

T
139

ENVIRONMENTAL FACTORS LEADING TO THE INCIDENCE OF (PREMATURE
BIRTH) AND THE ROLE OF EDUCATION IN THEIR
MODIFICATION AND CONTROL
(IN LEBANON)

by

Helen D. Bowman

Thesis
Submitted in Partial Fulfillment of the Requirements
for the
Degree of Master of Arts
in the
Department of Education
at the
American University of Beirut

July 1954

ABSTRACT OF THESIS: Environmental Factors
Leading to Premature Birth and the Role of
Education in their Modification and Control
in Lebanon

Helen D. Bowman
July, 1954

571.7
200

Study of neo-natal mortality shows an appalling wastage of human life. Premature birth* is the greatest single contributor to this high mortality rate. One means of reducing such loss of human life, therefore, lies in the prevention of premature birth. This can be realized in large part through more effective teaching not only of the woman in pregnancy but also of the girl at puberty during her school years.

Attempts to learn the incidence of premature birth in Lebanon revealed no available statistics in this area. Therefore, a survey of live births (2703) as recorded on the American University Hospital's obstetrics charts was made in order to establish the occurrence of premature birth and to develop a sampling for study of the factors involved. 175 premature infants were found delivered within the 2703 live births reviewed. Home visits on a sampling of families of premature infants were made to permit study of the home situation. Factors associated with local premature births were considered in the light of what is commonly known about the premature birth incidence in other countries. The implication for

Here

* . A premature birth is the birth of a live-born infant with a birth-weight of 2500 grams (5 lbs., 8 oz.) or less.

education, particularly in the school, lies in the recognition of the fact that factors commonly attendant upon premature birth are for the most part controllable or preventable. Acquaintance with these factors promotes better understanding of the definite need for women in pregnancy to seek early and adequate medical care.

The question of what Lebanon is doing toward assisting in the reduction of neo-natal deaths through teaching lead to a survey of the present health program in Lebanese schools. Sample visits were made on private schools and the official Program of Studies decreed for Lebanese public schools, was reviewed for its health instruction content. The conclusion was reached that it is doubtful if at present Lebanese schools even moderately meet the aims of general health education and there is little or nothing by way of preparing the young girl for marriage and future mother roles except in such private schools as are attempting home economics courses. Even in these courses the subject of premature birth as contributory to neo-natal mortality is not included.

In general, the over-all health instruction in Lebanese schools today consists of imparting a body of scientific facts to students. There is little of a functional nature about it, being for the most part divorced

from everyday living, the students' own bodies and body functions. Teachers appear at a loss in knowledge of how to proceed otherwise, whether willing or not.

Improvement of the health education program in Lebanon today, even with the approval and co-operation of the Ministry of Education assured, will meet with three major problems: 1) the lack of proper preparation of teachers in health which leaves them unable to teach health in schools employing them; 2) a dearth of health textbooks and reference material for pupils and for student teachers as well as for teachers in service; 3) the prevailing negative attitude toward discussion of the subjects of sex development and human reproduction in the school room. However, these problems are solvable and with their solution integration of health teaching, aimed at more effective preparation of the young girl for her future roles, within the framework of the present curriculum will become possible. This can be accomplished without adding undue strain on already heavy schedules, particularly in private schools seeking to enrich their present courses of study. This appears to be, immediately, the most appropriate manner for schools to meet the responsibility. There seems to be very little chance of admitting health courses per se to the loads schools now carry.

Until such a time as the present curriculum in Lebanon's schools is stream-lined educators at all levels will need to make every effort toward the development of a sound total health education program in schools. Health must eventually be included as a subject on a par with other subject material, taught by teachers adequately prepared. Health should be made part and parcel of the total school program, fitting students for greater personal happiness in living and for greater social efficiency. Such a program cannot fail to afford adequate preparation of the young girl for future mother-roles, thereby aiding in reducing loss of life attendant upon faulty pregnancies.

An enlightened public is necessary for the realization of individual and community health. As the primary organized institution within the community in which it exists, the school is itself a public health agency and can rightfully be expected to assume leadership in educating the community. "Energizing" lay community members can be a role of the school. If girls are to carry over into everyday life what they have learned in school about the preservation of health and normal pregnancies, they must have parents, in-laws, and other adults aware of the problems involved. Adult education is necessary to this end.

For their guidance in the writing of this thesis, I wish to express my thanks to Dr. Habib Kurani, Chairman of the Department of Education, American University of Beirut, Dr. Belle Dale Poole and Dr. Zeken Shakhashiri also of the same University, and Dr. Pergrouhi Najarian of the Beirut College for Women.

Acknowledgements are made to those who assisted in this study. Particularly am I indebted to those who afforded me personal interviews. These include Dr. Fuad Afram Bustani, President of the Lebanese National University; Dr. Kamal Hajj, Mr. Halim Kanaan and Dr. George Saleeby of the Lebanese Ministry of Education; Mr. Gilbert Nee, Administrator, American University of Beirut Hospital; Mrs. Faizeh Antypas and Dr. Abby Marlatt, Beirut College for Women; Mrs. Stanley Kerr, American University of Beirut; Mr. Kacher Kallustian, Tarouhy Hagoupian School, Beirut; Mr. Keghan Mississian, Armenian Evangelical Central High School, Beirut; Miss Waddad Dibu, Tripoli Girls' School, Tripoli; Miss Ihsan Mahmassani, Makassid School for Girls, Beirut; Miss Selma Khuri Makdissi, Al-Ahliyah Girls' School, Beirut; Miss Claire Bailey, American Girls' School, Beirut, and Dr. Clarence Argo, Dr. Robert Karam, Miss Nahlah Mroueh and Mr. Joseph Staton, United States' Overseas Mission to Lebanon, Beirut. I am indebted as well to the Public Health Nursing and Social Service staffs of the American University of Beirut Hospital's Outpatient Department who made the home visits possible and to Miss Olga Rubeiz for her invaluable help with the assembling of the Hospital records. To the several others who shared in the study I express my thanks.

TABLE OF CONTENTS

Acknowledgements.....	ii
Introduction.....	iv
Chapter I	
A Statistical Survey of the Incidence of Premature Births as Indicated by a Sampling of Obstetrical Records of the American University Hospital, Beirut, Lebanon.....	1
Chapter II	
Reports on Observation Visits to a Sampling of Homes of Mothers of Premature Infants.....	25
Chapter III	
Factors Associated with Premature Birth; Implications for Health Education.....	57
Chapter IV	
Nature and Aims of General Health Education.....	65
Chapter V	
Status of Health Education for Girls in Lebanese Schools Today.....	72
Chapter VI	
Recommendations for the Improvement of Present School Health Education in Lebanon toward the Reduction of Premature Birth.....	112
Chapter VII	
Community Education; Further Recommendations.....	140
Appendix I	
Hospital Fees, American University Hospital, prior to Change in February, 1954....	147
Appendix II	
Basic Information Recommended for Inclusion in the American University Hospital Obstetrical Records.....	148
Appendix III	
Basis for a Plan for Teaching Hygiene in the Teacher Training College Department of Health Education, United States' Overseas Mission to Lebanon (Point IV).....	151
Bibliography.....	156

INTRODUCTION

Study of neo-natal mortality shows an appalling wastage of human life. Premature birth with its characteristically low birth weight contributes to this high mortality rate. In the United States where the incidence of prematurity is estimated at 5 to 7 per cent of the live births within a period of a year, prematurity is by a considerable margin the largest single factor in neo-natal mortality.

It is self-evident that there is a need for reduction in the mortality rate. It is also evident that one means of reducing this rate lies in the prevention of prematurity. Furthermore, it is evident that one means of preventing premature birth lies in more effective teaching of the young girl, the mature female, and the pregnant woman, acquainting them with the factors commonly associated with prematurity.

An attempt to learn the Lebanese figures on prematurity revealed no statistics available up to the time this study was begun. Yet factors known to be associated with the incidence of premature birth, as a result of studies in the United States and elsewhere, were observable in Lebanon and premature

births occurred. It was assumed, therefore, that these births contributed to neo-natal deaths.

The thesis necessitated the collection of certain data on the incidence of prematurity in Lebanon followed by home study of a sampling of families of prematures and consideration of education's responsibility in salvaging human life by aiding in the reduction of premature birth through health teaching. The first two chapters concern themselves with the collection and review of data on the evidence of premature birth and associated factors. The remaining chapters consider present and future roles of education in the light of this data, emphasizing the school's responsibility.

CHAPTER I

A STATISTICAL SURVEY OF THE INCIDENCE OF PREMATURE BIRTH AS
INDICATED BY A SAMPLING OF RECORDS OF THE AMERICAN
UNIVERSITY HOSPITAL, BEIRUT, LEBANON

PURPOSE OF THIS STUDY:

The first step indicated was the collection of data on the incidence of prematurity. A choice had to be made as to the nature, size and source of a sampling, the exact data to be collected and the method to be followed in collecting this data. It was determined that the study was for the purpose of learning the incidence of premature births within a sampling of live births as indicated by the records of obstetrical patients in the Hospital of the American University of Beirut. Further, it was determined that the data obtained from this sampling would serve the additional purposes of 1) affording data for later comparative use; 2) affording reference material for students and teachers in the field of education and allied areas, in medicine, community groups and public health services; 3) stimulating interest in the problem; 4) indicating areas with inherent educational implications.

DEFINITIONS:

To clarify the procedure certain terms as used in this study should be defined at this point.

A premature birth is that of a live-born infant with a birth weight of 2500 grams (5 pounds, 8 ounces) or less.¹

A live birth is the complete expulsion or extracting from its mother of a product of conception, irrespective of the duration of pregnancy, which after such a separation, breathes and shows any other evidence of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached; each product of such a birth is considered live born.²

A full term infant is a live-born infant with a birth weight of more than 2500 grams (5 pounds, 8 ounces).³

A premature death is a death of a premature

-
1. World Health Organization, Expert Group on Prematurity, Final Report, publication number 27, p. 4.
 2. World Health Organization, Technical Report Series, publication number 25, 1950, p. 12, quoted in World Health Organization, op. cit., p. 4
 3. World Health Organization, op. cit., p. 4

toxemia in pregnancy,⁵ bleeding in pregnancy,⁶ effect of syphilis,⁷ diabetes,⁸ acute infectious diseases,⁹ and other illnesses. The socio economic factor is unavoidable throughout. There would appear to be a general, though not a complete agreement that the mother's economic status together with

-
5. Dunham, Ethel C., Premature Infants: a manual for physicians, p. 18.
 6. Hertig, Arthur and Livingstone, R.G., "Spontaneous, Threatened and Habitual Abortions: their pathogenesis and treatment", New England Journal of Medicine, 23: 797-806, June 29, 1944.
 7. Benonsohn, S.J., "Pregnancy in the Syphilitic Mother: a study of 935 pregnancies at the Cook County Hospital", American Journal of Obstetrics and Gynecology, 43: 408-520, March 1942.
 8. Miller, Herbert C., Hurwitz, David and Kuder, Katherine, "Fetal and Neo-natal Mortality in Pregnancies Complicated by Diabetes Mellitus", Journal of the American Medical Association, 124: 271-275, June 1944.
 9. Dunham, op. cit., p. 27.

infant under 28 days and while yet hospitalized.

A neo-natal death is a death of a live-born infant occurring within the first 28 days of life.

An infant death is the death of a live-born infant occurring with the first year of life.

SCOPE OF THE STUDY:

The study was confined to a review of 2741 obstetrical records of uterine deliveries from the files of the American University Hospital, Beirut, Lebanon. This number of uterine deliveries afforded the study's working sample of 2703 live births.

REVIEW OF LITERATURE:

Review of available literature reveals that much has been written as a result of individual and group studies.

Factors associated with the incidence of prematurity which have been studied are multiple births,⁴

4. Peckham, C.H., "Statistical Studies on Prematurity", Journal of Pediatrics, 13:474-497, October 1938.

maternal occupation¹⁰ and diet,^{11,12} affect the rate of prematurity.

Factors associated with premature mortality have been investigated: birth weight,¹³ race and sex,¹⁴ plurality of birth,¹⁵ maternal factors such as age and parity,¹⁶ complications of pregnancy and delivery,¹⁷ clinical and post-mortem studies, to determine the exact cause of premature infants, are

-
10. Dunham, op. cit. pp. 12-15; 28-29.
 11. Burke, Bertha S., Harding, Vermette Vickers and Stuart, Harold C., "Nutrition Studies during Pregnancy, IV. Relation of Protein Content of Mothers' Diets during Pregnancy to Birth Length and Birth Weight and Condition of Infant at Birth", Journal of Pediatrics, 23: 506-515, November 1943.
 12. Ebbs, J.H., Tisdal, F.F. and Scott, W.A., "The Influence of Prenatal Diet on Mother and Child", Journal of Nutrition, 22: 515-526, November 1941.
 13. Dunham, op. cit. p. 3.
 14. Anderson, Nina A., Brown, Estelle W., and Lyon, R.A., "Causes of Prematurity. III. Influence of Race and Sex on Duration of Gestation and Weight at Birth", American Journal of the Diseases of Children, 65: 523-534, April 1943.
 15. Peckham, loc. cit.
 16. Woodbury, R.M., Causal Factors in Infant Mortality: a statistical Study based on investigations in eight cities, United States Children's Bureau, publication number 142, Washington, D.C., 1925 as quoted in Dunham, op. cit., pp. 11-12.
 17. Dunham, op. cit., pp. 45-47.

18,19
reported.

METHOD:

In the Record Room of the American University Hospital 2741 records of uterine deliveries of obstetrical patients were reviewed. In this number were found 2703 live births, or the over-all working sample for this study. Each record was reviewed for birth weight and red blood cell count. Records of the 175 live-births with birth weights of 2500 grams or less, the premature births, were then studied more completely and the following information, as available, was recorded:

Information on Infant:

- exact weight at birth
- condition during hospital stay
- sex (on all but 15)
- presentation if breech

18. Dunham, op. cit., pp. 47-50.

19. Potter, Edith L., "The Importance of the Post-mortem Examination of the Fetus and Newly Born Infant", American Journal of Clinical Pathology, 13: 133-138, March 1943.

Information on Mother:

- first or successive pregnancy
- laboratory report on albumen content in urine
- blood pressure reading
- red blood count
- indicative factors in history during pregnancy
- diagnosis
- hospital classification (I, II, III, IV)²⁰

In addition to this basic information on the mothers of the premature, religious affiliations as stated upon admission by 159 mothers was obtained from the admitting records and recorded. The recorded nationality and age were also obtained from the same source.

LIMITATIONS:

Limitations of the study must be recognized.

It is well known to be true in Lebanon that patients commonly have no knowledge of their real ages. This made their stated ages completely unreliable. Patients' personal histories and diagnoses

20. This classification was discontinued in February 1954. Patients are now admitted as private or ward cases.

of malaria, heart disease, lung fever and so on were also considered as possibly unreliable data.

The hospital charts lacked uniformity in the character and the amount of patient study recorded which tended to make information less complete in some instances. This made for uncertainty as to whether the omission of an entry meant absence of a condition or that no examination or test was made. Causes of premature deaths and pathology reports were infrequently included in the records, making a study of this factor impossible. Information on the mothers' nutrition habits and their occupations was not obtainable from the records except in a few instances.

Due to the fact the Hospital has no home visiting or follow-up service on the prematures, the only information on the infants serving this study had, of necessity, to be confined to that gathered during their hospitalization. Hospitalization of the premature infant varied in length of time from two days to two-plus weeks.

The type of religious affiliations and nationalities of total obstetrical admissions were not

available, since the Hospital does not break down such information by department. In 1947 the combination of the obstetrical service with the gynecology service was effected and what figures were available covered both services and not that of obstetrics only.

PRESENTATION AND INTERPRETATION:

2741 records of uterine deliveries taken from the files of the American University Hospital afforded the working sample of 2703 live births for this study. This was not a comparative study but was rather for the purpose of collecting basic data on mothers of premature infants and on the prematures themselves.

175 of these 2703 live births were found to be premature by the definition used in this study.

TABLE I

Premature births found in a sample of live births: (Study made at American University Hospital, Beirut, Lebanon, 1954)		
Total sample of live births:	Total number of premature births in sample:	Percent of premature births in sample:
2703	175	6.8%

INCIDENCE OF PREMATURITY:

In this study several factors commonly believed to be associated with prematurity²¹ were found. These conditions occurred in combination or singly among the mothers of the premature infants.

