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NUTRITION TRAINING IN SCHOOLS OF PUBLIC HEALTH CURRENT STATUS AND EXISTING INFORMATION

WORLD HEALTH ORGANIZATION
NUTRITION UNIT
DIVISION OF FAMILY HEALTH
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NUTRITION UNIT
DIVISION OF FAMILY HEALTH

NUTRITION TRAINING IN SCHOOLS OF PUBLIC HEALTH

CURRENT STATUS AND EXISTING INFORMATION

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Contents

1. BACKGROUND

1.1 Introduction

The importance of training personnel with competencies in the area of food and nutrition has been recognized for a number of years by workers in this field.

In the decade of the 80's a great majority of countries are facing numerous and complex problems in the field of development, which include economics at an international, national and family level. These countries are confronted to huge budgetary deficits, difficulties in balance of payments, possible increasing protectionism in trading of commodities and/or political unrest, climatic and man-made disasters leading to rampant malnutrition and extensive famine. Other difficulties include locally unacceptable levels of population growth, lack of trained health manpower and still far from optimal health facilities, among other factors.

The need for increasing the number of professionals with a multidisciplinary background who could cooperate to alleviate the major nutrition problems of public health importance both in the West and in Third World countries, has become a top priority.

Through the aegis of international and non-governmental agencies, new programmes have been initiated based on sound scientific data and with practical application using appropriate technology, both in health and in the field of food and nutrition.

In many countries the management of health services is based on the concept of implementation of primary health care and sometimes, personnel trained for a short period in the basic concepts of food and nutrition and communication skills may be more effective in nutrition education than some health professionals who have unfortunately and paradoxically not been exposed to the subject of applied nutrition in their training.

This may specifically apply to some physicians trained in schools of medicine by professors with a limited perspective, circumscribed by their own highly specialized field of expertise who do not appreciate the need for a wider multidisciplinary viewpoint in health, particularly in regard to nutrition. In addition, they are unlikely to have received much training in applied nutrition.

1.2 Purpose of Study

The present study was initiated under the auspices of the Nutrition Unit, Division of Family Health of the World Health Organization in order to obtain more in-depth data on the status of training in nutrition in schools of Public Health world-wide.

The expected outcome after data analysis would hopefully include
a) a detailed account of the content of curricula used in schools of Public Health in different areas of the world;
b) identification of general and specific characteristics of both students and trainers;
c) a clearer definition of educational objectives for training of personnel who would subsequently be directly involved in food and nutrition activities.

The results obtained would permit a clearer assessment of the content and relevance of subjects included in training programmes, as well as methodologies and pedagogic trends. This would allow suggestions to be made based on present up-to-date knowledge in this field, which include pertinence of subjects, comprehensive training using innovative methodologies in problem-solving.

1.3 Methodology: Collection of Data

Data on training in nutrition for health professionals was obtained through "medline" searches instituted through the World Health Organization and the Institute of Scientific Information, Philadelphia, Pensylvannia, USA. Other references were made available from reports produced by international agencies. Moreover, a large number of data collected dealt with training in nutrition in medical, nursing, dental schools as well as in junior or high schools.

The majority of relevant data was obtained from the recently revised document entitled "Postgraduate Training and Programmes in Public Health", World Directory of Schools of Public Health of the World Health Organization(1) (which provided data on 216 schools of Public Health in 51 countries), from data on subjects included in the curricula of programmes identified in the World Directory(2), as well as from announcement books (bulletins) from a number of universities which outlined course offerings in their school of public health, in the nutrition field, although these were often not current.

A recent inventory of advanced training programmes in human nutrition science, undertaken by Committee V/8 (Advanced degrees in Nutrition Science) of the International Union of Nutritional Sciences in collaboration with the Nutrition Unit in WHO was also consulted (3).

1.4 Definition of Nutrition Training and Nutrition Education

A perusal of the literature shows that terminology varies regarding the interpretation of the words training and education and has caused controversy among academicians.

In 1972 the World Health Organization (WHO), the Food and Agriculture Organization (FAO) and the International Union of Nutritional Sciences (IUNS) jointly gave the following definition (4)

a) Nutrition training: The academic and practical instruction in nutrition, dietetics and food science usually including the scientific, economic and social aspects of the subject.

b) Nutrition education: Education of the public aiming at the general improvement of nutritional status, mainly the promotion of adequate food habits, elimination of unsatisfactory diet practices, introduction of better food hygiene and more effective use of food resources.

1.5 Nutrition Training in the Health Sciences

In recent years more data has become available regarding curricula in some schools of Medicine. Most reports have indicated that there is a general dissatisfaction with the knowledge physicians possess at the end of their training period. It has been stated that for two decades until the mid-fifties nutrition was taught by "accident more than by intent" in the USA (6).

Although nutrition education was strongly emphasized in the medical schools of the USA at the beginning of the century, during the 1950s, such emphasis diminished as research declined. Nutrition was no longer taught as an independent course and it became part of basic science courses.

In the early 1960s, nutrition education for physicians was seen as inadequate, concerning diet and health-related issues. The AMA Council on Foods and Nutrition stated that nutrition in the US medical schools received "inadequate recognition, support and attention" at undergraduate and postgraduate levels. Today, many US schools do not teach nutrition in their curriculum, even though nutrition has been recognized as playing an important role in health maintenance and disease prevention. The public's demands for nutrition information and expectation in terms of advice and guidance has increased the need for adequate nutrition training in medical schools. Results of the 1981-1982 Liaison Committee on Medical Education (LCME) survey showed that only 46 out of 125 schools polled (37%) required a nutrition course. Furthermore, the 1983-1984 Association of American Medical Colleges Curriculum Directory showed that only 22% of medical schools have a clearly defined course in nutrition (20). A number of people think that nutrition should be included as an independent medical speciality integrated in the deparment of medicine using a multidisciplinary approach (7,8).

Others, have noted the lack of appreciation by some health professionals concerning the fact that patients admitted to hospital are malnourished (9,7) or become malnourished during a prolonged stay in such institutions (7,9,10). Therefore, physicians should be properly trained in nutrition so that they are able to deliver health care effectively and meet the patients' needs (20).

Methods of improving training in nutrition for physicians who are expected by many of their patients to be able to give them pertinent advice or treatment of nutrition disorders have been suggested such as, for example, the integration of relevant nutrition subjects throughout the medical curriculum (10). Some clinicians have compared the nutritionist to an "endangered species" in hospital care and have suggested that an organ-oriented specialist be trained to deal with specific nutrition-related diseases among their patients (11).

Other suggestions have included the formation of an academic unit responsible for nutrition training (10,12,13,14,15) or whenever possible, a chair of human nutrition in universities (14).

For example, in Sweden in the department of clinical nutrition at the Sahlgren hospital, University of Gothenburg, clinicians working in the unit have devised a competency-based training programme in nutrition geared to the needs of the patient and encompassing basic care, diagnostic procedures and therapy. This multidisciplinary programme which includes a clinical nutritionist and a dietitian assists both medical students and physicians to view the role of nutrition in a more comprehensive manner. Not only is the prevention, and the treatment of deficiencies or excesses of nutrients or calories stressed, but also the importance of the type of food delivery services in the hospital and the food intake of the patients during their stay in the institution, as well as the need to appreciate special dietary requirements of all age groups in health and disease. Applied nutrition in medical curricula is often a neglected subject (14).

A department of nutrition in a university is likely to sensitize students to the need for this discipline, which should be considered as important as other subjects, such as epidemiology, statistics and many others, which are usually mandatory courses at the university level.

In some instances, multidisciplinary training in nutrition has developed in a clinical setting as a result of the development of "nutrition support systems" in hospitals mainly for severely malnourished patients largely concerned with parenteral nutrition therapy (9, 16).

In some countries, medical students may obtain a university diploma of specialization in endocrinology and nutrition or may be required, as in the University of Nancy, France to work towards a certificate in human nutrition and dietetics (8).

Different surveys have been conducted for the past 25 years, especially by the American Medical Association, in order to assess the current status of nutrition training in American medical schools. Results indicated that nutrition education is inadequate, even though emphasis on this subject has increased (Table 1) (20).

Table 1

Percentage of Positive Responses to Selected Questions Regarding Nutrition in the Annual Survey Conducted by the Liaison Committee on Medical Education Between 1979 and 1984[a]

Question	Positive Responses (%) by Year (N = Number of Schools Responding) 1979-1980 (N = 125)	1980-1981 (N = 125)	1981-1982 (N = 125)	1982-1983 (N = 127)	1983-1984 (N = 127)
Does your curriculum have a nutrition course, identified as such, that is required?	24	32	37	35	27
If you do not have a separate nutrition course, is nutrition incorporated into some other course?	51	61	61	61	66
Do you have nutrition courses, identified as such, that can be taken as electives?	54	66	57	65	64

[a]Data from AAMC, 1980, 1981b, 1982b, 1983c, 1984c.

