XML Help for PubMed Data Providers

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Publishers of journals in PubMed must submit citation and abstract data electronically. Electronic submissions ensure citations and abstracts are available to the public within 24 hours of uploading a properly formatted XML file and meet one of the requirements to add an icon on PubMed citations via participation in LinkOut. LinkOut allows you to link directly from a PubMed citation to the journal website.

PubMed only accepts citation and abstract data uploaded by Secure File Transfer Protocol (SFTP) in the PubMed XML tagged format. SFTP accounts are provided for publishers to send data in a confidential and reliable manner. These citations are then added to PubMed, and PubMed Unique Identifiers (PMIDs) are returned to the publisher.

Have questions about the process? Please contact the Data Provider Support Team [publisher@ncbi.nlm.nih.gov].

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General FAQs

Correcting Errors

Since the release of the PubMed Data Management System (PMDM) in October 2016, PubMed data providers are responsible for accurately presenting their own citations in PubMed. See the PMDM Quick Start Guide for details about accessing and using PMDM.

Using PMDM, data providers can update or correct nearly all elements of their citations at any time after initial receipt of the records by PubMed. There is no longer a period of time when citations are unavailable for update by the data provider.

NLM will not as a matter of course update or correct publisher-supplied citations. Instead, requests for corrections received by NLM Customer Service will be directed to the appropriate publisher for resolution however the publisher deems best and on the publisher's timeline.

Please note, NLM's Errata, Retraction, Duplicate Publication, and Comment Policy has not changed. Journals should continue to follow best practices and publish errata to correct errors appearing in the original article.

Note: We accept Replaces files for ahead-of-print citations and for data in the following fields regardless of the citation's status in PubMed:

- AuthorList (includes Author, Affiliation, Identifier)
- InvestigatorList (includes Investigator, Affiliation, Identifier)
- Pagination
- ELocationID
- OtherAbstract
- PII
- DOI

Our loader will compare the content of these fields in the Replaces file with the existing PubMed citation and only modify the content if it is different.

What types of articles are accepted?

NLM requires citations for:

- Peer-reviewed research articles, including:
  - Original research
  - Review articles
  - Case reports, case studies, and case series
  - Protocols
  - Data descriptor articles (Datasets should be in publicly accessible repositories and fully referenced in the articles.)
  - Descriptions of clinical or surgical procedures (technical reports)
- Errata, retraction notices, expressions of concern, and comments on other publications
- Commentary, viewpoint, letters to the editor, and editorial content on biomedical topics

NLM does <u>not</u> accept citations for:

- Editorial content on non-biomedical topics including but not limited to:

- Information about the journal itself
- Publishing trends
- Papers to appear in forthcoming issues
- Requests for articles, calls for papers
- Awards
- New or retiring editorial board members
- Acknowledgements to reviewers or referees
- Society news and calendars
- Press releases
- Other similar announcements
- Opinion or commentary pieces on non-biomedical topics, including current events
- Brief summaries of other research articles, including but not limited to:
  - Journal Club, Literature Watch, or similar features
  - Individual brief conference abstracts or collections of abstracts. We will accept one "overall" citation for conference proceedings, if the article title includes the meeting name, location, and date(s).
- Author or researcher spotlights
- Obituaries or memorials (see MeSH Indexing Policy Change for Obituaries and In Memoriam. NLM Tech Bull. 2018 May-Jun;(422):b5)
- Reviews, endorsements, or advertisements for products or media, such as books, television and film, any other fine arts or popular media, laboratory or medical equipment, or software.
- Front matter and back matter, including but not limited to:
  - Mastheads
  - Table of contents
  - Cover art
  - Prefaces
  - Author or subject indices
- Brief works consisting primarily of images, including but not limited to:
  - Infographics
  - Posters
  - Photographs
  - Comics/Graphic Medicine
- Brief CME (continuing medical or nursing education) content, including but not limited to:
  - Quizzes and tests; photo quizzes
  - Features where questions and answers are submitted as separate citations
- Entertainment or "infotainment" features, including but not limited to:
  - Crosswords, brainteasers, or other puzzles
  - Comics and humor
  - Artistic works, such as poetry, drawings, or paintings
- Patents or patent summaries
- Peer review documents

Citations that do not meet the requirements for PubMed will be deleted at the discretion of NLM.

When will my citations be available?

Publisher-supplied citation data are loaded five times a day: 5am, 8:30am, 12pm, 5pm, 8pm, Monday through Saturday, and 8pm on Sunday. Loader reports are sent to data providers after each load. Citations should appear in PubMed by the next day.

How do I know if my journal is in PubMed?

To check your journal's indexing status, search the NLM Catalog and look for the "Current Indexing Status" field.

If you cannot find your journal in the NLM Catalog or if your journal is not currently indexed for MEDLINE, then the publisher may apply for journal selection. For more information about MEDLINE journal selection and the application process, see: https://www.nlm.nih.gov/medline/medline_home.html.

What should I do if my journal title changes?

A change (addition, deletion, or reordering) in the first five words of a journal title is considered a title change and requires a new bibliographic record, the assignment of a new title abbreviation, and a new ISSN.

NLM requires some additional information following a change of this nature to any title indexed in MEDLINE (see the MEDLINE policy on Changes to MEDLINE Journals). Will there be additional changes to any of the following as part of the title and publisher change?

• the scope of the journal,

• the editorial board, and/or

• the journal's editorial and peer review processes.

If there is a public announcement outlining these changes, please let us know at publisher@ncbi.nlm.nih.gov. Otherwise, any details you can provide via email would be much appreciated.

XML Tagging

How do I submit citation data for my MEDLINE journal for the first time?

Please see the PubMed technical evaluation overview and prepare a sample file containing a citation for each indexable article in a recently published issue. When your sample file is complete and passes the Citation Validator, please email publisher@ncbi.nlm.nih.gov and we will reply with credentials for uploading the file via FTP.

Can collaborator names be supplied to PubMed?

Yes. Investigators (also known as collaborators in PubMed) are individuals who contribute to a scientific article but are not authors. The group name author should be placed in the <Author> tags, and the investigators' names should be included by using the <IndividualName> tag within a <GroupName> tag. Please see an example of the XML tagging below:

```
<AuthorList>
<Author>
<CollectiveName>Cancer Genome Center</CollectiveName>
</Author>
<Author>
<CollectiveName>North American Barley Genome Project</CollectiveName>
</Author>
</AuthorList>
<GroupList>
<Group>
<GroupName>Cancer Genome Center</GroupName>
<IndividualName>
<FirstName>John</FirstName>
```

```
<LastName>Smith</LastName>
</IndividualName>
<IndividualName>
<FirstName>Mary</FirstName>
<LastName>Jones</LastName>
</IndividualName>
</Group>
<Group>
<GroupName>North American Barley Genome Project</GroupName>
<IndividualName>
<FirstName>John Jacob</FirstName>
<LastName>Han</LastName>
</IndividualName>
<IndividualName>
<FirstName>Laura</FirstName>
<LastName>Clancy</LastName>
</IndividualName>
</Group>
</GroupList>
```

A group name author (a collective name author, e.g., a study group name) must exist in the bibliographic citation data for investigator names to be supplied in the <GroupList> section. Investigator names should be listed in the order in which they appear in the full-text article.

For more information about NLM's policy for individual authors, group or corporate authors, and investigators, please see the Authorship in MEDLINE Fact Sheet.

How should I submit citations for errata, retractions, and comments?

We encourage data providers to include the PMID, DOI, or PII of the original PubMed citation when submitting a citation for an erratum, retraction, comment, or other type of related article listed below. When this information is included in the XML citation data, the link between citations will display when the citation for the erratum, retraction, comment, etc., becomes available in PubMed.

The accepted related article types are:

Object Type Value	Description
Erratum	cites the original article for which there is a published erratum.
Retraction	cites the article(s) being retracted.
Comment	cites the reference upon which the article comments.
republished	cites the first, originally published article.
Update	cites the article being updated.
Dataset	cites a description of a dataset.

Table continued from previous page.

Reprint	cites the first, originally published article.
patientsummary	cites a patient summary article.
originalreport	cites a scientific article associated with the patient summary.
ExpressionOfConcernFor	cites the original article for which there is an expression of concern
Retractedandrepublished	cites the first, originally published article

Citations for errata and retractions should have the PublicationType value "Published Erratum" or "Retraction of Publication," respectively.

Sample XML:

```
<!DOCTYPE ArticleSet PUBLIC "-//NLM//DTD PubMed 2.8//EN" "https://dtd.nlm.nih.gov/ncbi/
pubmed/in/PubMed.dtd">
<ArticleSet>
<Article>
<Journal>
<PublisherName>Public Library of Science</PublisherName>
<JournalTitle>PLoS One</JournalTitle>
<Issn>1932-6203</Issn>
<Volume>9</Volume>
<Issue>10</Issue>
<PubDate PubStatus="epublish">
<Year>2014</Year>
<Month>10</Month>
<Day>23</Day>
</PubDate>
</Journal>
<ArticleTitle>Correction: Statin Treatment in Hypercholesterolemic Men Does Not Attenuate
Angiotensin II-Induced Venoconstriction</ArticleTitle>
<FirstPage LZero="save">e112205</FirstPage>
<AuthorList>
<Author>
<CollectiveName>The PLOS ONE Staff</CollectiveName>
</Author>
</AuthorList>
<PublicationType>Published Erratum</PublicationType>
<ArticleIdList>
<ArticleId IdType="doi">10.1371/journal.pone.0112205</ArticleId>
<ArticleId IdType="pii">PONE-D-14-46356</ArticleId>
</ArticleIdList>
<Abstract>This corrects the article DOI: 10.1371/journal.pone.0103909.</Abstract>
<ObjectList>
<Object Type="Erratum">
<Param Name="type">pmid</Param>
<Param Name="id">25264877</Param>
</Object>
</ObjectList>
```

```
</Article>
</ArticleSet>
```

Note on errata: Beginning with the publication year 2015, NLM retains the citation for an erratum notice supplied by the publisher, assigns the Publication Type "Published Erratum," and creates a two-way link between the citation for the erratum notice and the citation for the original article, but does not assign MeSH terms. Prior to 2015, NLM did not retain publisher-supplied errata notices.