TABLE II

Factors associated with premature births in sample: (Study made at American University Hospital, Beirut, Lebanon, 1954)	
Associated factors:	No. of mothers occurring in:
No apparent cause	41
Symptoms of urinary change	101
Diagnosis of pre- eclampsia	18
Multiple births	48
Diagnosis of pre- mature rupture of membranes	4
Bleeding	16
-3 placenta praevia	
-13 unstated causes	
History of disease	6
-2 tuberculosis	
-1 diabetes	
-1 syphilis	
-1 heart	
-1 acute cold with severe cough paroxysms	
Abnormalities of genital tract	5
Others	6

21. Anderson, Nina A. and Lyon, R.A., "Causes of Prematurity. I. A Review of the Literature", American Journal of the Diseases of Children, 61: 72-87, January 1941.

Considering the factors associated with premature birth, the prevention of several can be readily visualized. Circumvention of the hazards of strenuous physical labor, recurrent twinning, incidence of one premature birth, lack of adequate prenatal care, and so on, might have been made possible with proper advance knowledge of their effects on pregnancy. The very nature of the factors would seem to indicate the importance of educating mothers-to-be well in advance in order to prepare them for pregnancy by ensuring their health for child-bearing.

Faulty nutrition is possibly revealed in the high frequency of urinary changes reported, the oft-occurring symptoms of pre-eclampsia, as well as the positively diagnosed cases of pre-eclampsia. It bears noting here, too, that of the red blood cell counts taken on 143 patients at the time of their deliveries of premature infants, 50.3% were reported as being under the count of 4,000,000. Urinalyses on 128 mothers showed 86 positive for albumen and 43 negative. The 86 positive reports showed 42 patients with a "trace" and the remaining 44 with 1 to 4 plus albumen. Edema was frequently associated with this urinary change as might be expected. Tompkins²² in

22. Tompkins, W.J. and Wehl, D.G., "Nutritional Deficiencies as a Causal Factor in Toxemia and Premature Labor", American Journal of Obstetrics and Gynecology, 62: 898-918.

his discussion of nutritional deficiencies as a causal factor in toxemia in premature labor states he found the incidence occurring twice as frequently among malnourished, underweight patients as among overweight and while Dieckman et al²³ were unable to find a correlation between toxemia, prematurity and protein intake, they did find the incidence of anemia increased in patients whose diet was deficient in protein. Accumulation of evidence regarding the relationship between the dietary habits of the mother, the course of her pregnancy and the condition of her infant upon delivery is still continuing. The level of generalization reached to date, however, is impressive and attention to the findings would appear more than justified.

127 of the premature births were single births and 48 multiple. This latter number included a full set of triplets (3), 17 pairs of twins (34), and 11 infants whose twins were not premature. In their review of the literature on this subject, Anderson and Lyon found multiple births responsible for 6.3 to 22.9% of premature births as

23. Dieckman, William J. et al, "Observations of Protein Intake and the Health of the Mother and Baby", Journal of the American Dietetics Association, 27: 1046-1058, December 1951.

reported by thirteen American authors.²⁴

Out of 161 premature infants where information as to the parity of the mother was available, 64 were found to have been born to primiparas and 97 to multiparas. This would seem to be in opposition to Woodbury's studies as quoted by Dunham²⁵ which indicate that the order of birth influences prematurity, the large proportion of prematures being first births rather than those of later order. However, the possibility must be considered that the term multiparity as used on these hospital records might not have indicated the same condition in all instances, miscarriages and abortions being counted by some mothers and not by others in their interpretation of the word. Therefore, merely a statement of the finding is permissible here.

Only an observation can be made on the occurrence of 32 breech presentations among the 160 premature births on whom such information was available. All records did not include this information. Some connection is thought to exist between the incidence of prematurity

24. Anderson, loc. cit.

25. Dunham, op. cit., p. 12

and breech presentation.^{26,27} The findings in this study, however, cannot be interpreted to mean that breech presentations were peculiar solely to the prematures in the study for no check was kept on the occurrence of breech presentation among those infants within the sample who were over 2500 grams.

TABLE III²⁸

Classification of 134 mothers of prematures in sample by type of hospital admission: (Study made at American University Hospital, Beirut, Lebanon, 1954)	
Hospital Admission:	No. of mothers of prematures admitted:
Class I	12
Class II	10
Class III	14
Class IV	98

26. Beck, Alfred C., "The Obstetrical Responsibility for the Hazards of the First Few Days of Life, with Special Reference to Anoxia and Prematurity", American Journal of Obstetrics and Gynecology, 51: 173-183, February 1946.
27. Dieckman, William J., "Fetal Mortality in Breech Delivery", American Journal of Obstetrics and Gynecology, 52: 349-361, September 1946.
28. See footnote number 20, p. 8.

Information was obtained on the type of hospital admission of 134 mothers of the premature infants. By far the largest number of these mothers were Class IV admissions (Table III). This admission policy is no longer in effect, but during its administration the notable distinction between the four classes was that of hospital fees. Class I, private patients, paid full fees and Class IV, patients supplying the bulk of teaching material for medical students, were, nominally, at least, admitted free. Class IV also included non-teaching patients who were subject to fees. (Class I: private rooms; Class II: semi-private, 2-3 beds; Class III: 8 bed ward; Class IV: 8 bed ward). Charges for hospitalization and all attendant services, laboratory work, X-Rays, special medication and supplies, operating room and so on, were scaled down from Class I through Class IV. General nursing care and care by the hospital medical staff were the same for all groups, but the medical students worked more closely with Class III and Class IV patients. One is led to suppose that the 98 mothers of premature infants admitted as IVth Class were of low economic status. There are indications here for consideration of socio-economic factors as common to this group.²⁹

29. See Appendix I, p. 147.

Information available on 159 premature births showed 119 were delivered to Christian mothers and 40 to non-Christians. (This latter group included women of Moslem (23), Druze (4) and Jewish (6) faiths.)

It must be recognized, however, that the University Hospital's population has always been predominantly Christian in character. The statement of this finding is included here only to indicate that such data was reviewed. That research in this particular area might be significant is suggested later.

Identification of prematures by sex showed 84 females and 73 males.

TABLE IV

Premature deaths found in total sample of premature births: (Study made at American University Hospital, Beirut, Lebanon, 1954)		
Total number of premature births:	Total number of premature deaths:	Percent of pre- mature deaths:
175	22	12.6%

TABLE V

Total premature deaths occurring in sample by birth weight in relation to total premature births by birth weight: (Study made at American University Hospital, Beirut, Lebanon, 1954)			
Classification by birth weights:	Number of premature births:	Number of premature deaths:	Percent of deaths within birth weight classification:
Less than 1000 grams (2 lbs. 4 oz.)	4	3	$\frac{5}{78}\%$
1000-1500 grams (2 lbs. 4oz. - 3 lbs. 4 oz.)	16	10	62.5%
1501-2000 grams (3 lbs. 5 oz.- 4 lbs. 6 oz.)	32	4	12.5%
2001-2500 grams (4 lbs. 7 oz.- 5 lbs. 8 oz.)	123	5	4.1%
Total number of premature births:			175
Total number of premature deaths:			22

22 of the total 175 premature births resulted in premature deaths. (Table IV). Table V states the premature births and the premature deaths by birth weight. It is noted that the greatest number of births were in the 2001-2500 gram classification. It can be seen that premature deaths occurred with considerably less frequency among infants of high birth weights. The death rate in prematures appears to vary directly with the degree of prematurity.³⁰ Statistics show that in the United States premature birth is by a considerable margin the largest single factor in neo-natal mortality.³¹

Dunham writes:

Premature birth takes a higher toll of infant life than any other condition, and it is one of the 10 leading causes of death (in the U.S.) among the general population...Deaths assigned to premature birth (1944) accounted for nearly one-third of all the deaths during the first year of life and for almost half of those in the first month.³²

-
30. Shute, Wallace and Shute, Evan, "The Prevention of Premature Labor", Journal of Obstetrics and Gynecology of the British Empire, 52: 570-574.
31. Metropolitan Life Insurance Company., "The Hazardous First Month of Life", American Journal of Nursing, 52: 568, May 1952.
32. Dunham, op. cit., p. 33.

TABLE VI³³

Premature deaths in sample by birth weight and age at time of death during infant hospitalization: (Study made at American University Hospital, Beirut, Lebanon, 1954)				
Total	Under 28 days	Under 1 day	From 1 to 7 days	From 8 to 28 days
22	22	16	5	1
Less than 1000 grams (2 lbs. 4 oz.)	3	3		
1000 grams- 1500 grams (2 lbs. 4 oz. - 3 lbs. 4 oz.)	10	7	2	1
1501-2000 grams (3 lbs. 5 oz. - 4 lbs. 6 oz.)	4	3	1	
2001-2500 grams (4 lbs. 7 oz. - 5 lbs. 8 oz.)	5	3		

33. Figures in Table VI must be considered in the light of the fact that these premature infants were observed only during the period of their hospitalization. Periods of their hospitalization varied from one day to two-plus weeks and did not afford an observation period common to all 175 prematures. A common period of observation is necessary to any accurate estimate of premature mortality.

15 of the 22 premature deaths were single births and 7 were multiple.

SUMMARY:

Out of 2703 live births used as a sampling from the obstetrical records of the American University Hospital, 175 were found to be premature (6.8%).

Premature births occurred more frequently among the IVth Class patients, i.e., nominally free, teaching material cases, than among the three other types of admission. This leads to the assumption that these mothers were of low economic status.

22 premature deaths occurred out of the 175 premature births (12.6%) during the varying periods of hospitalization of these infants.

Deaths occurred most frequently during the first twenty-four hours.

The largest number of premature births fell within the 2001-2500 grams birth-weight group and deaths occurred most frequently among the prematures under this birth weight.

41 of the premature births (23.1%) were due

to no apparent cause.

Factors found in other studies to be commonly associated with the incidence of prematurity were found in this study.

The frequent findings of albumenuria may be significant. Economic factors may be largely responsible for the nutritional habits commonly associated with this condition and with other symptoms of disease.

It is safe to say that several associated factors can be modified or controlled. It may reasonably be assumed, therefore, that an improved program of education to that end is indicated.

RECOMMENDATIONS:

Of primary importance is the need for evaluation of the character and amount of prenatal care being offered in this area.

A program of follow-up on premature infants after their hospital discharge should be instituted.

All prematures should be observed for a common period of time. Any study in the field of premature birth will be limited until there is such a period of common observation. The present period afforded by hospitalization is both too short and too irregular to provide a sound basis for evidence on premature deaths.

Racial differences in average birth weights have been reported between negro and white infants. Other racial differences may exist. It seems indicated, therefore, that studies of the average birth weight of Lebanese infants would prove of value, particularly if Lebanese premature birth statistics are to be compared with those of other countries.

Research for comparative purposes should be undertaken along the lines of this beginning study but with a much larger sampling and based on more complete information. It is recommended in order to make this possible that more factual content be developed in the records of the obstetrical patients at the University Hospital. These facts will provide basic material which will be needed if there is to be any concentrated effort to study the incidence of prematurity from records of the same hospital.³⁴

34. See Appendix II, p. 148.

The unit system for hospital records would make all information more readily available to the research worker. The present system denies the use of the Out-Patient Department records without special search.

An accurate entry on hospital records of patients' addresses is vital to any follow-up or research program involving the home visit technique. It is recommended that more information of a descriptive nature be appended to the University Hospital records in order to assist the home visitor, thereby making up for the absence of house and street designations in Lebanon's villages and cities. During this study, in the course of follow-up visits, only 8 out of a list of 25 addresses taken from the hospital records of families of premature infants were found usefully complete. Much time, money and effort was thus wasted.

A study of equal numbers of Christian and non-Christian mothers might be contributory. Such a study, however, to be effective should use the home visit technique to ascertain the economic status, dietary habits and occupation of the mothers.

CHAPTER II

REPORTS ON OBSERVATION VISITS TO A SAMPLING OF HOMES
OF MOTHERS OF PREMATURE INFANTS

For the purpose of seeing environmental factors at work in the home situation of mothers of premature infants, the writer undertook home visits on eight of the families of prematures studied in the fore-going survey. This visiting program was handicapped by two major limitations: 1) the visitor's inability to speak any language but English which necessitated visiting through an interpreter; 2) insufficient addresses as afforded by the University Hospital made the visits costly in time, effort and money. For each successful visit, three-plus unsuccessful attempts were made. Time itself was a limitation. The home visits proved profitable, however, in spite of the limiting circumstances in that they provided opportunity to discover the mother's attitudes toward premature birth and provided, as well, information on the premature infants' later progress.

The visitor's¹ home visits were recorded and these reports follow.

1. The visitor (the writer) is a qualified public health nurse.

FAMILY I

Moslem - Lebanese

Home: Situated in Beirut near the government Traffic License Bureau near Hotel Bristol; fair neighborhood; can be reached by car; poorly constructed building; unheated but with electricity and running water; outdoor toilet; two rooms, large: one simply furnished in local style and the second only with floor pallets for sleeping; in addition there was a room for cooking and a smaller space for storage; nine people occupy this area; rent as stated: 35 Lebanese pounds monthly.

Father: was a taxi driver until one week prior to visitor's call. He has now opened a very small "grocery" situated on the street level beneath the family's living quarters, for which he must pay rent altho the amount was not stated. He appears to be a healthy, sturdy man, may be older than his wife. It could be assumed he is literate, since he is

conducting a business of this nature by himself.

Mother: is illiterate by her admission. She does her own work helped by her two oldest daughters (about 12 and 14 years). She appears to be a healthy woman of about 35, barefooted, with uncovered head, untidy, friendly. She has not done work outside the home since she married. She had at least six pregnancies prior to the birth of her first known prematures (twins in 1946). One of these pregnancies ended in abortion, two produced twins who died shortly after birth from unexplained causes, and the remaining three pregnancies resulted in the three present oldest living children. Mother believes she has had nine pregnancies.

Children:

Condition of the Prematures:

This mother had twins in 1946 who were premature and single prematures in 1949 and 1953. The twins are living and well although the girl seems withdrawn and socially backward. She has an unsightly scar at the

inner corner of the right eye which extends across the nose bridge. The scar could be from an old burn. The male twin is robust and alert. The visitor thought both were shorter than might be expected considering the heights of the siblings.

The premature born in 1949 returned from the hospital after delivery but was readmitted upon its failure to gain. The baby died there. The mother states she believes this death was due to "carbon poisoning" from a charcoal fire burned in the cold house for the purpose of warming the new-born. She said she was released from the hospital because she was unable to afford further cost and she believes the premature infant should not have been discharged so soon. No medical reason for the infant's death was given to the mother. The mother said this infant and one of the twins were breech presentations. The 1953 premature infant is a stout, healthy girl-child, still nursing.

There are seven living children, all appearing strong and alert. They were barefooted but otherwise adequately, even neatly dressed. At least three children attend public school.

Dietary

The mother said there was plenty to eat.

Habits:

The children offered the information that they ate plenty of fruits and vegetables, ate "some" meat, liked leban, lebanieh. Bread was only mentioned in passing and not as a main item of diet. With the possible exception of the twin female all the family looked well-nourished.

Addition-
al Infor-
mation:

The mother stated she knew no reason for her small babies. She said she ate "well" during her pregnancies. She knows no way to prevent premature delivery.

The three older children, one boy and two girls assisted the mother in recalling past abortions and miscarriages, apparently well versed in the symptoms. They were unable to agree on the number, believing more than the one abortion recalled

by the mother had occurred.

The family is of low economic status.

They seemed to be a closely-knit group, friendly to each other and the visitor. Coffee was served the visitor by the fourteen year old girl at her own suggestion.

Noted:

- Multiple pregnancies
- Multiple premature births (?)
- Twinning
- Breech presentation at birth
- Low socio-economic status
- Questionable diet; possibly a protein deficiency
- History of at least one abortion prior to loss of first premature.
- Death of one premature
- Questionable development of a second premature
- Four girls in family who could benefit by health teaching, now and later, that includes the subject of premature birth
- No information on the nature of prematurity

FAMILY II

Moslem - Lebanese

Home: located in Ras Beirut off Rue Sadat at Rue Hamra; must be reached on foot; well constructed building; at least three rooms; electricity; unheated; presence of water, toilet facilities, and amount of rent paid are unknown.

Father: was not seen and nothing was learned about him. (See below.)

Mother: deceased. (See below.)

Note: The mother of the premature born in 1950 died after the delivery of a second "premature" infant in 1953. The father remarried almost immediately the partially veiled woman who received the visitor. This second wife (pregnant) was uncommunicative, although not hostile, and little was learned of the cause of the first wife's death. (Hospital records at

the time of the delivery of the 1950 premature infant indicated the patient as "confused" and later hospital records indicate a possible cardiac condition.)

