NOTE

Survey of computerized documentation system use in drug information centers

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For years there have been detailed laws describing the minimum requirements for documenting the dispensing of prescriptions in a pharmacy. These laws protect practitioners from unfounded legal action, facilitate drug utilization reviews, and enable patients and pharmacies to obtain reimbursement for health care expenses. Like prescriptions, drug information requests should be carefully documented to avoid litigation and to preserve valuable and reusable information. Computers have become the method of choice for documenting routine pharmaceutical services and are suitable for recording drug information provision by a drug information pharmacist.

The development of software to assist drug information specialists in information management is an important advance. Historically, institutional drug information centers have used manual systems to record and store drug information requests. Manual systems are often tedious and difficult to work with because of illegible handwriting, incomplete documentation, and limited storage space. Searching a paper system for a previously answered question can be awkward and time-consuming. Computerized documentation systems help pharmacists create a rapidly searchable database of previously answered questions and provide a valuable mechanism for generating workload statistics. Rapid access to previously answered drug-related inquiries can improve the efficiency of drug information practice, and detailed workload statistics, provided at the touch of a button, can improve documentation.

Most drug information departments in the pharmaceutical industry have computerized documentation systems.1-4 Institutional drug information centers have also reported use of these systems; however, most reports were poster presentations at national pharmacy meetings, and detailed information is limited.5-13 Current knowledge about the use of computerized documentation systems by drug information services would prove valuable not only for drug information specialists but for other hospital personnel responsible for documenting cognitive services. We report here the results of a national survey of computerized documentation system use in drug information centers.

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Methods. Information needed for a detailed description of a computerized documentation system was generated by two drug information specialists. This information was used to develop a 16-question survey about such variables as whether a computerized system was present, how long the system had been in use, the type of software, security features, quality assurance measures, the system’s ability to generate workload statistics, the time required to train users, search capabilities, and the respondent’s opinion of the primary advantages and disadvantages of the system. Demographic data collected included the number of drug information requests received each month, the number of full-time-equivalents (FTEs) in the center, and whether students or residents were used to staff the center. Five drug information specialists at centers located in different regions of the United States reviewed the survey to determine its validity and appropriateness.

One hundred twelve university-and hospital-based drug information centers were identified by using the 1999 Physicians’ Desk Reference and the 1999 directory of drug information specialty residency programs accredited by the American Society of Health-System Pharmacists. The survey was administered over the telephone by one of three separate interviewers. If the center could not be contacted by telephone after three attempts, the questionnaire was faxed or mailed to the center. All data were collected between March 9 and May 9, 1999.

Results. Of 112 drug information centers identified, 77 (68.8%) provided responses. Eight of the centers were no longer in service, 1 declined participation, and 26 did not respond after three telephone messages and a faxed request. Of the 77 responding centers, 36 (46.8%) were university-based services and 3 (3.9%) were combined drug and poison information centers.

The median number of drug information requests received by the centers each month was 200 (range, 35–930), and the mean number of FTEs was 1.8 (range, 0.5–3.5). Sixty-four (83.1%) of the 77 centers included residents and students on their staffs.

Twenty-eight (36.4%) of the respondents used a computerized documentation system; 13 (46.4%) of these centers were university based. Only 10 (35.7%) of these 28 centers used a completely paperless system, however. Three (10.7%) of the centers used commercially available systems (Professional File Database, Toxicol, and Clinitrend). Twenty-five (89.3%) of the sites were using a custom-developed system. The most common software was Microsoft Access (14/28 [50%]); others were Microsoft FoxPro (1 [3.6%]), FileMaker Pro (1), Microsoft Excel (1), Microsoft Word (1), dBASE (2 [7.1%]), Sequel Server (1), Alpha5 Database (1), and Lotus (1). The remainder of the centers were unsure of the type of software used. Fifteen of the systems (53.6%) were available only via personal computer. However, some programs did allow for local area network use (10 [35.7%]), Internet use (3 [10.7%]), or intra-net use (3). Two sites employed outside programmers to assist in developing their system. At the other sites, personnel affiliated with the institution programmed the systems. The systems had been in service for an average of 4 years (range, 2 months to 10 years).

