Computer in Nutrition Education/Dietary computation:

Computer applications have multiplied so rapidly that the heart of its technology - tiny miracle chips - now touch almost all aspect of our lives. Computer Literacy is becoming increasingly essential not only in personal lives but also in probessional practice. In healthcare & nutritional care in particular, management information systems require both the development of the components to meet our needs & our ability to use them with skill & wisdom.

◆ A. Clinical Care/dietary care :— A first basic area of computer application in nutrition practice is in clinical care in the hospital setting. The clinician is constantly involved in the basic aspects of patient care assessment, analysis, intervention, implementation & evaluation. The patient care team uses computer management system in constantly coordinating communications. This is essential in planning all aspects of patient care, including nutriona -l assessment & support services, nutritional analysis & nutritional therapy

Communication in Patient Care:

Computer system has applications in various aspects of patient care.

- storage & retrieval of clinical & statistical data,
- a base of educational materials that may be consulted in patient care problems,
- guidance for patient care planning,
- patients care audits to ensure quality standards &,
- clinical research.

In addition to the dietary order entry module, additional applicantions modules in the system support patient care; clinic scheduling/patient registration, census, financial management, clinical laboratory, electrocardiogram, medical record abstracting etc.

◉ Nutritional assessment & support service :

A broad range of anthropometric, biochemical, clinical & historical data is gathered in the process of the required comprehensive nutritional assessment involved. The computer can quickly analyse these data so that the nutrition support team can screen & identify patients at risk, institute therapy & monitor individual patients closely.

◉ Nutrition analysis / dietary analysis :

Nutrition analysis of diets is an important basis of comprehensive nutritional assessment. Computerised nutrient analysis enables primary care clinical dietitian to obtain the necessary detailed individual patients nutrient information with speed & relative accuracy & generate reports via data processing.

Such rapid practical data processing through the computer system allows the nutrition practitioner to spend more professional time with other nutritional assessment work as well as personal interaction with the patient.

◉ Nutritional therapy / dietary management :

In the hospital setting, computerised medical records provide a basis for the nutrition staff to analyse comparative therapy for various conditions in the light of implications for nutritional status of patients & contribution to healing. The widespread hospital malnutrition of past years has been well documented.

In the special units of critical care within the hospital setting such as burn units, clinicians use continuous computer graphic programmes to monitor the nutritional status of critically ill patients. The nutrition - support team can quickly evaluate continuous nutritional needs & plan effective patient care. These bedside graphs also motivate patients

& their families to work closely with the clinical dietitians to facilitate progression from a negative nutritional balance to a positive balance in early catabolic periods following massive injury.

⊙ Community nutrition:

This work involves surveys, special projects, nutritional counselling, & programme planning.

◆ B. Nutrition Surveys :— Various population surveys provide data for identifying nutrition needs & planning programmes to help meet these needs. Such surveys are conducted at both national & local levels. With the recent development of an optical scanning process, survey data may be read rapidly by the Optical Character Reader.

⊙ Programme-planning:

Using the data from community population surveys, public health nutritionists are able to assess particular community needs & base programme planning on these identical needs. Computers are used in such analysis of data.

⊙ Nutrition counselling/dietary counsellor:

To meet special nutritional therapy needs in client-centered counselling, computer assisted programmes are developed for special clinical problems such as diabetes or hyperlipidemia. In addition to dietary analysis & calculation of individual nutrition prescription, computer-planned means for these clients can be generated & ongoing care can be monitored.

⊙ Impact of educational technology:

Over the next few decades, society will increasingly rely on the computer to collect, distribute & control massive amounts of information economically. Books & journals related to nutrition can be accessed on line free or on payment.

⊙ An electronic classroom:

- All questions, answers, homework & project reports as well as student team messages are sent through the computer & "posted" on the electronic bulletin board for all to read.
- The computer bulletin board serves as a central information point, & its data are always available, which is especially important to students who lost assignments or who missed class.
- The professor is able to answer questions immediately so that students with difficulties can continue their projects without delay & assignments could be submitted in return from several locations at any hour.
- Through these techniques, a strong group sense is created & individualised instruction is made available according to student need.

◆ C. Professional Nutrition Education :- Computers combined with other audio-visual instruction techniques are used for self paced courses in nutrition offered to dietetic, nutrition, nursing & premedical students. Computer simulated clinical encounters have been used in clinical nutrition courses & found to be effective in comparison with hospital based clinical experiences. Such simulation includes a medical records with nursing care cardex for a patient, an interview with the patient, a formulary & a nutrient catalogue. The instructor gets a printout reporting the student's knowledge, responses to inquiries concerning the patient & organisation of the clinical encounter thus enabling the instructor to meet individual student needs.

The potential use of computers in nutrition-related education is found to encompass four areas:

- Instruction - drill, practice & dialogues.
- Real-life simulations.
- Hypothesis / idea testing - building process models.
- Reduction of computational labour.

⊙ Patient/client education:

Computer assisted learning is used in a variety of ways in private practice, clinics & hospitals for patient/client education in healthcare. For example, a computer & a programme can be used to develop a programme in diabetes education that does not require constant surveillance by the health professional. In addition to such specific programmes written by nutritionists to meet special learning needs, a number of general diet & exercise programmes are available for use in professional healthcare services.

⊙ Consumer education:

In future computers may become a major tool for both food marketing & client nutrition education. Consumers can view the entire product lists of grocery stores on the monitor, compare prices & select the local store offering the lowest total cost of the day. Payment transaction can also be done through computer.

◆ D. Nutrition Research: —

General research projects can be greatly assisted by computers. In metabolic clinical research, for example, the diets used must satisfy both the nutrient specifications of the research protocol & satisfy the individual subject's nutrient requirements & preferences. Computer-based nutrition research involves selecting & using data bases, developing literature search strategies & writing resulting reports.

⊙ Use of data base:

More information is available through a computer terminal than in any library in the world. A number of computerised nutrient data banks are available for use in nutrient analysis, surveys & research projects. In addition, a large number of data bases exist for searching the scientific literature, on any desired topic such as EXCERPTA MEDICA & MEDLINE, CINAHC, AGRICOLA, BIOSIS, SCISEARCH etc. These files make available a variety of materials including scientific journal articles, monographs, proceedings of conferences & many other documents. Proliferating traditional scientific journals have become increasingly specialised & expensive. Electronic journals give speedy scientific reports.