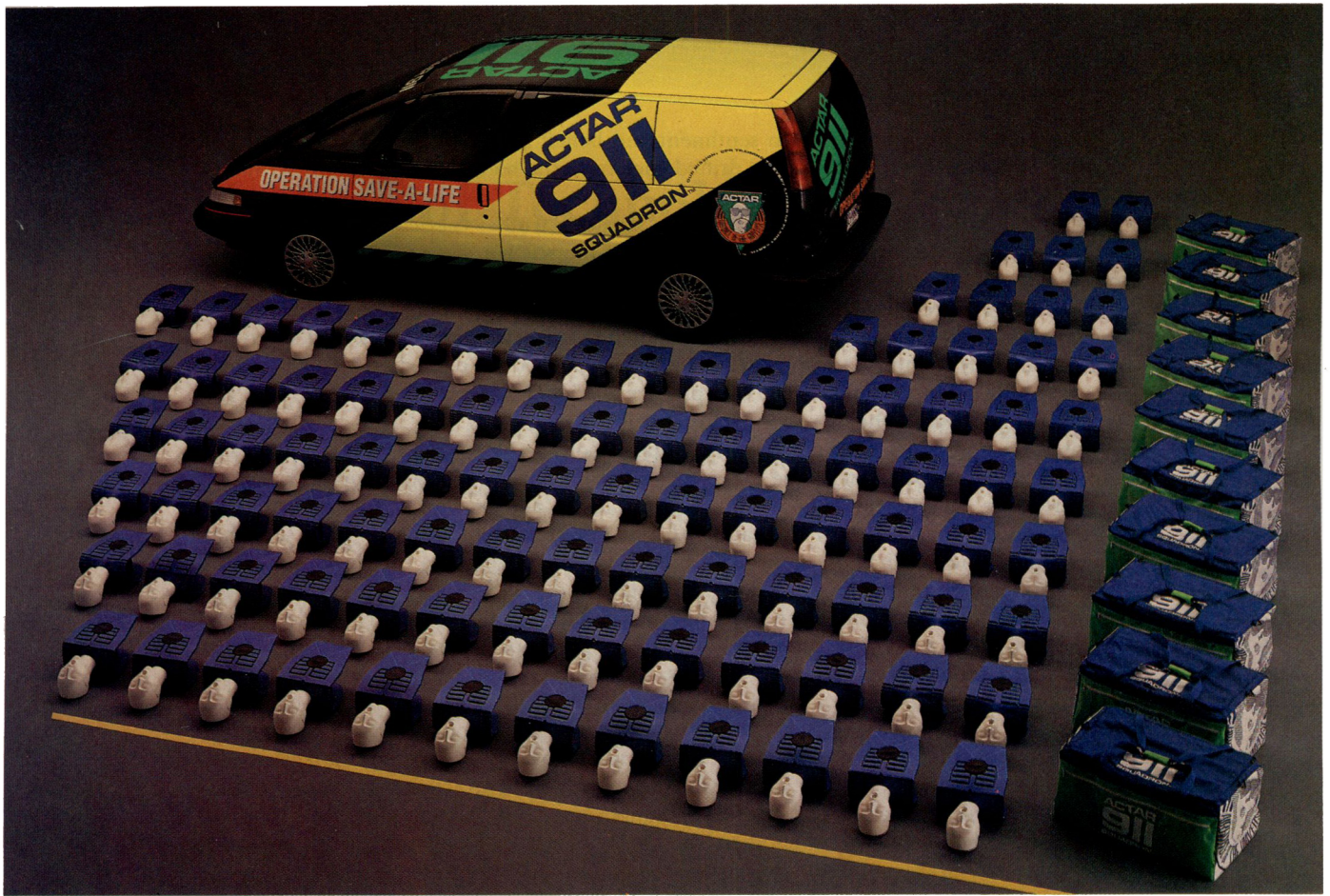
Guideline—a line by which one is guided; an indication or outline of policy or conduct.

