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Sharon LaHaise, RN, PhD, was asked to respond to this letter.

In regard to the design flaw in NOSO-3 (Epi-Systematics, Inc., Ft. Myers, Florida), not only is the NOSO-3 manual "not helpful," as Ms Walsh points out, but it is actually misleading. How are beginning infection control practitioners (ICPs) going to set up a surveillance computer file after reading in the manual "Only one demographic record is stored per patient"?[1]

Alternatively, even if ICPs figure out on their own, as Ms Walsh did, that this recommended strategy produces computational errors and decide to enter one record per admission, what would they do when analyzing operations by, say, service or diagnosis related group (DRG)? Whenever there are instances where a patient had more than one operation performed by different services during one admission (or any number of other similar real-life situations), computational errors will be produced by the per-admission data structure as well.

The basic problem is that a hierarchical data structure like that of NOSO-3 is extremely difficult to analyze accurately, and the analytic algorithms in NOSO-3 are not sophisticated enough to handle the hierarchical structure without errors. Simply going to another level of the hierarchy, as Ms Walsh did, does not solve the basic problem.

Ms Walsh's final comment points out the most dangerous implications of the design flaws in NOSO-3—that is, the subtle nature of the errors that result. In most analyses, the errors are of relatively small magnitude and would not be noticed. In fact, we only discovered the problem when we compared results with those from AICE (ICPA, Inc., Austin, Texas) and found different results on the same analysis of the same data base. Only by comparing both programs to SAS (SAS Institute, Inc., Carey, North Carolina) could we determine which one was giving erroneous results. That the errors were of small magnitude, however, does not mean that they will always be unimportant.

Unless NOSO-3 users have compared their results with those from another software program on an identical set of data, it appears likely from our findings that their reports all along would have been sprinkled with errors of which they were never aware. The insidious nature of this error problem is one of the reasons we decided to publish the results of our comparison.

Sharon LaHaise, RN, PhD
Pomona, California

REFERENCE

1. *NOSO-3* Users Manual Version 2.2. 4th ed. Lafayette, La; Episystems, Inc.; 1988.

To the Editor:

Dr. LaHaise is to be commended for her objective evaluation of the proprietary infection control software packages.[1] I "inherited" NOSO-3 (Epi-Systematics, Inc., Ft. Myers, Florida) upon assuming the infection control responsibilities at the Buffalo General Hospital, a 700-bed tertiary care hospital. Dr. LaHaise has quantified what I and other colleagues had discovered-namely that NOSO-3 is cumbersome and time-consuming to operate. For example, to generate a summary report for 1988, it was necessary to move through several menus and field screens, and it then took the program 19 minutes and 56 seconds to create the necessary data set. We run the program on an IBM PC AT (International Business Machines Corp., Atlanta, Georgia).

Along with Dr. LaHaise's recommendation that the AICE (ICPA, Inc., Austin, Texas) software is more functional and accurate, I offer the following suggestion. Any infection control department that is planning a computer/software purchase should consider the use of standard integrated data-base/spreadsheet/word processing programs that are available either for Apple II/Macintosh (Apple Computer, Inc., Cupertino, California) or IBM computers. Several such programs are available ***(PC Magazine;*** December 26, 1989), often priced under $200, are easy to learn and are adaptable to all routine infection control tasks. Most include graphics capability. If statistical analysis is required beyond the level of rate calculation, there are inexpensive and "user friendly" statistical programs available.[2,3]

Because the word processor, graphics and statistics modules of NOSO-3 are rudimentary, all of the above software will be more than adequate for infection control applications. They also will be useful for other tasks, particularly in departments where there are ongoing research or quality assurance projects. The cost of a computer, particularly an IBM "clone," and generic software will be far less than the proprietary infection control software package. It must be remembered that a computer and software, including customized software, do not by themselves maximize efficiency, improve compliance with standards or mitigate "bean counting." Knowledge of standards, thoughtful analysis of needs and selected data manipulation are the basis of a good infection control program.

John A. Sellick, Jr., DO
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2. *App Stats and Graphs.* Tulsa, Okla: StatSoft.
3. Galntz SA. *Primer of Biostatistics: The Program.* Hightstown, NJ: McGraw-Hill Information Services Co.

Sharon LaHaise, RN, PhD, was asked to respond to this letter.

While it is true that functions performed by infection control software could be duplicated by

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