

---

# **SPIRS, WinSPIRS, and OVID: a comparison of three MEDLINE-on-CD-ROM interfaces**

By Dirk Schoonbaert  
Assistant Librarian

Prince Leopold Institute of Tropical Medicine  
Nationalestraat 155  
B-2000 ANTWERPEN 1  
Belgium

---

Three MEDLINE-on-CD-ROM interfaces are compared: SPIRS\* (version 3.11) and WinSPIRS (version 1.0) from SilverPlatter and OVID (version 3.0, DOS and Windows interfaces) from CD Plus Technologies. Though the database is the same, there are substantial differences among the interfaces in the way these data are presented and can be searched. These different approaches are discussed, and a detailed comparative table is included. It is obvious that all three interfaces are quite good yet none of them is perfect; each has desirable and unfortunate features. Together, they offer an enormous range of possibilities. Users would benefit if most of the better features (e.g., easy menu, free-text retrieval, pre-exploded thesaurus terms) were implemented in future versions of these interfaces and if system operators were given greater latitude to determine the system defaults appropriate to their specific situations and customers.

---

This article compares three MEDLINE-on-CD-ROM interfaces: SPIRS\* and WinSPIRS from SilverPlatter and OVID (both DOS and Windows versions) from CD Plus Technologies. As far as the contents are concerned, there is no intrinsic difference among these three interfaces; they all offer the same database. There are, however, substantial differences among the interfaces in the way these data are presented and can be searched. The objective here is not to determine which of these systems is superior but rather to examine the different approaches and provide the author's perspectives. Some of the features constitute true advantages or disadvantages, while the utility of others is more a matter of personal preference. It is assumed that readers have basic knowledge of the MEDLINE database and the Medical Subject Headings (MeSH) thesaurus, which have been discussed, together with their major CD-ROM interfaces, amply in the professional literature [1-9].

## **BACKGROUND**

SilverPlatter was one of the first MEDLINE-on-CD-ROM vendors, has been one of the biggest from the very beginning, and is still expanding. SilverPlatter now offers some 150 different database products on CD-ROM. CD Plus Technologies has not been prominent in the CD-ROM business for as long, but in the

last few years it has risen to become a serious competitor to SilverPlatter. CD Plus Technologies also offers a great variety of database products (e.g., AIDS-LINE) and full-text CD-ROMs (e.g., *The New England Journal of Medicine*). Both companies have database-independent retrieval systems, so that user skills acquired while searching one database can be applied (up to a certain point) to the company's other databases.

Both SilverPlatter and CD Plus Technologies make their databases available on many different platforms: single user or network, DOS, Windows, UNIX and client/server solutions. Both companies offer MEDLINE for a variety of time frames, ranging from the last three or four years' worth to the full MEDLINE database dating back to 1966. (There are other MEDLINE-on-CD-ROM vendors, such as EBSCO and Dialog, but they will not be discussed here.)

As noted earlier, the SilverPlatter interfaces examined are SPIRS (version 3.11) and WinSPIRS (version 1.0). The new CD Plus Technologies interface, replacing the company's original retrieval software, is called OVID (version 3.0) and comes in both a DOS and a Windows version. The interfaces were not tested within the same MEDLINE time frame, so the results of the sample searches, conducted in the field of tropical medicine, should not be compared in an absolute numerical way. Most features will be de-

scribed beginning with SPIRS, the oldest interface. The analysis notes how and at which point the other two interfaces differ from SPIRS.

## GENERAL INTERFACE LAYOUT

The SPIRS interface has not changed much since the late 1980s. Though it does not have any graphic features and is limited to the standard twenty-five lines of eighty columns, it is clear and efficient; the full screen is reserved for homogeneous "text" (search history, thesaurus information, or record display). All other relevant modules can be accessed via function keys or the one or two lines of menu options at the bottom of the screen. If the user still gets lost, there are always the context-specific (<F1>) "help" screens.

The WinSPIRS interface, the most recently developed of the three (1994), has quite a different appearance. First, it incorporates the generic Windows features: The graphic mode allows for more information on one screen than does SPIRS (either homogeneous or mixed), supports various (default) fonts in various sizes, permits use of a mouse and pull-down menus, and offers the possibility of resizing or relocating all types of windows. All this potential results in a rather heavy screen, including a Windows application bar, pull-down (<Alt>) menus, search formulation (one line, four buttons), search history (eight lines, four buttons), and display of retrieved records (ten lines, four buttons).

