MDHAQ/RAPID3 Can Provide a Roadmap or Agenda for all Rheumatology Visits When the Entire MDHAQ is Completed at All Patient Visits and Reviewed by the Doctor Before the Encounter

Theodore Pincus, M.D., Philip T. Skummer, Michael T. Grisanti, Isabel Castrejón, M.D., and Yusuf Yazici, M.D.

Abstract
The management of rheumatoid arthritis (RA) depends more on the patient history than most other chronic diseases. A patient questionnaire provides a uniform, quantitative, protocolized, "scientific" patient history, with documented prognostic significance for work disability and mortality in RA greater than radiographs and laboratory tests and capacity to distinguish active from control treatment in clinical trials and to monitor clinical care with equivalent or greater significance than joint counts or laboratory tests. Therefore, a "scientific" approach to care of a person with a rheumatic disease involves review of patient function, pain, global status, fatigue, RAPID3, review of systems, self-report joint count, and recent medical history on an MDHAQ before conversation with the patient. This practice may be viewed as analogous to a doctor reviewing blood pressure, hemoglobin A1c, viral load, or radiograph before meeting with a patient who has hypertension, diabetes, HIV, or a healing fracture to provide a roadmap or agenda for the visit. Some sites have implemented RAPID3 without the remainder of MDHAQ, a practice that is discouraged. The MDHAQ requires only 5 to 10 minutes of the patient's time and involves a single sheet of paper, which is needed for a simple RAPID3, or even a patient global estimate of status to score a DAS28 or CDAI. Completion of MDHAQ/RAPID3 by each patient at each visit in the infrastructure of care with review by the doctor helps prepare the patient for the visit, improves doctor-patient communication, saves time for the doctor, and provides a roadmap or agenda for the visit.

A doctor who treats a patient with hypertension generally knows the blood pressure before discussion with the patient. A doctor who treats a patient with diabetes generally knows the hemoglobin A1c before discussion with the patient. A doctor who treats a patient with HIV generally knows the viral load before discussion with the patient. A doctor who treats a patient with a fracture generally examines the radiograph before discussion with the patient. All these doctors are implementing a "scientific" approach to patient care by having relevant quantitative data available to inform the discussion with the patient.

The management of rheumatoid arthritis (RA) depends more on the patient history than most other chronic diseases,1 and similar considerations pertain to most rheumatic diseases. A patient questionnaire may be regarded as providing a "scientific" patient history, which meets the same criteria for the scientific method seen for laboratory tests: quantitative data in a standard, protocolized format, with criteria for interpretation in prognosis and management decisions. Indeed, patient questionnaire scores for physical function are more significant than laboratory tests, radiographs, or any high-technology data in the prognosis of severe outcomes of RA such as work disability2,6 and premature mortality.7-12 Patient questionnaire scores are as effective as joint counts and laboratory tests to distinguish active from control treatments in clinical trials13 and to document changes in clinical status in usual care.

Therefore, a "scientific" approach to care of a person with RA (or any rheumatic disease) should include awareness of patient questionnaire data before conversation with the patient, as discussed in previous essays in this journal13-15 concerning the MDHAQ (multidimensional health assess-
Multi-Dimensional Health Assessment Questionnaire (MDHAQ™) (R851-NP2R)

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:

<table>
<thead>
<tr>
<th>Without ANY Difficulty</th>
<th>With SOME Difficulty</th>
<th>With MUCH Difficulty</th>
<th>UNABLE To Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Dress yourself, including tying shoelaces and doing buttons?</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>b. Get in and out of bed?</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>c. Lift a full cup or glass to your mouth?</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>d. Walk outdoors on flat ground?</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>e. Wash and dry your entire body?</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>f. Bend down to pick up clothing from the floor?</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>g. Turn regular faucets on and off?</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>h. Get in and out of a car, bus, train, or airplane?</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>i. Walk two miles or three kilometers, if you wish?</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>j. Participate in recreational activities and sports as you would like, if you wish?</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>k. Get a good night’s sleep?</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>l. Deal with feelings of anxiety or being nervous?</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>m. Deal with feelings of depression or feeling blue?</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

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 0.5 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 PAIN AS BAD AS IT COULD BE

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:

