Indexing: old methods, new concepts

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The article describes how the indexing of *International Pharmaceutical Abstracts* (*IPA*) evolved, and the combination of traditional methods and concepts and special modifications required for fulltext databases of pharmaceutical information.

Introduction

This discussion compares indexing in the traditional sense to an indexing scheme created as a result of developing an online fulltext database. Throughout this presentation the indexing approach used on the fulltext file is referred to as 'concept indexing'. This is a new approach to indexing; however, traditional indexing techniques are a definite part of it. Twenty years of experience in publishing *International Pharmaceutical Abstracts*, an abstracting/indexing service, helped in developing the concept indexing scheme used for two fulltext databases, Drug Information Fulltext (DIF) and Consumer Drug Information (CDIF). The indexing schemes used for *International Pharmaceutical Abstracts* (*IPA*) will be briefly described, but most of this discussion will relate to the development of concept indexing.

The term 'index' has different meanings. For example, the variety of fields of information searchable in an online database via the free text approach (not qualifying a search to a specific field of information) is often referred to as 'the basic index', whereas in print publications the term 'index' usually refers to a 'subject' or 'author' index. Throughout this discussion the term 'index' will be used to describe subject indexing.

Traditional indexing

International Pharmaceutical Abstracts[1] began as an abstracting/indexing service in 1964. It was computerized in 1970, and became a searchable online database in 1972. From the beginning, the *IPA* subject index consisted of three-level index entries, and used a controlled vocabulary. During the six years prior to computerizing *IPA*, the index evolved and was improved upon. When it was decided to computerize *IPA*, the editors felt that the subject index was a good index, and possibly the strongest part of the abstracting/indexing service. However, computerizing the service revealed a number of inconsistencies and weaknesses in the indexing system. The very nature of online access makes it evident when terms are not consistent. As a result, *IPA* indexing is now constantly being revised and improved, and the vocabulary truly has become a controlled list of terms. Also, providing an abstracting/indexing service as a searchable database results in the need for a thesaurus. In a print-only abstracting/indexing service this would seem redundant to the index itself. Therefore, even though the purpose of computerization may be to provide an additional way to access a service—it ends up inherently changing and improving the service.

In the printed version of an abstract, there is a variety of fields present. (See figure 1.) However, manually there are really only two ways to find that abstract—either via the author index or the subject index. When a file is computerized and made searchable via an online system all of these fields become ways of searching for the information, or ways to qualify and refine a search. In the case of *IPA* there are twenty-two access points to the online record (abstract); however, even with the variety of access points available for online searching, subject searching is still the approach used in most searches. Therefore, controlled, consistent subject terms are very important to a computerized information database.

IPA uses a three-level indexing system with primary, secondary, and tertiary index terms. All three levels appear in the print version of *IPA*. Only the primary and secondary terms are included online and represent the controlled vocabulary. The primary term is the most broad, and the secondary term is more specific. The phrase representing the tertiary portion of an index entry, which is only in the printed *IPA*, is designed to explain further the primary and secondary portions of the entry for the manual user of the service. Even though the tertiary is not part of the online index file, the information in that phrase is accessible to the online user by free text searching through the abstract portion of the record. With *IPA's* indexing scheme, any of the important concepts in the tertiary entry would also be primary or secondary indexing terms in their own right. Figure 2 illustrates the indexing terms related to one IPA abstract (the abstract illustrated in figure 1). Notice in the first entry, 'Absorption' is the primary portion of index entry. 'Acetaminophen' is the secondary portion and 'rectal, suppository bases, humans' is the tertiary portion of the entry. Also note that any important concept in entries listed in the tertiary portions of those entries are also primary or secondary indexing entries (e.g., in entry 5,

Text of the address given to the American Society of Indexers, Washington DC, 3 May 1986.

