

# Health Physics Society Publications Style Guide

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## Health Physics Society Publications Style Guide

### I. GENERAL GUIDELINES FOR HPS DOCUMENTS AND WEB PAGES

The following sections provide style guidance for all Health Physics Society (HPS) documents, publications, and web pages. Exceptions to these guidelines for specific HPS publications are detailed in Chapters II–IV.

#### A. Abbreviations

- Acronyms and initialisms
  - An acronym is an abbreviation that is pronounced as a word  
—e.g., NASA, NORM, ALARA
  - An initialism is an abbreviation that is pronounced letter by letter  
—e.g., US DOE, PhD, CT
  - Spell out all acronyms and initialisms at their first use in the text and then give the acronym or initialism in parentheses. In most cases, once an acronym has been introduced, it should be used throughout.
  - Do not use apostrophes for plural forms  
—e.g., ABCs, ECGs
  - Use apostrophes for possessives  
—e.g., US EPA’s guidelines, US NRC’s report
  - Do not use an apostrophe for possessive when the abbreviation is in parentheses following the spelled-out version  
—e.g., The US Environmental Protection Agency’s (US EPA) guidelines
- Use abbreviations for most units of measure only when preceded by a numeral and when part of the following type of construction  
—e.g., 10 mL kg<sup>-1</sup>, 2 h, 25 g
- In tables and figures, expand abbreviations only if not used in text.
- Separate initials of a person’s name with periods and no space after the period between initials  
—e.g., J.R.R. Tolkien
- Do not use commas with Jr., Sr., or numerals following a person’s name unless specified by that person  
—e.g., Tom Smith Jr., Jim Johnson III, Johnson J III, Smith T Jr.
- et al.: do not set off with commas; use “and others” or “and colleagues” in running text.
- State names: spell out full name of state in running text; use two-letter postal abbreviations, without periods, in addresses.
- US and UK: spell out United States and United Kingdom when used as a noun; abbreviate when used as an adjective.
- vs.: never spell out

See [Appendix A: Word List](#), which includes common abbreviations, acronyms, and initialisms used in HPS documents.

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### B. Capitalization (also see [Titles](#))

- Literary titles
  - In titles and first-order headings (Introduction, Materials and Methods, etc.) capitalize the first and last word and all words with four or more letters. Also capitalize words with fewer than four letters except articles (a, an, the), short conjunctions (and, as, but, if, or, nor), and short prepositions (at, by, for, in, of, off, on, out, to, up).
  - In secondary headings, table titles, and figure legends, capitalize only the first word and proper nouns.
  - In general, do not capitalize designative terms
    - e.g., case 1, group 2, type 3, cluster A
  - Capitalize the following designative terms
    - Fig. 1, Table 1, Axis 1, Appendix A
- Personal titles
  - Capitalize official titles of honor and respect that precede personal names
    - e.g., HPS President Nancy Kirner, Professor Henry Higgins
  - Do not capitalize official titles when the personal name is set off by commas
    - e.g., The HPS president, Nancy Kirner, spoke . . .
  - Do not capitalize titles of honor and respect when they follow a name or are used in place of a personal name
    - e.g., Nancy Kirner, president of the HPS, spoke . . . ; Henry Higgins, emeritus professor, taught . . .
  - Retain the capitalization in the titles of *high-ranking national, state, and international officials* when they follow or replace a *specific personal name*
    - e.g., national: the President, the Speaker, the Attorney General; state: the Governor; international: the Queen of England, the Pope
  - Do not capitalize titles used as general terms of classification
    - e.g., a United States senator, every king, any ambassador

See *Gregg Reference Manual*, Part 1, Section 3, for more capitalization information and examples.

### C. Format

Each HPS publication/website has its own formatting guidelines, which can be found in sections II–V. The guidelines followed by all publications/web pages:

- Headings
  - Center, but do not underline, main title/heading in *Health Physics Journal*. Left justify, but do not underline, main title/heading in *Health Physics News* and on the HPS website.
  - Left justify, but do not underline, other headings.
  - In titles and first-order headings (Introduction, Materials and Methods, etc.) capitalize the first and last word and all words with four or more letters. Also capitalize words with fewer than four letters except articles (a, an, the), short conjunctions (and, as, but, if, or, nor), and short prepositions (at, by, for, in, of, off, on, out, to, up).

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- In secondary headings, table titles, and figure legends, capitalize only the first word and proper nouns.
- Bullets and lists
  - For lists within the text, use numbers in parentheses with each item followed by a comma  
—e.g., Please bring (1) your notebook, (2) a pencil or pen, and (3) a graphing calculator.
  - For displayed lists, follow the introductory text with a colon (see next item).
  - For displayed lists, use bullets or numbered-list style, capitalize the first word of each item, and follow each item with a period—  
When you come tomorrow, please bring:
    - Your notebook.
    - A pencil or pen.
    - A graphing calculator.  
When you come tomorrow, bring three items:
    1. Your notebook.
    2. A pencil or pen.
    3. A graphing calculator.

### D. Internet

- HPS style for commonly used internet terms: email, home page, internet, online, web, web address, web page, webmaster, website
- URLs—to improve readability:
  - For *Health Physics News* and on the HPS website (but not for *Health Physics*): if possible, uniform resource locators (URLs) should not be used in the text of documents. Instead, use descriptive text that is linked to the URL  
—e.g., More information can be found on the [US Nuclear Regulatory Commission website](#).
  - When URLs are used within the text in documents in *Health Physics News* and on the website, they should be linked and written without the http:// and www (if these are not needed when typing the address into a browser). But do keep https:// at the beginning of a web address.  
—e.g., [nrc.gov](#) or <https://hps.org/membersonly/operations/>

### E. Nuclides and Elements

- Do not use the historic names RaA, RaB, RaC, ThA, ThB, etc. Use  $^{218}\text{Po}$ ,  $^{214}\text{Pb}$ ,  $^{214}\text{Bi}$ , etc., instead.
- Spell out and lowercase the full name of elements in text (strontium, iodine), except when mass numbers are used ( $^{90}\text{Sr}$ ,  $^{131}\text{I}$ ).
- Use the following terms carefully and correctly
  - Radioactivity: a property of a substance, like density or mass; a substance cannot contain or have radioactivity, but it can be radioactive
  - Radionuclide: a radioactive nuclide

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- Radiation: the emission from a radionuclide
  - e.g., gamma radiation, alpha-particle radiation
- Isotopes: a species of atom (with reference to an element) having a specific mass number
  - e.g.,  $^{234}\text{U}$ ,  $^{235}\text{U}$ ,  $^{238}\text{U}$  are the most abundant isotopes of uranium
- Nuclides
  - Place the superscript atomic mass number before the element abbreviation
    - e.g.,  $^{90}\text{Sr}$  (not Sr-90)
  - Spell out elements at the beginning of a sentence
    - e.g., Strontium-90 was found . . .
  - For the general public (e.g., ATE, Current News, fact sheets, position statements, all public HPS website pages) spell out radionuclides the first time, followed by the capitalized abbreviation in parentheses—e.g., strontium-90 ( $^{90}\text{Sr}$ )—and then use the abbreviation in the rest of the document.
  - For a technical audience (e.g., *Health Physics Journal*, *Health Physics News*, Members Only pages of the website) use only the abbreviation.

