Drugs

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Physicians and other health care professionals, patients, researchers, manufacturers, and the public may refer to drugs by several names, including the nonproprietary name (often referred to as the generic name) and at least 1 proprietary (brand) or trademark name selected by the manufacturer of the drug. Other drug identifiers include chemical names, trivial (unofficial) names, and code designations.(pp12-15) However, only 1 drug name, the nonproprietary name, is regulated internationally to ensure consistent usage and no duplication with other drugs. Once a drug has been assigned a nonproprietary name, the nonproprietary name should always be used to refer to the drug.

Proprietary Names

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The manufacturer’s name for a drug (or other product) is called a proprietary name or brand name.(p15) Proprietary names use initial capitals, with a few exceptions (eg, pHisoHex). JAMA and the Archives Journals do not use the trademark symbol (™) or the registered trademark symbol (®) because capitalization indicates the proprietary nature of the name (see also , Legal and Ethical Considerations, Intellectual Property: Ownership, Access, Rights, and Management, Trademark). The International Trademark Association has information about specific trademarks and may be reached at http://www.inta.org/ or International Trademark Association, 1133 Avenue of the Americas, New York, NY 10036. Proprietary names

The Drug Development and Approval Process

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This brief summary of the drug development process is provided to help define the origins of different names used to identify drugs. Drugs intended for clinical use undergo several phases of development before they can be considered for human use. Animal studies are performed initially to assess pharmacologic and toxicologic effects. While clinical studies are being conducted, animal studies may continue to assess effects on reproduction, teratogenicity, and carcinogenicity.(p63) To perform clinical studies in the United States, the developer or manufacturer must obtain an investigational new drug (IND) approval from the US Food and Drug Administration (FDA).(p59) Once an IND

Nonproprietary Names

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The INN identifies a specific pharmaceutical substance or active pharmaceutical ingredient. The INN is in the public domain and can be used without restriction. It is sometimes referred to colloquially as the generic name. However, the terms generic and nonproprietary are not synonymous. Generic drugs are nontrademarked formulations of a drug that can be manufactured once a drug is no longer under patent restrictions. Generic drugs should be referred to by their nonproprietary name, just as are proprietary drugs. The INN reflects the chemistry, pharmacologic action, and therapeutic use through its stem. Herbals (see , Herbals and Dietary Supplements), homeopathic

Chemical Names

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The chemical name describes a drug in terms of its chemical structure.(p9) Chemical names are provided in the American Chemical Society's Chemical Abstracts (information available at http://www.cas.org/PRINTED/printca.html) and can be listed in 1 of 2 ways; the first reflects the way in which Chemical Abstracts indexes inverted chemical names: hydrazinecarboxyimidamide, 2-[-(2,6-dichlorophenoxy)ethyl]-, sulfate, (2:1) The second is the uninverted form: 2-[-(2,6-dichlorophenoxy)ethyl] hydrazinecarboxyimidamide sulfate, (2:1) Both forms follow the recommendations of the International Union of Pure and Applied Chemistry and the International Union of Biochemistry and Molecular Biology. Each chemical is also designated a registry number with the Chemical Abstract Society (information

Code Designations

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A code designation is a temporary designation assigned to a product by the institution or manufacturer and may be used to refer to a drug under development before a nonproprietary name has been assigned. Codes may be numeric, alphabetic, or alphanumeric; letters in alphanumeric codes designate the institution or manufacturer assigning the code designation of the drug, and are followed by numbers to designate the chemical compound.(p15) Once a nonproprietary name has been assigned, code designations become obsolete and are rarely used in medical publications. If both the code and the nonproprietary name are provided, such as in discussion of

Trivial Names

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Drugs occasionally become known by an unofficial trivial name. The trivial name should be used in biomedical publications only to reproduce the exact language used as part of a study (eg, in a questionnaire), for historical reasons, or rarely when readers may be unfamiliar with the nonproprietary name. When reproducing the exact language used in a study, the nonpropietary name should be provided in brackets after the term used in the study.The participants were asked, “Have you ever taken AZT [zidovudine] or ddI [didanosine]?” Participants who said they had taken zidovudine or didanosine were classified as having had prior exposure

Drugs With Inactive Components

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Drugs often contain a pharmacologically inactive component, eg, a base, salt, or ester, that is not responsible for the drug’s mechanism of action but lends stability or other properties to the drug. Drugs with both an active and inactive component generally require a 2-part name that provides the active and inactive portion of the drug. Inorganic salts and simple organic acids are named in the order cation-anion (eg, sodium chloride, magnesium citrate). For more complex organic compounds, the active component is named first (eg, oxacillin sodium).(p1224) Pharmacologically inactive components are generally salts, esters, and complexes. Sodium, potassium, chloride, hydrochloride, sulfate,

Stereoisomers

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Some molecules may occur with identical atoms in the same sequence but with different spatial arrangements. These are referred to as stereoisomers. A stereoisomer that is nonsuperimposable on its mirror image is chiral, and an atom with 4 different substituents is a chiral center; the 2 mirror images are enantiomers. An equal mixture of the 2 enantiomers is racemic. Generally only 1 enantiomer is biologically active, as in the case of ibuprofen. In some cases, one enantiomer may be biologically beneficial while the other enantiomer is harmful. For example, one enantiomer of thalidomide is a beneficial drug whereas the other

Combination Products

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For combination products (mixtures), the names of the active ingredients should be provided. The proprietary name of the combination may be given in parentheses if necessary to clarify the product to which the article refers.pseudoephedrine hydrochloride and triprolidine hydrochloride (Actifed) povidone and hydroxyethylcellulose (Adsorbotear) If the list of active ingredients is too long to use when referring to the combination product, the active ingredients should be listed at first mention and either an abbreviation or the proprietary name used thereafter.The patient reported having taken several doses of Vanex HD, a liquid suspension of hydrocodone bitartrate, 10 mg, phenylephrine hydrochloride, 30