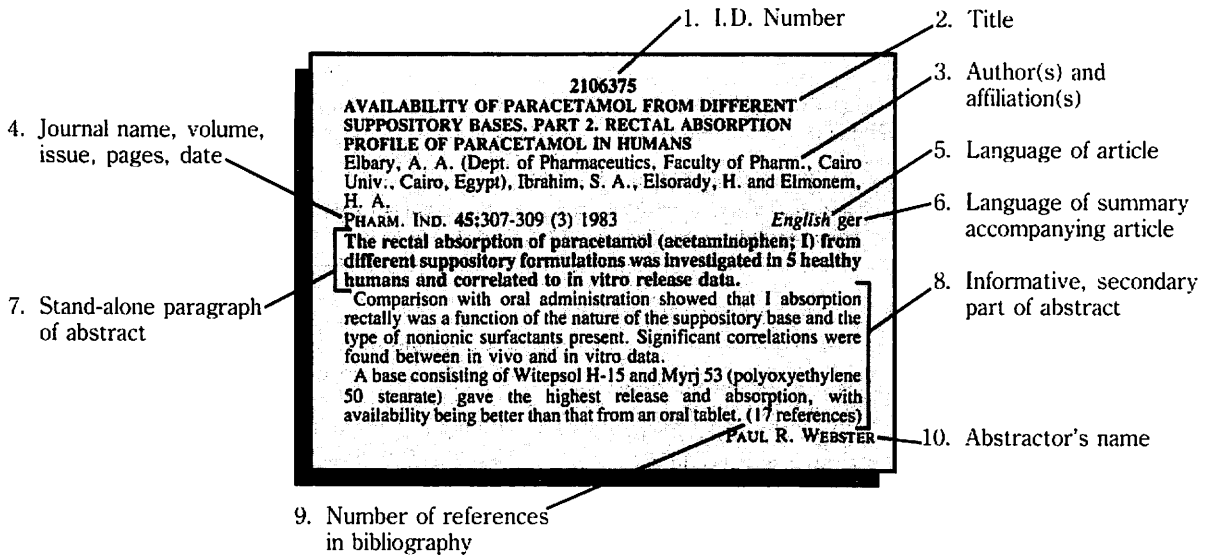


Figure 1. *IPA* abstract, fields of information

the tertiary shows that suppositories are being compared to tablets as a dosage form, notice that 'Tablets' and 'Dosage forms' are also primary index terms associated with that record).

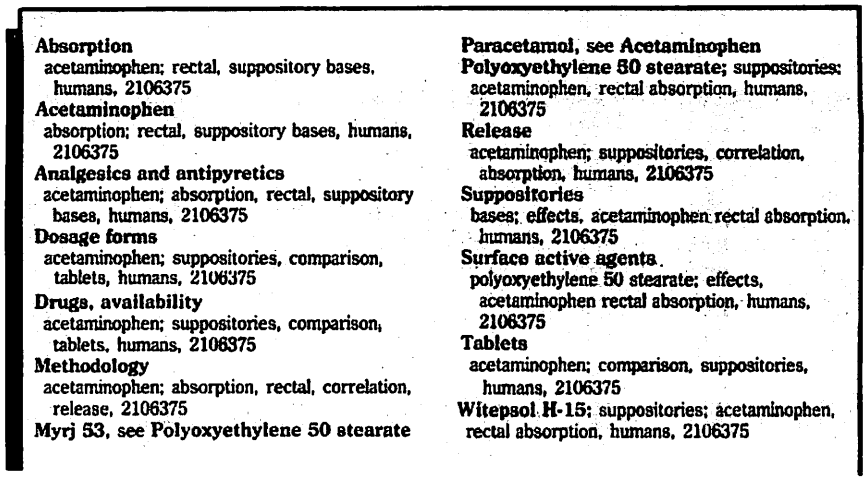
The years of changes and improvements to the *IPA* indexing system made it possible to create the concept indexing scheme that has been so successful with the ASHP fulltext files. In fact, very few changes or modifications to the concept indexing scheme in those files have been necessary since they began four years ago. This is significant, as changes to online back files can be very costly.

Concept indexing

Providing fulltext databases presented a new challenge in accessing information in an efficient way. Fulltext databases are a recent development, and there is a variety of fulltext files now available. The term 'fulltext' implies records containing a large quantity of information. This is generally true; however, there are fulltext files with relatively small records. The real feature common to all fulltext databases is that they are not referral files, but provide answers to inquiries. Fulltext files represent the primary document, in contrast to an abstracting/indexing service which is a secondary service that refers the user to the primary source. In the case of both Drug Information Fulltext and Consumer Drug Information, the records which are called monographs (see figures 3 and 4), are a comprehensive discussion of a drug entity. The record is titled with the generic name of the drug and therefore can relate to a number of brand names and drug preparations on the market. In the case of DIF, the 1,500 drug descriptions in the file represent 50,000–60,000 marketed drug products. (The print publications equivalent to DIF are the *AHFS drug information*[2] and the *Handbook on injectable drugs*[3].) The DIF descriptions are lengthier than the CDIF descriptions because CDIF is designed for the general public and does not include the detailed information necessary for health professionals who must decide whether or not to prescribe a drug for a specific patient or condition. Therefore, DIF presented the most significant challenge in easily accessing specific information in a lengthy drug monograph.

From the start it was thought that if a fulltext database user was interested in specific information regarding a drug, and if the answer was contained in one paragraph—or even one sentence—in a monograph that might contain fifty paragraphs (and run for six to eight printed pages), the user would not tolerate reviewing the complete monograph in an online display for the specific information sought. The obvious first step was to design a system to print only the section in which specific information appeared (for example, only the 'Uses' section in the figure 3 monograph). Most of the fulltext online files now available go only to this extent in narrowing the information provided; they do not contain an indexing scheme. When designing DIF we felt that this was not adequate, and that users of the file needed a method to see only the information of interest to them at that time. The result is the concept indexing scheme described below.