<table>
<thead>
<tr>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. LEFT FINGERS</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>b. LEFT WRIST</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>c. LEFT ELBOW</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>d. LEFT SHOULDER</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>e. LEFT HIP</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>f. LEFT KNEE</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>g. LEFT ANKLE</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>h. LEFT TOES</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>i. RIGHT FINGERS</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>j. RIGHT WRIST</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>k. RIGHT ELBOW</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>l. RIGHT SHOULDER</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>m. RIGHT HIP</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>n. RIGHT KNEE</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>o. RIGHT ANKLE</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>p. RIGHT TOES</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>q. BACK</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

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 0 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 VERY
WELL 0 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 POORLY

Figure 1 Multidimensional health assessment questionnaire (MDHAQ). The front page (A) includes 10 activities for function and two visual analog scales (VAS) for pain and patient global estimate of status, and a self-report joint count from a rheumatoid arthritis disease activity index (RADAI). Scoring templates for these measures are available on the right-hand edge of the page. An index of the three patient-reported measures, routine assessment of patient index data, (RAPID3) can be calculated from an MDHAQ in approximately 5 seconds.
5. Please check (✓) if you have experienced any of the following over the last month:
- Fever
- Weight gain (>10 lbs)
- Weight loss (>10 lbs)
- Feeling sickly
- Headaches
- Unusual fatigue
- Swollen glands
- Loss of appetite
- Skin rash or hives
- Unusual bruising or bleeding
- Other skin problems
- Loss of hair
- Dry eyes
- Other eye problems
- Problems with hearing
- Ringing in the ears
- Stuffy nose
- Sores in the mouth
- Dry mouth
- Problems with smell or taste
- Lump in your throat
- Cough
- Shortness of breath
- Wheezing
- Pain in the chest
- Heart pounding (palpitations)
- Trouble swallowing
- Heartburn or stomach gas
- Stomach pain or cramps
- Nausea
- Diarrhea
- Dark or bloody stools
- Problems with urination
- Gynecological (female) problems
- Dizziness
- Losing your balance
- Muscle pain, aches, or cramps
- Muscle weakness
- Paralysis of arms or legs
- Numbness or tingling of arms or legs
- Fainting spells
- Swelling of hands
- Swelling of ankles
- Swelling in other joints
- Joint pain
- Back pain
- Neck pain
- Use of drugs not sold in stores
- Smoking cigarettes
- More than 2 alcoholic drinks per day
- Depression - feeling blue
- Anxiety - feeling nervous
- Problems with thinking
- Problems with memory
- Problems with sleeping
- Sexual problems
- Burning in sex organs
- Problems with social activities

Please check (✓) here if you have had none of the above over the last month: ________.

6. When you awakened in the morning OVER THE LAST WEEK, did you feel stiff? □ No □ Yes
   If "No," please go to Item 7. If "Yes," please indicate the number of minutes ______ or hours ________
   until you are as limber as you will be for the day.

7. How do you feel TODAY compared to ONE WEEK AGO? Please check (✓) only one.
   Much Better □ (1), Better □ (2), the Same □ (3), Worse □ (4), Much Worse □ (5) than one week ago

8. How often do you exercise aerobically (sweating, increased heart rate, shortness of breath) for at least
   one-half hour (30 minutes)? Please check (✓) only one.
   □ 3 or more times a week (3) □ 1-2 times per month (1)
   □ 1-2 times per week (2) □ Do not exercise regularly (0) □ Cannot exercise due to disability/ handicap (9)

9. How much of a problem has UNUSUAL fatigue or tiredness been for you OVER THE PAST WEEK?
   FATIGUE IS O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O O
   NO PROBLEM O 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

10. Over the last 6 months have you had: [Please check (✓)]
   □ No □ Yes An operation or new illness
   □ No □ Yes Medical emergency or stay overnight in hospital
   □ No □ Yes A fall, broken bone, or other accident or trauma
   □ No □ Yes An important new symptom or medical problem
   □ No □ Yes Side effect(s) of any medication or drug
   □ No □ Yes Smoke cigarettes regularly
   □ No □ Yes Change(s) of arthritis or other medication
   □ No □ Yes Change(s) of address
   □ No □ Yes Change(s) of marital status
   □ No □ Yes Change job or work duties, quit work, retired
   □ No □ Yes Change of medical insurance, Medicare, etc.
   □ No □ Yes Change of primary care or other doctor

   Please explain any "Yes" answer below, or indicate any other health matter that affects you:

---

SEX: □ Female, □ Male ETHNIC GROUP: □ Asian, □ Black, □ Hispanic, □ White, □ Other ___________