Source: Committee on Nutrition in Medical Education, Food and Nutrition Board, 1985 (20)

At the individual country level, a questionnaire survey undertaken in 1976, by the American Medical Association reviewed nutrition training among a sample of 123 US schools of medicine and attempted to collect data in this area (Table 2) (17).

Table 2

Types of course	% of schools
1. Required nutrition course	19
2. Elective nutrition course	70
3. Nutrition course incorporated in another course	95
4. Clerkships in nutrition	28
5. Opportunities for students to undertake research	80
6. Postgraduate continuing education for physicians in nutrition	31

Source: Bray, 1981. (17)

Enrollment of students in these different courses was more difficult to ascertain, but the periods during which these courses were available throughout the medical curriculum were pin-pointed.

Among the responding schools, 64 offered nutrition courses during the period when basic sciences were taught, 31 schools offered courses throughout the curriculum and 72 only during the clinical years (17).

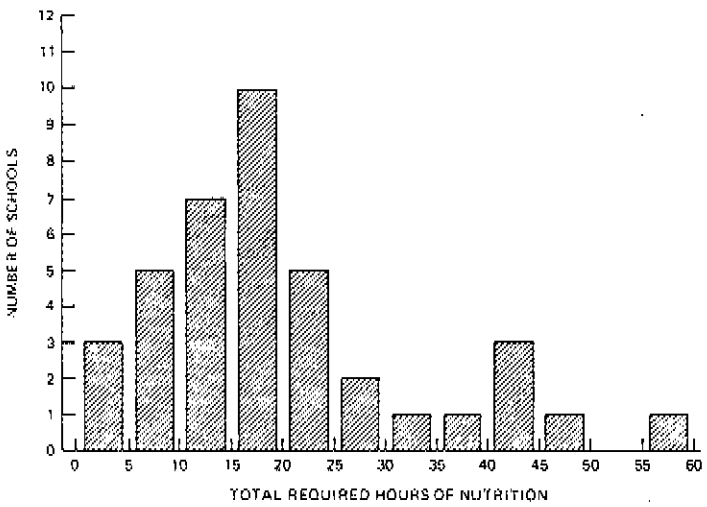
The review of training in US medical schools has shown that in 1979, 97% of the schools did incorporate nutrition throughout the curriculum. The teaching of the subject was, however, inadequately performed (18, 19).

Another survey of 127 medical schools carried out in 1983-1984 showed that, 34 (27%) gave a separate course in nutrition, 84 (66%) integrated nutrition in another course, 16 (13%) offered a separate nutrition course and nutrition topics as part of other courses, and finally, 21 (17%) did not incorporate nutrition in their curriculum (20).

In a recent survey undertaken by the Committe on Nutrition in Medical Education, Food and Nutrition Board Commission on Life Sciences and National Research Council, in which 39 schools were involved, the average required number of hours in nutrition was 21, ranging from 3 to 46. Twenty per cent of schools taught less than 10 hours and 10% taught 40 hours or more (Figure 1).

Figure 1

Total Required Class Hours of Nutrition in Curriculum



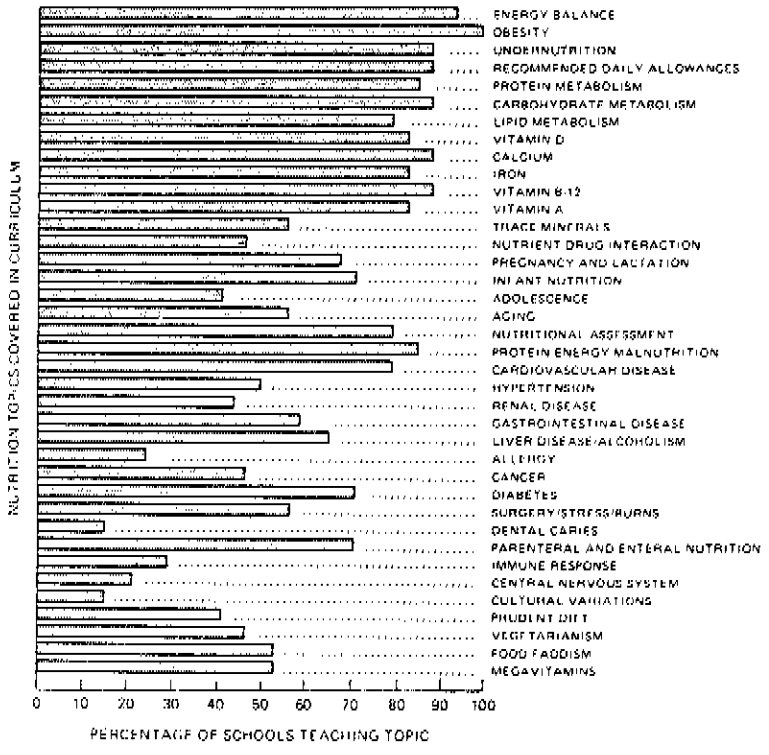
Source: Committee on Nutrition in Medical Education, Food and Nutrition Board, 1985. (20)

Nutrition training was given by 65% of the 39 schools during the first year, by 24% during the second year, and by 11% during the third year. Only 18% of the schools offered a separate course in nutriiton, whilst 33% stated that nutrition was introduced, in part, as a separate course. Electives were offered in 64% of the schools.

Out of the 34 schools that gave information regarding nutrition topics covered in the curriculum, 4 of the topics were taught by fewer than 25% of the schools, and 15 were taught by 75% of the schools. The role of disease prevention and treatment was offered, however, by less than one-half of the schools (Figure 2). Those topics related to Public Health, such as undernutrition, recommended daily allowances, pregnancy and lactation, infant nutrition, adolescence, aging, nutritional assessment, protein energy malnutrition and cultural variations were not taught by many schools.

Figure 2

Nutrition Topics Covered in the Curriculum of 34 Medical Schools



Source: Committee on Nutrition in Medical Education, Food and Nutrition Board, 1985. (20)

The Committee tried to identify the underlying reasons for the prevailing lack of adequate nutrition training and the factors limiting it. These involved faculty leadership, (low interest in nutrition, underqualified teaching staff), curricular organization (time constraints, no separate nutrition course) and implementation of nutrition programmes.

Although data indicate that nutrition training is inadequate, questionnaires may be completed by administrative assistants who are not well informed concerning nutrition courses.

The recommendations of the Committee included the need for a better distribution and coverage of nutrition-related questions in the National Board examination, and the review of the total content of this exam by a nutrition consultant (20).

Students who have not been exposed to an environment conducive to the acquisition of knowledge both at the theoretical and applied level may decide to take an elective course which may cover some practical aspects, or a post-graduate degree in a school of public health, which may be part of a health science complex or a unit attached to a faculty of medicine.

1.6 Schools of Public Health: Organizational Details

The following observations were based on information included in the World Directory of Schools of Public Health (1).

Schools of public health can either be governmental or private institutions, often affiliated with a university or a specific faculty, eg commonly medicine.

These schools may operate under the jurisdiction of different ministries, e.g. ministries of health, education and culture, science and higher education, and social welfare or under the aegis of a supreme university council etc. The funding varies considerably and may be obtained from government monies, at a federal or state level, from tuition fees, grants, endowments, from the private sector, industry etc. These funds are often obtained collectively from a number of sources.

a) Training personnel

Trainers include full-time tenured faculty, part-time or visiting lecturers from other schools of medicine, health agencies, international, non governmental organizations and specific health related programmes. The disciplines represented in the schools vary according to the different courses that are offered.

The establishment of the programme is determined by an academic council and a curriculum committee whose members vary in different institutions - e.g. members of the council, heads of departments, senior faculty representatives of the student body, and at times advisers from the ministry of health, education etc, under whose jurisdiction the school functions. The tasks and educational objectives are defined by the group, subjects and time allotted to the latter in the curriculum etc, evaluation methods devised to ensure appropriateness of curriculum, as well as evaluation of students' performance and of trainers by the students.

b) Course requirements

These vary among institutions and from course to course, and may be frequently changed. Two types of courses exist: core courses (common courses) which may be mandatory, unless a student has taken an equivalent course at another institution with similar academic status, and elective courses.

The core courses most commonly required courses are : epidemiology, biostatistics, health services and administration, and introduction to environmental health. Nutrition is, on the other hand, rarely considered a core course. Certain divisions have also their own core courses.