In a compilation of drug descriptions there are recurring concepts in each description, such as, 'Dosage', 'Dosage form', 'Drug interactions', 'Uses', 'Adverse



Absorption
acetaminophen; rectal, suppository bases, humans, 2106375
Acetaminophen
absorption; rectal, suppository bases, humans, 2106375
Analgesics and antipyretics
acetaminophen; absorption, rectal, suppository bases, humans, 2106375
Dosage forms
acetaminophen; suppositories, comparison, tablets, humans, 2106375
Drugs, availability
acetaminophen; suppositories, comparison, tablets, humans, 2106375
Methodology
acetaminophen; absorption, rectal, correlation, release, 2106375
Myrj 53, see Polyoxyethylene 50 stearate
Paracetamol, see Acetaminophen
Polyoxyethylene 50 stearate; suppositories:
acetaminophen, rectal absorption, humans, 2106375
Release
acetaminophen; suppositories, correlation, absorption, humans, 2106375
Suppositories
bases; effects, acetaminophen rectal absorption, humans, 2106375
Surface active agents
polyoxyethylene 50 stearate; effects, acetaminophen rectal absorption, humans, 2106375
Tablets
acetaminophen; comparison, suppositories, humans, 2106375
Witepsol H-15; suppositories; acetaminophen,
rectal absorption, humans, 2106375

Figure 2. *IPA* abstract, subject index terms

reactions', 'Allergies', 'Stability data', etc. A list of terms representing these recurring ideas became the concept terms in the concept indexing scheme. However, just listing the terms would enable the user to search the file for a concept, but it would not be possible to find the precise location in a drug description for that concept. For example, the concept of stability could be described in many ways, such as—'Do not store in direct sunlight'. Since the word 'Stability' does not even appear in the sentence, the need to relate concepts to particular sentences was addressed. A four digit hierarchical number was assigned to a definitive list of concept terms. Figure 5 illustrates groupings of numbers and terms. Figure 6 illustrates the hierarchical design of the four digit numbers (concept codes). Together the concept terms and concept codes make up the concept indexing scheme used for all ASHP fulltext databases. The major time-consuming effort was the initial 'tagging' of each database. Every sentence, or group of sentences, relating to an individual concept in the database has been assigned a concept code, or codes (more than one concept can be present in a sentence—such as a 'toxic' 'drug interaction'—in which case two codes are assigned to that sentence).

A fulltext database tagged in this manner becomes an entirely different file. The searching power possible because of the tagging scheme, and the capability of displaying small portions of text relating to an individual term, represent a value added that far exceeds simply loading and offering information via the computer. The benefits of *displaying* and *printing* the information are obvious. Depending on the applications program, it is possible to display information to the sentence level. Therefore, if the user was interested in the metabolic half-life for a drug—which may represent one sentence in a ten-paragraph section on pharmacokinetics from an eight section monograph—that sentence by itself can be displayed via the concept code.

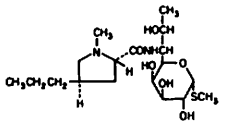
Search capabilities

Even more impressive are the *search* capabilities created by the use of the concept codes in text. This is particularly true when more than one concept exists. The following example, illustrated in figure 7, emphasizes this point. In a toxicity-impacting dosage search, the concept code '36' truncated (therefore any type of toxicity) located next to (the adjacency operator) '355' truncated (the specific tag for dosage relating to age of the patient) results in 30 hits in the DIF file. In reviewing only the paragraph containing that hit in the first record, the information resulting from the search would have been very difficult to find with free-text terms. Notice that the underlying information definitely is about a toxic condition ('intracranial hemorrhage') that could result in harm to infants, if a specific dosage adjustment was not made. This information probably could not have been located using free-text term searching, because the words 'toxicity', 'adverse', 'caution', etc., do not appear in the text—nor do the words 'age' or 'dosage'. However, the scientific writers assign the concept codes while preparing the text so the correct codes (and therefore terms) are related to specific text.

Another very useful application of concept codes or terms is creating lists of drugs. For example, all drugs that cause 'photosensitivity' (concept code '362' truncated) could easily be selected and listed.

Concept tags can also be combined with other search terms in multiple-field searching, or combined with free-text terms. An example would be '36' truncated (the

Lincomycin Hydrochloride



lincomycin

Chemistry and Stability

CHEMISTRY

Lincomycin is an antibiotic obtained from cultures of *Streptomyces lincolnensis*.

Lincomycin is commercially available as the hydrochloride monohydrate. The drug occurs as a white to off-white, crystalline powder which may have a faint odor and is freely soluble in water. The pK_a of lincomycin is 7.6. Lincomycin hydrochloride injection is a clear, colorless to slightly yellow solution which has a pH of 3–5.5.

STABILITY

Lincomycin hydrochloride capsules and injection should be stored at a temperature less than 40°C, preferably between 15–30°C; freezing of the injection should be avoided, and the capsules should be stored in tight containers.

Lincomycin hydrochloride is reported to be physically compatible for 24 hours at room temperature in the following IV infusion fluids: 5% or 10% dextrose in water or 0.9% sodium chloride, Ringer's, 1/6 *M* sodium lactate, 6% dextran in 0.9% sodium chloride, and Travert® 10% Electrolyte No. 1. Lincomycin hydrochloride has been reported to be incompatible with various drugs, but the compatibility depends on several factors (e.g., concentration of the drugs, specific diluents used, resulting pH, temperature). Specialized references should be consulted for specific compatibility information.

Mechanism of Action

Lincomycin may be bacteriostatic or bactericidal in action, depending on the concentration of the drug attained at the site of infection and the susceptibility of the infecting organism.

