BJA Education

BJA Education style guide for authors

The purpose of this guide is to assist authors in preparing their manuscript for publication. It gives solutions to typical problems in phrasing; spelling; apostrophes; punctuation; prefixes; hyphenation; abbreviations; units of measurement; capitalisation; drugs; references; tables and figures. Failure to follow these guidelines will lead to delays in publication or rejection of an article.

Phrasing and grammar

The text of your manuscript should be presented as clearly as possible. Use the active rather than the passive voice. The subject and the verb should be at the front of the sentence. Please find below typical pitfalls with suggested solutions.

Words or phrases to avoid	**Solution/preferred phrase**
Do not objectify people – always use 'who' rather than 'that', for example 'patients that were treated'.	Use person-centred language throughout. 'i.e. 'patients who were offered the treatment'.
Do not say that someone 'suffers' from a condition e.g. "people suffering from pneumonia".	Use 'people (or patients) with pneumonia'.
Avoid referring to patients who 'fail treatment'	Use a phrase such as 'failure of treatment, treatment failure' to indicate that the treatment has failed.
People do not 'respond inadequately ' to a treatment.	It is the condition that has not responded to the treatment.
Do not refer to patients or people being suitable or not suitable for treatments.	It is the treatment or intervention that is suitable or not suitable for the patient. A medicine, not a person, is contraindicated.
Avoid phrases such as 'Management of people with low back pain'	Refer to managing the condition, not the person e.g. managing low back pain.
Do not label or define people with their condition. Do no not use terms such as 'epileptics', 'smokers', 'septic patients'.	Use the following instead: 'a person with epilepsy', 'people who smoke', 'patients with sepsis'.

Avoid using nouns as descriptors especially where the noun may also be an adjective e.g. patient outcomes (the outcome is not patient), anaesthetic registrar (the registrar is not an anaesthetic)	Use the noun and qualify its meaning.
Avoid 'however' in the middle of a sentence.	Use 'but' or start a new sentence.
Avoid 'on the ICU' or 'on the ward'	Use 'in the ICU' or 'in intensive care'
&	And
Additionally	In addition, furthermore, moreover
And/or	use a, b, or both
As well as	And
Anaesthetic registrar	specialty trainee in anaesthesia
Beats per minute (heart rate)	beats min^{-1}
Breaths/min	Bpm
Blood pressure	Specify arterial or venous pressure
Case	Patient
CO	CO should be expanded to carbon monoxide if there is likely to be any confusion with Cardiac Output
Data was (the word "data" is plural, not singular)	Use 'data were', but a datum or a dataset is singular.
Demographics	Patients' characteristics
Due to (has several meanings)	because of, as a result/consequence of, attributable to, caused by, resulting from
Elevated/higher (applied to biomarkers, assays etc.)	Increased
Employ	Use
Endotracheal (tube)	Tracheal
Extradural	Epidural
Fall/drop	decrease or reduction
Following	After
Inhalational	Inhalation
Intravenous/intramuscular	i.v., i.m., s.c. etc. Use I.V. if it is at the beginning of a sentence
ITU	Preferred abbreviation is ICU when referring to the physical unit. Alternatively use the term 'intensive care' or 'critical care'.
Kind	Type
Less/fewer	Less to qualify an adjective, fewer to qualify a noun
Level(s) (applied to biomarkers, assays etc.)	Concentration(s)
Like	such as

