



Quality Measurement Manual 2022 UPDATE

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Purpose

The 2022 update to the American Academy of Neurology Institute's (AANI) Quality Measurement Manual outlines the AANI's approach to quality measure development for the practice of neurology. This document supersedes information provided in previous versions of AANI quality measurement process documentation. This document:

- Provides an overview of quality measurement
- Provides the rationale for quality measure development by the AANI
- Outlines processes for the development, testing, and evaluation of measures
- Outlines dissemination and implementation of quality measures in practice
- Explains the oversight role of the AANI's Quality Measure Subcommittee (QMS)

The goals for AANI quality measure development are:

- Develop measures to facilitate guideline implementation and improve the quality of care provided to patients with neurologic disorders and diseases, leading to improved patient outcomes.
- Ensure that quality measures are understood as unique from guideline products.
- Develop measures that demonstrate the value of specialist neurologic care for patients.
- Develop well-defined measure statements and technical specifications.
- Define appropriate outcome measures and necessary risk adjustment strategies.
- Develop measures that address existing disparities or at worst do not exacerbate disparities in neurologic care.
- Regularly review AAN-developed measures to ensure they do not create any unintended consequences or unintentionally increase disparities in neurologic care.
- Develop measures with appropriate stakeholder input.
- Develop measures that are not burdensome for stakeholders to implement and measure in everyday practice.
- Submit appropriately specified measures for consideration in AANI's Axon Registry®.
- Harmonize with existing measures when possible.
- Eliminate AANI-developed quality measures determined to not be feasible, reliable, or valid or those that lack a link to continued improvement or improved patient outcomes.

AANI quality measures:

- Have a strong evidence base
- Address an objectively identified gap in patient care
- Are relevant to users and actionable in the clinical setting
- Are feasible to collect, measure, and track over time
- Directly measure health care outcomes or link processes of care to improved outcomes
- Improve or maintain health care outcomes, patient safety, quality of life, cost of care, the patient experience, or coordination of care
- Provide e-specifications when appropriate

AANI quality measures are not:

- Intended to be a statement of the standard of care
- Intended to be a new clinical practice guideline for providers
- Intended to mandate specific clinical practices
- Required to have perfect performance rates
- Intended to penalize physicians or care teams
- Intended for use as practice standards in malpractice claims
- Intended for use to approve or deny insurance claims
- Intended to substitute for the independent professional judgment of the treating provider

Quality Measure Subcommittee Oversight

The QMS was established in May 2019 and reports to the Quality Committee.

- QMS develops and maintains quality measures for neurologic care and promotes improvements in clinical outcomes, patient safety, resource use, and patient-experience.
- QMS oversees the development, testing and evaluation, and dissemination and implementation of quality measures.
- QMS increases the awareness of tools available to assist in quality reporting and measurement and supports the integration of measures into qualified clinical data registries (including the Axon Registry), pay for performance programs, and electronic health records (EHRs).

Quality Measurement Overview

Quality measures are one way that guideline recommendations are operationalized for use in clinical practice. Measures assess the degree to which physicians or care teams implement clinical practice guideline recommendations in practice. A quality measure (also called a quality indicator or performance measure) is an objective measurement of the proportion of patients who received the indicated process(es) of care and/or whether patients had the desired outcome(s) of care.

$$\text{Quality of Patient Care} = \frac{\text{patients who meet criterion}}{\text{(eligible population-exclusions)}}$$

Ideally, specific processes of care should directly correlate to desired patient outcomes. However, at present the use of outcome measures continues to lag behind that of process measures, particularly for neurology where long-term patient outcomes are not always favorable. Process measures are easier to develop and do not require risk adjustment. Additionally, physicians and treatment team members often prefer to be measured on processes that are within their control. It is via specification of the outcome measure, however, that the real power of the quality measures will eventually be realized.

The vast majority of the AAN's quality measures are reported as a percentage rate (or a score) derived by dividing the number of patients who meet a criterion for quality (the numerator) by the number of eligible patients within a given time frame (the denominator) where the numerator cases are a subset of the denominator cases. Over time, additional measures may be added to the measure portfolio that address Observed to Expected (O/E) ratio. For example, reporting on the ratio of observed deaths to expected deaths.

Measure Types

Quality measures in health care have been grouped into three main interrelated types: (1) structural, (2) process, and (3) outcome measures.¹

Structural measures emphasize innate features of a given health care system, such as policy guidelines, management systems, and resource allocation (e.g., the percentage of physicians in a state with access to electronic health records).

Process measures focus on the actions of health care professionals and evaluate whether these activities follow established evidence-based clinical guidelines, care protocols, and best practices (e.g., the percentage of women with epilepsy provided counseling on how epilepsy and its treatment affects contraception and pregnancy).

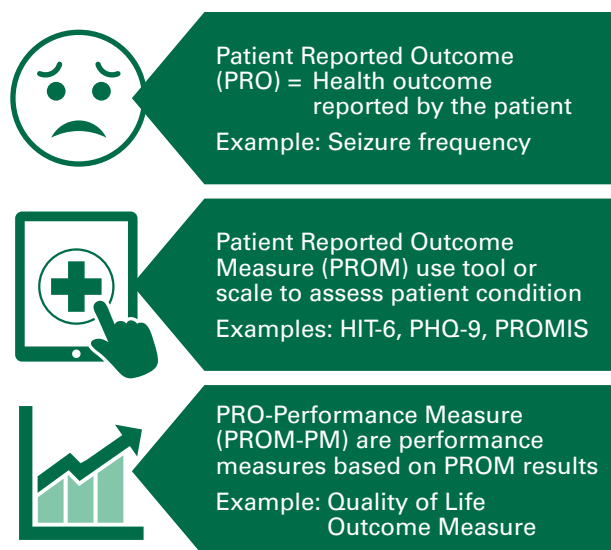
Outcome measures address critical endpoints that represent the culmination of an episode of care, defined as the entire spectrum of care related to a particular disease, disorder, or condition, from the initial assessment through the final stages (e.g., the percentage of patients who are diagnosed with Parkinson disease who fell during the measurement period).

Within the broader definition of outcome measures, many subtypes can be defined:

- Intermediate outcome measures assess factors or short-term results that contribute to an ultimate outcome (e.g., the percentage of patients diagnosed with a prior stroke who are maintaining their blood pressure within a healthy range).
- PRO-Performance Measures (PRO-PMs) are performance measures based on patient reported outcome measures (PROMs) (see Figure 2). PROMs use an instrument or scale (e.g., PHQ-9, PROMIS, HIT-6) to directly assess any report of a patient's health condition directly from that patient, without interpretation of the patient's symptoms, feelings, or concerns by anyone else. Current AANI-developed PRO-PMs evaluate the change in PROM performance over time. (e.g., the percentage of patients with a diagnosis of major depression or dysthymia with an initial PHQ-9 score >9 with a follow-up PHQ-9 score <5 at six months).
 - The measures often rely on one PROM to monitor and track performance over time (one or two calendar years). It is hoped that additional PROMs could be added as comparability of scores advances through the use of tools and resources, such as the PROsetta Stone[®] available at: <http://www.prosettastone.org/Pages/default.aspx> accessed on August 19, 2021.
- Economic or efficiency measures evaluate and compare health care outcomes based on payments or cost. Historically, the AANI has not developed economic outcome measures given that cost information is not standardized and rarely available to providers in real time.

1. Donabedian A. The role of outcomes in quality assessment and assurance. *QRB Qual Rev Bull.* 1992;18:356–360.

Figure 1. The Evolution of Patient Reported Outcome Data to PRO-Performance Measures



Unique Challenges to Outcome Measure Creation

There is increasing pressure to generate outcome measures for neurology because outcome measures provide needed information to patients so they can make informed health care choices, facilitate quality improvement in care, and can be used in accountability programs, such as the Centers for Medicare & Medicaid Services (CMS) Merit-based Incentive Payment System (MIPS), to pay for quality rather than quantity. Subspecialty societies that develop measures have struggled to develop equitable outcome measures for disease states with long-term negative outcomes.

Four criteria for health care outcome measures were proposed to hold providers accountable in pay-for-performance or public reporting programs¹⁻³:

1. There should be strong evidence that good medical care leads to improvement in the outcome within the measurement period.
2. The health care outcome should be measurable with a high degree of precision.
3. Risk-adjustment should include and accurately measure the risk factors most strongly associated with the health care outcome.
4. Implementing the measure should have little chance of adverse consequences.

The QMS hopes to adopt these criteria in the future. At this time,

1. Baker DW and Chassin MR. Holding Providers Accountable for Health Care Outcomes. *Ann Intern Med* 2017;167(6):418-423.
2. Cerully JL, Martino SC, Rybowski L, et al. Using "roll-up" measures in health care quality reports: perspectives of report sponsors and national alliances. *Am J Manag Care* 2017; 23: e202-e207.
3. Shwartz M, Restuccia JD, Rosen AK. Composite Measures of Health Care Provider Performance: A Description of Approaches. *The Millbank Quarterly* 2015;93(4):788-825.

there remain limitations on the development of risk adjustment strategies as not all necessary data elements can be gathered for risk adjustment. As an example, disease severity is frequently not captured in neurologic populations. When it is captured, it is not gathered in a standardized universally used format (e.g., NIHSS), instead it is recorded in a physician note as mild, moderate, or severe.

