PATIENT EDUCATION

PATIENT EDUCATION MATERIALS:
GUIDELINES FOR THE AMERICAN THORACIC SOCIETY (P-GATS)

Application, Development, Submission, Review, Approval, Publication, and Dissemination

ATS American Thoracic Society

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CONTENTS

INTRODUCTION 3

PROJECT INITIATION 4

OVERVIEW OF PROCESS 5

- Pre-Planning
- Letter of Intent (LOI)
- Evaluation of LOI
- Development
- Technical Details
- Submission

PEER REVIEW/APPROVAL 9

- Overview
- Step-by-Step

PUBLICATION 10

ASSESSMENT OF CURRENCY/ UPDATING 11

MARKETING 12

APPENDIX 1 13

APPENDIX 2 16

- Tips to Enhance Health Literacy
- Health Literacy Assessment Tools

INTRODUCTION

The Institute of Medicine, the American Medical Association, and other respected medical organizations have documented that a substantial portion of American adults have low health literacy, making it difficult for them to understand a variety of health communications from providers, the Internet, and other sources. Low health literacy is significantly correlated with decreased adherence to prescribed medical regimens, and increased emergency room visits and hospitalizations.

Patients often forget or misinterpret what is said during an office, clinic, or hospital encounter with their healthcare provider. Having written material that can also be shared with other family members or caregivers can be a useful adjunct to patient education given during these clinical encounters. To improve the care of patients with lung diseases, critical illness, and sleep disorders, the ATS has developed a variety of education materials designed for patients and families. These materials are designed in accordance with current quality standards for health literacy and are peer-reviewed. They cover a variety of topics ranging from prevention of lung disease to the diagnosis and treatment of syndromes and diseases that affect the respiratory system in pediatric and adult populations.

The ATS Patient Information Series helps clinicians and researchers communicate about lung disease and related topics with patients and their families. All of these documents are on the ATS website (www.thoracic.org/patients), and many are published in the American Journal of Respiratory and Critical Care Medicine (AJRCCM). Some are also made available in print form. These materials are part of the Society's commitment to patient-centered care and are complementary to the informational programming conducted by its Public Advisory Roundtable (PAR), which presents a variety of educational programs and materials at the International Conference and throughout the year.

As the Society's patient education mission evolves, materials beyond the Patient Information Series will be piloted, including "Best of the Web Reviews" and patient information videos. Guidelines for these new materials will be developed as they become part of the Society's patient education programming.

The ATS Patient and Family Education Committee (PFEC) develops policy/procedural guidelines for these activities, which are implemented by the Associate Medical Editor for Patient Education (AMEP), ATS staff responsible for patient education materials development, and volunteer collaborators.

PROJECT INITIATION

ATS patient education projects that yield one or more patient education materials, such as Patient Information Series documents, can be initiated in a variety of ways, including (but not limited to):

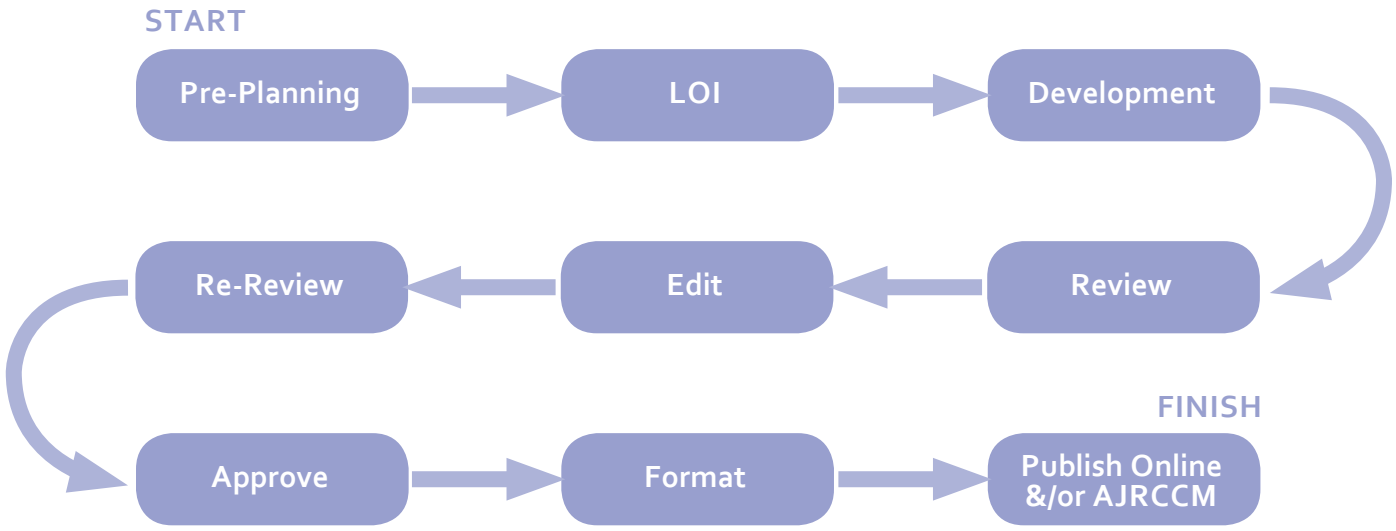
1. A tie-in patient education fact sheet (or series of fact sheets) based upon an official ATS document; for example, the COPD mini-series based upon the ATS/ERS Standards of Care for COPD Patients.
2. An ATS-PAR collaboration on a PAR-related topic, such as Hermansky-Pudlak Syndrome (HPS) or sarcoidosis.
3. Adaptation of existing ATS material into Patient Information Series pieces; for example, the Critical Care Primer for Patients & Families originally developed by the Critical Care Assembly.
4. Proposals from members of Council of Chapter Representatives, the Assemblies, or other ATS members who wish to propose topics and draft content and serve as expert consultants to ATS writers/editors.
5. Leadership-driven initiatives, such as the Choosing Wisely Campaign and the accompanying patient materials developed jointly with ATS by Consumer Reports.

