

Medical abbreviations with multiple meanings: A prescription for disaster

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Abstract

A partial list of medical abbreviations that have dangerous contradictory or ambiguous meanings is presented. The purpose of presenting this list is to sensitise health-related practitioners and medical editors to this problem. Suggestions are made on how to prevent the introduction of dangerous contradictory or ambiguous meanings for abbreviations.

Background

My first published book in 1983 contained the meanings of 1700 abbreviations. To expand this book, I contacted US hospitals and requested lists of abbreviations that were used at their facility, searched the medical literature, and asked readers to send me abbreviations that I had not listed. I now have published 16 editions of the book, the latest one being *Medical Abbreviations: 55,000 Conveniences at the Expense of Communication and Safety* (ISBN 978-0-931431-00-5), 2020.¹ A web-version of this book (medabbrev.com) is updated each week with over 50 new entries.

Contradictory or ambiguous meanings

Over the years, I noticed how one abbreviation could have two or more contradictory or ambiguous meanings, which can create dangerous miscommunications. I collected these meanings and they represent a growing list on the website, medabbrev.com.¹ Examples from the most recent list are shown in these pages. It is obvious from

an examination of this list that the use of these abbreviations does not communicate with any certainty and presents possible dangers to the health of patients.

The US Joint Commission has required accredited health care organisations in the US to develop a *Do Not Use List* identifying dangerous abbreviations to avoid. That is a step in the right direction, but it does not completely solve the systemic problem of the numerous abbreviations with dangerous contradictory or ambiguous meanings.

Possible solutions to solving the problem

Create an International Recognised Approved (Standardised) List of Abbreviations

A simplistic approach is to create an internationally recognised list of approved abbreviations with each abbreviation having only one meaning. The problem with this approach is to get all of the medical specialties, allied health professionals, health-related organisations, and government agencies to agree on one meaning for each abbreviation.

An internationally recognised health-related organisation would have to take responsibility for creating and maintaining such a list. They would have to reach out to all of the health-related organisations to suggest abbreviations that should be on this list. There would have to be arbitration between organisations when there is conflict if a suggested abbreviation has more than one submitted meaning, such as PT for physical therapy, prothrombin time, preterm, parathyroid, patellar tendon, patient, phototoxicity, etc. It would be unrealistic to believe that health professionals would honour the distinction between the meanings of PT, pt., and Pt. Such an endeavour will take hundreds of thousands of hours. When and if such an approved list is created it will have to be maintained, as new abbreviations will be presented to be added; this would involve review and approval by all of the interested parties.

If such an endeavour were extended to be used worldwide, it would encounter the difference in how the Romance languages are structured. As an example, HIV (human

immunodeficiency virus) is expressed as VIH (*virus de la inmunodeficiencia humana*).

A European edition may have to be published showing differences such as are found in spelling.

Disallow the use of abbreviations

Not allowing the use of abbreviations would be very difficult to introduce and enforce because:

- Health-related personnel have used abbreviations as part of their daily routine throughout their entire career and it would be very difficult to break this habit.
- Some abbreviations are in such common usage that they have become word-like, such as: rehab, exam, info, demo, pro, DNA, AIDS, MRI, CAT, DNR, ASAP, ICU, WBC, RBC, CPAP, EU, US, EMA, FDA, days of the week, months of the year, AM, PM, mL, kg, lb, Na, K, MD, RN, °C, °F, H₂O, and hundreds more.
- The use of abbreviations saves time for the writer and reader, saves space, decreases the possibility of misspellings, and makes it easier to fit information into a restricted space provided on a form or table.

Practitioners and agencies, authors, and editors can attack the problem

Before a new abbreviation is invented by researchers and authors, they must question whether it is necessary to do so. Do not create an abbreviation that is already in common use or has a contradictory or ambiguous meaning. To accomplish this, use common sense or consult comprehensive and up-to-date resources such as the US National Library of Medicine's PubMed, medical abbreviation books, and websites.

As you may see in the examples included with this article, there are certain circumstances in which a proposed abbreviation may be dangerous because it can easily be misinterpreted. These similarities should lead one to consider the following:

1. Where possible, avoid abbreviating drug names.
2. Abbreviate syndromes with great care.
3. Be sensitive to the problems caused by:
 - the abbreviation B for breast, brain, blood, or bladder
 - the abbreviation L for liver or lung

- the abbreviation P for pancreas or prostate
- the abbreviation H for hand or hip
- the abbreviation R for renal or respiratory
- the abbreviation C for cerebral, coronary, or carotid
- the abbreviation N for no or normal
- the abbreviation S for special or standard
- the abbreviation O for open or obstructed

Medical editors must be diligent in following these principles when reviewing and editing proposed manuscripts to make sure they do not introduce contradictory, ambiguous, and dangerous abbreviations into the health-related vocabulary. Those abbreviations that are used must be defined. 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.

There is hope that artificial intelligence, voice recognition, and future products can be used to devise additional workable solutions to the stated problems.