Your Occupation ___________ Please circle the number of years of school you have completed:

Work Status: □ Full-time, □ Part-time, □ Disabled
□ Homemaker, □ Self-Employed, □ Retired, 11 12 13 14 15 16 17 18 19 20
□ Seeking work, □ Other ___________ Please write your weight: ________ pounds or kg ________ height: ________ inches or cm

Your Name __________________________ Date of Birth ___________ Today’s Date ___________

Page 2 of 2 Thank you for completing this questionnaire to help keep track of your medical care. R851NP2R

FOR OFFICE USE ONLY: I have reviewed the questionnaire responses.
Date: ___________ Signature ___________________________

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Figure 1 Continued. The reverse side (B) includes a review of systems, fatigue VAS, queries regarding morning stiffness, change in status, exercise, recent medical history, and demographic data (not included in scoring but providing useful data in clinical care).
ment questionnaire16,17 (Fig. 1) and RAPID3 (routine assessment of patient index data),18,19 an index of patient-reported measures. Of course, doctor-patient conversation is required to clarify questionnaire data and elicit further information for an optimal patient history. Nonetheless, quantitative scores and other questionnaire information provide important initial components of an accurate history.

The MDHAQ16,17 (Fig. 1) includes physical function, pain, and global estimate of status, the three RA Core Data Set20 patient-reported measures. Templates to score these measures and RAPID3 (an index of these three measure) are provided, facilitating calculation of RAPID3 in about 5 seconds.19 The MDHAQ also queries fatigue, self-report rheumatoid arthritis disease activity index (RADAI) joint count,21 and number of symptoms on a review of systems, as well as recent medical history, to inform discussion with the patient. All this information is available on two sides of a single sheet of paper. Just as a roadmap enhances travel to an unknown place or an agenda provides structure to any meeting, MDHAQ/RAPID3 may be viewed as a “roadmap” or “agenda” for a doctor to help direct a patient encounter. A brief review of the roadmap or agenda can provide information to improve effective use of time.

RAPID3 scores are correlated significantly with DAS28 and CDAI in clinical trials and clinical care. Panels A and B: In 285 patients with rheumatoid arthritis (RA) seen in usual clinical care,19 RAPID3 was correlated with A) DAS28 at rho = 0.657 and with B) CDAI at rho = 0.738. Panels C and D: In 982 patients in the Rheumatoid Arthritis Prevention of Structural Damage (RAPID1) clinical trial of certolizumab pegol (CZP) versus placebo, Spearman correlations of RAPID3 with C) DAS28 (ESR) scores and D) CDAI scores at 52 weeks were 0.78 and 0.80, respectively.25 Both correlations are statistically significant (p < 0.001). Abbreviations: DAS28, disease activity score; CDAI, clinical disease activity index; RAPID3, routine assessment of patient index data; RAPID1, Rheumatoid Arthritis Prevention of Structural Damage clinical trial.

Figure 2. RAPID3 scores are correlated significantly with DAS28 and CDAI in clinical trials and clinical care. Panels A and B: In 285 patients with rheumatoid arthritis (RA) seen in usual clinical care,19 RAPID3 was correlated with A) DAS28 at rho = 0.657 and with B) CDAI at rho = 0.738. Panels C and D: In 982 patients in the Rheumatoid Arthritis Prevention of Structural Damage (RAPID1) clinical trial of certolizumab pegol (CZP) versus placebo, Spearman correlations of RAPID3 with C) DAS28 (ESR) scores and D) CDAI scores at 52 weeks were 0.78 and 0.80, respectively.25 Both correlations are statistically significant (p < 0.001). Abbreviations: DAS28, disease activity score; CDAI, clinical disease activity index; RAPID3, routine assessment of patient index data; RAPID1, Rheumatoid Arthritis Prevention of Structural Damage clinical trial.
Table 1  Concerns and Misconceptions of Many Rheumatologists Regarding MDHAQ/RAPID3