Children:

Condition of the premature: 1 - possibly 2.

The infant born in 1950 is now four. He is very short but apparently healthy and sturdy. The second infant referred to above (not included in the original sampling reviewed in Part I) appeared to the visitor as far from healthy, possibly at the point of emergency illness.

Nothing by way of information on any other children by her husband's first marriage was offered by the second wife.

Dietary unknown

Habits:

Addition- If the visitor could judge by the social al Informa-attitude and from style of dress this tion: family might be a strict Moslem one. The house was sparsely furnished and too crowded with visiting women neighbors and children

to be orderly or clean.

Literacy is questionable.

Noted:

- Possibly recurring premature birth
- Possible associated heart condition in mother
- Mental illness (?) prior to delivery of first premature.
- Very low socio-economic status
- Poor condition of the later delivered "premature" infant.
- Under development of the 1950 premature (?)

FAMILY III

Armenian Christian - Lebanese

Home: situated in Ras Beirut near Deek Station; must be reached by foot; well-built; attractive apartment house in a fair residential neighborhood, not a shopping area; two good-sized living rooms, one bed room (not seen), and kitchen; in-door toilet facilities shared with two other families; water and electricity; rent: the one large apartment in which this family lives is shared with two other families with considerable allowance for privacy; 150 Lebanese pounds monthly, shared three ways equally.

Father: was, until a short time prior to visitor's call, working as a Beirut taxi driver and "made good money". There is no worry evidenced by the mother over the father's ability to obtain the employment he is now seeking, the nature of which was not learned. Father was not home at the time

of visit. Visitor assumed he was literate at least to a degree if he chauffeured a taxi.

Mother: was not well at time of visit. She was very pale and dough-ey appearing, too heavy for her age and height (stated age in 1945: 28). She is an intelligent appearing woman, very much at home in the social situation. The house evidenced considerable pride, security and home interest. Mother does not work outside the home. She has had three pregnancies and no abortions or miscarriages. She reads but whether she writes is unknown to visitor.

Children:

Condition of premature: 1 - possibly 2. Premature was born in 1945 and is now a tall, well developed child of nine. He presented no difficulty after the initial adjustment upon his return home after hospital discharge.

There is one younger girl who is well. The mother said she has always had "small babies" although she cannot account for this and believes it inevitable. A third child (not in the original Part I sampling) died 24 hours after delivery and was considered premature by the mother. The child was very small, born at seven months. The children are in an Armenian (private) school. They were carefully and becomingly dressed, moderately socially contained in the visitor's presence.

Dietary Habits: The mother stated the family had plenty to eat. She herself has never been a "good eater" during her pregnancies but this was not due to insufficient food but because of the nausea experienced at such periods. She seemed aware of food values and their importance to her children's development, discussing them at length.

Addition- The children were sent from the room dur-
al infor- ing the time the mother discussed the family
mation: affairs with the visitor.

Mother said positively she had what was diagnosed as malaria when she was nine years old.

This family is "social minded". It was felt by the visitor that no serious financial stress existed at the time of the visit. Mother said she had been able to meet the hospital's daily charge of twelve Lebanese pounds at the time of the birth of the third child. (See above.)

Noted:

- Possible multiple premature deliveries
- Poor diet during pregnancy (?)
- Possibility of history of malaria
- One young girl who will benefit by health teaching which includes subject of premature birth
- Low socio-economic status, but no dependent at present
- No knowledge of nature of premature birth

FAMILY IV

Maronite - Lebanese

Home: located in Beirut proper; two rooms (one without ventilation) and small kitchen space; electricity; outside toilet; water supply: unknown; rent: unknown; home neatly and attractively furnished.

Father: works for the St. George Club, Beirut. Amount of salary was not learned. Father was not at home at time of visit. He is literate.

Mother: is a very shy young woman. She was not pressed to talk. She was just up from bed after an illness (see below) and appeared extremely weak and feverish. Her stated age: 22.

Children:

Condition of premature: 1

The premature infant born in 1953 is a rather heavy 10½ months child, apparently healthy.

The mother stated she had no difficulty with

his adjustment upon discharge from the hospital. The baby was sleeping and visitors' contact with him was brief. This is the only living child out of three pregnancies.

Mother states she had one pregnancy previous to the birth of the above mentioned premature. This pregnancy ended in abortion due to a fall during the third month. Two weeks prior to the visitor's call she lost what she termed a "seven-month still-born" that was "very small". She knows no reason for this fetal death or for the premature delivery.

Dietary Habits: Mother stated she had enough to eat and doesn't believe her diet contributed to her "small babies".

Additional information: Mother gives no impression of destitution but the visitor felt the couple to be financially strapped, perhaps due to their youth and smallness of family appearing better able to meet the situation. Candy was

offered to the visitor.

Noted:

- Possible second prematurely born infant (fetal death)
- History of previous abortion
- Ignorance of conditions associated with premature birth
- Mother pregnant the third time when present infant was but two and a half months old
- Low socio-economic status

FAMILY V

Maronite - Lebanese

Home: situated in Ras Beirut near Rue Jeanne d'Arc; reached by car; fair construction; two rooms (one without ventilation) and small kitchen; outside toilet is placed in center of vegetable garden; electricity and water; rent; 25 Lebanese pounds a month; rooms are merely part of a larger apartment area within the building; maternal grand-mother of the premature, mother, premature, uncle and aunt live in these two rooms which appeared clean and neatly kept.

Father: deserted the mother one year after the birth of the infant and is now in Iraq. He was made to appear irresponsible by the maternal grand-mother who received the visitor.

Mother: The maternal grand-mother stated the mother was away at work. She is a seamstress and evidence of this fact was to be seen in

slip-covers, being pressed and readied for delivery. Visitor was told that the mother "actually starved" during her one pregnancy which ended in premature birth in 1951. The grandmother took the mother from Iraq to her own (grandmother's) home in order to provide the food and shelter the husband failed to provide. Grandmother obviously is head of the family.

Children:

Condition of premature: 1

Infant is a pretty, healthy, little girl. Grandmother said she was an "intelligent child," but child had just waked from a nap and was not alert enough to observe satisfactorily.

Only one child born to mother.

Dietary

Habits:

The mother has a better diet now but isn't strong. The diet has little variety but there is plenty. The grandmother gave the visitor evidence she knew what a well-rounded diet includes and appears to strive toward such a diet for

her family to her own exclusion.

Addition- The family is definitely of low economic
al infor- status. The grandmother seems to be hold-
mation: ing the family together. There is some
 support from the mother's income from sewing. The brother is sixteen, an apprenticed mechanic (?) without salary. The grandmother has lost the sight of one eye which drains freely and constantly. She is concerned about the loss of the other eye.

Literacy: not known.

(Hospital records stated maternal grandfather was in a tuberculosis sanatorium at the time of premature's birth. He is now dead. Later hospital records suggested mother might be infected with tuberculosis.) Grandmother made no reference to any family illness in reply to questioning by visitor.

Noted:

- Possible associated tuberculosis factor
- Extremely straightened financial and social circumstances

- Poor diet before and during pregnancy;
not enough food to eat of any kind
- First born
- Youth of mother at time of premature
birth
- Uninformed on nature of premature birth

FAMILY VI

Palestinian refugee - Christian

Home: located in Ashrafieh; one room, small kitchen; electricity, water, and inside toilet (shared); rent: 25 Lebanese pounds monthly; poorly furnished; clean, shelters mother, father, paternal grandmother and infant.

Father: until recently was a guard with UNRWA in Beirut. He states he was dismissed for unknown reasons and is not now employed. He is very concerned over this.

Mother: is an undernourished woman, now receiving vitamin therapy, through a local community health agency. She was refused adequate help, she said, by UNRWA, though the reason was not made clear to the visitor. She has had but this one pregnancy.

Children:

Condition of premature: 1

Infant was three months at time of visit;

appears to be well, though small and frail.
No other children.

Dietary Mother had little to eat before and during
Habits: her pregnancy and less now. She sells the
family belongings to buy food and medica-
tion. There is inadequate knowledge of
dietary needs.

Additional Infor- Palestinian refugees. Furnishings, cloth-
ation: ing, et cetera, brought from Palestine,
have been the source of income through sale.

Noted:

- Extreme poverty; very low socio-economic status
- Inadequate diet during pregnancy; insufficient food of any kind
- First pregnancy

FAMILY VII

Christian - Lebanese

Home: situated in modern apartment house just off Rue Hamra, Ras Beirut; three-bed-room apartment with all modern conveniences; attractively and tastefully furnished; spotlessly clean; rent: 1200 Lebanese pounds yearly; but family rents two bedrooms to two students for a total take of 1080 Lebanese pounds a year. Cost to family in rent is, therefore, but 120 pounds yearly, unheated.

Father: is a driver but does not work regularly because the car he drives is not his own. He is now looking for a driving job with the American University of Beirut. The family is very concerned over his inability to provide for his family now as he did in the past. Father was not at home at the time of the visit. He is literate.

Mother: is an attractive woman who gives her age as 46. She appeared to be highly nervous and very conscious of the fact the family is now

seen at what she feels to be a disadvantage after having enjoyed some position of security in the past. She said she finds it impossible to relinquish previous living standards and in order to attempt to maintain them, works herself to the point of exhaustion. She freely admitted that she delivered a premature infant in 1950 because of her exhausted physical condition and improper nutrition during pregnancy. She is literate.

Children:

Condition of premature: 1 - possibly 2. Premature infant was born in 1950 by Cesarean delivery and died within twenty-four hours in hospital. An earlier pregnancy ended in the delivery of a "small and weak" baby who lived for a very short period. There is one living male child, about two years old who is healthy and well, perhaps about average for his age and height.

Dietary Habits: Mother was well informed on matters of nutrition and knew what was meant by the "basic seven diet". She said the present family diet was good though not abundant. She foregoes eggs, milk, butter and meat as necessary to feed her son.

Additional Information: A sister of the mother is a graduate of the public health nursing course at the American University of Beirut. This sister is the chief support of the family.

While the mother's story may be true, the visitor found it difficult to accept the family as destitute as described. Cigarettes, coffee and freshly baked cake were served during the visit. The situation appears to be better than the mother recognizes because of the difficulty she finds in adjusting to the change in family circumstances.

Noted:

- Breech presentation
- Possibly one previous premature birth
- Age of mother at time of 1950 premature

birth: 40 +

-Ante-partal bleeding

-Admitted hard labor to point of exhaustion
during pregnancy

-Admitted impoverished diet during pregnancy

-Lower socio-economic bracket but managing
to remain independent.

FAMILY VIII

Christian - Palestinian

Home: located in Musaitbeh; bed room, living room, and kitchen apartment in an old house; unheated; no privacy; simply furnished, almost barren; not clean; electricity, water, and outside toilet; rent: 50 Lebanese pounds monthly.

Father: is a man's tailor who earns only enough to cover rent and food. He was described by a former Palestinian acquaintance of this family as a very cruel and difficult husband and father, although at present he is improving. Mother did not enlarge on this. Visitor did not see the father.

Mother: is a tall, gaunt untidy woman in her "seventh month", although she appeared to be closer to term than that. She has not yet seen an obstetrician. She said she has had, including the present, six pregnancies (see below) and added that her previous babies had

been "small" although denying any were under 2500 grams at birth, or under 2500 grams. She appeared to be proud of this fact. She had severe varicosities in the right leg, was pale and dull looking, unhealthy in appearance.

Children:

Condition of premature: 1

The premature infant died twenty-four hours after delivery in hospital. Mother stated she was in her seventh month of pregnancy. She knew no reason for this premature delivery and received no medical explanation for the baby's death. Prior to the premature birth, mother had one abortion and one living child.

Since the premature infant she has had a second abortion and a second living child. This latter child is now five years old and does not appear to be usual in development, physically or mentally.

The oldest child, a boy in his teens, was not discussed and was not seen.

Dietary Habits: Mother stated they have not had enough to eat for a long time. She herself eats no eggs, milk, meat, et cetera, giving her "share" to the children whom she feels need it more than she even though she is pregnant.

Additional Information: Visitor understood from the mother's former acquaintance that the mother has always been a hard worker of necessity and by bent and that the family has been very poor for a long time. A doctor friend of the family advised the husband against the wife's continued pregnancies. The advice was poorly taken by the husband.

Mother was directed by the visitor to a community health service which was later contacted by the visitor to assure care of the mother in this pregnancy.

Noted:

- Extreme poverty
- Poor management due to discouragement and ignorance
- Failure on part of the mother to see any relation between her own condition and

that of the child she is now carrying

- Abnormal (?) development of the five year old child who might possibly have been a premature infant
- Poor diet (?)
- History of abortion and premature birth
- Over-work
- Uninformed on premature birth

All the families visited were of low economic status as might be expected.² The difference between them was one of degree only.

The mothers visited were incapable of attributing the premature births to any cause with but one exception. Uninformed as to the nature of factors commonly associated with premature birth, they were generally unable to recognize features in their own experiences which resulted in infants unable to survive premature birth or who had to struggle to do so. Notable throughout was the prevalent attitude toward prematurity as being inevitable.

There is much significant for education in the results of these visits and in the findings resulting from extensive research in other countries and the next chapter deals with this subject.

2. Dunham, Ethel C., Premature Infants: a manual for physicians, pp. 12-14; 28-29.

CHAPTER III

FACTORS ASSOCIATED WITH PREMATURE BIRTH; IMPLICATIONS
FOR HEALTH EDUCATION IN SCHOOLS

Premature birth due to no apparent cause, it should be stated, represents a sizable per cent of the total premature incidence in countries studying the problem. In the United States, for example, this group is estimated at 31 to 65% of all premature births.¹ It is inevitable that some such births will continue to occur. But if, through effective health teaching, the incidence can be held to this group a truly significant contribution to the cause of saving human life will be made.

There are several factors commonly found associated with the incidence of premature birth. Many are environmental factors, non-genetic factors, to which the mother-to-be and the pregnant woman may be exposed. With proper knowledge of the nature of these factors many may be modified, controlled, even definitely prevented. Much research has been done on the problem. The following outline serves to summarize the specific conditions commonly found in conjunction with premature birth in western countries.² It indicates, as well, ways by which these conditions may be met.

-
1. Dunham, Ethel C., Premature Infants: a manual for physicians, p. 17.
 2. This summary is based on two outlines from Dunham, op. cit., pp. 17; 31.

Outline of conditions commonly associated with the incidence of prematurity and suggestions for their prevention, modification or control:

Condition	Means of prevention, etc:
Premature births due to no apparent cause:	
Multiple births (twins, triplets, etc.):	Early diagnosis; precautions to avoid premature onset of labor.
Toxemia in mother:	Good prenatal care; regulation of diet with special attention to protein intake.
Hemorrhage during pregnancy	Not known.
placenta praevia:	Not known.
premature separation of the placenta:	Prevention of toxemia; bed rest as indicated by physician; hormone therapy under medical direction.
Premature rupture of membranes:	(Cause not exactly known). Sexual intercourse contraindicated after 7 months as precautionary measure.
Syphilis:	Early diagnosis and correct medical treatment before the 5th month of pregnancy.
Cardiac disease:	Early diagnosis and treatment.
Diabetes:	Early diagnosis and treatment.
Thyroid disease:	Basal metabolism and treatment under medical supervision as indicated.
Pneumonia and other acute infections:	Medically supervised treatment possibly including use of antibiotics.
Measles and other specific infectious diseases:(T.B.,etc.)	Prevention of exposure; immunization;early diagnosis and treatment.
Abnormalities of birth canal:	Preconceptional or pre-natal diagnosis and treatment as indicated.
Trauma due to accidents:	Special exercise of caution during pregnancy. (cont'd. p. 50

Condition:	Means of prevention, etc:
Inadequate diet:	(Relation to pregnancy not definitely understood). Regulation of diet with special attention to protein intake; education in nutrition; social and economic adjustments as possible.
Overwork; unfavorable socioeconomic conditions: Other conditions:	Social and economic adjustments as possible, caution against exhaustion from overwork and physical exertion.

There is marked similarity to be noted between the foregoing table and the following which indicates the factors found upon visiting a sampling of Lebanese mothers of prematures.