Muscle relaxants	neuromuscular blocking agents
Neuromuscular blockade Over (i.e. over 50 year)	neuromuscular block more than
Neuron	Neurone
Parameters	Variables (unless applied to the upper and lower limits of a measure or variable; a statistical parameter; or a parameter within a mathematical equation)
Population. This has several different meanings in biology, statistics, genetics & sociology.	Should not be used, unless referring to a geographical population (group of people within a certain area).For example there Is no such thing as the 'paediatric or ICU population'.
Prior to	Before
Prior to this (unless the connection between the two events is more than just the relationship in time; such as when one is a necessary preliminary to the other)	Previously
Pre- or postoperatively	Before, after operation or surgery
Proven	Proved
Pulse rate	Heart rate (beats min^{-1})
Respiratory rate	Ventilatory frequency
Reversed	Antagonised (in relation to neuromuscular block)
Rise	Increase
Side effects	Adverse effects
Scheduled to have/having (applied to a surgical procedure)	Undergoing/scheduled for
Since	As, because
Speciality	Specialty
The patient was intubated	The patient's trachea was intubated
Theatre	Operating theatre (not operating room)
This, these, those	Avoid using 'this', 'these' or 'those' if it is not clear what is being referred to – it's better to repeat a word or to paraphrase.
The patient was ventilated	The patient's lungs were ventilated
Was visualised	Was seen
Which, that	Use 'that' if the description is necessary to define the item that you're discussing, but '.., which' if you're adding extra information that is not needed to define the item. Generally use 'that'; note 'which' is preceded by a comma.
Do not italicise common medical or anatomical terms, for example gluteus maximus, transversus abdominis, dyspepsia.	Italicise non-English phrases for example *in vivo, ad hoc, per, et al.*

Spelling

Please follow UK spelling consistently. Use '-ise' spellings (e.g. immunisation not immunization). However, for a formal title where the '-ize' ending is commonly used (e.g. World Health Organization), it should be with a 'z'. Some examples of correct spelling are given below:

Example	**Examples of UK spelling**
ae-	Aetiology, caesium, caesarean, leukaemia, haemoglobin
–paenia or –paenic	Substitute 'ae' with 'e' as in neutropenia, neutropenic, sarcopenia
oe-	Diarrhoea, dyspnoea, manoeuvre, oedema, oesophagus, oestrogen
	Note that BJAEd uses fetus and fetal (not foetus or fetal)
-ical	Anatomical, neurological, symmetrical (not anatomic, neurologic etc.)
-lled	Labelling, modelled (but pharmacological modelling)
-logue	Analogue, catalogue
-our	Behaviour, colour (but coloration), tumour, neighbour
-re	Centre, fibre/fibreoptic, litre, metre (the unit), titre
-yse	Analyse, catalyse, dialyse
-ise	Emphasise, metabolise, minimise, recognise, summarise, vaporise
-ise	Devise, exercise, revise, supervise, focusing

Note the abbreviation for Transoesophageal echocardiography (TOE); **NOT** TEE (which is how the US spelling (transesophageal) would be abbreviated).

Apostrophes, punctuation, prefixes and hyphenation

- The conventional use of apostrophe is to denote possession. But please use a second 's' after the apostrophe for a name ending in 's' when needing to denote possession (e.g. Jones's instead of Jones'). Exceptions to this are:
    - Names ending in an 'iz' sound (e.g. Dr Bridges' patients).
    - Ancient names (e.g. Achilles' heel or Jesus' disciples).
    - Specific institutions or place names (e.g. Earls Court or St Thomas' Hospital).

  Do not use contractions such as it's, don't, didn't, couldn't, she's

- Multiple commas in a sentence are allowed but avoid 'Oxford' comma i.e. directly preceding 'and' after one or more preceding commas in the same sentence.

- Most prefixed words do not need hyphenation especially with prefixes such as 'co', pre, post, mid, sub. For example postoperative, intracellular, coordination, cooperate, coexist, fibreoptic, subtypes are not hyphenated. Exceptions are:
    - Where two identical vowels or consonants are juxtaposed (e.g. intra-articular, anti-inflammatory, post-transplant); or the word is difficult to read or may be ambiguous (e.g. re-cover).
    - Hyphenate 'non' (e.g. non-smoker), ex- and self-

- Hyphens should be used to clarify linkages between words for the reader, for most compound words and adjectival phrases i.e. two separate words that are linked to form a new meaning. Examples of compound words and adjectival phrases are cross-purpose; day-case; time-consuming; long-term; high-risk; case-by-case; 30-day mortality; 5-yr survival.
- Note that one third is not hyphenated, but a one-third majority contains a hyphen.
- Adjectival phrases with a 'non' in front should have 2 hyphens, for example non-small-cell lung cancer.
- In phrases such as 'high- and low-risk groups', both hyphens are needed to show how the words are linked. If possible, reword to avoid this. For example, 'there was a 2- to 4-week delay' could be rewritten as 'there was a delay of between 2 and 4 weeks.'
- Note that *p*-value is hyphenated.

