

# PREFACE

## An Evidence-based Foundation for Safe and Effective Drug Therapy

With this edition, *AHFS Drug Information*® (*AHFS*® *DI*™) marks 64 years of continuous publication as the premier evidence-based drug compendium. The mission of *AHFS*® *DI*™ is to provide an evidence-based foundation for safe and effective drug therapy. Widely trusted for its established record in refuting unfounded efficacy claims, its rigorous science-based editorial process, and its independence from the influence of pharmaceutical manufacturers, *AHFS*® *DI*™ has remained true to its mission since the first edition was published in 1959. This notable achievement of more than six decades of evidence-based medical publishing has gained *AHFS*® *DI*™ the unique distinction of being the longest published federally designated drug compendium issued by a scientific and professional society.

As such, *AHFS*® *DI*™ maintains a unique role in establishing medically accepted uses of drugs, both labeled and off-label, and advancing evidence-based clinical practice. In addition, unlike most compendia, recognition of the authority of *AHFS*® *DI*™ in establishing medically accepted uses of drugs extends far beyond just cancer uses to include the full spectrum of drug therapy.

With the 2022 edition, the *American Hospital Formulary Service*® (*AHFS*®) marks its 64th year of continuous publication by the American Society of Health-System Pharmacists® (ASHP®). First published in 1959, the *Formulary Service*® has evolved to address increasingly complex issues related to drug therapy and formulary management.

*AHFS*® *DI*™ is a collection of drug monographs kept current by ongoing electronic updates (e.g., *AHFS*® *firstReleases*™ on new molecular entities, MedWatch notices, <https://www.ahfsdruginformation.com>) and by a revised master print volume issued each year. The *AHFS*® *DI*™ database is maintained continuously throughout the year for the purpose of disseminating comprehensive, evaluative drug information to the entire medical and paramedical community, and updates are issued frequently on an ongoing basis in electronic formats. (See *AHFS*® Clinical Drug Information™ [*AHFS*® *CDI*™].)

*AHFS*® was first published in 1959 as an adaptation from the *Hospital Formulary of Selected Drugs* by Don E. Francke. *AHFS*® had its roots in the hospital formulary system, which was intended to establish a sound therapeutic and economic basis for drug policy. In fact, the evidence-based assessments of medically accepted uses of drugs by *AHFS*® predated the US Food and Drug Administration's (FDA's) own authority to evaluate drug effectiveness claims, and established *AHFS*® as one of the first authoritative sources of critical evaluations of drug therapy. Today, it is the sole independent, non-commercial source of such evaluations in the US.

Originally, the *Formulary Service*™ was conducted through the Committee of Pharmacy and Pharmaceuticals of the American Society of Hospital (now Health-System) Pharmacists to assist the pharmacy and therapeutics committee of each hospital in preparing its hospital formulary. Since then, *AHFS*® *DI*™ has developed beyond its original purpose to become the most comprehensive, authoritative source of evaluative, evidence-based

drug information available. Paramount to providing such information is the critical, evidence-based evaluation of pertinent clinical data concerning drugs, with a focus on assessing thoroughly the advantages and disadvantages of various therapies, including interpretation of various claims of drug efficacy.

As a result of its foundation in a professional and scientific society, the values, editorial standards, and professional priorities of *AHFS*® *DI*™ differ importantly from those of commercial drug information publishers. The critical evidence-based assessment and provision of drug information is a core professional activity of ASHP and competency of its members. Given the increased emphasis on provision of evidence-based drug information in all pharmacy practice settings, ASHP and its members remain at the forefront of disseminating such information.

As a professional society, ASHP takes a leadership position in influencing health policy, practice, and education toward the goal of assuring that patient care is grounded in accurate, timely, unbiased, and evidence-based drug information. ASHP has been at the forefront of efforts to improve medication use and enhance patient safety for more than 75 years, a notable milestone. ASHP's mission is to help people achieve optimal health outcomes and its vision is that medication use will be optimal, safe, and effective for all people all of the time. Publication of *AHFS*® *DI*™ has been a key component in support of ASHP's mission and vision.