Composite measures combine multiple measures to produce a single score. Composite measures may "roll-up" performance scores¹⁻³.

Composite measures are valuable given their patient focus and indication of commitment to the highest quality of care. These measures are being adopted by federal, state, and private organizations for provider profiling and pay-for-performance programs. Given their complexity, careful analysis is necessary to ensure sensitivity of results.

There are multiple methods of calculation, such as equal weights, numerator-based weights, or all-or-nothing¹⁻³. The AANI has developed multiple all-or-none measures when concepts closely align and performance data indicates a small gap.

e-Measures (aka eMeasures, Electronic Quality Measures, and eCQMs) are health care quality measures standardized for data assessment and calculation from any electronic health record. These measures use Quality Data Model (QDM), Health Quality Measure Format (HQMF), and the National Library of Medicine's Value Set Authority Center (VSAC) formats and models to establish a universal language for data collection. Current e-Measures rely upon the Quality Data Model (QDM) but transition is underway to convert or re-specify measures to use HL7[®] FHIR[®] (Fast Healthcare Interoperability Resources) in anticipation of the wider use of FHIR standards.

digital Quality Measures (dQMs) were being redefined by CMS at the time this manual was developed, but it is known that dQMs use sources of health information that are captured and can be transmitted electronically and via interoperable systems. CMS has indicated that the emerging data standardization and interoperability enabled by application programming interfaces (APIs) will support the transition to full digital quality measurement by 2025. Data sources for dQMs may include administrative systems, electronically submitted clinical assessment data, case management systems, EHRs, instruments (e.g., medical devices and wearable devices), patient portals or applications (e.g., for collection of patient-generated health data), health information exchanges (HIEs) or registries, and other sources.

AANI Measure Development Process

The AANI quality measure development process starts once a topic is identified. AANI commissions a multidisciplinary measure development work group to evaluate available evidence and draft measure concepts (see Figure 2). These work groups can be standing for a period of two years or ad hoc, terminating at time of measurement approval.

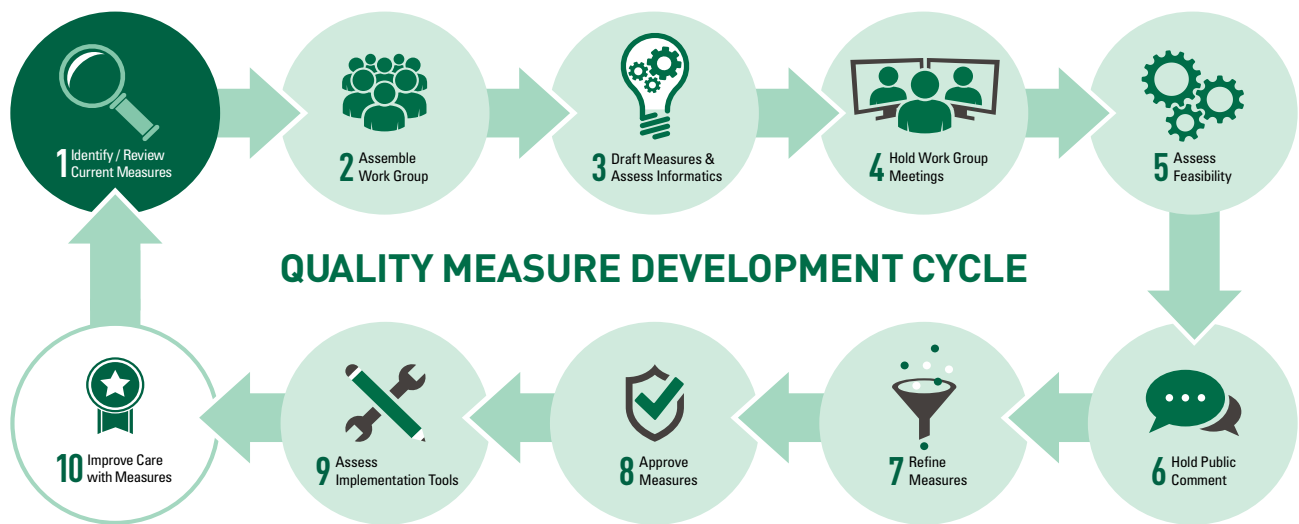
This process includes the following steps:

- Identify and select topics
- Assemble work group
- Identify evidence

- Draft measures and assess informatics
- Assess feasibility
- Hold public comment
- Refine measures
- Approve measures
- Publish executive summary
- Assess implementation tools

AANI measures undergo a regularly scheduled maintenance review, at which time decisions are made about retaining, retiring, or updating the measurement set and whether changes to the evidence base suggest that new measures should be developed.

Figure 2.



Topic Identification and Selection

Any individual, specialty society, government agency (i.e., CMS), nongovernmental agency (i.e., NQF), and employer or payer may submit a topic for measure development. Nominations are submitted in writing and should address the gap in care, potential impact, and evidence base. An environmental scan is conducted to evaluate gaps in neurology-relevant measures, the evidence base to support the development of measures, and the potential impact of topic area. QMS will review possible measure development topics, including those identified in the environmental scan, and assign a topic for development, depending on available resources. QMS will determine the scope of the proposed measurement set and identify potential collaborating organizations or specialty societies, facilitator(s), and possible content experts to chair the work group.

Criteria for Topic Selection

The AANI is committed to the development of high-quality measures. Table 1 summarizes required characteristics for each measure to be developed by work groups.

Table 1. Required characteristics for topic development into quality measures

If a potential topic does not meet all the required characteristics, it will not be prioritized.

Gaps and Variations in Care	Documented evidence that current care practices deviate (or observed patterns of deviation) from established norms or desired standards of care. Gaps in care may be manifested by underuse, overuse, or misuse of health services.
Evidence Base	One or more national, widely accepted clinical guidelines OR One or more documented quality improvement (QI) initiatives or research projects that have demonstrated improvement in the quality of care (based on measures of access, processes, outcomes, or the patient experience of care).
High Impact	High prevalence of the clinical problem or condition, significant burden of illness, high cost, or nationally identified clinical priority area (e.g., Institute of Medicine, National Priority Partners) OR evidence of high impact within neurologic care.

Work Group Formation

A multidisciplinary stakeholder work group is formed that includes content, methodological, and patient expertise. The AANI makes every effort to collaborate with other appropriate and relevant professional associations and patient advocacy organizations when developing measures. If possible, AANI will partner with other specialty societies to co-lead and facilitate the development process and disseminate measurement sets. If other organizations are not interested, or the disease state is specific to neurology, AANI will invite other specialty societies to participate as stakeholder representatives. See [Appendix A](#) for process map.

Equity and Inclusion Considerations

Beginning in 2021, QMS piloted additional steps to ensure work groups were reflective of AANI member representation, practice setting diversity, as well as racial, ethnic, and gender diversity. QMS had not codified its process for soliciting diverse representation at the time this manual was approved. Steps taken to ensure a well-rounded work group include additional language added to outreaches to AAN membership and to partnering organizations to request diverse nominees and review of proposed work group slates assessing practice setting, racial, ethnic, and gender representation before finalizing the work group representation. QMS will evaluate the effectiveness of these pilots to standardize the work group formation process over the coming years.

Chairs

QMS may seek out one or more content experts to chair measure development work groups who have experience leading work groups or consensus activities and has a strong understanding of evidence-based medicine. Not all work groups will have chairs identified. The chairs are identified through the topic nomination process, outreach to AAN sections or subspecialty societies, or through partner specialty societies when jointly developing a measurement set. Chair responsibilities include:

- Guide work group members to consensus opinions, resolve conflicts, and ensure a collaborative process
- Serve as a content expert (understanding of evidence, gaps in care and patient outcomes; familiarity with valid and reliable assessment tools, etc.)
- Lead the meeting(s) to ensure input from all members
- Ensure the work group adheres to project timeline and scope
- Represent disseminated measures for endorsement to external organizations, Axon Registry, and others as needed
- Lead the development of the executive summary, if agreeable and available

Facilitators

The process of taking clinical practice guidelines recommendations and developing quality measures requires an understanding of the clinical area involved and the technical aspects of measure

development. QMS would prefer to assign a QMS member as methodological facilitator to guide the measure development work group through the measures process; however, resource limitations may prevent assignment of a QMS facilitator to every measure project. As a result, a facilitator may also be seated from AANI's Quality Committee, Registry Subcommittee, Guidelines Subcommittee, or a partnering organization. If there are no volunteers to facilitate, QMS chairs assist in identifying a facilitator. Facilitators are non-voting members of the work group. Facilitator responsibilities include:

- Serve as a neutral advisory party to measure development work group
- Advance the project goals and adhere to project development timeline
- Serve as methodologist in measure development and specification
- Develop and host the pre-meeting webinar
- Resolve work group conflicts
- Ensure the finalized measures are high quality, valid, and implementable
- Participate in pre- and post-meeting leadership calls, as needed
- Participate in the development of the executive summary

Staff

Staff provide expertise in all areas of measure development, including AANI's measure development process, meeting facilitation, methodology, and manuscript development and submission. Staff are accountable for resource allocation, project management, coordination with external organizations, and publication development process and approval. If another organization is partnering on a measure development project these duties will be shared among staff from both organizations.

Measure Expert Team (MET)

QMS identifies a small team of members each term to ensure AANI measure development goals are met, assist in annual portfolio reviews, respond to timely requests for input from development groups or external partners, and identify project facilitators if there are no volunteers. The team consists of QMS chairs and a QMS representative from each term. This team is available to address any conflicts or concerns that arise during the measure development process. The team meets with staff quarterly, as needed.