A large variety of electives are offered so that the student can plan, sometimes with the assistance of an adviser, an individualized curriculum adapted to the speciality which he or she has chosen to follow. The number of hours of instruction, or credit units, depend on the duration of the programme, the type of courses, laboratory and field work, research-projects, and thesis or dissertation which may be included in the total number of hours in the programme.

c) Degrees offered

Different schools offer different degrees. Most frequently, a Master of Public Health (MPH), and a Master of Science and Public Health (MSPH), a Doctorate of Public Health (Dr Ph) or a Doctorate of Philosophy (PhD) are offered. The duration of these programmes depend on the background of the student e.g. the MPH degree can be obtained by health professionals in one academic year, whilst students with a non-health, but acceptable qualifications, will obtain the diploma in approximately 2 years (Annex A).

d) Methods of training

These differ according to schools and faculty involvement. Lectures, seminars, workshops, and problem-solving exercices are commonly used. In some cases, the analysis of a specific chosen public health problem can be undertaken by a team of students as a research project. Simulation, role playing and the use of self-instructional materials are, however, less frequently used.

It is to be hoped that the teaching/learning system, strongly advocated by leading pedagogists, becomes an integral part of general training methods.

e) Field work

This is usually undertaken by students working in various setting pertaining or linked to schools (rural, urban centers, clinics). Practical experience in public health or specifically in the student's major field, is gained in governmental or non-governmental clinics, rural or urban centers with which the schools of public health or faculties of medicine have close links. If funds are available foreign (or domestic students) may travel to another country to collect data for their thesis or dissertation.

f) Profile of students

Criteria of acceptance are subject to change. A bachelor degree is required for all students, whether they are in the field of health or any other disciplines, (anthropology, agronomy, social sciences, religious studies, political sciences, ...). In some programmes only physicians with several years of field experience are accepted.

g) Methods of evaluation of students' progress

These vary with programmes and schools. In core courses attended by a large number of students, multiple choice examinations are given at intervals, or at mid-term and at completion of the course. Mid-term and final exams may consist of essay type tests (take home, or undertaken in the classroom). Final exams may include a research project, a thesis, or the preparation and defense of a dissertation. Thus, both written and oral exams are administered. In a number of schools a divisional and school comprehensive exams may be given. Examiners may be internal (school faculty) or external (faculty from public schools within the country or from abroad).

2. DATA ANALYSIS: NUTRITION IN PUBLIC HEALTH PROGRAMMES

2.1 General Information

This present preliminary investigation on a world-wide basis on training in nutrition in schools of public health reveals many gaps in the levels of knowledge, that need to be filled before concise suggestions for improvement can be made in a number of areas.

These lacunae are due to several factors:

(a) Paucity of relevant data revealed by the literature review on this subject;

(b) Too few up-to-date announcement books from schools of public health were received. It must be taken into account that some of these bulletins were no longer current (i.e. dating back to the late 70s or early 80s) and frequently, if up-to-date, courses listed may not have been given on a regular basis. Because of limitations of space in the catalogue the brief description of the courses may not have done justice to the content of the offerings. The possible integration of nutrition in other courses e.g., maternal and child health, growth and development, may not be apparent to the reader and is, thus, misleading.

(c) The questionnaire sent out to 51 countries by the World Health Organization (1) did not focus primarily on nutrition content in curricula; therefore, information regarding hours devoted to the subject, both in the theoretical and practical areas, had to be extracted and interpreted from this more general data. It is highly possible that the present results may be misleading, while more courses and information are currently available to students.

(d) In view of the lack of specific information concerning nutrition content and training in the unpublished study of the World Health Organization mentioned previously (2), it would seem highly desirable to collect more precise and up-to-date information.

Further details regarding suggestions are given later.

Information was received from 58 countries in which nutrition was taught in schools of public health (Table 3).

A list of nutrition courses and degree programmes offered at nutrition institutes in a number of countries is also included in this review, (Table 4) but the data have been analyzed separately from degree programmes given in schools of public health (Annex H). A list of the Schools of Public Health questioned for the WHO world survey is annexed.

Table 3

Countries Represented in the Study

Argentina	Israel
Australia	Italy
Bangladesh	Jamaica
Belgium	Japan
Benin	Korea
Brazil	Lebanon
Bulgaria	Malaysia
Burma	Mexico
Canada	Netherlands
Chile	Nigeria
China	Norway
Colombia	Pakistan
Cuba	Peru
Czechoslovakia	Philippines
Denmark	Portugal
Egypt	Singapore
Ethiopia	Spain
Finland	Sudan
France	Sweden
Germany (Federal Republic)	Tanzania
Ghana	Thailand
Greece	Turkey
Guatemala	Uganda
Hungary	UK & N. Ireland
Iceland	USA
India	USSR
Indonesia	Venezuela
Iran	Vietnam
Ireland	Yugoslavia

Table 4

Programmes Included in Study*

Degree	No Schools	No Countries
A. 1) Master Programmes (MPH)	48	25
2) Other Master's Programmes Public Health, Community Health)	11	6
B. 1) Diploma Programmes (DPH)	35	13
2) Other Diploma Courses	6	6
C. Doctoral Programme Post basic medical degree	6	1
D. Public Health Physician	3	1
E. Specialist Courses in Public Health	4	8
F. Basic Course in Social Medicine	3	1
G. Certificate Programmes	9	4

* Programmes offered by nutrition institutes not included

2.2 Summary analysis

A. Master Programmes

A.1 Master of Public Health Programmes

Results obtained from the World Health Organization survey and information collected afterwards included data from 48 schools in 25 countries. The countries and number of schools represented are indicated below:

Australia (1)
Bangladesh (1)
Belgium (1)
Chile (1)
China (General comment)
Colombia (1)
Cuba (1)
Egypt (3)
Ethiopia (1)
Ghana (1)
Iran (1)
Israel (1)
Japan (1)
Korea (2)
Lebanon (1)
Malaysia (1)
Mexico (1)
Netherlands (1)
Nigeria (2)
Peru (1)
Philippines (1)
Thailand (1)
UK (3)
USA (19)
Venezuela (1)

Analysis of these programmes was undertaken using data from two main sources 1) results from the survey 2) information obtained from bulletins available from a number of schools of public health which supplied in greater detail the types of core courses and electives and the various offerings in which nutrition was included and 3) direct responses obtained after the dispatch of the first draft of the present report. This information could be obtained regarding the availability of a specific masters degree in the field of nutrition or a general master of public health degree with a major in nutrition, as well as for examples other degrees such as a doctoral degree in this discipline.

The majority of responses were available from the USA. Data was received from 19 out of the 23 schools currently in existence, which include the school of Public Health in the Commonwealth of Puerto Rico.

Information was incomplete specifically in the area of nutrition training. Diversity existed in the structure, length and requirements of the programmes in so-called developed and third world countries.

Duration of programmes

The length was expressed either in hours, or credit units and sometimes both, but information regarding the value of a credit unit (e.g. in hours) was frequently not given.

The total hours in the curriculum, as in other programmes often did not include time spent in field work, in research or preparation of a thesis, a dissertation or defence of the latter project.

Nevertheless, very broad categories in terms of hours in the programmes can be made from specific data given by some schools (Table 5).

Table 5

Hours	Countries
2000	Peru
1000 2000	Chile, Egypt, Ethiopia, Ghana, Mexico
1000 - 900	Cuba, Puerto Rico
900 - 800	Ghana, Israel, Nigeria
700 - 800	Israel
600 - 700	Australia, Iran, Korea, Niger
300	UK (1 school)

(-) represents number of schools

Core (common) courses

These were noted in all programmes but, as this will be discussed later, the term core should be used as precisely as possible, since it is important to determine if a course in nutrition is mandatory for all students admitted to a school of public health.

Elective courses

These were stated not to exist in 7 schools and in a further 7 schools data on this subject was not given.

Laboratory and field work

As can be appreciated, hours devoted to these activities varied considerably and depended on the subject under review.

Nutrition courses

Courses in nutrition were said to be given in 34 programmes, but it was difficult to ascertain whether the course was a requirement or an elective. Courses on the subject were offered in some schools under specific options eg Human Nutrition, Public Health Nutrition or Tropical Health Nutrition for example at the Commonwealth Institute of Health in Sidney, Australia (1982).

Nomenclature and content of nutrition courses

Courses were identified under certain general titles although, at times, a more specific theme was indicated for a course.

For example titles included the following:

1) Family Health, including nutrition (1)
2) Food protection and technology (1)
3) Food sanitation (4)
4) Food and nutrition (1)
5) Nutrition (11)
6) Nutritional sciences (1)
7) Nutrition and food hygiene (1)
8) Clinical nutrition (1)
9) Community nutrition (2)
10) International nutrition (1)
11) Public health nutrition (7)
12) Tropical Health and nutrition (1)

Number of hours or credit units allotted to nutrition training in programme

This was difficult to ascertain since no statement was made in this area from 8 schools.

More detailed information was, however, obtained from a few schools 60 hours (1) 54 hours (1) 48 hours (1) 34 hours (1) 32 hours (3) 18 hours (1) 15 hours (1) 12 hours (1). Two schools noted training in terms of weeks: 2 weeks (1) and 24 hours a week with 25% of the time devoted to field work (total duration of programme, 656 hours). Others provided less accurate details.