## ● *AHFS*® *Patient Medication Information*™ (*PMI*™)

ASHP has a long history of providing patients with meaningful information about medications. *AHFS*® *Patient Medication Information*™ (*PMI*™) had its origins in 1976 as a collaboration among ASHP, the American Hospital Association (AHA), the US Department of Health, Education, and Welfare (DHEW; now DHHS), and the US Center for Disease Control (CDC; now the Centers for Disease Control and Prevention) and is the only trusted and objective compendium-based database of PMI published by a professional and scientific society in the US. *AHFS*® *PMI*™ previously was referred to as *AHFS*® *Consumer Medical Information*™ (*CMi*™).

Credibility of sources has been ranked by physicians and other clinicians as the most important characteristic of the Internet related to health information. Consumers also are emphasizing credibility of the health information they obtain on the Internet, trusting safe and effective treatment information from professional societies like ASHP the most and that from pharmaceutical companies the least. *AHFS*® has a clear reputation for credible, valid information based on its history, references, and evidence basis. *AHFS*® *PMI*™ is ASHP's most expansive public outreach.

The trust placed in *AHFS*® *PMI*™ has resulted in strategic alliances with groups such as the National Library of Medicine, an institute within the National Institutes of Health (NIH), and other groups that also place a high priority on the credibility that *AHFS*® *PMI*™ provides. *AHFS*® *PMI*™ hosted by the National Library of Medicine on MedlinePlus® and MedlinePlus® Connect is one of only a few such sites of trusted, accurate medication

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information, provided in both English and Spanish, with an outreach to over 100 million consumers annually. *AHFS® PMI™* also has been adopted as the trusted source of patient medication information by a leading provider of bedside patient engagement and education resources in hospitals—Sonifi® Healthcare (formerly LodgeNet® Healthcare). This service focuses on improving patient satisfaction, outcomes, and quality as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey, care measures, and other indicators. Lastly, *AHFS® PMI™* also is accessible through ASHP's own consumer website—<http://www.safemedication.com>. When accessing any of these sites or apps, consumers can be assured that they are receiving the most trusted and credible medication information available.

*AHFS® PMI™* also includes links within the context of each of its drug monographs in support of CDC's PROTECT initiative on safe medication use. Through PROTECT, CDC, the Consumer Healthcare Products Association Educational Foundation, and other organizations support the Up and Away and Out of Sight campaign aimed at educating families and other caregivers about the importance of storing medications in a safe place to prevent inadvertent overdoses by children.

## ● *Off-Label Drug Reviews for Oncology*

In 2008, *AHFS® DI™* introduced a process for publishing structured, codified, evidence-based determinations for off-label cancer uses. The decision to create a separate method resulted from the unique characteristics of evidence-based decisions that are applied to serious and life-threatening conditions such as cancer. This process supplements the long-standing evidence-based process used by AHFS® to evaluate off-label uses of drugs and biologics and incorporates the desirable characteristics for cancer-specific compendia outlined by the Medicare Evidence Development and Coverage Advisory Committee (MedCAC). The cancer-specific codified method developed by AHFS® is consistent with distinctions applied to evidence-based assessments of cancer treatments by other authoritative sources such as the National Cancer Institute (NCI) and FDA.

The principles of the *AHFS® DI™* evidence-based editorial development process have not changed with this oncology process. However, the codified determinations supplement and enhance the traditional *AHFS® DI™* evaluation of off-label uses with structured determinations that summarize ongoing assessments of new and changing evidence. ASHP appointed an Oncology Expert Committee, comprised of oncologists, oncology pharmacists, and oncology nurses, to assist with the independent review and final recommendations for off-label cancer determinations. Final decisions are made solely by the Oncology Expert Committee for determinations emanating from this supplementary process for oncology uses and by AHFS® staff for other information, taking into account the advice of other expert reviewers. All processes related to the review and publication of determinations are transparent and designed to mitigate any potential conflict of interest in order to preserve the integrity of *AHFS® DI™* and to minimize bias.