Work Group Leadership Team

Chairs, facilitators, and staff (and other association staff representatives if applicable) comprise the leadership team for work groups. The leadership team responsibilities include:

- Review of project scope

- Development of project deliverables and timelines
- Identification of appropriate stakeholder organizations for participation and finalization of work group make-up
- Identification and summarization of the subject matter evidence base
- Lead work group in prioritization of measures for development
- Produce executive summary for journal publication; leadership team members may decline to participate, and alternate work group members will be asked to serve in this role
- Champion the measurement set as needed before committees, user groups, and external agencies

Work Group Members

The leadership team generates a list of potential stakeholders including relevant AAN sections, patient advocacy organizations, relevant medical specialty associations, large group health employers, and insurer representatives and sends a call for nominations to this list. Current employees of pharmaceutical companies or device manufacturers may not serve on work groups. Interested nominees submit their curriculum vitae (CV), a relationship disclosure form, and a statement of interest or experience with performance measures, quality improvement, and guideline development.

The leadership team shall identify the appropriate number of potential AAN representatives needed to form a well-rounded work group. Efforts will be made to include at least one general neurologist on each work group unless no general neurologists express interest. Often there will be a limited number of AAN representative seats, and the leadership team will use submitted nomination materials to select work group members based on a ranking that assesses guideline development and implementation experience, quality measure development and implementation experience, clinical expertise, and leadership experience.

Work group responsibilities include:

- Develop quality measures that address gaps in care by assessing improvements to current clinical practice and moving toward desired outcomes based on clinical evidence
- Propose new measure concepts and feedback on measure concepts developed
- Provide insights on the degree to which measures are high quality, valid, and implementable

Work group members will:

- Adhere to timelines and respond to requests for information
- Attend an introductory webinar and meetings (virtual or in person) as needed
- Review existing guideline and literature recommendations
- Assist in the development of draft process and outcome quality measures
- Respond to public comments received and revise measures as appropriate

- Give final work group approval on measures
- Assist in development of an executive summary for publication
- Assist with technical specification of the measurement set
- Develop quality improvement implementation tools, as appropriate, to assist measure users in collection of data and application of data in quality improvement projects
- Respond in a timely manner to all assignments and requests

An introductory webinar is held for all work group members. This webinar provides an opportunity for work group members to learn more about measure development, the AANI's rationale and goals for developing measures, and review the work group's timeline, scope, and other specifics. In 2017, the AANI measure development process transitioned to a virtual process holding virtual meetings for work group members to develop and refine measure specifications. The AANI may identify a need for a face-to-face meeting in exceptional circumstances and will pay for costs associated with work group member attendance at face-to-face meetings, including airfare and accommodations.

Standing Work Group Measure Development Projects

In 2016, the AANI approved pilot process changes to encourage more rapid development of measures with a continuous opportunity for updates. Over time, this pilot has proven successful for meeting measure development needs. In 2017, the AANI launched two projects for headache and epilepsy, seating small work groups of 11–13 individuals for two-year terms. These projects will be led by a content chair and a facilitator chair, who is a non-voting work group member. Work groups will meet virtually, sharing responsibilities equally during an initial update of the measurement sets. Following final work group approvals of these updates, the work group will continue to meet virtually every six months to review the evidence base, measure testing and use data if available, and measure development efforts by others in the field. The work group shall assist in development of additional quality improvement resources to supplement the initial release of updated measurement sets. See [Appendix B: Standing Work Group Process Map](#).

Work group members are seated for two-year terms and are representatives of associations/organizations. If a work group member requests to resign prior to the end of their term, the nominating organization will be contacted to assist in identification of a replacement. The work group members will serve up to three terms with rotating membership to ensure work group stability and measure exposure.

QMS will continue to roll out standing work groups to other major disease states for a total of nine standing groups. Work groups that have been established and that are planned for include:

- Epilepsy (established 2017)
- Headache (established 2017)

- Movement disorders (established 2019)
- Multiple sclerosis (established 2019)
- Stroke (established 2019)
- Child neurology (established 2020)
- Geriatric care (established 2021)
- Comprehensive neurology (anticipated 2021)
 - The prior Evidence Review Work Group (ERG) formed in 2018 was retired in 2021. After review of the first term experiences, QMS determined work reviewing measurement sets that include, but are not limited to, neuro-oncology, neurotology, amyotrophic lateral sclerosis (ALS), muscular dystrophy, concussion, and polyneuropathy should be merged with a larger standing group charged with review of general neurology outpatient measures.
- Brain injury and emergency (anticipated 2022)

Relationships and Disclosures of Interest

The AANI is committed to producing independent, critical, and trustworthy quality measures. The AANI fulfills this commitment by convening experts that conduct in-depth reviews and develop measures based on the best available evidence in a manner that minimizes the influence of industry and other relevant entities. The AANI makes best efforts not to include individuals with conflicts of interest in the development of AANI measures but recognizes that this is not always practical and may preclude necessary thought leaders from participating. Therefore, disclosure and management of measure developer and reviewer relationships are conducted in compliance with the AAN Relationships and Conflicts of Interest Policy, Principles Governing Academy Relationships with External Sources of Support, and the Council for Medical Specialty Societies' Code for Interactions with Companies. The following procedures implement the relevant policies and outline the process followed through each phase of measure development and review.

Disclosing Relationships and Determining Relevance

Prospective work group members for AANI measure projects must disclose all financial and certain nonfinancial relationships with industry (including for-profit entities that develop, produce, market, or distribute drugs, devices, services, or therapies used to diagnose, treat, monitor, manage, or alleviate health conditions), as well as relevant relationships with other entities (including payers, government entities, and not-for-profit organizations) and intellectual biases by completing the AAN's Relationship Disclosure Form at <https://www.aan.com/disclosures/portal> before commencing work on or reviewing an AANI measure. The form describes the categories or types of relationships to be reported. Members of QMS, other applicable AAN subcommittees and committees, and members of the Board of Directors who review AANI measures are required to make the same disclosures. The term "relationship disclosure" is preferred to conflict of interest disclosure, as not all relationships necessarily imply conflict or bias.

All relationships with industry must be disclosed regardless of the perceived relevance to the measure topic. However, to assist the reviewers, prospective work group members are asked to highlight relationships that they deem to be "relevant" to the measure's topic (see the following description of relevance). Regarding relationships with non-industry entities or intellectual biases, only those relationships or potential biases that are relevant to the measure topic must be disclosed. Intellectual biases may include "academic activities that create the potential for an attachment to a specific point of view that could unduly affect an individual's judgment about a specific recommendation"¹, examples of which are being the receipt of a grant or participation in research or articles directly related to the measure. In addition, a strong intellectual conflict would be judged to exist if a potential work group member had a strong preexisting opinion that would not be changed by strong evidence.

For measure development work groups, MET will review potential facilitators' disclosures prior to seating a facilitator chair and/or other facilitators for the project. The identified facilitator chair and other facilitators will review each potential subject matter chair's application before the chair is officially invited to begin work on the measure project. Potential work group member applications are then reviewed by the project facilitators and chairs for any relevant relationships that may constitute a conflict of interest. Relevant relationships may include any of the following:

- A relationship or interest that relates to the same or similar topic, intellectual property or asset, or issue addressed in the measure
- A relationship of the person or an immediate family member having a reasonable possibility of financial, professional, or other personal gain or loss as a result of the measure
- A relationship with an "affected" company within industry, meaning there is a reasonable likelihood of direct regulatory or commercial impact (positive or negative) on the company as a result of care delivered in accordance with the measure. Affected companies will generally be identified before commencement of the measure project by QMS and staff, who will be assisted by the prospective work group members highlighting relationships they deem to be relevant, per the above disclosure process

Project facilitators and chairs will consider the relevance of the relationship and the degree of influence when determining whether a conflict of interest exists. Depending on the severity of the conflict, mitigation or management steps may include not inviting the prospective work group member to participate or restricting the member's involvement in the development process (as described in the following paragraphs).

The relevance and severity of an intellectual bias can be difficult to objectively identify and measure. MET or project facilitators and chairs will mitigate intellectual bias as much as possible.

1. Guyatt G, Akl EA, Hirsh J, et al. The vexing problem of guidelines and conflict of interest: A potential solution. *Annals of Internal Medicine* 2010;152(11):738–741.

Identifying Relationships Considered Conflicting That Preclude Work Group Involvement

Although some relationships may be appropriately managed with the mitigation techniques described in this section, others constitute conflicts of interest incapable of being managed and inconsistent with the AANI's goal of producing an independent measure set. Relationships that render an individual ineligible to serve on a measure work group include any of the following:

- Serving on a speakers bureau on behalf of an affected company in industry (this is a compensated role as a presenter for which any of the following circumstances are met: the company has a contractual right to dictate or control the content, the company created the slides/presentation for the speaker, or the presenter is expected to act as the company's agent or spokesperson for the primary purpose of disseminating company or product information)
- Being employed, or having been employed during the year before work group appointment, by a company in industry
- Holding significant ownership interest (shares greater than \$50,000 in value or an equity interest in a privately held company greater than five percent) in an affected company

In addition, QMS may choose not to appoint an individual as a lead author if the individual has any of the following relationships to the issues or products being assessed: having any stock or stock ownership, being compensated for expert testimony, being a pioneer or having any substantial direct or indirect compensation or other relationship that QMS deems as creating a conflict.