Can I submit author keywords?

Yes. Keyword information will be preceded by a KEYWORDS label and display below the abstract.

Keywords should be submitted in the <ObjectList> element, not as part of the abstract. Place the <ObjectList> immediately following the <Abstract>.

To submit multiple keywords, include multiple "Object" elements, one per keyword. Here is an example of the XML:

```
<ObjectList>
<Object Type="keyword">
<Param Name="value">GSH</Param>
</Object>
<Object Type="keyword">
<Param Name="value">Lipid peroxidation</Param>
</Object>
<Object Type="keyword">
<Param Name="value">MDA</Param>
</Object>
<Object Type="keyword">
<Param Name="value">Radiation</Param>
</Object>
</ObjectList>
```

How can I submit ClinicalTrials.gov and other registry numbers?

Use the ObjectList, Object, and Param tags to supply clinical trial registry numbers. Following are sample XML fragments illustrating the tagging format for various registries:

```
<ObjectList>
<Object Type="ClinicalTrials.gov">
<Param Name="id">NCT00000125</Param>
</Object>
</ObjectList>
<ObjectList>
<Object Type="ANZCTR">
<Param Name="id">ACTRN12614000771651</Param>
</Object>
</ObjectList>
<ObjectList>
<Object Type="UMINCTR">
<Param Name="id">UMIN000021932</Param>
</Object>
</ObjectList>
```

How can I submit databank accession numbers?

Use the ObjectList, Object, and Param tags to supply databank accession numbers. Following are sample XML fragments illustrating the tagging format for various databanks:

```
<ObjectList>
<Object Type="figshare">
<Param Name="id">10.6084/M9.FIGSHARE.1004150</Param>
</Object>
</ObjectList>
<ObjectList>
<Object Type="Dryad">
<Param Name="id">10.5061/dryad.2f050</Param>
</Object>
</ObjectList>
<ObjectList>
<Object Type="UniProtKB">
<Param Name="id">Q9H040</Param>
</Object>
</ObjectList>
<ObjectList>
<Object Type="NCBI:pubchem-substance">
<Param Name="id">251912582</Param>
</Object>
</ObjectList>
<ObjectList>
<Object Type="BioProject">
<Param Name="id">PRJNA178613</Param>
</Object>
</ObjectList>
```

Can I submit grant information?

Yes. The grants should be provided in the <ObjectList> as follows:

```
<ObjectList>
<Object Type="grant">
<Param Name="id">12345</Param>
<Param Name="grantor">Wellcome Trust</Param>
</Object>
</ObjectList>
```

Please see Grant Number Information Found in the GR Field in MEDLINE/PubMed for a list of grantor names. In the <Param Name="grantor"> element, supply the complete name from the "Full Institution/Organization Name" or "Name" column, for example:

```
<ObjectList>
<Object Type="grant">
<Param Name="id">12345</Param>
<Param Name="grantor">Motor Neurone Disease Association</Param>
</Object>
<Object Type="grant">
<Param Name="id">78901</Param>
<Param Name="grantor">National Aeronautics and Space Administration, Intramural</Param>
</Object>
<Object Type="grant">
<Param Name="id">R01 aa123456</Param>
<Param Name="grantor">National Institute on Alcohol Abuse and Alcoholism</Param>
</Object>
</ObjectList>
```

When you supply a grantor name exactly as it appears on the provided list, we will automatically display the appropriate country on the citation in PubMed. You may supply grants that do not appear on the list; however, we will not append the country name for other organizations.

For organizations that do not appear on the controlled list, you may choose to include the acronym and country in your XML submission, for example:

```
<ObjectList>
<Object Type="grant">
<Param Name="id">12345</Param>
<Param Name="grantor">National Health and Medical Research Council</Param>
<Param Name="acronym">NHMRC</Param>
<Param Name="country">Australia</Param>
</Object>
</ObjectList>
```

How do I submit reference lists?

We encourage publishers to include reference lists using the <ReferenceList> element. There can be multiple references lists and the lists can be nested. This structure accommodates reference lists with distinctly labeled sections (for example, references to articles cited followed by references to datasets). The XML tagging should reflect the way that the reference list is presented in the published journal article.

The other tags used are <Title>, <Reference>, <Citation>, <PMID>, and <ArticleIdList>.

Each parent or child reference list can include an optional title. The reference itself is comprised of either a citation string, or a PMID for a citation in PubMed. We recommend including any article identifiers associated with the cited item.

Please note that the citation display in PubMed already includes the section heading "References." Please avoid submitting a reference list with a top-level heading <Title>References</Title> since this will create a redundant heading. The <Title> element within a reference list should describe a section within a references list, as in the second example, below.

```
<ReferenceList>
<Reference>
<Citation>Hall KK, Lyman JA. Updated review of blood culture contamination. Clin
Microbiol Rev. 2006;19:788-802.</Citation>
<ArticleIdList>
<ArticleId IdType="pmcid">PMC1592696</ArticleId>
<ArticleId IdType="pubmed">17041144</ArticleId>
</ArticleIdList>
</Reference>
<Reference>
<Citation>Hall MJ, Williams SN, Defrances CJ, Golosinskiy A. Inpatient care for
septicemia or sepsis: a challenge for patients and hospitals. NCHS Data Brief. 2011:1-8.</
Citation>
<ArticleIdList>
<ArticleId IdType="pubmed">22142805</ArticleId>
</ArticleIdList>
</Reference>
</ReferenceList>

<ReferenceList>
<Title>Appendix B. LMBP blood culture contamination studies</Title>
<ReferenceList>
<Title>Included studies</Title>
<Reference>
<Citation>Beutz M, Sherman G, Mayfield J, Fraser VJ, Kollef MH. Clinical utility of blood
cultures drawn from central vein catheters and peripheral venipuncture in critically ill
medical patients. Chest. 2003;123:854-61.</Citation>
```

```
<ArticleIdList>
<ArticleId IdType="pubmed">12628888</ArticleId>
<ArticleId IdType="pii">S0012-3692(16)34755-9</ArticleId>
</ArticleIdList>
</Reference>
<Reference>
<Citation>Everts RJ, Vinson EN, Adholla PO, Reller LB. Contamination of catheter-drawn
blood cultures. Journal of Clinical Microbiology. 2001;39:3393-4.</Citation>
<ArticleIdList>
<ArticleId IdType="pmcid">PMC88356</ArticleId>
<ArticleId IdType="pubmed">11526188</ArticleId>
</ArticleIdList>
</Reference>
</ReferenceList>
<ReferenceList>
<Title>Excluded studies</Title>
<Reference>
<Citation>Gonsalves WI, Cornish N, Moore M, Chen A, Varman M. Effects of volume and site
of blood draw on blood culture results. Journal of Clinical Microbiology. 2009;47:3482-
5.</Citation>
</Reference>
</ReferenceList>
</ReferenceList>

<ReferenceList>
<Reference>
<PMID>17041144</PMID>
<ArticleIdList>
<ArticleId IdType="pmcid">PMC1592696</ArticleId>
<ArticleId IdType="pubmed">17041144</ArticleId>
<ArticleId IdType="pii"> 19/4/788</ArticleId>
<ArticleId IdType="doi">10.1128/CMR.00062-05</ArticleId>
</ArticleIdList>
</Reference>
<Reference>
<PMID>22142805</PMID>
<ArticleIdList>
<ArticleId IdType="pubmed">22142805</ArticleId>
</ArticleIdList>
</Reference>
</ReferenceList>
```

How should I submit mathematical formulas or tables?

Formulas:

PubMed accepts MathML 3.0 tagging for any formulas in the Article Title, Abstract, Other Abstract and Keyword fields.

Simple formulas:

Simple formulas, e.g., x^2, may be submitted with Unicode character encoding. Please refer to the PubMed Special Character Set for preferred encodings for common special characters. XML submissions may also include <sup>, <sub>, <b>, <i>, and <u>.

Tables:

Submit the following in place of complex tables within abstracts: [Table: see text]

File Submission

How should filenames be constructed?

File names should be unique. We do not require a specific naming convention but suggest you include journal title abbreviation, volume, and issue, e.g., AJPv36i12.xml. The file name should not contain any spaces or UTF-8 character symbols (e.g. the letter a with an acute symbol) and not exceed 32 characters. We prefer files to be submitted in plain ASCII text format. However, we can accept the compressed file formats .tar, .zip, and .gz

How do I validate my files before submitting?

Use the PubMed Citation File Validator to validate your XML file before uploading it. Please refer to the Citation File Validator help for more information.

How do I submit files via SFTP?

From a standard SFTP client:

1. At a command prompt type: **sftp-private.ncbi.nlm.nih.gov** and press **enter**.

2. Type your **username** at the login prompt and press **enter**. (Use your existing FTP username and password. Contact us if you've never had a private FTP/SFTP account.)

3. Type your **password** at the password prompt and press **enter**.

   You should now be logged into the SFTP server. If you receive an error message, check your login information, type "**bye**" followed by **enter**, and retry steps **1-3.**

4. Type "**bin**" and press **enter**. This changes your SFTP server to **BINARY** mode.

5. Type the "**put**" command, followed by your pathname or drive and filename and press **enter**. (For example, "**put C:\filename**" or "**put /home/testfiles/journalv6n3**".)

6. Type "**dir**" and press enter to display the files in your SFTP directory.

7. Type "**bye**" to disconnect from the server and close the SFTP session.

Notes:

- When using SFTP, you must connect with Port 22.
- It is possible that the SFTP client will support "drag and drop" functionality for uploading files. See the product documentation for instructions.
- You will see an 'archive' folder in your directory. DO NOT put files in the 'archive' folder! Files will automatically be placed there after processing.

To upload files from a browser window, using FTP rather than SFTP:

1. In the URL address box type in: **ftp://ftp-private.ncbi.nlm.nih.gov** and press **enter**.
2. From the **File** pull-down menu, choose "**Login As**".
   1 If you are using Internet Explorer 7 then click on **Page** and choose "Open FTP Site in Windows Explorer". In the new window go to the **File** pull-down menu, choose "**Login As**".
2. Type in your **username and password** in the dialog box. The screen will display your directory with an 'archive' folder inside.
3. Add new files here at the **top level of the directory**. You will see an 'archive' folder in your directory. DO NOT put files in the 'archive' folder! They will automatically be placed there after processing.

