Rheumatic diseases differ from many chronic diseases in that no single measure provides a gold standard for diagnosis, prognosis, monitoring, and documentation of changes over long periods. Therefore, pooled indices of several measures have been developed, such as the American College of Rheumatology (ACR) Core Data Set and disease activity score (DAS) for rheumatoid arthritis (RA), systemic lupus erythematosus disease activity index (SLEDAI), Bath ankylosing spondylitis disease activity index (BASDAI), and others. Quantitative clinical rheumatology measures and indices are used primarily in clinical trials and other research studies, but generally not in standard clinical care, which usually is conducted without quantitative data, other than laboratory tests, often with noncontributory, false positive, or false negative results. Measures designed for research often are lengthy, not easily scored, and not designed to add to standard patient care. By contrast, measures designed for standard care are short, easily scored, and useful to monitor patient status at each visit. Some research measures have been adapted for standard care, such as the multidimensional health assessment questionnaire (MDHAQ) derived from the HAQ, which includes an index of the three RA core data set measures (physical function, pain, and global estimate), also known as routine assessment of patient index data 3 (RAPID 3). RAPID 3 can be scored in 10 sec, compared to 90 sec for a 28-joint count, and 40 sec for a standard HAQ. The MDHAQ is useful in all rheumatic diseases by saving time, documenting changes in status over long periods, and by improving rheumatology care and outcomes.

Quantitative assessment in rheumatic diseases differs from the assessment of many other clinical conditions in that a single gold standard measure, such as temperature, serum glucose, blood pressure, etc., is not available to assess all individual patients in clinical trials, clinical research, and clinical care. Therefore, pooled indices of multiple measures have been developed, such as the American College of Rheumatology (ACR) core data set and disease activity score (DAS) in rheumatoid arthritis (RA), the Western Ontario McMaster osteoarthritis scale (WOMAC), the fibromyalgia impact questionnaire (FIQ), the Bath ankylosing spondylitis functional index (BASFI), and the systemic lupus erythematosus disease activity index (SLEDAI), among many other indices of activity and damage.

These indices reflect major progress in quantitative measurement in rheumatic diseases over the last two decades; however, they are primarily applied in research studies. Most standard rheumatology care continues to be conducted largely according to qualitative “gestalt” impressions, without formal quantitative joint counts or patient questionnaires. The only quantitative data available for most patients in most rheumatology settings are laboratory tests, which frequently give noncontributory false-positive or false-negative results.

Management of inflammatory rheumatic diseases without quantitative information may be regarded as analogous to treating a fever without a temperature, a rapid heart rate without a pulse, or an elevated blood pressure or serum glucose without numerical information. While such clinical management may be effective, availability of quantitative data enhances optimal care, as well as documentation of results. Measures and indices designed for clinical trials and other
clinical research may be lengthy, time-consuming, not easily scored, and add a burden to care. Furthermore, results are not expected to contribute to decisions in patient care (often there is no intent for practical application in a busy clinical setting). The primary criteria for measurement properties are validity (does it measure what it is supposed to measure?) and reliability (is the measure reproducible?).

Measures designed for standard clinical care differ substantially from measures designed for research (Table 1). These measures also must be valid and reliable, but as well must meet additional criteria of feasibility and acceptability to patients and health professionals. Several examples of the adaptation of RA measures for standard care include (1) reduction of a traditional 66/68-joint count to a 28-joint count; (2) modification of the health assessment questionnaire (HAQ),21 with 20 activities and queries about aids, devices, and receiving help from another person; and (3) a multidimensional HAQ (MDHAQ),22,23 with only 10 activities and no additional queries, to be available on one side of one page, easily scanned (“eyeballed”) and scored in a busy clinical setting.