Federal regulations for transparency and conflict of interest disclosure and management became effective January 1, 2010

for off-label oncology determinations. AHFS® employs a process for evaluating therapies that is publicly transparent as defined by CFR Section 414.930(a) and that includes criteria used to evaluate the use, a listing of evidentiary materials reviewed by the compendium, and a listing of all individuals who participated substantively in the development, review, or disposition of the request. In the case of balloted determinations made by the AHFS® Oncology Expert Committee as of this date, conflict of interest disclosure policies follow the definition of a publicly transparent process for identifying potential conflicts of interest as established in this section of the CFR.

Documents describing this process for off-label oncology uses, including levels of evidence, transparency, and conflict of interest disclosure and management, may be viewed under the Off-label Uses section of the *AHFS® DI™* website at <https://www.ahfsdruginformation.com>. Subscribers may access details about specific determinations of medical acceptance for these uses at this website location.

## ● *Editorial Independence*

Information included in *AHFS® DI™* shapes treatment decisions made by clinicians and influences public and private health-care policies and decisions. As a result, it is important that the information be authoritative, objective, and free of undue influence from pharmaceutical companies and other third parties who may seek to use the compendium to promote their own vested interests. Editorial decisions are evidence-based and made independent of such third parties.

*AHFS® DI™* is the only remaining official drug compendium published by a non-commercial, nonprofit professional and scientific society. ASHP is an IRS 501(c)(6) tax-exempt entity. ASHP is the national professional organization that represents pharmacists who serve as patient care providers on healthcare teams in acute and ambulatory settings spanning the full spectrum of medication use. ASHP has a long history of fostering evidence-based medication use as well as patient medication safety. *AHFS® DI™* and *PMI™* are published in part to support the mission of pharmacists in helping people achieve optimal health outcomes.

*AHFS® DI™* is published by ASHP under the authority of its elected Board of Directors. As such, the Board exercises oversight through its ongoing Society considerations. This oversight by the Board also involves review and approval of relevant recommendations originating from its appointed Council on Therapeutics and the advisory and best practices developments of its other Councils, House of Delegates, and other policy-recommending bodies.

In addition, a wide array of experts, including physicians, pharmacists, pharmacologists, and other professionally qualified individuals, participate in an ongoing extramural review process for *AHFS® DI™*. Participation is solicited but voluntary, and no honorarium nor other benefit other than limited access to the *AHFS® DI™* database is provided. These experts must provide full disclosure of interest, including any affiliation with or financial involvement with the manufacturer of the drug(s) under consideration and directly competitive products.

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ASHP considers it essential that interactions between AHFS® staff and pharmaceutical companies be limited to the legitimate exchange of the scientific and medical information needed to fulfill the mission of AHFS® *DI*™. To maintain independence from the undue influence of the promotional interests of pharmaceutical companies, communications are directed to the scientific and medical information areas within the companies; contact with marketing areas is avoided.

ASHP holds in high regard the responsibilities attendant to the public and private trust placed in the evidence-based editorial deliberations of AHFS® *DI*™. As such, ASHP also considers it essential to protect the integrity and independence of the editorial decisions of AHFS® staff by separating the Society's business activities with pharmaceutical companies (e.g., exhibits at educational meetings, journal advertising) from the editorial activities of its drug compendium. An editorial independence statement, approved by ASHP's Board of Directors and available at <https://www.ahfsdruginformation.com>, outlines the principles that AHFS® staff apply in ensuring such independence.

