

## EDITORIAL

### TOWARD THE ACCEPTANCE OF COMPUTER TECHNOLOGY BY PSYCHIATRIC RESIDENTS

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Despite its glowing promise, computer technology has failed to live up to its potential in the area of clinical psychiatry. Much of this failure may be attributed to problems of acceptance of this technology by practitioners. Increasing requirement for accountability and quality assurance seems likely to necessitate the use of automation in the near future. The present editorial describes a state-of-the-art model curriculum aimed at increasing the acceptance of this technology by psychiatrists of the future.

Education about computers in psychiatry should be integrated into formal training, especially that covering medicolegal issues including malpractice, peer review, and quality assurance. Education must also emphasize the uses of extensive clinical data bases to validate the entire knowledge base of psychiatry and mental health disciplines scientifically. As psychiatry validates diagnostic criteria and relates them to outcome measures of various treatments via ongoing data-base analysis, a knowledge base of proven value will evolve. Transformation of this knowledge base into rule-based artificial intelligence consultation/education/review systems can serve as a tool for better patient care rather than as a replacement for the clinician. These systems aid the clinician in the otherwise impossible task of comprehensive knowledge updating.

With the advent of affordable microcomputer technology, many training programs will be able to purchase a microcomputer that could function as a standalone unit or an intelligent terminal. Software

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already exists for psychiatric diagnosis, psychopharmacology, and neurology. Microcomputers now support interactive continuing medical education sessions in certain medical disciplines. With communications networks and shared resources, such programs could be developed independently and shared instantaneously.

Hands-on experience breeds curiosity. It goes a long way toward overcoming resistance to new concepts and initiating further developments. To do this, the following state-of-the-art computer applications can be used to develop a curriculum within the psychiatric residency aimed at preparing the resident for the technology of the future.

- 1) Automated psychological testing and interpretation.<sup>1,2</sup>
- 2) Computer-assisted interview, screening, and assessment based on explicit (branched-logic) reasoning or statistical methods. Various prediction programs for suicide, elopement, or recidivism,<sup>3,4</sup> as well as diagnostic programs,<sup>4,5</sup> will acquaint trainees with the actuarial versus clinical prediction controversy and educate them regarding diagnosis. Realization of the computer's superiority in actuarial prediction may help trainees accept evolution of professional roles in the context of freeing man for what he naturally does better.
- 3) Knowledge-based artificial intelligence consultation programs in medicine that model expert clinical decision making using judgmental (rule-based), inexact reasoning. EMYCIN, EXPERT, INTERNIST, and PIP<sup>6</sup> are operational in the medical domain. Such prototypic programs as well as future knowledge-based programs would be extremely useful during training as educational/consultative tools by virtue of their ability to explain their reasoning in detail. Training programs might be encouraged to develop specialized knowledge bases in the psychiatric domain (e.g., lithium management or "R/O organicity") to be used with these programs.
- 4) Automated behavioral assessment/therapies including biofeedback.<sup>7</sup>
- 5) Computer-assisted treatment planning systems.
- 6) Computer simulation and modeling programs.
- 7) Automated medical library access for relevant literature searches.
- 8) Automated patient education via interactive computer-assisted instruction with branching logic. This application is possible, but relatively underutilized in mental health. Colby<sup>8</sup> expands this concept to automated cognitive therapy, a controversial approach turning computer into psychotherapist.

It is important to reemphasize that computer literacy in the men-

tal health domain will be essential as the mental health professions evolve. Clinicians must be cognizant of future directions in the field of mental health care delivery and learn to accept implied role changes as they become, more and more, administrators and supervisors. The above proposed curriculum, in part or whole, offers the potential for bridging the gap between the current adversarial relationship between psychiatry and the computer and a future in which computer technology can be applied to both free the psychiatrist from routine tasks and expand his knowledge-base for most effective service delivery.

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