The PFEC invites all ATS members, especially members in training and those early in their career, to consider collaborating on the development or review of one or more Patient Information Series materials.

BENEFITS OF CONTRIBUTING TO THE ATS PATIENT EDUCATION MATERIALS PROGRAM

- Facilitate general knowledge of important pulmonary, critical care, and sleep medicine topics to patients, families, and the general public
- Share your expertise directly with patients and families
- Collaborate with other ATS members and staff
- Possible AJRCCM publication, now cited in PubMed
- Participate in a highly valued activity of the Society
- Cite this activity on one's academic teaching portfolio
- Help provide clinicians, hospitals, health systems with high-quality patient material
- Share new research developments with patients and families

OVERVIEW OF PROCESS



PRE-PLANNING

The piece should fill a patient-education gap that is relevant to pulmonary, critical care, or sleep medicine that is not already addressed by other high-quality materials. Individuals interested in preparing a Patient Information Series piece or other similar material should 1) check the ATS website (www.thoracic.org/patients) and 2) secure support from an ATS entity (assembly/committee/PAR organization/other) before submitting a letter of intent (LOI). One should also review currently available web-based material from non-ATS sources to help assess the need for the proposed piece and, later when writing the document, to populate the "Other Resources" section of the final product.

LETTER OF INTENT (LOI)

1. **Submission**: Individuals interested in preparing a patient education material should complete and email a Patient Education Material Letter of Intent (LOI) to Judy Corn, Director of Patient Education and Documents, at jcorn@thoracic.org. LOIs will be accepted on a rolling basis.
   Estimated decision time: 4 weeks
   - **Letters of Intent** will include the following components:
     - Author name and contact information
     - Names of co-authors and their contact information
     - Sponsor of material (assembly/committee/PAR organization/other)

  - Source(s) from which piece would be derived (guidelines, review articles, etc.)
- Description of topic/scope: 1 paragraph. Please see "Technical Considerations" in Section 4.
- Needs assessment: 1 paragraph. Why is this piece needed? Do other similar pieces exist in the online patient literature? How is this a priority for the ATS?
  - The piece should complement existing material from a PAR organization
  - Timeline for completion of first draft
  - What format is being proposed? If a Patient Information Series piece, will it be a single piece or part of a mini-series?

2. <u>Review</u>:

- A subcommittee of the Patient and Family Education Committee, ATS staff and a PAR or patient representative review LOIs on a monthly basis and evaluate them based upon standardized criteria. Feedback will be provided via email within about 4 weeks from the date of submission.

EVALUATION OF LOI

LOIs will be evaluated based upon the following criteria:

Section 1 (yes or no)

Criterion	Yes	No	N/A	Comment/Explanation
Content				
Section 1				
Topic is timely				
Topic is important and relevant to pulmonary/critical care/sleep medicine				
Scope is reasonable and appropriate				
Sponsor Identified: PAR, Assembly, Committee, Other				
Is this a companion piece to an ATS document (guideline or statement)?				
Existing patient materials on this topic?				
Does topic/scope reflect patient concerns?				
Any potential conflict of interest concerns?				
Section 2	Priority Score (1-3)			
High priority for ATS?				

DEVELOPMENT

1. Identify co-developers

- Consider pairing an early career professional with a senior person

2. The general outline of patient education materials will vary based upon the scope and content. For Patient Information Series pieces, the general outline typically includes:
   - What is _____?
   - What causes _____?
   - How do I know if I have _____? (signs & symptoms)
   - How is _____ diagnosed? (discuss the most common ways)
   - How is _____ treated? Depending on the topic, this may be dealt with as a separate fact sheet or mini-series.
   - Additional questions can be posed that might be unique to the condition.
   - Action/ RX: This is a check list of key issues, typically actions for the reader/patient, like what to do if___, when to call the provider, etc.
   - Authors: (names of those developing the document). Authors can be from an assembly, committee, PAR, or general membership. There must be at least one ATS member as part of the development team. Authors should be listed in order with primary author first and appropriate degrees.
   - Conflict of Interest: Authors must disclose any relevant conflicts of interest, including the name of the corporate entity and type of conflict. These will be reviewed and addressed as required according to ATS COI guidelines.
   - Reviewers: Names are inserted by ATS of those editing the document, including the content expert. If substantial contributions are made by a reviewer, the original authors may be asked to consider including the reviewer as an additional author. Authors may suggest names of qualified reviewers during the submission process.
3. Resources: Include a bulleted list of up to 5 resources, preferably those that are open access. Consider resources such as the CDC, NHLBI, www.flu.gov, etc. International sites in English can also be included such as http://www.asthma.org.uk. Avoid commercial sites as much as possible. Consider cross-referencing between relevant patient-education material on the website of the American Thoracic Society, which can be found on www.thoracic.org/patients/

   Those who wish to develop an alternate format material should contact Judy Corn at jcorn@thoracic.org or the Associate Medical Editor for Patient Education (AMEP), to discuss. Examples of alternate format materials include low literacy pieces, pictographs, or Best of the Web reviews. (Note: select alternate format materials will be piloted; the technical details for these materials will be defined and be included in future versions of this manual.)