Outline of conditions found associated with premature births in the sampling of home visits to eight Lebanese mothers of premature infants: (Study in March-April, 1954) ⁵	
Hemorrhage during pregnancy.....	1
Cardiac disease.....	1 possible
Malaria.....	1 possible
Tuberculosis.....	1 possible
Inadequate diet.....	6 ⁴
Overwork.....	2
Unfavorable socio-economic status.....	8
Numerous pregnancies.....	2
Advanced age of mother at time of pregnancy.....	1
Extreme youth of mother at time of pregnancy.....	1
History of previous abortion.....	3
Twinning.....	1
Breech presentation.....	2
Death of premature.....	2
Questionable development of living premature.....	3
Uninformed on premature birth.....	5 (1 not known)

3. Attention is called to the fact that in the main these reports represent information recalled by the mother (history) and as such are subject to error. An example is found in replies to the question as to whether toxemia was evidenced. All but one mother said they "thought so" but could not remember exactly. This symptom was not included here, therefore.
4. Opinion as to what foods constitute an "adequate diet" in Lebanon may be at variance with Western ideas. In this instance the writer feels that more specific and immediate information was needed on their dietary habits before a positive statement as to inadequacy of diet among these mothers could be made.

It should be considered that full term, healthy off-spring might have been expected of these mothers had they, before pregnancy, received health instruction which prepared them for a duty both they and society had reason to expect would evolve upon them. The threat of cardiac disease and tuberculosis can be eliminated or reduced. It is a matter of knowing the facts and teaching them: early diagnosis and proper treatment. If there had been early medical care and thorough pre-natal guidance, hemorrhage might not have resulted in premature delivery. Improved knowledge of dietary habits and a better understanding of the social and economic conditions which commonly associate themselves with premature birth might have produced adjustment in one degree or another resulting in the salvage of an infant. Early medical care and proper nursing supervision are of paramount importance to the very young mother, the mother advanced in age, the mother with a history of previous abortion or the woman with numerous past pregnancies. Education must assume responsibility for teaching these facts to girls. Present and future health and proper medical care early in pregnancy serve to better the chances of bearing normal, healthy babies.

Child-bearing for too long and by too many has been considered a function of women necessarily accompanied by hazards of little importance to anyone other than the woman concerned. This is unfortunate. In the first place it is not true. Reproduction need not be hazardous. This fact must be taught. And in the second place maternity, rightly, is not solely a personal concern. Preparation and education for it should begin long before marriage is entered upon.^{5,6} Many deliveries may be prevented through adequate pre-natal care, but the woman already in her pregnancy, is, educationally speaking, lost. The young girl in school, however, is not and education must feel itself responsible for her and for her future off-spring. Then what better place to begin this education for marriage than in the schools? Quite reasonably such education should be given to both sexes, since it takes both to create marriages, families, and society. Certainly, it is true that it is to the interest of both sexes that the incidence of prematurity be reduced. What more logical medium than health education in schools can be found to attack the problem? Where better to teach that detection and correction of abnormal conditions in women before and during pregnancy prevent premature birth?

5. Blake, Frances G., The Child, His Parents, and the Nurse, pp. 31-35; 405.

6. Walzer, Howard C., "Education for Parenthood", American Journal of Nursing: 52:566. May 1952.

If for any reason, however, this type of health education cannot be directed to both sexes in the schools, educators should lose no time in concerning themselves with the health education of the female student.⁷ And it is with the girl in Lebanese schools from the beginning of puberty onward that this writer is occupied.

Effective health teaching of the young girl in school today should afford her the information she needs on human reproduction and acquaint her with factors which influence it. Effective health teaching should guide her to see the wastefulness of pregnancies resulting in babies unable to survive, the cost of such births in terms of health, happiness, and emotional well-being and their disrupting effect on family and social living. Environmental factors commonly associated with premature birth should be made known to her and she should be taught to recognize means by which to avoid them in order to ensure future healthy off-spring.

7. Miss Alia Halowi in a survey of a sampling of Lebanese schools found the idea of jointly presented sex instruction (boys and girls in the same class) in disfavor among school principals. It is worthy of note that the expression of opinion was not unanimous although it represented the majority. This may indicate a trend toward less rigid attitudes. ("Home Economics in Schools in Lebanon, 1954", a thesis in partial fulfillment of requirements for the degree of Bachelor of Arts, Beirut College for Women, Beirut, Lebanon.)

CHAPTER IV

NATURE AND AIMS OF GENERAL HEALTH EDUCATION

Health, in the definition accepted by the eighty three member nations of the World Health Organization, is a state of complete physical, mental and social well-being. It is more than freedom from disease, pain, untimely death or personal satisfaction. It implies social efficiency as well.

Health is determined by more than one factor. Environment and heredity combine to influence it, as do disease, injury, nutrition, and economic status. It is also determined in large measure by those who possess accurate health information and who are able and in a position to pass on such information to others in a useful and acceptable fashion. For while medical science is able to develop ways to promote and safeguard health and life, its accomplishments remain sterile if not shared. Education is the chief means of extending the benefits of medical science. Education, by helping people to recognize their own and society's health problems and by guiding them in the application of scientific discoveries, helps individuals in becoming effective, contributing members of families and society in the large sense.

In the United States health has long been listed as one of the cardinal principles of education. In 1918 a commission, appointed for the purpose by the National Education Association, formulated seven principles of education: health, preparation for the command of fundamental processes, home membership, vocation, citizenship, leisure and ethical character.¹ It might well be asked why health was singled out for placement on the list at all when it is difficult, if not impossible, to visualize satisfactory achievement of any one of the other six principles without health. The effect of poor health on student mastery of basic skills is almost too well known to be mentioned here. Poor sight, faulty hearing, parasitic infestations, and malnutrition, for example, act as deterrents to learning. Again, the family member who is in poor health must to some degree depend on the healthy members of the family for support. And how often will an employer seek unfit personnel? And so on. But whether obvious or not, the inclusion of the health factor in the seven cardinal principles brought health education into schools in the United States as part and parcel of sound education policy and not merely an adjunctive feature.

1. Brubacher, John S., A History of the Problems of Education, p. 17.

Cromwell defines health education as the striving to secure an intellectual and emotional balance in that conduct of living which will tend to attain and maintain the highest physical, emotional, and social welfare of individuals and communities². And while the school is not the sole agency responsible for health education of people, it must be considered a vital factor. For the school years afford an excellent opportunity for teaching the entire population, present and future, encompassing as they do a large portion of the developmental process extending from conception to maturity.

General aims of health education have been well stated in the United States by the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association. These are:

1. To instruct children and young people so that they may conserve and improve their own health, and thus be more able to secure that abundant vigor and vitality which are a foundation for the greatest possible happiness and service in personal, family, and community life.

2. Cromwell, Gertrude E., The Health of the School Child, pp. 139-140.

2. to promote satisfactory understandings, attitudes, and ways of behaving among parents and other adults so that they may maintain and improve the health of the home and community.
3. To improve the individual and community life of the future, to work toward a better second generation, and a still better third generation; to build a healthier and fitter nation and world³.

Strang, writing on health education in schools, and with which this paper concerns itself, defines health education as all the physical conditions, experiences, information and counsel going on in and out of school which produce desirable changes in personal, racial and community health. She continues by stating that health education, seen in this light, is a continuous process of learning with learning experiences built around the child's whole life. These experiences consist not only of actual health instruction but include the equally important school health services, recreation, physical education, the school plant and what Strang calls "the mental hygiene atmosphere of the school."⁴

-
3. National Education Association and the American Medical Association Joint Committee on Problems in Health Education, Health Education, p. 5
 4. Strang, Ruth, "Health Education", Encyclopedia of Educational Research, pp. 561-569

Health education everywhere varies in quantity and quality and this is acceptable if education is to meet the local demands or needs. However, variation in the amount and character of health education programs have been too frequently due to expense, lack of leadership, tradition. These have for too long stood in the way of securing effective health teaching. It is the school's responsibility in large measure to work toward the correction of these limiting conditions. For in order to realize recognized aims of health education there must be school provision of pertinent health instruction, experience, and school conditions as will serve in bringing about personal and community well-being.

The right to information on healthful living should be everyone's right. Facts make the health educator's stockpile of information. But what people, students and others, do with these facts depends on how they feel about them; in other words how people respond will be based on what is meaningful to them. It follows, therefore, that if response is to be that of desirable attitudes and conduct, the same methods of teaching should be employed in health education as are used in teaching other subjects. Health education must be an active process by which something is experienced.

The educative principles of interest and readiness are basic and instruction content should meet present and future needs.

In promoting individual home and community health and individual and community life for the future, general health education can rightly be expected to prepare girls to assume responsibilities they reasonably anticipate will be theirs. To this end, obviously, there must be specific health teaching within the more general frame of reference. And it is with specific health teaching toward salvaging human life by reducing the incidence of premature birth that this paper is particularly concerned.

CHAPTER V

STATUS OF HEALTH EDUCATION FOR GIRLS IN LEBANESE
SCHOOLS TODAY

Assuming education is responsible for more effective teaching of the young girl in school as a means of attacking the problem of premature birth with its associated high neo-natal mortality, one may ask what is being done toward that end in Lebanon's schools today. What is the existing health education program? Does it achieve the general aims of health education as previously laid down? What preparation for motherhood is the young girl receiving? More particularly, what does she learn about premature birth?

To determine answers to these questions, the writer reviewed the programs of public and private Lebanese schools for health content and visits were made on a sampling of private schools where variation was expected. Because time limited, visits were not made to public schools; the official curriculum, common to all public schools, was instead, used as a reference. Fixing the onset of puberty as the age at which it would seem logical to begin health education leading to safer, healthier mother-roles, the girl at puberty was located in the school and review of the program was started at

that point.

It was necessary, in order to locate the pubescent girl in school, to determine her age with some accuracy. No definition of age at onset of puberty,¹ based on study of characteristics peculiar to the Lebanese female, is apparently set forth. Four doctors, three medical students, three graduate nurses and two health workers were asked for an opinion as to the age of the Lebanese female at the start of puberty. It is interesting to note that each of the thirteen to whom the question was addressed was either native to Lebanon or had been engaged in that country working with young girls for two or more years. The replies were more guesswork than fact. The estimates varied one to three years but twelve was most commonly thought to be the correct age and the writer accepted this.

Undoubtedly, language was a handicap in obtaining information from the Lebanese Ministry of Education on

1. Puberty is defined in Taber's Cyclopedic Medical Dictionary, F.A. Davis Company, Philadelphia, c. 1942, p.141, as being that period in life at which one of either sex becomes functionally capable of reproduction....In the girl menstruation begins, the breasts enlarge, and hair appears in axilla and on the pubes.

school attendance of the girl at puberty and beyond. However, the amount of contradiction and vagueness met with confirmed belief that there are no statistics on this section, at least, of the Lebanese school population.

There is no exact information concerning the point at which the twelve year old girl begins to make a consistent appearance in the public or private schools. However, an inspector of the Beirut elementary public schools suggested she appears certainly in the third grade and is found occasionally in some second grades in those schools. This tends to agree with figures developed in a sampling of Lebanese private schools by the United States' Overseas Mission to Lebanon (Point IV)² which indicate the twelve to fifteen year old girl is found in those schools between the third elementary grade and the second secondary grade.

Because it was impossible to gain correct information, it was decided simply to review the school health programs beginning with the second elementary grade to avoid missing any late starters.

Questions regarding attendance produced the following information from the Lebanese Ministry of

2. Figures afforded by the U.S.O.M.L.'s Statistical Department.

Education. The figures are at best approximate.

In 1952-1953, a total of 86,000 boys and girls were enrolled in public kindergartens, elementary and secondary schools in Lebanon. 30,840 of this number were estimated to be girls, approximately one-third of the total enrollment. No break-down by age or year in school was available from the records.

The 1952-1953 total enrollment in private schools is unrecorded. Forty-four schools up to the time of this writing had not yet registered enrollment figures with the Ministry. Such figures as were available showed:

Kindergarten	22,985
Elementary	47,990
Secondary	<u>9,150</u>
	80,125

With this incomplete data any estimate is lame. But if one allows the same ratio between boys and girls in the private schools as existed between them in the public schools for the same year, approximately 27,000 girls could be reckoned as the count.

The point being made here is that in one year alone, Lebanon had the opportunity to afford roughly

58,000 girls health information of benefit to them now and during later child-bearing years, information profitable to them and their communities. This represents quite an investment in national health and vigor.

What advantage is taken of such opportunity?

PUBLIC SCHOOLS

The curriculum of Lebanese public schools is fixed by decree (numbers 6998 and 7001), dated October 1, 1946. It is, as was indicated previously, the required curriculum for all public schools. The original decrees appear in Arabic but an English translation was made available to the writer by the Health Education Department of the United States' Overseas Mission to Lebanon, Beirut. This Program of Studies was carefully reviewed from the second elementary grade through the secondary school for health content. All references to health were excerpted. Using as far as possible the exact wording of the English translation, this material follows. It is worthy of mention that no reference is made to health in the Preamble to the secondary curriculum in the official decree. The Preamble to the

elementary program contains but the following lines:

Physical education aims at strengthening the body and helping it to grow through athletics toward health and beauty.

HEALTH CONTENT OF OFFICIAL PROGRAM OF STUDIES

ELEMENTARY CYCLE:Moral and National Lessons

4th and 5th years:

Consideration of the duties of students to themselves, which duties include the care of body and soul

Object Lessons

3rd year:

Bones: differentiate between the long, short, flat bones and joints and movements; the five senses and their organs; simple facts about the alimentary canal, blood circulation, respiratory organs and hygiene of the organs of the five senses

4th year:

A general review of the material assigned for the 3rd grade but more in detail; simple facts about the important organs of living organisms and their functions, respiration, circulation, digestion, practical hygiene; brief studies about the important vertebrates taken from the different classes of mammals....distinguishing from animals in the country, i.e. sheep, cows, camels; useful

and harmful insects like the silk-worm, the bee....
and fly, mosquito, locusts and cockroaches

5th year:

The human body: the skeleton, the muscles, circulation of the blood, respiration, the nervous system, the five senses and their organs

Program of Physical Training:

2nd and 3rd grades:

A visit to the physician is compulsory.

Activities:

- 1) imitating animals
- 2) various games (groups participating);
aim: to develop observation powers
- 3) turning circles
- 4) singing circles and cheering
- 5) local folk dances
- 6) exercises

4th and 5th grades:

A visit to the physician is compulsory.

Activities:

- 1) exercises: walking, running, jumping, walking on legs and arms, climbing, balancing one's self, lifting weights, pushing, swimming if possible (exercises on play ground or while making a trip)
- 2) recreational games
- 3) simple ball games (team work emphasized)
- 4) field games (short distances and simple equipment)
- 5) educational games
- 6) competition in games

Program of House Keeping:

2nd and 3rd grades:

Continuation of first year's requirements of training in cleanliness, necessity of taking baths and changing clothes...cleaning finger nails and combing hair

4th and 5th grades:

Nursing a sick person; use of a thermometer; how to avoid epidemics

SECONDARY CYCLE:Program of Physics, Chemistry and Natural Sciences

1st year:

The human body, skeleton, muscles, nutrition, circulation, nervous system, the senses

3rd year:

Hygiene

- notions about human physiology and anatomy
- notions about microbiology, microbes, animal microbes
- spontaneous generation and experiments of Pasteur
- fermentations
- injection by microbes: contagious diseases and protection from these, sterilization, disinfection, combatting flies
- food: principal food materials for many foods of vegetable origin, food from animal origin, preserved foods; meals; accidents resulting from food; parasites transmitted by meat; poisoning of food
- water: potable water, contaminated water
- alcoholic drinks: nature and poisonous effects of: alcoholism

- air: air we breathe; asphyxia; treatment of a case of asphyxia; dust in air
- physical exercise: its hygienic effects; effects on beauty of body; effects of physical exercise and their abuse; physical culture
- bodily cleanliness: general cleanliness; clean clothes
- habitation: house, management of, ventilation; heating; lighting; keeping dirt away from

4th year:

Animal Anatomy and Physiology

- anatomy of the digestive system: alimentary canal dentition in man; appendant digestive glands, different indifferent animals
- digestion and absorption: foods and their transformation; absorption in intestines
- circulation of the blood
- secretion and excretion
- assimilation
- skeleton and the muscles
- the bones and the joints
- the nervous system
- the sense organs

Program of Physical Training

1st and 2nd years:

Medical examination required.

- exercises: walking, running, jumping, walking on arms, etc.
Physical exercises should be given in an athletic field or while roaming about in the open (more strenuous and varied these in Elementary Cycle)
- varied recreational games
- beginning ball games
- beginning field events
(Age of student should be taken into consideration in assigning distances and equipment)
- drill and exercises, corrective exercises
- competition in athletic games

3rd and 4th years:

The same as 1st and 2nd years.

Dimensions of fields for ball games should be suitable for age of students

5th and 6th years:

The same as for 3rd and 4th years but more strenuous. Dimensions of fields for ball games and distances and equipment of the regular size.

