

Medical abbreviations that have contradictory or ambiguous meanings



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Introduction

Abbreviations are a convenience, a time saver, and a way of fitting a word or phrase into a restricted space or avoiding the possibility of misspelling words. However, a high price can be paid for their use. Abbreviations are sometimes misunderstood, misread, or interpreted incorrectly. Their use lengthens the time needed to train healthcare professionals, wastes time tracking down their meaning, sometimes delays the patient's care, and occasionally results in patient harm.

I published my first book of medical abbreviations, *Medical Abbreviations: 1,700 Conveniences at the Expense of Communication and Safety*, in 1983. To expand the list of abbreviations, I contacted hospitals and requested lists of abbreviations that were used at their facility, searched the literature, and solicited readers to send me abbreviations. Since then, I have published 16 editions of the book, which now contains 55,000 abbreviations.¹ A web version of the book is updated with more than 30 new entries per week.²

One of the problems I noticed was that one abbreviation could have two or more contradictory or ambiguous meanings, which can create dangerous communications. I collected these meanings, and a partial list of medical abbreviations with contradictory or ambiguous meanings is shown in **Table 1** (pages 3-5). It is obvious from an examination of this list that these abbreviations should not be used, as they fail to communicate with any certainty their intended meaning and present possible dangers to the health of patients.

The Joint Commission directs medical facilities to publish a “**Do Not Use**” list of abbreviations³ that must not be used (see ISMP's list at: www.ismp.org/node/8). This list is a very important step in the right direction but does not solve the systemic problem of an abbreviation with contradictory or ambiguous meanings.³ The Joint Commission standards also state, if multiple abbreviations exist for the same term, the organization must identify which one will be used to eliminate ambiguity.⁴ This step is extremely difficult to achieve.

Two Possible Solutions That May Not Be Feasible

① **Create a national list of standard abbreviations.** A simplistic approach to this problem is to create a national list of approved abbreviations, with each abbreviation having only one meaning. The problem with this approach is that all medical specialties, allied health professionals, health-related organizations, and government agencies would have to agree on one meaning for each abbreviation.

A recognized health-related organization, such as USP, the American Medical Association, the Council of Science Editors, ISMP, or ECRI, would have to be funded to take responsibility for creating and maintaining such a list. The one responsible for the list would have to reach out to all the health-related organizations to suggest abbreviations that should be on this list. Then, arbitration would be required between organizations if there is conflict with a suggested abbreviation that has more than one submitted meaning, such as PT for physical therapy, prothrombin time, preterm, parathyroid, patellar tendon, patient, and others. Such an endeavor would take hundreds of thousands of hours. Furthermore, after an approved list is created, it must be maintained. Any new abbreviations would require review and approval by all interested parties. Also, there could be a troublesome lapse of time before a new proposed medical abbreviation is commonly known and used—MRI for magnetic resonance imaging is an example of such a situation.

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② **Not allowing abbreviations.** Not allowing the use of any abbreviations would be an exceedingly difficult edict to introduce and enforce. Practitioners have used abbreviations in their daily routine, and it would be difficult to break this habit. In fact, some abbreviations that are frequently used have become word-like, making it especially challenging to require use of the full words instead. Examples are listed in **Table 2** (page 5).

Since it is highly unlikely that abbreviations will ever be eliminated, and naïve to assume that they can be systematically approached in any realistic timeframe, the healthcare professions must work together to ensure that abbreviations are used appropriately.

What Healthcare Practitioners, Agencies, Authors, and Editors Can Do

Before practitioners, researchers, and authors introduce a new abbreviation, they must question whether it is necessary to do so. Do not create an abbreviation that is already in use for some other meaning or has a contradictory or ambiguous meaning. To accomplish this, use comprehensive and up-to-date resources such as the US National Library of Medicine's PubMed, Internet search engines, medical abbreviations books, and websites.

There are several character similarities and risky abbreviation construction practices that are apparent in **Table 1** (pages 3-5), which should serve as a signal that many medical abbreviations can be easily misinterpreted and may be dangerous. These characteristics should lead to the following guiding principles when it comes to medical abbreviations:

- Avoid abbreviating drug names entirely
- Employ great care when abbreviating health syndromes, diseases, and conditions
- Be particularly sensitive to the problems caused by the following abbreviations:

<input type="checkbox"/> B for breast, brain, or bladder	<input type="checkbox"/> C for cerebral, coronary, or carotid
<input type="checkbox"/> H for hand or hip	<input type="checkbox"/> I for impaired or improvement
<input type="checkbox"/> L for liver or lung	<input type="checkbox"/> N for no or normal
<input type="checkbox"/> P for pancreas, prostate, preeclampsia, or psychosis	
<input type="checkbox"/> S for special or standard	

Authors and medical editors must follow these principles when reviewing and editing proposed manuscripts to make sure they do not introduce contradictory, ambiguous, or dangerous abbreviations into the health-related vocabulary. No abbreviation should be used in titles and abstracts unless it is defined, as the body of the text will not appear in an abstracting service. Any abbreviations used in the body of the text must be defined.

