

United States Adopted Names (USAN) designate formally negotiated nonproprietary names for drugs. The newly revised procedures and principles for the selection of USAN are described in this statement.

Procedures and Principles of the USAN Council

The USAN Council encourages all manufacturers who have discovered or developed a new drug to submit a proposed nonproprietary name (or names) to the secretary of the Council on Drugs, when its preliminary clinical evaluation indicates that more extensive clinical testing is warranted, or sooner if possible. These submissions will be referred to the USAN Council, the joint nomenclature committee of the American Medical Association, American Pharmaceutical Association, and the United States Pharmacopeia, for its consideration. Submission of a nonproprietary name is also desired for new salts of older drugs as well as for nonproprietary names already adopted or recommended by other national or international agencies.

The initial submission of nonproprietary terminology should be accompanied by disclosure of the manufacturer's code number, the chemical name (*Chemical Abstracts* index names only are to be used) and the structural formula of the compound when these are known or by a description of the source and general method of preparation that accurately defines the product. The submission should also indicate the general pharmacological class or area of intended clinical use of the drug and, when available, the trade name which is to be applied.

The USAN Council, with staff assistance, will review the proposed name(s) and, if necessary, negotiate with the manufacturer to ensure that a convenient and appropriate nonproprietary name is adopted for each new drug. Trivial names used in the scientific literature cannot be adopted for

those products which become drugs unless they are formally reviewed by the USAN Council to determine if there is an absence of conflict with established drug names and whether they conform to existing guiding principles. The guiding principles for devising nonproprietary names appear below.

When a nonproprietary name satisfactory to both the USAN Council and the manufacturer is selected, it is published in the *Trademark Bulletin* of the Pharmaceutical Manufacturers Association under the heading, "Proposed USAN." Such publication serves to alert the industry of the Council's intention to adopt the nonproprietary names listed; any objection to the proposed adoption should be brought to the attention of the USAN Council staff within a month of publication. Only the nonproprietary name and a therapeutic indication are published at this stage so that neither the chemical identity of the product nor the name of the manufacturer is disclosed.

Upon agreement between the manufacturer and the USAN Council on a suitable nonproprietary name, and with the express permission of the manufacturer (which can be given with the initial submission of a proposed nonproprietary name), the Council then transmits the proposed name to the World Health Organization, the British Pharmacopoeia Commission, and the representatives of the French Codex, the Nordic Pharmacopoea, the United States Pharmacopeia, the National Formulary, and the Food and Drug Administration for their simultaneous consideration. In the event that the pertinent nomenclature information is published elsewhere or the drug is marketed, the above permission will not be required. In the case of serums or vaccines, the proposed terminology is also transmitted to the Division of Biologic

The Nomenclature Section of the AMA Council on Drugs also staffs the USAN Council. Nonproprietary name submissions may be addressed to: Secretary, Council on Drugs, American Medical Association, 535 N Dearborn St, Chicago 60610.

Standards of the National Institutes of Health.

In the absence of serious objection from the foregoing agencies, or known conflict with established nonproprietary or trade names, after a waiting period of 30 days, the proposed name is considered to be acceptable to all concerned. The adoption is recorded as final by the Council and the manufacturer is so informed. While this adoption is for national use, the Council staff will exert its best efforts to effect international adoption of the same terminology through the mechanisms of the World Health Organization.

Each nonproprietary name adopted in accordance with the provisions of this cooperative nomenclature program will be published as the United States Adopted Name (USAN) in the NEW NAMES section of *THE JOURNAL of the American Medical Association*. This will be the designation used if, and when, the drug is admitted to the *United States Pharmacopeia* or *National Formulary*. The USAN is usually indicated by appropriate notation in the current drug nomenclature compilations.

Guiding Principles

Coining Nonproprietary Names.—The term “nonproprietary name,” has special significance in pharmacy and medicine as applied to a substance of potential or proven therapeutic usefulness. By definition, a nonproprietary name is not subject to any proprietary trade mark rights and, therefore, is entirely in the public domain. It is this feature that distinguishes it from the one or more trade mark names that may have been registered for private use to identify an individual brand of the substance. Attributes that are desirable in nonproprietary names are phonetic euphony and a high degree of those intangible qualities of a term that enhance ready recognition and quick recall.