Understanding Work Group Composition and Responsibilities

The AANI requires that a majority (51 percent) of the members of a measure work group be free of conflicts of interest relevant to the subject matter of the measure.

If the work group has a chair/co-chair, the AANI requires the chair (or at least one chair if there are co-chairs), to be free of financial conflicts of interest relevant to the subject matter of the measure, and to remain free of such conflicts for at least one year after the measurement set is published. If a project does not have a chair, the lead author of the measurement set's executive summary must be free of financial conflicts of interest relevant to the subject matter of the measure and remain free of such conflicts for at least one year after the measure is published.

Work group members must update their Relationship Disclosure Form at [AAN.com/disclosures/portal](https://aan.com/disclosures/portal) at least annually but also promptly at any time a relationship changes. The AANI prohibits measure developers from speaking about the measure they authored, or serving as an expert witness about the measure, on behalf of a company in industry, if that company could be positively or negatively affected by care provided in adherence with the measure, for a period of one year after the AANI's publication of the measure. For measures of broad scope, multiple work group members should not

all be affiliated with the same institution or study group. If there is a recognized, credible controversy regarding the chosen measure topic, both perspectives should be represented on the work group.

All relationships that existed during the development of the measure will be disclosed as described in the following paragraphs. The QMS reserves the right to make changes to the work group composition at any time to ensure balance and avoid bias.

Managing Conflicts for Measure Reviewers

AANI measures will be reviewed and approved only by committee and board members who do not have a conflict of interest, as determined by the Reviewing Authority in accordance with the AANI's Relationships and Conflicts of Interest Policy.

Disclosing Conflicts at Publication

The AANI's Relationships and Conflicts of Interest Policy and this section of the Quality Measurement Manual will be cited in the published measurement set, along with the relevant relationship disclosures of the work group members. In addition, to promote further transparency, a summary of all disclosed relationships is included in final measurement sets as an appendix.

Identifying Violations of Conflict of Interest Policy for Measures

An AANI measure developer's or reviewer's failure to complete the Relationship Disclosure Form accurately, honestly, and fully or adhere to the responsibilities described in this section of the manual may face sanctions by the AANI, including any or all of the following:

- Exclusion from developing future AANI measures
- Exclusion or removal from participation on AAN boards, committees, subcommittees, work groups, task forces, guideline or quality measurement work groups, or other AAN positions
- Disciplinary action under the AAN's Disciplinary Action Policy at [AAN.com/membership/professionalism-and-disciplinary-program](https://aan.com/membership/professionalism-and-disciplinary-program)

Measure Concepts Drafted and Refined

Evidence Identification to Support Development of Measures

The measure development process takes evidence-based guideline recommendations and uses them to support measure concepts. The measurement set is not a new guideline recommendation; rather, it is a way to operationalize existing recommendations for implementation into practice. The evidence behind AANI quality measures is not limited only to AANI guidelines, but also includes guidelines developed by other organizations and individuals as well as systematic reviews, meta-analyses, and clinical trials.

Staff, in conjunction with a medical librarian, conduct a comprehensive search to identify published guidelines, existing measures, and consensus recommendations from five years prior to current year or, in the case of the standing work group, a search is conducted from the time of the last search to present date, using PubMed, MEDLINE, EMBASE, and the Cochrane Library. The medical librarian assists work group leadership in identifying appropriate search terms, key words, search filters, and databases. The librarian conducts the searches on at least three major databases (e.g., MEDLINE®, Web of Science, or EMBASE®). Staff reviews the results to ensure that the measures, guidelines, and consensus papers pertinent to the search are identified. All results are compiled into an Endnote® library. The literature search results are kept on file at the AANI. The following data are captured:

- Date(s) searches were conducted
- Search terms/strategy used
- Database(s) searched
- Date ranges included in search
- Explicit description of the inclusion and exclusion criteria

Appropriate work group experts review the selected abstracts and further refine the literature base according to relevance. To ensure that each measure has a solid base in current evidence, the AANI has implemented a set of requirements for the type and strength of literature that can be used. Randomized Clinical Trials (RCTs), case series, and case reports cannot be used as the base of the measure specifications. RCTs can be used to support a measure if there is adequate guideline or systematic review. Systematic reviews may be used as a base for process measure specifications if they meet the below requirements.

Literature Requirements

1. Guidelines

Meets the below criteria:

- a. The clinical practice guideline contains statements and recommendations based on the evidence from a systematic review as demonstrated by documentation of each of the following features in the clinical practice guideline or its supporting documents

- i. An explicit statement that the clinical practice guideline was based on a systematic review
 - ii. A synthesis of evidence from the selected studies, e.g., a detailed description or evidence tables
 - iii. A summary of the evidence synthesis included in the guideline that relates the evidence to the recommendations, e.g., a descriptive summary or summary tables.
- b. The clinical practice guideline was not created or funded by a pharmaceutical/industry organization
 - c. The clinical practice guideline or its supporting documents contain an assessment of the benefits and harms of recommended care and alternative care options
 - d. The guideline is the most recent version published

2. Systematic Reviews

Meet the AGREEII requirements:

- a. Scope and Purpose
 - i. The overall objective(s) of the systematic review are specifically described
 - ii. The health questions covered by the systematic review are specifically described
 - iii. The population to whom the guideline is meant to apply is specifically described (PICO-formatted questions: Patient, Intervention, Co-intervention, Outcome)
- b. Rigor of development
 - i. Systematic methods were used to search for evidence
 - ii. The criteria for selecting the evidence are clearly described
 - iii. The strengths and limitations of the body of evidence are clearly described
 - iv. There is an explicit link between the recommendations and the supporting evidence
 - v. The recommendation has been externally reviewed by experts prior to its publication
 - vi. A procedure for updating the material is provided
- c. The views of the funding body have not influenced the content of the systematic review
- d. COIs for authors have been recorded

Measure Specification

Appendix C includes the current AANI measure specification template. Measure concepts are drafted by work group members and technical specifications included following finalization. Following the introductory webinar, work group members are encouraged to draft proposed measure concepts for the work group to review. Draft measure concepts include the following components:

- **Measure Title:** Specificity to disease state should be given to reduce confusion when possible (e.g., Falls for Patients with Multiple Sclerosis vs Falls Rate or Falls Assessment)
- **Measure Description:** Brief description of the calculation addressing numerator and denominator
- **Eligible Population**
 - Eligible providers: medical doctor (MD), doctor of osteopathy (DO), pharmacist (PharmD), physician assistant (PA), advanced practice registered nurse (APRN), etc.
 - Care setting: Outpatient, inpatient, or emergency department, etc.
 - Ages: Details age of eligible patient population
 - Triggering event: Details event that triggers measurements (e.g., visit or procedure)
 - Diagnosis: Lists eligible diagnoses of the patient population being measured
- **Denominator:** specifies the target population and time period. This is accomplished by referring back to the case definition used in the studies that led to the high-level recommendations. The definition should include inclusion criteria, such as the diagnosis, diagnostic subgroup, and acuity of diagnosis, age ranges, and other positive selection factors
- **Numerator:** specifies action needed to meet the measure
- **Required Exclusions and Exceptions:**
 - A required exclusion is a factor supported by the clinical evidence that removes a patient from inclusion in the measure population. For example, if the denominator indicates the measure is for all patients aged zero to 18 years of age, a patient who is 19 years of age is excluded. A required exclusion prevents the patient from entering the denominator population
 - An exception or allowable exclusion is a factor supported by the clinical evidence that removes a patient from the denominator population and prevents them from entering the numerator population. An example of an exception is a patient refusal to complete a validated screening tool on a depression assessment measure. This patient would be removed from the denominator
 - Required exclusion and exception rationale is included to justify why they are needed and how they may impact performance
- **Measure Scoring:** Usually recorded as percentage or proportion
- **Interpretation of Score:** Historically a higher score reflects better quality of care. Occasionally, inverse measures are created where a lower score is indicative of better quality of care. Example: Percentage of patients prescribed a dopamine-blocking medication. A lower score indicates higher quality of care
- **Measure Type:** See [page 4](#) for further details
- **Level of Measurement:** provider, practice, or system
- **Risk Adjustment:** See below AANI Statement on Comparing Outcomes of Patients. Outcome measures will address risk adjustment. The denominator should incorporate dimensions of risk for the outcome, where applicable, and must minimize the

potential for gaming or negatively affecting patient access to neurologic care. To alleviate data burden, AANI measures should seek to avoid complex risk adjustment methodologies. See [Appendix D: Statement on Comparing Outcomes](#)

- **Risk Stratification (if indicated):** Select measures may benefit from stratification of results and, if warranted, the risk stratification methodology is detailed
- **Disparities Considerations:** Discussion of any disparities considerations that are being addressed by measure development or disparities considerations that result from measurement and/or unintended consequences that should be evaluated
- **Relationship to Desired Outcomes:** A brief statement of the relationship to the desired outcome which should provide evidence linking the process to improved outcomes.
- **Opportunity to Improve Gap in Care:** published evidence supporting variation in care that can be supported through measurement, and for established measures undergoing update, summary of current performance data supporting continued gap in care that is being addressed through measurement
 - **Disparities in Care:** In 2021, QMS piloted inclusion of data on disparities in care. The specification template may be refined as appropriate in response to input received on piloted changes. Measure specifications should address known evidence supporting variation in care (known gaps) and that should include any racial, ethnic, or gender disparities evidence.
- **Measure Harmonization:** A work group may recommend the creation of a measure that may be similar to an existing measure. The measure specifications will address steps taken to harmonize the AANI measure with existing measures, as well as the rationale for development of a separate measure. As illustrated in Table 2, a measure harmonization matrix, the AANI will not create measures in direct conflict with other measures. When possible, AANI will partner with measure developers to include neurologic conditions in existing and endorsed measures, as appropriate.