A measure with more data, e.g., 66 joints or 20 activities, always will appear in certain statistical tests to be superior to a more feasible measure with less data, e.g., 28 joints or 10 activities. However, it has been suggested that “80% of the data in 100% of the patients may be preferable to 100% of the data in 5% of the patients” (or fewer) who might be included in clinical research studies.24 Measures that are less comprehensive but are feasible to acquire and applicable in standard clinical care appear preferable to no quantitative measure at all. The MDHAQ can be scored in less than 10 sec, compared to 40 sec for a HAQ and 90 sec for a 28-joint count.25

These data would suggest that the MDHAQ would be a valuable measure, even if provided less informative measures to assess, monitor, and document patient care than other clinical measures. However, MDHAQ appears as robust a clinical measure for patient assessment as any clinical measure in RA. Patient questionnaires – not joint counts, radiographic scores, or laboratory tests – provide the most significant predictors of severe 5 year outcomes in patients with RA, including functional status,26,27 work disability,28-30 costs,31 joint replacement surgery,32 and premature death.26,33-39 An index of the three RA core data set measures of physical function, pain, and global estimate on the MDHAQ, known as routine assessment of patient index data 3 (RAPID 3), depicts differences between patients randomized to active versus control treatments in clinical trials as effectively as ACR or DAS criteria;34-42 similar results would appear as likely for the 10-item MDHAQ as the 20-item HAQ.22,23

This essay compares the HAQ and MDHAQ as examples of the difference between measures and indices used in research settings versus standard clinical care, updating previous articles.11-13 A description of the MDHAQ is followed by some details concerning scoring and a flowsheet illustrating its value in systemic lupus erythematosus (SLE) as an example of its use in all rheumatic diseases. Such information may provide a rationale for completion of a patient questionnaire by every patient at every visit to a rheumatologist.

The Health Assessment Questionnaire

The HAQ was reported initially, in 1980, by Fries and colleagues,21 providing a major milestone in rheumatology. The HAQ is regarded as a disease-specific questionnaire, as it was developed to assess patients with RA, in contrast to generic questionnaires, such as the short form 36 (SF-36), which were developed for use in patients with all types of diseases. Generic questionnaires may be used to compare

| Table 1 Patient Questionnaire Measures for Clinical Research Versus Clinical Care |
|---------------------------------|---------------------------------|---------------------------------|
| Feature                        | Clinical Research               | Clinical Care                   |
| Design considerations          | Complete, long                  | Patient friendly, short, completed by patient within 5 to 10 min |
| Effect on patient visit        | Adds time, interferes with flow | Saves time for MD and patient   |
| Type of questionnaire          | May be “generic,” “disease specific,” other research goals | Applicable to patients with all rheumatic diseases |
| Scoring                        | Complex, requires computer      | Simple, may “eyeball” results; scored in under 20 sec |
| Goal of data                   | Add to research database        | Add to clinical care            |
| Focus of analysis              | Groups of patients in clinical trials or observational databases | Individual patients cared for by individual physicians |
| Data management                | Send to data center             | Review for patient care; may enter into flowsheet to compare to previous visits |
| Major criteria for use         | Validity, reliability; assess minimal, clinically important significant difference (MCID) | Document status, medical and medicolegal rationale for aggressive therapies |
| Disposition of questionnaire   | Enter into computer             | Enter into flowsheet in medical record |

The Health Assessment Questionnaire

The HAQ was reported initially, in 1980, by Fries and colleagues,21 providing a major milestone in rheumatology. The HAQ is regarded as a disease-specific questionnaire, as it was developed to assess patients with RA, in contrast to generic questionnaires, such as the short form 36 (SF-36), which were developed for use in patients with all types of diseases. Generic questionnaires may be used to compare
the impact of a specific rheumatic disease on quality of life as compared to the impact of other rheumatic diseases, as well as nonrheumatic diseases, such as congestive heart failure or lymphoma. However, the HAQ (and MDHAQ – see below) may also be of value in all rheumatic diseases, as well as nonrheumatic diseases, and may function as a generic questionnaire.44

The HAQ includes a scale to assess functional disability and consists of 20 activities of daily living in eight categories of two or three activities. The eight categories are dressing, arising, eating, walking, bathing, reaching, gripping, and performing errands. The patient selects one of four response options: “without any difficulty” = 0, “with some difficulty” = 1, “with much difficulty” = 2, and “unable to do” = 3. The score for each of the eight categories is the highest score among the two or three activities within the category; 1 is added to this score if the patient uses aids or devices for that category.21 The total HAQ physical function score is the mean of the scores for the eight categories, each with a range of 0 to 3. The HAQ also includes two 10-cm visual analog scales (VAS) to assess pain and patient global estimate of status, the other two patient reported outcome (PRO) measures in the RA Core Data Set.2-4,21