Unlike SPIRS and WinSPIRS, the Windows and the DOS versions of OVID are very much alike. Compared with WinSPIRS, OVID displays less information on the basic retrieval screen, resulting in a clearer display. The OVID interface (1993) is divided into four partitions: pull-down (<Alt>) menus at the top, a text display window, a command line, and buttons. Apart from this "full menu mode," OVID also features an "easy mode," a simpler version of the same interface in which only the lower buttons can be used (the pull-down menus and function keys are not available). A third approach adds a number of powerful new features to the search; this "command mode" makes use of BRS/Search codes.

All three interfaces can be searched with a keyboard alone. A mouse is highly recommended, but not essential, for WinSPIRS and both OVID versions. SPIRS does not support the use of a mouse. Function keys are available for all interfaces except for the DOS version of OVID.

## DATABASE SELECTION

After the software is started up, SPIRS searches for relevant discs (i.e., those produced by SilverPlatter).

If more than one is found, then they are presented in a menu; one or more database discs can then be selected. Of course, simultaneous selection of different discs is possible only when more than one disc is loaded in the CD-ROM drive(s). Otherwise the only disc available is accessed immediately.

General information about the selected database appears on the first screen display, offering access to more detailed information about SPIRS software or MEDLINE. While this is acceptable, it would be more helpful if this information were available before database activation, as it is in WinSPIRS. This interface displays two separate windows to list the loaded discs (shown on the left) and the ones actually selected (shown on the right). Information about the database(s) is available from this selection screen. OVID, by default, displays this information on the database selection screen. OVID requires explicit (one-time) installation of each disc before it becomes accessible; in this process, a considerable amount of information is copied to the hard disk (to guarantee fast retrieval). A possible problem at startup is that OVID does not look for discs but rather for the installation information on the hard drive. It thus may offer discs that are not physically loaded in the CD-ROM drive(s). If a user chooses an absent disc, the system may lock up.

## RETRIEVAL

Retrieval is the default action, and a sensible one, in all systems. There are, however, big differences among the interfaces in terms of what can be searched. SPIRS offers free-text searching as a default; thesaurus and index searching are suggested as alternatives, each one accessible with a function key. This is a fine feature, as long as the user knows exactly what to look for. Although this approach offers a sort of maximum recall, strings are found only in the exact form the user types in; synonyms or alphabetically related words are not found, unless the user knows how to apply sophisticated features such as truncation, index searching, or thesaurus searching. For example, an article about Zaire will not be retrieved using the search term "Africa," unless "Africa" is mentioned explicitly in the record. The results may also be redundant. For example, the string may appear in the address, but have no real relevance to the contents of the article. Papers from a (hypothetical) Institute for Malaria and Tropical Diseases may not deal with malaria at all, and a laboratory in South Africa does not necessarily cover typically African problems.

Fortunately, free-text searching is not the only retrieval approach. For subject searching, the thesaurus is the alternative of choice; this will be discussed in a separate section. In addition, the general index can

be consulted to pick out alphabetically related terms. The index indicates the number of occurrences and the number of records with at least one occurrence for each term. Combined terms are included in both hyphenated form and constituents. When multiple discs are searched, all the general indexes are integrated automatically, and the total numbers for each term are displayed. Although no field-specific indexes are included, a search can be limited to a specific field. However, this is not obvious to novice users, because one needs to know both the technique and the individual field codes. These codes can easily be displayed online with a function key but must be entered manually in the search formulation.

WinSPIRS also offers free-text searching as a default but features a number of enhancements. If a search term is not found in the general database index, then an explicit warning window is displayed, suggesting that the user check the spelling or use one of the following search aids to improve keyword retrieval: "suggest," "searching thesaurus," or "searching indexes." The first search aid employs a natural-language mapping technique, retrieving a number of terms that are closely related to the original one. These suggested terms are not predetermined but rather are generated by a special algorithm; this process takes some time and often produces more than fifty suggestions. These appear to be classified by degrees of relevance; within these categories the terms are arranged alphabetically. When a user is in doubt about which term to use, definitions can be consulted. This artificial intelligence technique has its limitations and may generate awkward results, as the suggestions are not always specific or relevant, but the "right" alternatives generally are offered. (For example, "Sleeping sickness" leads to "Trypanosomiasis, African" and "Bilharziasis" to "Schistosomiasis.") When the user chooses to ignore the suggestions, the original term is searched automatically in the title, abstract, and MeSH fields. In sum, natural-language mapping is generally useful, especially for novice users, but it should not be considered a foolproof replacement for human intelligence.

