Use of Microcomputers For Testing of Nursing and Medical Knowledge

Lynda S. Joseph, R.N., M.S.N.
George Mason University
Fairfax, Virginia 22030

NURSESTAR is a microcomputer program that simulates a test experience for the National Council Licensure Examination (NCLEX) for Registered Nurse Licensure. TESTSTAR is an interactive test authoring system that allows educators to construct their own tests and then allows the student to take the test on a microcomputer. Both systems were designed by Allen F. Joseph and Lynda S. Joseph of the Logical Scholar Company. An option for a drill and practice test mode or an assessment test mode is part of both programs. A performance summary, assessment of strengths and weaknesses, and question analysis with rationales and explanations for each response provide immediate feedback to the student. Group analysis and item analysis are provided for faculty. NURSESTAR and TESTSTAR are compatible for the IBM/PC, Apple IIe and TRS-80 Model 111.

Title: A Microcomputer Program for the Differential Diagnosis of Chest Pain Simulating Angina Pectoris

Author: Donald P. Copley, M.D., F.A.C.C.
SUNY at Buffalo, New York

This computer program provides a study of the differential diagnosis of selected chest pains confused with angina pectoris. Intended as a teaching aid to allow rapid review of the details and strategy of the diagnosis, it might also serve as a preliminary diagnostic aid for a paramedic, nurse assistant, or emergency room physician. Twelve commonly encountered imitators of angina are included with their estimated initial probabilities. Ninety-six history, physical and lab tests recommended for this situation are also provided, with an estimate of their relative costs. The frequency of each test in each of the chest pains is depicted in graphic format and can be easily changed. The tests can be listed in order of combined sensitivity and specificity for each diagnosis. Using Bayes Theorem, the program generates graphic clinical simulations with a strategy intended to minimize time and cost. The student can attempt a diagnosis on his own using the available tests. Multiple choice questions can be generated to quiz the student about the best tests. A bibliography is also provided. This program was written in Microsoft Basic for a 64K Osborne computer but can be easily adapted.

A USER FRIENDLY AUTHORING PROGRAM FOR PATIENT MANAGEMENT PROGRAMS

by James A. Cowan, M.D.
Department of Internal Medicine, University of Illinois College of Medicine at Urbana-Champaign, Urbana, Illinois 61801

Patient’s management problems (PMPs) test a medical student’s clinical problem solving ability; he makes clinical decisions and receives feedback using latent images. Traditional PMP test papers can be used only once, limiting availability of PMPs, and allowing retracing (adding to early responses using information from the end of the problem). PMPs presented on a microcomputer are not subject to these limitations.

With this program a non-programmer can enter and edit a PMP in specialty board format. A floppy disk is prepared, which is the student’s test paper. Branching (two or more pathways within the problem) is permitted. Retracing is not possible. Student’s names and scores are recorded on the disk. Any number of students can use the disk.

PMPs can be made available in quantity to many students, for testing or teaching purposes.

INTERPRETIVE SOFTWARE FOR CRITICAL CARE MEDICINE

P. L. Marino, M.D., Ph.D. and J. Krasner, M.D.
Graduate Hospital; University of Pennsylvania Philadelphia, PA 19146

Much of the software that has been developed for critical care medicine is concerned only with the display of calculated data, while no attempt is made to interpret the data that is generated. We have developed two programs in Applesoft Basic that are capable of interpreting the data that is generated and suggesting therapy for each interpretation. The first program concerns hemodynamic assessments. This program not only displays a series of calculated hemodynamic parameters, but also interprets each “profile” and suggests the appropriate therapy to correct the problem. The second program involves nutritional therapy. This program uses routine nutritional assessment measurements to calculate daily caloric and protein requirements, and selects the appropriate hyperalimentation solution and infusion rate to be used in each case. Examples of the use of these programs will be demonstrated.