Lincomycin appears to inhibit protein synthesis in susceptible organisms by binding to 50S ribosomal subunits; the primary effect is inhibition of peptide bond formation. The site of action appears to be the same as that of clindamycin, erythromycin, chloramphenicol, oleandomycin, and troleandomycin.

Spectrum

Clindamycin and lincomycin have a similar spectrum of activity; however, lincomycin is generally less active against susceptible organisms than is clindamycin. Lincomycin is active against most aerobic gram-positive cocci including staphylococci, streptococci (except *S. faecalis*), and pneumococci. Lincomycin is also active against several anaerobic and microaerophilic gram-negative and gram-positive organisms including *Actinomyces*, *Bacteroides*, *Eubacterium*, *Fusobacterium*, *Propionibacterium*, microaerophilic streptococci, *Peptococcus*, *Peptostreptococcus*, and *Veillonella*. *Clostridium perfringens*, *C. tetani*, *Corynebacterium diphtheriae* and *Mycoplasma* are also inhibited by lincomycin. *Haemophilus* and *Neisseria* are not generally inhibited by lincomycin. Lincomycin is inactive against *N. meningitidis*, *Enterobacteriaceae*, *Plasmodium*, fungi, and most strains of *C. difficile*.

In vitro, lincomycin concentrations of 0.02–3.1 μg/mL inhibit most susceptible strains of staphylococci, streptococci, pneumococci, *Corynebacterium diphtheriae*, and *Actinomyces*. In vitro, the minimum inhibitory concentration (MIC) for most susceptible anaerobic and microaerophilic bacteria is 0.1–6.2 μg/mL for lincomycin.

Resistance

Staphylococcal resistance to lincomycin has been induced in vitro and has been shown to be acquired in a stepwise manner. Natural and acquired resistance to the antibiotic has been demonstrated in vitro and in vivo in strains of staphylococci, streptococci, pneumococci, and *B. fragilis*. Complete cross resistance occurs between clindamycin and lincomycin, and there is evidence of partial cross resistance between the lincomycin and erythromycin.

In vitro, bacteria resistant to erythromycin and susceptible to lincomycin may exhibit a dissociated type of resistance to lincomycin during susceptibility testing if erythromycin is also present. This phenomenon may be the result of competition between erythromycin and lincomycin for the ribosomal binding site.

Pharmacokinetics

ABSORPTION

Approximately 20–30% of an oral dose of lincomycin hydrochloride is rapidly absorbed from the GI tract. Food delays and decreases the extent of absorption of the drug. Lincomycin is not inactivated by gastric acidity. Following oral administration of a single 500-mg dose of lincomycin hydrochloride to healthy fasting adults, peak plasma concentrations of the drug average 1.8–5.3 μg/mL and are attained within 2–4 hours; plasma concentrations of lincomycin average 1.4 μg/mL at 6 hours and 0.3 μg/mL at 12 hours. Lincomycin hydrochloride, when administered orally in one group of children in single lincomycin doses of 22–33 mg/kg, produced mean peak lincomycin plasma concentrations of 4–9 μg/mL.

Following IM administration of 600 mg of lincomycin hydrochloride in healthy adults, peak plasma concentrations of the drug occur in 30 minutes and range from 9.3–18.5 μg/mL; plasma concentrations of lincomycin range from 1.3–3.2 μg/mL at 12 hours and detectable concentrations may persist for up to 24 hours. Following IV infusion of 600 mg of lincomycin hydrochloride over a period of 2 hours, postinfusion plasma concentrations of the drug average 15.9–20.9 μg/mL.

DISTRIBUTION

Lincomycin is distributed into many body tissues and fluids including peritoneal fluid, pleural fluid, synovial fluid, bone, bile, and the aqueous humor of the eye. The manufacturer states that subconjunctival injection of 0.25 mL of a solution containing 300 mg of lincomycin per mL will result in inhibitory ocular fluid concentrations of the drug for most susceptible organisms for at least 5 hours. The drug diffuses poorly into the CSF; however, in the presence of inflamed meninges, low concentrations of the drug (18% of concurrent plasma concentration) have been attained. The concentration of lincomycin in bone is reported to be 20–33% of concurrent plasma concentrations of the drug. Lincomycin readily crosses the placenta, and cord blood concentrations of the drug have been reported to be 25% of concurrent maternal blood concentrations. Lincomycin is distributed into milk, and concentrations of the drug in milk may be equal to maternal plasma concentrations.

At a plasma concentration of 5 μg/mL, lincomycin is approximately 72% bound to plasma proteins; at a concentration of 1 μg/mL, the drug is approximately 57% bound to plasma proteins.

ELIMINATION

The plasma half-life of lincomycin is 4–6.4 hours in patients with normal renal function. The plasma half-life is increased in proportion to the degree of impairment in patients with reduced renal or hepatic function. Plasma half-lives as high as 3 times normal have been reported in patients with severe renal impairment. Plasma concentrations of lincomycin are not appreciably affected by hemodialysis, peritoneal dialysis, or prolonged administration in patients with normal renal function.