### F. Numbers, Units, and Symbols

#### 1. Numbers

- Spell out numbers one through nine unless they precede a unit.
  - e.g., five patients, 5 Bq (refer to [Appendix A: Word List](#) for abbreviations of common units)
- Use numerals for numbers 10 or greater.
- Use numerals when one or more of the numbers in a series is 10 or greater.
- Use numerals with terms of measure, time, and ages when used as significant statistics or as technical measurements; with numbers indicating serial position (case 3, experiment 2, grade 1); and with everything possible in tables.
- Do not use “E-notation.” Use the power of 10 in text, tables, and figures
  - e.g.,  $2.58 \times 10^{-4}$ , not 2.58E-4 or 0.000258
- Use zero before decimals
  - e.g., 0.1, not .1
- The number of significant digits must be commensurate with the precision of the method of measurement. The number with the least precision determines the number of significant digits used for related numbers.
  - e.g.,  $25 \pm 1.1$  g (not  $25.3 \pm 1.1$  g)
- Use commas in numerals with 4+ digits (4,000; 58,000), except page numbers, years, addresses, and dates.
- Use en dashes (–) for ranges in text and in tables (alt 0150).
- Do not omit digits in ranges
  - e.g., 1975–1980, not 1975–80; pages 234–239, not 234–9
- Don’t duplicate % sign when using en dashes with ranges of percentages
  - e.g., 40–50%

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- Abbreviations of units and the symbol for percentage (%) must be used only when preceded by a numeral  
—e.g., 30% or 1 Bq
- Write phone numbers with no parentheses  
—e.g., 123-456-7890

### 2. Units of measure

- It is HPS policy to use the International System of Units (SI) in all documents when expressing radiological quantities ([Position Statement PS025-0](#)), including letters to the editor—do not follow with traditional units in parentheses.
- When using information taken directly from a document that uses traditional units, follow the traditional units with SI units in parentheses and note that the original information was in traditional units.  
—e.g., the US Environmental Protection Agency has set a radon action level of 4.0 pCi L<sup>-1</sup> (150 Bq m<sup>-3</sup>). Note that the radon concentration units are given here in pCi L<sup>-1</sup> (called traditional units) because that is the unit used by the US Environmental Protection Agency. However, the Health Physics Society has adopted the SI (International System) of units and these are given in parentheses.
- Detailed guidance for SI units is provided in [Chapter VI](#) of this style guide.
- Abbreviate unit when preceded by a numeral and when part of the following type of construction: 10 mL kg<sup>-1</sup>.
- Use negative exponents instead of slashes  
—e.g., 1 Gy y<sup>-1</sup> (not 1 Gy/y, 1 Gy per year, 1 Gy/a)
- For information intended for the general public, write out the dose unit the first time with the abbreviation in parentheses and then use the abbreviation thereafter  
—e.g., millisieverts (mSv)

### 3. Symbols

- Use times symbol (×) for multiplication (alt 0215); do not use keyboard “x.”
- Trademarks—use superscript registered trademark symbol (®) or unregistered trademark symbol (™) when it is common practice for the company.
- Greek: spell out the words gamma, alpha, and beta unless used as a variable in an equation.
- Put a space before and after every mathematical operator (×, +, ±, <, >, etc.) that is between two numbers.  
—e.g., 1 + 5 = 6
- Do not put a space after mathematical operators that precede a single number.  
—e.g., <1
- For temperature, do not put a space between the number, the degree symbol, and the unit  
—e.g., 30°C

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### G. Punctuation

- Apostrophes
  - Use apostrophes for possessives, but not for plural forms of abbreviations or years  
—e.g., 1990s, ECGs
  - Do not use an apostrophe for possessives when the abbreviation is in parentheses following the spelled-out version  
—e.g., The US Environmental Protection Agency’s (US EPA) guidelines
  - Use curly apostrophes for PDFs and all documents that will be printed, including fact sheets, position statements, etc.
  - Use straight apostrophes on all HPS website pages.
- Commas
  - Use serial commas (comma before “and” and “or” in a series of three or more).
  - Use comma in numerals with 4+ digits (4,000; 58,000), except in page numbers, years, addresses, and dates.
  - Use a comma after e.g. and i.e.
  - Don’t use a comma before or after et al.
- Colons
  - Capitalize the word following a colon in section titles.
  - In the Reference list, do not capitalize the word following a colon.
  - Use only one space after a colon.
- Dashes
  - No space before or after dashes.
  - Use en dashes (–) for ranges in text and in tables (alt 0150).
  - Use em dashes (—) in place of other punctuation for special emphasis, e.g., comma, colon, semicolon, parentheses (alt 0151).
- Ellipsis marks
  - Ellipsis marks are three spaced periods, with one space before and after each period ( . . . ). Alternatively, you can use the autoformat ellipse symbol (...) that does not have spaces between the periods. Whichever format you choose, be consistent within the document.
  - Use to indicate a sentence that trails off at the end  
—e.g., I wanted to go to . . .
  - Use to indicate a deliberate pause  
—e.g., Bring a friend . . . if you have one.
  - Use to indicate words omitted within a quoted sentence  
—e.g., “Over 50 years . . . we have witnessed a change.”
  - Use to indicate words omitted at end of a quoted sentence  
—e.g., “Can anyone explain why . . . ?”
- Parentheses
  - Within the text of a document, parentheses are used to set off nonessential elements added by the author, which could be a single word, a phrase, an entire sentence, a number, or an abbreviation  
—e.g., He worked for the US Department of Energy (US DOE).

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- When a parenthetical element is used within another parenthetical element in the text, use parentheses on the outside and brackets on the inside—e.g., He worked for a government agency (the US Department of Energy [US DOE]).
- Brackets are also used for a correction or insertion, not by the original author, in a quoted extract—e.g., He said, “I aren’t [*sic*] going there.” or He said, “She [Tammy] won’t be there.”
- Double parentheses (one set within another) may be used with chemical compounds.
- In mathematical equations, use brackets on the outside:  $[x + (y - z)]$ .
- For triple parentheses in mathematical equations, use enclosures in this order:  $\{x + [y - (z + a)]\}$ .
- Quotation marks
  - Use curly quotation marks for PDFs and all documents that will be printed, fact sheets, position statements, etc.
  - Use straight quotation marks on all HPS website pages.
- Slashes
  - No space before or after a slash
  - For text, avoid slash constructions—e.g., use “he or she” (not “he/she”)
  - In units, use negative exponents instead of slashes—e.g.,  $1 \text{ Gy } y^{-1}$  (not  $1 \text{ Gy}/y$ , 1 Gy per year,  $1 \text{ Gy}/a$ )

See *Gregg Reference Manual*, Part 1, Sections 1 and 2, for more punctuation information and examples.

### H. References, Citations, Resources, Footnotes, and Press Releases

- Any material from another source that has been paraphrased or directly quoted **must** be cited and referenced.
- If material is cited in the text, make sure the source is in the reference list.
- If a source is in the reference list, make sure it is cited in the text.
- In *Health Physics News* (but not in *Health Physics Journal*) a source may be linked in the main text to an internet URL, if available, instead of being cited and placed in the reference list.
- We **do not use** Wikipedia as a source in HPS documents.

#### 1. References

- Acceptable publications for the reference list include journal articles, books, technical reports, cataloged theses and dissertations, proceedings, letters to the editor, websites, patents, maps, recordings, etc. Articles accepted for publication, but not yet published, may be included in the reference list as “in press.”
- Include all author names in each full reference—i.e., not “et al.”



