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INSTITUTE OF HYGIENE & PREVENTIVE MEDICINE

July, 1970
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# The Pakistan Journal of Health

A Quarterly Devoted to Hygiene, Preventive Medicine, Medical Sciences and Allied Subjects

*Institute of Hygiene & Preventive Medicine*
*6—Birdwood Road, Lahore—(West Pakistan)*

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*6—Birdwood Road, Lahore—(West Pakistan)*

# Pakistan Journal of Health

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# INFORMATION

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Ahmad, N. (1966) Address of Welcome and Introduction to the theme of the World Health Day (7th April, 1966). Pak. Jour. Hlth., Lahore, 16(1) : 1-2.

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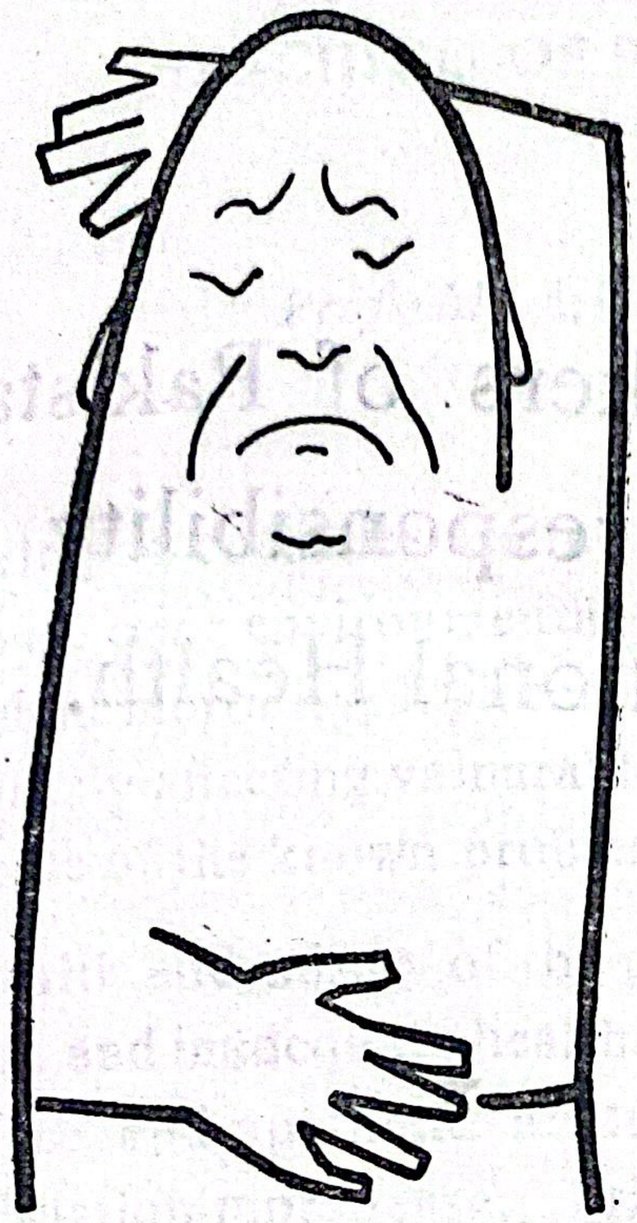
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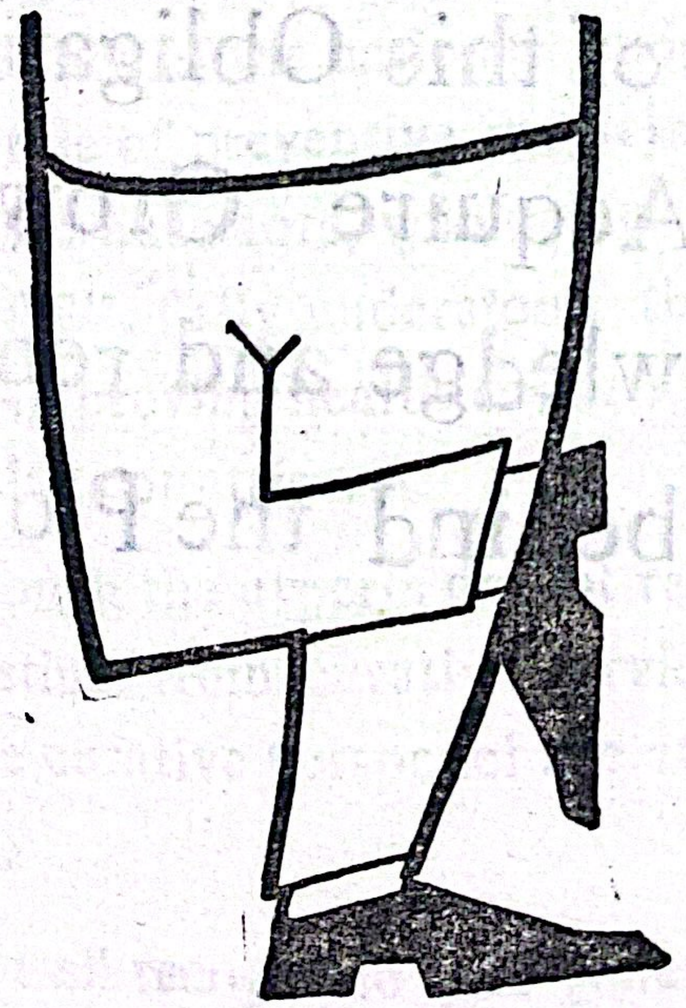
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# TEACHING OF PREVENTIVE MEDICINE

