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Practicing 'Check the Box' Medicine

In 1978, the authors of this commentary co-authored the *Manual of Coronary Care,*[1] one of the earliest and most durable (6 editions) clinical guideline books in the spiral-bound manual series founded by Little, Brown and Company. The enormously popular *The Washington Manual of Medical Therapeutics* was the first and most well-known book in this series.[2] At that time, a number of my colleagues in academic cardiology criticized the *Manual of Coronary Care* as being an example of "cookbook medicine." In other words, clinicians who followed the protocols in our book need not think deeply about the diagnosis and therapy of individual patients. All they had to do with this manual was follow the suggested recipe. Of course, we responded that this criticism was unfounded because physicians caring for patients still had to exercise considerable thought about each individual patient with an acute coronary syndrome despite the protocols provided in our book.

With time, the concept that we and others had pioneered, that is, easy to use clinical protocols that assisted physicians in their diagnostic and therapeutic planning, became an accepted and widely applied venue in daily patient care. This approach spawned many offspring in the form of clinical guidelines commonly used today in medical practices throughout the world. In cardiology, guideline preparation and revision have become major activities for a variety of cardiovascular professional organizations, including the American Heart Association, American College of Cardiology Foundation, European Society of Cardiology, Heart Failure Society of America, Heart Rhythm Society, and many others. The preface to each clinical guideline emphasizes the fact that these publications are presented as aids to clinical care and should not be used as a "one size fits all" recipe for clinical care of all patients. Individual patients will have a variety of contraindications and comorbidities that could and should result in an individualized approach to diagnosis and therapy that might differ importantly from what was suggested in the published guidelines.

Unfortunately, a number of clinical environments, such as urgent care centers, emergency departments, and ambulatory care clinics, have begun to focus their diagnostic and therapeutic planning primarily using what we term "check the box medicine," a severe exaggeration of the use of clinical guidelines. In this approach to medical care, a triage person obtains a chief symptom from the patient, for example, chest discomfort. The triage individual then reports this information to a physician or mid-level provider, who uses a prepared standard form containing a series of diagnostic or therapeutic items that will be ordered if the box adjacent to the item is selected. The result is that a variety of tests or specific therapeutic interventions are performed on a particular patient, for example, a panel of blood tests, as well as a number of imaging studies, for example, computed tomography or magnetic resonance imaging scans, and therapeutic items. A patient history and physical examination may not be performed in some cases or are carried out in a perfunctory manner.

As physicians trained in the long-standing clinical tradition of a careful history and physical examination, we find the "check the box" approach to clinical medicine disturbing and likely to produce physicians with corrupted and deteriorating clinical skills. The potential for harm to the patient in this "shotgun" approach to diagnosis and therapy also is obvious. Indeed, as has been pointed out in an earlier commentary in the *Journal,* "check the box" medicine often leads to excessive use of imaging tests that involve ionizing radiation.[3] We have personally witnessed on more than one occasion patients who received unnecessary tests and unneeded therapies when a "check the box" approach to patient diagnosis and therapy was used. Indeed, one could envision that if "check the box" medicine were to become the universal approach to healthcare, patients might not even need to see a clinician. Instead, they could just key in their symptoms on a tablet or smartphone, and then a computer program would inform them where to go for a variety of blood and imaging tests, as well as drug prescriptions. We firmly believe that such a brave new world of medicine would result in a great deal of confusion, unnecessary testing, and potentially harmful therapeutic interventions.

The diagnosis and therapy of disease in an individual patient involve complex reasoning based on an extensive knowledge base, cognizance of social and ethnic aspects of the patient, and a healthy dose of common sense. The skilled clinician integrates this information and then discusses various approaches to diagnosis and therapy with the patient, making appropriate decisions based on this conversation. "Check the box" medicine avoids the

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personal process just described and replaces it with a series of impersonal laboratory and imaging tests. The important elements described earlier in the traditional clinical approach to patient care are skipped entirely or done in a cursory and abbreviated manner.

We would hope that no one would interpret this editorial as a condemnation of clinical guidelines or the judicious use of check lists in a variety of clinical situations, for example, preoperative and postoperative checks. Indeed, guidelines are often useful when used judiciously. We were both pioneers in the area of guideline preparation, and we have both frequently participated in the creation of published cardiovascular diagnostic and therapeutic guidelines. Nevertheless, we believe that guideline-directed care must be coupled with a traditional clinical approach involving a careful history and physical examination followed by the creation of a thoughtful and reasoned plan for diagnosis and therapy. Certainly, the entire process can be abbreviated with the aid of a variety of electronic media and devices, but careful face-to-face data collection and clinical reasoning cannot and should not be assigned to the role of a smartphone app, at least not at the present time and probably not in the future. We know from years of clinical observation that patients far prefer speaking to a live and caring healthcare provider compared with interacting with a device, no matter how clever the device is engineered.

As always, we would be interested in hearing reactions to this editorial on ***The American Journal of Medicine*** blog (amjmed.org).

Joseph S. Alpert, MD
Professor of Medicine
University of Arizona College of Medicine
Tucson
Editor-in-Chief
The American Journal of Medicine

Gary S. Francis, MD
University of Minnesota Medical School
Minneapolis
Editor-in-Chief
The Journal of Cardiac Failure

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