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- Change superscripts, subscripts, italics, and special characters in names and titles to plain text  
—e.g., “García” will be “Garcia”
- Spell out Greek letters  
—e.g., “β-radiation” becomes “beta-radiation”
- Always use page numbers when citing an article in proceedings and similar references.
- Do not use abbreviations such as op.cit. and ibid. in the reference list.
- If an author provides a web address for a published source, cite the publication in the text and include the web address and the accessed date after the regular cited reference in the reference list. (For *Health Physics News*, a link to the source may be included in the text when a Reference list is not otherwise needed.)
- When a website that is not a published source is referenced in the text, use a footnote, with the web address and date accessed in the footnote. (For *Health Physics News*, a link to the website may be included in the text instead of as a footnote.)
- Footnote (but do not cite or list as references) unpublished materials, which include personal letters and communications, internal memoranda, private tape recordings, user’s manuals, data to be published, etc.
- Order the references alphabetically by name and then chronologically.
- If an author has more than one publication, list those with only one author first, in chronological order; list those with two authors second, alphabetically first, then in chronological order; list those with three or more authors last, in chronological order.
- If an author publishes more than one work in the same year or two authors with the same name publish in the same year, use a letter designator after the year  
—i.e., 2001a, 2001b, etc.
- Use [List of Journals Indexed in Index Medicus](#) or [List of Serials Indexed for Online Users](#) for journal abbreviations. [MEDLINE’s Journal Browser](#) feature is also a helpful resource.
- For HPS documents (but not *Health Physics Journal*), sources of further information that might be of interest to the reader can be included in the Resources for More Information section.
- Listings in Resources for More Information should follow the same style as listings in References.

Examples of reference list items can be found in [Appendix C: Reference Examples](#).

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### 2. Citations

- When quoting or paraphrasing text or data from another source, list the author's last name and the year of publication in parentheses in the text —e.g., (Smith 1998) or (Todd and Warren 1990) or (Brown et al. 1991) and include full publication information in the references list.
- Citations to more than one source should be listed in chronological order —e.g., (Smith 1988, 1990; Jones et al. 1992).
- Citations to sources with two authors should include both authors' names.
- Citations to sources with more than two authors should include the first author's name and "et al."  
—e.g., a work by Alpher, Bethe, and Gamow should be cited in text as (Alpher et al. 2015).
- Citations to sources that are organizations or agencies should use the abbreviated name  
—e.g., (US EPA 2015), (NCRP 2014)

### 3. Resources for More Information (for HPS documents, not *Health Physics Journal*)

- Sources of further information that might be of interest to the reader can be included in the Resources for More Information section, after the References.
- Listings in Resources for More Information should follow the same style as listings in References.

### 4. Footnotes

- Footnote material that needs further explanation.
- Footnote (but do not cite or list as references) unpublished materials, which include personal letters and internal memoranda, private tape recordings, user's manuals, data to be published, etc.
- When a website that is not a published source is mentioned in the text, do not include the website in the reference list. Instead, footnote the website name and put the web address and date accessed in the footnote at the bottom of the page. (For *Health Physics News*, a link to the source may be included in the text when a footnote is not otherwise needed.)
- Use superscript Arabic numerals for footnotes (1, 2, 3, etc.) in the text. Use superscript Roman lowercase letters, not numbers or symbols, for footnotes in a table (a, b, c not 1, 2, 3). Use in order of appearance in table.
- Whenever possible, the footnote should be on the bottom of the same page as the footnoted item.

### 5. Press Releases

Attribute press release information to the organization that put out the press release, with a link to the press release.

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## I. Spelling, Hyphenation, and Italics

### 1. Spelling

- Use *Merriam Webster's Collegiate Dictionary*, Tenth or Eleventh Edition (exceptions: byproduct, email, foodborne, online).
- Use American English versions for spelling—stomas, not stomata (obvious exceptions: data, bacteria, criteria, etc.).
- Drop the -ue endings in such words as catalog, analog, dialog (exception: use technique, not technic).
- -ogic vs. -ogical: retain -al (radiological, biological, etc.).
- Spell out percent in main text when not preceded by a number. Use % symbol in figures and tables and in main text when preceded by a number.
- Scientific names
  - The scientific name of a species is italicized and consists of the genus name and the species epithet.
  - The genus name is capitalized; the species epithet is not.  
—e.g., *Homo sapiens*, *Drosophila melanogaster*
  - When first used in a document, spell out both the genus name and species epithet; subsequently, the genus name may be abbreviated to its initial capital letter.  
—e.g., *Escherichia coli* (*E. coli*)

See [Appendix A: Word List](#), which provides examples of spelling of words that are regularly used in HPS documents.

### 2. Hyphenation

- Eliminate hyphens with most prefixes: co, multi, mid, non, over, pre, post, etc.
- Do not use hyphens for adjective forms of a priori, in situ, in vivo, in utero, and in vitro.
- Hyphenation for words frequently used in HPS publications:
  - bylaws
  - byproduct
  - cochair
  - cosponsor
  - email
  - fold: no hyphen when number is expressed in words (twofold); hyphen when number is expressed as a figure (10-fold)
  - half-life
  - handheld
  - health care (as noun and adjective)
  - linear no-threshold
  - man-made
  - multichannel analyzer
  - online
  - rulemaking

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- x rays (no hyphen when used as a noun)
- x-ray machine (hyphen when used as an adjective)

See [Appendix A: Word List](#), which also provides examples of hyphenation of words that are regularly used in HPS documents.

### 3. Italics

- Italicize names of movies, books, journals, plays, and newspapers in text (see Titles).
- Use italics sparingly for emphasis in text
- Italicize variables, but not R, X, M, A, B, etc. when they represent chemical elements or groups
- Italicize statistical symbols  
— $R^2$ ,  $r^2$ ,  $p$
- Punctuation after italicized words is the same style as the main text.
- Do not italicize common Latin words and abbreviations  
—et al., i.e., e.g., etc., vs., a priori, in situ, in vivo, in utero, in vitro

### J. Tables and Figures

- Submit table files as Microsoft Word files; submit figures and other artwork as tagged image file format (TIFF), encapsulated PostScript (EPS), or PowerPoint (PPT) files.
- Submit high-resolution tables and figures.
- Do not use “see” in table or figure citations in text.
- Capitalize and spell out “Table” throughout  
—e.g., as shown in Table 1
- Capitalize and abbreviate “Fig.” throughout  
—e.g., as shown in Fig. 1
- Place table and figure on page where they are referenced (if they don’t fit, place on top of next page).
- Call figures out in order in text; i.e., Table 3 cannot be mentioned in the text before Tables 1 and 2.
- Place table title above the table.
- Place figure title in caption under the figure.
- Place figure legends, which describe data points, in the upper right or left corner of the figure or in the caption.
- Number tables and figures in order of appearance (Arabic: 1, 2, 3).
- Capitalize only the first word in column headings in a table.
- Use normal capitalization in captions and footnotes, only first word and proper nouns.
- Use superscript Roman lowercase letters, not numbers or symbols, for footnotes in a table (a, b, c not 1, 2, 3). Use in order of appearance in table.
- Acknowledge data from other sources with citations to references. Citations may be placed in the caption, in the main body of the table/figure, or in footnotes, as appropriate.