Program of the 7th year: (Philosophy)

Ethics:

Practical ethics:

- duties of man toward himself: duties toward our bodies; homicide, suicide, war, temperance

Family ethics:

- functions of the family; criticism of the modern theories regarding children; Malthusian theory; neo-Malthusian theory; birth control; eugenics; racism; crime of abortion

Natural Science and Hygiene Program:

1. Natural Science:

- Human anatomy and physiology: animal cell; tissues; organic functions of man
- functions of relations. (relation position of organs). Bone systems:....nervous system:.... sense organs:....(anatomy and physiology)
- functions of nutrition (digestion: food, organs and connected glands, food ration). Hepatic function:....Respiration and respiratory system:....Nutrition reserves:....
- function of excretion (urinary organs) urine

2. Hygiene and Prophylaxis: (prevention of disease)

- definition of hygiene - use. Demography (births and mortality)

- general hygiene: personal hygiene, cleanliness and physical culture; clothes and hygiene; school hygiene; intellectual hygiene, respiratory hygiene
- general ideas about contagious diseases, general ideas about microbiology
- a brief study of some contagious diseases and their prevention: malaria, small pox, meningitis, tuberculosis, typhoid and paratyphoid, amebic dipentary
- immunity: vaccination and serotherapy

Physical Training Program:

Medical examination

Excercises of a more strenuous nature than in previous years. Athletic equipment and instruments ought to be used.

One hour weekly should be set aside for athletics.

Equipment, instruments and measures used should be of regular size and weight.

Mathematic section is the same (as to health) as the philosophy section.

SUMMARY OF FINDINGSPUBLIC SCHOOLS

It is a fact that Lebanon's school curriculum is one discarded by France in 1926 as outmoded. It is teacher-centered and traditional in the French pattern. Emphasis is placed on subject matter, memory, and the retention of "learned" material by way of examinations to which is attached great importance. The lecture method of teaching is generally favored. Planned or spontaneous student activity is held to a minimum. Material is expected to be "covered" within a specified time. Courses are thoroughly organized and rigidly pursued.

The subject of health is no exception. The excerpted material and information had from interviews with Ministry personnel and public school teachers indicate little if anything that is personal or functional in present health instruction. The subject when it is introduced is apparently presented to the student as a body of facts disassociated from practical use. No visible connection is discernible between the student's own experience with bodily functions and the fund of information expected to be absorbed. As Brubacher

described health education in the United States at the time of the Civil War, so it would seem to be in Lebanon today, "arrid, seldom getting beyond an anatomical naming and locating of bones, muscles and organs".³ The topic of human reproduction is spectacularly absent and the specific problem of birth, premature or otherwise, finds little place in the curriculum.

There is conflict of opinion about the use of textbooks in health instruction. An inspector of public schools indicated that a common science text (Arabic), "written in accordance with the new program of the Ministry of Education", is used in teaching health one to two hours weekly in the five elementary grades and the first three secondary. Another text-book dealing only with health subjects, she stated, is used in health teaching one to one and a half hours weekly in the remaining grades. Another inspector denied this. The author of Arabic text-books for elementary and secondary grades told the writer no uniformity in the selection and use of school texts exists. (He finds such independence of choice regrettable).

3. Brubacher, John S., A History of the Problems of Education, p. 277.

Four textbooks written for Lebanon (Arabic) were reviewed for their health content. They present increasingly difficult subject matter for grades one through six (one secondary) and are divided into sections on physics, zoology, botany, chemistry and physiology. The health content of the latter deals with formal facts on body functions, "general hygiene", transmission of communicable disease through immunization, sanitation and so on. Nowhere in this or other sections is human reproduction discussed nor the problem of premature birth.

There is difference of opinion, too, among school personnel about the use of audio-visual aids in health teaching. The conclusion, however, is unavoidable that visual aids are generally thought of in terms of films. (It bears mentioning here that films may not be shown "on school time".) The annual showing of one film may constitute use of aids even though the presentation be in languages foreign to the students or too advanced for them. There appears to be little real knowledge of the effective use of audio-visual aids, the variety of their nature, or the sources from which they may be obtained.

Annual physical examinations of Lebanese school

girls are required by decree. These examinations are not included in the regularly scheduled school hours. The program is primarily one of communicable disease control through immunization. Physicians are appointed by the Ministry of Health and sent to the schools through the Ministry of Education to conduct the examinations. The examinations are cursory, taking approximately two minutes for former students and ten for new arrivals. Chest X-rays, examinations of blood, urine, et cetera, are infrequent. There is a check of the organs of sight and hearing. No attempt is made at health teaching during the examination process. The doctors do not consider this to be their role. Family participation is rarely encouraged.

The Ministry of Health at the present time is planning a new health program which it hopes to initiate in public schools in October 1954. The schedule, still in draft form (Arabic), was not available to the writer. It is described as aiming at better school health records, improvement of the physical examination program, and increased health content in the curriculum.

PRIVATE SCHOOLS

The private schools, when judged by the sampling

visited for purposes of this study, present a somewhat more promising attitude toward health instruction. While they are not at this time required to do so by law, the private schools follow in the main the Lebanese curriculum. For in order to pass the government examinations for the certificate, brevet and the two baccalaureates (to which much importance is attached by families of students, students, employers and so on), the school child must be in possession of the subject matter on which the examinations are based. However, the private schools are in a position to add subjects to the curriculum as time, budget, staff, and physical accommodations permit.

Condensed reports of the writer's interviews with private school administrators follow.

Private School Visit I (Outside Beirut)

Principal (a woman) health education courses per se are out of the question although she knows they are advisable. The school is offering home economics courses in addition to meeting the official curriculum. There is no place or time for addition of new courses. The home economics program gives a course in pre-natal care to the third upper elementary students. The text-book used: Healthy Babies Are Happy Babies by J.H. Kenyon and R.K. Russell.⁴ There is no emphasis placed on premature birth and no discussion on means for its prevention. A course in moral ethics includes discussion of abortion.

45% of the school population is Moslem and sex education is not welcomed by the families of this group.

Girls from 12-15 years are found in the greatest number in the first, second and third secondary grades. The school is a six year secondary.

4. Kenyon, J.H. and Russell, R.K., Healthy Babies are Happy Babies, Little, Brown and Company, Boston, copyright 1949. This text also appears as a Signet Book, published by the New American Literary of World Literature, Incorporated, New York. First printing: 1950.

Suggestions made by principal:

- Teach sex education and matters pertaining to human reproduction in clubs in which membership is voluntary.
- Teach teachers how to integrate health subjects into the study of other subjects. (Principal suggested biology as a subject which might lend itself to integration).

Physical examinations are annual and meet government requirements. No teaching program is done at these examinations.

Private School Visit II (Armenian-Beirut)

The principal (a man) says health instruction is integrated in science courses particularly in physiology. Nothing is taught about premature birth or the girl's future mother-role.

Health instruction is admittedly theoretical rather than functional and practical. The school is working with the United States' Overseas Mission to Lebanon setting up a revised home economics program. This new program, the principal hopes, will afford more opportunity for health teaching and for preparation of the girls for future family responsibilities, particularly those of child bearing.

Girls 12-15 years are in the secondary grades.

Private School Visit III (Moslem-Beirut)

The school teaches the official curriculum plus home economics and "aesthetic" courses. It is a Moslem school for girls.

The 12-15 year old girls are found in the largest number in the secondary grades.

There is simple hygiene taught in the home economics course along with other courses. Topics include: "what to eat", "keeping the body clean", "need for sleep". No text-book is used. Instruction is by lecture and the students take notes. There is no special teacher of health, each one "handling" the matter as best she can. The teachers know very little about the subject and would consider the discussion of physical development at puberty embarrassing. They have had no training for health teaching. No information on the menstrual cycle, pregnancy and so on is afforded the students and premature birth was unheard of.

The principal (a woman) holds the opinion that a great many babies die unnecessarily in Lebanon because girls have so little practical knowledge regarding family living and maternity. As she puts it, "They receive no human education". Isolated information

without insight into its application is the rule. She understands how health may be integrated but it is doubtful if the faculty, due to lack of training in health teaching, does much of this.

The schedule is loaded and nothing further can be considered in addition, however desirable, says the principal.

Physical examination and immunization routines are annual and meet the requirements of government regulations. No teaching is done at this time.

Private School Visit IV (Higher Education-Beirut)

A teacher of a family-living course states there is mention of premature birth in the general topic of maternity but the subject is not dwelt on nor its associated mortality rate. She states the time is already too short to cover what is included for study and addition of new material stands a poor chance.

Pamphlets on health subjects (United States' sources) and text-books on family-living⁵ are used in these classes which are attended by both sexes simultaneously.

Professor is sympathetic to the idea of attacking the problem of premature birth through education and is well acquainted with the subject.

-
5. The following 15 books from a bibliography of 30 references used in the above-mentioned course were examined for reference to the social problem of premature birth with its associated high neo-natal mortality rate. The subject is not treated although one text (The Marriage Handbook by Landes and Landes) includes in a reading list two texts known to the writer to include mention of prematurity.

Bowman, H.A.	- <u>Marriage for Moderns</u> (1948) - McGraw-Hill N.Y.
Becker & Hill	- <u>Family Marriage & Parenthood</u> (1948) D.C. Heath, Boston.
Foster, R.G.	- <u>Marriage & Family Relationships</u> (1950) - Macmillan Co., N.Y.
Nimkoff, M.F.	- <u>Marriage & the Family</u> (1947) - Houghton Mifflin

Private School Visit V (Higher Education-Beirut)

A professor in the field of psychology states that she doubts if the problem of premature birth is fully discussed anywhere in the curriculum. She herself discusses the topic of pregnancy and touches on prematurity within that subject in her own child development classes.

The school offers a top-flight home economic program.

The school is considering the addition of a health education course to the curriculum. One was previously offered but was discontinued.

Nothing was learned about physical examination procedures.

5. con't.

- | | |
|--------------------|---|
| Landes & Landes | - <u>The Marriage Handbook</u> (1948) -
Prentice Hall |
| Schmidler, E. | - <u>Marriage & the Family</u> (1946) -
McGraw Hill |
| Burgess & Cottrell | - <u>Predicting Success & Failure in
Marriage</u> - Prentice Hall |
| English & Pearson | - <u>Emotional Problems of Living</u> -
N.W. Norton |
| Wolf, A.W.M. | - <u>The Parent's Manual</u> (1941) -
Simon & Schuster |
| Wood, M.W. | - <u>Living Together in the Family</u> -
Amer. Home Econ. Assoc. Washington |
| Blos, Peter | - <u>The Adolescent Personality</u> (1941) -
N.Y. Appleton |
| Liebman, J. | - <u>Peace of Mind</u> (1946) - Simon & Schuster |
| Baber, R.E. | - <u>Marriage and the Family</u> (1939) -
McGraw Hill |
| Burgess & Locke | - <u>The Family from Institution to Com-
panionship</u> (1945) - American Book Co. N.Y. |

Private School Visit VI (Christian-Beirut)

The administrative assistant to the principal (a woman) received the visitor.

Health education is offered one or two hours weekly as time allows to adolescent girls in the first, second, and third secondary grades as a separate course. The purpose of the study is to teach the students (all girls) English through the reading of American text-books. There is no special teacher for these classes and emphasis is not on health but on grammar. The text-books used are:

Andress and Evans, Health and Good Citizenship
 Andress, Goldberger and Halleck, Safe and
Healthy Living
 Andress and Evans, Health and Success⁶

The books may be appropriate enough for health teaching in American schools but they are strikingly at variance with local customs and disassociated with life in Lebanon.

Nothing is taught about the menstrual cycle, pregnancy, premature birth and so on. Questions having to do with human reproduction and sex differences are handled by the individual teacher as she can and wishes to do so, probably outside of class even though the subject is not forbidden. The assistant says rapport exists between teachers and students and that they should

6. These three books are published by Ginn and Company, New York, C. 1926, C. 1939 and C. 1933 in that order.

feel no hesitancy in discussing such matters.

The Lebanese Red Cross volunteers a class for adolescents in home nursing and personal hygiene, one hour weekly. Premature birth is not a subject for discussion.

Medical examinations are done annually on the boarding students only. Certificates are required from day students. There is no health teaching done in connection with these.

The assistant says the schedule is very full since the school meets the government curriculum plus making attempts to "enrich" it. She feels the teachers would do more by way of integrating specific and general health topics if they knew how. Reference to health is made in the "science course" now given. The nature of the science course was not made known.

Private School Visit VII (Armenian-Beirut)

There is no health education per se. The principal (a man) states that what is offered is integrated into other courses of study. Birth and sex are topics discussed in science classes (biology) and as they come up. The principal himself shows no negative attitude toward a frank approach to the subjects.

Special meetings are occasionally called for all students at which outside speakers talk on health subjects.

As far as the principal knows there is no mention made of premature birth and associated high neo-natal mortality.

The school has eleven grades: the usual five elementary, and six secondary. The 12-15 year old girls are found in the largest numbers from the fourth elementary through the first secondary grades.

Private School Visit VIII (American-Beirut)

The principal (a woman) says there is no real health education in school although a very simple offering in health teaching is made in the third secondary grade. No discussion of prematurity is included. There is a course in pre-natal care (in the last years of secondary) included in the school's home economics program, but principal doubts that prematurity figures in it.

The principal feels that there is a place for health teaching within other subjects. She names biology as an example. She states the curriculum is too full now to add courses but adds that if teachers understood specific and general health problems better they would be ready and willing to integrate health teaching "when and as they could".

Suggestions made by principal:

Teach the teachers first. (Teachers are described as being "embarrassed" to teach matters pertaining to sex and human reproduction).

The principal is concerned over what she calls the lethargy of her students (all girls). She says she believes they should be "conditioned" to more active

living. She emphasizes the point the students make of menstrual periods and slight illnesses. She thinks they should be "slanted" more practically.

SUMMARY OF FINDINGSPRIVATE SCHOOLS

Much of the teaching in private schools is done by the lecture method. Text-books on health and family-living are uncommon before the college level of study. The text most commonly used in pre-natal care courses in home economics programs is that previously mentioned, Healthy Babies Are Happy Babies by J.H. Kenyon and R.K. Russell. This little book carries a chapter on prematurity and deals briefly with the "causes for early birth" and certain precautionary measures to be taken against them, though, to be sure, more space is given to the care of the premature after birth than to prevention of its early arrival.⁷ This book is in English and unfortunately written within a framework which in general bears little relationship to Lebanese groupings, containing as it does references to agencies, equipment, and systems quite foreign to Lebanon.

There is too little emphasis on the functional and social aspects of health when health instruction is offered. The exception appears to be in those schools

7. See footnote number 4, p. 90. Signet Book Edition
pp. 53-59.

attempting or succeeding in the conduct of a home economics program. In such schools some progress is being made in the area of family living and in the development of responsible attitudes toward one's own and one's family's health problems and preparation of the girl for marriage.

There is a reticence for the most part to discuss in the classroom matters pertaining to human reproduction or sex development even though school personnel sees the need for such instruction.

Public and Private Schools

In both private and public schools health education, whether as a means of saving human life by helping to prevent premature birth or in its more general aspects, appears to be considered costly in time and money. There is lack of guidance for teachers in service who are willing but unknowing. Principals regret that student teachers leave their studies without adequate preparation to teach health. The private schools seem to labor under heavy schedules and unless teachers can be aided in integrating specific and general health information into existing classes there appears little hope for introducing the subject.

If there is to be any real learning in the field of health there should be more student activity. Reading or hearing about health will not accomplish the same results. Very little teaching is apparent that involves student participation. Stimulating the child's interest and curiosity by meaningful presentation does not appear to be a common teaching method. For in neither type school is there much that is functional in present health instruction.

The writer talked with a sampling of teachers regarding methods and content of health instruction as well as with other school personnel. Some comments are included here, taken from notes made at the time or immediately following the conversations.

A principal told the writer that because her teachers shared opinions on health and disease common among the uninformed in Lebanon it remains necessary to conceal the fact that one staff member is an "arrested tuberculosis case". She said the social stigma attached to the disease by students and teachers alike would serve to isolate the person completely. Her question: how can such teachers teach health? A woman teacher told the writer she would be willing to

study the problem of premature birth but she wondered who would guide her. She suggested teachers' meetings after school hours or in the evening if health personnel could be secured to lead them. An inspectress of schools said no teaching on sex was done, that "it wasn't taught anywhere, not even in Europe". When asked if the menstrual cycle came up for discussion in a physiology class, one teacher replied that she didn't know anything about it herself and if she did it would be "embarrassing to talk about such things". She considered the school was no place for subjects of such nature, vaguely assigning responsibility to the home and the doctor. "We teach the body organs and then the bones and trace a drop of blood from the feet to the head and back. Some of the students never get it", was another comment. A man teacher believed it was "not right" for male teachers to talk on human reproduction to girls. Commonly made were the following statements: that students' families object to teaching subjects dealing with sex and reproduction; "students are not examined on those subjects anyway"; "it doesn't make any difference, people won't ever change"; that integrating health material is a new idea (although there is some willingness indicated to attempt it if shown how).