	Same numerator focus	Different numerator focus
Same denominator	Competing measures. AANI refrains from developing measure	Related measures. Efforts taken to harmonize.
Different denominator	Related measures. Efforts taken to harmonize.	No competition. No need to harmonize. AANI develops measure.

- **References:** The guidelines used as the evidence base will be cited in each individual Measure Specification.
- **Supplemental data provided may include:**
 - Sample measure flows
 - Coding and value sets
 - Sample key phrases for capturing performance in a registry
 - e-Specifications, which are released once finalized and available online with individual measure specifications

Refining Candidate Measures

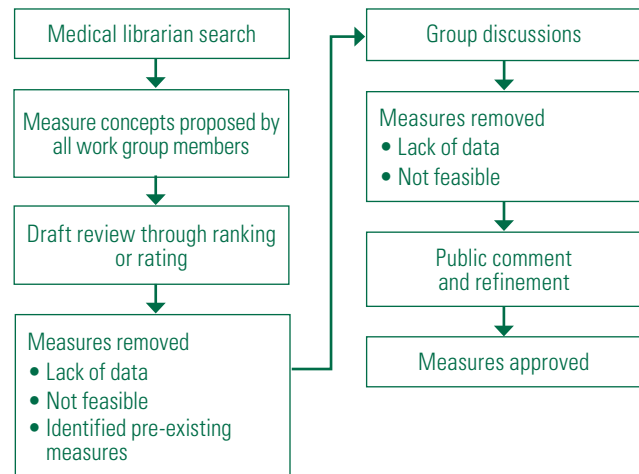
Work group members meet to develop and propose draft concepts that are relevant to the disease state. This includes concepts that may not be feasible to capture, have known evidence to support development, or be linked to improved outcomes. Further, these concepts may be identified as extremely meaningful to patients, physicians, treatment team members, and care partners. To ensure measures developed are feasible, meaningful for quality improvement, and tied to patient outcomes, the work group members review and then rate or rank these concepts for validity, feasibility, and gaps in care (see Figure 3). This results in winnowing down to concepts with a strong evidence base, demonstrated link to improved outcomes, and demonstrated opportunity to address a gap in care to be reviewed and developed into draft measure specifications during work group meetings.

At the time of orientation, facilitators will inform work group members that at most three measures will be approved through the development process. Facilitator will actively encourage the work groups to winnow possible measure concepts to six for discussion that may be feasible and meaningful. During meetings, members engage in an interactive discussion to review and edit up to six candidate measures' specifications and rationales. Following measure discussion, work group members vote to approve, not approve or abstain for each measure. A simple majority is required to approve a measure. If approved, the measure is included in the draft measurement set for public comment. A modified Delphi process may be used to reach measure consensus if the work group has concerns regarding the level of evidence, link to health outcomes, existence of a gap in care, or other measure specification concerns. (See Face Validity section below.)

The AANI recognizes that some legacy sets such as dementia management, stroke and stroke rehabilitation, and Parkinson disease have multiple measures widely adopted in accountability programs preventing reduction to a measurement set of three. These work groups will be encouraged to maintain meaningful measures used in the public domain or those currently undergoing testing. Measures that are unable to be specified for use in EHRs, not linked to improved outcomes, or are excessively burdensome to collect should be retired.

Starting in 2022, AAN informatics and analytics staff will evaluate electronic health record data for a preliminary feasibility study of each proposed concept to confirm availability of information. The AAN informatics staff will evaluate and share appropriate and relevant codes and value sets for proposed measures concepts. The study's final analysis will be shared with the work group for a more informed decision.

Figure 3.



Measure Prioritization

Work groups are encouraged to reduce the overall number of measures developed focusing on areas with strong evidence, feasible data elements, and opportunity to address practice variation. The reason for this change is a result of concerns that multiple measures pose a burden on providers to report, and an increased focus to equitably distribute measure testing resources. CMS and NQF have moved to require measure testing data prior to use or endorsement of measures. To meet external program needs, the AANI will focus on creating smaller measure sets. It is impossible for one measurement set to meet the needs of all patients and providers impacted by a disease. Work groups must focus on areas where variation in practice exist despite strong guideline statements to support a standard of care. QMS will continue to evaluate the potential to use measure testing data in advance of measure specifications release to winnow down measure concepts, but this will require advances in the field and creation of a nimble testing process.

The AANI does not require, but strongly encourages, outcome measures be included in each measurement set. The AANI does require that each work group consider outcome concepts during their process. There are many feasibility issues that might prevent development of outcome measures for neurology, preventing inclusion of a final measure in the measurement set. If these feasibility issues can be overcome there is an expectation that measurement sets will include an outcome measure. As a result, work groups must discuss outcome measure concepts and determine if those concepts can and should be developed for public comment. Public comment will be instrumental in determining whether outcome measures should be included in the final set. Following discussion, if an outcome concept is not approved, an explanation of the reasons behind that decision shall be provided in the measure specifications and manuscript.

QMS continues to evaluate the changing measurement landscape and places value in continuing to develop measures for quality improvement only. QMS notes creation of measures for the AANI ties directly to the AAN mission, vision, and values, and strategic plan and such measures continue to have value for providers. QMS also notes an awareness that

quality improvement measures may evolve into accountability measures at future updates.

Work groups are encouraged to prioritize measures that can be collected from discrete fields or codes utilized in the EHR and can be converted into dQMs or eMeasures.

For patient reported outcome performance measures (PRO-PM), work groups can provide a gamut of PRO tools or instruments for use in quality improvement specifications; however, for use in accountability programs work, groups should identify one tool only unless patient results of additional PROMs can be compared (such as Numerical Rating Scale and Visual Analog Scale for pain). Work groups do not develop PROMs as that is outside the scope of measure development. During the literature search efforts are made to identify PROMs that have been validated for

use in the identified patient population. Work groups are encouraged to identify PROMs that are available freely in the public domain, do not require licensing fees, and are not burdensome to implement in practice (e.g., require purchase of specialized tools, take an excessively long time to administer, etc.). The executive summary should highlight that PROM use requires rigorous adherence to the methods, and individuals administering PROMs should be adept at methods before implementing a quality measure that requires their use. Further, if PROMs are not freely available, the executive summary and measurement set could highlight that the PROMs may be subject to copyright and require licensing fees.

Assess Feasibility

Staff coordinates review of approved measure specifications with a small subset of AANI Division of Health Policy committee membership during public comment to confirm draft measure specifications could be e-specified or digitally collected, directly assess patient outcomes, and directly link to improved health care outcomes. eMeasures and dQMs are prioritized given they reduce data collection burden and can be tested with greater ease. Feedback is focused on identifying feasibility concerns that would prevent collection of data, reduction of ambiguity in measure specifications, and harmonization with measure components like those being collected in the Axon Registry.

The AANI anticipates piloting beta testing of concepts with support from the Health Policy Data Analytics Team prior to public comment. (See the Measure Testing and Evaluation Process section.) Further,

value set development will also be piloted prior to public comment to aid in beta testing of concepts as appropriate. Future versions of the AANI Measurement Manual will detail the steps taken for any beta-testing following piloting of the process.

Following approval of final measures, any manuscript developed should be used as an opportunity to educate the public on those valuable clinical concepts that are not ready for development. The manuscript should highlight this is an iterative process with the goal of developing e-specifiable or dQMs and meaningful outcome measures over continued iterations of each set.

Public Comment and Revisions

Staff posts approved measures on the AAN website for a minimum 21-day public comment period permitting interested individuals, groups, outside organizations, and stakeholders to comment and suggest changes to the measures. Staff sends a public comment notification to the AAN leadership, key subcommittees, sections, and membership. All relevant patient advocacy organizations, associations, large group health employers, and insurer representatives are also contacted and encouraged to engage their members in the public comment period. AAN Industry Roundtable Members are also notified of the opportunity. After the public

comment period, the leadership team will review each comment and consider measure revisions to improve clarity or modify content. Facilitators will guide work groups to a final measurement set of at most three measures, with an exception for legacy sets with measures widely used in accountability programs or that have been demonstrated to be reliable, valid, and feasible. Public comments and QMS and Registry Subcommittee feedback will be used to assist in the reduction of measures. Public comments and edits made to the measures in response will be summarized in the final executive summary publication.

Approval and Endorsement

After the measurement set is revised post public comment period, the work group votes to approve a finalized version. A simple majority is required for approval. The measurement set, the comments, the response to those comments, and changes to the measurement set are submitted to QMS for review and approval by a simple majority vote; facilitators who were non-voting members of the work group can and are encouraged to vote at the QMS approval stage. If approved by QMS, the measurement set goes to the

Quality Committee and the AANI Board of Directors for approval. If not approved by QMS, Quality Committee, or AANI Board, the measurement set will be returned to the work group for further action that may include modification, adjudication, or termination of further development of select measures in the measurement set. If a measurement set is developed in partnership with another organization, simultaneous Board of Director approval is sought. Upon approval from the AANI Board, the measurement set is final.