Lincomycin is partially metabolized in the liver and both drug and metabolites are excreted in the urine, bile, and feces. Following oral administration of 500 mg of lincomycin hydrochloride, 1–31% of the dose is excreted in urine and as much as 40% of the dose is excreted in the feces. Following parenteral administration of 600 mg of lincomycin hydrochloride, 1.8–30.3% of the dose is excreted in urine and 4–14% of the dose is excreted in feces.

Uses

In general, lincomycin appears to be less effective than clindamycin in the treatment of infections caused by susceptible organisms because of lesser activity and slower and less complete absorption following oral administration. Lincomycin is used in the treatment of serious respiratory tract and skin and soft tissue infections caused by susceptible strains of staphylococci, streptococci, and pneumococci. However, lincomycin is not considered the drug of choice in infections due to gram-positive cocci and its use in these infections should be reserved for penicillin-allergic patients or other patients for whom less toxic alternatives (e.g., erythromycin) are contraindicated. Lincomycin should be not used for the treatment of minor bacterial skin or dental infections or for nonbacterial upper respiratory tract infections. Because of poor CNS penetration, lincomycin should not be used in the treatment of meningitis. Prior to initiation of lincomycin therapy, the causative organism should be cultured and susceptibility tests conducted. Use of the antibiotic does not preclude surgical procedures as needed.

Figure 3. DIF monograph, print product version

Cautions

GI EFFECTS

Adverse GI effects frequently occur with oral, IM, or IV lincomycin and may be severe enough to necessitate discontinuance of the drug. Adverse GI effects include nausea, vomiting, diarrhea, abdominal pain, and tenesmus. Glossitis, stomatitis, and pruritus ani have occurred. Nonspecific colitis and diarrhea as well as potentially fatal pseudomembranous colitis have also occurred in patients receiving lincomycin. Nonspecific colitis is usually characterized by severe diarrhea and abdominal cramps and may be associated with the passage of blood or mucus; endoscopic examination is necessary to reveal the presence of pseudomembranous colitis. If colitis occurs, symptoms usually develop 2–9 days following initiation of lincomycin therapy, but may not occur until several weeks after the drug has been discontinued. Mild cases of colitis may respond to drug discontinuation alone, but moderate to severe cases should also be treated with fluid, electrolyte, and protein supplementation as indicated. The manufacturer states that systemic corticosteroids and corticosteroid retention enemas may help relieve colitis; however, antiperistaltic and antidiarrheal agents such as opiates and diphenoxylate may prolong and/or worsen the condition. Data from animal and clinical studies suggest that antibiotic-associated pseudomembranous colitis may be caused by toxin-producing clostridia (e.g., *C. difficile*) resistant to the antibiotic being administered. The role of these bacteria in antibiotic-associated diarrhea in the absence of colitis is unclear. Pseudomembranous colitis has been treated with good results with oral vancomycin or oral cholestyramine. Cholestyramine and colestipol hydrochloride have been shown to bind clostridia-produced toxin(s) in vitro; however, the resins have also been shown to bind vancomycin in vitro. If vancomycin is used concomitantly with cholestyramine or colestipol in the treatment of clindamycin-induced colitis, vancomycin and the resin should be administered at different times to avoid binding of vancomycin by the resin.

SENSITIVITY REACTIONS

Rash, urticaria, pruritus, dizziness, headache, myalgia, tinnitus, vertigo, and rarely exfoliative and vesiculobullous dermatitis have occurred with lincomycin. A few anaphylactoid reactions have been reported in patients receiving the drug. Rarely, erythema multiforme, sometimes resembling Stevens-Johnson syndrome, has occurred with lincomycin.

LOCAL EFFECTS

Thrombophlebitis, erythema, and pain and swelling have occurred rarely with IV administration of the drug. IM administration of lincomycin has caused pain, induration, sterile abscess, and reversible increases in serum CPK and AST (SGOT) concentrations. Local reactions can be minimized by giving deep IM injections or avoiding the prolonged use of indwelling IV catheters.

OTHER ADVERSE EFFECTS

Rapid IV administration of lincomycin has caused hypotension, syncope, and rarely cardiac arrest. Other reported adverse effects of lincomycin include transient increases in serum bilirubin and alkaline phosphatase, transient leukopenia, neutropenia, eosinophilia, thrombocytopenia, and agranulocytosis. Thrombocytopenic purpura and rarely aplastic anemia and pancytopenia have also occurred. The relationship of liver function and hematologic abnormalities to lincomycin is not known. Tinnitus and vertigo have been reported occasionally.

PRECAUTIONS AND CONTRAINDICATIONS

If clinically important or persistent diarrhea occurs during lincomycin therapy, the drug should be discontinued or, if necessary, continued only with close observation of the patient. Appropriate therapy should be instituted if necessary. (See Cautions: GI Effects.) In addition to antibiotic-associated pseudomembranous colitis, other causes of colitis should be considered in these patients.

During prolonged lincomycin therapy, liver function tests and blood cell counts should be performed periodically.

The use of lincomycin may cause overgrowth of nonsusceptible organisms, particularly fungi. If superinfection occurs, appropriate measures should be taken. Patients receiving the drug who have a preexisting monilial infection should receive concomitant antifungal treatment.