A more reliable alternative is the thesaurus, the second search aid (see separate section). The third search aid is index searching. The "Index" button offers a "free-text index" by default. The fields offered include "title," "original title," "comments," "author," "address," and "source." As these are all meaningful text fields, it is a pity that no field-specific indexes exist for them. Other nontext fields do have separate indexes: "publication year," "language of article," "country of publication," "checktags," "update code," "subset," and "abstract indicator." The search can be limited to specific fields either in the same command mode as in SPIRS, or by using the pull-down menu item "Fields to search," which displays

a list of individually searchable fields. The adequate field code(s) can be transferred automatically to the query, assuming the search term itself has already been entered; the system just adds a suffix such as "in AU."

OVID, as a default, searches for keywords. It has a "subject lookup" feature comparable to WinSPIRS' "suggest" (the OVID feature, to be fair, was available first). Whether they are regular MeSH terms or not, all search terms are compared automatically to the MeSH thesaurus, and a number of alternatives are suggested, always including (Windows) or offering access to (DOS) scope notes. The number of terms (five to fifteen) is markedly lower than with WinSPIRS' "suggest," but they tend to be more relevant. When mapping produces no results, the message "can't map this entry to a subject heading" is displayed. This is much more specific than the WinSPIRS warning, which appears only when a search term is not present anywhere in the database. OVID produces the warning any time a search term is not a MeSH term or is not automatically mapped to one. The major advantage of this approach is that it presents no illusions, as free-text searching often does: when the user obtains results with alternative language terms (instead of a zero result), this may suggest that the search has found all of what the user is looking for, while in fact it has found only a fraction of it. The disadvantage of this approach is a lack of flexibility; the user is often forced to enter new terms (a "command buffer" exists, but it is not an obvious one). Automatic subject lookup is the OVID system default and cannot be deactivated. This feature is helpful for novice searchers but less so for experienced professionals, who are well aware of the limitations of free-text searching but can use poor initial results (which are not available in OVID) to find alternative entries and develop improved strategies (e.g., using keywords from "related" records).

Subject searching is the OVID default, but there are also several other explicit possibilities: "Text word" (title and abstract), "author search," and "journal title search" are standard alternatives. It is also possible to choose one or more other fields (from a list) to be searched. The user either selects a field (from the list) and enters its contents, or browses the alphabetical index for each field and selects the most appropriate item(s) or combination. OVID allows page numbers to be searched, a useful tool for verifying references. OVID also permits searching (and display) of full journal titles, a helpful approach when the user doesn't know the correct abbreviations or what they stand for. Next to the "journal title" field, there is a journal word index, so journal information can be used even if the user doesn't know the full title or the correct abbreviation. These possibilities are not available in SPIRS or WinSPIRS, where only the standard abbre-

viation is used, and journal titles don't have a separate index but instead are part of either the general index (SPIRS) or the free-text index (WinSPIRS).

It is unfortunate, however, that not all text-oriented fields are searchable in OVID; for example, "original title" cannot be searched. Limit fields are dealt with well in OVID: all options are displayed in a separate window. For example, "human," "animal," "male," and groups with several possibilities, such as "age groups" and "publication types" would appear there. Limiting can be done very quickly in OVID, and after the operation it remains possible to "undo" its effects.

### Thesaurus searching

Searching for subjects is obviously the most important search mode for MEDLINE. In SPIRS, a free-text search can be limited to keywords (e.g., "malaria in MeSH"), but it is far more interesting to use the structured thesaurus, particularly because the MEDLINE thesaurus is very comprehensive and powerful. Thesaurus searching can be done through all MEDLINE interfaces. Although there are differences in presentation and searching, all three interfaces use the same MeSH thesaurus. In general, this module consists of the following steps: (a) access to the permuted MeSH index; (b) selection of terms from the hierarchical trees; (c) single-term search, versus explosion; (d) selections of subheadings; and (e) execution of the search.