They are different—a *Standard of Practice* is a criterion upon which to base judgments while a Guideline is a suggested means to attain the Standard. In other words, there could be many ways to attain a Standard. Good examples of guidelines are the algorithms for Advanced Cardiopulmonary Life Support (ACLS) provided by the AHA. These guidelines are not standards or rules, they are a suggested path to achieve the standard. But, unfortunately, there are few randomized, controlled experiments which establish the Guidelines. The algorithms constitute the “best” method perceived to achieve the accepted, established standard—we cannot prove that following the Guideline will produce a better result than would any other path of assessment and therapy that could be devised to reach the standard. Thus, the guidelines constitute a best guess since they are devised by a panel of recognized experts whose opinions, interpretation of the applicable scientific data, and whose experience we respect. The Standards and the suggested Guidelines to achieve these Standards are developed through *consensus* attained by a panel of experts.

But, I thought that science is *Science* and that our practice is determined directly by *Science*—then why a consensus? Oops—back to the dictionary:

Science—1a. Possession of knowledge as distinguished from ignorance or misunderstanding; 1b. knowledge attained through study or practice; 2a. a department of systemized knowledge as an object of study; 3a. knowledge covering general truths or the operation of general laws especially as obtained and tested through scientific method;

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The Operation Save-A-Life Expedition was sponsored by Actar Airforce Inc in participation with the Heart and Stroke Foundation of Canada, the Canadian Red Cross Society, St. John Ambulance, the Royal Life Saving Society Canada and the Canadian Ski Patrol.

Consensus—group solidarity in sentiment and belief; general agreement; *unanimity* of opinion based on reports that had drifted back from the border; the judgment arrived at by most of those concerned.

According to the definition (particularly 3a), science is truth—*especially* (but not exclusively) proven using the scientific method. In much of the science that profoundly affects our practice, assumptions are made; and, it is the credibility of these assumptions that we question. Findings proven by science may be in conflict. Such conflicts that do occur in Science usually are related to minor variations in methodology or sample populations. And, often it is difficult to apply scientific facts directly into our daily practice. All of medical science must be interpreted in terms of applicability. Our practice is science *tempered* by experience, and the greater the experience, the more accurate the interpretation.

Interpretation of Science may differ depending upon the background and experiences of the interpreter: the best that can be expected is for many persons with sufficient backgrounds to share their experiences as they apply to the Science, and reach a consensus about the truths and whether and how they apply to our practice. William Osler once said that “medicine is the application of probabilities.” Consensus furthers the development of Standards through resolution of varying interpretations of the Science. It allows the development of the “best guess” when science has not provided us with all the answers. We depend on others to help us and rely on the consensus of people whom we respect who are able to research at a deeper level than can most of us. We depend on their ability to reach a consensus incorporating their pooled knowledge and experience. If the outcome of the consensus process is reasonable, we accept this interpretation as a Standard for our respective practices: the benchmark towards which we strive. It is not possible to apply science appropriately to our practices without consensus. It is not possible to judge our practice without standards. Standards enable us to assess our practice. Moreover, standards defined in one area of medical practice may not be valid in another. The quality of a given Standard depends upon the knowledge and experience of the people selected to form the consensus.

There are many examples of using consensus to establish standards of practice other than those provided by the AHA. The foundations of other practices such as the credentialing board exams are derived in the same way. Panels of accepted experts reach consensus on standards and test candidates based upon these standards.

As new disciplines, Prehospital and Disaster Medicine are in need of Standards of Practice. To establish these standards, consensus must be pursued aggressively, particularly in areas in which controversy or misunderstandings exist due to lack of Science or knowledge of truths. We can benefit by application of the AHA model to develop and maintain Standards that are current to the practice of these new specialties. Early in the development of NAEMSP and WAEDM, we aggressively approached such consensus development and we need to resume vigorous pursuit of these goals. Now, we must define our practice.

It will be interesting to see if the AHA will incorporate the consensus-building which occurred during the conference into the final development of the revised standards to be achieved through the use of practical guidelines. Standards must be credible *and* reasonable or they will be rejected. The Guidelines suggested must be realistic and applicable as well. We look to AHA for a Standard we can live with, and others look to us for Standards they can live with and apply. We cannot wait for our Standards much longer. Since it is endorsed by the membership of NAEMSP, *The Medical Director's Handbook* forms an excellent base for the Standard of Practice for Prehospital Emergency Care. It must be supplemented, and we must streamline our process for definition of our practice. A similar approach toward development of Standards and Guidelines for Disaster Medicine will serve to establish a permanent foundation for this recent entry in the world of medicine. These Standards and Guidelines for Prehospital and Disaster Medicine will ensure our peers view us as a real and viable entity in the world of Science.