Time allotted was also expressed by some schools in credit units, e.g. 9(2) 2(2) and in one school, health professionals, desirous of obtaining a major in nutrition, required a minimum of 36 hours (1 year) and "generalists" 60 credit units (2 years).

Master degrees in Nutrition

Details were acquired from available "announcement" books from a number of schools of public health in the USA but the information is rather incomplete, in terms of schools offering a degree in nutrition or a masters in public health with the major field in nutrition.

From the available data the following degrees were granted in the US schools listed below (Table 6).

Table 6

Examples of Selected Schools in the USA, from which an MPH Degree in Nutrition can be Obtained

Country	University	Masters Degree in Nutrition Public Health nutrition
USA	California San Francisco (Berkeley) (1979-80)	1) 1 year (Health professionals "special students" 1 year) 2) 2 years (Public Health Nutrition) (other students)
	California Los Angeles (UCLA) (1985-86)	1) MPH with Major in Nutrition a) Nutritional Sciences (domestic tract) b) Population & Family Health (international tract)
	California University of Loma Linda (1979-80)	1) MPH in Nutrition (general) 2) MPH (physicians & dietitians) 3) MPH (combined MS, dietetics & MPH nutrition
	Hawaii University of Hawaii (Manoa) (1980-81)	MPH in Nutrition a) registered dietitians b) non-dietitians
	Massachussets Boston (Harvard) (1982-83)	Masters Degree with concentration in Nutrition
	Michigan Ann Arbor (1979-80)	MPH 1) in community nutrition 2) in food protection & technology
	Minnesota Minneapolis (1984)	MPH in Public Health Nutrition
	North Carolina Chapel Hill (1979-80)	MPH with a major in Nutrition
	Commonwealth of Puerto Rico San Juan (1979-80)	MPH in Nutrition

A.2 Other Master Programmes

A number of programmes bearing a variety of titles were reported to exist in several countries. The two main categories were:

1) Master of Science in Public Health (Medical Science or Science), Burma (1), Egypt (1), Singapore (1), Canada (1).

2) Master of Science in Community Medicine (Community health, community health in developing countries) Canada (1), United Kingdom, Great Britain and Northern Ireland (5), Sudan (1).

Elective courses

In the Burmese programme no elective courses were given. The total programme hours varied in each country from 48 hours per week (number of weeks unknown), in Egypt to 869 hours in Burma. In Canada and Singapore total hours varied by core subjects and electives chosen.

Laboratory and field work

Time varied depending on the programme.

Nutrition training

These were offered in all programmes, as a core course in three countries with a variable number of hours both in course and field work. The subject or module under which it appeared was not stated, except in the school in Toronto where it was included under the subject of "Community Nutrition".

Again, a great diversity existed in the length of the courses expressed in hours or credit units. In many cases, time spent on the preparation and defense of a required dissertation was not included. Total duration in the programmes ranged from 900 to 2 400 hours. Elective courses were stated not to be offered in the programme given at the London School of Hygiene and Tropical Medicine (1979-80).

Laboratory and field work

This was either not stated or varied with the courses.

Nutrition courses

In only two programmes the subject was mentioned eg. in the Canadian programme in Montreal, 45 hours (3 credit units) were given in an elective course entitled "Contemporary problems on Nutrition" (whether laboratory or field work was included was not specified). In the London School of Hygiene and Tropical Medicine a core course of 30 hours in nutrition was included (no specific data was given regarding practical application of the subject).

B. Diploma Courses

B.1 Diploma in Public Health

A number of programmes were identified in 13 countries and included 35 schools as shown below.

Argentina (2), Bangladesh (1), Benin (1), Brazil (2), Greece (1), India (7), Ireland (1), Japan (1), Pakistan (1), Portugal (1), Tanzania (1), Turkey (14), Uganda (1).

As could be expected, a great diversity existed in terms of course work and length of programme.

In Ireland, the total number of hours in a programme offered in 1982-83 in Dublin, amounted to 388 hours, whilst in the Department of Preventive and Social Medicine of the Armed Forces College in Pune (India) 1 856 hours of instruction were given.

Electives courses

In 30 out of the 35 programmes surveyed these were not offered.

Laboratory and field work

These varied according to the subjects chosen and were often not included in the total number of hours stated to exist.

Dissertations

These appeared to be a necessary requirement in two programmes.

Data obtained regarding training in nutrition offered in Departments of Public Health in Turkey, which are associated with a number of universities, covered the years 1979-80 and 1982-83.

The length of the programmes in the 15 schools reviewed varied from over 1000 hours (3) 820 (9) and less than 800 (3). At the Department of Public Health, Hacettepe University, School of Medicine in Ankara (1979-80) a total of 820 hours of core course work was given, including a course in applied nutrition of 25 hours. An additional three hours a week instruction was given through lectures, seminars and discussions and attendance was mandatory during a 4 month junior residency and a 2 year senior residency programme. This programme was in force in a total of nine schools under review. In India, a nutrition course was offered in all the schools represented in the survey, but the number of hours or content were not always specified.

Nutrition courses

In 28 of the 35 schools represented (80%), a core course in nutrition was given as shown below (Table 7).

Table 7

Nutrition Training in Selected Diploma Programmes

Country	Subject	Hours
Bangladesh (Dhaka)	Nutrition and Biochemistry	40
Benin	Promotion of Good Food Habits and Nutritional Conditions	(?-)
Brazil (Sao Paulo)	Public Health Nutrition III	(12)
Greece (Athens)	Nutrition and Biochemistry	(151)
India (7 schools)	Nutrition	(47)
	Nutrition	(20)
	Principles of Dietetics and Nutrition	(?-)
	Public Health Chemistry Nutrition and Physical Hygiene	(160)
	" " "	(?-)
	Nutrition Basic and Applied	(20)
	Nutrition	(?-)
Pakistan (Lahore)	Nutrition and Biochemistry	(?-)
Portugal	Nutrition	(48)
Tanzania	Nutrition	(17)
Turkey (13 schools)	Applied Nutrition	(25-30)
Uganda (Kampala)	Nutrition (included in course: Maternal and Child Health)	(?-)

B.2 Miscellaneous Diploma Courses

A number of diploma courses were offered in Western and Eastern Europe under the following headings:

1) Social Medicine and Organization of Health Services (Czechoslovakia)
2) Hygiene and Preventive Medicine (Italy)
3) Social Science (Netherlands)
4) Public Health Officer (Spain)
5) Public Health Administration (USSR)
6) Public Health and Epidemiology (Yugoslovia)

Responses were available from six schools as well as general information representing a course given in Schools of Hygiene and Preventive Medicine in Italy generally.

Mention was also made of an international diploma course of 9 months duration offered with assistance from the World Health Organization, and held at the Central Institute for Advanced Medical School Studies in Moscow (1979-80).

In three schools in which no electives (alternative courses) were offered, the number of hours of core (common) courses varied from 500 hours (Netherlands) to 746 (Czechoslovakia) and 900 hours (USSR). Little data was given, however, regarding time allotted to laboratory or field work, and no mention was made of nutrition training.

At the National School of Public Health in Spain the total number of hours in the programme amounted to 1,500 hours, but the time devoted to either core or alternative courses was not determined. Although laboratory and field work in this school amounted to 25% and 10% of total hours in the curriculum respectively and a core (common) course in Food Hygiene was given, the number of hours was not stated.

Further information was also obtained from some remaining schools. In the School of Public Health (Andrist Stampar), Zagreb (1979-80) core course hours amounted to 50 hours and 3 alternative modules existed (duration between 220-276 hours).

Laboratory and field work

These varied according to the major field chosen by students.

Nutrition courses

A course of 12 hours was given in an elective course in epidemiology - 33% of these hours were devoted to field work.

In the Schools of Hygiene and Preventive Medicine in Italy (1980-81), the programme was classified according to activities undertaken in the first 2 years and the third and fourth years. The number of hours of core (common) course amounted to 315 hours and five alternative modules existed, according to each one, and the number of hours varied between 210-290 hours. Including these courses, 150 hours of other elective courses were also available.

Nutrition courses

The same course Food Hygiene and Nutrition (content 20 hours) was offered in the third year in the alternative modules Public Health and School Health - A course entitled Inspection and control of Food Stuffs (95 hours) was also offered in the fourth year in the alternative module, "Laboratory Methods and Practice".

C. Doctoral Programmes (Post basic medical degrees)

1) Doctor in Medicine, Social and Preventive Medicine

Six programmes were described from India in a variety of schools in 1980 (Annex C) in the following cities:

Ahmedabad, Aligarth, Aurangabad, Burla, New Delhi and Surat. Data received was incomplete in terms of time in core (common) courses eg 48 hours a week (? number of weeks) and when stated, the hours in the programmes varied from a minimum of 130, to 420 and 1 460 hours:

Electives courses
These courses were not offered in any programme.