Abbreviations

This section provides information in relation to the use of abbreviations in various key areas of your manuscript ie the title, headings, text, sentences, figures and legend.

- Title: do not use abbreviations in the title.
- Heading. Abbreviations already defined in text can be used in a heading. Do not define in the heading.
- Text. Spell abbreviations out in full on first use, with the exception of those shown below.
- Sentence. Generally avoid starting a sentence with an abbreviation: spell in full at the beginning of a sentence.
- Figure and legend. Abbreviations can be used in Figure or Table legends but should be defined at first use.
- Confidence interval and limits should be defined at first use in text, Figures and Tables.
  CI confidence interval
  CL confidence limits (NB Cl is clearance)
- Use 'e.g.' and 'i.e.' only in parentheses. They should not be followed by a comma.
- Most abbreviations do not have interposed full stops (UK not U.K.). Please note that Etc. ends in a full stop.
- Commonly used abbreviations SD or % can be used without being spelt out in full.
- Elements may be described using the Periodic Table abbreviations (CO_2, O_2, Na, K, Ca).
- If an ion is being discussed then this should be defined then abbreviated subsequently, for example sodium ion (Na^+), bicarbonate (HCO_3^-).
- Spell out fractions as words i.e. one quarter rather than ¼.
- Specific abbreviations:
  - For classes use decimal numbers rather than Roman numerals (ASA 1-2, not ASA I-II; similarly Mallampati 4, not Mallampati IV).
  - Use CVC for central venous catheter (not central line).
  - Use SAD for supraglottic airway device (not LMA unless referring to a specific device e.g. LMA ProSeal).
  - Preferred terminology is neuromuscular blocking agent (NMBA) or neuromuscular blocking drug (NMB); not neuromuscular blocker, muscle relaxant or paralysing agent.

Abbreviations that do not need to be defined except in the title or Table/Figure legends include:
ASA, BMI, BP, CNS, CPAP, CSF, CT, CVP, ECG, EEG, EMG, FBC. GA, HR, ICP, ICU (note not ITU), ID (internal diameter), i.m., IPPV, i.v., LA, MAP, MRI, NHS, NIBP, NSAID, PACU (not 'Recovery'), PCA, PEEP, pH, p.o./p.r, RCoA, RCT, RSI, s.c., TIVA, U&E, UK, USA, WHO.

In addition, statistical abbreviations that do not need to be defined except in the title or Table/Figure legends include:

3-D	3-dimensional
ANOVA	analysis of variance†
χ^2 test	(never spelt out or hyphenated)

df	degrees of freedom*
IQR	inter-quartile range
n	number of observations*
NS	not significant
p-	probability* (note lower case and italicised)
SD	standard deviation†
SE	standard error†
SEM	standard error of the mean†
r	coefficient of variation*

* *note these are italicised* † NOTE THESE ARE IN SMALL CAPITALS

Units of measurement

With the exception of blood pressure (mmHg) and temperature (°C), Système International (SI) units should be used. Some ventilatory pressures should be given in units of their calibration, i.e. cmH_2O. Blood-gas tensions and the partial pressures in the gaseous phase should be given in kPa. Cylinder and other pressures are in kPa. Use the Elsevier style guide with English (UK) spelling throughout, in conjunction with the Respiration Physiology and Neurobiology (also Elsevier) style guide for units; but see below for exceptions.