The HAQ can be completed by a patient in 5 min in a waiting room and is quite patient friendly. However, several difficulties may arise in efforts to use the HAQ in busy clinical settings (see also Table 1):

1. The 20 activities are listed on two sides of one page and therefore cannot be scanned (“eyeballed”) rapidly by a clinician to review patient functional status.
2. Scoring is complex, requiring about 40 seconds for the three scales of physical function, pain, and patient global estimate, as the total physical function score is the mean of the highest of two or three activities for each of the eight categories.25
3. The queries concerning aids and devices and help from another person raise the score for each category by 1 unit, if answered positively, and thereby further complicate scoring.
4. Scores on a HAQ may actually be elevated artificially in many individuals if a device such as a jar opener is used, as use of such a device would render a HAQ score abnormal when no real disability exists.
5. The VAS for pain and patient global estimate is a 10-cm horizontal line, requiring a ruler to calculate a score.

These potential difficulties are not of great consequence in clinical research, but may explain, in part, why the HAQ is not widely used in standard clinical care.

Modification of the HAQ for Standard Care

The HAQ has been modified for standard care over the years as a multidimensional HAQ (MDHAQ),22-23 both to save time for the rheumatologist and to improve the quality of patient visits.24,45-47 Goals are to be scanned (“eyeballed”) by a clinician in 5 sec to 10 sec and scored in 10 sec or less, using scoring templates on the questionnaire for individual measures and on RAPID indices based on self-report data. Differences between the MDHAQ and HAQ (Table 2) include25:

1. The MDHAQ has 10 activities, eight from the HAQ and two more complex activities – “Are you able to walk 2 miles or 3 kilometers?” and “Are you able to participate in recreation and sports as you would like?” These ADLs were added as scores for eight items on a modified HAQ (MHAQ)22,48 and were systematically lower than HAQ scores by 0.2 units to 0.3 units. Scores on the HAQ and MDHAQ are quite similar. Inclusion of two complex activities reflect higher expectations for patient status in rheumatology care at this time than in the 1970s when the HAQ was developed.23,49
2. All 10 activities are listed on one side of the first page,

---

**Table 2** Comparison of Health Assessment Questionnaire (HAQ) and Multidimensional Health Assessment Questionnaire (MDHAQ)

<table>
<thead>
<tr>
<th></th>
<th>HAQ</th>
<th>MDHAQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>First report</td>
<td>1980</td>
<td>1999</td>
</tr>
<tr>
<td>Patient completion</td>
<td>5-10 min</td>
<td>5-10 min</td>
</tr>
<tr>
<td>Number of activities of daily living</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Pain VAS</td>
<td>10 cm line</td>
<td>21 circles</td>
</tr>
<tr>
<td>Patient global VAS</td>
<td>10 cm line</td>
<td>21 circles</td>
</tr>
<tr>
<td>Fatigue</td>
<td>No</td>
<td>21 circles</td>
</tr>
<tr>
<td>Psychological: sleep, anxiety, and depression</td>
<td>No</td>
<td>3-HAQ format</td>
</tr>
<tr>
<td>Review of systems</td>
<td>No</td>
<td>60 symptoms</td>
</tr>
<tr>
<td>Medical history</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Demographic data</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Social history</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Scoring templates</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>MD scan (“eyeball”)</td>
<td>30 sec</td>
<td>5 sec</td>
</tr>
<tr>
<td>Time to score</td>
<td>41.8 sec</td>
<td>7.5 sec</td>
</tr>
<tr>
<td>Time to score index of three measures</td>
<td>Not available</td>
<td>9.5 sec</td>
</tr>
</tbody>
</table>
allowing the physician or other health professionals to scan the information rapidly.

3. The MDHAQ does not include HAQ queries concerning aids, devices, or help from another person, which complicates scoring, may not add important information (particularly at this time), and possibly elevate scores artifactualy with use of a device such as a jar opener, as noted above.