Laboratory and field work
The hours varied with subjects or information was not given

Nutrition courses
Data was obtained from four schools and all courses were classified under the rubric of core (common)

a) Dietetics and Nutrition (? number of hours), Ahmedabad
b) Nutrition (hours not stated, no information regarding laboratory or field work in this subject), Aligarth
c) Nutrition (part of course in "Maternal and Child Health" in which 60 hours on the subject were given and 60% of these hours were spent on field work), Burla
d) Nutrition (20 hours given, 25% of time spent in field work), Surat

2) Doctor in Medicine and Community Medicine
One programme with a total of 960 hours existed in Udaipur, no electives were available and laboratory and field work varied with the subjects.
A core course entitled nutrition, health and food, with a duration of 120 hours was given. Twenty five per cent of the time was spent in laboratory work and 75% in the field.

3) Doctor in Medicine and Health Administration
A course with a total of 1 644 hours was offered in New Delhi. There were electives, and hours spent on field work varied. No nutrition course was reported. The following suggestions have recently been submitted (1987): inclusion of 15 hours of teaching in Applied Nutrition per year to post-graduate M.D. students; a 10 day course in Prevention of Food Adulteration, almost every year; inclusion of nutrition in courses for programme officers, health administrators, statisticians and key trainers from training institutions; and development of methodologies for training health personnel in nutrition.

D. Public Health Physicians

Three programmes having some common characteristics were described from Belgium.

1) Public Health Physician (Public Health and Human Ecology, Occupational Health, School Health, Physical Education, Radiation, Protection and Hospital Hygiene) (University of Ghent).
The programme varied with core courses taken among the common courses (378 hours) as well as with the alternatives in the subject major chosen by the student, in which the total hours could vary from 121 hours to 331 hours excluding 8 weeks of field work in the "Occupational Health" module).

Nutrition courses
A core course entitled Food Hygiene (20 hours - with apparently no laboratory or field work) was given, and under the alternative module "Public Health and Human Ecology" a course Food Composition, Adulteration and Deterioration (40 hours, with 50% field work) was also available.

2) Public Health Physician (Free University of Brussels). Again, depending on the number of core (common) courses chosen (425 hours) and the alternatives modules offered, the total duration of the programme could vary from 560 hours to 650 hours. The numbers of hours allotted to laboratory and field work were not noted

Nutrition courses
A core course Food Hygiene (10 hours) was available and an elective was offered in the alternative module entitled "Public Health" e.g. Composition and Deterioration of Food, Drinking Water and Waste Water (40 hours)

3) Public Health Physician (Public and Community Health and School Health) (Catholic University, Louvain)
Core (common) courses (105 hours) appeared to be mandatory, under two options offered

a) School Health (240 hours)
b) Public Health and Community Health (no mention was made of any training in nutrition).

E. Specialist Courses in Public Health

Four courses were identified. In two of these, reference was made to available nutrition offerings.

1) Qualification in Public Health

The Nordic School of Public Health, in Gothenburg, Sweden (1981-82) which is an independant institute for higher education and research in public health, operates under the jurisdiction of the Nordic Council of Ministers and offers a post graduate degree in public health to participants from Denmark, Finland, Iceland, Norway and Sweden.

Four core courses (1 128 hours) and three elective courses of variable duration (140 - 280 hours) were stated to exist.

Laboratory work was offered in one elective and the amount of field work varied with the core course "Nutrition training". In another core course entitled "Environmental Hygiene", 60 hours were devoted to the subject of Food Control and Nutrition and 5% of these hours to laboratory work.

2) Specialization in Public Health

In the School of Public Health, Hanoi, Vietnam (1979-80), a total of 1 360 of core (common) courses appeared to be offered, but there were no electives

No statements were made regarding time devoted to laboratory, field work or nutrition training.

In the faculty of Public Health Jakarta, (1981-82), the total number of hours in this programme varied with the student's choice of a major subject (915 hours of core courses, and 120 hours of electives).

Laboratory work varied with the courses, but 5% of the 30 hours taught in the environmental health course were devoted to field work. It is not known whether nutrition courses existed in the programme.

3) Specialization in Community Medicine

This course was offered at the Département de Médecine Sociale et Préventive at the University of Laval, Canada (1980-81). Total hours (core and electives) in the programme amounted to 765 hours. Laboratory work was stated to exist in the core course on epidemiological research, but field work varied with the subject.

Nutrition courses

An elective course entitled "Nutrition in Community Health" (30 hours, (2 credit units) was offered and 25% of the time was devoted to field work.

F. Basic Course in Social Medicine

Three courses were noted from the Netherlands which appeared to be similar in structure in the years 1979-80.

Total hours in the curriculum varied between 258 and 300 hours. Two schools, the Institute of Preventive Health Care in Leiden and the Institute of Social Medicine at the Free University of Amsterdam had no elective courses in their programme. Twenty hours were, however, allotted to these subjects at the Institute of Social Science in Nijmegen.

Laboratory and field work

No data was available

Nutrition course

No mention was made of the subject

G. Certificate programmes

Several of these programmes were noted from Western and Eastern Europe.

1) Certificate of Public Health Officer

The programmes were described from the Federal Republic of Germany - Bavarian Ministry of Health in Münich, and School of Public Health in Düsseldorf. Both courses only varied in terms of hours offered in core courses, 640 (1987) to 700 hours respectively. No elective courses were offered and nutrition courses were not mentioned.

2) Certificate in Community Medicine and Organization of Health Care

Little data was obtained regarding this course held in Sofia, Bulgaria with 450 hours of core courses and no electives.

3) Certificate in Organization of Health Care

Two programmes held in Bulgaria (Sofia) and in Poland (Warsaw) were similar in duration with 420 hours of core courses, (common courses) while no electives were offered. Laboratory work (20% of 40 hours) was undertaken in a course in which the following subjects were combined, biostatistics, epidemiology and demography. As in the above programmes, no mention was made regarding nutrition courses.

4) Certificates in Health Administration

Two similar courses were described from Bulgaria (Sofia) and Hungary (Budapest). The total length of the courses was 252 hours core (common courses). No electives were offered and no details were provided concerning nutrition training.

2.3 General Lacunae in Information Training

As observed in Tables 3, 4, 6, 7, diversity exists in terms of geographical locations of the schools, situated both in industrialized or less developed parts of the world, and with the type of training.

The programmes offered in Schools of Public Health varied regarding the content, and the nomenclature and types of students admitted; for example, Master Programmes (MPH) Diploma Programmes (DPH) or Special Programmes for Physicians; "specialists" courses, "basic" courses and "certificate" programmes.

It is extremely difficult under such circumstances to evaluate the quality of the instruction given in nutrition and the relevance of the training to the needs of each individual country.

2.3.1 Types of Schools; Affiliation

Privately financed schools of Public Health were the exception rather than the rule in this study.

2.3.2 Degrees Offered

These have already been mentioned (Table 4). However, unless the student's major area of study was identified e.g. Master degree in Public Health Nutrition, or the schools' announcement books could be consulted, it was difficult to ascertain whether nutrition was an important or integral part of the students' training.

In the USA, some data had been collected by the Curriculum and Membership Committee of the Associate Faculties of Graduate Programmes in Public Health Nutrition, using a questionnaire which was sent to personnel in charge of established master's programmes geared to training nutritionists in the field of public and community health.

Out of 26 programmes reviewed, 22 granted a Master's of Public Health or Community Nutrition. Between 1978-79, 63 granted a Master of science and 120 a Master of Public Health Nutrition (21).

In this present study, data were collected directly from questionnaire responses, as well as from the literature on this topic.

The lack of certainty regarding the importance of nutrition in the curriculum was, however, increased by other factors such as, for example, the interpretation given to core or common course.

In order to interpret the diffuse information received, the labelling of mandatory courses as core courses would simplify the task of pedagogists and others concerned with the analysis of such data. A core course should be recognized as a course which must be taken by all students prior to being granted the qualification required. Common courses may be those frequently chosen by students and may be offered as alternative courses or electives.

In the Masters of Public Health programmes, data were insufficient regarding the status of nutrition courses, and the broad terminology "nutrition" did not reveal the contents of the course and whether field work or research was undertaken in this area. In other types of masters programmes, a core course in the subject was given in 3 schools and also in two schools in the programme entitled "Public Health Physicians", held in Belgium.

In the Nordic School of Public Health, a nutrition core course was given.