What is the archive subdirectory for?

Files are stored in the 'archive' subdirectory after they have been loaded into PubMed. Do **not** place citation files in the 'archive' subdirectory. Files placed in the 'archive' subdirectory will not be loaded.

How do I interpret the PubMed Loader Report?

Rejected articles in a Loader Report will often be annotated with error messages. Here is a list of possible error messages:

Cannot replace Article: Article does not have "[PubMed – as supplied by publisher]" status. The <Replaces> tag can only be used if the citation is ahead of print and to update a limited set of fields. Please see Correcting Errors in PubMed for more information.

Cannot find article by ID. The DOI or PII listed in the <Replaces> tag IdType attribute does not exist in a PubMed citation. Please verify that the DOI or PII is accurate. If necessary, remove the <Replaces> tag and reload the file to create the article rather than 'replace' a non-existent PubMed citation.

Article matches PMID = , which is not in " [PubMed – as supplied by publisher] " status. This message means the data is already in PubMed and cannot be modified by a Replacement file.

ISSN not found in NCBI database: ISSN= Title= . There are two actions you can take in response to this: 1) Verify the ISSN is correct; 2) Confirm that you have notified the Data Provider Support Team of any recent title changes.

Not a current MEDLINE journal: ISSN= Title= . There are two actions you can take in response to this: 1) Verify the ISSN is correct; 2) Confirm that you have notified the Data Provider Support Team of any recent title changes.

Article matches PMID= To update use <Replaces> tag. Please refer to Instructions for Replacement Files for more information.

Cannot replace Article: PMID does not exist. NLM has deleted the PMID or you have provided an invalid PMID.

Wrong provider. Verify that you have received Approval from the Data Provider Support Team.

Partial match. Submitted citation matched an existing PubMed citation. Volume, issue, page and Article Id matched but there are differences in the author, title, or publication date tags.

Invalid Year / Invalid Month / Invalid Day. The message will specify whether the invalid date appeared in the PubDate tag within <Journal> or the PubDate tag within <History>. <Year> can only contain a 4-digit number between 1966 and the current year. <Month> can only contain the numbers 1-12, the month (in English) or the first three letters of the English months. NOTE: The only PubStatus attribute that allows for a dual month in <Month> is ppublish. <Day> can only contain the numbers 1-31.

Month tag is missing or empty; Day tag is present. The <Month> tag is required if the <Day> tag is present.

ISSN tag is missing or empty. The <Issn> tag is required.

Both Volume and Issue tags are missing or empty. A valid file must contain a value in the <Volume> tag or the <Issue> tag, or both.

Replaces tag has invalid symbols or is empty. <Replaces> tag cannot be empty. Please refer to the Instructions for Replacement Files for more information.

FirstPage tag is missing or empty. In a <PubDate PubStatus ="ppublish" article the <FirstPage> tag cannot be empty.

FirstPage tag is missing or empty; LastPage is present. If an article is only one page in length the value should appear in the <FirstPage> tag not the <LastPage> tag.

FirstPage / LastPage tag has invalid symbols. Allowed characters for pagination are: digits, letters, semicolon, and period. Hyphen is not allowed.

Unknown Language. See our list of accepted language codes (Table 1).

FirstName / LastName / CollectiveName tag is missing or empty. Message will specify which Author tag the error occurred in. (Author 1, Author 2, etc.) If either the <FirstName> or <LastName> tag is present and contains text both must be present and contain text. If neither the <FirstName> nor <LastName> tag is present then the <CollectiveName> tag must be present and contain text.

FirstName / LastName contains invalid characters. Message will specify which <Author> tag the error occurred in. (Author 1, Author 2, etc.). The following are invalid characters:

! " # $ % & @ ( ) * + / ; : ` < = > ? ^ { | } [\ ]

Ahead-of-print Article must have "pii" or "doi". See All About Ahead of Print for more details

Invalid Ahead of Print date. Ahead of Print files cannot have an electronic publication date greater than eighteen (18) months prior to the date of uploading to PubMed.

Cannot replace Article: Replacement file must use the original ArticleIds. ArticleIds must match exactly.

Cannot replace Article: ArticleIds do not match. Contact LinkOut to change ArticleIds. ArticleIds must match exactly.

Bibliographic data does not match.

Non-indexable content: the citation was identified as being content not indexed for MEDLINE.

Cannot resolve article id. This error occurs when submitting a citation for an erratum or retraction notice, and our loader cannot find the DOI in the ArticleId element of a PubMed citation. Try using the PMID instead, e.g., <Param Name="type">pmid</Param>.

Files may also be rejected due to **DTD validation errors**. Some common errors are:

- The presence of an incomplete entity. All entities must begin with an ampersand (&) and end with a semi-colon (;).
- The presence of a stand-alone ampersand (&). When an ampersand is not part of an entity it must be represented by this entity: &
- The presence of a stand-alone less than (<) or greater than (>) symbol. When less than or greater than symbols are not part of XML tags they must be represented by the entities < and > respectively.
- The presence of extraneous spaces and/or line breaks within XML tags.
- The file or an article within the file was not formatted in accordance with PubMed specifications. Additional information on the required XML format is available in the PubMed DTD.

Table 1: The following is a subset of the ISO 639 standard for language codes.

CODE	LANGUAGE
EN	English
AF	Afrikaans

Table 1 continued from previous page.

CODE	LANGUAGE
SQ	Albanian
AM	Amharic
AR	Arabic
AZ	Azerbaijani
HY	Armenian
BN	Bengali
BS	Bosnian
BG	Bulgarian
CA	Catalan
ZH	Chinese
HR	Croatian
CS	Czech
DA	Danish
NL	Dutch
EO	Esperanto
ET	Estonian
FI	Finnish
FR	French
GD	Scottish Gaelic
KA	Georgian
DE	German
EL	Greek, Modern
HE	Hebrew
HU	Hungarian
HI	Hindi
IS	Icelandic
ID	Indonesian
IT	Italian
JA	Japanese
RW	Kinyarwanda
KO	Korean
LA	Latin
LV	Latvian
LT	Lithuanian
MK	Macedonian
ML	Malayalam
MI	Maori

Table 1 continued from previous page.

CODE	LANGUAGE
MS	Malay
MU	Multilingual
NO	Norwegian
FA	Persian
PL	Polish
PT	Portuguese
PS	Pushto
RO	Romanian
RU	Russian
SA	Sanskrit
SR	Serbo-Croatian, Cyrillic
SR	Serbo-Croatian, Roman
SK	Slovak
SL	Slovene
ES	Spanish
SV	Swedish
TH	Thai
TR	Turkish
UK	Ukrainian
UR	Urdu
VI	Vietnamese
CY	Welsh

PubMed XML Tagged Format

The XML tags are listed below followed by descriptions. This format is required for submission of citation and abstract data to PubMed. Only citations published in journals that are already approved for inclusion in PubMed should be submitted.

We encourage data providers to submit citation data in UTF-8 character encoding. For any special characters, we recommend referencing the PubMed Special Character Set to ensure that the appropriate encoding is used.

Section Contents

• XML Tag Descriptions

• XML File Examples

• Subset of ISO 639 Language Codes (Table 1)

• PubMed DTD

XML Tag Descriptions

The following is a glossary of the tags defined in the PubMed DTD. Click on each of the tag names below for more information. You can also view an Example of a Standard XML File.

Data Tags (**R** = Required, **O** = Optional **O/R** = Optional or Required). Tag names are **case sensitive**. Required tags must be included; optional tags must be included if the data requested appears in the print or electronic article. Optional or Required tags are dependent on the use of other tags.

The citation XML supplied to NLM must match the published article version of record. Please include the tags below if the corresponding data exists in the published article.

File Header (R)	FirstPage (O/R)	PublicationType (O)
ArticleSet (R)	LastPage (O)	ArticleIdList (O/R)
Article (R)	ELocationID (O/R)	ArticleId (R)
Journal (R)	Language (O)	History (O)
PublisherName (R)	AuthorList (O/R)	Abstract (O)
JournalTitle (R)	Author (R)	OtherAbstract (O)
Issn (R)	FirstName (O/R)	CopyrightInformation (O)
Volume (O/R)	MiddleName (O)	CoiStatement (O)
Issue (O/R)	LastName (O/R)	ObjectList (O)
PubDate (R)	Suffix (O)	Object (O)
Year (R)	CollectiveName (O)	Param (O)
Month (O/R)	Affiliation (O)	ReferenceList (O)
Season (O)	Identifier (O)	Title (O)
Day (O)	GroupList (O/R)	Reference (O/R)
Replaces (O)	Group (R)	Citation (O/R)
ArticleTitle (O)	GroupName (R)	PMID (O/R)
VernacularTitle (O)	IndividualName (O)	

File Header (R)

The file header is the first line of the XML file that tells us the DTD information. It must appear in the PubMed XML files exactly as:

```
<!DOCTYPE ArticleSet PUBLIC "-//NLM//DTD PubMed 2.8//EN"
"https://dtd.nlm.nih.gov/ncbi/pubmed/in/PubMed.dtd">
```

You will be notified if this header changes.

ArticleSet (R)

This tag should enclose an entire set of articles in an issue or volume of a given journal.

Article (R)

Each article must be enclosed in these tags.

Journal (R)

Information about the journal issue is contained within this tag in the file.

PublisherName (R)

The publisher name.

JournalTitle (R)

The NLM Title Abbreviation for the journal. If you do not know the abbreviation, see the NLM Catalog.

Issn (R)

The ISSN or ESSN of the journal. An ESSN can be supplied if it exists in the journal's NLM Catalog record. If you do not see the ESSN number in the Catalog, please write to publisher@ncbi.nlm.nih.gov, and we will have the number added to our records. Note that the ESSN must be a registered number.