If a hypersensitivity reaction occurs during lincomycin therapy, the drug should be discontinued and appropriate therapy instituted, including administration of antihistamines, oxygen, epinephrine, or corticosteroids, when indicated.

Lincomycin should be used with caution in patients with a history of GI disease, particularly colitis. Lincomycin should be used with caution in patients with severe renal impairment. The manufacturer states that because of inadequate data, lincomycin is not recommended in patients with preexisting liver disease, unless special clinical circumstances so indicate. Lincomycin should be used with caution in atopic individuals and is contraindicated in patients who are hypersensitive to either lincomycin or clindamycin.

PEDIATRIC PRECAUTIONS

Pending further clinical experience, lincomycin is not indicated in neonates.

PREGNANCY AND LACTATION

Safe use of lincomycin in pregnant women has not been established.

Lincomycin is distributed into milk. Because of the potential for serious adverse reactions from lincomycin in nursing infants, a decision should be made whether to discontinue nursing or the drug, taking into account the importance of the drug to the woman.

Drug Interactions

KAOLIN

When administered concomitantly, kaolin reduces the GI absorption of lincomycin by as much as 90%, resulting in decreased plasma concentrations of the antibiotic. If administration of both drugs is necessary, patients should receive kaolin at least 2 hours before lincomycin.

NEUROMUSCULAR BLOCKING AGENTS

Lincomycin has been shown to have neuromuscular blocking properties that may enhance the neuromuscular blocking action of other agents (e.g., ether, tubocurarine, pancuronium). Lincomycin should be used with caution in patients receiving such agents.

Dosage and Administration

ADMINISTRATION

Lincomycin hydrochloride is administered orally or by IM or slow IV injection. Oral lincomycin should be administered at least 1–2 hours following or preceding ingestion of food. Prior to IV administration, each gram of lincomyin should be diluted in 100 mL or more of solution; the dilute solution should be infused over a period of at least 1 hour.

DOSAGE

Dosage is expressed in terms of lincomycin and depends on the severity of the infection and the susceptibility of the infecting organism. The duration of lincomycin therapy is dependent on the type of infection. In infections caused by group A β-hemolytic streptococci, therapy should be continued for at least 10 days.

Oral Dosage

The usual adult oral dosage of lincomycin is 500 mg or more every 6 or 8 hours. Children older than 1 month of age may receive 30–60 mg/kg daily in 3 or 4 equally divided doses.

Parenteral Dosage

The usual adult IM dosage of lincomycin is 600 mg every 12–24 hours. IM dosage for children older than 1 month of age is 10 mg/kg every 12–24 hours.

The usual adult IV dosage of lincomycin is 600 mg to 1 g every 8–12 hours. In the treatment of life-threatening infections, adult IV dosage may be increased to a maximum of 8 g daily. IV lincomycin dosage for children older than 1 month of age is 10–20 mg/kg daily administered in 2 or 3 equally divided doses.

DOSAGE IN RENAL IMPAIRMENT

The manufacturer states that patients with severe renal impairment (creatinine clearance less than 10 mL/minute) may receive 25–30% of the usual lincomycin dose.

Preparations

LINCOMYCIN HYDROCHLORIDE

Oral

Capsules

250 mg (of lincomycin)

Lincocin® Pediatric, Upjohn

500 mg (of lincomycin)

Lincocin®, Upjohn

Parenteral

Injection

300 mg (of lincomycin) per mL

Lincocin® (with benzyl alcohol 9.45 mg/mL), Upjohn

Figure 3a. DIF monograph, print product version

AN ACCESSION NUMBER: 785005. 8601.
OC PARAGRAPH SENTENCE NS-WORD
TI (1) 2 2
SO SOURCE: CONSUMER DRUG INFORMATION.
TI MONOGRAPH TITLE: Cyproheptadine.
(si proe hep' ta deen).
GN GENERIC DRUG NAME: Cyproheptadine hydrochloride.
TN TRADE NAME MFR: Periactin.
RN REGISTRY NUMBER: 41354-29-4.
TC THERAPEUTIC CLASSIFICATION: ANTIHISTAMINE DRUGS (4-00).
DE DESCRIPTORS: (7405) Product information. (7225) Indication. (7255) Age effect. (7515) Special instruction. (7605) Side effects. (7645) Precautions. (7565) Health dose relation. (7655) Pregnancy. (7775) Drug interaction. (7785) Diet. (7875) Breast feeding. (7885) Placental transfer. (7435) Strength. (7525) Dosage directions. (7545) Dose missed. (7575) Use directions. (7305) Storage.
SH SECTION HEADINGS/SUBHEADINGS (PRIMARY TEXT):
PRODUCT INFORMATION.
USES.
UNDESIRED EFFECTS.
PRECAUTIONS.
DOSAGE.
STORAGE.

SECTION HEADINGS/SUBHEADINGS (ADDITIONAL TEXT):
USES.
UNDESIRED EFFECTS.
PRECAUTIONS.
AB PRIMARY TEXT.

(1 OF 15)
SECTION HEADING: PRODUCT INFORMATION
(7405) Brand name:. (7405) Periactin.

(2 OF 15)
SECTION HEADING: USES.
(7225) Cyproheptadine, an antihistamine, is used to relieve the symptoms of hay fever, bee stings, poison ivy, poison oak and colds. It also is used to treat some types of migraine headaches and, in some cases, to help gain weight.