One school, visited on a day of a heavy rain storm, gives lessons in hygiene in the elementary grades which include neatness of clothing and hair, the washing of hands, the importance of exercise and fresh air. The same school affords no place for the student body for recreation or change of air during inclement weather. Students were crowded into the dark, damp, odorous corridors, standing or walking aimlessly while at the same time an old but adequate and airy auditorium, kept for "occasions", was closed to them. Teachers and students who are engaged in teaching and learning lessons in sanitation and hygiene apparently see nothing contradictory in practices such as using of one towel by dozens of students, hanging used toothbrushes in rows on hooks two centimetres apart, attending school or living in boarding dormitories in cramped, unaired quarters, doing handwork of extreme fineness in inadequately lighted rooms and huddled over their tasks with coughing, sneezing fellow students; screenless windows, open toilets quite uncared for and foul smelling.

There is no effective government school health program at the present time according to the Lebanese School Health Officer. In his words, it is in a "state of flux". The budget is not clearly determined. Salaries for medical personnel are insufficient for

full time attendance to duty. Mobile units number only four for the country. These units do some teaching in schools in the remoter areas but it is more incidental than intentional, their duty being concerned primarily with environmental sanitation and water supply. Members of the team (when possible a doctor, nurse, sanitarian, and helper) are rarely trained public health workers or teachers. Occasionally a film is sent with a mobile unit to an outlying school affected by communicable disease but this is not routine procedure.

The World Health Organization Expert Committee on School Health Service⁸ includes a healthy school environment in its six minimum requirements for an effective and balanced school health service. But not until it is better understood by educators and government that the school situation itself promotes desirable health habits and attitudes will a great deal be done to improve the present system.⁹ It is not likely that a program of school health as earlier defined by

-
8. Expert Committee on School Health Services, World Health Organization Technical Report Series, Number 30, World Health Organization, Geneva, Switzerland, 1952.
 9. Turner, C.E., Principles of Health Education, pp.5-21.

Strang¹⁰ will be realized in the near future, though efforts in that direction are being made.

It is questionable whether Lebanon is realizing even moderate success in achieving the general aims of health education as previously outlined. Health instruction of children and youth is not aimed at self improvement toward the end of "happiness and service in personal and community life". In the main, instruction appears to be concerned with a given body of scientific facts, presented in such a manner as to make it impersonal, unrelated to present and future individual and social needs. There is no emphasis on enjoyment of health today, or on health as preparation for adult personal and family living. There is no universal striving toward development of new generations of human beings, healthy in mind and body, who in turn will produce healthy contributing off-spring.

A society to survive must reproduce. Teachers are not acquainting students with the facts of this process. The facts of the human reproductive system are no more complex, intricate, or mysterious than those

10. See foot note number 4, p.69.

of any other body system. Failure to acquaint the young girl, in particular, with information to which she has a right in preparation for marriage and later motherhood, results in disservice not only to the young woman but to the future of Lebanon. Health education afforded the girl in Lebanese schools today cannot be considered adequate, denying her as it does the education which should prepare her for one of the most important duties demanded of her. Blake writing on the almost universal lack of such preparation of girls in schools has this to say:

Many girls choose marriage and motherhood as their career and begin it as soon as they leave high school. Unfortunately, many of them have had little preparation for the most socially important of all professional careers. Some girls are well prepared for marriage and parenthood because they have an opportunity to learn to be good wives and mothers and able teachers in their own homes. But there are many young women who have been denied the most valuable education of their lives.

Those girls who have not had preparation for marriage and motherhood in their own homes need educational experiences with teachers who can help them gain increased understanding of themselves, for self-understanding is fundamental to understanding others. Many high school students get everything else but this - advanced algebra, ancient, medieval and contemporary history, English, physics, chemistry and a variety of languages. They learn to write themes, to typewrite, to take

shorthand. Occasionally, they have the opportunity to learn to cook and to sew but often the requirements for graduation are so rigid that there is little opportunity for electives which would prepare them to be homemakers.

Few children in America are graduated from high school with increased understanding of themselves, human development or the factors which make for successful and happy family life. They have knowledge of plant and animal life but are woefully ignorant of human development. They know infinitely more about the life cycle of the ameba than they know about babies. Yet adolescence is the period when they are motivated to learn. The girl's wish for a baby is revived and she seeks ways to satisfy her longings. The teacher who is interested in human beings and family life gives her feminine students more than knowledge; she gives them a motherly person with whom they can identify themselves.¹¹

When reviewed in reference to the prevention and control of factors associated with premature birth and the consequent wastage of human life, the Lebanese girl's health instruction is woefully short. But the situation is not without remedy. It must be remembered that study of the total school health program in Lebanon and recommendations for over-all change is not the purpose of this paper. Rather its concern is with the particular area of health instruction, within the present or any future

11. Blake, Florence G., The Child, His Parents, and the Nurse, p.405.

program of school health education, toward the reduction of the incidence of premature birth, thereby reducing, as well, loss of human life. The following chapter undertakes to suggest specific means to this end.

CHAPTER VI

RECOMMENDATIONS FOR THE IMPROVEMENT OF
PRESENT SCHOOL HEALTH EDUCATION IN LEBANON
TOWARD THE REDUCTION OF PREMATURE BIRTH

Any attempt at revision of the present school health program, for the realization of specific or general health goals, will need the approval of the Ministry of Education whether changes in the official Program of Study are involved or not. Obviously, should the former be the case, government action would be required. But even though there is no recommended alteration in the official decree, acceptance by the Ministry of Education is basic to the solution of underlying problems met at the onset of any attempt at modification of the present program. This is clearly seen in the nature of three major problems which immediately present themselves to the reform with which this paper is concerned, i.e., introduction of specific health teaching aimed at reducing the incidence of premature birth. The problems: 1) the lack of preparation of teachers for teaching health, specifically or generally; 2) the dearth of suitable text-books for student and teacher; and 3) the traditional, negative attitude prevalent in Lebanon toward classroom presentation of subjects having to do with sex development and human reproduction.

The first limitation is by far the most important, one which demands prior attention, since properly

prepared teachers hold the key to any sound program of health education. This problem can be met, however, by: 1) improved training in health education for students in teacher-training programs, and 2) provision of skilled health educators to work with teachers in service in order to afford them reliable health data and acquaint them with methods by which such information may be integrated in scheduled courses of study.

Teacher preparation is not the subject of this paper. However, the aspect of it which influences the health education of the young girl was briefly explored. There are three public teacher-training schools in Lebanon, one for men and one for women, located in Furn-el-Shebeck, prepare elementary school teachers, and a section at the Lebanese National University prepares teachers for the secondary level. The privately operated British-Syrian Training School trains for elementary school positions those girls who elect to add one to two years, as they choose, to the five secondary grades required of all students for graduation. Graduates of other privately owned and operated institutions, the Beirut College for Women and the American University of Beirut (having its own education department), frequently enter the teaching profession. Yet none of the institutions offer health education courses which specifically prepare the student

to teach health in the schools employing them. The Lebanese National University, however, has during the past year, provided for seniors in its teacher training program a hygiene course based on a plan formulated by personnel in the Department of Health Education, United States' Overseas Mission to Lebanon,¹ and students make occasional field trips. Although human reproduction is not included as a subject nor the specific personal and social problem of premature birth, this particular course of study presents the most functional, practical material for teachers the writer has seen to date in Lebanon.

Waterman says that people cannot be forced to live healthful lives, that the longer method of teaching to that end must be used to create real desire to live in such a manner as to develop and preserve health.² But how can Lebanese teachers accomplish this if they lack the necessary information and skills? There is a long-term in which teachers can help to bring health practice and attitudes in school and at home closely together by giving today's students a sound, general understanding of health. But Lebanese teachers cannot contribute anything worthwhile to this end unless they first have the

1. See Appendix III, p. 151.

2. Waterman, Theda L., Nursing for Community Health, p. 353.

necessary preparation. Setting up a health curriculum which coordinates health with other features of the school, requires education personnel whose preparation fits them for the task. Where is this preparation to be had?

Because the teacher is so important to any school health program, teacher-training centers need extensive programs of health education with courses in personal and community health required of all prospective teachers. Healthy themselves, teachers should possess accurate recent information about health and the principles of healthful living.³ Marjorie Young writing for the Journal of Public Health says:

Any curriculum designed for prospective teachers should have a dual purpose: it should emphasize **the knowledge, skills and attitudes the teachers will need to safe-guard their own health** and it should include professional information and experiences in order to protect the health of their future students.⁴

Many colleges in the United States now include

-
3. National Committee on School Health Policies, Suggested School Health Policies, p. 39-40
 4. Young, Marjorie, "A Study of College Health Programs for Prospective Teachers", American Journal of Public Health and the Nation's Health, 44: 211, February 1954.

courses in preparation for marriage in their curricula, open to both sexes. The American University of Beirut and the Beirut College for Women are examples in Lebanon of institutions offering such a course. In the opinion of the writer this type of course, whether offered to men and women jointly or separately, should be included in the preparation of all teachers of young girls in Lebanese schools.

What is true of student preparation is equally true of teachers now employed. It should be the responsibility of school administration to provide programs for teachers in service to bring them up-to-date on health instruction. For such ends persons skilled in health education should be attached to the Ministries of Education and of Health and their services made available to school principals and teachers. Principals of schools, also, may find it profitable to encourage panel discussions on health topics of special or general nature with doctors, nurses, teachers, parents, sociologists, psychiatrists, nutritionists, social welfare workers, and so on, contributing. Work-shops, also, afford splendid opportunity to introduce health information and the techniques of health teaching.

The teacher in service, as with the student teacher,

should be guided in methods of integrating material into scheduled courses of study, to the end that health becomes part and parcel of the student's experience and not isolated matter made up of scientific facts to be learned by rote. Teachers, too, must be made aware of the best ways to develop in the student comprehension of the social and economic conditions so often a background to health factors and which figure so largely in the incidence of premature birth.

Programs of in-service education should provide for both professional health personnel and for teachers. Parts of such programs should bring together the different professional groups engaged in school activities; other parts are conducted most appropriately through meetings of groups with similar interests and backgrounds. Systematic attention to periodical and standard literature will also prove useful.⁵

Particular attention is called to the merits of the last suggestion in this quotation.

In Lebanon at the present time there is a program of in-service education for teachers being conducted by the Health Education Department of the United States' Overseas Mission to Lebanon (Point IV). This program provides for an annual visit by health workers to each

5. National Committee on School Health Policies, op. cit., p. 40.

of the country's districts. A doctor, health educator, and such additional health personnel as the particular visit calls for, make the contact. This visit takes the form of a conference and lasts from one to three days. It is attended by as many teachers from nearby schools as find it possible to gather at a centrally located point. Advance word is given as to the time of arrival of the team and preliminary preparation of questions by the teachers is encouraged. General discussion material is based on replies made by the teachers to a questionnaire previously submitted to them by the same Health Education Department. This questionnaire is aimed at ascertaining health problems with which teachers themselves wish help. The program attempts to develop better understanding of the teacher's role as health educator.

While still in its infancy and far from perfected, the program has much to recommend it for permanency. It might well serve as a model for future government programs of in-service training of teachers. The health content of the conference discussions does not include sex development or human reproduction, however, and there is nothing at all taught about premature birth, the factors influencing it or the toll it takes in human life.

Attention is called to the need for preparation of teachers in the use of audio-visual aids. There are few who will not concede the contribution of such materials to present day teaching. Student-teachers and in-service teachers should be made aware of the many kinds of audio-visual aids and the use of them as complimentary to, not as substitution for, good teaching. The use of audio-visual aids lends interest to subject matter and in Lebanon's schools today the rigidity of the traditional method could be relieved by employing them. The error is too often made in thinking of audio-visual aids solely in terms of films and while teacher-training should include instruction in the use of the motion picture, film strip, and lantern slide, there should also be included instruction leading to skill in planning and executing aids of other types such as exhibits, models, charts, posters, bulletin boards, puppet shows, field excursions and so on. It is not uncommon for teachers to fail to make use of what is available to them because they are not aware it exists or because they feel incompetent at manipulation.

The field of health is particularly rich in audio-visual aids and Lebanese teachers have at their disposal some excellent sources of supply. It is

suggested that application to the two large medical teaching centers in Beirut might net profitable returns in the loan of suitable models, posters, slides, films and the like, for class-room use. Professional personnel is available for demonstration of points in health lessons. Lebanon as a member nation in the World Health Organization has another source of professional health guidance and audio-visual aids. Information on these matters is to be had for the asking from the Lebanese Ministry of Health. Documentary films on health subjects, with Arabic, French and English sound tracks, including material on maternal health, normal birth and the menstrual cycle, are available upon request at the United States' Information Service, Beirut. Arrangements for free loans can be made not only of the films selected, but for their transport, a suitable projector, and a skilled operator to present them.

Teacher preparation in the area of audio-visual aids to education is definitely indicated. Furthermore, the Ministries of Education and Health should be responsible for allocating the necessary funds for the purchase of such aids for use in the training of teachers and in the elementary and secondary schools.

Before concluding the brief for better preparation of teachers for health teaching in the schools, a comment should be made on a recent trend in school health education in the United States. It is becoming increasingly more common for school authorities to attach student teachers and teachers already in service to school health nurses in the latter's home visiting program. The purpose, of course, is to acquaint the teacher with the pupil's home situation and to promote better understanding between pupil, family and teacher. Such a plan does not appear possible at the present time in Lebanon. Public health nurses are only now appearing on the scene and well organized school health services are not as yet developed to the point where there is employment of school health nurses. But whenever possible efforts should be encouraged to make visits to students' homes a part of teacher-experience, even though they must be made by the teachers on their own.

The second problem also demands immediate attention.

There is a shortage of pertinent health reference material available to Lebanese teachers. Up-to-date texts in the original language or translations in Arabic are necessary for improved health preparation of teachers. This short-coming is more readily remedied, however, than

is the lack of textbooks for school children. But both deficiencies demand the attention of school authorities.

Students' textbooks on health subjects, in Arabic, concerned with Lebanese ways of life, not mere translations of French, English or American school books, are needed. Persons qualified to do so should be employed to write books fitted to the needs of the children for whom they are intended. There should be simplicity of expression employed in the writing, but at the same time they must contain only scientifically accurate information. Health attitudes and behavior rather than facts for memorization should be emphasized and locally pertinent illustrations used. No time should be lost in solving this problem.

The third problem, the prevailing, negative attitude toward classroom instruction in human reproduction and sex development presents a real impediment to the improvement of the present health program for girls in Lebanon. This reticence on the part of everyone concerned, students, teachers, and families alike, to discuss a body function that is no more mysterious or intricate than any other body function, has a most crippling effect. But school administrators and teachers

must find ways and means of working out this problem.

Sex needs no apology. For the continuation of the human species it is no more likely that man's sex needs will be abated than that his food needs will be eliminated.Any discussion of sex or reproduction in school should be conducted with dignity and discretion.⁶

One principal of a private school advanced the suggestion that girls' clubs, school sponsored, offering voluntary membership and meeting after school hours, might present a solution to the problem. The suggestion deserves consideration since it has some merit. For example, the presentation of films which might otherwise be impossible during a class hour could be made and such groups do lend themselves well to frank and open discussion if properly guided. However, it is difficult to see how the real issue can be avoided. An improved health program for girls cannot be achieved if such fundamental topics are prohibited in the class room. Preparation for marriage makes it mandatory that the girl possess full knowledge about the facts of conception and child-birth. To insure normal infants she must be made aware of factors which may jeopardize her future

6. National Education Association and the American Medical Association Joint Committee on Problems in Health Education, Health Education, p. 57-58.

off-spring. The time comes when it is necessary to superimpose on the foundation of bare scientific facts she is now receiving the more specific and intimate instruction which will help her apply these scientific facts to the preparation of her body for the child-bearing function.

Disregard of public opinion, riding rough-shod over traditional attitudes, is not the answer. The change must be brought about through the lengthier method of teaching. It will take skillful handling of the tabooed subjects by teachers with proper knowledge of the facts and ability to present them with dignity and understanding. The effect on the family of the child in school should not be underestimated. It is suggested here that the family through the child's experience as related in the home, will come to realize that instruction of this nature protects the child, her future off-spring and, therefore, the family. There should follow, then, a gradual acceptance of the admission of such instruction in classrooms.