The person who uses an abbreviation must take responsibility for making sure that it is properly interpreted. When an uncommon or ambiguous abbreviation is used and it may not be understood correctly, it should be defined by the writer/sender (even on professional discussion boards). Where uncertainty exists, clarification with the one who used the abbreviation is required. There is hope that IBM Watson-like products, artificial intelligence, and future technologies can be used to devise additional workable solutions.

References

- 1) Davis NM. *Medical Abbreviations: 55,000 Conveniences at the Expense of Communication and Safety*. 16th ed. Warminster, PA: Neil M. Davis Associates; 2020.
- 2) MedAbbrev.com. Website by Neil M. Davis; 2020. <https://medabbrev.com/>
- 3) The Joint Commission. Medication errors related to potentially dangerous abbreviations. *Sentinel Event Alert*. 2001;Sep(23):1-4.
- 4) The Joint Commission. Information management standard IM.02.02.01, EP 2, 3. 2020 Comprehensive Accreditation Manual for Hospitals (CAMH). Oakbrook Terrace, IL: The Joint Commission; 2019.

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Table 1. Medical Abbreviations That Have Contradictory or Ambiguous Meanings^{1,2}

Abbreviation	Contradictory or Ambiguous Meanings
Drug Name and Drug Regimen Abbreviations	
AMI	amifostine, amitriptyline, or acute myocardial infarction
ATR	atropine or atracurium
AZT	azidothymidine (zidovudine) or aza THIO prine
CPM	cyclophosphamide or chlorpheniramine maleate
CPZ	chlorpro MAZINE or COMPAZINE* (prochlorperazine)
DNR	DAUNO rubicin, did not respond, do not report, or do not resuscitate
DW	dextrose in water, distilled water, or deionized water
DXM	dexamethasone, dexmedetomidine, or dextromethorphan
FEC	fluorouracil, epi RUB icin, and cyclophosphamide; or fluorouracil, etoposide, and CIS platin
GEM	gemfibrozil or gemcitabine
KET	ketamine or ketoconazole
MP	melfalan and predni SONE ; or mito XANTRONE and predni SONE
MTZ	mirtazapine, mito XANTRONE , or met OL azone
NITRO	nitroglycerin or sodium nitroprusside
PBZ	phenylbutazone, PYRIBENZAMINE* , or phenoxybenzamine
PIT	PITOCIN (oxytocin) or PITRESSIN* (vasopressin)
TAC	tetracaine, ADRENALIN (EPINEPH rine), and cocaine solution; or triamcinolone cream
TMZ	temazepam or temozolomide
VAC	VEPESID* (etoposide), ARA-C* (cytarabine), and CARBO platin; vin CRIS tine, actinomycin D (DACTIN omycin), and cyclophosphamide; or vin CRIS tine, ADRIAMYCIN (DOXO rubicin), and cyclophosphamide
VAD	vin CRIS tine, Adriamycin (DOXO rubicin), and dexamethasone; or vin CRIS tine, Adriamycin (DOXO rubicin), and DACTIN omycin
VAP	vin CRIS tine, Adriamycin (DOXO rubicin), and predni SONE ; vin CRIS tine, Adriamycin (DOXO rubicin), and procarbazine; vin CRIS tine, actinomycin D (DACTIN omycin), and PLATINOL-AQ* (CIS platin); or vin CRIS tine, asparaginase, and predni SONE
Anatomy-Related Abbreviations	
APC	advanced pancreatic cancer or advanced prostate cancer
BCa	bladder cancer or breast cancer
BO	bowel open or bowel obstruction
CAS	carotid artery stenosis, cerebral arteriosclerosis, or coronary artery stenosis
CLD	chronic liver disease or chronic lung disease
ESLD	end-stage liver disease or end-stage lung disease
HOA	hand osteoarthritis or hip osteoarthritis
HO	hand orthosis or hip orthosis
IAI	intra-abdominal infection or intra-abdominal injury
IBC	invasive bladder cancer, invasive breast cancer, or inflammatory breast cancer
ICA	internal carotid artery, intracranial abscess, or intracranial aneurysm
LAPC	locally advanced pancreatic cancer or locally advanced prostate cancer
LF	left foot, little finger, or long finger
LKT	laparoscopic kidney transplantation or liver-kidney transplantation

* Brand product no longer available in the US.

