The need to ensure quality in medicine has become paramount in the current environment of health care accountability, affordability, and access. There are many tools that are used to ensure quality, including peer review, continuing medical education, maintenance of certification, formal disease-specific guidelines, and quality measures. The lines between these various tools can sometimes be blurred and lead to confusion for the clinical neurologist.

While most efforts in our field have focused on outpatient metrics, neurologists increasingly play a major role in the care of patients in the hospital. In this issue of Neurology®, we report the results of a joint effort on behalf of the American Academy of Neurology (AAN), the Neurocritical Care Society (NCS), and the Neurohospitalist Society (NHS) to develop inpatient and emergency quality metrics. In this editorial, we outline the definition and role of quality measures in neurology, and discuss the challenges, caveats, and opportunities posed by the process of creating the inpatient and emergency quality measures set in this issue of Neurology.

WHAT IS A QUALITY MEASURE? A quality measure is a defined diagnostic or treatment activity that should be performed in the majority of patients and then can be reasonably measured using objective criteria. A quality measure is typically outlined in the format of a numerator and denominator, in which the numerator is the number of times the particular activity is performed and the denominator is the number of times in which the particular activity is expected to be relevant or valid. In contrast, a guideline is a value statement, based on a structured process, that reviews the available evidence in the literature about a particular diagnostic or therapeutic activity. For example, guidelines state that lorazepam is the recommended initial treatment for convulsive status epilepticus, based upon the results of randomized controlled studies. The guideline calls for a recommendation that is weighed in strength according to the evidence. In contrast, a quality measure is a translation of this guideline into a practical measurement that incorporates the feasibility of determining how often a physician or hospital encounters the condition: in this example, status epilepticus, and how often the actual treatment was performed. The quality measure indicates how to make the measure, how to report this, and whether the physician, the hospital, or others are responsible for this activity. The table outlines the subtle but important differences between guidelines and quality metrics.

The quality measure is derived in order to drive quality improvement to help our patients as well as to create a meaningful report to national quality agencies. The quality measure is a derivative of the guideline, and should be established for those diagnostic or therapeutic activities for which guidelines exist. Some guidelines are not measurable, and hence quality measures will naturally be more limited in number than guidelines. For example, there are 19 separate diagnostic or therapeutic recommendations using the Grading of Recommendations, Assessment, Development, and Evaluations criteria in a recent guideline on status epilepticus. However, many of these do not lend themselves to measurement using a structured process. In our most recent quality metric set for inpatient and emergency neurologic care, only 3 quality measures concerning status epilepticus could be derived.

WHY DO WE WRITE QUALITY MEASURES? The goal of quality measures is to create an objective assessment of the frequency of correct implementation of best practices in neurology. The objective assessment is a practical manner for neurologists, regulatory bodies, and insurers to appreciate the frequency with which proper care is delivered to patients. The consumers of these quality measures are neurologists, hospital administrators, regulatory agencies, and insurers. The secondary goal of a quality measure is to enable process improvement and to address shortfalls in care. For example, the existing literature suggests that implementation of brain death determination is poor in the United States, despite...
Table Differences between guidelines and quality metrics

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Abbreviation: PICO = population, intervention, cointervention, outcome.
Impact of quality metrics: (I) neurologist performance measurement, (II) hospital or health system performance measurement, (III) process improvement.

existing AAN practice guidelines. In order to understand and to improve the brain death determination process, one needs to prospectively measure the process. Thus, a quality measure was created to accomplish this in a prospective way, focusing on documentation of criteria for brain death. In this way, quality measures take a clear step beyond aspirational statements that are contained in guidelines or practice parameters, and create an objective manner to determine adherence to a recommendation for best practice. A third goal of a quality measure is to ensure self-determination of best practices. It is imperative that experts in a field make the determination of what constitutes these best practices rather than a regulatory agency or non-neurologists, who may lack expertise and judgment for our field. One could foresee controversy if regulatory or policy experts created arbitrary quality measures that conflict or, at best, misrepresent best practice. Thus, neurologists need to take a proactive approach to determine quality. This self-determination is in the patient’s best interest, since the foundation of the process comprises the best medical evidence.

WHAT IS THE PROCESS? The process of creating a quality measure set comprises several steps: (1) creation of an expert panel that includes subject matter experts from the wide spectrum of clinical practice (including academia and private practice); (2) careful review of existing guidelines in selected topics; (3) discussion of the strongest guidelines that are amenable to creation of a quality measure; (4) debate and discussion of the quality measure, which is based largely on the strengths of the originating guidelines; (5) drafting a table of quality measures and further discussion of the merits for each measure; (6) creating a structured implementation approach for each measure, which speaks to the practical manner of accessing patient medical record and interpreting the patient medical record; (7) creating a summary manuscript that calls out selected measures and the challenges of implementing the measures; (8) formal approval of the measure set by the AAN Board of Directors (in our set also the NCS and NHS boards); (9) peer review of the manuscript and accompanying measure set.

The process usually requires 18–24 months to complete. The multiple steps ensure careful review of the written text at multiple levels, with consideration of the consequences, positive or negative, of the measures on individual neurologists, health systems, and national health agencies and insurers. The process is careful, deliberate, and balanced with multiple checks and balances.