*By*

*Prof. M. Atiqur Rahman Ansari*

Developing countries are faced with multiple health problems. Lack of vital statistics, poor environmental sanitation, high maternal and infant and preschool child mortality, high fertility and rapid population growth, malnutrition particularly affecting valnarable groups, high prevalence of parasitic infestations are some of the known problems.

Ill-health and misery of the people, rotates round the paucity of health information, and inadequate health services, low economic conditions, illiteracy and ignorance, and apathetic attitude of the people towards health problems make the situation more tense. Private enterprize generally is not forthcoming for establishing health services and people depend on state health services for provision of public health and medical care.

While progess in economic and social development of a country depends on the health of its people, governments of developing countries are unable to divert large slice of the national budget for providing adequate health services.

The role of preventive medicine in the prevention of diseases is not a new concept. Our ancestors, who coined the proverb "PREVENTION IS BETTER THAN CURE", fully understood the principle. This approach is not only effective in improving health conditions but is also economical, therefore it suits the developing countries.

Although the experts do not recommend the establishment of preventive services, distinct from curative services, yet know that in an integrated health services, the curative personnel are at an advantageous position, both financially and socially.

It is well recognized that general improvement of health in developing countries is related to the problems of adequate organization of health services

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Dean, Institute of Hygiene and Preventive Medicine' Lahore.

WHO conference on Medical education, Tehran, 12—19 December, 1970.

"*Pak. Jour. Hlth.* 1970-71"

and preparation of doctors to meet their increased professional and political obligations. Expansion of health services needs to be in a manner which does not lower the quality of medical care and best possible use is made of the available professional abilities and technical facilities in the country.

Prepartition India had an unenviable reputation of environmental sanitation and other related public health problems. These were inherited by Pakistan on its creation in 1947. Ever since, Pakistan has been much concerned to tackle these problems consistant with its resources.

The matter has been discussed at the national and international levels and it has been emphasized that Preventive Medicine should be given proper status at the undergraduate level. The subject committee on health of the Economic Committee of CENTO, in a metting held in October, 1959, proposed exploration of the possibility of holding a regional conference on the teaching of preventive medicine. It was considered that a study of the basic and fundamental phase of medical education would greatly help in improving health services in member countries.

A CENTO health project report on the application of health education included an observation that medical schools of the region expressed interest in planning for reorganizing the teaching of preventive medicine by medical colleges.

In 1960, a report by Dr. Carl. E. Taylor of the Harvard School of Public Health observed that countries such as Pakistan, Iran, and Turkey could not afford the Luxury of separate curative and preventive services. He, therefore, emphasized the need of reorientation of the teaching of preventive medicine.

A CENTO Sub-Committee session at Karachi in October, 1961 made recommendations for establishing a full time department of preventive medicine, and affecting changes in curicula of medical education for adopting the general principles of preventive medicine teaching to local conditions and to coordinate departmental teaching.

The matter was considered in detail in a national conference held at the K.E. Medical College, Lahore in March 1963, which was attended by professors from various medical colleges in Pakistan, Public Health Administrators, representatives of the Universities in Pakistan, the Pakistan Medical Association, the Public Health Associate of Pakistan, the representives of WHO, UNICEF, USAID, and professors of the Institute of Hygiene and Preventive Medicine, Lahore. The salient recommendations of the conference are given below.