## ● **Comparative, Unbiased, Evaluative Drug Information**

AHFS® *DI*™ is a tested and proven source of comparative, unbiased, and evidence-based drug information containing a monograph on virtually every molecular drug entity available in the US. Drug monographs are prepared by a professional editorial and analytical staff, who critically evaluate published evidence on the drug. The monographs incorporate the advice of leading medical experts in the specific field of therapy under consideration, including experts from major research and clinical institutions as well as public bodies such as the National Institutes of Health (NIH) and US Centers for Disease Control and Prevention (CDC) and professional associations with therapeutic authority. It is this process for establishing medically accepted uses of drugs that makes AHFS® *DI*™ monographs unbiased and authoritative.

Using an independent, evidence-based, evaluative process, AHFS® *DI*™ monographs incorporate information from pertinent references in the literature and expert therapeutic guidelines. The monographs also address the labeling approved by FDA, in some cases challenging outdated and clinically irrelevant information that may persist in the approved labeling. AHFS® *DI*™ monographs continue to include information on uses, dosages, and routes and/or methods of administration that may not be included in the FDA-approved labeling for the drug ("off-label/unlabeled uses"). (See Uses in the Users Guide.) Monographs often incorporate information from several hundred published references, and some general statements and individual monographs incorporate information from several thousand references.

The current AHFS® *DI*™ database includes more than 97,000 uniquely cited references linked to more than 735,000 statements and provides direct links to more than 70,000 supporting evidence sources. Tens-of-thousands of additional references from the AHFS® archives provide support for monographs on drugs introduced into the US market prior to 1984. It is this point-by-point analysis and evaluation of the literature that

make AHFS® *DI*™ monographs comprehensive, evaluative, and considerably beyond the FDA-approved labeling in their scope.

## ● **Widely Vetted Editorial Process in Support of Compendial Recognition**

The *American Hospital Formulary Service*® grew out of the concept of the formulary system in institutions. The ASHP Minimum Standard for Pharmacies in Hospitals, which described principles of the formulary system, was approved in 1951 by ASHP and the American Pharmaceutical Association, American Hospital Association, American Medical Association, and American College of Surgeons and served as the cornerstone for Joint Commission standards on formularies.

**The broad-based vetting and recognition of ASHP's editorial standards over several decades are unparalleled. (See also the section "Highly Recognized Authority" below.)**

In the mid-1960s through the mid-1970s, recommendations from the US Department of Health, Education, and Welfare (DHEW), including DHEW's Task Force on Prescription Drugs and FDA's Bureau of Drugs, proposed the creation of a Federal drug compendium. Key people involved in promoting the concept of a national formulary included FDA Commissioner James Goddard and DHEW Secretary Caspar Weinberger. Congressional Committees involved included the Senate Monopoly Committee (Senator Gaylord Nelson, Chair) and the Senate Subcommittee on Health. Various physician proponents of the quality and scope of AHFS® and others corresponded and met with most of the Federal principals involved in these deliberations and proposed AHFS® as meeting the goals for such a compendium. ASHP also provided comments at the Drug Information Association's symposium on a Federal Drug Compendium held in Washington, DC June 11–12, 1970. At the time, AHFS® was "the only constantly updated compendium of edited, organized, unbiased, and evaluated information on virtually all drugs used in the United States."

The National Academy of Sciences–National Research Council (NAS–NRC) was contracted by FDA in 1966 to evaluate efficacy claims being made by manufacturers for drugs cleared for marketing from 1938–1962 (prior to Kefauver–Harris amendments). Analysis of existing conclusions in AHFS® found remarkable similarities with the NAS–NRC findings and spoke well for AHFS® as an evaluative, unbiased drug compendium. (*Am J Hosp Pharm.* 1968; 25:483–4.)

Based on ASHP's demonstrated expertise as a scientifically based group that reviewed drug data in an ongoing program and that could provide a continuum of experience and evaluation of drug information, FDA contracted with ASHP in 1975 to develop a class prescription labeling system. ASHP exhaustively applied this system to 20 major therapeutic classes and subclasses of drugs (e.g., antipsychotics, antidepressants, various anti-infective and endocrine classes, analgesics, antihypertensives), developing standard, objective professional class labeling for safe and effective use that FDA applied to numerous individual drug products included in these classes. At the time, pharmaceutical company labeling for drug products within the same class and even for the same generic drug included inconsistent information, including that about efficacy of the drugs.