TECHNICAL DETAILS

Standard Patient Information Series Pieces (typically 2 printed pages)

1. 1,400 word limit
2. Generally, materials should be written at the 6th-8th grade reading level, assuming the text will contain medical terms that are muitisyllabic and will need to be defined. Without medical terms, materials should be written at the lowest reading level possible to convey the subject matter, i.e., 3rd-4th grade. Refer to Appendix 2 for tips to enhance health literacy and tools to assess suitability/readability.
3. Include standard ATS disclaimer for all patient education pieces as follows: "This information is a public service of the American Thoracic Society. The content is for educational purposes only. It should not be used as a substitute for the medical advice of one's health care provider."

SUBMISSION

1. Submit complete draft materials to the Patient Education Portal on ScholarOne at https://mc.manuscriptcentral.com/atsjournals. Select "ATS Patient Education."
2. Submit all text-based materials in Microsoft Word.
3. Submit all sample graphics in Word, as JPEG, or as a web link to the original material. The ATS illustrator will redraw sample graphics to be consistent with ATS style requirements. Standards for other graphics or tables are described in Appendix 2.
4. Indicate whether you are submitting a standard Series piece or wish to produce an alternate format piece. Contact Judy Corn at jcorn@thoracic.org prior to submitting an alternate format piece via ScholarOne.
5. Document word count and reading level on your cover page. Most word-processing programs can also assess reading level. See Appendix 2, Part 2, for common methods for assessing readability of patient materials.
6. Submit materials in English only.
7. Other criteria for health literacy and suitability, e.g., use of active voice or cultural appropriateness of material will be considered and are referenced in Appendix 2.
8. The AMEP and staff will review all materials to ensure they are appropriate for peer review. Materials will be returned to the primary author for re-working if they do not pass this pre-check.

PEER REVIEW/APPROVAL: OVERVIEW

STEP BY STEP PEER REVIEW PROCESS

- Author submits draft document in Word.
- All draft materials reviewed by content experts (assembly, committtee, Council of Chapter Representatives, other), in-house health educator, medical editor, and end-users (patient representative/PAR and clinicians) (3-4 weeks).
- The AMEP & ATS staff will identify a primary assembly or committee to "own" the piece and take responsibility for monitoring its continued relevance. Typically, this is the identified sponsor of the piece. This task will often be assigned to Assembly Patient Education Liaisons, if available.
- Editor/staff assigns content reviewers and sends out Word draft.
- Content reviewers submit reviews and/or edited Word documents.
- Editor/staff modifies document according to content reviews (may need to consult with Author if questions about content arise).
- Editor/staff assigns "health literacy" reviewers (generally volunteers from PAR and the Behavioral Science and Health Services Research and Nursing assemblies) and sends out Word draft (revised, based upon content review).
- Health literacy reviewers submit reviews and/or edited Word document.
- The AMEP will incorporate the reviewer comments/editorial suggestions, as appropriate, into a marked-up version (3 weeks). The editor prepares "decision letter" and sends reviews plus edited Word document back to author to make final edits (through ScholarOne).
- Author resubmits revised Word document responding to all queries/edit suggestions.
- Editor/staff reviews revised draft; makes final modifications and approves (this may require several review/modification cycles prior to approval). Staff will work with the designer/typesetter to create appropriate graphics prior to final approval.
- Staff sends approved Word document to typesetter for formatting.
- Staff sends formatted document back to editor and author for proofing.
- Staff sends final edits back to typesetter (repeat as needed).
- Authors as well as the sponsoring assembly or committee are notified when piece is published.

PUBLICATION

All Patient Information Series pieces are posted on the ATS website and many are published in the AJRCCM. The AMEP, in collaboration with staff, will pre-determine which pieces will be published in the AJRCCM, based upon the topic, criteria used to evaluate the LOI, production schedule, and budget. For alternate formats, including video, appropriate permissions may need to be obtained prior to posting/publication.

ASSESSMENT OF CURRENCY/UPDATING

All pieces will be reviewed at least every 2 years and sooner if substantive changes have occurred in the topic, as per Website Editorial Board policies. The update process should determine whether the piece needs to be revised or whether the content is current. This process will be a collaborative one between PFEC and the assemblies (Patient Education Liaisons). Every piece should have an ATS home sponsor (assembly, committee, Council of Chapter Representatives, or other).

CURRENCY REVIEW CRITERIA

- Accuracy
- Currency and completeness (including resources)
- New COI

SPECIFIC QUESTIONS

- Are the statements/recommendations in the piece still consistent with the available evidence?
- Are you aware of any new materials that cover this topic?
- Should new materials related to this topic be developed? If so, please briefly state why and who might develop such a piece.
- Are other resource links still functional and relevant?

If content is current, a "date stamp" will be used to update the online version.

If content needs to be updated, the piece will be sent to the original authors to update; if the authors are not able to update the piece, alternate authors will be identified. The edits will go through review process and when posted a new review date stamp will be added. Materials that require extensive updating to ensure accuracy will be removed from the website until they have been updated.

MARKETING

Requests from outside parties to republish or utilize content should be sent to the ATS Permissions Department at permissions@thoracic.org

Channels for in-house dissemination include the Patient Information Series, ATS News, Morning Minute, and an assembly website announcement and link. We also encourage clinicians, PAR, health systems, and other stakeholders to utilize these materials. Contact ATS staff to obtain hard copy reprints, HTML (for EMR uploading), or other formats. All Patient Information Series materials are posted on the ATS website at www.thoracic.org/patients in an A-Z listing and a by-topic listing in English, Spanish, and (coming soon) Portuguese. The website design is consistent with recently established Society design parameters set by the ATS Web Editor and Editorial Board.