(3 OF 15)
SECTION HEADING: UNDESIRED EFFECTS
(7515,7605) One of the most common side effects of cyproheptadine, dryness of the mouth and throat, can be relieved by sucking on hard candy, chewing gum or drinking fluids. Cyproheptadine may upset your stomach when you first begin to take it. To lessen this problem, take the medicine with milk or solid food.

(4 OF 15)
SECTION HEADING: UNDESIRED EFFECTS
(7605,7645) Cyproheptadine makes some people drowsy or dizzy. Do not drive a car or operate dangerous machinery until you know how this medicine will affect you.

(5 OF 15)
SECTION HEADING: UNDESIRED EFFECTS
(7605) These effects may go away as your body adjusts to the medicine. If they continue or are severe, contact your doctor.

(6 OF 15)
SECTION HEADING: UNDESIRED EFFECTS
(7605,7255) Other side effects of cyproheptadine include blurred vision, difficult or painful urination, headache, increased appetite or weight gain, nervousness, restlessness or trouble sleeping (especially in children), skin rash, unusual increase in sweating and unusually fast heartbeat. If you experience these effects and they are troublesome, contact your doctor.

(7 OF 15)
SECTION HEADING:PRECAUTIONS
(7645,7565) Before you start to take cyprohepatdine, tell your doctor if you have an enlarged prostate, heart disease, high blood pressure, glaucoma, an overactive thyroid, a stomach ulcer or urinary tract blockage. Cyproheptadine can make these conditions worse.

(8 OF 15)
SECTION HEADING: PRECAUTIONS
(7645,7775) Tell your doctor what prescription or nonprescription drugs you are taking. Certain other drugs should not be taken with cyproheptadine, including medicine for seizures, narcotics, other medicines for allergy, prescription medicine for pain, sedatives, tranquilizers, medicine to help you sleep and medicine for depression. If you do not know the names of the drugs you are taking or what they were prescribed for, bring them in their labeled containers to your doctor or pharmacist. Do not start to take any of the drugs listed above while you are taking cyproheptadine unless you first check with your doctor. Before you have surgery with a general anesthetic, including dental surgery, tell the doctor or dentist in charge that you are taking cyproheptadine.

(9 OF 15)
SECTION HEADING: PRECAUTIONS
(7645) Take this medicine exactly as directed. Do not take more of it and do not take it more often than your doctor has indicated.

(10 OF 15)
SECTION HEADING: PRECAUTIONS
(7645,7785) Do not drink alcoholic beverages while you are taking cyproheptadine, because alcohol can increase the chance and severity of drowsiness.

(11 OF 15)
SECTION HEADING: PRECAUTIONS
(7875,7655) To help your doctor select the best treatment for you and your baby, tell the doctor if you are pregnant or are breast-feeding. (7885,7875,7655) Cyproheptadine can be passed to your unborn child or your breast-fed baby. It also can decrease the amount of your milk.

(12 OF 15)
SECTION HEADING: DOSAGE
(7525) Your doctor will determine how often you should take cyproheptadine and how much you should take at each dose. Carefully follow the instructions on your prescription label and ask your doctor or pharmacist to explain any part of the instructions you do not understand.

(13 OF 15)
SECTION HEADING: DOSAGE
(7435) Cyproheptadine comes in liquid and tablets. (7515) Take the tablets with a full eight-ounce glass of water or, if this medicine upsets your stomach, with a glass of milk or solid food. (7575) Use a specially marked measuring spoon to ensure a liquid dose that is accurate.

(14 OF 15)
SECTION HEADING: DOSAGE
(7545) If you forget to take a dose, take it as soon as you remember it and take the remaining doses for the day at evenly spaced intervals. Do not take a double dose to make up for the missed dose.

(15 OF 15)
SECTION HEADING: STORAGE
(7305) Keep cyproheptadine in the container it came in, and keep it out of the reach of children. Do not allow anyone else to take your cyproheptadine.
AT ADDITIONAL TEXT.

(1 OF 1)
SECTION HEADING: USES
(7900) See the general statement titled Antihistamines.
SECTION HEADING: UNDESIRED EFFECTS
(7900) See the general statement titled Antihistamines.
SECTION HEADING: PRECAUTIONS
(7900) See the general statement titled Antihistamines.

Figure 4. CDIF monograph, online printout version

345__ Reconstitution
346__ Contamination
347__ Route
348__ Legal description

545__ Reconstitution mixing
546__ Contamination

__5__ __ Dosage and Administration

350__ Dose
351__ Special instruction
352__ Dosage schedule
355__ Age–dosage relation
356__ Physiological defect dosage
357__ Administration route
358__ Dosage equivalency

550__ Dosage
551__ Special instruction
552__ Dosage schedule
555__ Age–dosage relation
556__ Physiological defect dosage
557__ Administration route
558__ Dosage equivalency

__6__ __ Toxicity

360__ Adverse reaction
361__ Toxicity
362__ Sensitivity, photosensitivity, allergy
363__ Dependence addiction
364__ Precaution, contraindication
365__ Fetal toxicity
366__ Carcinogenicity, mutagenicity
368__ Treatment toxicity

560__ Adverse reaction (side effect)
561__ Toxicity

564__ Precaution, contraindication

__7__ __ Interactions

Figure 5. DIF concept indexing codes and terms

concept code for any type of 'toxicity') and 'nephritis'. The results would be drugs that cause nephritis, in contrast to drugs used to cure nephritis if the free-text term only were used to search.