Volume (O/R)

The volume name or number of the journal, including any supplement information, e.g., 12 Suppl 2, 514 (Pt 2), 19 Suppl A, etc. This tag is **Required** if the Issue tag is **not** present.

Issue (O/R)

The issue number, e.g., 4 Suppl 2, 6 Pt 2, 7-8, etc. This tag is **Required** if the Volume tag is **not** present.

PubDate (R)

The publication date information must be enclosed in the following tags. NOTE: Print or Electronic publication dates should **accurately reflect the date format on the article.** The PubDate tag includes the **PubStatus** attribute, which may contain **only** one of the following values:

- **ppublish** - print-format (default value). With this value the PubDate must contain a Year tag and it could also contain a Month, Season, and/or Day tag. The tags used depend on how the date appears on the article.
- **epublish** - electronic-format. With this value the PubDate must contain a Year, Month, and Day tag that gives the exact date the article was publicly available in the final version.
- **aheadofprint** - electronic-format without final citation information; to be followed later by a version with final citation information. With this value the PubDate must contain a Year, Month, and Day tag that gives the exact date the article was first made publicly available. This PubStatus value plays an important part in the process of submitting Ahead of Print citations.

If the PubStatus attribute is not present it will default to ppublish.

Citations with PubStatus="epublish" or PubStatus="aheadofprint" can only be submitted for publication date years greater than or equal to 2000.

Year (R)

The 4-digit year of publication. This tag must only contain a 4-digit year greater than or equal to 1966.

Month (O/R)

The month of publication. This tag may only contain the numbers 1-12, the month (in English) or the first three letters of the English months. NOTE: The only PubStatus attribute that allows for a dual month in <Month> is ppublish. This tag is **Required** if the Day tag is present.

Season (O)

The season of publication. e.g.,Winter, Spring, Summer, Fall. Do **not** use if a Month is available.

Day (O)

The day of publication. This tag may only contain the numbers 1-31.

Replaces (O)

The identifier of the article to be replaced. **Do not use this tag for new articles.** The <Replaces> tag can be used to update an Ahead of Print citation, or to correct an error. The Replaces tag includes the **IdType** attribute, which may contain **only** one of the following values:

- **pubmed** - PubMed Unique Identifier (PMID) (default value)
- **pii** - publisher identifier
- **doi** - Digital Object Identifier

See our Instructions for Replacement Files for more details.

ArticleTitle (O)

The article title, in English, if published in English or translated to English in the journal. Do not submit this tag if the published title is not in English or is not translated to English in the journal. See VernacularTitle.

VernacularTitle (O)

The article title in the original language, if not in English. Used only for Latin based alphabets. See our Instructions for Non-English Languages.

FirstPage (O/R)

The first page on which the article appears. If an article appears in more than one language with consecutive pagination, pagination should be inclusive of all texts. This tag is **Required** if ELocationID is **not** present.

LastPage (O)

The last page on which the article appears. If an article appears on one page, this is the same as FirstPage. If an article appears on non-consecutive pages this tag should still contain the last page on which the article appears. If an article appears in more than one language in the same issue, pagination should be inclusive of all texts.

ELocationID (O/R)

The Electronic Location Identifier is used when an article does not have a FirstPage value OR to include the online location of the article. This tag is **Required** if FirstPage is **not** present. The ELocationID tag includes the **EIdType** attribute, which may contain only one of the following values:

- **pii** - publisher identifier
- **doi** - Digital Object Identifier

The DOI will be displayed on the citation, alongside the journal, issue, and pagination information, and it should be supplied in the standard format, e.g., 10.xxx/xxx. Do not include any leading characters like "doi:" or submit the DOI as a URL.

Language (O)

The language in which the article is published. This should be chosen from the language codes (Table 1) in ISO 639. If unspecified, EN (English) is assumed. If an article appears in more than one language in the same issue, submit multiple language tags listed in the order in which the texts appear in the journal, not in the alphabetical

order of the symbols. If one of the languages is English, enter EN first. See our Instructions for Non-English Languages.

AuthorList (O/R)

The author information must be enclosed in these tags. If an article has one or more authors, this tag must be submitted. Authors should be listed in the same order as in the article, and the author name format should accurately reflect the article. **Do not use all upper case letters.** This tag is **Required** if the Author tag is present.

Author (R)

Information about a single Author must begin with this tag.

Use the **EqualContrib** attribute value "Y" to indicate equal contribution among authors. In the example below, the first two authors contributed equally.

```
<AuthorList>
<Author EqualContrib="Y">
<FirstName>Katherine</FirstName>
<LastName>Anderson</LastName>
<AffiliationInfo>
<Affiliation>Georgetown University</Affiliation>
</AffiliationInfo>
</Author>
<Author EqualContrib="Y">
<FirstName>Edward</FirstName>
<LastName>Scarborough</LastName>
<AffiliationInfo>
<Affiliation>Mayo Clinic</Affiliation>
</AffiliationInfo>
</Author>
<Author>
<FirstName>Joanna</FirstName>
<LastName>Kay</LastName>
<AffiliationInfo>
<Affiliation>Georgetown University</Affiliation>
</AffiliationInfo>
</Author>
</AuthorList>
```

FirstName (O/R)

The Author's full first name is required if it appears in the print or online version of the journal. First initial is acceptable if full name is not available. This tag is **Required** if the LastName tag is present.

If an author has only one name, use the **EmptyYN** attribute value "Y." Here is an example:

```
<AuthorList>
<Author>
<FirstName EmptyYN="Y"></FirstName>
<MiddleName></MiddleName>
<LastName>Matiullah</LastName>
</Author>
</AuthorList>
```

MiddleName (O)

The Author's full middle name, or initial if the full name is not available. Multiple names are allowed in this tag.

LastName (O/R)

The Author's last name. This tag is **Required** if the FirstName tag is present.

Suffix (O)

The Author's suffix, if any, e.g. "Jr", "Sr", "II", "IV". Do **not** include honorific titles, e.g. "M.D.", "Ph.D.".

CollectiveName (O)

The name of the authoring committee or organization. The CollectiveName tag should be placed within an Author tag. Omit extraneous text like, "on behalf of."

Please see the following example:

```
<AuthorList>
<Author>
<CollectiveName>Plastic Surgery Educational Foundation DATA Committee</CollectiveName>
</Author>
</AuthorList>
```

Affiliation (O)

The institution(s) that the author is affiliated with. Submit affiliations for each author, collaborator, and corporate author published in the article. Include the following data, if available: division of the institution, institution name, city, state, postal or zip code, country, e-mail address. Do not include the word 'e-mail'.

We accept multiple affiliations per author. Please see the following example:

```
<Author>
<FirstName>Frank</FirstName>
<LastName>Davis</LastName>
<AffiliationInfo>
<Affiliation>Department of Human Genetics, University of California, Los Angeles,
California 90095, USA</Affiliation>
</AffiliationInfo>
<AffiliationInfo>
<Affiliation>Lewis Sigler Institute for Integrative Genomics, Princeton University,
Princeton, New Jersey, 08544, USA</Affiliation>
</AffiliationInfo>
</Author>
```

Identifier (O)

An author (personal or collective) or investigator's author ID. The value in the Identifier attribute Source designates the organizational authority that established the unique identifier, e.g., ORCID. Please submit ORCID in the format: XXXX-XXXX-XXXX-XXXX.

GroupList (O/R)

Group information should be enclosed in these tags. If an article has one or more Groups, this tag must be submitted. Groups should be listed in the same order as in the printed article, and Group name format should accurately reflect the article. This tag is **Required** if the tag Group is present.

Group (R)

Information about a single Group must begin with this tag.

GroupName (R)

The name of the authoring committee or organization. Omit extraneous text like, "on behalf of."

IndividualName (O)

The name of individual members belonging to the authoring committee or organization. The name should be tagged with the FirstName, MiddleName, LastName, Suffix, and Affiliation tags.

PublicationType (O)

Used to identify the type of article. The available PublicationTypes are:

- Address
- Bibliography
- Case Reports
- Classical Article
- Clinical Conference
- Clinical Trial
- Congress
- Consensus Development Conference
- Consensus Development Conference, NIH
- Corrected and Republished Article
- Editorial
- Expression of Concern
- Festschrift
- Guideline
- Interview
- Journal Article
- Lecture
- Letter
- Meta-Analysis
- News
- Newspaper Article
- Observational Study
- Patient Education Handout
- Practice Guideline
- Published Erratum
- Retraction of Publication
- Review
- Systematic Review
- Video-Audio Media
- Webcast

The default value, Journal Article, will be added to citations if this tag is left blank or an invalid PublicationType is used. We encourage you to select the most appropriate PT from this list to submit with a citation. It is seldom necessary to provide more than one PT.

ArticleIdList (O/R)

The list of Article Identifiers. This tag is **Required** if ArticleId is present.

ArticleId (R)

The Article Identifier. The ArticleId tag includes the **IdType** attribute, which may include **only** one of the following values for each identifier:

- **pii** - publisher identifier (default value)
- **doi** - Digital Object Identifier

DOI in ArticleId is used to generate LinkOut links to the full-text and will also display at bottom of the PubMed citation.

DOI should be supplied in the standard format, e.g., 10.xxx/xxx. Do not include any leading characters like "doi:" or submit the DOI as a URL.

History (O)

The history of a publication (e.g., received, accepted, revised, published, ahead of print). Publishers may supply PubDates and PubStatus in History using the PubDate format detailed above. History PubDate is optional; however the PubDate within Journal, outlined above, is required. The History PubDate tag includes the **PubStatus** attribute, which may contain **only** one of the following values for each date in the publication history:

- **received** - date manuscript received for review
- **accepted** - accepted for publication
- **revised** - article revised by publisher or author
- **aheadofprint** - published electronically prior to final publication
- **epublish** – published electronically
- **ppublish** – published in print
- **ecollection** – used for electronic-only journals that publish individual articles and later collect them into an "issue" date, typically called an eCollection.

Any PubDate in History must be **an exact PubDate**, one that includes valid values in the <Year>, <Month> and <Day> tags.