<table>
<thead>
<tr>
<th>Concerns/Misconceptions about MDHAQ/RAPID3</th>
<th>Correct Understanding of MDHAQ/RAPID3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Concerns/misconceptions about information from MDHAQ/RAPID3</td>
<td></td>
</tr>
<tr>
<td>1 “I can tell when my patient is better, so I don’t need a formal questionnaire.”</td>
<td>Although questionnaire responses usually confirm clinical impressions, discordance between patient and physician global estimates of status is common.</td>
</tr>
<tr>
<td>2 “I can get all the information I need about therapies from clinical trials.”</td>
<td>Data from clinical trials apply to groups, not necessarily to individuals, who very in responses over a wide range that should be recognized.</td>
</tr>
<tr>
<td>3 “I don’t want a patient questionnaire to replace examining the patient.”</td>
<td>A patient questionnaire never replaces examining the patient.</td>
</tr>
<tr>
<td>4 “I don’t want a patient questionnaire to interfere with doctor-patient communication and replace conversation.”</td>
<td>A patient questionnaire never replaces conversation with the patient and enhances doctor-patient communication by preparing the patient and doctor for the encounter.</td>
</tr>
<tr>
<td>5 “I want to take the patient history—not get it from a patient questionnaire.”</td>
<td>The history must be taken by the doctor—the questionnaire saves time for the doctor when reviewed before seeing the patient by providing factual information and many pertinent negatives.</td>
</tr>
<tr>
<td>6 “RAPID3 responses should not be used to trigger automatic therapeutic decisions.”</td>
<td>No measure or index alone, whether a laboratory test, radiograph, DAS28, CDAI, RAPID3, etc., triggers therapeutic decisions—all decisions are based on a synthesis of all available information by the doctor.</td>
</tr>
<tr>
<td>B. Concerns/misconceptions about MDHAQ/RAPID3 in office practice</td>
<td></td>
</tr>
<tr>
<td>1 “Patient questionnaires add extra time and interfere with patient flow.”</td>
<td>No evidence for this if questionnaire distributed by the receptionist to each patient at each visit.</td>
</tr>
<tr>
<td>2 “Many patients will object to completing questionnaires.”</td>
<td>Of course, some people complain about anything that involves effort; when patients see that MDHAQ/RAPID3 is important in their care, they accept it, and many appreciate its value.</td>
</tr>
<tr>
<td>3 “Patient questionnaire should be used only at certain intervals rather than at each visit.”</td>
<td>This idea may sound good but is impossible to implement for the clinic receptionist; furthermore, data should be available at the time of change in medication to determine change in status; if there is a reason to see the patient, an MDHAQ/RAPID3 should be completed.</td>
</tr>
<tr>
<td>4 “An MDHAQ cannot be completed by patients of low education level.”</td>
<td>Of course, some patients have difficulty completing questionnaires, but even most illiterate patients usually have a “literacy partner” to help them simply to get to the clinic, who can help complete the questionnaire.</td>
</tr>
<tr>
<td>5 “Electronic data capture is invariably more effective than pencil and paper.”</td>
<td>Use of paper is generally far less expensive, as easy for patients to complete, and much easier to transfer information from patient to doctor at this time.</td>
</tr>
<tr>
<td>C. Concerns/misconceptions about self-report versus traditional measures</td>
<td></td>
</tr>
<tr>
<td>1 “Patient questionnaire data don’t give me as good information to guide clinical decisions and prognosis as traditional radiographic or laboratory measures.”</td>
<td>Actually, patient questionnaires are more sensitive to change than laboratory tests or joint counts in most patients and more significant in prognosis.</td>
</tr>
<tr>
<td>2 “How can I monitor a patient quantitatively without a joint count?”</td>
<td>A careful joint examination may be sufficient—it matters a lot whether a patient has 2 vs. 12 swollen joints, which can be ascertained in 5 seconds, but not necessarily whether 1 vs. 2 or 11 vs. 12, which requires about 2 minutes to determine.</td>
</tr>
<tr>
<td>3 “Patient questionnaire scores are influenced by irreversible damage, so they are not sensitive to control of inflammation, unlike joint counts.”</td>
<td>All measures in patients with RA are less likely to change in patients who have irreversible damage, including joint counts and questionnaires.</td>
</tr>
<tr>
<td>4 “I don’t want an index that does not include a doctor measure.”</td>
<td>One should distinguish between a measure and a decision: a decision is always made by a doctor on the basis of all information, which may be improved by available measures, none of which alone dictates a decision.</td>
</tr>
</tbody>
</table>