To encourage the choice of names of greater potential usefulness, the following guiding principles have been formulated:

General Rules.—1. A name should be distinctive in sound and spelling. It should be conveniently short and prevent confusion with other names currently or formerly in common use.

2. A name should indicate the general pharmacological or therapeutic class into which the substance falls or the general chemical nature of the substance if the latter is associated with a specific pharmacological activity.

3. The name of the first or parent substance of a new group should embody a syllable or syllables characteristic of that group. A name of a member of the same group subsequently introduced should incorporate the distinctive letter combination in such a way that the association will be recognizable.

Specific Rules.—1. In naming a salt, the preferred order is cation-anion, eg, sodium lactate.

2. In naming an ester, salt, chelate, or complex, preference should be given to a two-word name indicating the major components.

Use the contractions indicated below for the radicals shown:

camphorsulfonate	camsylate
<i>p</i> -chlorobenzenesulfonate	closylate
β -cyclopentylpropionate	cypionate
diethanolamine	diolamine
ethane-1,2-disulfonate	edisylate
ethanolamine	olamine
glucoheptonate	gluceptate
heptanoate	enanthate
2-hydroxyethanesulfonate	isethionate
isopropylidene ether of a dihydric alcohol	acetonide
methanesulfonate	mesylate
4,4'-methylenebis(3-hydroxy-2-naphthoate)	pamoate
<i>N</i> -methylglucamine	meglumine
naphthalene-2-sulfonate	napsylate
toluene- <i>p</i> -sulfonate	tosylate
triethanolamine	trolamine
trimethylacetate	pivalate

3. A name for a salt or ester should in general apply to the pharmacologically active moiety or corresponding acid, ie, acetic acid, sodium acetate, ethyl acetate, and so on. When a nonacid suffix is used, as is customary in the penicillin series, a salt should be named without modification of the parent acid name, eg, oxacillin and sodium oxacillin. Names for different salts or esters of the same active moiety should differ only in the name of the inactive portion; exceptions are permissible when both parts of the salt or ester possess pharmacological activity.

In other words, with the adoption of a USAN for a salt or ester (or acid), the USAN Council has selected a fundamental designation which is to be used, properly modified in the customary manner, for all other salts or esters of the same acid.

A quaternary ammonium substance should name cation and anion appropriately and separately, eg, octonium bromide, not octonine methylbromide.

In naming complexes, the second word of the two-word name should end with the suffix -ex (example, bisacodyl tannex). This procedure eliminates any need to include the word “complex” in the USAN for this type of drug.

4. A name for a drug containing a radioactive atom should be constructed in the following pattern: tolpovidone I 131; rose bengal I 131; cyanocobalamin Co 60; potassium bromide Br 82.

Preferred Construction.—Group relationships in a name preferably should be shown by use of the syllables or stems in the tables; conversely, use of the stem should be restricted to the appropriate group. If conflict arises, the stem which conveys the most information should be used.

Preferred Spelling.—1. The use of an isolated letter or number and hyphenation should be restricted to those groups of substances for which such usage fulfills a clearly demonstrable purpose.

2. To facilitate translation and pronunciation, “f” preferably should be used instead of “ph,” “t” instead of “th,” and “e” instead of “ae” or “oe.”