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### K. Dates

- 1 January 2015 (not January 1, 2015)
- January 2015 (no comma between month and year)
- 1990s, 2000s

### L. Titles

- Personal, group, and meeting titles
  - Titles of HPS officers include president, president-elect, past president, president emeritus, secretary, secretary-elect, treasurer, and treasurer-elect.
  - President emeritus is the title given to each past president of the Society after completion of the year of service on the Board of Directors as the immediate past president.
  - Capitalize all official titles of honor and respect when they precede personal names
    - e.g., HPS President Nancy Kirner, Professor Henry Higgins
  - Do not capitalize official titles when the personal name is set off by commas
    - e.g., The HPS president, Nancy Kirner, spoke . . .
  - Do not capitalize titles of honor and respect when they follow a name or are used in place of a personal name
    - e.g., Nancy Kirner, president of the HPS, spoke . . . ; Henry Higgins, emeritus professor, taught . . .
  - Retain the capitalization in the titles of *high-ranking national, state, and international officials* when they follow or replace a specific personal name
    - e.g., national: the President, the Speaker, the Attorney General; state: the Governor; international: the Queen of England, the Pope
  - Do not capitalize titles used as general terms of classification
    - e.g., a United States senator, every king, any ambassador
  - In the byline, note if the author is a CHP, MD, or doctorate (PhD or some other doctoral credential) if known.
  - For names of meetings and groups, do not capitalize unless part of an official name
    - e.g., 2015 HPS Annual Meeting, but the annual meeting of the HPS; the Florida Chapter, but the chapter (section, committee, etc.)
- Literary titles
  - Capitalization: In titles of publications and documents, capitalize the first and last word and all words with four or more letters. Also capitalize words with fewer than four letters except articles (a, an, the), short conjunctions (and, as, but, if, or, nor), and short prepositions (at, by, for, in, of, off, on, out, to, up).
  - Quotation marks
    - Use quotation marks around:
      - Part of a complete published work—chapters, lessons, topics, sections, parts within a book, articles and feature columns in newspapers and magazines, essays, short poems, lectures,

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- sermons, conference themes, presentations, events, brochures, albums.
- Complete but unpublished works—manuscripts, dissertations, reports.
- Titles of songs and other short musical compositions, titles of individual segments or programs that are part of a larger television or radio series.
- Names of conferences and talks.
- Quotation marks are not necessary for the names of well-known documents or the titles of sacred works.
- Do not use quotation marks with Preface, Contents, Appendix, and Index, even though they represent parts within a book. They are often capitalized for special emphasis.
- Examples:
  - Health Physics Society Position Statement 017-1, “Use of Ionizing Radiation for Security Screening Individuals”
  - ANSI Standard N13.12 (1999), “Surface and Volume Radioactivity Standards for Clearance”
- Italics
  - Italicize complete works that are published as separate items—books, pamphlets, long poems, magazines, newspapers, movies, plays, musicals, operas, individual videocassettes, television and radio series, long musical pieces, paintings, works of sculpture, and material that is being prepared for publication.
  - Examples:
    - *Federal Register*
    - NCRP Report No. 160, *Ionizing Radiation Exposure of the Population of the United States*
    - ICRP Publication 48: *The Metabolism of Plutonium and Related Elements*

## II. SPECIFIC GUIDELINES FOR *HEALTH PHYSICS NEWS* AND HPS WEBSITE

To prepare documents for formatting by Web Operations staff (includes *Health Physics News*, fact sheets, position statements, information sheets, standard operating procedures, and most other website content) the author will:

- Provide the text in a Word document.
- Use one column.
- Separate paragraphs with a double return, no indentation.
- Use only one space after periods.
- No need to do further formatting—Web Operations staff will finalize the formatting in the document according to the style used for that type of document.
- Include photos, graphics, tables, and figures in the Word document to show suggested placement.

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- Also provide photos, graphics, and figures as separate JPEG, PNG, TIFF, GIF, or PDF files, medium to high resolution.
- Acknowledge data in text, tables, and figures from other sources with citations to references.
- In *Health Physics News*, a source may be linked in the main text to an internet URL (if available) instead of being cited and placed in the reference list.
- Acknowledge source of graphics and photos.
- Use only copyright-free graphics and photos unless written permission is received and made available to Web Operations staff.
- Get whatever permission is necessary for use of graphics and photos—for one-time use, multiple use on one platform, multiple use on multiple platforms, etc., whatever applies.

### III. SPECIFIC GUIDELINES FOR *HEALTH PHYSICS JOURNAL* AND *OPERATIONAL RADIATION SAFETY* (EFFECTIVE 1 JANUARY 2019)

#### Style

- Write manuscripts in clear, concise English
- If English is not the author's first language, seek assistance from a company that provides substantive editing services, such as:
  - [www.themedicaleditor.com](http://www.themedicaleditor.com)
  - [www.biosciencewriters.com](http://www.biosciencewriters.com)
  - [www.bostonbioedit.com](http://www.bostonbioedit.com)
  - [www.sciencedocs.com](http://www.sciencedocs.com)
  - [www.prof-editing.com](http://www.prof-editing.com)
  - [www.journalexperts.com](http://www.journalexperts.com)
  - [www.enago.com](http://www.enago.com)

Please note that neither the Journal's publisher (Lippincott Williams & Wilkins) nor the Journal takes responsibility for, or endorses, these services. Their use does not guarantee acceptance of a manuscript for publication.

#### Book reviews

- Obtain approval from the Journal's book editor to submit a review.
- Submit to the [Editorial Manager website](#); direct submission to the book editor is not accepted.
- Submit as a Microsoft Word document if possible; other current word processor formats are acceptable as well as plain text files.
- Provide a heading with the following information:
  - Book title author or editor.
  - Year of publication.
  - Number of pages.
  - Hard/soft cover.
  - Price.
  - Publisher's name and full address.

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- ISBN number.
- Publisher's website.

### Figures

- Submit figures that are at least 8.26 cm wide (one column wide) with type (letters and data) font at least 0.159 cm high.
- For larger figures, size them to be 17.1 cm wide (two columns wide) with type font at least 0.318 cm high.
- Size figures so they are at least as large as they should appear.
  - Pictures will not be enlarged over 100% to avoid resolution loss.
  - Figures will be set according to the smallest size font in the legend or on any axis.
  - If small font is used, figure will be enlarged to make the font readable.
  - Final figure size and placement is determined by the editorial staff and the publisher.
- Submit potential cover photos in color if possible; ensure that photos pertain to an accepted manuscript, although they need not be a figure cited in the manuscript.
- Label parts of figures with lowercase letters.
- Refer to parts of a figure in the text using the figure number and the part letter —e.g., Fig. 2a, Fig. 3a–d, Figs. 2a and 3b
- Cite figures consecutively in the manuscript.
- List figure captions
  - On a separate, double-spaced list or
  - At the end of the manuscript
- Do not include captions on actual figures.
- Do not imbed figures in the text.
- Put figure legends, which describe data points, in the upper right- or left-hand corner of the figure or in the caption.
- Number figure parts in the figure legend in the order in which they are discussed.
- Do not plot two-dimensional data as three-dimensional graphs.
- If color is required, complete color figure form; otherwise, figures will appear in black and white
  - Authors are responsible for paying color charges.
  - Current prices (subject to change without notice):
  - First figure: \$500
  - Each additional figure: \$150 each
- Upload figures consecutively to the Editorial Manager website and enter figure numbers consecutively in the description field when uploading the files.

### Digital artwork

- Learn about the publication requirements for digital artwork (diagrams, drawings, graphs, and other line art) at <http://links.lww.com/ES/A42>.
- Save artwork as TIFF, PDF, Word Doc, PPT, or EPS files.