In 30 out of the 35 schools offering a diploma of public health no elective courses were given. In 28 of the schools, a core course in nutrition was stressed. Fifty per cent of these schools were, however, situated in Turkey, where 9 schools had an identical curriculum of 820 hours with a core course of 25 hours in applied nutrition. In Schools of Hygiene and Preventive Medicine in Italy, nutrition courses were offered in the 3rd and 4th year of the programme, but these formed part of elective courses in five alternative modules given during the training and, therefore, attendance by the students to these courses is not known.

Total number of hours in the curriculum

The duration of programmes with a similar terminology varied considerably between countries and within schools in the same country (Table 8).

Table 8

Duration of Selected Programmes in Hours

Type of degree (certificate)		Programme (hours)
A.	1)Masters in Public Health	300 - 2000
	2)Other Master's Programmes	900 - 2400
B.	1)Diploma of Public Health	388 - 1856
	2)Other Diploma Programmes	500 - 1500
C.	Doctoral Programmes	
D.	Public Health Physicians	125 - 425
E.	Specialist Courses	765 - 1360
F.	Basic Course in Social Medicine	258 - 300
G.	Certificate Programmes	252 - 700

2.4 Review of Main Training Activities in Nutrition in Schools of Public Health

2.4.1 Allotment of hours to specific topics

The distribution of hours throughout the curriculum was not easy to ascertain in many cases, unless core courses were clearly defined, number of hours of electives offered, and subjects included in the latter.

The total number of hours varied depending on the programmes, and many reasons could be attributed to this factor: possibly a need to remedy insufficient training of students in basic sciences on admission to the various schools; a rigid adherence to a time table because of a government regulation; and the major chosen by the student, which influenced the number of hours

2.4.2 Nutrition hours

Minimal or inexistant emphasis on nutrition in some chools, could indicate a lack of appreciation of the importance of the subject, an insufficient number of instructors in this field, little demand or interest from the students to be trained in this discipline, or insufficient concision in the responses to the questionnaire. It is quite problable that reference to nutrition was not apparent, as it could have been included in courses on maternal and child health, growth and development so on and so forth, in which the word nutrition was not evident in the title of the course. Time devoted to nutrition was expressed in credit units (hours not stated) or in numbers of weeks of field or laboratory work or, whilst undertaking research, the preparation of a thesis or a dissertation to be defended at a later date.

Field work encompassed, at times, short internships in clinics for a number of weeks, visits to urban or rural centers, or even participation in short nutrition surveys. More data in this area is required, as the practical application of knowledge and "hands on" experience should be a mandatory requirement for all students working in nutrition, who may eventually work as administrators of programmes, researchers or trainers.

2.4.3 Student background

In some programmes preference was given to the admission of physicians, especially those who had at least 3-5 years experience. One or both criteria applied, for example, to some courses given in Belgium, Cuba, Ireland (Dublin), Ghana, Pakistan, etc.

An age limit applied to some schools as candidates could not be older than 40-45 years (Mexico). Other schools admitted "generalists" who were not health professionals, such as physicians, nurses, dietitians, veterinarians and the background of these students varied considerably from social workers, anthropologists, political scientists etc. For a large number of schools regardless of the background of the student, a bachelor's degree in their field was required.

In schools in the USA, a specific grade point average of 3.0 or above, or evidence of similar scholastic achievement was demanded.

Sometimes difficulties in assessing academic performance by numerical, alphabetical (A,B,C...) or descriptive grading may cause confusion regarding equivalences. However, some larger universities have information which allows for such comparisons to be made.

In a survey of graduate programmes in public health nutrition (21) in all schools reviewed, a bachelor of sciences degree was required. Although experience in nutrition was not necessary, candidates who had acquired skills in this field were preferred. Prerequisite courses in 17 of the schools surveyed are shown (Table 9).

Table 9

Prerequisites in 17 Selected Graduate Programmes in Public Health Nutrition

Subjects	Number of programmes
Chemistry (including biological)	15
Physiology	14
Microbiology	13
Nutrition	13
Behavioural Sciences	11
Food Preparation Science	8
Advanced Nutrition and Disease	8
Growth and Development	6
Mathematics	6
Principles of Learning	4
Food Management	4

Source: Adapted from Dodds, 1982 (21)

Other courses required included physics, biological sciences and statistics in some schools. In the general area of public health, programmes for students with a health sciences related background were shorter in duration e.g. one academic year rather than two years. This is because health professionals will have an adequate knowledge in basic sciences, and may have varying degrees of nutrition knowledge or none. Many "generalists" e.g. social scientists, engineering students among others, may have acquired practical nutrition knowledge working in health or nutrition programmes as volunteers for non-governmental organizations, but these students require further assistance in both areas.

Nutrition trainers

It was difficult to ascertain the number of trainers in public health nutrition by school or their background. In some announcement hours, courses were given by "the staff" or trainers designated as Mr or Ms X- and, thus, qualifications were not noted. The broad coverage of subjects could be assumed under a few circumstances when nationally or internationally known individuals were in charge of specific nutrition programmes at certain universities.

In a survey undertaken in the USA by the Curriculum and Membership Committee of the Association of Faculties of Graduate Programmes in Public Health it was ascertained that in the 22 programmes included in the study (1979-80) (21) every programme had at least one faculty member with an MPH or MS degree in public health nutrition who taught this subject. This committee attempted to formulate criteria for accreditation of trainers in public health nutrition eg structural criteria and process and outcome criteria. Difficulties were, however, experienced in this task when examining the programmes under review and the background of future trainers who quite often registered in public health nutrition programmes without a background in dietetics. The curriculum is currently composed of three groups of courses 1/3 nutrition courses, 1/3 public health administration and 1/3 social and behavioural sciences. Development of competencies for evaluation of the programme content were undertaken by the committee, but results can only be judged by the performances of student graduating from these programmes (22,23).

It was hoped that future trainers would qualify with either a master degree in public health nutrition or a Doctoral degree with sufficient field experience (length not stated). It should be recognized that public health nutritionists must differ from other categories of workers in nutrition as they deal with the prevention and promotion of health and nutrition, rather than more commonly the treatment and, hopefully, rehabilitation of the patient (24). The scope of their work embraces the broader issues of nutrition at community level.

Many roles have been attributed to public health nutritionists which may seem unrealistic to some because of their diversity, from investigator to programme planner, evaluator, consumer advocate, nutrition educator, counselor, etc.

In a study undertaken in 1979, a list of 109 competency items was sent to a number of public health nutrition faculties and practitioners for comments and evaluation, using the Delphi Technique. On receipt of the final completed questionnaire only 17 competency scales were derived from the factor analysis. These scales are the following: clear communication, counselling, empathic understanding, provision of nutritional care services in community health programmes, correct interpretation of scientific data, programme planning, communication in teaching - learning settings, preparation of educational materials, performance of nutritional screening procedures, in-service education programmes, supervision, active nutrition advocacy in the legislative process, long-range planning, food services management, public communication, programme administration, and consumer advocacy. These strongly emphasized the importance of communication skills, (e.g. counselling and the use of understandable terminology when advising patients or consumers) in the armamenterium of a competent public health nutritionist (24,25). Other workers have also stressed similar areas of competencies required, such as the capability of interpreting up-to-date scientific nutritional concepts which are complex in their nature and sometimes the focus of controversy among the scientific community, as well as acquiring knowledge regarding the life style of consumers and being sufficiently skilled to motivate the latter in changing some aspects of behaviour using realistic objectives (26).

It was not possible to ascertain the competencies of the trainers in the present study. In very few programmes was mention made of teaching/learning objectives, if programmes were task oriented or whether stress was placed on communication skills, were stressed. In 1972, Committee 4/V of the International Union of the Nutritional Sciences, undertook a review of nutrition education and training in schools of home economics, nutrition, dietetics, and allied heath professions in all WHO defined world regions. In 1972, 23 university degree programmes existed in responding countries, and were found to be affiliated with schools of medicine, public health or nutrition institutes (27).

Criteria for admission varied, e.g. a bachelelor's degree or a secondary school diploma, as did length of studies, e.g. 5 years or less.

Programmes varied greatly in terms of their stage of development, the educational patterns in the country, the needs at a national level, availability of manpower and presumably funding. On the basis of these findings, it seemed desirable that countries recognize the need to train dietitians for, both hospital and community service, including therapy and disease prevention. No single training model could be, however, designed suitable for all world areas, because of individual public health nutriton problems at regional and country levels, as well as other factors previously mentioned.

Methodology of training

This has been referred to in the section regarding organizational details of schools of public health in a general manner.

It was difficult to identify time spent on course work and field experience in the majority of programmes as these varied according to the student's major interest. In some programmes, although nutrition was said to be taught, no field or laboratory work were reported. In others, such as in the School of Hygiene in Athens, Greece, 30% of 151 hours given in nutrition in the diploma programme were devoted to field work in this area. Also, in a programme in Baroda, India at the Medical College (Department of Community Medicine) some laboratory and field work were part of nutrition training. Many gaps exist in this study regarding regular or innovative methods of teaching nutrition which would probably depend on the knowledge, experience, enthusiasm of the trainers and available means at their disposal.