American Thoracic Society Patient Education Material
Reviewer Form

If you have any questions about this process, please contact Judy Corn, Director of Patient Education and Documents, at jcorn@thoracic.org or Tel. 212-315-8694 or Marianna Sockrider, MD, DrPH, ATS Associate Medical Editor for Patient Education, at mmsockri@texaschildrenshospital.org or Tel. 832-822-3315.

We appreciate your commitment to this activity of the American Thoracic Society. We value your input and any suggestions you may have for the patient education website.

Material ID#: _____

Proposed Title: _____

Date Submitted: _____

Reviewer Name: _____

Reviewer Contact Info: _____

_____

The authors have indicated that this material is targeted to the following specific audience(s).

Age(s): ❒ Adults ❒ Children ❒ Teens ❒ Elderly ❒ Other ❒ Any/All ❒ Not specified as choices

Culture/Race(s): ❒ Caucasian ❒ African American ❒ Hispanic ❒ Asian ❒ Any/All ❒ Other ❒ Not specified as choices

Please indicate if you agree or disagree with this assessment:

I __ AGREE I ___ DISAGREE

Comments _____

_____

For each of the following criteria, check yes or no, If you feel a category is not applicable, mark N/A. Please provide a brief explanation if you check no and add any other comments.

Criterion	Yes	No	N/A	Comment/Explanation
Content				
Medically accurate and up to date				
Purpose clearly stated				
Important and relevant (e.g., fills a gap in ATS resources)				
Well organized				
Scope and level of detail are appropriate				
Culturally sensitive for target reader(s)				
Proposed title clear and appropriate				
Summary of key points and action steps provided				
Appropriate resources with functional links				
Writing Style				
Reading level (aim for 6th-8th or lower grade level)				
Style (generally in active voice, clear)				
Vocabulary (limit or define jargon, use common words)				
Tone is informative, friendly (not paternalistic or judgmental)				
No conflict of interest or ethical concern				
Appropriate length				
Graphics				
Appropriate match to content				
Illustrations (simple, relevant, familiar, captions clear if applicable)				
Lists, tables (simple, easy to understand, necessary)				

Recommendation (check one):

Decision	
Accept as is	
Accept after minor modifications	
Accept after major modifications	
Reject/Inappropriate	

Priority 1 2 3 4 5
(low) (high)

Recommendation for distribution by the ATS (check one or more of the following):

Publication in the AJRCCM, as part of the Patient Information Series ❒

Posting on the ATS website only, patient education resource database ❒

Highlight in ATS News ❒

Other ❒

Do you think an editorial/commentary might be considered for this material?

❒ Yes ❒ No

If this draft is revised, would you like to review it again?

❒ Yes ❒ No

Confidential comments to editor

Comments to author(s)

APPENDIX 2:
Guidelines for the Development of Patient Education Information Fact Sheets: for Authors and Reviewers

Part 1. Tips to Enhance Health Literacy

Part 2. Health Literacy Assessment Tools

The principles and recommendations included in these guidelines are intended for both authors and reviewers. Each material developed should be designed to meet the guidelines in sections A and B.

PART 1

Introduction

Health literacy is defined in the U.S. Dept of Health and Human Services' Healthy People 2010 as the capacity to "obtain, process and understand basic health information and services needed to make appropriate health decisions." Health care professionals have the responsibility and challenge of providing patients, family, and the public with high-quality, accurate, accessible, and actionable medical information, according to HHS' National Action Plan to Improve Health Literacy. The American Thoracic Society's PFEC committee has compiled tips from health literacy experts to help assure ATS materials meet these standards.

Additional Text

One source for guidance on designing and writing patient education resources is the HHS' Health Literacy Tools page at:

www.health.gov/communication/literacy/#tools

References

U.S. Dept. of Health and Human Services. Healthy People 2010. 2nd Ed. U.S. Gov Printing Office: Washington, DC. 2000.

U.S. Dept. of Health and Human Services. Office of Disease Prevention and Health Promotion. National action plan to improve health literacy: 2010. Available from www.Health.gov/communication/hlactionplan/pdf/Health_Literacy_Action_Plan.pdf.

Section A:

General Principles for Enhancing Health Literacy

1. **Language/Style**

- Use the active voice, e.g.: "you will have a blood test" rather than "blood tests will be done."
- Write as though you are talking, using personal pronouns like "you" and "your."
- Be clear and specific so that readers don't have to guess or assume what to do. For example, say "take a ten-minute walk every day" rather than "exercise moderately."
- Adult learners prefer content that will help them solve problems rather than just learn medical facts. Content of greatest interest will be that related to behaviors to help solve problems or avoid or control disease.

2. **Vocabulary and Graphics**

- Vocabulary, sentence structure, and graphics influence the readability of material! Specific suggestions include:

Choice of Words

– Avoid multi-syllable words if possible. For example, *join* rather than *participate*.

– Use common, simpler words.

For example, *choice* rather than *decision* and *often* instead of *commonly*. Sometimes you will not be able to use simpler words. For example, if you substitute *air* for *oxygen,* you can drop the text reading level, but it is not an acceptable substitution.

– Include a definition and show how to pronounce difficult but critical medical terms or concepts. For example: "bronchitis (bron-KI-tis), a disease that makes you cough."

– Choose one term and use it throughout the piece. Use the same form of a word consistently. For example, don't switch between *surgery* and *surgical procedure*.

– Avoid abbreviations and acronyms (such as HMO or BP) unless common to lay public and defined. If used, spell the word or entire term first and follow with the acronym or abbreviation in parentheses immediately behind.

– Be careful about words like *may*, *might*, or *suggest* as these may be difficult to understand. Be careful with subjective words such as *rarely* or *often*.

– Avoid use of contractions such as *don't*.