SPIRS allows for right-hand truncation when first suggesting a MeSH term. After choosing an item from the permuted index, the user gains access to the structured thesaurus. This point of access may be a different term than the one originally entered. Thus, SPIRS can be said to include a (predetermined) natural-language mapping feature. SPIRS automatically displays full thesaurus information for the selected term: definition, related terms, and (partial) tree (generally only one upper and one lower level of the tree are displayed). When there are more underlying terms in a tree than are displayed, the total number of subdivisions is indicated. The user can jump up and down the (partial) tree(s) or switch to the full tree module until locating the desired branch(es). Of course, the user can also go back to previous steps or screens.

The "explode" technique is a very useful and powerful feature, which includes not only the term itself but also all hierarchically "lower" terms in the search. For example, the single thesaurus term "parasitic diseases" yields 114 hits, while the explode method results in 5,692 hits. As the system automatically combines all these "lower" terms (sometimes more than 100 items) in an "OR" function, this process can take some time. Explode is set as a default option and is context-sensitive.

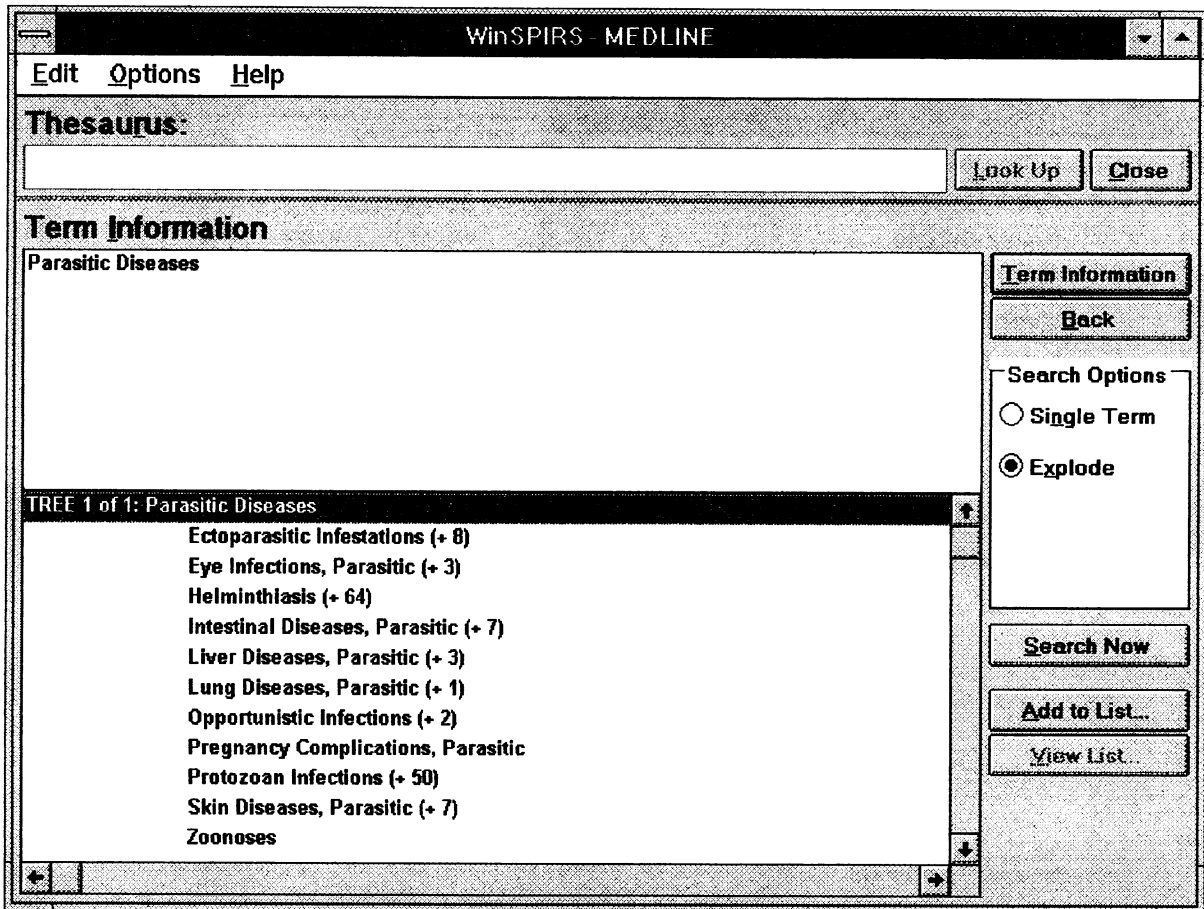
WinSPIRS' thesaurus searching is comparable to that of SPIRS, but the option of using the thesaurus is more prominent, as it can be accessed either directly or via the "suggest" mapping feature. The definitions of thesaurus terms or subheadings are not displayed by default, but are always available from the permuted index. When selecting a term with subdivisions, explode is the sensible default (Figure 1); but when accessing the thesaurus from the suggest function, the system automatically looks for a single term, and explode is not available.