The <History> tag plays an important part in the process of submitting Replacement Files for Ahead of Print citations. If a citation is submitted using the "aheadofprint" attribute in the <PubDate> tag and is later replaced using the "ppublish" attribute, we recommend that the publisher "move" the Ahead of Print date to the <History> tag in the Replacement File. This will enable the citation to retain the ahead of print publish date in PubMed. For more details, see All About Ahead of Print.

Abstract (O)

The article's abstract. Include all text as a single ASCII paragraph.

Headings of structured abstracts, e.g., OBJECTIVE, DESIGN, etc. should be capitalized and end with a colon, followed by a space before the text, or tagged with the AbstractText element. **Do not include citation information in the Abstract tag**.

AbstractText (O)

This element can be used to submit structured abstract section headings. It can be placed within the Abstract or OtherAbstract elements and should have a Label attribute containing the structured abstract section heading.

Here is an example of a structured abstract using the AbstractText element:

```
<Abstract>
<AbstractText Label="OBJECTIVE">To assess the effects...</AbstractText>
<AbstractText Label="METHODS">Patients attending lung...</AbstractText>
<AbstractText Label="RESULTS">Twenty-five patients...</AbstractText>
<AbstractText Label="CONCLUSIONS">The findings suggest...</AbstractText>
</Abstract>
```

OtherAbstract (O)

This tag can contain the article's non-English abstract. OtherAbstract has a Language attribute, which should contain the two- or three-letter code (Table 1) for the language of the abstract, e.g., <OtherAbstract Language="fr">.

OtherAbstract can also contain a plain language summary if the Type attribute is plain-language-summary.

```
<OtherAbstract Language="eng" Type="plain-language-summary">In patients with type 2
diabetes, blood sugar levels are higher and vary more than in healthy people. In the
past, some drugs that were used to treat diabetes by controlling blood sugar levels
increased the risk of certain complications. </OtherAbstract>
```

CopyrightInformation (O)

The Copyright information associated with this article.

CoiStatement (O)

The Conflict of Interest statement associated with this article.

ObjectList (O)

This tag contains a list of <Object>s and <Param>s.

Object (O)

The Object tag includes the **Type** attribute, which may include **only** one of the following values for each identifier.

- Keyword
- Grant
- Comment
- Dataset
- Erratum
- Originalreport

- Partialretraction
- Patientsummary
- Reprint
- Republished
- Retraction
- Update

Allowed **Type** attribute values for clinical trial registries (sample XML is available here):

- ANZCTR
- ClinicalTrials.gov
- CRiS
- CTRI
- ChiCTR
- DRKS
- EudraCT
- IRCT
- ISRCTN
- JapicCTI

- JMACCT
- JPRN
- NTR
- PACTR
- RPCEC
- SLCTR
- ReBec
- TCTR
- UMINCTR

Allowed **Type** attribute values for databanks (sample XML is available here):

- BioProject
- Dryad
- figshare
- GDB
- Omim
- PDB
- PIR

- NCBI:gensat
- NCBI:geo
- NCBI:homologene
- NCBI:nucleotide
- NCBI:popset
- NCBI:protein
- NCBI:pubchem-bioassay

- SwissProt
- UniMES
- UniParc
- UniProtKB
- UniRef
- NCBI:dbgap
- NCBI:dbvar
- NCBI:genbank
- NCBI:genome
- NCBI:pubchem-compound
- NCBI:pubchem-substance
- NCBI:refseq
- NCBI:snp
- NCBI:sra
- NCBI:structure
- NCBI:taxonomy
- NCBI:unigene
- NCBI:unists

Param (O)

The Param tag includes the **Name** attribute; the allowed values for **Name** will depend on the Object Type. Please see the example markup for errata and other linked citations, author keywords, trial registries, databanks, and grants.

ReferenceList (O)

Each ReferenceList element contains a reference list. There can be multiple references lists and the lists can be nested. The ReferenceList tag is both a parent and child element. For tagging instructions, see How do I submit reference lists?

Title (O)

This element is used to include the title for a reference list.

Reference (O/R)

The Reference element contains one reference within a reference list. This element is required if the <ReferenceList> tag is present.

Citation (O/R)

The Citation element is used to provide the entire citation string for a reference within a reference list. This element is required if the Reference element is present and the PMID element is not being used to create the reference.

PMID (O/R)

The PMID element is used to provide the PMID for a reference within a reference list. This element is required if the Reference element is present and the Citation element is not being used to create the reference.

Example of a Standard XML file

```
<!DOCTYPE ArticleSet PUBLIC "-//NLM//DTD PubMed 2.8//EN" "https://dtd.nlm.nih.gov/ncbi/
pubmed/in/PubMed.dtd">
<ArticleSet>
  <Article>
    <Journal>
      <PublisherName>DOVE Medical Press</PublisherName>
      <JournalTitle>Int J Chron Obstruct Pulmon Dis</JournalTitle>
      <Issn>1178-2005</Issn>
      <Volume>12</Volume>
```

```
  <Issue>3</Issue>
  <PubDate PubStatus="ppublish">
  <Year>2017</Year>
  <Month>03</Month>
  </PubDate>
</Journal>
<ArticleTitle>A case series of an off-the-shelf online health
resource with integrated nurse coaching to support self-management
in COPD.</ArticleTitle>
<FirstPage>2955</FirstPage>
<LastPage>2967</LastPage>
<ELocationID EIdType="doi">10.2147/COPD.S139532</ELocationID>
<Language>EN</Language>
<AuthorList>
  <Author>
    <FirstName>Frances</FirstName>
    <LastName>Early</LastName>
    <Affiliation>Centre for Self Management Support, Cambridge
    University Hospitals NHS Foundation Trust, Cambridge, UK.
    </Affiliation>
  </Author>
  <Author>
    <FirstName>Jane</FirstName>
    <MiddleName>S</MiddleName>
    <LastName>Young</LastName>
    <Affiliation>Faculty of Health, Social Care and Education,
    School of Nursing and Midwifery,Anglia Ruskin University,
    Cambridge, UK.
    </Affiliation>
  </Author>
  <Author>
    <FirstName>Elizabeth</FirstName>
    <LastName>Robinshaw</LastName>
    <AffiliationInfo>
    <Affiliation>Gloucestershire Hospitals NHS Foundation Trust,
    Gloucester, UK.</Affiliation>
    </AffiliationInfo>
    <AffiliationInfo>
    <Affiliation> Faculty of Health, Social Care and Education,
    School of Nursing and Midwifery,Anglia Ruskin University,
    Cambridge, UK.</Affiliation>
    </AffiliationInfo>
    <Identifier Source="ORCID">0000-0001-6439-7613</Identifier>
  </Author>
  <Author>
    <FirstName>Ella Z</FirstName>
    <LastName>Mi</LastName>
    <Affiliation>School of Clinical Medicine, University of
    Cambridge, Cambridge, UK.</Affiliation>
  </Author>
  <Author>
    <FirstName>Jonathan P</FirstName>
    <LastName>Fuld</LastName>
    <Affiliation>Centre for Self Management Support, Cambridge
    University Hospitals NHS Foundation Trust, Cambridge, UK.
    </Affiliation>
  </Author>
</AuthorList>
<PublicationType>Journal Article</PublicationType>
```

```
<ArticleIdList>
  <ArticleId IdType="pii">copd-12-2955</ArticleId>
  <ArticleId IdType="doi">10.2147/COPD.S139532</ArticleId>
</ArticleIdList>
<History>
  <PubDate PubStatus="received">
    <Year>2014</Year>
    <Month>09</Month>
    <Day>30</Day>
  </PubDate>
  <PubDate PubStatus="accepted">
    <Year>2014</Year>
    <Month>10</Month>
    <Day>14</Day>
  </PubDate>
  <PubDate PubStatus="aheadofprint">
    <Year>2015</Year>
    <Month>01</Month>
    <Day>17</Day>
  </PubDate>
</History>
<Abstract>
  <AbstractText Label="BACKGROUND">COPD has significant
  psychosocial impact. Self-management support improves quality of
  life, but programs are not universally available. IT-based self-
  management interventions can provide home-based support, but
  have mixed results. We conducted a case series of an off-the-
  shelf Internet-based health-promotion program, The Preventive
  Plan (TPP), coupled with Nurse-coach support, which aimed to
  increase patient activation and provide self-management
  benefits.
  </AbstractText>
  <AbstractText Label="METHODS">A total of 19 COPD patients were
  recruited, and 14 completed 3-month follow-up in two groups:
  groups 1 and 2 with more and less advanced COPD, respectively.
  Change in patient activation was determined with paired t-tests
  and Wilcoxon signed-rank tests. Benefits and user experience
  were explored in semistructured interviews, analyzed
  thematically.</AbstractText>
  <AbstractText Label="RESULTS">Only group 1 improved
  significantly in activation, from a lower baseline than group 2;
  group 1 also improved significantly in mastery and anxiety. Both
  groups felt significantly more informed about COPD and reported
  physical functioning improvements. Group 1 reported improvements
  in mood and confidence. Overall, group 2 reported fewer benefits
  than group 1. Both groups valued nurse-coach support; for group
  1, it was more important than TPP in building confidence to
  self-manage. The design of TPP and lack of motivation to use IT
  were barriers to use, but disease severity and poor IT skills
  were not. </AbstractText>
  <AbstractText Label="DISCUSSION">Our findings demonstrate the
  feasibility of combining nurse-coach support aligned to an
  Internet-based health resource, TPP, in COPD and provide
  learning about the challenges of such an approach and the
  importance of the nurse-coach role.</AbstractText>
</Abstract>
<OtherAbstract Language="eng" Type="plain-language-summary">An
  important part of managing COPD is self-management by the
  patient. With IT-based self-management programs, patients can do
```

```
      this from their own home, which is easier for them and more
      cost-effective for the health care provider. Our goal was to
      explore how a generic Internet-based health-promotion program,
      The Preventive Plan (TPP), containing programs to support
      behavior change and health information, combined with support
      from a specialist nurse, could help patients to manage their
      COPD... Our findings demonstrate that a low-intensity
      intervention can produce meaningful benefits, and provides
      learning about the challenges of this approach and the
      importance of the nurse coach role.
</OtherAbstract>
<CopyrightInformation>Copyright© 2017 Early et al. This work is
published and licensed by Dove Medical Press limited.
</CopyrightInformation>
<CoiStatement>The authors report no conflicts of interest in this
work.</CoiStatement>
<ObjectList>
  <Object Type="keyword">
    <Param Name="value">COPD</Param>
  </Object>
  <Object Type="keyword">
    <Param Name="value">Internet</Param>
  </Object>
  <Object Type="keyword">
    <Param Name="value">coaching</Param>
  </Object>
  <Object Type="keyword">
    <Param Name="value">patient activation</Param>
  </Object>
  <Object Type="grant">
    <Param Name="id">RO1DK561234</Param>
    <Param Name="grantor">National Institutes of Health</Param>
  </Object>
  <Object Type="grant">
    <Param Name="id">2456797AB</Param>
    <Param Name="grantor">The British Granting Agency</Param>
    <Param Name="acronym">BGA</Param>
    <Param Name="country">England</Param>
  </Object>
</ObjectList>
<ReferenceList>
  <Reference>
    <Citation>British Lung Foundation Chronic obstructive
    pulmonary disease (COPD) statistics. [Accessed January 27,
    2017]. </Citation>
    <ArticleIdList>
      <ArticleId IdType="pmcid">PMC4153410</ArticleId>
      <ArticleId IdType="pubmed">24768240</ArticleId>
    </ArticleIdList>
  </Reference>
  <Reference>
    <Citation>Yohannes AM, Baldwin RC, Connolly MJ. Depression and
    anxiety in elderly patients with chronic obstructive pulmonary
    disease. Age Ageing. 2006;35(5):457–459. </Citation>
    <ArticleIdList>
      <ArticleId IdType="pmcid">PMC3020244</ArticleId>
      <ArticleId IdType="pubmed">20932581</ArticleId>
    </ArticleIdList>
  </Reference>
```

```
              </ReferenceList>
          </Article>
      </ArticleSet>
```

