EDITOR'S CHOICE

Candidate Quality Measures for Hand Surgery

Hand Surgery Quality Consortium*

Purpose Quality measures are tools used by physicians, health care systems, and payers to evaluate performance, monitor the outcomes of interventions, and inform quality improvement efforts. A paucity of quality measures exist that address hand surgery care. We completed a RAND/UCLA (University of California Los Angeles) Delphi Appropriateness process with the goal of developing and evaluating candidate hand surgery quality measures to be used for national quality measure development efforts.

Methods A consortium of 9 academic upper limb surgeons completed a RAND/UCLA Delphi Appropriateness process to evaluate the importance, scientific acceptability, usability, and feasibility of 44 candidate quality measures. These addressed hand problems the panelists felt were most appropriate for quality measure development. Panelists rated the measures on an ordinal scale between 1 (definitely not valid) and 9 (definitely valid) in 2 rounds (preliminary round and final round) with an intervening face-to-face discussion. Ratings from 1 to 3 were considered not valid, 4 to 6 as equivocal or uncertain, and 7 to 9 as valid. If no more than 2 of the 9 ratings were outside the 3-point range that included the median (1−3, 4−6, or 7−9), the panelists were considered to be in agreement. If 3 or more of the panelists' ratings of a measure were within the 1 to 3 range and 3 or more ratings were in the 7 to 9 range, the panelists were considered to be in disagreement.

Results There was agreement on 43% (19) of the measures as important, 27% (12) as scientifically sound, 48% (21) as usable, and 59% (26) as feasible to complete. Ten measures met all 4 of these criteria and were, therefore, considered valid measurements of quality. Quality measures that were developed address outcomes (patient-reported outcomes for assessment and improvement of function) and processes of care (utilization rates of imaging, antibiotics, occupational therapy, ultrasound, and operative treatment).

Conclusions The consortium developed 10 measures of hand surgery quality using a validated methodology. These measures merit further development.

Clinical relevance Quality measures can be used to evaluate the quality of care provided by physicians and health systems and can inform quality and value-based reimbursement models. *(J Hand Surg Am. 2017;■(■):■−■. Copyright © 2017 by the American Society for Surgery of the Hand. All rights reserved.)*

Key words Hand surgery, performance measure, quality, quality measure, value.

Additional Material at jhandsurg.org

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There is a disconnect between the highest level of evidence and implementing this evidence into health care practice.[1] For example, physicians take an average of 17 years to adopt new evidence and change practice behavior.[2] Prior health care models have incentivized interventions for delivering higher *quantity* of health care over higher *quality* of health care.[3] Newer, value-based health care models incentivize physicians and health systems to deliver high-quality, cost-efficient care (high-value care).[4] These models, such as the Merit-based Incentive Payment System, use reimbursement penalties and rewards to "nudge" physicians and health systems toward providing high-quality care.

Value-based payment models benefit from meaningful definitions of quality prior to implementation.[5] Increasing federal requirements for reporting on quality have led medical specialties to develop specific quality measures to address Centers for Medicare and Medicaid Services mandates.[6] The Hand Surgery Quality Consortium (HSQC), in collaboration with the American Society for Surgery of the Hand, is working to identify candidate hand surgery quality measures. The goal is to ensure that quality measures that evaluate hand surgery services fairly judge quality of care (quality assessment) and can be appropriately used to improve quality of care (quality improvement).

Multiple national organizations, both private and public, have developed blueprints for quality measure development.[7,8] Measure development is guided by a process developed by the National Quality Forum and focuses around aims and priorities for health care quality improvement established annually by the National Quality Strategy (NQS).[9] Measures are created to align with the NQS priorities, harmonize with current measures, and minimize reporting burden to providers. They are developed by experts in the field and are informed by input from all stakeholders, including patients and their family members, payers, and specialty societies. Quality measures are constructed based on 4 principles[7]: (1) Importance: address a gap in care that is clinically important and meaningful to stakeholders; (2) Scientific acceptability: the measure is founded on high-level evidence substantiating its validity; (3) Feasibility: it is possible to measure accurately, completely, and affordably during patient care; (4) Usability: data are actionable and timely and inform quality improvement. Once quality measures are constructed and specified (ie, defining the numerator and denominator of what will be measured and exclusion criteria), they are tested for reliability and validity and then operationalized. An example of a quality measure is one that measures the number of patients who received postoperative thromboprophylaxis (numerator) out of all patients who had a total joint arthroplasty procedure completed (denominator).

To improve our definition of "quality" in hand surgery and to propose clinically meaningful quality measures, we completed a process to construct candidate quality measures in hand surgery. This study assessed the importance, scientific acceptability, feasibility, and usability of candidate quality measures using a validated method.

METHODS

Identification of quality measures

Members of the HSQC were invited to submit conceptualized measures that they felt were meaningful to patient care and that also addressed a gap or variation in care, along with scientific evidence that supported the measure. These measures addressed broad processes or outcome assessment in hand surgery, as well as specific diagnoses and procedures. The primary author (R.N.K.) aggregated these measures, created measure specifications according to established methods,[7,8] and completed a literature review for each measure. Forty-four candidate quality measures were specified (Appendix A; available on the *Journal*'s Web site at www.jhandsurg.org). Measures, along with their supporting evidence, were provided to all HSQC members for review and voting.

Quality measure evaluation

We completed a modified RAND/UCLA (University of California Los Angeles) Delphi Appropriateness process[10] of 44 candidate quality measures using a 9-person panel of HSQC members to evaluate the clinical importance, scientific acceptability, feasibility, and usability of the candidate measures (Table 1). These criteria were established by the National Quality Forum, a nongovernmental organization that is a leader in quality measure development. The RAND/UCLA Appropriateness methodology produces appropriateness criteria and quality measures that have face, construct, and predictive validity.[11–20] The chair organized the process and led the discussion during the face-to-face meeting but was not a voting member of the panel. The HSQC is composed of surgeons and quality measure development experts who have previously completed the same methodology to address other questions and