Conflicts of interest

The author receives proceeds from the *Medical Abbreviations* book and website.

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.

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Anatomy-Related

APC

- advanced pancreatic cancer
- advanced prostate cancer

BCa

- bladder cancer
- breast cancer

BO

- bowel obstruction
- bowel open

CAS

- carotid artery stenosis
- cerebral arteriosclerosis
- coronary artery stenosis

CLD

- chronic liver disease
- chronic lung disease

ESLD

- end-stage liver disease
- end-stage lung disease

HAO

- hand osteoarthritis
- hip osteoarthritis

HO

- hand orthosis
- hip orthosis

IAI

- Intra-abdominal infection
- Intra-abdominal injury

IBC

- invasive bladder cancer
- invasive breast cancer

ICA

- internal carotid artery
- intracranial abscess
- intracranial aneurysm

LAPC

- locally-advanced pancreatic cancer
- locally-advanced prostatic cancer

LF

- left foot
- little finger
- long finger

LKT

- laparoscopic kidney transplantation
- liver-kidney transplantation

LL

- left leg
- left lung
- lower lid
- lower limb
- lower lip

LNE

- lymph node enlargement
- lymph node excision

LT

- liver transplantation
- lung transplantation

Ltx

- liver transplant
- lung transplant

LVO

- left ventricular opacification
- left ventricular output
- left ventricular over activity

MBC

- male breast cancer
- metastatic breast cancer

MPM

- malignant peritoneal mesothelioma
- malignant pleural mesothelioma

NBM

- no bowel movement
- normal bowel movement
- nothing by mouth

OLB

- open-liver biopsy
- open-lung biopsy

OPC

- operable pancreatic carcinoma
- oropharyngeal cancer
- oropharyngeal candidiasis

PAA

- popliteal artery aneurysm
- pulmonary artery aneurysm

PBL

- primary brain lymphoma
- primary breast lymphoma

SCCP

- small cell carcinoma of the prostate
- squamous cell carcinoma of the penis

TSCC

- thymic squamous cell carcinoma
- tongue squamous cell carcinoma
- tonsillar squamous cell carcinoma

WBRT

- whole-brain radiotherapy
- whole-breast radiotherapy



Drug names

<p>AMI</p> <ul style="list-style-type: none"> ● amifostine ● amitriptyline <p>ATR</p> <ul style="list-style-type: none"> ● Atracurium ● atropine <p>AZT</p> <ul style="list-style-type: none"> ● azathioprine ● azidothymidine (zidovudine) <p>CLOF</p> <ul style="list-style-type: none"> ● clofarabine ● clofazimine <p>CPM</p> <ul style="list-style-type: none"> ● chlorpheniramine maleate ● cyclophosphamide <p>CPZ</p> <ul style="list-style-type: none"> ● chlorpromazine ● Compazine 	<p>DNR</p> <ul style="list-style-type: none"> ● daunorubicin ● did not respond ● do not report ● do not resuscitate <p>DW</p> <ul style="list-style-type: none"> ● deionised water ● dextrose in water ● distilled water <p>DX</p> <ul style="list-style-type: none"> ● dexamethasone ● dexmedetomidine ● dextromethorphan <p>FEC</p> <ul style="list-style-type: none"> ● fluorouracil, epirubicin, and cyclophosphamide ● fluorouracil, etoposide, and cisplatin 	<p>GEM</p> <ul style="list-style-type: none"> ● gemcitabine ● gemfibrozil <p>KET</p> <ul style="list-style-type: none"> ● ketamine ● ketoconazole <p>MP</p> <ul style="list-style-type: none"> ● melphalan ● prednisone ● mitoxantrone ● prednisone <p>MTZ</p> <ul style="list-style-type: none"> ● mirtazapine ● mitoxantrone <p>NITRO</p> <ul style="list-style-type: none"> ● nitroglycerin ● sodium nitroprusside 	<p>PBZ</p> <ul style="list-style-type: none"> ● phenoxybenzamine ● phenylbutazone ● pyribenzamine <p>Pit</p> <ul style="list-style-type: none"> ● Pitocin ● Pitressin <p>TAC</p> <ul style="list-style-type: none"> ● tetracaine, adrenaline, and cocaine solution ● triamcinolone cream 	<p>TMZ</p> <ul style="list-style-type: none"> ● temazepam ● temozolomide <p>VAC</p> <ul style="list-style-type: none"> ● etoposide (VePesid), cytarabine (ara-C), and carboplatin ● vincristine, dactinomycin (actinomycin D), cyclophosphamide ● vincristine, doxorubicin (Adriamycin) and cyclophosphamide 	<p>VAD</p> <ul style="list-style-type: none"> ● vincristine, doxorubicin (Adriamycin) and dactinomycin ● vincristine, doxorubicin, (Adriamycin) and dexamethasone <p>VAP</p> <ul style="list-style-type: none"> ● vincristine, actinomycin D, and Platinol AQ ● vincristine, Adriamycin, and prednisone ● vincristine, Adriamycin, and procarbazine ● vincristine, asparaginase, and prednisone
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Diseases, symptoms, and conditions