– If you need to use multi-syllabic words, include a phonetic spelling of the word. For example, for lymphangioleiomyomatosis, include (lim-FAN-gee-oh-ly-oh-my-oh-ma-TOE-sis).

- Be careful about mixing singular and plural. For example: "When your child sees her doctor" (instead of their doctor).
- Use generic rather than brand names/trademarks, as brand names can introduce bias.

Forming Sentences

- Short sentences are generally preferred (15 words or less).
- However, short sentences must make sense together and be cohesive. For example, Version B is a more complex sentence, but it makes more sense than Version A:

Version A: You can prevent damage caused by diabetes. You should lose weight. You should take your insulin as prescribed.

Version B: If you lose weight and take your insulin as prescribed, you can prevent damage caused by diabetes.

Graphics

- Use simple graphics without distractions. Avoid nonessential details or unnecessary color. ATS uses a graphic designer who works from proposed ideas or example images to create a consistent look for fact sheets.
- Use images that are likely to be familiar and easily recognized by viewers.
- Use captions to tell the reader about the graphic and where to focus.
- Position illustrations on the same page adjacent to the related text.

Section B:

Guidelines for Authors/Reviewers of AJRCCM Patient Information Series Pieces

1. General Formatting Principles

Length/Word Count

- The AJRCCM Patient Information Series pieces are generally two printed journal pages (front and back) in length. Pieces that are one printed journal page are also acceptable.
- The word count per piece will vary, but should fall between 900 and 1,400 words. It is important not to be text heavy. For optimal readability, the general goal is a 60/40 ratio of text-to-white space.
- Standard graphics/formatting is used for all pieces, including the Clip and Copy vertical graphic, as well as boxed graphics on page 1 (top right corner), and the RX and Additional Resources Lung Health Information boxes on page 2.

- If this two-page format is not adequate for a particular topic, a mini-series consisting of several pieces can be considered. Alternatively, ATS can support longer web-only pieces.

2. Translations

- All Series pieces are prepared and published in English.
- ATS supports the development of Series pieces in other languages. These translations need to be conducted by vendors hired by ATS and reviewed by language-fluent content experts to assure no loss of accuracy. Once approved, other language versions will be posted on the website.

3. Reading-Level Target

- Generally, materials should be written at the 6th-8th grade reading level, assuming the text will contain medical terms that are multisyllabic and will need to be defined. Without medical terms, materials should be written at the lowest reading level possible to convey the subject matter, i.e., 3rd-4th grade. Refer to Appendix 2 for tips to enhance health literacy and tools to assess suitability/readability.

4. Organization

- Use headers to identify main topics. Often it is useful to write headers as questions such as "What is Chronic Obstructive Pulmonary Disease?"
- Do not use all CAPS
- Use the **Rx** "call-out" box to provide major action tips and/or a summary of key points.
- Additional Resources "call-out" box should include a handful of high-quality web resources that are accessible to the lay public.

Health Literacy Resources

This PDF is available from The Health Literacy: Past, Present, and Future: Workshop Summary http://www.nap.edu/catalog.php?record_id=21714

The Joint Commission. "What did the doctor say?": Improving Health Literacy to Protect Patient Safety. 2007; www.jointcommission.org.

Doak CC, Doak LG, Root JH. Teaching patients with low literacy skills. Second Edition. J.P. Lippincott Co. Philadelphia, 1996.

PART 2

Introduction

The ATS Patient and Family Education Committee (PFEC), Associate Medical Editor for Patient Education (AMEP), and patient education staff have selected key principles from a number of existing high-quality evaluation tools for assessing patient education material. The ATS P-GATS checklist is adapted from these tools. This is not intended to be an exhaustive summary of available tools, rather it is a selection that reflects our core principles. Systematically following key principles in design, development, and evaluation of patient materials helps assure a level of quality valued by the Society and its members. Ultimately, however, no evaluation tool can guarantee that materials will be effective. One must test materials with patients in a given practice or group to know that they are useful and effective.

When considering a patient education material, one has to consider a number of important qualities, including:

- Content Accuracy/Comprehensiveness
- Readability
- Understandability
- Actionability

Evaluating Content Accuracy/Comprehensiveness

Before investing a lot of time and resources on a patient education material, it is important that the draft be reviewed by unbiased content experts who can assure that the information is accurate and up to date. In doing this initial review, it is helpful to know the defined aim/scope of the material. Whatever the topic, the material should appropriately reflect the applicable content. Material should be accurate, without bias, and reflect current best practice/evidence.

Evaluating Readability

A readability assessment should be done for print materials in conjunction with the assessment of understandability and actionability. Readability is not a substitute for considering factors that contribute to comprehension, appeal, and accuracy of materials. In general, readability tools penalize writers for polysyllabic words and long, complex sentences. A reasonable readability goal is condered to be as low as practical without sacrificing important content or writing style. It is better to use conversational writing style rather than short, choppy sentences. Write for the patient, not the formula. The 6th-grade level is a reasonable goal for most health care instructions. About 75 percent of adult Americans will be able to read at this level without difficulty. If you want to make instructions easily readable by 90 percent of adult Americans, they must be written at about the 3rd-grade level. Research has shown that adults at all reading skill levels prefer and learn better with easy-to-read instructions.

There are more than 40 published readability formulas for English texts.

One of the most widely used that is also available as an option within Microsoft Word is the Flesch-Kincaid Grade Level Readibility Formula.

The Flesch-Kincaid Grade Level Readability Formula

www.readabilityformulas.com/flesch-grade-level-readability-formula.php

THE FLESCH-KINCAID GRADE LEVEL READABILITY FORMULA

Step 1: Calculate the average number of words used per sentence.