4. The MDHAQ VAS for pain and patient global estimate are in a format of 21 numbered circles, rather than a 10-cm line and require no ruler to score.

5. The MDHAQ includes a patient self-report RA disease activity index (RADAI) joint count.

6. Boxes are available on the MDHAQ to record scores for physical function, pain, patient global estimate, and RADAI self-report joint count.

7. Scoring templates are available on the MDHAQ to convert physical function scores from 0-30 to a 0-10 scale, and RADAI self-report joint counts scores from 0-48 to a 0-10 scale.

8. Scoring templates are also available to record RAPID composite scores. RAPID 3 includes the three patient reported outcome (PRO) measures in the RA core data set (physical function, pain, and global estimate); RAPID 4 adds a RADAI self-report joint count and RAPID 5 adds a physician global estimate.

9. The MDHAQ also includes three psychological items concerning sleep, anxiety, and depression (queried in the standard patient friendly HAQ format), not scored formally, a review of systems, medical history, fatigue VAS, queries about change in status, morning stiffness and exercise, and demographic data—within two sides of one page.

A version of the MDHAQ has been completed by each patient in the clinical care of the author at each visit since 1982. Almost all the work is done by the patient, not the

---

**Multi-Dimensional Health Assessment Questionnaire (R780-NP2)**

This questionnaire includes information not available from blood tests, X-rays, or any source other than you. Please try to answer each question, even if you do not think it is related to you at this time. Try to complete as much as you can yourself, but if you need help, please ask. *There are no right or wrong answers.* Please answer exactly as you think or feel. Thank you.

1. Please check (✓) the ONE best answer for your abilities at this time:

   **OVER THE LAST WEEK**, were you able to:

   - With Without
   - ANY Difficulty
   - SOME Difficulty
   - MUCH Difficulty
   - UNABLE To Do

   a. Dress yourself, including tying shoes/what and doing button?
   - 0 1 2 3
   b. Get in and out of bed?
   - 0 1 2 3
   c. Lift a full cup or glass to your mouth?
   - 0 1 2 3
   d. Walk outdoors on flat ground?
   - 0 1 2 3
   e. Wash and dry your entire body?
   - 0 1 2 3
   f. Bend down to pick up clothing from the floor?
   - 0 1 2 3
   g. Turn regular faucets on and off?
   - 0 1 2 3
   h. Get in and out of a car, bus, train, or airplane?
   - 0 1 2 3
   i. Walk two miles or three kilometers, if you wish?
   - 0 1 2 3
   j. Participate in recreational activities and sports as you would like, if you wish?
   - 0 1 2 3
   k. Get a good night’s sleep?
   - 0 1 2 3
   l. Deal with feelings of anxiety or being nervous?
   - 0 1 2 3
   m. Deal with feelings of depression or feeling blue?
   - 0 1 2 3

2. How much pain have you had because of your condition OVER THE PAST WEEK? Please indicate below how severe your pain has been:

   - NO = 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
   - PAIN AS BAD AS IT COULD BE = 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9

3. Please place a check (✓) in the appropriate spot to indicate the amount of pain you are having today in each of the joint areas listed below:

   - None  Mild  Moderate  Severe

   a. LEFT FINGERS
   - □ 0 □ 1 □ 2 □ 3
   b. RIGHT FINGERS
   - □ 0 □ 1 □ 2 □ 3
   c. LEFT WRIST
   - □ 0 □ 1 □ 2 □ 3
   d. RIGHT WRIST
   - □ 0 □ 1 □ 2 □ 3
   e. LEFT ELBOW
   - □ 0 □ 1 □ 2 □ 3
   f. RIGHT ELBOW
   - □ 0 □ 1 □ 2 □ 3
   g. LEFT SHOULDER
   - □ 0 □ 1 □ 2 □ 3
   h. RIGHT SHOULDER
   - □ 0 □ 1 □ 2 □ 3
   i. LEFT HIP
   - □ 0 □ 1 □ 2 □ 3
   j. RIGHT HIP
   - □ 0 □ 1 □ 2 □ 3
   k. LEFT KNEE
   - □ 0 □ 1 □ 2 □ 3
   l. RIGHT KNEE
   - □ 0 □ 1 □ 2 □ 3
   m. LEFT ANKLE
   - □ 0 □ 1 □ 2 □ 3
   n. RIGHT ANKLE
   - □ 0 □ 1 □ 2 □ 3
   o. LEFT TOES
   - □ 0 □ 1 □ 2 □ 3
   p. RIGHT TOES
   - □ 0 □ 1 □ 2 □ 3
   q. NECK
   - □ 0 □ 1 □ 2 □ 3
   r. BACK
   - □ 0 □ 1 □ 2 □ 3