Example of a Non-English XML file

```
<!DOCTYPE ArticleSet PUBLIC "-//NLM//DTD PubMed 2.8//EN"
"https://dtd.nlm.nih.gov/ncbi/pubmed/in/PubMed.dtd">
<ArticleSet>
  <Article>
    <Journal>
      <PublisherName>Public Health Agency of Canada</PublisherName>
      <JournalTitle>Chronic Dis Inj Can</JournalTitle>
      <Issn>1925-6523</Issn>
      <Volume>33</Volume>
      <Issue>4</Issue>
      <PubDate PubStatus="ppublish">
        <Year>2013</Year>
        <Month>Sep</Month>
      </PubDate>
    </Journal>
    <ArticleTitle>Improved estimation of the health and economic burden
    of chronic disease risk factors in Manitoba.</ArticleTitle>
    <FirstPage>236</FirstPage>
    <LastPage>246</LastPage>
    <Language>EN</Language>
    <Language>FR</Language>
    <AuthorList>
      <Author>
        <FirstName>H</FirstName>
        <LastName>Krueger</LastName>
        <AffiliationInfo>
        <Affiliation>School of Population and Public Health, University
        of British Columbia, Vancouver, British Columbia,
        Canada.</Affiliation>
        </AffiliationInfo>
        <AffiliationInfo>
        <Affiliation>H. Krueger &amp; Associates Inc., Delta, British
        Columbia, Canada.</Affiliation>
        </AffiliationInfo>
      </Author>
      <Author>
        <FirstName>D</FirstName>
        <LastName>Williams</LastName>
        <Affiliation>H. Krueger &amp; Associates Inc., Delta, British
        Columbia, Canada.</Affiliation>
      </Author>
      <Author>
        <FirstName>A E</FirstName>
        <LastName>Ready</LastName>
        <Affiliation>Faculty of Kinesiology and Recreation Management,
        University of Manitoba, Winnipeg, Manitoba,
        Canada.</Affiliation>
      </Author>
      <Author>
        <FirstName>L</FirstName>
        <LastName>Trenaman</LastName>
        <Affiliation>H. Krueger &amp; Associates Inc., Delta, British
```

```
       Columbia, Canada</Affiliation>
     </Author>
     <Author>
       <FirstName>D</FirstName>
       <LastName>Turner</LastName>
       <AffiliationInfo>
       <Affiliation>Department of Community Health Sciences,
       University of Manitoba, Winnipeg, Manitoba,
       Canada.</Affiliation>
       </AffiliationInfo>
       <AffiliationInfo>
       <Affiliation>CancerCare Manitoba, Winnipeg, Manitoba,
       Canada.</Affiliation>
       </AffiliationInfo>
     </Author>
   </AuthorList>
   <PublicationType>Journal Article</PublicationType>
   <Abstract>
     <AbstractText Label="INTRODUCTION">There are analytic challenges involved with
estimating the aggregate burden of multiple risk factors (RFs) in a population. We
describe a methodology to account for overlapping RFs in some sub-populations, a
phenomenon that leads to "double-counting" the diseases and economic burden generated by
those factors.</AbstractText>
     <AbstractText Label="METHODS">Our method uses an efficient approach to accurately
analyze the aggregate economic burden of chronic disease across a multifactorial system.
In addition, it involves considering the effect of body weight as a continuous or
polytomous exposure that ranges from no excess weight through overweight to obesity. We
then apply this method to smoking, physical inactivity and overweight/obesity in
Manitoba, a province of Canada.</AbstractText>
     <AbstractText Label="RESULTS">The annual aggregate economic burden of the RFs in
Manitoba in 2008 is about $1.6 billion ($557 million for smoking, $299 million for
physical inactivity and $747 million for overweight/obesity). The total burden represents
a 12.6% downward adjustment to account for the effect of multiple RFs in some individuals
in the population.</AbstractText>
     <AbstractText Label="CONCLUSIONS">An improved estimate of the aggregate economic
burden of multiple RFs in a given population can assist in prioritizing and gaining
support for primary prevention initiatives.</AbstractText>
   </Abstract>
   <OtherAbstract Language="fr">
     <AbstractText Label="TITRE">Meilleure estimation du fardeau que représentent les
facteurs de risque de maladie chronique pour la santé et l'économie au Manitoba.</
AbstractText>
     <AbstractText Label="INTRODUCTION">L'estimation du fardeau global que représentent
les facteurs de risque multiples au sein d'une population présente certains défis d'ordre
analytique. Nous décrivons une méthodologie permettant de tenir compte des facteurs de
risque se chevauchant dans certaines sous-populations et entraînant un « double compte »
des maladies et du fardeau économique qu'ils engendrent.</AbstractText>
     <AbstractText Label="MÉTHODOLOGIE">Notre démarche permet d'analyser avec précision
le fardeau économique global des maladies chroniques dans un cadre multifactoriel tout en
tenant compte de l'incidence du poids en tant qu'exposition continue ou polytomique
(allant de l'absence d'excédent de poids au surpoids et à l'obésité). Nous appliquons
cette méthode au tabagisme, à l'inactivité physique et au surpoids et à l'obésité à la
province du Manitoba (Canada).</AbstractText>
     <AbstractText Label="RÉSULTATS">En 2008, le fardeau économique global annuel des
facteurs de risque au Manitoba était d'environ 1,6 milliard de dollars (557 millions pour
le tabagisme, 299 millions pour l'inactivité physique et 747 millions pour le surpoids et
l'obésité). Le fardeau total représente un rajustement à la baisse de 12,6% lorsqu'on
tient compte de l'effet des facteurs de risque multiples chez certaines personnes.</
AbstractText>
```

```
        <AbstractText Label="CONCLUSION">Une meilleure estimation du fardeau économique
global des facteurs de risque multiples au sein d'une population peut faciliter
l'établissement des priorités et améliorer le soutien aux initiatives de prevention
primaire. </AbstractText>
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      </Object>
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        <Param Name="value">obesity</Param>
      </Object>
      <Object Type="keyword">
        <Param Name="value">physical inactivity</Param>
      </Object>
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      </Object>
      <Object Type="keyword">
        <Param Name="value">chronic disease</Param>
      </Object>
    </ObjectList>
  </Article>
</ArticleSet>
```

Example of an Ahead of Print XML file

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"https://dtd.nlm.nih.gov/ncbi/pubmed/in/PubMed.dtd">
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  <Article>
    <Journal>
      <PublisherName>Lancet Publishing Group</PublisherName>
      <JournalTitle>Lancet</JournalTitle>
      <Issn>1474-547X</Issn>
      <Volume/>
      <Issue/>
      <PubDate PubStatus="aheadofprint">
        <Year>2015</Year>
        <Month>Feb</Month>
        <Day>13</Day>
      </PubDate>
    </Journal>
    <ArticleTitle>Hepatitis C.</ArticleTitle>
    <FirstPage/>
    <LastPage/>
    <ELocationID EIdType="doi">10.1016/S0140-6736(14)62401-
    6</ELocationID>
    <ELocationID EIdType="pii">S0140-6736(14)62401-6</ELocationID>
    <Language>EN</Language>
      <AuthorList>
        <Author>
          <FirstName>Daniel P</FirstName>
          <LastName>Webster</LastName>
          <Affiliation>Department of Virology, Royal Free London NHS
```