WHAT ARE THE CHALLENGES? Creating a quality measure set has many challenges, which limit the satisfaction of the participants and the readers alike. The fundamental challenge is the lack of available evidence for most of the crucial diagnostic or therapeutic activities under consideration. In most of neurology, we lack definitive evidence to support the best approach. It is an informal law of irony that the most critical questions that require a definitive approach most frequently carry the least definitive levels of evidence. For example, the inpatient and emergency neurology group found it most challenging to create the quality measure surrounding the rapid treatment of convulsive status epilepticus. The group was unanimous that diagnosis and treatment should be done rapidly, but we reluctantly acknowledged that the literature lacks a formal time definition, such as 5 minutes or 10 minutes. The available guidelines and other evidence could not resolve this challenge and therefore it would be inappropriate to simply pick a time frame as a quality measure. In this manner, these metrics can be considered a call for research. These metrics, like others developed by the AAN, are a living document to be revisited and revised periodically in order to assure that best evidence is being supported and metrics truly are helping to deliver quality care. We firmly acknowledge limitations of this first attempt at a measure set in this arena, but hope criticisms will serve to motivate funding of research in order to improve them.

The second challenge was to weigh and balance the opinions of a large group of subject matter experts. The
debate and discussion of various measures required adjudication of the strengths of arguments proffered by the experts. The ability to weigh and balance these arguments was aided by the serial nature of the discussion among the core group, the writing committee, and the co-chairs. This challenge likely biased the measure set to be more conservative and moderate than it could have been. For example, while decreasing use of urinary catheters is clearly associated with less catheter-associated urinary tract infections, a statement specifically excluding catheter use with certain conditions (e.g., stroke) is not supported by the available evidence; as a result, a more general statement that each hospital develop a rational catheter use algorithm was advanced. We recognize that some measures become more difficult to implement because of this moderation, but on balance we aimed for external validity and reproducibility of the measure rather than promoting an extreme viewpoint.

The third challenge was how best to convey this quality measure to readers. Readers are inundated with guidelines, position statements, rules, and policies, which seek to limit, structure, and restrict their practice. The reader may be confused about seemingly contradictory statements and wonder how best to conduct their practice in order to navigate through these various demands on performance. How should the reader use these quality measures and balance disparate views? Our advice is to begin with a general understanding that these quality measures are built on guidelines, and thus any apparent differences are likely based on the vagaries of the written word. The reader should use clinical judgment to implement a practice that is consistent with both the relevant guidelines and the quality measure. Our advice is to make use of the quality measure to make changes in the hospital environment and hospital protocols that one works in. The quality measures are a way to implement the guidelines in a practical way. Thus they are complementary to and not competitive with guidelines.

Readers also include those hospital and regulatory staff who are charged with implementing the quality measures. It is clear that many of the measures’ outlines are not solely, or even frequently, under the control of the practicing neurologist. Most hospitals do not consult a neurologist for every case of delirium, and therefore many will be frustrated that delirium measures are represented in the set. However, in this instance it is the health system responsible for developing a screening and preventative protocol and neurologists can take the lead in helping hospitals establish such a protocol. In this way, an attitude of “this does not involve me” can be turned into “how can I help the system improve?” This approach has been a common method for neurologists involved in managing primary stroke centers and now can be applied to other nonstroke inpatient conditions. This process carries its own set of challenges. Implementing quality measures requires instruction of hospital quality officials, chart reviewers, and other metric personnel. This process is iterative and takes place at several levels but begins with the creation of clear quality language.

During the development and review of the inpatient and emergency neurology quality metrics, we noted dissenting points of view. The quality metrics process exposed important limitations and concerns that were raised by Neurology’s reviewers. First, the inpatient and emergency quality metrics offer little in the way of new data and may be seen by the practicing neurologist as repetition of existing guidelines; this is often a concern raised with metrics, given their derivation from existing guidelines. Second, there were no specific recommendations for implementation or adoption of the metrics in the current process. This may create frustration that a new mandate has been created and lead to physician burnout without appropriate resources or support. Whether there might be negative consequences on neurologists and hospitals is uncertain, but these measures likely will generate an increased workload to create protocols and policies that are responsive to the metrics. Third, quality metrics may be viewed as a documentation requirement and create more burden, without value to patients or families; this remains a concern that guideline and quality metrics alike face in an increasingly regulatory environment that emphasizes quality of care. Fourth, the reviewers requested a call for further research to resolve uncertainties that exist in the metrics that we support. This was most poignant in the quality metric for “rapid” treatment and use of EEG in cases of convulsive status epilepticus, as well as in some aspects of the delirium measures. Finally, a minority of reviewers had strong opinions about what was considered standard of care treatments for conditions such as Guillain-Barré. We recognize that local practice is variable and that the quality metrics are unable to capture this diverse range of practice even when adhering to established guidelines.

In short, the quality metrics process is an imperfect but reasonable attempt to begin to implement and measure important practice principles to benefit patients and their families. Challenges are tremendous, but the process is an important one for our field to continue to advance and improve the care of our patients in today’s health care environment.

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REFERENCES