All schools, and particularly is this true of the private schools seeking to enrich their course of study, appear to be heavily scheduled. Because of this, added

courses in health, stand very little chance of being adopted at this time. The suggestion having the most to recommend it for the present, as a first step, is that which proposes to integrate health information, specific or general, into presently scheduled courses.

Both public and private Lebanese schools generally follow the government decreed curriculum, although private schools are not as yet legally required to do so. Recommended areas of integration within the curriculum's framework, therefore, apply to both types of school.

Recommendations included here were made after a careful review of the official Program of Studies, extending from the second elementary grade (where the Lebanese girl at puberty begins to make her appearance) through the last year of the secondary level. In reading the recommendations a point must be born in mind. The need for over-all improvement in the school health program in Lebanon has been recognized throughout this paper. But the primary concern here is with the more specific subject of education's responsibility in salvaging human life through more effective teaching toward modification and control of factors commonly associated with premature birth.

Most of the information to which the girl has a right should be given in the course of studying anatomy, physiology, the natural sciences (particularly biology), personal hygiene, and so on. There are other areas which adapt themselves peculiarly well to the more specific and intimate instruction of the girl for later mother roles. The opportunities presented anywhere in the curriculum should be made the most of for there is no time in a girl's life when she is more ready for education to this end than at the age of puberty. Blake in her recent book, The Child, His Parents and the Nurse, has an important comment to make on this subject:

The wish for a child has its origin in the early years of the child's life....The little girl finds interest in play with dolls. In her second year she is observed mothering her dolls. She assumes a mother role and makes her dolls her babies.When pubertal changes come the girls wish for a child is revived. In adolescence the wish is threatening and even dangerous due to reality limitations and social standards. Because reality limitations exist, the drive or wish becomes sublimated into constructive activities where she can play the role of substitute mother. At this period she is interested in children and child care. She seeks care of neighborhood children for it gives her some of the gratification for which she longs. It is at this period that preparation

for marriage and child care should be given although experiences with her family have been preparing her for them from the moment of her birth. In adolescence a girl's interest and receptiveness are at a peak. She is motivated to learn and is an apt pupil at this time because instruction fulfills a need which has deep meaning for her.⁷

The following recommendations are specific to this end.

There are two areas within the school curriculum that are "naturals" for more effective health teaching of girls. These are the annual medical examinations required of all students in Lebanese schools and the physical education program also required throughout. These are dealt with separately here.

School Physical Examinations

Much importance is attached to the school physical examination in Lebanese schools, particularly at the elementary level, yet as they are now conducted they have little or no educational value. It is suggested

7. Blake, Florence G., The Child, His Parents and the Nurse, pp. 31; 35.

that in keeping with modern theory these examinations, in order to be more effective in character, be made a part of the total school program. It is recommended that examinations be done during the school day, so scheduled as to permit teachers to be present with the doctor and nurse as they examine students. Teachers are in a position to contribute much that is of value to examining personnel by way of information symptomatic in nature. By working closely with the professional health team a teacher finds herself better able to interpret the student's school progress in the light of the findings of a thorough medical examination. She is also better prepared to interpret these findings, and advised procedures prescribed, to the child and the child's family.

The doctor should be made more aware of the new role he is called upon to play in modern school health practice. He no longer makes his sole contribution by perfunctory, impersonal examinations of a few minutes' duration. Together with the teacher and the nurse the modern school health physician responds to the girl as a future mother and is aware that wise counsel to that end is often more important than the prescription blank. As

Strang says, the work of the school physician should be, correctly, directed toward the protection and promotion of the present and future health of pupils.⁸ The school physician and the nurse need to identify themselves more closely with the child's total education. The mechanical aspects of the school plant should be familiar to them, its classrooms, dining halls, rest-rooms, playgrounds, and so forth. A full-time school health physician will find that visits to the homes of pupils accompanied by a nurse or teacher will serve to bring the home situation into closer relationship to the school. However, extreme caution must be exercised in such a program lest the medical visits be interpreted as competition by doctors in private practice.

Careful and thorough examination of girls for the purpose of screening the handicapped is necessary, since disease is so commonly associated with premature birth. Finding a young girl with a diseased heart, for example, may mean not only her immediate health but that of a future infant. Diabetes, syphilis, tuberculosis are detectable. The factor of disease can be modified, controlled and prevented. What better place to begin than during the examination period? Examination, explanation

8. Strang, Ruth, "Health Education", Encyclopedia of Educational Research, p. 563.

and follow-up are required.

Advance preparation of girls for the school medical examinations might well include discussion of the physiology of menstruation and the showing of suitable documentary films.⁹ Couched in easy, accurate terms and with a dignified vocabulary, such health instruction can encourage a questioning attitude and remove the aura of mystery which so often surrounds this natural physiological process. The relation between continued physical fitness and emotional well-being and later mother roles can be established at this time. It is suggested that school administration call upon professional health people to assist with such preparatory programs in order to secure the most benefit from them.

Lastly, the importance of records must be emphasized. Health records should be kept for each school girl by responsible school personnel. Attention should be paid to those factors which are frequently associated with prematurity. Noted on these records should be any physical abnormality, such history of family or individual disease as is ascertainable, the social and

9. Recommended are the documentary films at the United States' Information Service, Beirut. Special reference is made to the films, The Physiology of Normal Menstruation and the International Cellucotton Company's Story of Menstruation.

economic standing of the family, any occasion of twinning in the family, serious illness of long standing which might be interpreted as heart disease, rheumatic fever, tuberculosis, et cetera. Well-kept health records to which reference may be made in later years by community agencies other than the school are a valuable and much needed contribution to proper pre-natal care.

Opportunities for health instruction growing out of the school medical examination with doctor, teacher, nurse, child and parent co-operating appear to be limitless when any amount of thought is given to the procedure.

Physical Education

A second "natural" area for more effective health teaching of the young girls in Lebanese schools is that of physical education. This course of study is required of Lebanese girls throughout their school life and it should be made to mean more than a series of tumblings and pyramids. Opportunities are rife in this field and its segregated nature makes the presentation of taboo-ed subjects easier.

Sex education may be wisely introduced here,

including, as Cromwell suggests, "those aspects of human behaviour which make for desirable boy-girl relationships as well as an understanding of physical and emotional maturation."¹⁰ The hygiene of menstruation and the advisability of early correction of physical defects also find a natural place as does teaching of the deleterious effects now and on pregnancy later in life, of improper diet, over-exercise and exhaustion. Counsel should be given on the wisdom of seeking medical care when the body is called upon to carry excessive burdens, as in the case of pregnancy. The desirability of pre-marital medical examinations bears emphasis and early pre-natal care.

Information about specific factors commonly associated with premature birth and their modification and control may be integrated in many present courses of study in the official curriculum without entailing excessive alteration or additions. For example, the natural sciences, particularly biology and physiology courses, should afford information on human reproduction as well as information on the recurrent tendency

10. Cromwell, Gertrude E., The Health of the School Child, p. 160.

of multiple births and premature delivery, the causal factors of faulty conception, and so forth. Proper diet in pregnancy, particularly protein consumption, and anemia in pregnancy have a proper place in home economics, agricultural studies of food, and nutrition courses. Bleeding in pregnancy, diabetes, anemia, heart disease, abnormalities of the birth canal and their influence on pregnancy may readily be included in the study of anatomy and physiology. And study of personal and community hygiene should give practical definition to the effects of infectious disease on present health and future pregnancies, point up the necessity for immunization against them, and lay special stress on prompt diagnosis and treatment of venereal disease. An outline of opportunities within the curriculum as the curriculum now stands, included at the close of this chapter, is offered with this type of integration in mind.

Whenever possible, students should participate actively in the learning process. Demonstrations with white mice in order to investigate the effects of nutrition are popular with students everywhere. Field trips to public health centers, obstetrical clinics, a hospital delivery room, an obstetrician's office, and a

tuberculosis sanatorium are sound educational practice. The writing of playlets on health subjects, the creation of posters relating to pre-natal instruction and the writing or illustrating of simple health primers for children afford rich opportunities for student participation. Work-shops on week-ends or during summer camp-time, student panel discussions, and study clubs offer a variety of activities. X-ray films of unborn twins, triplets, or singlets when explained by a skilled interpreter are an excellent source for study of pregnancy. A student may wish to make a study of the diet of a pregnant member of the family or a friend, evaluating the diet in the light of what is known at present about values of foods in the Middle East. These are some of the several ways in which students can make health material personally meaningful and alive.

Finally, it must be pointed out that what is possible by way of integrating specific health information can be done with the more general topic as well. Teachers do not need to be medically trained to accomplish the task. What is required, however, is an ability to recognize the relationship between good health and social efficiency; to see health as more than physical fitness and as "a state of complete physical, mental and social well being". A properly prepared

teacher with this attitude toward health, a genuine interest and a little ingenuity, making use of available professional health personnel and authoritative health reference materials, can provide, together with student co-operation, interesting and functionally valuable experience in health education.

SPECIFICALLY RECOMMENDED AREAS FOR THE INTEGRATION
OF INSTRUCTION TOWARD PREVENTION OF PREMATURE BIRTH
IN THE PRESENT OFFICIAL PROGRAM OF STUDIES

Elementary Cycle

Second year:

Annual Medical Physical Examinations
Physical Education
Program of Object Lessons: simple facts about the human body,....how to keep clean....
(effect of disease on pregnancy, menstrual cycle, conception)
Program of Manual Works: handwork
(creation of layettes afford opportunity to discuss motherhood responsibilities)
Agricultural Program: theoretical studies: (diet in pregnancy) (cereals, vegetables....)

Third year:

Annual Medical Physical Examinations
Physical Education
Program of Object Lessons: give the students necessary facts about the human body....bones....five sense organs....blood circulation....
(reproductive function; effect of disease on pregnancy)
Food and drink:.....
(dietary habits affecting future pregnancies and present health)

Fourth year:

Annual Medical Physical Examinations

Physical Education

Program of Object Lessons: simple facts about the important organs....respiration, circulation, digestion, practical hygiene.... (reproductive function, menstruation, disease and pregnancy)

Program of Manual Works: handwork (as previously stated)

Agricultural Program: practical studies with foods.... (diet and pregnancy)

Program of Housekeeping: general information about home economics....care of the sick.... (seeking early medical advice in pregnancy, premature birth, negative signs in pregnancy, diet, meaning of good pre-natal care)

Fifth year:

Annual Medical Physical Examinations

Physical Education

Program of Object Lessons: nature study....the skeleton, the muscles, circulation....respiration.... (human reproduction, sex development, multiple births, faulty results of pregnancy)

Program of Manual Works: handwork.... (as previously stated)

Program of Housekeeping: general information about home economics (pre-marital examinations, medical care early in pregnancy, nature of premature birth..)

Agricultural Program: practical studies.... (importance of good dietary habits, affect on pregnancy)

Moral and National Lessons: elementary notions and general principles....public security.... (need for community interest in problem of prematurity, social effect of high neo-natal mortality, need for better housing....)

Secondary Cycle

First year:

Annual Medical Examinations

Physical Education

- Program of Ethics and Civics:....
 (responsible attitudes toward health as a social function, community responsibility for salvaging human life, reduction of premature birth incidence and provision of health agencies for care of pregnant women)
- Program of Physics, Chemistry, Natural Sciences: detailed study of man....
 (human reproduction, incidence of prematurity, effects of diet, disease, overwork, on results of pregnancy....)
- Program of Manual Works: handwork....
 (use time spent in creating layettes, maternity wear, etc., for discussions on child-bearing, full-term pregnancies)

Second year:

- Annual Medical Examinations
 Physical Education
 Program of Physics, Chemistry, Natural Science: botany....zoology....
 (nature of reproduction in plants, animals, human beings)
- Program of Manual Works: handwork....
 (as previously stated)

Third year:

- Annual Medical Examinations
 Physical Education
 Program of Physics, Chemistry, Natural Science: hygiene....
 (human reproduction, socio-economic influences on pregnancy results, control and prevention of disease, improper diet, effects of over-work and exhaustion....)
- Program of Ethics and Civics: respect for life and the duties it imposes....
 (as previously stated)
- Program of Manual Works: handwork
 (as previously stated)

Fourth year:

- Annual Medical Examinations
 Physical Education
 Program of Physics, Chemistry, Natural Sciences: animal anatomy and physiology....

(human reproduction, conception, child growth, development and birth, nature of premature birth
 Program of Manual Works: handwork....
 (as previously stated)

Fifth year:

Annual Medical Examinations
 Physical Education
 Program of Manual Works:
 (as previously stated)

Sixth year:

Annual Medical Examinations
 Physical Education

(No Natural Science or Program in Morals and Civics offered.)

Seventh year:

Annual Medical Examinations
 Physical Education
 Psychology:

(child growth and development from conception onward)

Ethics: family ethics....civic and political ethics....

(moral responsibility for the prevention of premature birth, disrupting effect of neo-natal mortality on family and society)

(community responsibility in salvaging human lives, provision of adequate pre-natal services for pregnant women, improvement of housing conditions, employment conditions, etc.)

Program of Natural Sciences and Hygiene: human anatomy and physiology....hygiene and prophylaxis....
 (sex development and human reproduction, multiple birth, premature birth, deleterious effect of poor hygiene, disease, etc. on pregnancy results)

CHAPTER VII

COMMUNITY EDUCATION; FURTHER RECOMMENDATIONS

An enlightened public is necessary if individual and community health is to be realized. Understanding and support from community members make possible the carry-over into everyday living the health practices learned in the school. If girls are to apply what they have learned in school about preservation of health, normal pregnancy, and factors which may threaten it, they must have parents, in-laws, and other adults around them who are aware of the problems.

In other words, there must be community education to this end in rural and urban areas alike. It is suggested that in the absence of government health agencies the school could rightfully assume leadership in educating the community in ways of reducing loss of life due to premature birth. While education is by no means confined to the school, and in its broadest sense extends far beyond the classroom, the school continues to remain the primary organized institution within the community where it exists and is itself a public health agent with considerable opportunity for community leadership.

Because of this, the writer recommends the formation, with the encouragement of the Ministry of Education

and the Ministry of Health, by every school in Lebanon of a school health council or health committee. Such councils are invaluable in promoting community education.

Councils of this type serve the triple purpose of: 1) planning and implementing school health programs; 2) through their representatives in a larger body, act as advisors to the Ministry; and, 3) educate the public which elected them to the council.

Membership of a council should include not only professional education and health personnel, but lay people as well: parents, representatives of the various social, religious, business and financial groups, and representatives of any official or voluntary community health organization operating in the area. Herein is the strength of a council in community education. Frequently community lay men, leaders in their society, are associated with private groups which they are in a position to influence. The Young Women's Christian and the Young Women's Moslem groups are examples of such private organizations as are the Girl Scouts, the teen-age and Women's clubs, orphanage societies, church circles and so on. The value of such organized groups in a program aimed at reducing loss of life by preventing premature birth cannot be exaggerated. For these groups offer a

diversity of channels for adult education: membership discussions, facilities for night classes for parents and others not in school, facilities for reaching the press, the radio and other wide-spread organs of education, for raising funds. They are in a position to "energize" others to community action. If there is no government support given a community in providing proper pre-natal education and care and supervision and appropriate clinic and hospitalization or home delivery services, the responsibility must be met by lay volunteer social, health and welfare organizations. Through school leadership these may be activated for the promotion of specific or general health programs.

Concluding the recommendations, the writer lists the following as areas for research. Each has definite relation to the topic of this thesis though not limited by it.¹

1. An evaluation of the total school health program leading to recommendations for the setting up of health education policies more in keeping with modern theory and practice is indicated. Caution must be

1. See pages 22-24 for other recommendations.

observed, however, in any study having reform as its aim. The fact must be kept in mind that final success of any recommended program depends upon its being locally fitting, acceptable and workable. Attempting to supplant Lebanon's present program of health education with unmodified programs from other countries is to court failure. It is undoubtedly true, for example, that the United States' developing school health program holds merit for school systems everywhere, but direct application of such a program is not always practical or desirable elsewhere. The evaluation requires careful study and weighing of local needs, readiness, interests and potentials. A thorough evaluation of all Lebanese school plants, private and public, as instruments for health teaching should be included in the larger study.

2. There should be a study done on pubescence in the Lebanese youth.
3. A study of the average birthweight of Lebanese infants is indicated as needed, particularly if there is to be further study of premature birth and neo-natal death.
4. The character and amount of present prenatal care offered in the area as well as the nature of the agencies affording it, present an essential area for study.