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The Medicare Catastrophic Health Coverage Act of 1988 (Public Law 100-360) required that the Secretary of the Department of Health and Human Services (DHHS) establish outpatient standards for prescribing drugs that were based on accepted medical practice. In establishing such, the Secretary was directed to incorporate standards from current authoritative compendia for the prescribing, dispensing, and utilization of covered outpatient drugs. The editorial policies and procedures, scope, and evidence-based analyses applied to *AHFS® DI™* content were exhaustively scrutinized by Congressional staff as part of this process. To assist the Secretary in making a determination of official compendial designation, *AHFS® DI™* was required to establish that it met the criteria identified by the Conference Committee as an appropriate source of information for establishing the prescribing standards based on accepted medical practice. The activities surrounding this legislation, including intense analysis by Congressional staff and that of the Health Care Financing Administration (HCFA; now the Centers for Medicare & Medicaid Services [CMS]), ultimately resulted in the designation of *AHFS® DI™* as a source for establishing these drug prescribing standards. This set the precedent for recognition by Federal, State, and private sector entities of *AHFS® DI™* as an authoritative source for establishing drug use standards in subsequent legislation (e.g., Omnibus Budget Reconciliation Act [OBRA] of 1990 and 1993) and guidelines. Federal compendial recognition continues under part 456 of CMS regulations governing utilization control for Medicaid and under section 1927 of the Social Security Act.

In January 1989, HCFA began developing regulations to implement section 202 of the Medicare Catastrophic Coverage Act of 1988 aimed at establishing standards for prescribing outpatient drugs based on accepted medical practice. In establishing these standards, HCFA required ASHP to describe the extent to which *AHFS® DI™* met each of the criteria outlined in the Congressional Conference Report. HCFA was required by Congress to designate as official only those compendia that based such medical practice standards on review of published scientific and medical information and that provided adequate assurances that the expert reviewers who assisted in establishing the standards were free of financial (or other) conflicts of interest. ASHP participated in a public hearing conducted by HCFA's Bureau of Eligibility, Reimbursement, and Coverage on the use of authoritative compendia to determine prescribing standards for the new Medicare outpatient drug coverage. In September 1989, HCFA published its determination that *AHFS® DI™* met the selection criteria as an official compendium. HCFA's determination was subject to broad-based public scrutiny and comment via the *Federal Register* (1989; 172:37190-246). HCFA also established the expectation that such designation of any compendium in the future would require evaluation by the Agency as to whether the compendium met the established standards as well as publication for public comment in the *Federal Register* of their selection decision in the form of a proposed rule.

In 1989, the Health Insurance Association of America (HIAA; now America's Health Insurance Plans [AHIP]) recommended that insurers use *AHFS® DI™* as well as certain other resources (e.g., peer-reviewed literature, medical specialty organizations,

consultants) for making determinations about off-label uses. In 1994, ASHP met with the HIAA Health Care Technology Committee regarding the use of *AHFS® DI™* as a standard for making determinations on reimbursement of off-label uses.

In 1989, ASHP also was invited to the National Blue Cross and Blue Shield Association's Technology Management Conference for the purpose of addressing the individual member Plan Medical Directors and senior Plan management regarding the use of the compendia for evaluating the efficacy of off-label uses. As a result, the National Blue Cross and Blue Shield Association changed its previous position that off-label uses be considered investigational and therefore ineligible for reimbursement. The revised position stated that off-label uses should be eligible for reimbursement based on evaluation of efficacy and that *AHFS® DI™* was a valuable resource for use in the evaluation process.

In September 1991, ASHP was invited to participate in Medicaid's National Medical Directors' Conference to provide information on the use of *AHFS® DI™* for making decisions regarding which drugs to pay for and under what clinical circumstances. This conference was a forum for the medical directors to discuss HCFA's national drug coverage determinations.