1. A full time department of preventive medicine should be established in the medical colleges.

In addition to the whole-time staff. arrangements should be made for the part-time staff to teach statistics, sanitation, public health administration, public health nursing, social service, nutrition, venereal diseases control etc at the undergraduate level.

2. The teaching of preventive medicine should not be confined to isolated teaching in the third year class. The clinical departments should have public health bias and this bias should be continued throughout the period of undergraduate medical training. The department of preventive medicine should actively cooperate and stimulate the other departments to fulfill this long felt desideratum.

3. The medical council of the country should re-examine the syllabi, curricula and courses of study, laid down for the subject of preventive medicine and instruct the universities to modify and re-adjust the regulations in the light of recommendations.

4. The medical colleges should have a curriculum committee for working out the curriculum based on the syllabus and courses of studies prescribed by the university. The curriculum committtee may work out the details, regarding the teaching programme of preventive medicine in the pre-clinical and the clinical periods, based on the principles enunciated in the conference. The curriculum committee and the College Academic Council should cooperate in the implementation of these recommendations.

5. The main teaching of the principles of preventive medicine shall be undertaken in the third and fourth years of the medical course, However, the teaching of preventive medicine. as an integral part of the various clinical disciplines, by the teachers of those subjects will continue throughout the 4th and 5th year.

6. Emphasis should be laid on practical and field experience both in the pre-clinical and clinical periods and the facilities available at the community health centres should be utilized to the maximum possible extent in this connection.

7. Research, appropriate to local conditions. such as surveys of patterns of health and diseases in the community should be one of the important function of the department of Preventive Medicine.

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8. The hospitals in future should extend their activities from the outpatients into the community.

9. As soon as compulsory internship in introduced, it should include a suitable period of internship in a recognized and approved public health unit, as part of its rotating programme.

10. According to consensus of opinion, inadequate remunerations of the incumbents of the non-practising appointments in the various sectors of the health services, including the preventive medicine, is one of the most important factors in retarding the progress and development of teaching and health services. It was therefore, recommended that the emoluments of all the non-practising posts should be suitably revised.

11. The department of preventive medicine must be under obligation to work in the community, Provision of necessary transport, to enable the department to undertake the field work should be favourable considered.

To Conclude, the cry of the day is to influence medical students towards becoming family and community physicians. Alround, efforts are therefore, warranted to change the medical education in the light of Public Health field. The students should be taken out from the medical wards and drawn into real life. The community medicine means fixing the interests notonly in the patient but on all kinds of health problems.

Keeping in view the multitude of health problems, and considering the limited resources of the developing countries, it is imperative for the general improvement of the health and well being of the people, that health services of the countries be reorganized and doctors be prepared in a manner that they could meet their increased professional and political obligations. The countries of the region can ill-afford the luxury of separate curative and preventive services. There is, therefore, a great need of reorientation of the teaching of preventive medicine. Curricula of medical education need a drastic revision in a manner that the medical profession is able to cope fully with the increased responsibilities for the improvement of general health and well being of the people.

# FUND RAISING FOR COMMUNITY HEALTH DEVELOPMENT

*By*

*Professor A H. AWAN, M.D., T.D.D., M.P.H., F.C.C.P.*

There was a time when man lived on the uncultivated bounty of the nature. Food gathers lived in small groups, were nomadic and moved from place to place gathering food for their needs. Then society started developing. With the discovery of agriculture, the hoe, the plough and electric power, trade etc., great advances were made and man enjoyed the fruits of an organized life. Thus man's life has been and is dynamic and not static, and that man has to face and conquer newer challenges in his environment for improving his lot.

All over the world, various communities are in various stages of development. Depending upon the stage of their evolution, they are faced with problems which effect them all or a vast majority of them. Hence they want to take social action for development which can lead to progress aad advancement.

Community development depends primarily on the level of civilization where the community is at the moment, its social awakening and its resources in men, money and material.

Therefore, community development projects will vary from community to community, as do the problems which confront the community and which are considered important, and as would vary the means for development. Every community should remember this principle because duplication of a project started by another community, without similar pre-requisites, is bound to fail and lead to frustration, demoralization, dis-satisfaction and apathy.