- Use Greek letter rather than spelt out: α (not alpha), β (not beta), μ (not mu), δ (not delta) etc.
- Use points and negative indices (e.g. 10 m^{-2}; g dl^{-1}; L s^{-1}; 25 μg kg^{-1} min^{-1}).
- Use upper case L for litre (or spell out as litre); lower case ml for millilitre.
- Use osm (for osmoles) but mOsm (for milliosmoles)
- Use beats min^{-1} for heart rate; bpm for respiratory rate.
- Insert a space between quantity and units (i.e. 5 min, 20 ml, 101 kPa).
- Add a space before and after =, < and >.
- Insert a space but not full stops after combined units (i.e. ml kg^{-1} not ml. kg^{-1}; m s^{-1} not ms^{-1}; N m not Nm. However where one is a measurement of the other there is neither a space nor a full stop i.e. mmHg (not mm Hg); cmH_2O (not cm H_2O).
- Denote a range with a dash (no space before or after): 50–110 mA not 50 mA to 110 mA. En dash or hyphen for abbreviations joined to a word, e.g. 5-HT_3.
- The plural of abbreviated units are just the units: 20 ml not 20 mls.
- BJA Ed does not use '±' symbol. SD or SEM should be in brackets after the measure of central tendency with an explanation the first time it occurs (e.g. 'Mean onset time was 66 (SD 24) s.' Second and subsequent mentions just '23.7 (7.7) min'.
- Format for dates is day (number only), month (spelt in full), year i.e. 14 June 2016
- When used to denote units of time the format should be yr, month, day, h, min, s, ms (millisecond). For multiples of these use yrs, months, days, h, min, s, ms
- For time of day use the 24 hr clock without units (e.g. 1430) with no space or colon. Ensure this is consistent throughout the article.

Notes and exceptions to the Respiration Physiology and Neurobiology style for units

The main exceptions to the Respiration Physiology and Neurobiology style are

1. Primary symbols for a physical quantity is in capitals and *italicised*. This style of italicising the primary symbol is consistent with Baron *et al* 1994 and allows differentiation if an abbreviation is used elsewhere (for example V for velocity as in V_{MAX}, FEV as in forced expiratory volume, D as in dioptres or DA_1 receptors,) or in units (V for Volts, F for Farads, °C or °F) The modifier or qualifier (compartment or phase of measurement) is denoted as a suffix but not italicised, either small capital (non-italicised, font size 2 smaller than the preceding symbol) or lower case (non-italicised same font size). Hence: *P*a to denote arterial; *P*A to denote alveolar; *P*V to denote venous.

2. Use dot overlying symbol to denote a time derivative i.e. $\dot{V}$ symbol for uptake, $\dot{Q}$ for blood flow, $\dot{D}$ for delivery.

3. When denoting partial pressure of a gas (commonly CO_2 or O_2), the chemical formula for the gas is in SMALL CAPITALS (NOT subscript) i.e. capital letter(s) in a font 2 sizes smaller than the preceding symbol. The symbol referring to the gas species (a number) is subscript only but in the same font as the main text (and two font sizes larger than the gas species.

Hence: *P*CO2, *P*aCO2, *P*ACO2, *P*O2, *P*aO2, *P*AO2, *S*pO2, *S*aO2, *S*vO2, *C*aO2, *C*vO2 *Sc*vO2, $\dot{V}$O2, $\dot{D}$O2, *P*IO2, *F*IO2, *F*ICO2, *P*E'CO2, *P*aO2, *F*IO2 etc. Note that these combinations differ from the examples in the Resp Physiol Neurobiol guide, but are much easier to read on the printed page or on screen. For some notations where there is a quantity, a modifier and a gas, both modifier and gas are in small capitals (not subscript). Hence *D*LCO; TLCO.

However, when the chemical is used in isolation, it is in the same font as the main text. Hence CO_2 production, N_2O cylinder.