Section 4401 of OBRA 90 (Public Law 101-508) specified requirements for a Drug Use Review program as part of Medicaid. As a result of OBRA 90, section 1927(g) of Title XIX of the Social Security Act required State Medicaid programs to assess data on drug use against standards established by ASHP, the American Medical Association (AMA), and the United States Pharmacopeia (USP) (the latter 2 no longer publish a drug compendium). Once again, the *Federal Register* (1992; 57:49397-412) provided an opportunity for public comment; the rule was finalized in September 1994.

Section 9401 of HCFA's State Medicaid Manual required that State Medicaid programs use *AHFS® DI™* as a predetermined standard against which to assess drug use. In June 1992, this revision to the Manual was submitted to the State Medicaid Directors for comment prior to being finalized. The authority of *AHFS® DI™* as an official compendium was further recognized under OBRA 93 for use by State Medicaid programs for information on medically accepted off-label uses of drugs and under the Medicare provisions of this Act for medically accepted indications of antineoplastic drugs.

Section 1861(t) of the Social Security Act established *AHFS® DI™* as an official compendium for use in determining medically accepted indications of drugs and biologics used in anti-cancer chemotherapeutic regimens under Medicare Part B and section 1927(k) established such compendial recognition for all Medicare Part D drugs.

Because of its long-standing record in evidence-based evaluation of information on drug use, ASHP was requested by FDA in 1993 to assist the Agency in attempting to identify important off-label uses. ASHP was the only professional pharmacy organization requested to assist FDA in this effort.

In 2003, *AHFS® DI™* was specified by the National Association of Insurance Commissioners as a standard reference compendia in their model Health Carrier Prescription Drug Benefit Management Act that provides standards for the establishment,

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maintenance, and management of prescription drug formularies and other pharmaceutical benefit management procedures used by health plans that provide prescription drug benefits.

In 2013 and 2014, ASHP's AHFS® staff, as part of a team of highly specialized Life Sciences Subject Matter Experts, led by Reed Technology, performed a key role in the Prescription Drug Labeling Improvement and Enhancement Initiative (PDLI-EI) under a contract (Contract # HHSF223201310225C) with FDA. The purpose of this contract was to provide FDA's Center for Drug Evaluation (CDER) with the necessary services to complete a number of projects aimed at improving and enhancing prescription drug labeling.

## ● **Widely Used in Print and Electronic Formats**

AHFS® *DI*™ and its point-of-care derivative database AHFS® *DI*™ *Essentials*™ are used widely as sources of authoritative drug information by physicians, pharmacists, dentists, nurses, and other health care professionals and by schools of pharmacy, nursing, and medicine and are available in a variety of formats. Electronic formats include eBroseLow's SafeDose®, Lexicomp® Online; First Databank's AHFS Drug Information® monographs available from multiple vendors; AHFS Drug Information® from STAT!Ref®, Pepid's Pharmacist Pro with AHFS® *DI*™, and MedicinesComplete®; Drug Information Fulltext® (*DIF*®); and AHFS® *DI*™ Powered by Skyscape Medpresso. AHFS® *DI*™ *Essentials*™ is available electronically in online and mobile applications.

In hospitals, clinics, extended-care facilities, nursing homes, health maintenance organizations, and other organized health-care settings, AHFS® *DI*™ as print and/or electronic databases is accessible in patient-care areas for ready use by physicians, nurses, pharmacists, and other healthcare professionals. AHFS® *DI*™ also is used in community pharmacies, chain drugstores, and other ambulatory care and professional practice settings and is available in most medical libraries.