Step 2: Calculate the average number of syllables per word.

Step 3: Multiply the average number of words by 0.39 and add it to the average number of syllables per word multiplied by 11.8.

Step 4: Subtract 15.59 from the result.

The specific mathematical formula is:

FKRA = (0.39 x ASL) + (11.8 x ASW) - 15.59

Where,

FKRA = Flesch-Kincaid Reading Age

ASL = Average Sentence Length (i.e., the number of words divided by the number of sentences)

ASW = Average number of Syllables per Word (i.e., the number of syllables divided by the number of words)

Analyzing the results is a simple exercise. For instance, a score of 9.3 means that a ninth grader would be able to read the document. This score makes it easier for teachers, parents, librarians, and others to judge the readability level of various books and texts for students.

Theoretically, the lowest grade level score could be -3.4, but since there are no real passages that have every sentence consisting of a one-syllable word, it is a highly improbable result in practice.

The Flesch Reading Ease Readability Formula

www.readabilityformulas.com/flesch-reading-ease-readability-formula.php

THE FLESCH READING EASE READABILITY FORMULA

The specific mathematical formula is:

RE = 206.835 – (1.015 x ASL) – (84.6 x ASW)

RE = Readability Ease

ASL = Average Sentence Length (i.e., the number of words divided by the number of sentences)

ASW = Average number of syllables per word (i.e., the number of syllables divided by the number of words)

The output, i.e., RE is a number ranging from 0 to 100. The higher the number, the easier the text is to read.

- Scores between 90.0 and 100.0 are considered easily understandable by an average 5th grader.
- Scores between 60.0 and 70.0 are considered easily understood by 8th and 9th graders.
- Scores between 0.0 and 30.0 are considered easily understood by college graduates.

A related tool is the Flesch Reading Ease Readability Formula:

If we were to draw a conclusion from the Flesch Reading Ease Formula, then the best text should contain shorter sentences and words. The score between 60 and 70 is largely considered acceptable. The following table is also helpful to assess the ease of readability in a document:

90-100: Very Easy
80-89: Easy
70-79: Fairly Easy
60-69: Standard
50-59: Fairly Difficult
30-49: Difficult
0-29: Very Confusing

Though simple it might seem, the Flesch Reading Ease Formula has certain ambiguities. For instance, periods, explanation points, colons, and semicolons serve as sentence delimiters; each group of continuous non-blank characters with beginning and ending punctuation removed counts as a word; each vowel in a word is considered one syllable subject to: (a) -es, -ed and -e (except -le) endings are ignored; (b) words of three letters or shorter count as single syllables; and (c) consecutive vowels count as one syllable.

Other commonly used readiability calculators include:

The ARI (Automated Readability Index)
SMOG Readability Test (prevention.sph.sc.edu/tools/SMOG.pdf)
Fry Formula

A free online software tool that calculates readability using multiple indices can be found at: www.online-utility.org/english/readability_test_and_improve.jsp

For a more detailed assessment process focused on readability, one can use "A 5-step Methodology for Evaluation and Adaptation of Print Patient Health Information to Meet the <5th Grade Readability Criterion," which was developed and validated by Hill-Briggs and colleagues. (Hill-Briggs F, Schumann KP, Ogechi D. Med Care, 2012:50(4):294-301.)

Resources that provide comparisons of various readability formulas' advantages and disadvantages include:

Toolkit for Making Written Material Clear and Effective "Part 7-Using readability formulas: A cautionary note" available at:
www.cms.gov/Outreach -and-Education/Outreach/WrittenMaterialsToolkit/Downloads/ToolketPart07.pdf

Readability formulas for text are available in at least 12 languages other than English. The two variables used in formulas for English language text, the number of syllables and length of the sentences, are used in most formulas for other languages as well.

Evaluating Overall Quality, Including Understandability and Actionability

Two key principles that can be used to evaluate the overall quality of health education materials beyond content accuracy and readability are:

Understandability Patient education materials are understandable when consumers of diverse backgrounds and varying levels of health literacy can process and explain key messages. (Shoemaker SJ et al, PEMAT)

Actionability Patient education materials are actionable when consumers of diverse backgrounds and varying levels of health literacy can identify what they can do based on the information presented.

The Patient Education Materials Assessment Tool (PEMAT) is a systematic method to evaluate and compare the understandability and actionability of patient education materials. The PEMAT is designed for use by health care professionals wanting to develop or select high-quality materials to provide to their patients or consumers. It was developed under contract to the Agency for Healthcare Research and Quality and underwent rigorous reliability and validity testing. A User's Guide is available that provides many examples of materials to illustrate how to assess items and use the tool.

The PEMAT includes two versions – one for printable materials and another for audiovisual materials.

PEMAT-P for printable materials consists of 17 items measuring understandability and 7 items measuring actionability.