```
              Foundation Trust, London, UK.</Affiliation>
          </Author>
          <Author>
            <FirstName>Paul</FirstName>
            <MiddleName>P</MiddleName>
            <LastName>Klenerman</LastName>
            <Affiliation>National Institute for Health Research (NIHR)
            Biomedical Research Centre and Nuffield Department of
            Medicine, University of Oxford, Oxford,UK.</Affiliation>
          </Author>
          <Author>
            <FirstName>Geoffrey M</FirstName>
            <LastName>Dusheiko</LastName>
            <Affiliation>Institute of Liver and Digestive Health,
            University College London, London, UK.</Affiliation>
          </Author>
        </AuthorList>
        <PublicationType>REVIEW</PublicationType>
        <ArticleIdList>
          <ArticleId IdType="pii">S0140-6736(14)62401-6</ArticleId>
          <ArticleId IdType="doi">10.1016/S0140-6736(14)62401-
          6</ArticleId>
        </ArticleIdList>
        <Abstract>Hepatitis C virus (HCV) infection is a major health problem worldwide. The
effects of chronic infection include cirrhosis, end-stage liver disease, and
hepatocellular carcinoma. As a result of shared routes of transmission, co-infection with
HIV is a substantial problem, and individuals infected with both viruses have poorer
outcomes than do peers infected with one virus. No effective vaccine exists, although
persistent HCV infection is potentially curable. The standard of care has been
subcutaneous interferon alfa and oral ribavirin for 24-72 weeks. This treatment results
in a sustained virological response in around 50% of individuals, and is complicated by
clinically significant adverse events. In the past 10 years, advances in HCV cell culture
have enabled an improved understanding of HCV virology, which has led to development of
many new direct-acting antiviral drugs that target key components of virus replication.
These direct-acting drugs allow for simplified and shortened treatments for HCV that can
be given as oral regimens with increased tolerability and efficacy than interferon and
ribavirin. Remaining obstacles include access to appropriate care and treatment, and
development of a vaccine. </Abstract>
      </Article>
</ArticleSet>
```

Example of a Replaces XML file

```
<!DOCTYPE ArticleSet PUBLIC "-//NLM//DTD PubMed 2.8//EN"
"https://dtd.nlm.nih.gov/ncbi/pubmed/in/PubMed.dtd">
<ArticleSet>
  <Article>
    <Journal>
      <PublisherName>Sage Publications</PublisherName>
      <JournalTitle>Am J Hosp Palliat Care</JournalTitle>
      <Issn>1938-2715</Issn>
      <Volume>31</Volume>
      <Issue>2</Issue>
      <PubDate PubStatus="ppublish">
        <Year>2014</Year>
        <Month>Mar</Month>
      </PubDate>
    </Journal>
```

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<Replaces IdType="doi">10.1177/1049909113482745</Replaces>
<ArticleTitle>Neuromodulation and palliative
medicine.</ArticleTitle>
<FirstPage>211</FirstPage>
<LastPage>219</LastPage>
<ELocationID EIdType="doi">10.1177/1049909113482745</ELocationID>
<Language>EN</Language>
<AuthorList>
  <Author>
    <FirstName>Howard S</FirstName>
    <LastName>Smith</LastName>
    <Affiliation>Department of Anesthesiology, Albany Medical
    College, Albany, NY, USA.</Affiliation>
  </Author>
  <Author>
    <FirstName>Julie G</FirstName>
    <LastName>Pilitsis</LastName>
    <AffiliationInfo>
    <Affiliation>Center for Neuropharmacology and Neuroscience,
    Albany Medical College, Albany, NY USA.</Affiliation>
    </AffiliationInfo>
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    <Affiliation>Division of Neurosurgery, Albany Medical Center,
    Albany, NY USA.</Affiliation>
    </AffiliationInfo>
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  <ArticleId IdType="doi">10.1177/1049909113482745</ArticleId>
</ArticleIdList>
<History>
  <PubDate PubStatus = "aheadofprint">
    <Year>2013</Year>
    <Month>3</Month>
    <Day>26</Day>
  </PubDate>
</History>
<Abstract>The palliative care population is generally vulnerable to experiencing
medication-induced adverse effects and drug-drug interactions. Neuromodulation may offer
particular advantages over systemic medications in this population. Spinal cord
stimulation and peripheral nerve stimulation have long been utilized in efforts to
provide analgesia for various painful conditions. More recently, deep brain stimulation/
motor cortex stimulation has anecdotally been utilized for certain intractable pain
states. Although brain electrical stimulation has not been adequately trialed or in some
cases even tried at all for management of a variety of symptoms, it is conceivable that
in the future it may be a potential therapeutic option in efforts to palliate various
severe refractory symptoms (eg, intractable pain, nausea, dyspnea, delirium).</Abstract>
<ObjectList>
  <Object Type="keyword">
    <Param Name="value">brain</Param>
  </Object>
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  <Object Type="keyword">
    <Param Name="value">electrical</Param>
  </Object>
```

```
        <Object Type="keyword">
            <Param Name="value">nausea</Param>
        </Object>
        <Object Type="keyword">
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        </Object>
        <Object Type="keyword">
          <Param Name="value">pain</Param>
        </Object>
        <Object Type="keyword">
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         </Object>
         <Object Type="keyword">
           <Param Name="value">stimulation</Param>
         </Object>
      </ObjectList>
    </Article>
</ArticleSet>
```

Instructions for articles published in Non-English Languages

Here is an example of a non-English language citation:

[Cell cycle inhibitors in endocrine receptor positive breast cancer].
Sablin MP, Ricci F, Loirat D, Jobard A, Basse C, Romano E, Le Tourneau C, Dieras V.
Bull Cancer. 2017 Feb;104(2):114-122. doi: 10.1016/j.bulcan.2016.12.005. Epub 2017 Jan 23. French.
PMID: 28126188

The [brackets] around the article title and the text "French" indicate the full-text of the article is in a language other than English. The French article title can be viewed by selecting the XML display for this citation in PubMed.

Publishers may submit abstracts in languages other than English. The non-English abstract text should be submitted within the <OtherAbstract> element. The Language attribute should contain the two- or three-letter code for the language of the abstract.

```
<OtherAbstract Language="it">Unroofed coronary sinus comprende un insieme di anomalie
cardiache in cui la parete comune fra seno coronarico e atrio sinistro e parzialmente o
completamente assente. La maggior parte dei casi e associata a un ritorno venoso
sistemico anomalo, come la persistenza della vena cava superiore sinistra. La diagnosi di
questa anomalia e importante per la prognosi del paziente, ma e spesso difficoltosa a
causa dei segni clinici aspecifici. Qui illustriamo un caso di assenza completa del tetto
del seno coronarico associato a persistenza della vena cava superiore sinistra,
riscontrato durante un esame di tomografia computerizzata effettuato per ipertensione
polmonare.</OtherAbstract>
```

Publishers submitting files for articles published in non-English languages often have specific questions about how to construct their XML files. Here are some guidelines for the submission of non-English articles. We also have a sample XML file for this type of article.

Tags involved

- The <Language> tag should contain the two- or three-letter code for the language the article is in. If unspecified, EN (English) is the default code. See our list of Language Tag Codes (Table 1), a subset of the ISO 639 standard for language codes.

- The <ArticleTitle> tag should contain the article title, in English, if published in English or translated to English in the journal. Do **not** fill this tag if the published title is not in English or is not translated to English in the journal.
- The <VernacularTitle> should contain the article title in the original language, if not in English. It is used only for Latin based alphabets; articles in non-Latin alphabets should leave this tag blank.
- The <OtherAbstract> should contain the non-English abstract text, if available.

Rules to Remember

- When constructing XML files for citations published in non-English languages it is important to use the final/published version of the article as the authority on what citation data should be included in the file. If English translations for titles or abstracts are not in the article, do not include them.
- Author Names and Vernacular Titles frequently contain special characters.
- If the full text of an article appears in more than one language in the same issue, submit multiple language tags listed in the order in which the texts appear in the journal, not in the alphabetical order of the symbols. If one of the languages is English, enter EN first. For example, an article which appears full-text in both Chinese and English should be coded as:

`<Language>EN</Language>`   `<Language>ZH</Language>`

- If the full text of an article appears in one language, but the abstract appears in two or more languages, the <Language> tag should contain only the code for the language of the full-text article.
- For articles that are published in multiple languages, the PubMed citation will display the various languages when the full translations are available at the original time of publication. An unlimited number of languages may display. PubMed data providers are responsible for including all appropriate languages as part of the XML citation data submitted to PubMed.

Some examples:

If the article contains...	Your XML file should contain...
a title in Japanese characters and a title in English	the English title in the <ArticleTitle> tags and empty <VernacularTitle> tags
author names in Chinese characters only	empty <Author> tags
Russian transliterated names and affiliations	transliterated names in the <Author> tags and affiliations in the <Affiliation> tags; however, you should check the transliterations against NLM's System of Transliteration and make changes if necessary.
an English abstract, but article title and author names in Cyrillic only	the English abstract and transliterated Cyrillic in <ArticleTitle> and <Author> tags.

Table 2: Slavic Transliteration (1995)

Russian			Ukrainian			Bulgarian			Serbian		
А	а	a	А	а	a	А	а	a	А	а	a
Б	б	b	Б	б	b	Б	б	b	Б	б	b
В	в	v	В	в	v	В	в	v	В	в	v
Г	г	g	Г	г	g	Г	г	g	Г	г	g
Д	д	d	Д	д	d	Д	д	d	Д	д	d
									Ђ	ђ	dj
Е	е	e	Е	е	e	Е	е	e	Е	е	e
			Є	є	ie						

Table 2 continued from previous page.

Russian			Ukrainian			Bulgarian			Serbian		
Ё	ё	e									
Ж	ж	zh	Ж	ж	zh	Ж	ж	zh	Ж	ж	ź
З	з	z	З	з	z	З	з	z	З	з	z
И	и	i	И	и	y	И	и	i	И	и	i
			І	і	i						
			Ї	ї	ï						
Й	й	ĭ	Й	й	ĭ	Й	й	ĭ			
									J	j	j
К	к	k	К	к	k	К	к	k	К	к	k
Л	л	l	Л	л	l	Л	л	l	Л	л	l
									Љ	љ	lj
М	м	m	М	м	m	М	м	m	М	м	m
Н	н	n	Н	н	n	Н	н	n	Н	н	n
									Њ	њ	nj
О	о	o	О	о	o	О	о	o	О	о	o
П	п	p	П	п	p	П	п	p	П	п	p
Р	р	r	Р	р	r	Р	р	r	Р	р	r
С	с	s	С	с	s	С	с	s	С	с	s
Т	т	t	Т	т	t	Т	т	t	Т	т	t
									Ћ	ħ	ć
У	у	u	У	у	u	У	у	u	У	у	u
Ф	ф	f	Ф	ф	f	Ф	ф	f	Ф	ф	f
Х	х	kh	Х	х	kh	Х	х	kh	Х	х	h
Ц	ц	ts	Ц	ц	ts	Ц	ц	ts	Ц	ц	c
Ч	ч	ch	Ч	ч	ch	Ч	ч	ch	Ч	ч	ĉ
									Џ	џ	dź
Ш	ш	sh	Ш	ш	sh	Ш	ш	sh	Ш	ш	ś
Щ	щ	shch	Щ	щ	shch	Щ	щ	shi	--------------		
Ъ	ъ	"				Ъ	ъ	ŭ	--------------		
Ы	ы	y							--------------		
Ь	ь	'	Ь	ь	'	Ь	ь	'	--------------		
Э	э	é							--------------		
Ю	ю	iu	Ю	ю	iu	Ю	ю	iu	--------------		
Я	я	ia	Я	я	ia	Я	я	ia	--------------		

Adapted from A.L.A. Cataloging Rules for Authors & Titles Entries of the American Library Association, Chicago, 1949.