## ● **AHFS® Clinical Drug Information™ (AHFS® *CDI*™)**

In 2016, ASHP released a comprehensive, electronic suite of its leading drug information databases, including AHFS® *DI*™. AHFS® Clinical Drug Information™ (AHFS® *CDI*™), expands the availability of these trusted ASHP resources, providing clinicians with real-time drug and safety updates and direct links to more than 62,000 supporting evidence sources, as well as easy access to the detailed drug information and in-depth coverage of off-label uses found in AHFS® *DI*™. In addition to the monographs of AHFS® *DI*™, subscribers to AHFS® *CDI*™ have access to AHFS® *DI*™ *Essentials*™, which offers quick, point-of-care answers. Additional ASHP drug information resources are included in this product, including ASHP's drug shortages resources (which are prepared in conjunction with the University of Utah Drug Information Service). ASHP® *Injectable Drug Information*™ also can be integrated into the suite. AHFS® *CDI*™ features links to 20 additional specialty databases of drug-specific information, including prescribing information, drug images and imprints, FDA's latest boxed warnings, safety labeling changes, REMS, pharmacogenomic data, a specialty breast-feeding database, and other clinical resources.

AHFS® Clinical Drug Information™ is available for individual and institutional subscribers via web browser and is mobile-optimized for use on iOS and Android devices. AHFS® *CDI*™ also is available as an iOS app. In addition, the user interface will integrate into clinical workflow solutions in hospitals and ambulatory care settings. An application programming interface (API) is available.

## ● **Highly Recognized Authority**

AHFS® *DI*™ is supported solely through subscriptions. AHFS® *DI*™ has been officially adopted by the US Public Health Service and the Department of Veterans Affairs; recommended by the National Association of Boards of Pharmacy as part of the standard reference library; recommended by the American College of Physicians as part of a library for internists; included in the Standards for Medicare; approved by the American Pharmaceutical (now Pharmacists) Association, American Health Care Association, American Hospital Association, and Catholic Health Care Association of the United States; recognized by the US Congress, CMS, AHIP, National Blue Cross and Blue Shield Association, National Association of Insurance Commissioners, and various third-party healthcare insurance providers for coverage decisions on off-label (unlabeled) uses; and included as a required or recommended standard reference for pharmacies in many states.

The authority of AHFS® *DI*™ also includes Federal recognition through legislation and regulation as an "official" compendium for information on medically accepted uses of drugs. The Federal compendial recognition for AHFS® *DI*™ originated in the Medicare Catastrophic Coverage Act. HCFA (now CMS) determined that AHFS® *DI*™ met the compendial selection criteria established by Congress and adopted the compendium for carrying out certain aspects of the Act and in meeting the need of the US Secretary of HHS to establish standards based on accepted medical practice for the prescribing, dispensing, and utilization of covered drugs. This established the Federal precedent for use of AHFS® *DI*™ as a compendial standard in subsequent legislative and regulatory initiatives, including for drug coverage under Medicaid and Medicare Parts B and D.

For additional information on official recognition, see the section on Widely Vetted Editorial Process in Support of Compendial Recognition above.

## ● **Continuously Updated and Revised**

The AHFS® *DI*™ database and annual print edition are updated extensively, incorporating revised information on uses, therapeutic perspectives, cautions, drug interactions, new products, and other new developments. In addition, the database is expanded by dozens of new drug monographs over the course of the year.

## ● **Recognition and Granularity of the AHFS® Pharmacologic-Therapeutic Classification®**

The AHFS® Pharmacologic-Therapeutic Classification® is the most widely used formulary-structure drug classification in the US and Canada. The AHFS® classification is maintained continuously by ASHP and allows the grouping of drugs with similar

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pharmacologic, therapeutic, and/or chemical characteristics in a 4-tier hierarchy.

**For details on class changes and drug monograph assignments and reassignments throughout the year, see the link to the AHFS® Classification Drug Assignments and Reassignments on the homepage at <https://www.ahfsdruginformation.com>.**

In the printed version of the classification in *AHFS® DI™*, a drug monograph generally is only printed under one classification; however, multiple classifications may apply based on a drug's pharmacology or therapeutic uses. Multiple classifications for a drug in print are represented by cross-references in the table of contents for each chapter/class. If cross-referenced, the drug name is given followed by the classification number that it is printed under. Electronically, all applicable classes for a drug are listed.