Title of Material:

Name of Reviewer: Review Date:

UNDERSTANDABILITY

Item #	Item	Response Options	Rating
Topic: **Content**			
1	The material makes its purpose completely evident.	Disagree=0, Agree=1	
2	The material does not include information or content that distracts from its purpose.	Disagree=0, Agree=1	
Topic: **Word Choice & Style**			
3	The material uses common, everyday language.	Disagree=0, Agree=1	
4	Medical terms are used only to familiarize audience with the terms. When used, medical terms are defined.	Disagree=0, Agree=1	
5	The material uses the active voice.	Disagree=0, Agree=1	
Topic: **Use of Numbers**			
6	Numbers appearing in the material are clear and easy to understand.	Disagree=0, Agree=1, No numbers=N/A	
7	The material does not expect the user to perform calculations.	Disagree=0, Agree=1	
Topic: **Organization**			
8	The material breaks or "chunks" information into short sections.	Disagree=0, Agree=1, Very short material*=N/A	
9	The material's sections have informative headers.	Disagree=0, Agree=1, Very short material*=N/A	
10	The material presents information in a logical sequence.	Disagree=0, Agree=1	
11	The material provides a summary.	Disagree=0, Agree=1, Very short material*=N/A	
Topic: **Layout & Design**			
12	The material uses visual cues (e.g., arrows, boxes, bullets, bold, larger font, highlighting) to draw attention to key points.	Disagree=0, Agree=1 Video=N/A	
Topic: **Use of Visual Aids**			
13	The material uses visual aids whenever they could make content more easily understood (e.g., illustration of healthy portion size).	Disagree=0, Agree=1	

* A very short print material is defined as a material with two or fewer paragraphs and no more than 1 page in length.

Item #	Item	Response Options	Rating
14	The material's visual aids reinforce rather than distract from the content.	Disagree=0, Agree=1, No visual aids=N/A	
15	The material's visual aids have clear titles or captions.	Disagree=0, Agree=1, No visual aids=N/A	
16	The material uses illustrations and photographs that are clear and uncluttered.	Disagree=0, Agree=1, No visual aids=N/A	
17	The material uses simple tables with short and clear row and column headings.	Disagree=0, Agree=1, No tables=N/A	

***Total Points*: _____**

***Total Possible Points*: _____**

Understandability Score (%): _____

(*Total Points* / *Total Possible Points*) × 100

ACTIONABILITY

Item #	Item	Response Options	Rating
18	The material clearly identifies at least one action the user can take.	Disagree=0, Agree=1	
19	The material addresses the user directly when describing actions.	Disagree=0, Agree=1	
20	The material breaks down any action into manageable, explicit steps.	Disagree=0, Agree=1	
21	The material provides a tangible tool (e.g., menu planners, checklists) whenever it could help the user take action.	Disagree=0, Agree=1	
22	The material provides simple instructions or examples of how to perform calculations.	Disagree=0, Agree=1, No calculations=NA	
23	The material explains how to use the charts, graphs, tables, or diagrams to take actions.	Disagree=0, Agree=1, No charts, graphs, tables, or diagrams=N/A	
24	The material uses visual aids whenever they could make it easier to act on the instructions.	Disagree=0, Agree=1	

***Total Points*: _____**

***Total Possible Points*: _____**

Actionability Score (%): _____

(*Total Points* / *Total Possible Points*) × 100

PEMAT-A/V for audiovisual materials consists of 13 items measuring understandability and 4 items measuring actionability.

Title of Material:

Name of Reviewer: Review Date:

UNDERSTANDABILITY

Item #	Item	Response Options	Rating
Topic: **Content**			
1	The material makes its purpose completely evident.	Disagree=0, Agree=1	
Topic: **Word Choice & Style**			
2	The material uses common, everyday language.	Disagree=0, Agree=1	
3	Medical terms are used only to familiarize audience with the terms. When used, medical terms are defined.	Disagree=0, Agree=1	
4	The material uses the active voice.	Disagree=0, Agree=1	
Topic: **Organization**			
5	The material breaks or "chunks" information into short sections.	Disagree=0, Agree=1, Very short material*=N/A	
6	The material's sections have informative headers.	Disagree=0, Agree=1, Very short material*=N/A	
7	The material presents information in a logical sequence.	Disagree=0, Agree=1	
8	The material provides a summary.	Disagree=0, Agree=1, Very short material*=N/A	
Topic: **Layout & Design**			
9	The material uses visual cues (e.g., arrows, boxes, bullets, bold, larger font, highlighting) to draw attention to key points.	Disagree=0, Agree=1, Video=N/A	
10	Text on the screen is easy to read.	Disagree=0, Agree=1, No text or all text is narrated=N/A	
11	The material allows the user to hear the words clearly (e.g., not too fast, not garbled).	Disagree=0, Agree=1, No narration=N/A	

* A very short audiovisual material is defined as a video or multimedia presentation that is under 1 minute, or a multimedia material that has 6 or fewer slides or screenshots.

Item #	Item	Response Options	Rating
Topic: **Use of Visual Aids**			
12	The material uses illustrations and photographs that are clear and uncluttered.	Disagree=0, Agree=1, No visual aids=N/A	
13	The material uses simple tables with short and clear row and column headings.	Disagree=0, Agree=1, No tables=N/A	

***Total Points*: _____**

***Total Possible Points*: _____**

Understandability Score (%): _____
(*Total Points* / *Total Possible Points* × 100)

ACTIONABILITY

Item #	Item	Response Options	Rating
14	The material clearly identifies at least one action the user can take.	Disagree=0, Agree=1	
15	The material addresses the user directly when describing actions.	Disagree=0, Agree=1	
16	The material breaks down any action into manageable, explicit steps.	Disagree=0, Agree=1	
17	The material explains how to use the charts, graphs, tables, or diagrams to take actions.	Disagree=0, Agree=1, No charts, graphs, tables, diagrams=N/A	

***Total Points*: _____**

***Total Possible Points*: _____**

Actionability Score (%): _____
(*Total Points* / *Total Possible Points* × 100)

DISCERN

Quality Criteria for Consumer Information on Treatment Choices

www.discern.org.uk/discern_instrument.php

SECTION 1

1. Are the aims clear?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

HINT: Look for a clear indication at the beginning of the publication of:

- what it is about
- what it is meant to cover (and what topics are meant to be excluded)
- who might find it useful

If the answer to Question 1 is 'No', go directly to Question 3

2. Does it achieve its aims?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

HINT: Consider whether the publication provides the information it aimed to as outlined in Question 1.