Of the 28 computerized documentation centers, 21 (75%) used security codes to protect information in the database. Over 90% maintained a quality assurance (QA) mechanism to ensure the accuracy of the information. These QA systems generally consisted of pharmacist review and approval of the information before an inquiry was answered and the response documented in the database. All respondents said their systems were user-friendly. For 26 (92.9%) of the systems, information entered into the database could be altered at any time. On average, less than one hour was required for user training. The primary advantages of having a computerized system were that it saved time, that it was easy to use, that it could generate workload statistics, that information entered could be altered or updated, and that data fields were customizable. Most systems could be searched in a variety of ways, including by keyword, phrase, free text, or menu. The primary disadvantages were that most systems were still not paperless (because of a lack of backup capability), that search terms could not be combined, and that some of the commercially available systems were expensive and possibly not Y2K compliant. Some pharmacists believed that these systems were not a good teaching tool for students and residents and required a time-consuming data-entry process.

A majority of the sites that did not currently have a computerized documentation system expressed great interest in developing a system of their own or in purchasing commercially available software for that purpose. Many respondents commented that they were currently developing or improving a computerized system.

Discussion. An integral component of contemporary drug information practice is the appropriate use of drug informatics. Drug informatics involves the use of computer technology to improve information management (for purposes in addition to online searching or word processing) and, in the case of pharmacy, to optimize pharmaceutical care. The concept of computerized documentation systems is not new. Institutional and academic drug information centers around the country have reported using these systems since the late 1980s. However, only 36.4% of drug information centers contacted in this survey reported current use of a computerized documentation system. These results reveal that in cur-
current practice there appears to be a
lack of drug informatics application
among our nation’s institutional
drug information centers. However,
25 (51.0%) of the 49 drug informa-
tion centers without computerized
documentation systems commented
that they were developing or consid-
ering such a system.

Barriers to the implementation of
computerized documentation sys-
tems in drug information centers in-
clude budgetary constraints, limited
staffs, and the lack of commercially
available software dedicated for this
use. Most centers reporting current
use of a computerized system noted
the use of a custom-developed sys-
tem programmed by a member of the
pharmacy staff. In many cases, the
system developer was no longer em-
ployed by the institution, making it
difficult to troubleshoot or upgrade
the program. In addition, most pro-
grams did not have all features desired
by the drug information specialists.
For example, some programs enabled
retrieval of past drug information re-
sponses but were not able to generate
detailed workload statistics.

This study has several limitations.
The representatives who responded
to the telephone survey may not al-
ways have provided accurate infor-
mation. The telephone interviewer
made every attempt to speak to the
person who could provide the most
accurate information. However, the
contact person at three of the centers
could not identify the software cur-
cently in use. The 112 drug informa-
tion centers did not include all cen-
ters currently in operation in the
United States. The results do, howev-
er, reflect a majority of institution-
and university-based drug informa-
tion centers.

Computerized documentation systems have several advantages over
paper systems. They can improve the
efficiency of responding to drug in-
formation requests and provide de-
tailed statistics on drug information
center activities. This survey indi-
cates, however, that most institution-
 al drug information centers did not
use computerized systems to docu-
ment drug information requests and
services.

The ideal computerized documenta-
tion system for these centers does
not yet exist. The ideal system would
provide a secure, reliable, and effi-
cient way to respond to and docu-
ment drug information requests,
would generate workload statistics,
and could be customized to fit the
unique characteristics of each prac-
tice site. When computerized systems
are more commonly used, applica-
tions may include consolidation of
information requests from several
drug information centers to create a
large searchable database with Inter-
net access by pharmacists from dif-
ferent practice sites. This would help
drug information centers provide
quality information for large num-
bers of customers and reduce the
amount of duplicated effort. Before
this can happen, more centers need
to implement computerized docu-
mentation systems.

**Conclusion.** Only about one third
of surveyed drug information centers
used a computerized system to docu-
ment drug information requests.

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