Executive Summary

An executive summary of the measurement set is prepared to publish in *Neurology*[®] and/or partnering organization journals. The leadership team will be asked to draft the manuscript. Work group members may be approached to participate in drafting the manuscript if a member of the leadership team is not able or declines this role. The first author of the manuscript will be the individual who has written the majority of the manuscript. The manuscript highlights the final measures and rationales and discusses how providers can implement the measures in practice. The writing team is encouraged to include all concepts that were considered and highlight rationale for identification of the finalized small measurement set. The manuscript will link to the full measurement set. All papers submitted to *Neurology* undergo a separate peer review in accordance with the customs and practices of the Editorial Board. Editorial decisions are final.

In some instances, the work group members, QMS members, and Quality Committee members may disagree substantially with requested changes received from *Neurology* peer review that cannot be resolved with manuscript revisions. In cases of disagreement,

the QMS chair, a methodologist representative from MET, and the *Neurology* editor-in-chief will meet to discuss whether the disagreement warrants publication of a report or editorial companion piece on the pertinent area(s) of controversy. If these individuals determine such a report is needed, the work group generates a discussion section or editorial content for inclusion in the final publication to highlight the point of disagreement. The *Neurology* journal may choose to write a separate editorial or companion document for simultaneous publication that articulates how the areas of controversy related to the quality measures affect the field.

If the measurement set was jointly developed with another specialty society, a simultaneous publication may be pursued in partnership with *Neurology* and the relevant journal for the development partner. Prior to initiation of any joint development project, a contract will be executed addressing the process for manuscript development, review, and simultaneous publication.

Undertaking Dissemination

At a minimum, the following steps are taken to promote a measurement set release:

- Published in *Neurology* journal
- Posted on the AAN website
- Announced by email to all AAN members or a subset of members (e.g., AAN Neuromuscular Section)
- Announced in *AANnews*[®] and *AANe-news*[®]
- Posted on AAN social media channels

QMS, AAN quality staff, or AAN communications staff may undertake additional dissemination and implementation efforts. These may include strategic outreach to clinicians, patients, and the public. AAN communications staff may launch a media publicity campaign including tactics such as issuing a press release. QMS and AAN staff may develop tools for clinical audiences including implementation tools, quality improvement resources, or clinician summaries. Tools for patients also may be developed.

Responding to Correspondence

Because staff coordinate the journal submission and publication process, they receive any related letters to the editor. For any letters received, developers and facilitators should work together to draft a response letter. The response letter is reviewed internally by AAN

staff before its submission to the journal. For correspondence that addresses the development process, QMS leadership will also review the response.

Periodic Review and Update

Standing work groups are charged with review of evidence every six months following publication of a measurement set or update. The charge of the Comprehensive Neurology Work Group is different and is responsible for review of measurement sets that undergo triennial review. At least every three years each measurement set undergoes a full topic search for new evidence. (See Work Group Formation section above.) QMS may opt to convene a short-term, ad hoc evidence review group (i.e., content experts, facilitators, and staff) to make recommendations on updating a measurement set. Chairs who previously demonstrated strong leadership skills will be asked if they are available to lead the evidence review.

Work groups will review the previously used literature search criteria and update search terms as needed and will use the same evidence-base search process described above to identify relevant guidelines and evidence. Following a review of the evidence base (Figure 4), the work group will make a recommendation to reaffirm, partially update, fully update, or retire the measurement set. The appropriate AAN section executive leadership team reviews the recommendation and provides their own input. QMS will vote for approval (a simple majority) on the recommendation. Figure 4 summarizes the recommendations that can be made.

The size of the current AANI-developed measure portfolio prevents comprehensive measure testing. Further, too many measures may water down opportunities to drive meaningful change for one disease state, fracturing improvement efforts across multiple aspects. Physicians and treatment teams also find large measurement sets burdensome to implement and are unable to track quality data on numerous measures. It was agreed to parse out reviews through the triennial reviews and encourage work groups to winnow down large measurement sets (e.g., more than five measures) through the following process:

- At triennial reviews, evidence review group reviews performance rates if known and evaluates which measures remain meaningful. This assessment includes known use, adherence to current evidence-based guidelines or systematic reviews, continued gaps in care to be addressed, and potential unintended consequences resulting from measure use.
 - Work groups and facilitators are asked to limit sets to three measures (with an exception for legacy sets), prioritizing continued development and maintenance of measures utilized in accountability or registry programs.
 - Review those measures not being used and determine which can be retired to focus resources on testing and use of measures that are feasible and meaningful. Work groups are encouraged to retire process measures if there is no link to improved patient outcomes or a measure has been topped-out, meaning there is no longer a meaningful gap in care to address.
- QMS will also rapidly retire measures based on testing data if testing data demonstrates feasibility, reliability, and/or validity concerns.

QMS may determine to retire measures following review of testing data without review by a work group or evidence review group due to concerns a measure is not feasible, not valid, or not reliable. (See Testing and Evaluation Process section.)

Figure 4.

Reaffirm

- Recommend QMS reaffirm with no changes made to the set.
 - There has been no new literature published or changes to the literature that would indicate a need for new process or outcome measures, OR
 - There is new literature that supports the current process or outcome measures.
- Following AANI governance vetting, measure dissemination activities may occur if warranted.

Update

- Recommend QMS update select measures and/or develop new outcome measures.
 - Partial Update may occur if the existing measures remain relevant and supported by literature BUT there is new literature that indicates the potential to develop one or two new outcome measures to supplement the existing measurement set.
 - Full Update may occur if there are reliability, validity, feasibility, and/or evidence concerns. The majority of measures warrant attention and review.
- Measure concepts are developed using the process outlined in this manual.
- Draft measures undergo public comment review and measures are vetted by AANI governance.

Retire

- Recommend QMS retire measures.
 - There is new literature that refutes or does not support all or select processes or outcomes in the set,
 - There is testing data indicating measures are not reliable, valid, or feasible, OR
 - There is no longer a gap in care for all or select measures or evidence measures are not meaningful in practice.
- Leadership team has the option of recommending to retire select measures, the full set, or to conduct a full update. Retirement recommendations are reviewed with appropriate AAN section leadership and organizations that participated in development are asked to comment on this recommendation.

AANI Measure Testing and Evaluation Process

The AANI is currently unable to test all measures it develops due to the significant costs associated with testing. Staff and physician leaders will prioritize testing annually. Testing preference will be given to outcome measures and measures that can be e-specified. Measures that have a high likelihood of being endorsed by NQF or incorporated into accountability programs will also be given priority. The AANI began internal testing of measures with Axon Registry data in 2021. The AANI will test measures for reliability, validity, and feasibility, and has developed a measure testing protocol with gold standard methods as described in quality improvement literature. This is an overview of practical steps involved in measure testing.

Feasibility

Feasibility is the extent to which a measure is capable of being implemented in practice. Feasibility testing includes a review of:

- Data collection methodology, a consultation with data abstractors
 - Data can be implemented and are available or could be captured without undue burden
 - Data availability
 - Frequency

- Distribution of missing data in data set

The AANI has historically limited testing to measure data obtainable through an EHR. This changed with AANI access in 2021 to Axon Registry data in a big data platform. The AANI will apply measure logic to EHR data collected from Axon Registry participants in an effort to improve practice quality and care.

Reliability

Reliability relates to the overall consistency of a measure. Reliability testing may address both individual data elements as well as calculated measure score and includes a review of:

- Data collection methodology, an analysis of data submitted and consultation with data abstractors
- Measure specification precision
 - Able to query denominator to whom the measure applies in data set
 - Able to identify those who achieved the specific measure focus in data set
 - Measure time window can be captured (12-month retrospective)

- Analysis of exclusion and exception clarity and ability to find in data set
- Code lists with descriptors are accurate
- Measure scores are able to be computed from data set
- Inter-rater/abstractor or intra-rater/abstractor reliability (site to site and/or provider to provider comparisons of results above)
- Additional reliability tests that may be used include but are not limited to beta-binomial model, signal to noise, test re-test, split half analysis, and Intraclass Correlation Coefficient (ICC)

Validity

Validity is the extent to which a measure measures what it is intended to measure. Validity testing may address data element validity and measure score validity and includes a review of:

- Data collection methodology, an analysis of data submitted which may include eight and 30 sampling
- Distribution of missing data in data set
- Calculation of scores across sites for each measure
 - Identify gaps in care across sites for each measure and calculate statistical significance of the gaps
 - Analysis of exclusions and exceptions (frequency, rates)

- If construct validity is being assessed, it may include a confirmatory factor analysis of the measure data elements. Testing should confirm data elements can be represented by a single construct
- If outcome measures include risk adjustment it is anticipated that empirical evidence and beta testing would be completed to justify the risk adjustment strategy. Testing may include but is not limited to calibration and overfitting
- Justification for no risk adjustment/ stratification
 - For each measure, stratify results by payer type, race/ ethnicity, gender, geographic area

- This stratification occurs to evaluate specific treatment gaps that might be occurring based on payer type, race/ethnicity, gender, or geographic area