When searching for subjects, OVID automatically accesses the thesaurus. Unfortunately, it does not allow for truncation of starting terms, and the search module offers only a limited view of the thesaurus. If the user wishes to use the full MeSH tree, then the separate "tools" option must be used. A number of defaults can be defined to customize the presentation (e.g., to display MeSH tree numbers, indentation parameters, connecting lines). Although the MEDLINE thesaurus is essentially the same for all interfaces, OVID features a few helpful advantages in its presentation and searching possibilities. It immediately displays the number of hits for each term and its subheadings (Figure 2). This is helpful, as it indicates the relative value of each term. Unfortunately, these postings do not automatically include all lower terms, and only one lower level is displayed, without any indication that there are additional levels. For example, the thesaurus term "Africa" has 138 postings and presents two subdivisions ("Africa, northern" and "Africa, south of the Sahara") with 6 and 8 postings respectively. The total "exploded" number of postings, however, is 1,316 (the subdivisions contain exploded totals of 145 and 1,047 respectively).

Display of postings is a fine feature, which is absent in SPIRS and WinSPIRS, but OVID could still be improved. It would be advantageous, for example, to add the number of hits to the alphabetical permuted MeSH index, as this would help the user choose among alternatives at an early stage. In the Windows version, scope notes are displayed by default. These scope notes are especially helpful when choosing among several possibilities. In addition to defining terms and indicating hierarchical relations, these notes include the first year a subject or subheading was introduced. This is not fluff; if a user is unaware that a specific subject or subheading has been used only for the last few years, there is a risk of missing important information from earlier years while assuming that the retrieval contains all the information available [9].

While "explode" is a remarkable and powerful feature in itself, OVID has a few additional advantages in this area. First, the process is very fast—almost instantaneous. This is probably possible because a great number of terms are "pre-exploded" on disc

Figure 1  
WinSPIRS MeSH thesaurus



(i.e., they have already been combined). It is unfortunate, however, that "single term search," instead of "explode," is the default action: a user can miss the latter function by accident. The explode button does not appear to be context-specific, and it remains visible, even when the lowest thesaurus level is displayed (when explode is irrelevant).