3. Is it relevant?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

HINT: Consider whether:

- the publication addresses the questions that readers might ask.
- recommendations and suggestions concerning treatment choices are realistic or appropriate.

4. Is it clear what sources of information were used to compile the publication (other than the author or producer)?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

HINT:

- Check whether the main claims or statements made about treatment choices are accompanied by a reference to the sources used as evidence, e.g. a research study or expert opinion.
- Look for a means of checking the sources used such as a bibliography/reference list or the addresses of the experts or organizations quoted, or external links to the online sources.
  Rating note: In order to score a full '5' the publication should fulfil both hints. Lists of additional sources of support and information (Question 7) are not necessarily sources of evidence for the current publication.

5. Is it clear when the information used or reported in the publication was produced?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

HINT: Look for:

- dates of the main sources of information used to compile the publication
- date of any revisions of the publication (but not dates of reprinting in the case of print publications)
- date of publication (copyright date).
  Rating note: The hints are placed in order of importance - in order to score a full '5' the dates relating to the first hint should be found.

6. Is it balanced and unbiased?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

HINT: Consider whether:

- a clear indication of whether the publication is written from a personal or objective point of view
- evidence that a range of sources of information was used to compile the publication, e.g. more than one research study or expert
- evidence of an external assessment of the publication.

Be wary if:

- the publication focuses on the advantages or disadvantages of one particular treatment choice without reference to other possible choices
- the publication relies primarily on evidence from single cases (which may not be typical of people with this condition or of responses to a particular treatment)
- the information is presented in a sensational, emotive or alarmist way.

7. Does it provide details of additional sources of support and information?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

HINT: Look for suggestions for further reading or for details of other organisations providing advice and information about the condition and treatment choices.

8. Does it refer to areas of uncertainty?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

HINT:

- a clear indication of whether the publication is written from a personal or objective point of view
- evidence that a range of sources of information was used to compile the publication, e.g., more than one research study or expert

SECTION 2

How good is the quality of information on treatment choices?

N.B. The questions apply to the treatment (or treatments) described in the publication. Self-care is considered a form of treatment throughout this section.

9. Does it describe how each treatment works?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

HINT: Look for a description of how a treatment acts on the body to achieve its effect.

10.Does it describe the benefits of each treatment?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

HINT: Benefits can include controlling or getting rid of symptoms, preventing recurrence of the condition and eliminating the condition, both short-term and long-term.

11. Does it describe the risks of each treatment?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

HINT: Risks can include side-effects, complications and adverse reactions to treatment, both short-term and long-term.

12. Does it describe what would happen if no treatment is used?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

HINT: Look for a description of the risks and benefits of postponing treatment, of watchful waiting (i.e. monitoring how the condition progresses without treatment) or of permanently forgoing treatment.

13. Does it describe how the treatment choices affect overall quality of life?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

HINT: Look for:

- description of the effects of the treatment choices on day-to-day activity
- description of the effects of the treatment choices on relationships with family, friends and carers

14. Is it clear that there may be more than one possible treatment choice?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

HINT: Look for:

- a description of who is most likely to benefit from each treatment choice mentioned, and under what circumstances
- suggestions of alternatives to consider or investigate further (including choices not fully described in the publication) before deciding whether to select or reject a particular treatment choice.

15. Does it provide support for shared decision-making?

RATING THIS QUESTION

No		Partially		Yes
1	2	3	4	5

HINT: Look for suggestions of things to discuss with family, friends, doctors or other health professionals concerning treatment choices.

SECTION 3. Overall Rating of the Publication

16. Based on the answers to all of the above questions, rate the overall quality of the publication as a source of information about treatment choices.

RATING THIS QUESTION

Low		Moderate		High
Serious or extensive shortcomings		*Potentially important but not serious shortcomings*		*Minimal shortcomings*
1	2	3	4	5

Advice to Reviewers

When rating material as a reviewer, read through the P-GATS and reviewer form completely to familiarize yourself with the key principles and rating criteria.

Read or review the patient education material you are rating in its entirety.

Go through the scoring form item by item, referring back to the material at any time while you complete the form.

Unless you are serving solely as a content reviewer for accuracy, do not use any knowledge you have about the subject before you read or view the patient education material. Base your ratings ONLY on what is in the material you are rating.

Rate each item separately and distinctly from how you rate the other items.

References

Shoemaker SJ, Wolf MS, Brach C. The Patient Education Materials Assessment Tool (PEMAT) and User's Guide. (Prepared by Abt Associates, Inc. under Contract No. HHSA 2902009000121, TO4). Rockville, MD: Agency for Healthcare Research and Quality; Nov 2013. AHRQ Publication No. 14-0002-EF.

Shoemaker SJ, Wolf MS, Brach C. Development of the Patient Education Materials Assessment Tool (PEMAT): A new measure of understandability and actionability for print and audiovisual patient information. Patient Education Counseling 2014:96:395-403

Other health education material assessment tools include:

EQIP – Ensuring Quality Information for Patients, www.centralcancernetwork.org.nz/file/fileid/30182

DISCERN – See description beginning on p. 29.

SAM –Suitability Assessment of Materials for evaluation of health related information for adults. This systematic evaluation method was developed by Doak and Doak to address the overall suitability of materials, including reading grade level. It was developed for print materials, but has been used to assess audiovisual materials as well. The SAM scores materials in six categories: content, literacy demand, graphics, layout and typography, learning stimulation, and cultural appropriateness. (Doak, Doak, & Root's Teaching Patients with Low Literacy Skills, 2nd edition, JB Lippincott CO, 1996)