RAPID3 requires 5 seconds, compared to 90 to 94 seconds for a formal joint count and up to 2 minutes for a DAS28 or CDAI. Physical function scores on MDHAQ and other questionnaires are far more significant than radiographs or laboratory tests in the prognosis of severe outcomes in RA, including work disability and premature mortality. MDHAQ/RAPID3 is informative in all rheumatic diseases to document changes in patient status.
Over the last decade, MDHAQ/RAPID3 has been used by an increasing number of rheumatologists. A recent American College of Rheumatology (ACR) survey indicated that 29% of respondents used RAPID3, compared to 28% for DAS28 and 15% for CDAI. Some centers have incorporated MD-HAQ into the infrastructure of care but have deleted most or all of other components of the MDHAQ, retaining only RAPID3. This practice appears undesirable for several reasons:

1. The MDHAQ requires only 5 to 10 minutes of the patient’s time. Almost all patients wait at least 5 to 10 minutes before seeing a doctor. Patients have more than enough time to complete an MDHAQ with a self-report joint count, review of systems, and recent medical history, beyond a simple RAPID3 score.

2. Completion of an entire MDHAQ in the waiting area helps the patient prepare for the visit, particularly the self-report joint count, review of systems, and recent medical history, which are not included in RAPID3.

3. The self-report joint count, review of systems, and recent medical history, in addition to RAPID3, save time for the doctor when reviewed prior to seeing the patient; a 10 to 15 second review may give information that otherwise requires 10 to 15 minutes of conversation between doctor and patient. The time saved improves the quality of the visit, to include other measures and conversation about matters directly relevant to the patient and doctor.

4. Any abbreviated version of MDHAQ including only RAPID3 requires a single piece of paper, no less than an entire MDHAQ, which occupies two sides of one sheet of paper (or can be administered electronically). If MDHAQ requires no more paper than RAPID3, and patients have time to complete MDHAQ, why not obtain the additional information?

5. A patient global estimate of status is required to score a DAS28 or CDAI. This patient global estimate is collected from the patient on a piece of paper, which ironically could just as easily involve an MDHAQ on a single sheet of paper.

6. Collection of MDHAQ/RAPID3 in no way prevents a doctor from performing a formal joint count, scoring a DAS28, CDAI, SDAI (Simplified Disease Activity Index), ultrasound, or any other measure that is regarded as desirable for clinical care. Indeed, as noted above, more time is available for a joint count, conversation that is more relevant to the patient and doctor, or other activities, as a result of saving time using the MDHAQ.

Three steps in optimal implementation of MDHAQ/RAPID3 or any patient self-report questionnaire in usual care are described:

1. Each patient is given a questionnaire by the receptionist upon registration for each visit to complete in the waiting area before seeing the physician, to help prepare the patient for the encounter.

2. The physician reviews the questionnaire before seeing the patient to provide a “scientific” roadmap or agenda. This brief review reinforces to the patient the importance of the questionnaire and saves time for the doctor by having much factual information available before seeing the patient.

3. Scores on the MDHAQ for physical function, pain, global estimate, fatigue, RAPID3, and number of symptoms are entered into a flowsheet that also includes laboratory tests and medications; the flowsheet may be constructed with pencil and paper or electronically. The value of MDHAQ and other information is considerably enhanced when it can be compared conveniently at a glance over time to previous visits.

**Each Patient Completes an MDHAQ/RAPID3 at Each Visit**

It is quite simple for the office receptionist to give an MDHAQ/RAPID3 to each patient upon registration for each visit. In almost all successful settings, an identical questionnaire is given to each patient regardless of diagnosis, although a different version may be given to new versus “return” patients. MDHAQ helps prepare the patient for the encounter by focusing on concerns to discuss with the doctor. A patient seen in a rheumatology setting a week after a previous visit—an unusual occurrence—might suggest that she or he does not need to complete a questionnaire, as one was completed the previous week. The appropriate response is that if there is any reason for the doctor to see the patient, there is a reason to document whether scores and other information on the MDHAQ have changed.

Completion of an MDHAQ by the patient does not disrupt office flow or require any extra time and effort from the doctor, if each patient is given the questionnaire by the receptionist at each visit in the infrastructure of office practice. As noted, availability of an MDHAQ does not in any way inhibit a doctor from as much conversation as appears appropriate, performance of a formal joint count, or scoring a DAS28 or CDAI that requires a joint count. Indeed, as noted, availability of factual information allows more conversation and time for a formal joint count and other measures.