4. Considering all the ways in which illness and health conditions may affect you at this time, please indicate below how you are doing:

   - VERY POORLY
   - VERY WELL
   - 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10

---

**Figure 1**

The multidimensional health assessment questionnaire (MDHAQ). Page 1 includes scales for physical function, self-report joint count, and 21-circle visual analog scales for pain and global status, as well as scoring templates for physical function and self-report joint count. Scoring templates are also available for routine assessment of patient index data (RAPID) scores, including RAPID 3 for physical function, pain, and global estimate; RAPID 4, which adds self-report joint count; and RAPID 5, which adds a physician global estimate (provided by the physician). Page 2 includes a review of systems as a 60-symptom checklist, queries about morning stiffness, change in status and exercise, a 21-circle fatigue visual analog scale, as well as recent medical history and demographic data. Space is provided for a physician to indicate that she or he has reviewed the contents of the questionnaire.
physician or the staff, although the physician must spend a few valuable seconds reviewing the data. Patients generally are happy with, and often welcome, the opportunity to complete a questionnaire that helps focus the visit. To be even more useful, MDHAQ scores can be incorporated into a flowsheet that is reviewed by the physician prior to seeing every patient to help guide management decisions.

Two prerequisites are essential for success in having patients complete questionnaires:

1. The questionnaire must be reviewed by the rheumatologist prior to seeing the patient, so the staff and patients recognize that this is an important matter and not simply an exercise to meet abstract goals or requirements for a clinical study (as is the situation in completion of questionnaires in many research studies) or requirements to administer a certain therapy.

2. The staff must project an attitude of enthusiasm, reflecting the interest of the clinician. For example, a comment such as “Would you mind completing a questionnaire?” is inappropriate. A better comment might be: “We need you to complete this questionnaire as part of your medical evaluation.”

**Scoring Instructions for the MDHAQ**

The December 2006 version of the MDHAQ, R780, is a one-page, two-sided questionnaire (Fig. 1). Page 1 includes four scales to assess physical function (FN), pain (PN), a rheumatoid arthritis disease activity index (RADAI) patient self-report joint count (PTJT), and patient global estimate (PTGL). The RADAI self-report joint count is positioned between two 0 to 10 visual VAS for pain and global status in order to reduce the likelihood of patients giving the same answer on both VAS. This adds mild complexity to scoring, as the PTGL VAS is recorded above the PTJT count, but adjustment for the position of the RADAI is easily accomplished.

---

**Figure 1 Continued.**

---
Page 2 includes a review of systems (ROS) in the form of a 60-symptom checklist, queries concerning morning stiffness (AM), change in status (CHG), exercise (EX), 0-10 VAS for fatigue (FT), and recent medical history (HX), as well as demographic data. Page 2 is not discussed further in this essay, but is discussed elsewhere.\textsuperscript{12,13}

Scoring the MDHAQ is described briefly below; further details are found in a previous report.\textsuperscript{51}

1. \(a-j = FN = FUNCTION\). Ten activities are scored 0-3, 0 = “without any difficulty,” 1 = “with some difficulty,” 2 = “with much difficulty,” and 3 = “unable to do.” The sum of a-j is totaled mentally by counting the number of 3s, 2s, 1s and 0s, for a raw score of 0-30. This raw 0-30 score is divided by 3 to provide a 0-10 score, using a scoring template in the “For Office Use Only” section at the right and is entered in the “FN” box.

2. \(k, l, m\) constitute a psychological status (PS) scale to query sleep, anxiety, and depression, information of considerable value to the clinician. The PS score generally is not scored formally; nonetheless, the simple total of the 3 items 0-9.9 can be calculated as a score, which is not entered in the right side box.