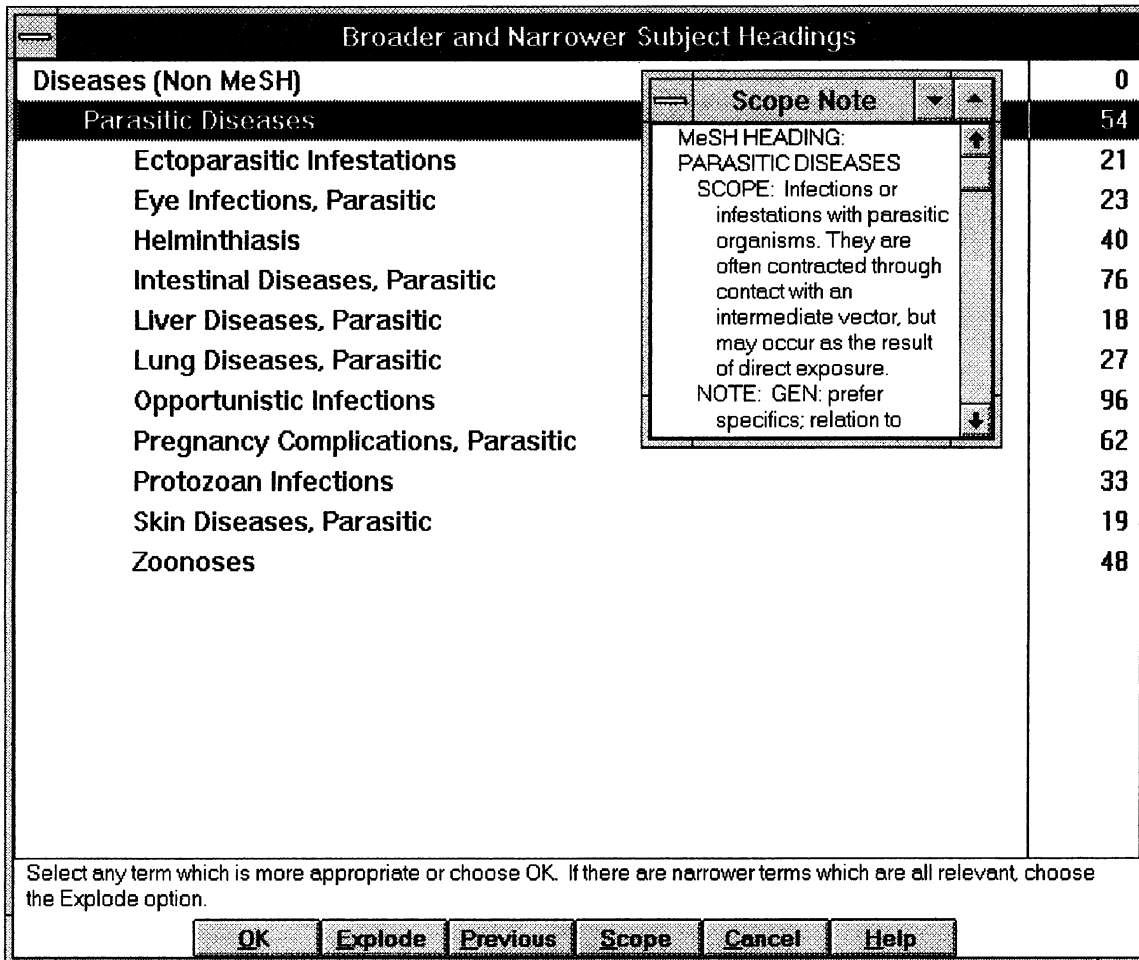
In a next step, the OVID user chooses between "restrict the search to focus," and "include all hits." This is an important way of limiting results to the most relevant subset. It reflects, of course, the difference between major and minor MeSH terms. This distinction can also be made in SPIRS and WinSPIRS, but is known only to experienced users. It is best to prompt the user for this option, as OVID does. The use of

specific subheadings can be turned off as a default, an advantage for novice searchers.

#### OTHER RETRIEVAL FEATURES

SPIRS and WinSPIRS allow for right-hand truncation in free-text retrieval or entries in the permuted thesaurus index. With OVID, only "textwords" can be truncated, so this feature applies only to the "title" and the "abstract" fields; unfortunately, it cannot be used in keyword or thesaurus searching. SPIRS and WinSPIRS feature lateral searching, that is, while viewing records, the user can select specific words, which are automatically transferred to the query. Al-

**Figure 2**  
 OVID for Windows MeSH thesaurus



though it has been available in SPIRS from the very start, this feature is missing in OVID.

To combine terms, all interfaces permit use of the three classic Boolean operators "AND," "OR," and "NOT." Sets can also be combined, but in SPIRS and WinSPIRS they must be indicated explicitly with the "#" symbol. OVID is more pragmatic in this respect: if the user enters a number with no higher value than the last set, this is interpreted automatically as the set with that number, which reduces the need for keyboard acrobatics. Of course, if a specific number is searched, then this default interpretation can be overruled with a literal or field-specific search.

All three interfaces permit automatic saving of search strategies when switching databases, to the extent that they are applicable in the new database. Obviously, the use of exploded MeSH combinations in non-MEDLINE databases will not produce relevant results. Search histories can also be saved indefinitely.

#### DISPLAY, PRINTING, AND DOWNLOADING

SPIRS displays records only after an explicit command. The display of records is continuous: full screen follows full screen, irrespective of record boundaries.