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- Create artwork in the actual size (or slightly larger) than it will appear in the Journal; review Journal issues and measure the artwork typically shown, then scale image to match.
- Upload each figure to Editorial Manager in conjunction with your manuscript text and tables.
- Crop out any white or black space surrounding the image.
- Create artwork as vector files or save at a resolution of at least 1,200 dpi.
- Convert art created in a Microsoft Office program to a high-resolution PDF, or submit the Microsoft Office document.
- Save photographs, radiographs, and other halftone images at a resolution of at least 300 dpi.
- Save photographs and radiographs with text as postscript files or at a resolution of at least 900 dpi.
- Save and submit each piece of artwork as a separate file.
- Do not embed artwork in the text.

### Format

- Prepare double-spaced, typewritten (no dot matrix) manuscripts on one side of 216 × 279 mm paper.
- Number pages consecutively.
- Choose margins along all edges to be at least 2.5 cm wide; margins may be justified.
- Indent all paragraphs but the first.
- Provide a title page (required) with:
  - Complete manuscript title.
  - Authors' full names and affiliations (each affiliation should be designated as a footnote, discussed below).
  - Name and address for correspondence, including fax number, telephone number, and email address; if you are the corresponding author and would prefer not to publish your email, please notify the *Health Physics Journal* [managing editor](#).
  - All relevant conflicts of interest and sources of funding under the heading "Conflicts of Interest and Sources of Funding"; include funding received for the work from any of the following organizations: National Institutes of Health, Wellcome Trust, Howard Hughes Medical Institute, and others.
    - e.g., Conflicts of Interest and Sources of Funding: Author A has received honoraria from Company Z. Author B is currently receiving a grant (#12345) from Organization Y and is on the speaker's bureau for Organization X, the continuing education organizer for Company A. For the remaining authors, no conflicts of interest or sources of funding are declared.
- For manuscripts other than letters, provide an abstract (structured or traditional) and keywords.
- Limit abstracts to 250 words or less (one double-spaced page).
- Do not cite references in the abstract.

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- Do not use abbreviations or acronyms in the abstract.
- At the end of the abstract, list four keywords chosen from the [master list of key words](#).

### Headings and titles

- Use the following main section headings for a paper or note and for other types of manuscripts as they apply (operational topics manuscripts, forum articles, and review articles may have some variation of these main section headings): introduction, materials and methods, results, discussion, and conclusions.
- Title of manuscript: Put in all uppercase.
- Main section headings: Center and put in all uppercase. Do not underline.
- Minor section headings: Start at the left margin and capitalize only the first word and proper nouns.
- Use only three orders of headings:
  - INTRODUCTION
    - CT exposure
      - Dose assessment.

For examples, refer to a recent issue of *Health Physics*.

### Letters to the editor

- Use a letter to the editor to express a personal point of view.
- Confine comments to three double-spaced pages or less.
- Provide a title placed before the “Dear Editors” salutation.
- Place name and address of author(s) at the end of the letter; anonymous letters will not be published.
- If a letter comments on another author’s work, recognize that it will be sent to the author in question for possible reply; both the comment and reply letters will be published together.

### Numbers

- Do not use E-notation in text
- If necessary, use E-notation in supplemental digital content spreadsheets and other computer programs

### Punctuation

- Avoid end-of-line hyphenation

### References, Footnotes

- Put all references in correct format (refer to [General Guidelines, Section H.1](#), and [Appendix C: Reference Examples](#)); if references are in the incorrect format, the manuscript will be sent back to the author for revision before proceeding; changes made to incorrect or incomplete references in the stages after acceptance of the manuscript will be charged to the author.

## Health Physics Society Publications Style Guide

- Ensure the accuracy of the reference list and information from other sources cited in the text; this is the responsibility of the author(s), not the copy editor
- Check reference list before submittal; ensure that all references are cited in the text and all cited sources are in the reference section or footnoted, as appropriate
- Submit all footnotes together on a separate page at the end of the article
- List author affiliations as footnotes
  - Designate the first author's affiliation as 1
  - If any subsequent authors have different affiliations, provide a separate footnote for each author
  - If all authors' affiliations are the same, place footnote 1 after the last author's name

### Tables

- Ensure that all data in tables are correct before the manuscript is submitted to *Health Physics*; all tables are typeset directly from the submitted manuscript
- Place all tables in a separate file; *do not* embed tables in the text; editorial staff will move tables into the correct place in the text when your manuscript is prepared for review and publication
- Upload each table separately
- Number all tables sequentially in order of appearance using Arabic numbers
- Put the caption above each table
- In table titles, capitalize only the first word and proper nouns
  - e.g., results are shown in Table 1; Table 1. Results of New York City investigation.
- Use horizontal lines only (no vertical borders) to separate components of tables
- Do not enclose tables in boxes
- Identify each column and row with a descriptive title
- Put units in parentheses
- Use superscript notation for powers of 10; do not use E-notation
  - e.g., use  $1 \times 10^3$  not 1E3
- Single space data and align numbers on the decimal point
- Precede decimal numbers less than one with a zero
  - e.g., use 0.23 not .23
- For footnotes, use superscripted Roman lowercase letters sequentially in the order that they appear in the table
  - e.g., <sup>a</sup>Data from Smith et al. (2018)
- Include references for data that comes from another source. Citations may be placed in the caption, in the main body of the table, or in footnotes, as appropriate.

### Trade names and manufacturers

- Put manufacturer's name and address (city, state if appropriate, country) in parentheses after first mention of a product, vendor, or manufacturer in text

## Health Physics Society Publications Style Guide

### IV. SPECIFIC GUIDELINES FOR ASK THE EXPERTS WEBSITE

- SI disclaimer is to be included at the bottom of only those ATE questions and answers that have SI or metric units in them  
—e.g., kg, km, cm, etc.
- When regulatory agencies provide limits in traditional units, present those units first, give SI units in parentheses, and provide the following footnote: The radon concentration units are given here in pCi L<sup>-1</sup> (called traditional units) because that is the unit used by the US Environmental Protection Agency. However, the Health Physics Society has adopted the SI (International System) of units and these are given in parentheses.
- For example, cite the Environmental Protection Agency's radon action level as "4.0 pCi L<sup>-1</sup> (150 Bq m<sup>-3</sup>)\*." The asterisk refers to the footnote (above).

### V. SPECIFIC GUIDELINES FOR ANSI/HPS STANDARDS

The HPS provides technical editing for standards prepared by American National Standards Institute (ANSI) committees N13 and N43. ANSI/HPS standards should follow the general guidelines in Section I, except as noted below.

#### Format

- In general, follow format used in recently published standards; allow variation to suit the specific material.
- Use 1-column layout for front matter (but put committee member lists in 2 columns where possible) and 2-column layout for text.
- Make margins 2.54 cm top and bottom; 3.18 cm left and right (Microsoft Office 2003 default).
- Put title in Arial 12, first-level headers in Arial 11, lower-level headers and text in Arial 10.
- Right justify text.

#### Numbers, symbols, and units

- Encourage authors to use SI units only, although the standard operating procedure for Standards Operating Committee N13 (30 June 2011) allows the use of traditional units in parentheses after SI units.

#### Punctuation

- Don't use periods after final number of section numbers.  
—e.g., Section 3.3 or Section E.1

#### Spelling and hyphenation

- Hyphenate sparingly in two-column format

## Health Physics Society Publications Style Guide

### VI. ABOUT SI UNITS

It is HPS policy to use the International System of Units (SI) in all documents when expressing radiological quantities ([Position Statement PS025-0](#)). The guidance that follows is based on National Institute of Standards and Technology (NIST) Special Publication 330 (2008 edition, <https://www.nist.gov/pml/special-publication-330>) and NCRP Report No. 82, *SI Units in Radiation Protection and Measurements*.