**Review of MDHAQ by Rheumatologist.**

MDHAQ provides information for the doctor, including RAPID3, the self-report joint count, review of systems, and recent medical history, in 10 to 15 seconds that would require 10 to 15 minutes of conversation to document in the medical record, an obvious potential time-saving strategy. Many doctors’ offices ask patients to complete some type of patient self-report questionnaire before seeing a doctor. In most settings, the doctor may review the patient’s responses on the questionnaire, sometimes prior to seeing the patient. However, review of the questionnaire generally does not involve the type of systematic approach that characterizes review of laboratory tests, radiographs, cardiograms, or other information from high-technology sources.

A traditional perspective in clinical medicine is that information from a patient history is “subjective,” in contrast...
Figure 3 Flowsheet to facilitate longitudinal assessment of patient in usual rheumatology clinical care. The flowsheet shown is of a man who presented at age 61 with rheumatoid arthritis. He presented on November 4, 2003, with scores for physical function of 3.3, pain 9.5, global status 9.5, and a RAPID3 score of 22.3 (on a scale of 0 to 30). He was treated with methotrexate 10 mg/week and prednisone 3 mg/day. Two months later, on January 13, 2004, his RAPID3 score was 1, indicating a near-remission situation. He did very well for almost a year, as documented for visits on July 20 and September 28, 2004, (his RAPID3 score was 5.5 on July 20, but this was due to acute back strain and not inflammation, so his therapy was not altered). On December 28, 2004, he presented with a severe flare. His joints were once again swollen, and although his physical function score was 0, his pain was 6.0 and global 5.5. He was offered the possibility of an anti-TNF agent, adalimumab, which he elected to receive. Two months later, on February 5, 2005, all his scores were 0, indicating an excellent response. This status was maintained for more than a year, as indicated by his visit of March 28, 2006.
to “objective” information from the laboratory, imaging studies, biopsies, and other high-technology sources. The literal meaning of the term “subjective” is that the source of information is the person herself or himself, in contrast to “objective” information from a source outside of the self. However, the term “subjective” applied to medical information often is interpreted to imply “poorly reliable” and “unscientific,” in contrast to “scientific,” “objective” high-technology data. This is ironic, in a sense, since several studies suggest that the patient history often is the most important information for diagnosis and management.\(^{35-38}\)

The value of the patient history is particularly seen in rheumatic diseases in which an objective high-technology “gold standard” measure is not available for all individual patients.\(^1,39\) Nonetheless, many doctors find it difficult to accept information from a patient as “scientific,” based on a paradigm that high-technology “objective” data are more valuable than self-report “subjective” data. Of course, the doctor knows much more than the patient about pathophysiology and treatment of disease. However, the patient is the “expert” concerning her or his capacity to turn on faucets or perform other activities, pain, global status, fatigue, which joints are painful, and even recent medical history.

Patient questionnaire scores are more reproducible than joint counts or radiographic scores and do not require the same examiner at each assessment. Data concerning factual information from a single observer (the patient) are almost always more reproducible than data requiring interaction of a doctor with a patient, as a joint count.

A number of additional concerns have been advanced by doctors regarding MDHAQ/RAPID3 in routine care. Many doctors are uncomfortable about educating and training their staff in procedures in which they have no experience from medical school, residency, or fellowship training. There is a general discomfort with novelty, particularly changes of office procedure with no incremental reimbursement. Some concerns and misconceptions related by various rheumatologists are summarized in Table 1. The reader is invited to review the Table to identify his or her own concerns to analyze possible reasons not to implement MDHAQ/RAPID3 and to contact the senior author (TP) about additional concerns.

One matter that may be confusing involves the difference between a standard measure and information that may be important in clinical care beyond the standard measure. For example, a 28 joint count excludes 42 joints from the earlier 70 joint count, including the metatarsal phalangeal joints of the feet, acromioclavicular joints, and others.\(^40\) The 28 joint count was introduced because most excluded joints are far less frequently involved than included joints, and abnormal findings in the feet may be poorly correlated with disease activity.\(^40\) Exclusion of non-essential joints saves considerable time, without loss of capacity to distinguish active from control treatment in clinical trials\(^41\) or to monitor patients in clinical care. However, a careful joint examination should include all joints, particularly joints for which a patient notes symptoms, although these joints are not included in a formal joint count.