<p>ADVT</p> <ul style="list-style-type: none"> ● acute deep venous thrombosis ● asymptomatic deep venous thrombosis <p>ED</p> <ul style="list-style-type: none"> ● eating disorder ● elbow disarticulation ● emotional disorder ● erectile dysfunction <p>EIH</p> <ul style="list-style-type: none"> ● environmentally induced hyperthermia ● exercise-induced hypertension ● exercise-induced hyperthermia ● exercise-induced hypoxaemia 	<p>EOP</p> <ul style="list-style-type: none"> ● early-onset Parkinsonism ● early-onset pneumonia ● early-onset preeclampsia ● early-onset psychosis <p>GD</p> <ul style="list-style-type: none"> ● Gaucher disease ● Graves' disease <p>HCC</p> <ul style="list-style-type: none"> ● hepatocellular carcinoma ● Hurthle cell carcinoma <p>HD</p> <ul style="list-style-type: none"> ● Hansen disease ● Hodgkin disease ● Huntington disease <p>IAD</p> <ul style="list-style-type: none"> ● incontinent associated dermatitis ● intractable atopic dermatitis 	<p>IRDM</p> <ul style="list-style-type: none"> ● insulin-required diabetes mellitus ● Insulin-resistant diabetes mellitus <p>IRF</p> <ul style="list-style-type: none"> ● impaired renal function ● improvement in renal function <p>MS</p> <ul style="list-style-type: none"> ● mitral stenosis ● multiple sclerosis <p>PD</p> <ul style="list-style-type: none"> ● Paget disease ● panic disorder ● Parkinson disease ● personality disorder ● Peyronie disease 	<p>PHTN</p> <ul style="list-style-type: none"> ● portal hypertension ● prehypertension ● pulmonary hypertension <p>PVO</p> <ul style="list-style-type: none"> ● peripheral vascular occlusion ● portal vein occlusion ● pulmonary venous occlusion 	<p>RM</p> <ul style="list-style-type: none"> ● radical mastectomy ● reduction mammoplasty <p>RTI</p> <ul style="list-style-type: none"> ● reproductive tract infection ● respiratory tract infection <p>SAD</p> <ul style="list-style-type: none"> ● seasonal affective disorder ● social anxiety disorder
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Miscellaneous

ABP

- ambulatory blood pressure
- arterial blood pressure

AQoL

- Acne Quality of Life
- Assessment of Quality of Life
- Asthma-related Quality of Life
- Australian Quality of Life

BR

- bright red
- brown

ERT

- enzyme replacement therapy
- estrogen replacement therapy

FSW

- female sex worker
- field service worker

I & D

- incision and drainage
- irrigation and debridement

IT

- intrathecal
- intratracheal
- intratumoural
- intratympanic

LAM

- laminectomy
- laparoscopic-assisted myomectomy
- laser-assisted myringotomy

LFD

- lactose-free diet
- low fat diet
- low fibre diet

LHSH

- long-handled shoehorn
- long-handled shower head

Mon

- Monday
- month

MV

- manual ventilation
- mechanical ventilation



NABS

- no active bowel sounds
- normoactive bowel sounds

NE

- no effect
- no enlargement
- not evaluated

PORT

- postoperative radiotherapy
- postoperative respiratory therapy
- prostate-only radiotherapy

S & S

- swish and spit
- swish and swallow

SA

- suicide alert
- suicide attempt

SDBP

- seated diastolic blood pressure
- standing diastolic blood pressure
- supine diastolic blood pressure

SGAs

- second-generation antihistamines
- second-generation antipsychotics

SSE

- saline solution enema
- soapsuds enema

STF

- special tube feeding
- standard tube feeding

TBA

- to be absorbed
- to be added
- to be administered
- to be admitted
- to be announced
- to be arranged
- to be assessed

T/E

- testosterone to epitestosterone (ratio)
- testosterone to estrogen (ratio)
- trunk-to-extremity skinfold thickness (index)

Tx

- therapist
- therapy
- traction
- transcription
- transfer
- transfuse
- transplant
- transplantation
- treatment

Patient care units

ACU

- acute receiving unit
- ambulatory care unit

IPCU

- inpatient palliative care unit
- intensive paediatric care unit
- intensive psychiatric care unit

PCU

- palliative care unit
- primary care unit
- progressive care unit
- protective care unit

TICU

- thoracic intensive care unit
- transplant intensive care unit
- trauma intensive care unit

Syndromes

RS

- Raynaud syndrome
- Reiter syndrome
- Rett syndrome
- Reye syndrome
- Richter syndrome

SJS

- Schwartz-Jampel syndrome
- Stevens-Johnson syndrome
- Swyer-James syndrome



TS

- Tay-Sachs (disease)
- Tourette syndrome
- Turner syndrome

WS

- Waardenburg Syndrome
- Warner Syndrome
- West Syndrome
- Williams Syndrome