# Physicians' Attitudes Toward the Uses of Computers in Office Practice

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Personal microcomputers now have the processing power and storage capabilities previously possible only with larger and more costly machines. This increased capacity opens up the possibility of affordable and diverse computer applications for office practice.

Increasing numbers of physicians are interested in computers and are searching for useful software and hardware for application in office practice. A recent survey of internists and otolaryngologists[1] found that 75 percent of respondents desired to implement or expand the uses of computers in their medical practice and 85 percent felt this would improve their practice of medicine. To provide insights into physician acceptance of currently available computer applications, a regional survey of physician attitudes toward the uses of computers in office practice was undertaken.

## METHODS

A single-page questionnaire was mailed to 1.987 randomly chosen physicians in the Pacific Northwest region. The sample was drawn from physicians belonging to the state medical associations in Washington, Alaska, Montana, and Idaho. It was not possible to identify physician specialty prior to the mailing; therefore, a large sample was chosen to ensure a satisfactory representations of all major specialties. Because of financial constraints a second mailing was not attempted.

## RESULTS

A total of 614 usable questionnaires (31 percent) were returned. These were distributed across many types of practice configurations and physician age (the latter determined by years in practice).

Fifty-three percent of the respondents classified themselves as part of a group practice and 35 percent designated themselves as solo practitioners. The remainder were in various other practice settings, ie, health maintenance organizations, academia, student health or residency programs.

Twenty-nine percent of the respondents stated that they had been in practice fewer than 6 years, 35 percent between 6 and 15 years and 31 percent responded that they had been practicing longer than 15 years.

Specialties represented included family practice (28 percent), internal medicine (14 percent), surgery (11 percent), pediatrics (7 percent), and obstetrics-gynecology (5 percent). Eighteen other specialties were represented but had only 25 or fewer respondents each. This distribution parallels the national statistics of specialty distribution with the exception of family practice, which has a proportionally higher representation in the Northwest (25 percent vs 17 percent nationally). The results are combined for all the respondents, as there were no significant differences between the major specialties or physician age as mentioned above regarding their perception of the usefulness of the various computer applications.

Twenty-three percent of the physicians stated they were currently using a home computer, whereas 34 percent were using an office computer. An additional 32 percent responded that they were considering buying a home computer, and 40 percent were considering the purchase of an office computer within the next two years.

It was of interest to determine the market penetration of the different computers among the physicians

## TABLE 1. TYPES OF COMPUTERS CURRENTLY OWNED BY PHYSICIANS

| Home Computers (n = 127) | Percentage | Office Computers (n = 152) | Percentage |
|---|---|---|---|
| Apple | 42 | IBM | 16 |
| Commodore | 12 | Texas Instruments | 13 |
| Radio Shack | 9 | Apple | 8 |
| IBM | 9 | WANG | 7 |
| Texas Instruments | 9 | Other** | 56 |
| Atari | 8 | | |
| Other* | 11 | | |

*11 different computers each with fewer than 4 responses
**43 different computers each with fewer than 9 responses

who possessed one. Table 1 lists, by brand, the computers utilized by this group of physicians; Apple computers were the most frequently used home computer. In the office IBM and Texas Instruments led the field.

A major portion of the survey instrument was directed toward ascertaining physicians' attitudes regarding the present and potential uses of computers (Table 2). Billing, financial management, and word processing were deemed useful by more than 90 percent of the physicians responding to this survey. These areas are identical to those currently being used most frequently in those medical offices that have computers. Other applications are listed in descending rank order of usefulness, and not surprisingly, substantially fewer physicians are currently using them in practice.

In response to several open-ended questions in the survey, 81 percent of respondents indicated they would consider using a computer program that would allow patients themselves to enter their medical histories into a computer. Eighty-seven percent said they would consider using a computer to monitor their practice in such areas as patient population characteristics, procedures performed, diagnoses, and treatment. Eighty-three percent indicated they would consider using accredited computerized continuing medical education (CME) programs.

Comments noted by respondents on the survey questionnaire indicated three main factors contributing to the decision to purchase or use a computer system in the office: (1) that it be more effective than their present system, (2) that it be available at a reasonable cost, and (3) that it be user friendly, with clear instruction available for ease of implementation.

## COMMENT

As the major specialties were represented, the results of this survey are probably generalizable to the increasing number of physicians who own computers.

Although business applications were perceived as being the most useful, it would appear appropriate to develop programs that would provide practice profiles in addition to fiscal reports on productivity and accounts receivable. These profile reports could cover patient demographics and diagnostic and procedural information in formats that could be useful in practice planning and predicting trends that may have an impact on the practice. This information would be particularly important in view of the changing reimbursement policies of the federal government and the third-party insurance carriers.

There was considerable interest in computerized continuing medical education programs. Computer-based CME programs, eg, patient simulations, are becoming more readily available, and the modern microcomputer technology has allowed these programs to become increasingly realistic and innovative. In particular, it should be noted that they provide an alternative to CME conferences at a modest cost and convenience without the need for travel or taking time away from the practice.

This survey did not include a specific exploration of physician attitudes toward computerized medical records, as very few systems have been sufficiently tested in the small office practice and it is not clear what such a system might include.

The respondents to this survey were probably biased toward those physicians interested in computers. Even with that caveat, however, a very high

| Category | Number of Respondents* | Useful or Very Useful (%) | Currently Using (%) |
|---|---|---|---|
| Billing, financial management | 592 | 97 | 14 |
| Word processing | 566 | 94 | 16 |
| Personal record keeping/finance | 569 | 91 | 12 |
| Drug interaction information | 553 | 88 | 2 |
| Access to nationwide medical systems | 548 | 87 | 3 |
| Diagnosis profiles | 559 | 86 | 5 |
| Patient demographic profiles | 538 | 83 | 6 |
| Continuing medical education | 548 | 81 | 2 |
| Risk factor analysis | 490 | 75 | 1 |
| Patient education | 529 | 74 | 2 |
| Computer-aided diagnosis | 546 | 68 | 1 |
| Appointment scheduling | 542 | 66 | 5 |
| Office/hospital intercommunications | 528 | 60 | 2 |

*The n varies for each category because not all of the 614 respondents answered all the questions

percentage of physicians appear to be interested in computers and their potential applications in practice.

Not all the areas surveyed are currently available. Future office-based medical software development should take into account the results of market surveys such as this one and focus on the areas of greatest interest to physicians.

### References

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