3. PN = PAIN VAS is presented as 21 circles, rather than as a traditional 10-cm line, to facilitate scoring without a ruler. An arithmetic scale of 0-10 in 0.5 unit increments is printed below the circles. The 0-10 score is entered in the “PN” box in the “For Office Use Only” section at the right.

4. PTJT = RADAI, the Rheumatoid Arthritis Disease Activity Index self-report joint count includes eight joints or joint groups, scored 0, 1, 2, or 3. The number of 0, 1, 2, and 3 responses for items a-p are scored 0-48. Neck and back (items q and r) are included as informative to the rheumatologist, but are not included in the total score. The raw 0-48 total is adjusted to 0-

---

Figure 2 Page 1 of an MDHAQ, completed by a patient with rheumatoid arthritis. The reader is invited to score the questionnaire scales, as well as composite RAPID scores and enter the data in the boxes on the questionnaire. The reader is also invited to enter data on the left side of the flowsheet, depicted in Figure 3.
10, using the scoring template in the “For Office Use Only” section at the right, and entered in the “PTJT” box.

5. PTGL = PATIENT GLOBAL also is scored on a 21 circle VAS, and the 0-10 score is entered in the “PTGL” box in the “For Office Use Only” section at the right. (RADAI is positioned between the pain VAS and the global VAS in order to reduce the likelihood of identical scores for the two VAS).

6. MDGLOBAL = a physician/assessor estimate of global status on a scale of 0-10. The score may be entered in the “MDGLOBAL” box in the “For Office Use Only” section at the right of page 1. The score is entered in increments of 0.5 units, as with the PN and PTGL VAS, according to an “imaginary” VAS.

It is regarded as essential for a health professional to scan (“eyeball”) FN, PN, and PTGL and preferably score these scales, prior to seeing the patient. Many clinicians have found scores of the PTJT, queries about sleep, anxiety, and depression, and MD global data on Page 2 helpful.

The physician/assessor may calculate RAPID scores:

1. **RAPID 3:** The 3 PRO measures in the ACR Core Data Set. FN, PN, PTGL, are scored 0-10 for a total of 0-30, which can be adjusted to 0-10, using the scoring template at the bottom of Page 1.

2. **RAPID 4:** Total of 4 measures - adds a RADAI patient self-report joint count PTJT (0-10) to RAPID 3, for a total of 0-40, which can be adjusted to 0-10, using the scoring template at the bottom of Page 1.

3. **RAPID 5:** Total of 5 measures - adds a physician global estimate MDGL (0-10) to RAPID 4, for a total of 0-50, which can be adjusted to 0-10, using the scoring template at the bottom of Page 1.

Several options for management of questionnaire data include:

1. “Eyeballing” data-physical function, pain, and global and self-report joint count on one side of one page, even without formal scoring.

2. Score questionnaire for FN, PN, PTGL for RAPID 3; add PTJT for RAPID 4; and MDGL for RAPID 5 described above, using scoring templates in the “For Office Use Only” boxes at the right side.

3. Enter data onto a standard flowsheet, which may include questionnaire scores, laboratory tests, and medications. The correct answers are indicated on the right side of the figure.