#### SI and Acceptable Non-SI Units

The following table lists SI units and acceptable non-SI units related to radiation and commonly used in health physics practice. These units should be used in HPS publications. Additional SI and acceptable non-SI units can be found in NIST Special Publication 330 (2008 edition).

Quantity	Unit	Symbol
Absorbed dose (also specific energy imparted, kerma)	gray	Gy
Absorbed dose rate	gray per second	Gy s <sup>-1</sup>
Activity	becquerel	Bq (s <sup>-1</sup> )
Acceleration	meter per second squared	m s <sup>-2</sup>
Area	square meter barn <sup>a</sup>	m <sup>2</sup> b
Count rate	counts per second <sup>b</sup> counts per minute <sup>b</sup>	cps cpm
Density, mass density	kilogram per cubic meter	kg m <sup>-3</sup>
Density, surface	kilogram per square meter	kg m <sup>-2</sup>
Disintegration rate	disintegrations per second <sup>b</sup> disintegrations per minute <sup>b</sup>	dps, Bq (s <sup>-1</sup> ) dpm
Dose equivalent (also ambient dose equivalent, directional dose equivalent, personal dose equivalent)	sievert	Sv
Electric charge	coulomb	C
Electric current	ampere	A
Electric potential difference	volt	V
Energy	electronvolt <sup>c</sup> erg <sup>a</sup> joule	eV erg J
Exposure (x and gamma rays)	coulomb per kilogram	C kg <sup>-1</sup>
Force	newton	N
Length	meter angstrom <sup>a</sup>	m Å
Mass	kilogram	kg
Mass concentration	kilogram per cubic meter	kg m <sup>-3</sup>

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Power	watt	W
Pressure	bar <sup>a</sup>	bar
	millimeter of mercury <sup>a</sup>	mm Hg
	pascal	Pa
Speed, velocity	meter per second	m s <sup>-1</sup>
	knot <sup>a</sup>	kn
Temperature	degree Celsius	°C
Time, duration	second	s
	minute	min
	hour	h
	day	d
Volume	cubic meter	m <sup>3</sup>
	liter	L

<sup>a</sup> Non-SI unit that may be used if SI definition is also provided (e.g., 1 b = 100 fm<sup>2</sup>)

<sup>b</sup> Although these units are neither SI nor approved non-SI, they are commonly used in radiation protection and acceptable in HPS documents and web pages.

<sup>c</sup> Units accepted for use with the SI

### Prefixes

The following prefixes may be used with any of the SI and acceptable non-SI units. Additional SI-approved prefixes can be found in NIST Special Publication 330 (2008 edition).

Factor	Name	Symbol
10 <sup>-18</sup>	Atto	a
10 <sup>-15</sup>	Femto	f
10 <sup>-12</sup>	Pico	p
10 <sup>-9</sup>	Nano	n
10 <sup>-6</sup>	Micro	μ
10 <sup>-3</sup>	Milli	m
10 <sup>-2</sup>	Centi	c
10 <sup>3</sup>	Kilo	k
10 <sup>6</sup>	Mega	M
10 <sup>9</sup>	Giga	G
10 <sup>12</sup>	Tera	T

### Converting to SI Units

Non-SI units not listed in Section A must be converted to SI units. The following table provides factors for converting traditional units for radiological quantities to SI units.

Additional conversion factors are available from NIST at

[physics.nist.gov/Pubs/SP811/appenB9.html](http://physics.nist.gov/Pubs/SP811/appenB9.html).

Quantity	Unit	Symbol	SI Conversion Factor
Activity	curie	Ci	1 Ci = 3.7 × 10 <sup>10</sup> Bq

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Exposure (in air)	roentgen	R	1 R = $2.58 \times 10^{-4}$ C kg <sup>-1</sup> (air)
Absorbed dose	rad <sup>a</sup>	rad	1 rad = 1 cGy = $10^{-2}$ Gy
Dose equivalent	rem <sup>a</sup>	rem	1 rem = 1 cSv = $10^{-2}$ Sv

<sup>a</sup> Rad and rem are both singular and plural; never add “s” for plural (100 rad, not 100 rads)

### VII. STYLE GUIDES AND REFERENCES USED FOR HPS WEB OPERATIONS PUBLICATIONS

- The HPS Web Operations Style Guide, especially for items specific to writing for the nontechnical audience (check this guide first—we have adapted some of the guidelines that are in the others to better fit our audiences).
- The *Gregg Reference Manual*, Tenth or Eleventh Edition, for general grammar and style guidelines.
- *Scientific Style and Format: The CSE Manual for Authors, Editors, and Publishers*, 8th Edition, 2014 (from the Council of Science Editors, formerly Council of Biology Editors, CBE) for general science-writing guidelines.
- *Merriam Webster’s Collegiate Dictionary*, Tenth or Eleventh Edition, for specific word usage and spelling preferences.

## APPENDIX A: WORD LIST

### Abbreviations, spelling, hyphenation, capitalization, and other style issues

AAAS: American Association for the Advancement of Science  
AAHP: American Academy of Health Physics  
AAPM: American Association of Physicists in Medicine  
AARST: American Association of Radon Scientists and Technologists  
ARRT: American Registry of Radiologic Technologists  
ABET is now just ABET  
ABHP: American Board of Health Physics  
ABIH: American Board of Industrial Hygiene  
ABMP: American Board of Medical Physics  
A bomb: spell out atomic bomb  
ABR: American Board of Radiology  
ABSA: American Biological Safety Association  
ACGIH: American Conference of Governmental Industrial Hygienists  
ACR: American College of Radiology  
ACS: American Chemical Society  
AEC: US Atomic Energy Commission  
AFRRI: Armed Forces Radiobiology Research Institute (USU: Uniformed Services University of the Health Sciences)  
Agreement States  
AIHA: American Industrial Hygiene Association  
AIP: American Institute of Physics  
airborne  
ALARA: as low as reasonably achievable  
ALI: annual limit on intake  
alpha-emitting radionuclides  
AMIPA: American Medical Isotope Production Act  
AMUG: Air Monitoring Users Group  
ANL: Argonne National Laboratory  
ANS: American Nuclear Society  
ANSI: American National Standards Institute  
a priori: never hyphenate, never italicize  
APS: American Physical Society  
ARS: Acute Radiation Syndrome  
ASC: accredited standards committees  
ASSE: American Society of Safety Engineers  
ASRT: American Society of Radiologic Technologists  
ASTHO: Association of State and Territorial Health Officials  
ASTM: American Society for Testing and Materials  
ASTRO: American Society for Radiation Oncology (T is a leftover kept from an earlier name)  
ATE: HPS Ask the Experts web feature