Face Validity

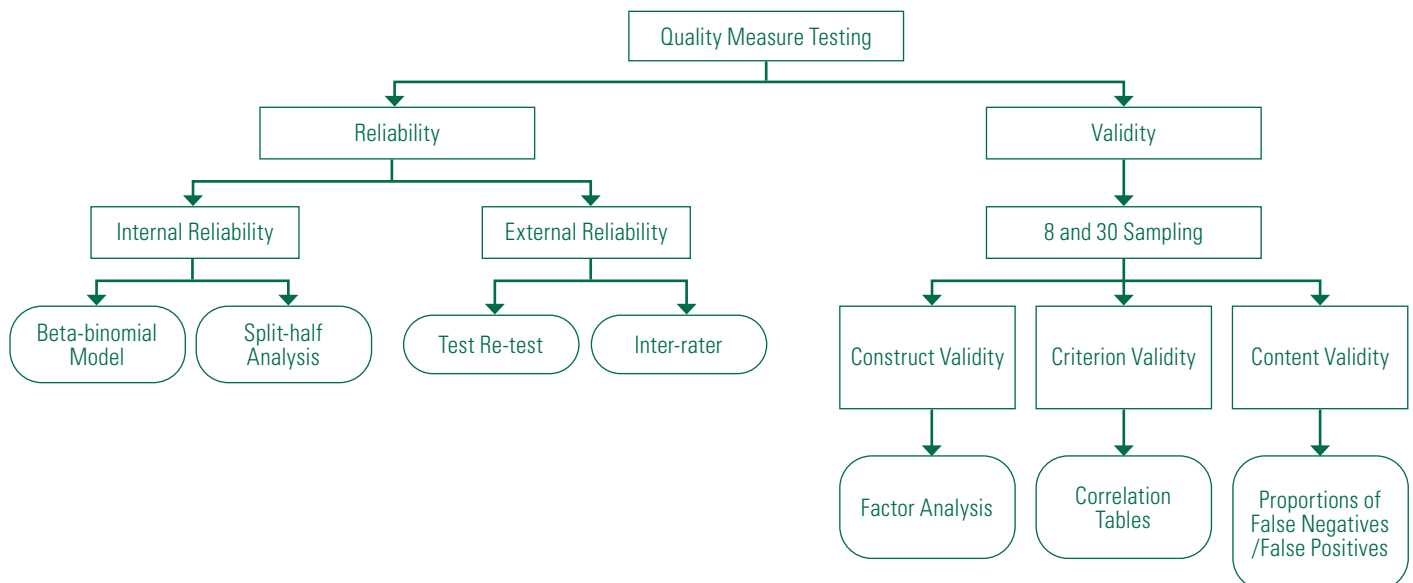
The AANI testing framework continues to evolve to meet the needs of CMS accountability programs. Currently, face validity is required for use in accountability programs. As part of measure specification development, the multi-disciplinary work group members review measure concepts through a modified Delphi process to establish concepts are feasible to collect, meaningful to measure, and process measures are linked to patient outcomes. The work group refines specifications, and, during public comment, face validity data is gathered from the public as well as a subset of AANI Division of Health Policy Committee members.

The AAN standardized questions to assess face validity via public comment as follows:

- Within the past two years, have you received personal compensation, research support, stock, or stock options from a commercial or government entity? If you answer yes, please disclose significant relationships. For guidance, please review the AAN Measure Manual.
- On a scale of one to five, does the measure represent something that is meaningful to improving care for patients and/or treatment teams?
- The wording of the measure is clear. I understand what is required to meet the measures (i.e., numerators, denominators, exclusions).
- If a provider received a high-performance score (or low-performance score for inverse measures) on the measure, would that indicate to you that the provider was delivering high quality care? Yes/no
 - If you indicate no, please explain.

- On a scale of one to five how feasible is it to collect measure data in practice?
 - If you answered three or less, please indicate which data elements are not feasible to collect or would be missing from current workflows.
- On a scale of one to five how much burden would be placed on clinicians or treatment teams to capture measure data given current workflows for the measure in practice?
 - If you answered three or less, please provide examples of burden and interruptions on workflow or potential solutions to these concerns (e.g., use of abstractors, new codes needed such as LOINC, CPT, ICD, or other).
- Are there any unintended consequences you could foresee from implementing the measure? (For example, are there any unintended consequences that you foresee that could negatively affect underrepresented populations? OR Who might this measure harm?).
- Please provide any additional feedback or comments. If recommending additional literature, please provide a brief citation beyond author name and year for reference.

It is anticipated that beta testing of value sets and measure specifications will become part of the AANI measure development process and would occur prior to public comment and/or measure finalization as appropriate. If concerns are identified, the work group can revise prior to launch of the public comment period. The public reviews measure specifications and has opportunity to further comment on feasibility and meaningfulness. The specifications are refined by the work group in response to public comments, as appropriate. Measures are then reviewed by the AAN's Quality Measure Subcommittee, Quality Committee, and Board of Directors before being approved.



AANI Measure Dissemination and Implementation Process

For each measure, a description and instructions are provided for how the measure is intended to be captured and reported. (See [Appendix C.](#)) The AANI develops technical specifications for measures for inclusion in:

- Electronic Health Record (EHR) Data
- Chart Review
- Registry

The AANI is committed to development of EHR-usable data measures. However, the work group may develop measures that

cannot be e-specified or digitally collected. In such cases, registry and chart review may be recommended. The AANI stopped developing administrative claims specifications in 2014 following the announcement that the American Medical Association is no longer supporting CPT-II code development, as CPT-II codes are vital to claims specifications.

The AANI informatics staff create code value sets as well as the logic required for electronic capture of the quality measures with EHRs. A listing of the quality data model elements, code value sets, and measure logic (through the CMS Measure Authoring Tool) for appropriate measures will be made available when it is possible.

Implementation of Measures

The AANI will draft measure implementation tools to support quality improvement efforts for neurology practices and notify the public

of measurement release in multiple formats that may include social media, [AAN.com](#), or webinars.

Disclaimer

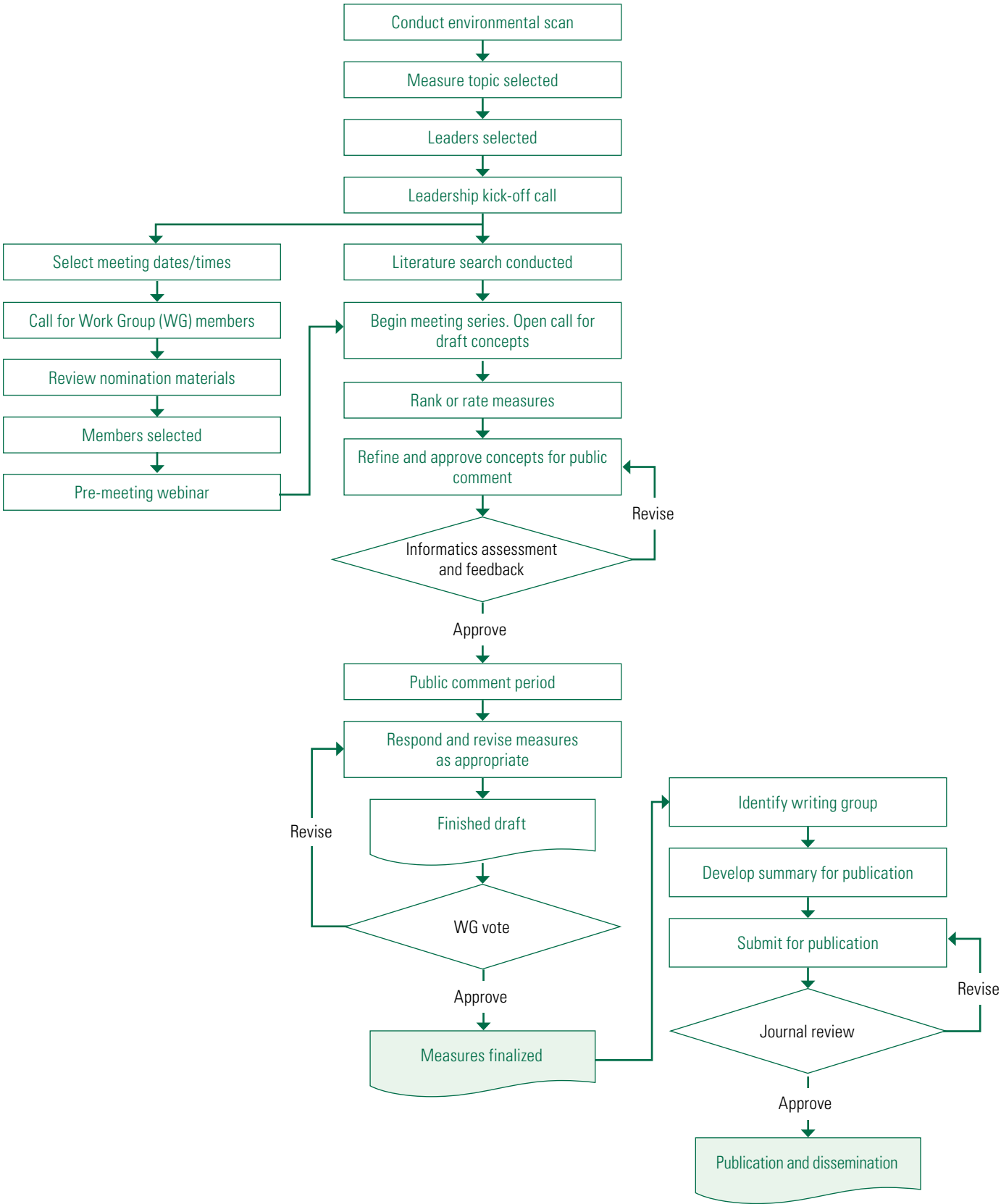
The following disclaimer must appear in all published documents:

Quality Measures published by the American Academy of Neurology Institute and its affiliates are assessments of current scientific and clinical information provided as an educational service. The information: 1) should not be considered inclusive of all proper treatments, methods of care, or as a statement of the standard of care; 2) is not continually updated and may not reflect the most recent evidence (new evidence may emerge between the time information is developed and when it is published or read); 3) addresses only the question(s) or topic(s) specifically identified; 4) does not mandate any particular course of medical care; and 5) is not intended to substitute for the independent professional judgment of the treating provider, as the information does not account for individual variation among patients. In all cases, the selected course of action should be considered by the treating provider in the context of treating the individual patient.