5. Research is needed on a much larger and less select sampling of premature births than this study affords in order to establish statistics in Lebanon. These statistics should serve to assist those grappling with the problem and serve, as well, in comparative studies with premature birth rates in other countries.

6. A thorough study of present preparation of teachers, in-service and student-teachers, for health teaching in the schools is recommended. It is suggested that pre-testing teachers and student-teachers in order to learn their present health knowledge and attitudes toward personal and community health should accompany the study.

APPENDIX

APPENDIX I

Hospital fees and number of beds in room by class admission (prior to February 1954): (Study made at American University Hospital, Beirut, Lebanon, 1954)				
Charge in Lebanese pounds for:	Class I	Class II	Class III	(Only non-teaching cases indicated here): Class IV
Room by day	35	25	10	50 total for stay
Delivery Room	35	25	15	
Anesthesia	20	10	5	
Laboratory Room	35	25	10	
Obstetrician	500	300	150	
X-Rays	Varies according to service, size of film; maximum: 75; minimum: 13			
Antibiotics	Standard price for all			
Floor medications	No charge for any class			
Dressings	No charge for any class			
Number of beds in room	1	2-3	8	8

APPENDIX II

Basic information recommended for inclusion
in the University Hospital's obstetrical records:

1. RECORD OF MOTHERS:

Full name

Date of admission

Full address

Nationality

Religious faith

Hospital number

-number of previous hospital admissions

Out-Patient Department number

Married or single

Age

Education

Occupation (housewife, gainfully employed, etc.)

Occupation of husband

History of or presence of:

-acute or chronic diseases or disorders

-traumatic injury during pregnancy

-non-obstetrical surgery during pregnancy

-abnormalities of birth tract

-vaginal bleeding during pregnancy
(character and duration)

-symptoms of toxemia and degree

-malnutrition (dietary habits)

History of any previous pregnancies:

-number of _____

-full term _____ number of _____

-premature _____ number of _____ number still
living _____ first born _____

-stillbirths _____ number of _____ premature _____
full term _____

-abortions _____ number of _____ spontaneous _____
therapeutic _____ self-induced _____

-multiple births _____ type of _____

-others _____

Laboratory reports:

-urinalysis (sugar and albumen)

-Wasserman, Kahn, V.D.R.L.

-R.B.C.

-others

2. RECORD OF UTERINE DELIVERY:

Date of delivery

Method of delivery

Condition at birth

Weight at birth

Measurements (heel-crown)

Sex

Single or multiple birth

Type of presentation

Cord abnormalities

Order of parity

Condition during hospitalization

Condition upon end of observation for a
clearly defined and uniform period of
follow-up.

3. INFORMATION ON BOTH MOTHER AND UTERINE DELIVERY:

Statement of findings of any X-Ray examination

Statement of pathological examination
findings in case of death of mother
or infant.

Statement as to cause of death of
mother and/or infant.

APPENDIX III

The Basis of a Plan for Teaching Hygiene
in the
Teacher Training College

(From the Department of Health Education, United States Overseas Mission to Lebanon, Beirut, 1953)

1. Model school for teaching hygiene: the building; relative heights of seat and desk; room capacity; quantity of air per person during study periods; water closets; bathroom; bed; playgrounds; drinking water; assembly halls; first-aid room.
2. Teachers' duties in elementary schools during an epidemic.
3. Students' duties and responsibilities in elementary schools during an epidemic.
4. The needed hygiene precautions which a Lebanese school should observe. Duties of parents and administration heads of elementary schools during an epidemic; the same for secondary schools.
5. Discussion of the teacher's duty during an epidemic in a Lebanese school (methods of prevention); measles, typhoid, tonsillitis, mumps, small-

- pox, grippe, scarlet fever, diphtheria, three-days' fever, whooping cough, tuberculosis, dysentery, trachoma, common cold, diarrhea, venereal disease, scabies.
6. Contents of a school pharmacy.
 7. School vaccination; natural and acquired immunity; indicated time for and methods of vaccination.
 8. Circumcision.
 9. Handling of emergencies such as headache, vomiting, epistaxis, fainting, constipation or other disorders of the gastro-intestinal tract.
 10. First-aid techniques and measures: cuts or wounds, burns, sprains, fractures, dislocations, fainting, drowning, artificial respiration, hemorrhage, cramps.
 11. Bandaging: methods, techniques of application to wrist, head, shoulder, etc.
 12. Food and nourishment.
 13. Food poisoning.
 14. Drinking water: purification for safety; during epidemics.
 15. Reproduction system: its relation to a healthy new generation.
 16. Effect of healthy glands on the mentality and

- physical development of the students.
17. Heredity: diseases which are inherited and in what ways; duties of the teacher in preventing this inheritance.
 18. Physical examination: methods used; benefits gained by.
 19. Vitamins: kinds of; foods containing vitamins; effect of on growth; diseases caused by lack of; teachers' role in preventing occurrence of such diseases; effect on standard of thinking in students.
 20. Proteins, fats, starch and sugars: value of; foods containing these; daily intake recommended for teacher and student.
 21. Digestive organs: discussion of how nutrition takes place; its relation to periods of rest at school; the liver, its functions and diseases; prevention of jaundice in school.
 22. Heart and circulatory system: teacher's role in preventing serious heart diseases in himself and among students; method of improving student growth through improvement of the circulatory system.
 23. Nervous system: working of; accustoming this system to the work of study.

24. Simple study of psychology of different aged students in Lebanese schools. Understanding student psychology and its relation to the various studies open for discussion in the curricula.
25. Respiratory system: teacher's role in maintaining fresh air supply for students during study periods; relation between respiration and thinking among students.
26. Muscles: physical exercises for students and teachers to develop good muscles and to be healthy.
27. Man's frame-work: obtaining good physical stature and good posture.
28. Proper times for work, rest, sleep, study.
29. Quantity of nourishment obtainable at the lowest cost to students and teachers in Lebanese seaports (Beirut, Sidon, Tripoli, Tyre, etc.) and in the mountain villages.
30. Study of cost of foods per day in Lebanese cities and villages; effect on growth.
31. For those suffering from diabetes, albumenuria, anemia, food lists.
32. Foods assuring proper protein, sugar, starch, fats and vitamins intake.

33. Some pills a teacher should know with which he can prevent spread of some diseases in Lebanese schools (like diphtheria).
34. Relationship of the school and the community; school's role in development of hygienic thinking.
35. Worms: various kinds found in Lebanese students; source of; transmission of; riddance of; effect on health; of teachers and students; self cures.
36. Smoking, alcoholic beverages: effects of on the students and teachers health.
37. Care during pregnancy.
38. Care of the eyes, ears and nose.
39. Care of the skin; physical cleanliness.
40. Cleanliness of the school, the teacher and the students; relation to general health; clothes, rooms, tables, etc.
41. Sewers: kinds of; the best kind; least expensive; possiblity and methods of building sewers and
42. Garbage: source, care and disposal of; correct disposal of.
43. Malaria: war on mosquitoes.
44. School physician; school nurse; school sick room.
45. Practical observance by the teacher of deficiencies in the general health conditions of members of the student body.

B I B L I O G R A P H Y

BOOKS:

American Association of School Administrators, Health in Schools: Twentieth Yearbook, Department of the National Education Association of the United States, Washington, District of Columbia 1942.

American Medical Association, Handbook of Nutrition: A Symposium, second edition, Blakiston Company, New York 1951.

Blake, Florence G., The Child, His Parents and the Nurse, J.B. Lippincott and Company, Philadelphia 1954.

Brubacher, John S., History of the Problems of Education, McGraw Hill Company, New York 1947.

Cecil, Russell L. and Kennedy, Foster, Textbook of Medicine, sixth edition, Saunders and Company, Philadelphia 1944.

Chaney, Margaret and Ahlorn, Margaret, Nutrition, fourth edition, Houghton, Mifflin and Company 1949.

Cromwell, Gertrude E., The Health of the School Child, Saunders and Company, Philadelphia 1946.

Davis, M. Edward and Carmon, Mabel C., DeLee's Obstetrics for Nurses, thirteenth edition, Saunders and Company, Philadelphia 1945.

Dunham, Ethel C., Premature Infants: a manual for physicians, Children's Bureau publication number 325, United States Printing Office, Washington, District of Columbia 1948.

Ginsburg, Ethel L., Public Health Is People, Harvard University Press, Cambridge, Massachusetts 1950.

Hiscock, Ira V., Community Health Organization, Harvard University Press, Cambridge 1950.

Kenyon, J.H. and Russell, R.K., Healthy Babies Are Happy Babies, fourth edition, Little, Brown and Company, Boston 1949.

National Committee on School Health Policies, Suggested School Health Policies: A Charter for School Health, second edition, Health Education Council, New York 1948.

National Education Association's Home Economics Department and the Society for Curriculum Study Joint Committee on: Curriculum Aspects of Education for Home and Family, Family Living and Our Schools, D. Appleton-Century Company, New York 1941.

National Education Association and the American Medical Association Joint Committee on Problems in Health Education, Health Education, fourth edition, edited by C.C. Wilson, National Education Association of the United States, Washington, District of Columbia 1948.

Turner, C.E., Principles of Health Education, second edition, D.C. Heath and Company, New York 1933.

United States Children's Bureau, Prenatal Care, Children's Bureau Publication Number 4, United States Printing Office, Washington, District of Columbia 1948.

Waterman, Theda L., Nursing for Community Health, F.A. Davis Company, Philadelphia 1947.

Williams, J.F., Healthful Living, MacMillan Company, New York 1947.

PERIODICALS:

Anderson, Nina A., Brown, Estelle W., Lyon, R.A., "Causes of Prematurity. III. Influence of Race and Sex on Duration of Gestation and Weight at Birth", American Journal of the Diseases of Children, 65: 523-534, April 1943.

Anderson, Nina A. and Lyon, R.A., "Causes of Prematurity. I. Review of the Literature", American Journal of the Diseases of Children, 58: 586-594, September 1939.

Antonov, A.N., "Children Born during the Seige of Leningrad in 1942", Journal of Pediatrics, 30: 250-254, March 1947.

Beck, Alfred C., "The Obstetrician's Responsibility for the Hazards of the First Few Days of Life, with Special Reference to Anoxia and Prematurity", American Journal of Obstetrics and Gynecology, 51: 173-183, February 1946.

Benensohn, S. J., "Pregnancy in the Syphilitic Mother: A study of 935 Pregnancies at the Cook County Hospital", American Journal of Obstetrics and Gynecology, 43: 508-520, March 1942.

Bracket, Alice and Price, Bronson, "Main Causes of Infant Mortality", Nursing Outlook, 1: 355:357, June 1953.

Breese, B.B., Jr., "Influence of Factors before and at Time of Delivery on Premature Delivery", Journal of Pediatrics, 12: 648-663, May 1938.

Burke, Bertha S., "Diet and Nutrition During Pregnancy", American Journal of Nursing, 52: 1378-1381, November 1952.

Burke, Bertha S., Beal, Virginia A., Kirkwood, Samuel B. and Stuart, Harold C., "Nutrition Studies During Pregnancy. I. Methods of Study and Group Studied. II. Relation of Prenatal Nutrition to Life. III. Relation of Prenatal Nutrition to Pregnancy, Labor, Delivery and the Post-partum Period", American Journal of Obstetrics and Gynecology, 46: 38-53, July 1943

Burke, Bertha S., Harding, Vermette Vickers and Stuart, Harold C., "Nutrition Studies during Pregnancy. IV. Relation of Protein Content of Mothers' Diets during Pregnancy to Birth Length and Birth Weight and Condition of Infant at Birth", Journal of Pediatrics, 23: 506-515, November 1943

Dieckman, William J. "Fetal Mortality in Breech Delivery", American Journal of Obstetrics and Gynecology, 52: 349-361, September 1946.

Dieckman, William J. et al, "Observations of Protein Intake and the Health of the Mother and Baby", Journal of American Dietetics Association, 27: 1046-1058, December 1951.

Ebbs, J.H., Tisdal, F.F. and Scott, W. A., "The Influence of Prenatal Diet on Mother and Child", Journal of Nutrition, 22: 515-526, November 1941.

Greene, Doris, "Caring for the Premature Baby", American Journal of Nursing, 50: 458-459, August 1950.

Halse, L.M. and Liberti, D.V., "Prenatal Health Examination Legislation", Public Health Reports, 69: 105-110, February 1954.

Hertig, Arthur and Livingstone, R.G., "Spontaneous, Threatened and Habitual Abortions; their Pathogenesis and Treatment", New England Journal of Medicine, 23: 797-806, June 29, 1944.

Javert, Carl T., "Hyperthyroidism and Pregnancy", American Journal of Obstetrics and Gynecology, 39-954-963, June 1940

Jeffers, Francis C., "Preparation for Marriage", American Journal of Nursing, 51: 514-517, August 1951.

Lenhart, R.F., "Completeness of Birth Registration in the United States in 1940", American Journal of Public Health, 33: 685-690, June 1943.

Lennon, G.G., "Diet and Toxemias of Pregnancy", Journal of the American Dietetics Association, (abstract) 28: 846, September 1952.

Metropolitan Life Insurance Company, "The Hazardous First Month of Life", American Journal of Nursing, 52: 568, May 1952.

Miller, Herbert C., Hurwitz, David and Kuder, Katherine, "Fetal and Neo-natal Mortality in Pregnancies Complicated by Diabetes Mellitus", Journal of the American Medical Association, 124: 271-275, January 1944.

Peckham, C.H., "Statistical Studies on Prematurity", Journal of Pediatrics, 13: 474-497, October 1938.

Potter, Edith L., "The Importance of the Postmortem Examination of the Fetus and Newly Born Infant", American Journal of Clinical Pathology, 13: 133-138, March 1943.

Schwartz, Herman and Kohn, Jerome L., "The Infant of Low Birth Weight: its growth and development", American Journal of the Diseases of Children, 21: 296-306, March 1921.

Shute, Wallace and Shute, Evan, "The Prevention of Premature Labor", Journal of Obstetrics and Gynecology of the British Empire, 52: 570-574, December 1945.

Smith, C.A., "Effects of Maternal Under Nutrition upon the New Born Infant in Holland", Journal of Pediatrics, 30: 229-243, March 1947.

Tyson, Ralph M., "A Fifteen Year Study of Prematurity from the Standpoint of Incidence, Mortality and Survival", Journal of Pediatrics, 28: 648-664, June 1946.

Walzer, Howard C., "Education for Parenthood", American Journal of Nursing, 52: 566, May 1952.

White, Priscilla, "Pregnancy Complicating Diabetes", Journal of the American Medical Association, 128: 181-182, May 1945.

Young, M.A.C., "A Study of College Health Programs for Prospective Teachers", American Journal of Public Health and the Nation's Health, 44: 211-215, February 1954.

OTHER SOURCES:

Bundesen, Herman N., Natal Day Deaths, Lecture before the Symposium on Prevention of Needless Neo-natal Deaths, 102nd Session of the American Medical Association, New York City, June 3, 1953.

Lammel, Rose et al, Educating for Healthful Living, Reprint Service Bulletin, Association for Childhood Education, Washington, District of Columbia 1950.

Metropolitan Life Insurance Company's Nutrition Advisory Committee, Teaching Families Good Nutrition, A Guide for Nurses, Metropolitan Life Insurance Company, New York 1951

Ministry of National Education and Fine Arts, Program of Studies, (translation from the original Arabic of the 1946 education decrees). Beirut, Lebanon.

President's Commission on the Health Needs of the Nation Report Building American Health (condensation), Health Publications Institute, Inc., Raleigh, North Carolina, May 1953.

Priorities in Health Services: recommendation by a special committee appointed by the Federal Security Agency, Children's Bureau, Office of Education, Federal Security Agency, Washington, District of Columbia, 1950.

Nutrition Laboratory, Food Tables for Use in the Near East (Provisional), American University of Beirut, Beirut, Lebanon, December 1953.

Strang, Ruth, "Health Education", Encyclopedia of Educational Research, edited by Walter S. Munroe, American Educational Research Association, MacMillan Company, New York 1941, pp. 561-569.

Sutherland, Robert, The Interplay of Home and School, (reprint from the Thirty-Second Annual Report of the Conference of Educational Association, Central Council for Health Education, London 1949.

The School Administrator, Physician and Nurse: A Report, School Health Monograph number 13, Metropolitan Life Insurance Company, New York 1949.

World Health Organization, Expert Group on Prematurity, Final Report, publication number 27, World Health Organization, Geneva 1950.