4. The other exception to the Respiration Physiology and Neurobiology style is the use of E′ to denote end-tidal (note smaller font and straight apostrophe)

5. For other symbols, the modifier is usually in subscript. For example V_D or V_{DSS} for volume of distribution (contrast with V_D for dead space volume). However, we should not use subscripts of subscripts.

6. Italicise and lower case with hyphen for statistical probabilities i.e. *p*-values *z*-statistic

7. Note L for litres (or spelt out as litres) but ml for millilitres and NOT mL. For other symbols, the modifier is usually in subscript.

Capitalisation

For the title of the article, always use lowercase after the first word unless the subsequent word is a proper noun. Use sentence case and limit capitalisation where possible, including subheadings, and both titles of and text within tables and figures

- Capitalise proper nouns—and adjectives derived from proper nouns
    - Examples : Brand names; Companies; Days of the week and months of the year; Institutions and Organisations;
    - Example: *a Shakespearean sonnet*
- Capitalise titles of people when they are used before names, unless the title is followed by a comma. Do not capitalise the title if it is used after a name or instead of a name. Titles are not the same as occupations.
    - Example: *The professor of anaesthesia gave a lecture*
    - *Chairman of the Board John Smith will preside at the meeting*
    - *The chairman of the board, Professor John Smith, will preside*
- Capitalise specific geographical regions. Do not capitalise points of the compass
- Always capitalise the first word in a complete quotation, even midsentence
    - Example: *Einstein said, "Information is not knowledge"*
- Capitalise the names of specific course titles and awarding bodies, but not general academic subjects, a position or qualification.
    - *He is a consultant in anaesthesia and critical care*
    - *He has the fellowship of the Royal College of Anaesthetists*
    - *He is a Fellow of the Royal College of Anaesthetists*
    - *He is working towards a master's degree in physics*
    - *He has a Bachelor of Science in Computing Studies from the University of Bristol*
- Do not capitalise medical conditions unless eponymous
    - tuberculosis, Parkinson's disease, Epstein-Barr virus

Drugs

With the exception of adrenaline and noradrenaline, drug names are expressed according to the recommended International non-proprietary names (rINN). If in doubt then please see British Pharmacopoeia BAN 2017. In almost all cases these are the same as the British approved name (BAN) though the US approved name (USAN) may differ.

A drug name should precede dose or concentration, e.g. propofol 150 mg; propofol 2.5 mg kg-1. When denoting a volume and a concentration, the order is volume, drug, concentration (i.e. 20 ml levobupivacaine 0.25%). The word 'of' (20 ml of levobupivacaine) is unnecessary. Concentration is preferred to level(s), which is an ambiguous term.

Preferred terminology is neuromuscular blocking agent (NMBA) or neuromuscular blocking drug (NMBD); not muscle relaxant, neuromuscular blocker or paralysing agent.

Examples:

Previous British approved name	International non-proprietary name (to be used in BJAEd)
Adrenaline	Adrenaline (Epinephrine)*
Glycopyrrolate	Glycopyrrolate
Lignocaine	Lidocaine
Noradrenaline	Noradrenaline (Norepinephrine)*
Paracetamol	Paracetamol
Pethidine	Meperidine
Suxamethonium	Suxamethonium (previously succinyl choline)
Thiopentone	Thiopental

* Adrenaline and noradrenaline should be used throughout, but epinephrine or norepinephrine should be added in parentheses at first mention in the abstract and in the text. Note that the rINN for succinyl choline is now suxamethonium.

References

References should be numbered sequentially at their first citation. Citations should always be placed at the end of the sentence and in superscript after the full stop. Sentences with multiple references relating to different parts of the sentence should be rephrased. Use 'and colleagues' rather than 'et al.' in the in-text citations.