Indexing English Editions of Journals

It is customary for journals to be indexed from the original language of publication. The language to be indexed is approved by the Literature Selection Technical Review Committee at the time a journal is accepted for MEDLINE indexing.

For non-English MEDLINE journals that create a separately published English edition after being accepted for indexing, the English edition may be indexed in lieu of the non-English edition upon request from the publisher and approval by the Index Section. Content and coverage of the English edition must match the content and coverage of the language originally indexed.

Submit requests to index English editions of non-English MEDLINE journals to Deborah Ozga, Head, Index Section (ozgad@mail.nih.gov).

All About Ahead of Print

Publishers authorized to submit XML data to PubMed have the option of submitting citations prior to their publication in final or print format. This option is used for those publications in which the date of an article's electronic publishing predates publication in the journal issue or volume. When articles are first made available on a website (publishers' or other), the publisher or provider sends the same citation data made available to the public for inclusion in PubMed.

Often these types of citations contain partial citation information. For example, they might contain an article title and full abstract, but not contain a volume, issue, or page number. This information is expected to be filled in by a Replaces XML file after the issue or volume has been finalized or printed. These incomplete citation records hold an [Epub ahead of print] status until updated data is sent to PubMed. See our Ahead of Print File Example and the Replacement File that updates it.

IMPORTANT: The Ahead of Print (AOP) mechanism must not be used for an article if its eventual publication is uncertain. In the rare case where an AOP citation is retracted, the citation information should remain on the publisher website. See our Ahead of Print Withdrawn policy

Here's an example of an AOP citation in PubMed:

Ophthalmological findings in children with encephalitis.
Hellgren K, Fowler Å, Rydberg A, Wickström R.
Acta Ophthalmol. 2016 Dec 14. doi: 10.1111/aos.13305. [Epub ahead of print]
PMID: 27966268

The notation [Epub ahead of print] labels this citation as incomplete. Note it does not display a volume number or issue number or page numbers, only a publication date.

Here's the same citation after being updated with a Replacement File:

Ophthalmological findings in children with encephalitis.
Hellgren K, Fowler Å, Rydberg A, Wickström R.
Acta Ophthalmol. 2017 Feb;95(1):66-73. doi: 10.1111/aos.13305. Epub 2016 Dec 14.
PMID: 27966268

Steps for creating an Ahead of Print file

- Construct an XML file according to the PubMed DTD, including all available citation information.
- If Volume, Issue, FirstPage and LastPage are unknown, these tags should be blank.

- Add the electronic publication date to the <PubDate> tag, along with the PubStatus="aheadofprint" attribute. The electronic publication date must be an exact date, one that includes completed tags for Year, Month and Day. Articles using the "aheadofprint" PubStatus attribute that do not contain exact publication dates will be rejected from loading to PubMed. **NOTE: The electronic publication date cannot be greater than 18 months prior to the month of uploading to PubMed.**
- Include an ArticleId in the file along with the appropriate ArticleId IdType attribute ("pii" or "doi"). This is REQUIRED of all AOP submissions.
- Check your file for errors and preview the PubMed Abstract display using the PubMed Citation File Validator.
- Upload the AOP file to the root of your private SFTP directory. (You will see an 'archive' folder in your directory. DO NOT put them in the 'archive' folder!)
- Wait for a Loader Report confirming the loading of the AOP file. If the file loaded successfully, PMIDs will appear for each citation submitted.
- Save the Loader Report until you are ready to update the citations; you may use the PMIDs for in the Replacement File.
- When you are ready to update your AOP citations, follow our Instructions for Replacement Files.

Points to Remember

- Please notify the Data Provider Support Team [publisher@ncbi.nlm.nih.gov] if you intend to begin using the Ahead of Print function. Once you begin sending AOP files, it is **not** necessary to notify us before each new delivery.
- You can check your original AOP citations in PubMed using the query "pubstatusaheadofprint". For example, the search string Arch Microbiol[jour] AND 2015:2020[dp] AND pubstatusaheadofprint will retrieve all AOP citations with the journal title and dates indicated.
- Citations in AOP status can be updated/revised as many times as necessary prior to the submission of the final Replacement file. Simply follow the steps above, but add the <Replaces> tag and keep the PubDate PubStatus attribute as "aheadofprint".

Instructions for Replacement Files

Updating Ahead of Print citations

Data providers may submit Replaces files to update an Ahead of Print (AOP) citation. The AOP citation will be replaced in its entirety.

AOP citations eventually become "published" citations by way of the publisher sending a Replacement XML file with completed citation information. These replacement files must use the PubStatus attribute value "ppublish" or "epublish" in the <PubDate> tag in order to replace the AOP citation.

Take the following steps to update an AOP citation:

- Update the AOP citation file, adding the finalized citation information.
- Add the final publication date to the <PubDate> tag, along with the PubStatus="ppublish" or "epublish" attribute. The publication date must be exactly as it appears on the finalized article.
- "Move" the existing PubDate with PubStatus="aheadofprint" attribute to the <History> tag. This will enable the citation to retain the AOP publishing date in PubMed.
- Add a single <Replaces> tag to each <Article> to be updated. The <Replaces> tags should be placed after the <Journal> tags and before the <ArticleTitle> tags, and should contain the IdType attribute with one of the following values: "pubmed" (default), "pii", "doi" of the citation to be updated.

- Verify that the ArticleIdList (pii or doi) in the Replacement File matches the ArticleIdList in the AOP citation in PubMed. If these numbers do not match, the citation will not be updated.
- Check the file for errors and preview the PubMed Abstract display using the PubMed Citation File Validator.
- SFTP the Replacement File to your private SFTP account, placing it at the top of the directory. (You will see an 'archive' folder in your directory. DO NOT put them in the 'archive' folder!)
- Wait for a Loader Report confirming the loading of the Replacement File. Following the batch of articles is a "Total processed" message indicating the number of articles processed from the uploaded file and the number created, replaced, and rejected.

To correct an error in an AOP citation without changing its publication status:

1. Correct the AOP citation file.
2. Leave the PubStatus attribute as "aheadofprint".
3. Add a single Replaces tag to the citation in which the error occurred. The Replaces tags should be placed after the Journal tags and before the ArticleTitle tags, and should contain the IdType attribute with one of the following values: "pubmed" (default), "pii", "doi" of the citation to be corrected.
4. SFTP the Replacement File to your private SFTP account, placing it at the top of the directory.
5. Wait for a Loader Report confirming the loading of the Replacement File. Following the batch of articles is a "Total processed" message indicating the number of articles processed from the uploaded file and the number created, replaced, and rejected.

Updating citations in any other status

We also accept Replaces files to update data in the following fields, regardless of the citation's status in PubMed:

- AuthorList (includes Author, Affiliation, Identifier)
- InvestigatorList (includes Investigator, Affiliation, Identifier)
- Pagination
- ELocationID
- OtherAbstract
- PII
- DOI

Although the update is targeted, the Replaces file should still be valid XML. Our loader will compare the content of the above fields in the Replaces file with the existing PubMed citation and only modify the content if it is different.

Ahead of Print Withdrawn Policy

On rare occasions, a publisher may need to remove an Ahead of Print (AOP) article from a journal's website. There are a variety of reasons for this type of withdrawal: plagiarism, copyright infringements, duplicate publication in another journal. PubMed understands these circumstances cannot always be prevented before AOP citation data is uploaded to PubMed. Thus we have designed the following policy:

If an AOP article is removed completely from the journal's website, the publisher should have a Replacement file uploaded to PubMed. The Replacement file should use the following format:

The text "WITHDRAWN:" (without quotation marks) should appear at the beginning of the original article title in the <ArticleTitle> tag.

The text "Ahead of Print article withdrawn by publisher." (without quotation marks) should be added at the beginning of the original text within the <Abstract> tag. If desired the original abstract text may be completely replaced with the above text. For additional reference, see our Instructions for Replacement Files.

Here's an example:

West Indian Med J. 2014 Jan;63(1). doi: 10.7727/wimj.2013.098. Epub 2014 Apr 8.

WITHDRAWN: Blood Lead and Cadmium Levels of Children: A Case Study in Changchun, Jilin Province, China.

Xu J[1], Sheng L[2], Yan Z[3], Hong L[4].

⊕ Author information

Abstract
Ahead of Print article withdrawn by publisher.

PMID: 25303190   DOI: 10.7727/wimj.2013.098

If an AOP article is replaced on the journal's website with a Retraction or Withdrawn Notice then the publisher should have a Replacement file uploaded to PubMed. The Replacement file should match the text of the Retraction or Withdrawn Notice on the journal's website.

Here's an example:

Urology. 2017 Jan 11. pii: S0090-4295(17)30015-8. doi: 10.1016/j.urology.2017.01.003. [Epub ahead of print]

WITHDRAWN: MicroRNA-99a Suppresses Proliferation, Migration, Invasion and Induces G1-phase Cell Cycle Arrest via Targeting Insulin-like Growth Factor 1 Receptor Pathway in Renal Cell Carcinoma 786-0 and OS-RC-2 Cells.

Hao B[1], Cui L[2], Gu Y[3], Zhang B[4], Wang M[1], Zhou H[5], Xu R[2], He X[2].

⊕ Author information

Abstract
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