---

**Demonstration Flowsheet:**

<table>
<thead>
<tr>
<th>PT Name: ___________________</th>
<th>DX ICD-9: ______</th>
<th>Onset(m/n/v): ______</th>
<th>Record#: ______</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rheumatologist: ______</td>
<td>1st Visit(m/n/v): ______</td>
<td>RF: Pos / Neg</td>
<td>If+ site: ______</td>
</tr>
<tr>
<td>Address: ______</td>
<td>City, ST ZIP: ______</td>
<td>ANA: Pos / Neg</td>
<td>IF+ site: ______</td>
</tr>
<tr>
<td>SSN: ______</td>
<td>DOB: ______</td>
<td>Sex: M / F</td>
<td>Marital: ______</td>
</tr>
<tr>
<td>Work st: ______</td>
<td>Occ: ______</td>
<td>#Yrs Educ: ______</td>
<td>Consent given: Y / N</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>To be completed</strong></th>
<th>1st Visit</th>
<th>2nd Visit</th>
<th>Correct version</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DATE</strong></td>
<td>1st Visit</td>
<td>2nd Visit</td>
<td></td>
</tr>
<tr>
<td>FUNCTIONAL STATUS (FN) [0-10]</td>
<td>4.3</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>PAIN (PH) [0-10]</td>
<td>7.0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>PATIENT GLOBAL (PTGL) [0-10]</td>
<td>5.5</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>RAPID 3 [0-30] [0-10]</td>
<td>16.8/5.7</td>
<td>0/0</td>
<td></td>
</tr>
<tr>
<td>PT JOINT COUNT (PTJT) [0-10]</td>
<td>4.8</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>RAPID 4 [0-40] [0-10]</td>
<td>21.6/5.5</td>
<td>0/0</td>
<td></td>
</tr>
<tr>
<td>PHYSICIAN GLOBAL (MDGL) [0-10]</td>
<td>6.5</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>RAPID 5 [0-50] [0-10]</td>
<td>28.1</td>
<td>0.5/1</td>
<td></td>
</tr>
<tr>
<td>WEIGHT (lbs)</td>
<td>167</td>
<td>167</td>
<td></td>
</tr>
<tr>
<td>BLOOD PRESSURE (mm/Hg)</td>
<td>114/70</td>
<td>113/81</td>
<td></td>
</tr>
<tr>
<td>ESR (mm/hr)</td>
<td>43</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>CRP (mg/dL) [0-10]</td>
<td>30</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>WBC (thou/ul) [4-11]</td>
<td>6.3</td>
<td>7.9</td>
<td></td>
</tr>
<tr>
<td>HGBH/g/dl (M-147; F-122)</td>
<td>12.8</td>
<td>13.0</td>
<td></td>
</tr>
<tr>
<td>PLATELETS (thou/ul) [150-400]</td>
<td>179</td>
<td>207</td>
<td></td>
</tr>
<tr>
<td>ALB (g/dl) [3.5-5.5]</td>
<td>3.9</td>
<td>4.1</td>
<td></td>
</tr>
<tr>
<td>SGOT (U/L) [4-40]</td>
<td>18</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>CREATININE (mg/dl) [0.7-1.5]</td>
<td>1.1</td>
<td>0.8</td>
<td></td>
</tr>
</tbody>
</table>

**MED CODES:** N = new drug; O = on at visit, X = change dose, D = discontinue, T = taper, R = resume, J = injection, V = only today

<table>
<thead>
<tr>
<th>Naproxen</th>
<th>O-880 QEH</th>
<th>440 BID</th>
<th>440 BID</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ibuprofen</td>
<td>O-150 BID</td>
<td>150 BID</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prednisone</td>
<td>N-3 QD</td>
<td>3 QD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methotrexate</td>
<td>N-10 QW</td>
<td>10 QW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Folic Acid</td>
<td>N-1 QD</td>
<td>1 QD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 3** Flowsheet with blank spaces on the left side for the reader to enter MDHAQ scores. Data concerning laboratory tests and medications are provided on the questionnaire. The correct answers are indicated on the right side of the figure.
medications.

4. Enter data into a computer database, which is not necessary, but allows compiling of data for reports.

The author strongly recommends use of flowsheets, as noted above, which can be very helpful and save further time in clinical care.

**A Brief Demonstration of Scoring the MDHAQ**

The reader is invited to score an MDHAQ as shown in Figure 2, concerning a 48-year-old female with RA. A score for function (FN) is calculated as the total for 10 activities, a-j (remember not to include k, l, m). The raw total of 0-30 for a-j is divided by 3, using the template at the right to give a 0-10 score, which is entered in the PN box in the “For Office Use Only” section at the right. The pain VAS is clearly 7, which can be entered in the PN box, and the global estimate (remember that the self-report RADAI joint count is positioned between the pain and global VAS to reduce the likelihood of an identical score for the 2 VAS) is 5.5, entered in box 4, PTGL. The raw total of FN, PN, and PTGL may then be calculated as RAPID 3 (0-30) and entered in the box at the right.