3. Syllables like “methylhydro” and “chlor” preferably should be condensed, ie, “medro” and “clo.”

Listing by Syllables

-andr-; or -stan-; or -ster- -apol- -arol -bamate	} androgenic drugs
	polysulfonic anticoagulants
	anticoagulants (cumarin type only)
	tranquilizers of the propanediol series (including pentanediols)
-barb	barbituric acids
-bol-	anabolic steroids
-caine	local anesthetics
ceph-	antibiotics possessing cephalosporanic acid nucleus
-cillin	penicillins: derivatives of 6-amino- penicillanic acid
-cort-	cortisone derivatives
-crine	antimicrobial acridine derivatives
-curine	curare-like drugs
-cycline	tetracycline derivatives
-drate	antacids that are hydrates
-eridine	analgesics of the meperidine group
-estr-	estrogenic drugs
-formin	biguanide hypoglycemic drugs
-gest-	progestins (other than 19-nor steroids)
gly-	sulfonamide hypoglycemic drugs
io-	iodine-containing contrast media
iod- or -io-	iodine-containing compounds not used as contrast media
-mer-	mercurials
-mycin	antibiotics produced by Streptomyces strains
nal-	N-allylnormorphine compounds
-orex	anorexigenic agents
-pramine	dibenzazepine compounds of imipramine type—straight side chain
-pred-	steroids, prednisone and prednisolone derivatives
-quine	quinoline derivatives
-stigmine	anticholinesterases (neostigmine type)
sulfa-	antimicrobial sulfonamides
-thiazide	diuretics that are thiazide derivatives
-toin	hydantoin antiepileptics
-ine	alkaloids and organic bases
-one	ketones only
-onium	quaternary amines

The following syllables are reserved for use only in the categories described:

anti-	drug category classification
poly-	optional use for polymers

Listing by Category

Anabolic steroids	}	bol-
Analgesics of meperidine group		-eridine
Androgenic drugs	}	-andr-
		-stan-
	}	-ster-
		-caine
	}	-orex
		-drate
Anesthetics, local	}	ceph-
Anorexigenic agents		-cycline
Antacids that are hydrates	}	-mycin
Antibiotics possessing cephalosporanic acid nucleus		-stigmine
Antibiotics; tetracycline derivatives	}	-arol
Antibiotics produced by Streptomyces strains		-apol-
Anticholinesterases (neostigmine type)	}	-toin
Anticoagulants (cumarin type only)		-crine
Anticoagulants, polysulfonic	}	sulfa-
Antiepileptics, hydantoin type		-barb
Antimicrobial acridine derivatives	}	-cort-
Antimicrobial sulfonamides		-curine
Barbituric acids	}	-pramine
Cortisone derivatives		-thiazide
Curare-like drugs	}	-estr-
Dibenzazepine compounds of imipramine type —straight side chain		-formin
Diuretics that are thiazide derivatives	}	gly-
Estrogenic drugs		io-
Hypoglycemic drugs, biguanide type	}	iod- or -io-
Hypoglycemic drugs, sulfonamide type		-mer-
Iodine-containing contrast media	}	nal-
Iodine-containing compounds not used as contrast media		-cillin
Mercurials	}	-gest-
N-allylnormorphine compounds		-quine
Penicillins: derivatives of 6-aminopenicillanic acid	}	-pred-
Progestins (other than 19-nor steroids)		-bamate
Quinoline derivatives	}	-ine
Steroids, prednisone and prednisolone derivatives		-one
Tranquilizers of the propanediol series (including pentanediols)	}	-onium
Alkaloids and organic bases		
Ketones only		
Quaternary amines		

Critique and Cavil

In a previous contribution on eyelashes, I mentioned the low-pitched growling cry that is one of a number of clinical findings in a mental retardation syndrome known as the de Lange syndrome. It is interesting that there is another mental retardation syndrome in which the patient is described as having a peculiar cry, namely, a cat-like cry. This condition, known as *cri du chat* syndrome, is mentioned in a recent JOURNAL editorial (190:772 [Nov 23] 1964). If you compare the two syndromes, you will find that they resemble each other remarkably.

For instance, cardinal features in both are failure to thrive, mental retardation, microcephaly, hypertelorism, micrognathia, low-set ears, small external genitalia, and transverse palmar creases (simian). In spite of their surprising similarity, there seems to be at least one basic difference. *Cri du chat* syndrome has been found to have an associated abnormality in chromosome 5. However, no consistent chromosomal abnormality has been reported for the de Lange syndrome.

GEORGE X. TRIMBLE, MD