The display function always acts on the last set. The disadvantage of this approach is the need to re-activate previous sets before they can be displayed, printed, or downloaded. WinSPIRS includes a display window on the default retrieval screen and automatically shows the first record of each current set. The display of records from intermediate steps can be turned off, although the display window itself cannot be. Display is the default action when a user selects a set in the search history, so display is not limited to the last set. This is also true for OVID, which does not display records on a scrolling basis but starts a new screen for each document.

MEDLINE records consist of a standard set of fields. All three interfaces are flexible in that the user can determine which fields are displayed by default. Regrettably, none of the interfaces allows the user to choose the order in which fields are displayed. There are, however, some differences among the three in the way that field contents are displayed. SPIRS and WinSPIRS offer a choice among short field labels, long field labels, or no field labels at all. WinSPIRS features a few additional Windows-based possibilities: easy toggle between short (bibliographic fields) and long (all default fields) display, easy toggle between "limited window" or full screen display, and optional indentation of text after the field code.

The OVID for DOS display layout has a rather unsophisticated appearance: full field descriptions are presented, and a full line is reserved for each one. Field descriptors are highlighted, drawing attention away from the "real" data. This feature is less disturbing in the Windows version, where different fonts can be used. There is a degree of flexibility in that for some fields (e.g., authors, keywords) different defaults can be set (e.g., all items can be displayed one after the other, in two columns, or in a vertical list). In addition, the full source title, the abbreviation, or both can be displayed. OVID, like WinSPIRS, has an easy toggle between the full "document" and the short "titles" format, which includes title, authors (optional), and source (truncated after one line).

All interfaces support adequate methods of selecting or deselecting records while viewing them. The user can print or download marked record sets, after which SPIRS and WinSPIRS release the markings. In OVID, the marked sets become autonomous, and, like any other set, can be used afterward to combine, limit, display, print, or download.

For printing or downloading, all interfaces allow the user to define many defaults for layout: field selection; record sorting (e.g., fields to sort, ascending versus descending order); include search histories; limiting to local holdings; and highlighting of hits. The system administrator can set a maximum number of printed records, but for some mysterious reason this useful feature does not apply to downloading.

## MISCELLANEA

SPIRS and OVID (DOS version) offer context-specific, pop-up help screens. WinSPIRS and OVID (Windows version) offer their help functions in the standard Windows help format. SPIRS features an interactive tutorial, a fine piece of programmed instruction offered as a separate module. It is well designed and very helpful for novice users. WinSPIRS and OVID help modules are integrated into the system.

As most medical libraries hold only a fraction of the journals indexed in MEDLINE, the capability to note which journals are in local holdings is very useful. It is especially helpful if the user is not searching for an exhaustive bibliography but rather for a limited number of relevant, readily available articles. All interfaces use a separate module to produce and maintain a local holdings list, starting from a complete list of journals included on the MEDLINE discs. These local lists can be downloaded and combined with user-defined messages. The resulting list itself is integrated seamlessly with the database: the list is incorporated into the records display, with a highlighted user-defined message, which gives the local MEDLINE copy a personal touch. "Local holdings" can be used as a limiter for display, printing, or downloading.

## CONCLUSION

Counting up all the pros and cons of each interface does not point to a clear winner, as the value of most features is a matter of personal preference. However, comparing key features can certainly indicate versatility. Following is a list of the most important features encountered in the three interfaces. The appendix contains a more complete list, indicating which system includes each feature.

Major positive features:

- multiple modes (easy menu or expert command mode);
- ultrafast explosion (using pre-exploded thesaurus terms);
- natural-language mapping (which may not lead to the best possible strategy but certainly helps novice users find a useful entry);
- complete and highly visible scope notes;
- restricting a subject search to focus areas (versus finding all hits);
- clear indication of field-specific searching possibilities;
- combination of free-text index(es) and field-specific indexes;
- various display formats (e.g., full versus short display);
- choice between full journal name and MEDLINE abbreviations; and
- user-defined defaults at several levels.

Although they present the same database, these three interfaces differ in many ways. It is obvious that all three are quite good, yet none has all of the desired features: each has more and less useful features. Together, they show that an enormous range of possibilities can be offered. The user would benefit if most of the better features (just listed) were implemented in future versions of these interfaces and if systems operators were given greater leeway to determine the system defaults appropriate to their situation and customers. Finally, a user choosing among these interfaces should consider what other retrieval systems are already used; the ability to use the same interface for different databases is certainly a great advantage and a factor to be taken into account while shopping for a database system.