Table 1 — continued on page 4 ▶

Table 1 — continued from page 3

Abbreviation	Contradictory or Ambiguous Meanings
LL	left leg, left lung, lower lid, lower limb, or lower lip
LNE	lymph node enlargement or lymph node excision
LT	liver transplant or lung transplant
Ltx	liver transplant or lung transplant
LVO	left ventricular opacification, left ventricular output, or left ventricular overactivity
MBC	male breast cancer or metastatic breast cancer
MPM	malignant peritoneal mesothelioma or malignant pleural mesothelioma
NBM	no bowel movement, normal bowel movement, or nothing by mouth
OLB	open-liver biopsy or open-lung biopsy
OPC	operable pancreatic carcinoma, oropharyngeal cancer, or oropharyngeal candidiasis
PAA	popliteal artery aneurysm or pulmonary artery aneurysm
PBL	primary breast lymphoma or primary brain lymphoma
SCCP	squamous cell carcinoma of the penis or small cell carcinoma of the prostate
TSCC	thymic squamous cell carcinoma, tongue squamous cell carcinoma, or tonsillar squamous cell carcinoma
WBRT	whole-brain radiotherapy or whole-breast radiotherapy
Abbreviations for Syndromes	
RS	Raynaud's syndrome, Reiter's syndrome, Rett syndrome, Reye's syndrome, or Richter's syndrome
SJS	Schwartz-Jampel syndrome, Stevens-Johnson syndrome, or Swyer-James syndrome
TS	Tay-Sachs (disease), Tourette syndrome, or Turner syndrome
WS	Waardenburg syndrome, Werner syndrome, West syndrome, or Williams syndrome
Abbreviations for Patient Care Units	
ACU	ambulatory care unit or acute receiving unit
IPCU	inpatient palliative care unit, intensive pediatric care unit, or intensive psychiatric care unit
PCU	palliative care unit, primary care unit, progressive care unit, or protective care unit
TICU	thoracic intensive care unit, transplant intensive care unit, or trauma intensive care unit
Abbreviations for Diseases, Symptoms, and Conditions	
ADVT	acute deep venous thrombosis or asymptomatic deep venous thrombosis
ED	eating disorder, elbow disarticulation, emotional disorder, or erectile dysfunction
EIH	environmentally induced hyperthermia, exercise-induced hypertension, exercise-induced hyperthermia, or exercise-induced hypoxemia
EOP	early-onset Parkinsonism, early-onset pneumonia, early-onset preeclampsia, or early-onset psychosis
GD	Graves' disease or Gaucher disease
HCC	hepatocellular carcinoma or Hürthle cell carcinoma
HD	Hansen's disease, Hodgkin's disease, or Huntington's disease
IAD	incontinence-associated dermatitis or intractable atopic dermatitis
IRDM	insulin-requiring diabetes mellitus or insulin resistant diabetes mellitus
IRF	impaired renal function or improvement in renal function
MS	mitral stenosis or multiple sclerosis
PD	Paget's disease, panic disorder, Parkinson's disease, personality disorder, or Peyronie's disease
PHTN	portal hypertension, prehypertension, or pulmonary hypertension
PVO	peripheral vascular occlusion, portal vein occlusion, or pulmonary venous occlusion

* Brand product no longer available in the US.

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Table 1 — continued from page 4

Abbreviation	Contradictory or Ambiguous Meanings
RM	radical mastectomy or reduction mammoplasty
RTI	reproductive tract infection or respiratory tract infection
SAD	social anxiety disorder or seasonal affective disorder
Miscellaneous Abbreviations	
ABP	ambulatory blood pressure or arterial blood pressure
AQoL	acne quality of life, assessment of quality of life, or asthma-related quality of life
BR	bright red or brown
ERT	enzyme replacement therapy or estrogen replacement therapy
I & D	incision and drainage or irrigation and debridement
IT	intrathecal, intratracheal, intratumoral, or intratympanic
LAM	laminectomy, laparoscopic-assisted myomectomy, or laser-assisted myringotomy
LFD	lactose-free diet, low-fat diet, or low-fiber diet
Mon	Monday or month
MV	mechanical ventilation, manual ventilation, or mitral valve
NABS	no active bowel sounds or normoactive bowel sounds
NAF	Native-American female or normal adult female
NE	no effect, no enlargement, or not evaluated
PORT	postoperative radiotherapy, postoperative respiratory therapy, perioperative respiratory therapy, or prostate-only radiotherapy
S & S	swish and spit or swish and swallow
SA	suicide alert or suicide attempt
SDBP	seated diastolic blood pressure, standing diastolic blood pressure, or supine diastolic blood pressure
SGAs	second-generation antihistamines or second-generation antipsychotics
SSE	saline solution enema or soapsuds enema
STF	special tube feeding or standard tube feeding
TBA	to be absorbed, to be added, to be administered, to be admitted, to be announced, to be arranged, or to be assessed
T/E	testosterone to epitestosterone (ratio), testosterone to estrogen (ratio), or trunk-to-extremity skinfold thickness (index)
Tx	therapist, therapy, traction, transcription, transfer, transfuse, transplant, transplantation, or treatment

* Brand product no longer available in the US.

Table 2. Examples of Common Abbreviations That Have Become Word-Like

Word-Like Abbreviations					
lab	rehab	exam	info	demo	pro
auto	plane	email	JAMA	NEJM	DNA
AIDS	HIV	MRI	CT	DNR	ASAP
MD	RN	ICU	WBC	RBC	H2O
mg	mL	kg	lb	NSAIDs	911
Na	K	°C	°F	AM	PM
days of the week		months of the year		USA	UK

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