Similarly, scoring of RAPID3 in no way suggests that a formal joint count or careful joint examination is not an important component of an encounter for a patient with RA—indeed, a joint examination must be performed to adequately interpret RAPID3 scores. Furthermore, scoring of RAPID3 does not preclude a formal joint count or formal physician global estimate of status. Of note, earlier studies of indices termed RAPID4 and RAPID5 included a joint count or physician global estimate or both added to RAPID3.\(^18,23\)

However, extensive statistical analyses indicated that a formal joint count and physician global score add little to change RAPID3\(^18,23\) and increased the time required to score an index from 5 seconds up to 20 to 25 seconds—a meaningful change in busy clinical settings. The authors advocate a careful joint examination and a quantitative physician global score at each visit of patients with RA. Exclusion of a measure from a formal index does not mean that excluded information may not be very important and even critical for patient care.

**Flowsheets for Clinical Care**

Any quantitative measure—whether a laboratory test, MDHAQ/RAPID3, or joint count—is considerably more valuable in the care of a patient with a chronic disease if the data from the previous visit are also available for comparison conveniently at a glance on a flowsheet at the time of the clinical decision. Optimal use of MDHAQ/RAPID3 scores includes a simple flowsheet, which also should include the most pertinent laboratory test results and medications. The use of such flowsheets is standard practice in certain types of clinical subspecialties such as oncology but has not been adopted by many rheumatologists.

A rheumatology flowsheet traditionally has been maintained in simple pencil and paper, which may appear unfashionable at this time in many settings in this era of the electronic medical record (EMR). The senior investigator maintained paper flowsheets during the 1980s and 1990s, which involved an extra 15 to 30 seconds, but easily, saved that time in not having to “flip” through many pages of a paper medical record. Even reviewing many screens in an electronic record is considerably more time-consuming than glancing at a simple paper or electronic flowsheet, although many rheumatologists will not make this effort if they have an installed EMR.

Therefore, a major issue for rheumatology practice at this time is to introduce patient questionnaire scores into flowsheets on an EMR. This is not difficult computer science if a flowsheet exists for laboratory data since patient questionnaire scores are quantitative variables no different from laboratory test results. Some rheumatologists also have tried to incorporate automatic scoring by entering the scores for physical function, pain, and global estimate of status directly into an EMR to compute a RAPID3 score. This may
appear desirable if the entry is performed by an assistant, but is not critical since a RAPID3 score can be calculated by a rheumatologist or anyone else in about 5 seconds—more “rapid” than viewing a score on a computer.

The authors suggest including a RAPID3 score and perhaps fatigue score and number of symptoms on a paper or EMR flowsheet. It may appear somewhat incongruous to advocate collection of the entire MDHAQ rather than a simple RAPID3 score, when only RAPID3 and a few other scores are included on the flowsheet. However, the additional queries concerning the self-report joint count, review of systems, and recent medical history save time for the doctor by simple visual review over a few seconds to recognize pertinent positive and negative information from a patient history. For example, a patient experiencing a flare of RA may report a recent infection or family stress, which is very important information, but not incorporated into a flowsheet.

An example of a flowsheet is presented for a patient with RA (Fig. 3). Other examples in other rheumatic diseases are illustrated in previous reviews.41

**Conclusion**

MDHAQ/RAPID3 at every visit can improve doctor-patient communication with minimal effort on the part of the doctor. RAPID3 scores are comparable to DAS28 and CDAI scores in 5 seconds rather than 2 minutes to facilitate a treat-to-target strategy. MDHAQ/RAPID3 self-report joint count, review of systems, and recent medical history help prepare the patient for the visit, improve doctor-patient communication, and save time for the doctor—providing in 10 to 15 seconds information that may require 10 to 15 minutes to elicit in conversation—when reviewed before the encounter. The data are considerably more valuable when charted in flowsheets that also include laboratory tests and medications. The reader is invited to contact the senior investigator at tedpincus@gmail.com regarding questions and further information concerning MDHAQ/RAPID.

**Disclosure Statement**

Dr. Pincus/Health Report Services, Inc. holds copyright on MDHAQ/RAPID3. No license is needed for clinicians who may freely use MDHAQ/RAPID3 to monitor patient status in usual clinical care. Royalties are received for license fees from for-profit pharmaceutical and electronic medical record companies for use of MDHAQ/RAPID3. The other authors have no financial or proprietary interest in the subject matter or materials discussed, including, but not limited to, employment, consultancies, stock ownership, honoraria, and paid expert testimony.

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