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bachelor of arts, BA, bachelor's  
bachelor of science, BS, bachelor's  
becquerel; unit of radioactive decay; SI unit: Bq  
BEIR: National Academy of Sciences Committee on the Biological Effects of Ionizing Radiation  
beta-gamma radiation  
beta radiation  
breast-feeding  
bylaws  
byproduct (HPS exception to *Merriam Webster's Collegiate Dictionary*)

capital: city that is seat of government; capitol: building; US Capitol; Capitol Hill  
CBCT: cone-beam CT  
CDC: Centers for Disease Control and Prevention  
CDRH: Center for Devices and Radiological Health  
CEC: continuing education credit  
CEL: continuing education lecture  
centimeter: cm  
century: 21st century  
CFR: 10 CFR 35  
CHP: certified health physicist  
CIRMS: Council on Ionizing Radiation Measurements and Standards  
clean up: verb; cleanup: noun and adjective  
CM points: certification maintenance points  
CNS: central nervous system  
coauthor, cochair, codirector, coeditor  
compare: cf.  
Congress: capitalized when referring to the US Congress  
congressional member, senator, representative: capitalize only when in place of or in front of a specific personal name  
congressional bills: H.R. 2272; S. 761  
copy editor, copyedit  
coulombs per kilogram: C kg<sup>-1</sup>; exposure; SI unit  
cpm: counts per minute  
CRCPD: Conference of Radiation Control Program Directors, Inc.  
CRPA: Canadian Radiation Protection Association  
CRPPH: Committee on Radiation Protection and Public Health  
CT: computed tomography  
curie: unit of radioactive decay; traditional (historical) unit: Ci  
CV: curriculum vitae

D&D: decontamination and decommissioning  
DAC: derived air concentration  
database  
day: d  
DD&R: decontamination, decommissioning, and remediation

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DDR: dose response relationship  
DDREF: dose and dose-rate effectiveness factor  
decision making  
degrees C instead of degrees F: to convert from degrees F  $T(^{\circ}\text{C}) = (T(^{\circ}\text{F}) - 32) \times 5/9$   
alt code 0176 ( $^{\circ}$ ); leave a space between the number and  $^{\circ}\text{C}$   
DHHS: Department of Health and Human Services  
DHS: US Department of Homeland Security  
diplomate of ABHP (not diplomat); a diplomate of the ABHP is also a certified health physicist (CHP)  
DOD: US Department of Defense  
DOE: US Department of Energy  
DOELAP: Department of Energy Laboratory Accreditation Program  
dose-rate effectiveness factor  
DOT: US Department of Transportation  
DREF: dose-rate effectiveness factor  
DTPA (or pentatate): diethylenetriaminepentaacetate  
DU: depleted uranium

e.g. (for example): set off with commas  
earth (dirt), Earth (our planet)  
editor in chief  
EDTA (or edetate): ethylenediaminetetraacetate  
EEOICPA: Energy Employees Occupational Illness Compensation Program Act  
EM: electron microscope  
email  
EMS: emergency medical services  
EPA: US Environmental Protection Agency  
EPRI: Electric Power Research Institute  
ERR: excess relative risk  
et al.: do not set off with commas; use “and others” or “and colleagues” in running text; use et al. in the citation within the text; use all names in the references and resources  
eTOC: *Health Physics* Journal electronic table of contents  
ex officio: no hyphen

FAQ: frequently asked questions  
FDA: US Food and Drug Administration  
FEMA: Federal Emergency Management Agency  
FGI: fluoroscopically guided interventions  
fiber optics: two words as noun  
Fiesta<sup>®</sup> ware  
fiscal year: FY; fiscal year 2015; FY2015  
fold: no hyphen when number is expressed in words (twofold); hyphen when number is expressed as a figure (10-fold)  
foodborne  
foot: convert to cm or m

## Health Physics Society Publications Style Guide

for example: e.g. (set off with commas)

FRC: Federal Radiation Council

freeze-dry system

FRMAC: Federal Radiological Monitoring and Assessment Center

FUDS: Formerly Used Defense Sites

FUSRAP: Formerly Utilized Sites Remedial Action Program

gamma radiation

gamma spectroscopy

Geiger-Mueller (or Geiger-Müller): GM

GHPA: Georgian Health Physics Association

GM: Geiger-Müller or Geiger-Mueller

GOA: US Government Accountability Office

gram: g

gray; absorbed dose; SI unit: Gy

groupware: software that allows people to share

half-life

handheld

health care (always two words, never hyphenate)

he or she (not he/she)

HEU: highly enriched uranium

HHS: US Department of Health and Human Services

home page

hour: h

HP: health physics, health physicist

HPS: Health Physics Society

HPSSC: Health Physics Society Standards Committee

i.e. (that is): set off with commas

IAEA: International Atomic Energy Agency

IATA: International Air Transport Association

ICC: HPS International Collaboration Committee

ICNIRP: International Commission on Non-Ionizing Radiation Protection

ICRP: International Commission on Radiological Protection

ICRP 38

IEA: International Energy Agency

IEM: International Experts Meeting

inch: convert to cm

INL: Idaho National Laboratory

INMM: Institute of Nuclear Materials Management

INPO: Institute of Nuclear Power Operators

internet

international unit: IU

IRPA: International Radiation Protection Association

## Health Physics Society Publications Style Guide

ISO: International Standards Organization

IU: International Unit

IUP: Integrated University Program

JPEG

Jr., Sr., or numerals following a person's name—do not use commas unless specified by that person (Tom Smith Jr.; Jim Johnson III)

kilocalorie: kcal

kilogram: kg

kilometer: km

kiloton: KT

LAC: HPS Local Arrangements Committee

LANL: Los Alamos National Laboratory

LBNL: Lawrence Berkeley National Laboratory

LCD: liquid crystal display

LED: light-emitting diode

LEU: low-enriched uranium

light-emitting diode: LED (abbreviate)

linear no-threshold: LNT

liquid crystal display: LCD (abbreviate; never LCD display)

liter: L

LLRW: low-level radioactive waste

LLW: low-level waste

log linear; log-linear analysis

long-term

longtime

LSO: laser safety officer

LSS: Life Span Study

man-made

Mann-Whitney U test

*MARSSIM: Multi-Agency Radiation Survey and Site Investigation Manual*

*MARLAP: Multi-Agency Radiological Laboratory Analytical Protocols Manual*

*MARSAME: Multi-Agency Radiation Survey and Assessment of Materials and Equipment Manual*

master of science, MS, master's

MB: megabytes

MCART: Medical Countermeasures Against Radiological Threats

MCNP: Monte Carlo N-Particle

MDA: minimum detectable activity

mean: spell out (not X or M)

megabytes: MB

meter: m

## Health Physics Society Publications Style Guide

milligram: mg  
milliliter: mL  
millimeter: mm  
millimeters of mercury: mm Hg  
minimum detectable activity: MDA  
minute: min  
MIRD: medical internal radiation dosimetry  
MIRD Committee: Committee on Medical Internal Radiation Dose  
mL: milliliter  
molecular weight: MW  
month: mo  
MRI: magnetic resonance imaging  
multi: prefix; no hyphen (multichannel analyzer, multidisciplinary)

nanometer: nm  
NAOSH week: North American Occupational Safety & Health week  
NAREL: National Analytical Radiation Environmental Laboratory  
NARR: National Alliance for Radiation Readiness  
NAS: National Academy of Sciences  
NASA: National Aeronautics and Space Administration  
NBS: National Bureau of Standards  
NCI: US National Cancer Institute  
NCRFO: National Center for Radiation Field Operations  
NCRP: National Council on Radiation Protection and Measurements  
NCRP Report No. 45  
NDAA: National Defense Authorization Act  
NEHA: National Environmental Health Association  
NEI: Nuclear Energy Institute  
NESHAP: National Emission Standards for Hazardous Air Pollutants  
NGSS: Next Generation Science Standards  
NIAID: National Institute of Allergy and Infectious Diseases  
NIH: National Institutes of Health  
NIOSH: National Institute for Occupational Safety and Health  
NIST: National Institute of Standards and Technology  
NMR: nuclear magnetic resonance  
NNSA: National Nuclear Security Administration  
NNSA/GTRI: National Nuclear Security Administration/Global Threat Reduction Initiative  
nonionizing (no hyphen)  
NORM: naturally occurring radioactive material  
NRC: US Nuclear Regulatory Commission  
NRRPT: National Registry of Radiation Protection Technologists  
NRSB: National Radon Safety Board  
NRSB: Nuclear and Radiation Studies Board  
NTS: Nevada Test Site  
number: No. (not no.)