The concept-indexing scheme also enables cross-file searching strategies since the concept terms relating to the concept codes are controlled standard indexing terms used in other files. For example, they are the same terms used in *International Pharmaceutical Abstracts*. The terms are also consistent with other ASHP fulltext files such as Consumer Drug Information.

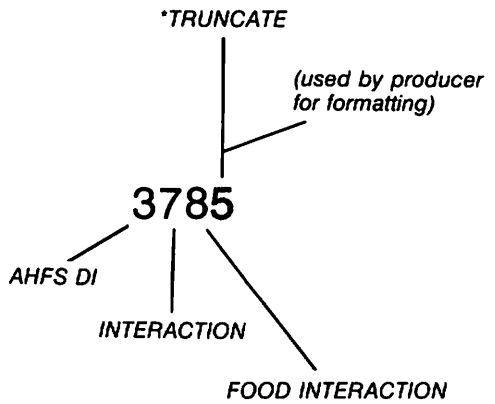


Figure 6. DIF concept code design

Conclusion

Without an indexing scheme to search efficiently and display specifically from fulltext databases, such files may not get the continued usage anticipated. Simply putting a large volume of text online as a database which results in a 'find it if you can' approach is not much more useful than scanning the print equivalent—and probably not so useful as searching a computerized secondary abstracting service. The future of fulltext will depend on controlled indexing approaches that offer easy access and dependable results.

References

1. *International Pharmaceutical Abstracts*, periodical (24 issues per year, 12,000–13,000 abstracts per year). Bethesda, Maryland: American Society of Hospital Pharmacists.
2. *AHFS Drug Information 87*, annual compilation (quarterly

```
      2 :  368 adj 3550 — Dosage/age adjustment
                 Toxicity
       RESULT              30 DOCUMENTS
      3_:  ..p ti,hits/1-3

          1
TI MONOGRAPH TITLE: Sodium Bicarbonate.
AB
    (25 OF 31)
    SECTION HEADING: DOSAGE AND ADMINISTRATION
    SUBHEADING: DOSAGE
    For advanced cardiac life support during cardiopulmonary
    resuscitation, the Standards and Guidelines from the National
    Conference on Cardiopulmonary Resuscitation and Emergency Cardiac
    Care state that the dosage of IV sodium bicarbonate should ideally be
    determined by measurements of arterial blood pH and Paco2 and
    calculation of base deficit.  If such measurements are not readily
    available, an IV dose of 1 mEq/kg may be given initially to adults
    undergoing cardiac arrest and repeated doses of up to 0.5 mEq/kg may
    be administered at 10-minute intervals during continued arrest.
    (3525) Alternatively, one manufacturer recommends an initial, rapid
    IV dose of 200-300 mEq of sodium bicarbonate as a 7.5 or 8.4%
    solution for adults.  (3640,3555) Because of the potential
    association of intracranial hemorrhage and sodium bicarbonate
    infusion in premature infants, the Standards and Guidelines from the
    National Conference state that neonates should receive a 1:1 dilution
    of 7.5 or 8.4% sodium bicarbonate injection and 5% dextrose injection
    to avoid hypertonicity; alternatively, a commercially available 4.2%
    solution may be used.  (3555) The initial neonatal dose of the drug
    is 2 mEq/kg, administered slowly IV at a rate not exceeding 1-2
    mEq/kg per minute.  If blood gas tensions and pH measurements are
    available, subsequent doses should be determined by the following
    equation.
```

Figure 7. DIF concept code search

updates). 2,100 pp. Bethesda, Maryland: American Society of Hospital Pharmacists.

3. *Handbook on Injectable Drugs*. 4th ed. 650 pp. Bethesda, Maryland: American Society of Hospital Pharmacists, 1986.

Dwight R. Tousignaut is Editor, International Pharmaceutical Abstracts, *and Vice President, Drug Information Systems, American Society of Hospital Pharmacists.*

Key phrase

'The abstract is a valuable source of information, but there ought to be a quick way to make at least a preliminary decision about whether an article is of interest—a nugget that tells (better than most titles) what the article is about before we read the abstract.' Hence the 'key phrase' which, within a limit of 256 characters, sets out the main points of articles included in *Psychological Abstracts* database records.

The 'key phrase' is designed to overcome lack of relevant information in the titles of articles. It also saves online searchers time and money since it will quickly reveal whether an abstract is worth scanning or printing out; additionally, as it is part of the indexing, there is no charge for its display.

Examples of 'key phrases': 'Motherhood, US, literature review'; 'Employee termination meetings on early vs late day in week, managers, criticism of argument of P. M. Connolly' (title of latter is 'Honing your axe-wielding skills').

—from *PsychoINFO News* 7 (1) April 1987.