Evaluation

No information was available regarding formative evaluation, e.g. the use of pretests, mid-term exams etc, but in the majority of programmes a certifying evaluation was carried out using research projects, written exams or dissertations. Nevertheless, the subjects chosen in research projects and dissertations are unknown, and the coverage of nutrition in oral or written examinations could not be defined.

3. SUGGESTED ACTIONS

3.1 Potential in Present Circumstances

Even with lack of current information in many areas, some proposals based on available data, and perusal of more recent literature on this subject can be made at this time.

The diversity of backgrounds of students in schools of public health is at the same time a challenge and yet, a pleasurable experience for trainers. In the context of a teaching/learning situation the trainer should be enriched by such an environment which should enhance his or her breadth of vision of the scope of community nutrition enabling them to be more competent educators (28).

Available Resources

These include a number of specific factors which must be taken into account as they are closely linked together.

3.1.1 Availability of trained faculty in public health nutrition

Some workers have underlined the difficulty in obtaining the services of such personnel for a number of reasons (29).

Despite its importance in terms of reducing morbidity and mortality, especially among "at risk" groups, nutrition is not considered a "hard" science, and retains on the whole an image linked with cookery schools and drudgery, relieved occasionally by more academically acceptable work associated with laboratory research.

Applied nutrition to date cannot compete with the higher realms of biostatistics and engineering in terms of status and often funding. However, with the advent of nutrition support services in hospitals in some countries, for severely ill patients which require careful nutritional assessment of these individuals and numerous biochemical tests, using a team approach in training, more visibility and prestige is being given to nutrition in this instance (16). The cost/effectiveness of nutrition education and training has been much debated (29).

The difficulties of availability of faculty with both, teaching experience and years of community field work, has been noted and reference to the need for appropriate competencies in these areas has been made.

3.1.2 Funding

Availability of suitable faculty is related to funds available for recruitment. Under most circumstances funding for schools of public health is difficult to obtain often in nutrition and especially for training personnel in community aspects of the subject. In many countries, funds are sought via grant applications which are time-consuming in terms of faculty hours, and highly competitive, especially if a school of public health is situated relatively far from the capital city from which grant proposals emanate. Valuable time is, thus, lost prior to the preparation for application of the grant. This latter endeavour curtails the use of faculty hours which would be otherwise available for course preparation and student advising.

Social marketing of nutrition is required at the community level and in health - related training facilities. The assistance of well informed nutrition advocates with appropriate communications skills, which includes social marketing techniques, is urgently required in schools of public health (30).

Although research has been, and continues to be, undertaken in schools of medicine, nursing and public health in the area of planning, curriculum design and content, training methodologies etc, evaluation on the outcome of these efforts on the use of nutrition knowledge by students and graduates and their impact on the community is scanty and difficult to assess. Nutrition which is vital to survival is regarded as a prosaic day-to-day activity with little glamour in an electronic age.

Thus, peers in the field of training, students, deans of schools of public health should be made aware of this discipline through "marketing techniques", such as short seminars on nutrition disorders of public health importance in individual countries at the national level, nutrition days and fairs, taste panels with information on the nutrient values of ethnic food mixtures, displays of informative visuals, posters, flip charts, comic strips on relevant subjects eg cost nutrition values of foods, etc. The latter should be strategically placed for maximum effect in hallways, close to elevators etc and other frequently used areas.

Funds should be earmarked for these activities and be acquired from appropriate sources including producers and manufacturers of food which are recognized as nutritionally desirable.

3.1.3 Available tools

Although more text books and training manuals are appearing on bookshelves in biomedical libraries, faculty need to be kept abreast with the relevance of resources available both among books, journals, audio-visual materials etc, in the school of public health or from international organizations and non-government agencies eg newsletters, films, etc.

In 1983, a guide to materials for use in teaching clinical nutrition in schools of medicine, dentistry and public health was published (31). There is a need for a compendium to be available for teaching nutrition and its application in third world countries, which

still suffer from specific nutrition problems, but are also beginning to be afflicted with chronic diseases, such as diabetes, hypertension, obesity, cancer, which were believed to be more common in affluent western countries.

3.1.4 Interfaculty collaboration: nutrition training

Methods of introducing nutrition in the curriculum have been a subject of debate, generally in schools in which health professionals are trained. An omnipresent negative factor, is that of lack of time in an already crowded curriculum. This applies in Schools of medicine, public health, dentistry, pharmacy, etc.

Also, "cafeteria-style" choice of numerous courses in many fields may detract students who have little knowledge of the biological sciences from attending, during their training any single course on nutrition.

Several possibilities come to mind:

a) A core course in community nutrition (national and international) with appropriate readings given by trainers with experience both at home and abroad, would expose all students to the subject. This should be a blend of both scientific knowledge and applied nutrition to stimulate their interest and make them eager to take other courses related to the subject.

At the end of the course, an exam dealing with highlights of nutritional problems existing in privileged and less affluent areas of the world and practical solutions to these issues could be given.

The type of exam administered, would depend on available manpower to process the results such as, multiple choice, essay, or a team approach to solving a specific problem.

b) Integration

Integration has been defined as "the coordination of different teaching activities to ensure harmonious functioning of the educational process for more effective staff training" (32).

This might be achieved, if a coordinated effort could be made on a multidisciplinary basis using experienced and interested individuals from health sciences departments e.g. medical, nursing, dental, dietetics, etc and from community services.

In order for this process to function, there is a need for an academically recognized school coordinating committee to be formed under the guidance of a permanent or rotating Nutrition Network Coordinator (NNC).

Nutrition can, thus, be introduced through other courses, such as, epidemiology, statistics, environmental health, and its importance in every day life can be strongly emphasized. Such a system has already been used in some schools of public health. Recently, innovative measures have been introduced in the USA in order to increase the number of faculty members who would have an adequate background to teach nutrition in medical schools. To this end the New Jersey metropolitan area established the New York, New Jersey Regional Center for Nutrition Education at the New York Academy of Medicine. This centre has become a resource for faculty from ten medical schools and other health related institutions to help them plan work programmes, and be able to evaluate results from the assistance they have received (33,34).

The success of this center has encouraged other regional networks to be developed (35,36). Such an impetus requires dedication, enthousiasm and continuity which can be achieved if sufficient faculty trained in community health nutrition are available, and if members of the curriculum committee in consultation with collegues from other disciplines are willing to scrutinize carefully the present curriculum and be flexible enough to recognize that modifications will be required to be made in view of altering societal needs in this field.

It could be envisaged that a coordinating national centre could be initiated in the few countries in which multiple schools of public health exist and might serve as a resource for other countries, should such a service be requested. In other countries, schools of public

health could work in affiliation with centres established by medical faculties and this might strengthen training in both the prevention and cure of nutritional disorders.

Records of numbers of students graduating in the nutrition field from schools of public health, should be made more readily available, however difficult, so that information obtained through alumni associations could assist in ascertaining if students trained in nutrition, remain in the field of education and training.

3.2 New Information Needed:

a) Questionnaire study

From this preliminary investigations, some proposals can be made

1) That a letter be sent to deans of school of public health world-wide, as well as a questionnaire, and a list of suggested topics which could be included in the training of students majoring or having their main training in general and/or community nutrition.

A request will be made that these materials be sent to faculty in charge of nutrition training in these schools.

2) Analysis of the completed questionnaires is expected to yield current information on trends regarding criteria for admission of students, faculty recruitment, curriculum content, with specific reference to nutritional activities, training methodologies, evaluation techniques, text books used,etc.

3) Receipt of the questionnaire is expected to make administrators and faculty in such training centres aware of the need for international agencies to be able to select the most appropriate schools of public health for training different categories of health personnel.

b) International workshops

It is proposed that:

1) An international workshop on the subject of nutrition training in schools of public health be held before or immediately after the next International Congress of Nutrition, Seoul, Korea, 1989. A representative number of participants could be selected among those specifically concerned with curriculum design, training in nutrition, instructional methodologies, etc.

2) Regional workshops could take place at suitable times and intervals in other WHO world regions in order to devise up-to-date appropriate curricula for these areas.

Curriculum revision, however difficult a task, is an urgent need in the field of health and nutrition generally, if covert and overt malnutrition trends are to be stemmed as soon as possible.

4. SELECTED POST GRADUATE COURSES IN NUTRITION INSTITUTES (OCTOBER 1985)

4.1 General Information

Courses in different aspects of nutrition are offered in a number of countries by several Nutrition Institutes and the following programmes have been identified.