- Style: Surname, initials separated by commas. Do not put 'and' before last author's name. Please give the names of all authors, but the names and initials of more than six authors should be abbreviated to three names followed by *et al* (note *et al* is in italics).
- Reference in a Journal: Name all authors, unless there are more than six (see above). Journal title should be in italics and abbreviated, volume number in bold, page numbers with only the change in the last page number and no full stop at the end of the reference:
    - 1. Brown AB, White SJ, Green BG. Efficacy of acupuncture in septic shock. *Br J Anaesth* 2000; **99:** 223-7
- Chapter in a book or monograph. Italicise title:
    - 1. Anaesthetist A.N. The safe use of volatile anaesthetics in space craft. In: Blogg F, Doe J, eds. *Anaesthesia in Space*. London: Medical Press Ltd, 2000; 155-79
    - Stabber, AN. *Regional Anaesthesia*, 5th Edn. London: Medical Press Ltd, 1998
- Report:
    - Royal College of Anaesthetists and Royal College of Radiologists*. Sedation and Anaesthesia in Radiology.* Report of a joint working party, London, 1992
- Electronic source (web site/web page). Cite as below, including date last accessed:
    - Department of Health. Monthly Creutzfeldt-Jakob disease statistics 2002/0341 2002. Available from http://www.doh.gov.uk/cjd/stats/aug02.htm (accessed 14 June 2014)
- Online journal article:
    - Lander JA, Weltman BJ, So SS *et al*. EMLA and amethocaine for reduction of children's pain associated with needle insertion. *Cochrane Database Syst Rev* 2006; 3: CD004236

Authors' biographies

Each article in BJA Education is accompanied by a brief biography of each authors. The format is name; secondary medical and other degrees (i.e. not MB BS or equivalent); current position and institution; one or two lines of prose detailing an author's experience, positions of responsibility and other expertise **relevant to the article**. These are usually adapted from the information uploaded onto ScholarOne at the time of manuscript submission.

Tables and Figures

- Tables do not normally have footnotes. Define abbreviations in the title.
- There should be enough information in the title and legend so that a reader does not have to refer back to the text to understand it
- Superscript symbols (e.g. asterisk, dagger etc.) should be used rather than superscript letters. Use the following order *, †, ‡, ¶, §, ||, #, **.
- Column headings lower case (first letter capitalised).
- If the table includes age make sure age ranges are given, not SD.
- Abbreviations are allowed in the caption and body of a table if already defined.
- If table uses an author-date or author-short title format to cite an item that is included in the references, then replace the citation with the superscript reference number.
- Cite figures and tables within the text as Table 2, Fig. 1, Fig. 3 (a–c), Figs 1–3.
- Figures with more than one part should be labelled A and B in capitals in correct font and point size and should not be in bold.
- Asterisks indicating *p*-values are defined in the legend, not in the key.
- Units on the axes should be centred and in brackets [e.g. Time (min)] with abbreviations as journal style (Y-axis should be labelled vertically).
- Values on the axes that are less than 1 should have a zero before the decimal point (0.25 not .25). Always full point as decimal point, not comma (1.25 not 1,25).
- Graphs should have no boxes surrounding them and no background shading. In addition, they should have no horizontal lines (apart from axes) unless they are to indicate log divisions.

Examples

Table 1. Patients' characteristics. Data are mean (SD or range) or actual numbers

	Group H (*n*=10)	**Group C (*n*=10)**
Age (yr)	58.0 (40-73)	49.0 (38-64)
Body mass index (kg m^{-2})	20.6 (3.9)	21.8 (3.7)
Sex ratio (M/F)	5/5	8/2
Smoking (Y/N)	1/9	2/8

Table 2. Mean (SD) Spectral component of vomiting index (in normalised units, nu) of vomiting and non-vomiting children during nitrous oxide inhalation. LF, low frequency; HF, high frequency.

	Vomiting (*n*=4)	**Non-vomiting (*n*=12)**	***p*-value**
LF nu	7.2 (2.5)	15.3 (5.1)	0.0012
HF nu	51.6 (10.2)	24.6 (11.3)	0.009
LF/HF	0.1 (0.1)	0.7 (0.3)	0.0032