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OAS: Organization of Agreement States  
OECD: Organisation for Economic Co-operation and Development  
OMB: Office of Management and Budget  
online (no hyphen)  
ORAU: Oak Ridge Associated Universities  
ORISE: Oak Ridge Institute for Science and Education  
ORNL: Oak Ridge National Laboratory  
OSHA: Occupational Safety and Health Administration  
OSRP: Off-Site Source Recovery Project (operated by LANL)  
OSTP: Office of Science and Technology Policy  
over: prefix; no hyphen (overanalyze, overconservative, etc.)

PAGs: protective action guides (EPA PAG Manual)  
PAPC: polyaminopolycarboxylic (PAPC) acids  
parts per million: ppm  
parts per billion: ppb  
past president  
PDF  
PDS: HPS professional development school  
PEP: Professional Enrichment Program  
percent: spell out in main text when not preceded by a number; use % symbol in figures and tables and in main text when preceded by a number  
PET: positron emission tomography  
PhD, doctorate, doctor of philosophy  
PNNL: Pacific Northwest National Laboratory  
post: prefix; no hyphen (postaccident, postirradiation, etc.)  
power lines  
pre: prefix; no hyphen (prearrange, pretreatment, etc.)  
president-elect: lowercase elect except when used in a heading or title of an article or document  
president emeritus: the title of each past president of the Society after completion of the year of service on the Board of Directors as the immediate past president  
probability: p (lowercase, italics when used in a formula)  
Pu: plutonium  
publications: ICRP 110, NCRP Report No. 45

QA-PR: quality assurance-peer review  
QC: quality control  
QM: quality management  
quasi-experimental  
quotation marks and apostrophes: curly in *Health Physics*, *Operational Radiation Safety*, and PDF documents; straight on HPS website

rad: absorbed dose; traditional (historical) unit; never add “s” to make plural; convert to Gy  
Ra: radium  
RDD: radiological dispersal device

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REAC/TS: Radiation Emergency Assistance Center/Training Site  
REFs: radiation effectiveness factors  
regulations: 10 CFR 35  
rem: dose equivalent; traditional (historical) unit; never add “s” to make plural; convert to Sv  
REM: reflection electron microscope  
RERF: Radiation Effects Research Foundation  
Rn: radon  
roentgen: exposure in air; traditional (historical) unit: R; convert to C kg<sup>-1</sup>  
RP: radiological protection  
RPI: Rensselaer Polytechnic Institute  
RRS: Radiation Research Society  
RSNA: Radiological Society of North America  
RSO: radiation safety officer  
rulemaking

S&PIC: HPS Scientific and Public Issues Committee  
school-age children  
SD: standard deviation  
SDWA: Safe Drinking Water Act  
SE: standard error  
second: s  
sem (lowercase): standard error of the mean  
SEM: scanning electron microscope  
sievert: dose equivalent; SI unit: Sv  
SI units: International System units  
SNF: spent nuclear fuel  
SNMMI: Society of Nuclear Medicine and Molecular Imaging  
SNMTS: Society of Nuclear Medicine Technologist Section  
SOP: standard operating procedure  
SSC: HPS Science Support Committee  
SSC: HPS Student Support Committee  
standard deviation: SD  
standard error: SE  
standard error of the mean: sem (lowercase); spell out at first use in text; okay as abbreviation in tables  
state names: spell out full name of state in running text; use two-letter postal abbreviations without periods in addresses  
STEM: scanning transmission electron microscope  
Student’s *t*-test  
Suntanning

TEM: transmission electron microscope  
TENORM: technologically enhanced naturally occurring radioactive material  
that is: i.e. (set off with commas)  
TIFF

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TLD: thermoluminescent dosimeter

TRU: transuranic

U: uranium

ultraviolet: UV

United States, United Kingdom; US, UK: spell out United States and United Kingdom when used as a noun; abbreviate when used as an adjective

UNSCEAR: United Nations Scientific Committee on the Effects of Atomic Radiation

USACE: US Army Corps of Engineers

USGS: US Geologic Survey

USTUR: United States Transuranium and Uranium Registries

USU: Uniformed Services University of the Health Sciences (AFFRI: Armed Forces Radiobiology Research Institute)

USPHS: US Public Health Service

VA: US Department of Veterans Affairs

versus: vs.; never spelled out

vice president

VOICE credits: Verification of Involvement in Continuing Education credits

volt: V

WARP: Where Are the Radiation Professionals?

Washington, DC

waterborne

watt: W

WBC: white blood cell

web

web address

webmaster

web page

website

week: wk

WIN: Women in Nuclear

WIPP: Waste Isolation Pilot Plant

World Wide Web

World War I, World War II: spell out

x rays (no hyphen when used as a noun)

x-ray machine (hyphen when used as an adjective)

year: y



### APPENDIX B: ALT CODES AND HTML CODES

**ALT codes** for symbols often used in HPS documents (Several ALT Code charts can be found at [usefulshortcuts.com/alt-codes](http://usefulshortcuts.com/alt-codes).)

- Currency
  - cent (¢): 155
  - dollar (\$): 36
  - euro (€): 0128
  - frank/gulder (f): 159
  - peseta (Pts): 158
  - pound (£): 156
  - yen (¥): 157
- General symbols
  - copyright (©): 0169
  - degree (°C): 0176
  - em dash (—): 0151
  - en dash (–): 0150
  - inverted exclamation (¡): 173
  - inverted question (¿): 168
  - registered symbol (®): 0174
  - trademark (™): 0153
- Greek letters
  - alpha (α): 224
  - beta (β): 225
  - gamma (Γ): 226
  - mu (μ): 230
  - pi (π): 227
- Letters with accents
  - à: 0224
  - á: 0225
  - ä: 0228
  - ç: 0231
  - è: 0232
  - é: 0233
  - ë: 0235
  - ñ: 164
  - ò: 0242
  - ó: 0243
  - õ: 0245
  - ü: 0252
- Mathematical symbols
  - +: 43
  - -: 45
  - ×: 0215
  - ÷: 0247
  - ±: 241
  - ≥: 242
  - ≤: 243
  - √: 251
  - °: 248
  - #: 35
  - ∞: 236
  - Σ: 228

**HTML codes often used in editing HPS website** (A useful website for finding mathematical, Greek, and symbolic characters for HTML is [w3.org/TR/html4/sgml/entities.html#h-24.3](http://w3.org/TR/html4/sgml/entities.html#h-24.3).)

- body of document <body>
- bold <b>
- center <center>
- email link <a href="mailto:you@yourdomain.com">you@yourdomain.com</a>
- italic <i>
- paragraph <p>
- single line break <br>
- superscript <sup>
- subscript <sub>
- title of document <title>
- underline <u>
- website link <a href="http://www.domain.com/"> http://www.domain.com</a>

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### APPENDIX C: REFERENCE EXAMPLES

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