Next, score the RADAI self-report joint count, to include the totals of a-p (not including q. (neck) and r. (back), which are of interest but not included in the RADAI score). The raw total of 0-48 is converted to 0-10, using the template at the right. A score for RAPID 4 is then calculated as a 0-40 score, based on RAPID 3 (FN, PN, PTGL) plus PTJT. The reader is invited to assign an MDGL score from 0-10 with a “virtual” VAS scale, and then calculate RAPID 5 by adding MDGL to RAPID 4.

RAPID 3, RAPID 4 and RAPID 5 can each be converted to 0-10 score using templates at the bottom of the page, which divide the RAPID 3 score by 3, the RAPID 4 score by 4, and the RAPID 5 score by 5, so that all are 0-10. The

---

**Figure 4** MDHAQ, completed by same patient as depicted in Figure 2, two months later. The reader is invited to score the questionnaire scales and RAPID composites, and complete the left side of the flowsheet in Figure 3, with correct answers on the right side for reference.
reader is invited to perform these conversions and enter the numbers on a flowsheet (Fig. 3).

The patient returned two months later and completed an MDHAQ, shown in Figure 4. This patient obviously had substantial improvement. The MDHAQ can be scored easily. The reader is invited to enter these scores to the right of the previous visit on the flowsheet (Fig. 3). The correct completed flowsheet is illustrated to the right of Figure 3.

**Value of the MDHAQ in All Rheumatic Diseases**

Most reports focus on patient questionnaires in RA. However, the HAQ, MDHAQ, and other patient questionnaires appear useful in all rheumatic diseases, as discussed in greater detail in a previous report. The course of a 39-year-old female, who was diagnosed with SLE on February 15, 2005, on the basis of pleuritis, pleural effusions, arthralgias, and positive tests for anti-nuclear antibody (ANA) and DNA-antibodies, is shown in Figure 5.

The patient’s MDHAQ score was as follows: physical function, 4.3; pain, 5.6; global status, 6.5; and RAPID 3 (0-10), 5.5. She was treated with a prednisolone acetate injection 80 mg and prednisone 5 mg per day. At her next visit on May 17, 2005, her scores were as follows: functional status, 0; pain, 2; global status, 6; and RAPID 3 (0-10), 2.7, indicating considerable improvement. She was given a prescription for mycophenolate mofetil, 500 mg twice a day. On July 19, 2005, her scores were 0 for physical function, 4 for pain, 3 for global status, and 2.3 for RAPID 3 (0-10). Her mycophenolate mofetil was raised to 1000 mg BID, and her prednisone was reduced to 5 mg QD. Over the next year, she showed further improvement, with scores on September 26, 2006 of 0 for physical function, 0.5 for pain, 0.5 for global status, and 0.3 for RAPID 3 (0-10), suggesting near remission status.

Flowsheets of examples of other patients who had psoriatic arthritis, ankylosing spondylitis, gout, scleroderma, vasculitis, fibromyalgia, inflammatory bowel disease, and familial Mediterranean fever are found in a previous report.

It must be recognized, of course, that an increase in patient questionnaire scores may be due to circumstances other than a flare of the rheumatic disease for which the patient is being treated, such as trauma, injury, acute back pain, etc. This phenomenon is similar to the possibility that an increase in erythrocyte sedimentation rate (ESR) might be due to an infection or development of a lymphoma rather than a flare of an inflammatory rheumatic disease. All quantitative data require interpretation by a clinician, along with information from a history, physical examination, and other sources in formulating a clinical decision. Nonetheless, the availability of quantitative data can add considerably to the decision process and help focus the visit on the concerns of the patient.

**Conclusion**

Great progress has been made in quantitative measurement of rheumatic diseases over the last two decades. However, most
measures and indices developed to quantitate patient status are used primarily in clinical trials and clinical research and are not applied to assess and monitor patient status in standard clinical care. Quantitative assessment in standard care appears desirable but may be difficult using measures designed for clinical research. Therefore, measures and indices are needed which can be obtained and scored easily in a busy clinical setting. A simple patient questionnaire, such as the MDHAQ, which has been found useful in patients with all rheumatic diseases, and RAPID scores based on the MDHAQ, may provide a promising approach to introduce quantitative measurement to standard clinical rheumatology care.

References