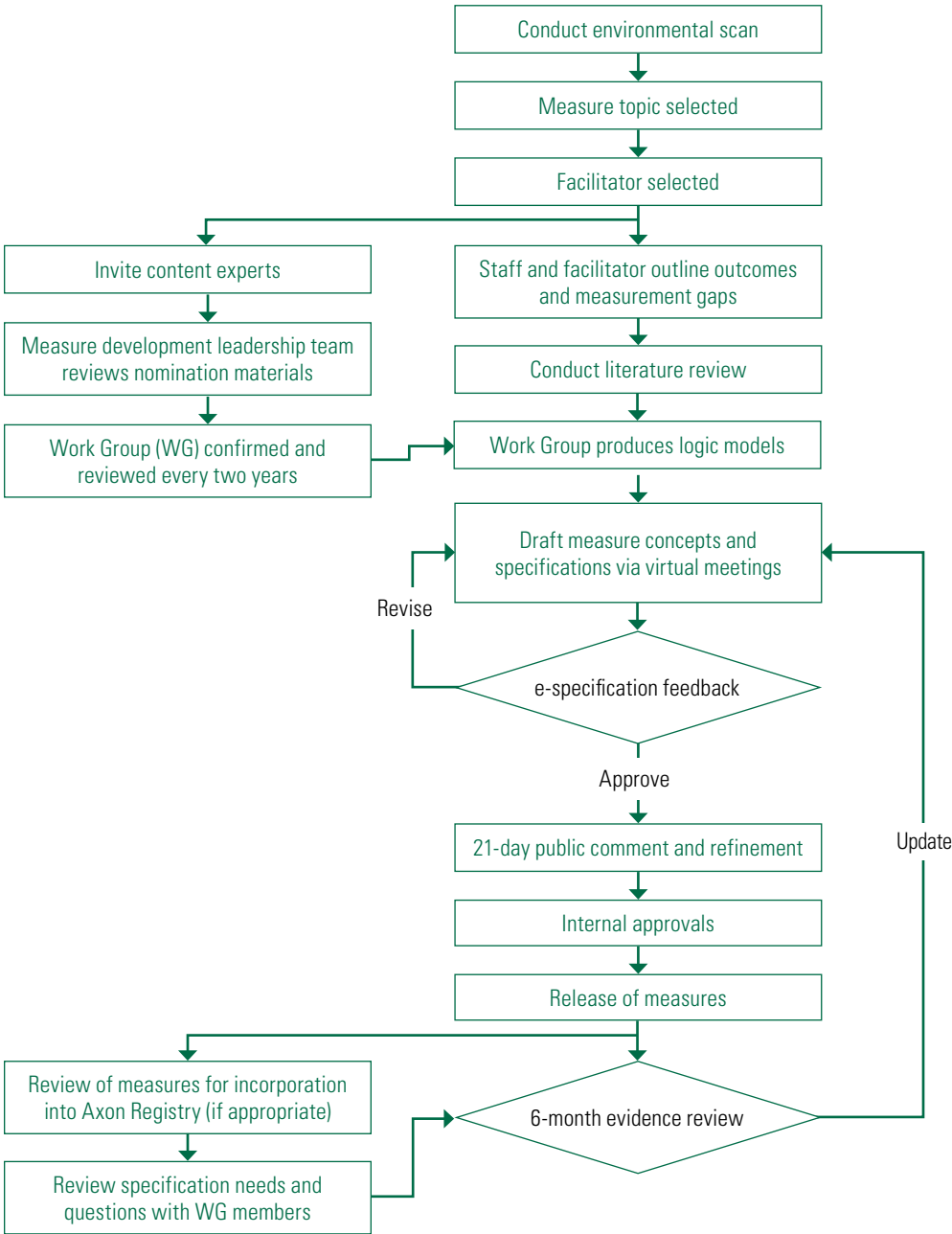
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Appendices

Appendix A: Ad Hoc Work Group Process Map



Appendix B: Standing Work Group Process Map



Appendix C: Measure Specification Template

Measure Title		
Description		
Measurement Period		
Eligible Population	Eligible Providers	Medical Doctor (MD), Doctor of Osteopathy (DO), Physician Assistant (PA), Advanced Practice Registered Nurse (APRN)
	Care Setting(s)	[Outpatient, Inpatient, ED or Urgent Care, Residential (SNF, home care)]
	Ages	
	Event	
	Diagnosis	
Denominator	[Target population and time period]	
Numerator	[Action needed to meet the measure]	
Required Exclusions		
Exceptions (i.e., Allowable Exclusions)	[Condition that should remove a patient, procedure, or unit of measurement from the denominator ONLY if the numerator criteria are not met.]	
Exclusion Rationale	[Explanation of exclusions]	
Measure Scoring		
Interpretation of Score		
Measure Type	[Process, Outcome]	
Level of Measurement	Individual Provider, Practice, System	
Risk Adjustment and/or Risk Stratification		
Disparities Considerations		
For Process Measures Relationship to Desired Outcome		
Opportunity to Improve Gap in Care	[Documented evidence of deviation (or observed patterns of deviation) in care from established norms or standards of care. Gaps in care may be manifested by underuse, overuse, or misuse of health services.]	
Harmonization with Existing Measures	[Work group may recommend the creation of a measure that may be similar to an existing measure. Work group should address steps taken to harmonize with existing measures or rationale for development of a separate measure.]	
References		

Flow Chart Diagram

Measure Codes

Code System	Code	Code Description

Appendix D: Statement on Comparing Outcomes

AAN Statement on Comparing Outcomes of Patients

Why this statement: Characteristics of patients can vary across practices and differences in those characteristics may impact the differences in health outcomes among those patients. Some examples of these characteristics are demographics, co-morbidities, socioeconomic status, and disease severity. Because these variables are typically not under the control of a clinician, it would be inappropriate to compare outcomes of patients managed by different clinicians and practices without accounting for those differences in characteristics among patients. There are many approaches and models to improve comparability, but this statement will focus on risk adjustment. This area continues to evolve¹, and the AAN will revisit this statement regularly to ensure accuracy, as well as address other comparability methods² should they become more common.

AAN quality measures are used primarily to demonstrate compliance with evidence-based and consensus-based best practices within a given practice as a component of a robust quality improvement program. The AAN includes this statement to caution against using certain measures, particularly outcome measures, for comparison to other individuals/practices/hospitals without the necessary and appropriate risk adjustment.

What is risk adjustment: Risk adjustment is a statistical approach that can make populations more comparable by controlling for patient characteristics (most commonly adjusted variable is a patient's age) that are associated with outcomes but are beyond the control of the clinician. By doing so, the processes of care delivered and the outcomes of care can be more strongly linked.

Comparing measure results from practice to practice: For process measures, the characteristics of the population are generally not a large factor in comparing one practice to another. Outcome measures, however, may be influenced by characteristics of a patient that are beyond the control of a clinician.³ For example, demographic characteristics, socioeconomic status, or presence of comorbid conditions, and disease severity may impact quality of life measurements. Unfortunately, for a particular outcome, there may not be sufficient scientific literature to specify the variables that should be included in a model of risk adjustment. When efforts to risk adjust are made, for example by adjusting socioeconomic status and disease severity, values may not be documented in the medical record, leading to incomplete risk adjustment.

When using outcome measures to compare one practice to another, a methodologist, such as a health researcher, statistician, actuary, or health economist, ought to ensure that the populations are comparable, apply the appropriate methodology to account for differences, or state that no methodology exists or is needed.

Use of measures by other agencies for the purpose of pay-for-performance and public reporting programs: AANI measures, as they are rigorously developed, may be endorsed by the National Quality Forum or incorporated into Centers for Medicare & Medicaid Services (CMS) and private payer programs.

It is important when implementing outcomes measures in quality measurement programs that a method be employed to account for differences in patients beyond a clinician's control such as risk adjustment.

References and Additional Reading for AANI Statement on Comparing Outcomes of Patients

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 2. Psaty BM, Siscovick DS. Minimizing bias due to confounding by indication in comparative effectiveness research: the importance of restriction. *JAMA* 2010;304(8):897-898.
 3. National Quality Forum. Risk Adjustment for Socioeconomic Status or Other Sociodemographic Factors. August 2014. Available at: http://www.qualityforum.org/Publications/2014/08/Risk_Adjustment_for_Socioeconomic_Status_or_Other_Sociodemographic_Factors.aspx Accessed on January 8, 2015.
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