CMS' "Guidelines for Reviewing Prescription Drug Plan Formularies and Procedures" and "Medicare Prescription Drug Benefit Manual: Part D Drugs and Formulary Requirements" describe use of the *AHFS® Pharmacologic-Therapeutic Classification®* as the only named alternative to USP's Model Guidelines for use by prescription drug plans (PDPs) in implementing the formulary portion of the outpatient prescription drug benefit in the Medicare Modernization Act (MMA) of 2003. These Guidelines are part of the MMA Final Guidelines for Formularies that address the "CMS Strategy for Affordable Access to Comprehensive Drug Coverage."

The AHFS® Classification is a registered external code system in the HL7 Vocabulary Repository. (OID: 2.16.840.1.113883.6.234.)

The AHFS® Classification also is an approved value code of the External Code List for use in the Formulary & Benefit, Telecommunication, Post-Adjudication, & SCRIPT e-Prescribing standards of the National Council for Prescription Drug Programs (NCPDP).

## ● ***Evolving Therapeutic Guidance and Perspective***

The *AHFS® DI™* database is expanded, revised, and updated extensively throughout the year to add new monographs and address evolving therapeutic guidance and perspective through review of newly published studies and authoritative guidelines from government and professional organizations. This information is reflected in the revised print edition published each January. In addition to these usual priorities, during the 2022 production cycle, high priority was given to emerging information on potential therapies for coronavirus disease 2019 (COVID-19).

## ● ***Major Cautionary Information***

The *AHFS® DI™* database is revised and updated extensively throughout the year to address evolving information on medication safety. Manufacturer labeling, FDA safety communications such as MedWatch notices and Risk Evaluation and Mitigation Strategy (REMS) information, published studies and reports, and other safety information are addressed throughout the course of the year. Through semi-automated processes, much of this information is updated on an ongoing basis in electronic versions of the database to reflect more contemporaneously changes made by FDA.

## ● ***Selected Content in 2022 Print Edition of AHFS® DI™***

As the number of FDA-approved drugs has increased and information about existing drugs has expanded, it has been necessary to omit an increasing number of monographs from the print version of *AHFS® DI™* each year. Some considerations used to select monographs for print in the 2022 edition included the following:

- Frequently prescribed drugs (based on prescription drug utilization data estimates for patients in the US)
- Drug monographs accessed frequently in the AHFS® CDI™ database (based on usage statistics)
- Drugs used as first-line therapy or as the mainstay of important treatment regimens (based on therapeutic guidelines and/or labeled indications)
- Drugs with a wider range of established uses or with unique roles as compared with other drugs in the same therapeutic class

Individual purchasers of the 2022 print edition of *AHFS® DI™* will receive one year's access to AHFS® CDI™, which provides access to the complete *AHFS® DI™* database, as well as *AHFS® DI™ Essentials™* and other ASHP drug information resources. (See AHFS® Clinical Drug Information™ [AHFS® CDI™].) Access to electronic-only content of *AHFS® DI™* remains available to subscribers by password at <https://www.ahfsdruginformation.com>.

## ● ***Appreciation and Acknowledgments***

The Editorial staff wishes to express appreciation to the many consultants and reviewers for their excellent guidance and cooperation and to our subscribers for their support and comments. We also express our appreciation to Gerry K. McEvoy, Elaine K. Snow, Olin H. Welsh, Jr., Jane Miller, Linda Kester, Natalie A. Mendham, and Joan D. Heydorn, all of whom retired from the *AHFS® DI™* editorial staff, for their long-standing contributions to the publication.

## ● ***www.ahfsdruginformation.com***

Some monographs have been omitted from the print version of *AHFS® DI™* because of space limitations. Copies of these monographs are available on the "For Subscribers" page of the AHFS Drug Information® website, [www.ahfsdruginformation.com](http://www.ahfsdruginformation.com), in the "Electronic Only Monographs" section. A username and password are required to access the subscriber-only portions of the website.