1. Master Programmes

These exist at the international or regional level. Instruction is given to date in English, Spanish or Portuguese.

a) Regional Programmes

Six programmes are operational in six countries and these vary in duration from one year in Nigeria, from 18 months to two years according to the course taken in Guatemala, 17 months in the Philippines and two years in Indonesia and Jamaica. Degrees can be obtained in the areas of human nutrition, applied nutrition, science and technology of foods, food and nutrition planning, etc.

b) International Programme

Eight programmes are offered in six countries. Shorter training courses of one year are given at the University of Queensland in affiliation with two universities in Thailand and one in Malaysia, also at two institutions in the United Kingdom and a 9 months course in applied nutrition at the National Institute of Nutrition (NIN) Hyderabad, Osmania University, India.

The length of the courses varies from 15 months in the United Kingdom, 17 months in the Philippines, 18 months as as minimum in Chile, and 40-48 months in some programmes in Brazil, Chile and the USA. A master of science degree can be obtained in the following areas, nutrition, human nutrition, applied or community nutrition, or a master of professional studies in international nutrition with a major in international nutrition.

2. Doctor of Philosophy (PhD)

Three programmes are listed (Indonesia, Nigeria and USA). No precise data was, however, obtained from the African programme. The two other courses, one offered at the regional level, Indonesia, at the international level, USA, were given in English, the length was three years. Degrees obtained were respectively a PhD in applied nutrition and international nutrition

3. Diploma Programmes

A total of 9 programmes are offered in 5 countries, the language of instruction is English or French.

National level

One programme is offered in France at the national level at the Institut scientifique et technique de l'Alimentation in Paris, (duration 180 hours), another one at the Humberside College for Higher Education, Grimsby, England (duration one year). A further short 6 months course is offered at the University of Indonesia, Jakarta, at the regional level, in English.

International students are catered for in six programmes given, in French, or English, varying in length. Short courses 300 hours in Montpellier, France, 5 and 6 months in Wageningen, Netherlands and in Ghent, Belgium, a further 3 courses given in different institutions in London, United Kingdom, have a duration between 9 months to one calendar year. Diplomas obtained are entitled for example, diploma in human nutrition, in food resources related to community development, diplome en nutrition et santé publique, etc.

4. Certificate Programmes

Nine certificate programmes are presently available in eight countries, four offered at the national level and six for international students, (including one given also at the regional level). Languages used in teaching are English, Spanish or Portuguese.

a) National Programmes

These consist often of short courses, given annually (3 months) or refresher courses (2 weeks) as well as longer courses of one year in duration eg in Brazil and the United Kingdom.

b) International Programmes

Six such programmes are available and may be given bi-annually or annually and vary in length from 6 weeks to as long as 9 to 12 months. Institutions grant certificates of attendance on completion or may specify the subject in which training was given e.g. certificate of food technology or of nutrition and child health.

5. Other programmes

Some institutes also offer advanced training courses in nutrition but on completion, no degree, diploma or certificate is awarded to the participants. Three well known courses available at the international level illustrate this point. Two deal with aspects of planning e.g. a course given in French, at the Mediterranean Institute of Agronomy

(Montpellier (IAM - France) with a duration of 4 weeks, and another in the USA given in English, at the Massachusetts Institute of Technology (MIT) and dealing with the subject of international nutrition and planning. The course spans 9 months (one academic year).

A further 8 weeks course (health, nutrition and food sciences) with a duration of 8 weeks is given in French at the International Children's Center in Paris, France.

Admission requirements

Admission requirements vary among all the courses e.g. some masters programmes will only accept students with a recognized degree in health, agricultural sciences or behavioural sciences and are required to have a minimum of 2 years relevant work experience eg the University of Queensland and the San Carlos University of Guatemala, etc. In some diploma courses entry requirements may be much broader as well as in certificate programmes. On the other hand, applicants with a university degree e.g. B.Sc in food and nutrition sciences with experience and/or seniority will be more readily accepted.

Institutional affiliation and sponsorship

Many of these courses are given under the auspices of cooperating institutes e.g. the International course in Food Science and Nutrition (ICFSN) given in Belgium is organized jointly by institutions in the Netherlands and Belgium. Several International Organizations such as FAO/WHO/PAHO and the United Nations University support a number of these programmes.

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Cambridge
Massachusetts 02139
USA

rm8717C MASTER PROGRAMMES Annex A

Countries	1	2	3	4	5	6	7	8
Australia	x							
Burma		x						
Bangladesh	x							
Belgium	x							
Canada				x	x			
Chile	x							
China	x							
Colombia	x							
Cuba	x							
Egypt	x		x					
Ethiopia	x							
Chana	x							
Iran	x							
Israel	x							
Japan	x							
Rep de Korea	x							
Lebanon	x							
Malaysia	x							
Mexico	x							
Netherlands	x							
Nigeria	x							
Peru	x							
Philippines	x		x					
Singapore			x					
Sudan					x			
Thailand	x		x					
UK	x					x	x	x
USA	x							
Venezuela	x							

Notes

1 Master of Public Health

2. Master of Medical Science in Public Health

3. Master of Science in Public Health

4. Master of Health Science

5. Master of Community Medicine

6. Master of Science in Community Medicine

7. Master of Community Health

8. Master of Science in Community Health in Developing Countries

DIPLOMA PROGRAMMES

Annex : B

Countries	1	2	3	4	5	6	7
Argentina	x						
Bangladesh	x						
Benin	x						
Brazil	x						
Czechoslovakia				x			
Greece	x						
India	x						
Italy							x
Japan	x						
Netherlands						x	
Pakistan	x						
Portugal	x						
Spain			x				
Tanzania	x						
Turkey	x						
Uganda	x						
USSR					x		
Yugoslavia		x					

Notes

1. Diploma in Public Health
2. Diploma in Public Health and Epidemiology
3. Diploma of Public Health Officer
4. Diploma in Social Medicine and Organization of Health Services
5. Diploma in Public Health Administration
6. Diploma in Social Sciences
7. Diploma in Hygiene and Preventive Medicine

Ph.D Programmes

Annex : C

Countries	1	2	3	4	5
India	x	x	x		
Thailand				x	
Canada					x

Notes

1. Ph.D in Medicine: Preventive and Social Medicine
2. Ph.D in Medicine: Community Medicine
3. Ph.D in Medicine: Health Administration
4. Doctor of Public Health
5. Ph.D in Nutrition

PUBLIC HEALTH PHYSICIAN * Annex : D

Countries	1
Belgium	x

* includes Public Health, Occupational Health, School Health, Physical Education, Radiation Protection and Hospital Hygiene, Community Health

Notes

1. Public Health Physician

SPECIALIST COURSES IN PUBLIC HEALTH Annex : E

Countries	1	2	3
Canada			x
Indonesia		x	
Sweden	x		
Vietnam		x	

Notes

1. Qualification in Public Health
2. Specialization in Public Health
3. Specialization in Community Medicine

BASIC COURSES IN SOCIAL MEDICINE Annex : F

Countries	1
Netherlands	x

Notes

1. Basic Course in Social Medicine

CERTIFICATE PROGRAMMES Annex : G

Countries	1	2	3	4
Bulgaria		x	x	x
FRG	x			
Hungary				x
Poland			x	

Notes

1. Certificate of Public Health Officer
2. Certificate in Community Medicine and Organization of Health Care
3. Certificate in Organization of Health Care
4. Certificate in Health Administration

SELECTED POSTGRADUATE PROGRAMMES IN NUTRITION INSTITUTES Annex : H

Countries	Language	Title of Degree *					
		Masters	Ph.D	Diploma	Certifi-cate	Advanced Training Programmes in Nutrition Science	
Australia	E	CN					
Belgium	E/F						
Brazil	S/P	N		x	n.s.		
Chile	S/P(E)	HN,FNP					
France	F			DESSDNSP			none
Ghana	E				A		
Guatemala	S	FNH,STF					
India	E	AN			x		
Indonesia	E	AN	AN	AN			
Jamaica	E	N			P		
Netherlands	E			x	A		
Nigeria	E	N	x				
Philippines	E	PS,FNP			C		
Thailand	E				A,C		
UK	E	HN,N		FR,HN,FT	N&CH,FT		
USA	E	PSID (maj IN)	IN				none

* See notes

Notes

E	English
F	French
S	Spanish
P	Portuguese
CN	Community Nutrition
N	Nutrition
HN	Human Nutrition
FNP	Food and Nutrition Planning
FNH	Food and Nutrition in Health
STF	Science and Technology of Foods
AN	Applied Nutrition
PS	Professional Studies
PSID (maj IN)	Professional Studies in International Development Major in International Nutrition
DESS	Diplôme d'études supérieures spécialisées
DNSP	Diplôme Nutrition et Santé Publique
FR	Food Resources (related to Community Development)
FT	Food Technology
n.s.	not stated
A	Attendance
P	Participation
C	Completion
N&CH	Nutrition and Child Health

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