## REFERENCES

1. BONHAM MD, NELSON LL. An evaluation of four end-user systems for searching MEDLINE. *Bull Med Libr Assoc* 1988 Apr;76(2):171-80.
2. CAPODAGLI JA, MARDIKIAN J, UVA PA. MEDLINE on compact disc: end-user searching on Compact Cambridge. *Bull Med Libr Assoc* 1988 Apr;76(2):181-3.
3. GLITZ B. Testing the new technology: MEDLINE on CD-ROM in an academic health sciences library. *Spec Libraries* 1988 Winter:28-33.
4. BAKKER S, BLEEKER A, VAN DER BURG J, DIJKMAN J, ET AL. MEDLINE on CD-ROM: a comparison. *Online Rev* 1989; 13(1):39-50.
5. DALRYMPLE PW. CD-ROM MEDLINE use and users: information transfer in the clinical setting. *Bull Med Libr Assoc* 1990 Jul;78(3):224-32.
6. CLARK K. New OVID software from CD Plus Technologies. *CD-ROM Professional* 1993 Nov;6:230-2.
7. JACSÓ P. OVID/MEDLINE: a gourmet choice. *Database* 1994 Feb;17(1):31-8.
8. LOWE HJ, BARNETT GO. Understanding and using the Medical Subject Headings (MeSH) vocabulary to perform literature searches. *J Am Med Assoc* 1994;271:1103-8.
9. PRATT GF. A brief hitchhiker's guide to MEDLINE. *Database* 1994 Feb;17(1):41-6.

\* In 1995 the SPIRS software was renamed "PC-SPIRS" (version 3.3). There are no substantial interface differences between SPIRS 3.11, discussed in this article, and the more recent PC-SPIRS 3.3.

*Received January 1995; accepted June 1995*

## APPENDIX

Comparative table of features

	SPIRS	WinSPIRS	OVID (DOS)	OVID (Windows)
<b>Features</b>				
Keyboard	+	+	+	+
Function keys	+	+	+	-
Alt-Menus	-	+	+	+
Mouse	-	+	+	+
Windows	-	+	-	+
<b>Start-up</b>				
Database information	±	+	+	+
Multiple modes	-	-	+	+
Multiple disc searching	+	+	+	+
<b>Searching</b>				
Free text searching	+	+	-	-
Free text index	+	+	-	-
Field-specific searching	±	±	+	+
Field-specific indexes	-	-	+	+
<b>Natural language mapping</b>				
Possible	-	+	+	+
Default	-	-	+	+
<b>Thesaurus</b>				
Scope notes	±	±	+	+
Explode possible	+	+	+	+
Explode as default	+	+	-	-
Pre-exploded terms	-	-	+	+
Restrict to focus	±	±	+	+
Truncation (right hand)	+	+	±	±
Combine: and, or, not	+	+	+	+
Adjacency	+	+	+	+
Frequency of occurrence	-	-	+	+
Limit to fields	±	+	+	+
Limit to values (e.g., date)	±	+	+	+
Lateral search	+	+	-	-
Clean retrieval sets	+	+	+	+
<b>Use search strategies</b>				
with other discs	+	+	+	+
Save search strategies	+	+	+	+
<b>Display (D), Print (P), download (L)</b>				
Toggle short vs. full format (D)	-	+	+	+
Select fields (DPL)	+	+	+	+
Determine field order (DPL)	-	-	-	-
Full journal titles (DPL)	-	-	+	+
Journal abbreviations (DPL)	+	+	+	+
Highlight hit terms (DP)	+	+	+	+
Select records: "mark" (D)	+	+	+	+
"Marked records only" output (PD)	+	+	+	+
Autonomous "marked" sets	-	-	+	+
Progress indication (DPL)	+	+	+	+
Include search strategy (PL)	+	+	+	+
Sort records (DPL)	+	+	+	+
Limit printing (P)	+	+	+	+
Limit downloading (L)	-	-	-	-
Specify download drive (L)	+	+	+	+
Specify download filename (L)	+	+	+	+
Choice: append vs. overwrite (L)	+	+	+	+
Display local holdings message (D)	+	+	+	+
Limit to local holdings (DPL)	+	+	+	+

+ Available  
 ± Available, but not obvious  
 - Not available