It is essential that objectives and goals of community development for a particular community should be clearly defined and generally accepted. Without general acceptance there will be little chance of success. "Community accep-

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Head of the department of Public Health Practice, Institute of Hygiene and Preventive Medicine, Lahore.

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tance'' necessitates community social education, solicitation of the opinion of the majority and involvement of community leaders representing all shades of opinion and all walks of life.

People value the money which they possess and hate to throw it or pass it on to undeserving hands for unacceptable objectives. Therefore, the first principle in planning for fund raising is that it should be asked for something which people consider as important, acceptable and needing public attention; and worth spending their hard earned money.

It is therefore essential that community development process should be initiated for the solution of problems and needs which are considered by the majority of the members of the community as important, requiring immediate attention and worth contributing money and effort.

Selection of a "good cause'' is vital for succeding to solicit public contributions through fund raising devices.

As a pre-requisite for fund raising, it is essential that those in leadership positions (*e.g.*, office bearers aud executive board members) should command respect and confidence amongst community members. This will be so if they possess following qualities :-

1. They are known as honest God-fearing citizens of some standing, who have had no blemish on their social life and who are accepted as community leaders.

2. They are considered as fit for trusting large amounts of public money. It will be advantageous to choose leaders (specially those who will handle money) from amongst people who are financially well-off, so that people can consider them as fit to resist possible temptations.

3. These leaders should be known to possess interest and technical knowledge required for the solution of the problems concerned.

4. People should consider these leaders as fit to usefully utilize public funds through proper administrative managements of the projects started. In other words, these people should be considered as possessing necessary business acumen needed for under-taking such assignments.

5. It should be known that the leaders sclected have sufficient time to spare for the community project.

Another pre requisite for fund raising is the prestige which the agency enjoys in the public mind. This in turn would depen l upon the following :

(*i*) Agency should have a headquarter where people know that activities cf the agency are being conducted. The name of the agency should be prominently displayed. If possible headquarters should be at a prominent place, and must be clean and attractive.

(*ii*) Good public relations must be kept by the agency and all opportunities of contact with the public should be fully utilized for the purpose. All volunteers and paid members of the agency have a public relation function to perform. Public workers must always at all times conduct themselves in a manner that they create a favourable impression on the people. Many personal sacrifices will be required from such workers as even their private life is not entirely their own and will be closely watched by the critical public eye. All querries whether made personally or on telephone should be promptly and politely answered. Discourtesy creates hostility and initiates a chain of adverse reactions which lead to unpopularity.

(*iii*) Good performance publicity through news releases, monthly or annual reports, etc., is essential. People should be kept informed about the activities of the agency. People like to know if the money they contributed has been well spent and usefully utilized and if those entrusted with the job are devoting themselves to the cause. Knowledge of satisfactory performance motivates people into contributing more funds.

The next pre-requisite for fund raising is the educational programme of the agency, which should constitute a continuous year-long activity. This has following objectives :

(*a*) To create awarness amongst the community members about the existance of problems with which the agency is concerned and the broad manner in which such problems can be controlled or eradicated.

(*b*) To specifically educate the community members about the role which they should play for safeguarding their own or their family's interests in the promotion of health and in dealing with the problem if it effects the family.

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(*c*) To educate community members about the role which they must play as members of the group for preventing the spread of the problem or for dealing with community members stricken with the problem concerned by taking organized community action.

Health education would sensitize the community and produce acceptance for the programme of the agency. When specific efforts for fund raising are made, a fertile soil would be available and appeals made would have greater impact.

The fourth pre-requisite for fund raising is the availability of leadership and manpower for organising a mass fund raising campaign. Not only planners and administrators would be required, but also workers who do most of the field work. A proper administrative machinery must be available to handle the colossal work connected with fund raising as administrative efficiency has consideable relationship with succeful fund raising drives.

The fifth pre-requisite is the method chosen and the clientele on which that method is going to be applied. The methods for fund raising are related with the type of problem to be tackled and the people who are affected or who would feel interested. There are all kinds of charities and people like to choose their charity . The method chosen should be such that it is able to appeal and is able to reach the clientele who is likely to contribute money. It is important therefore thatevery agency should critically analyse the clientele from whom sympathy and help can be expected.

Once this is known, a method should be found through which fund raising appeals can reach the persons concerned. If we choose a wrong method, which does not appeal our clientele, or which does not reach the population concerned, fund raising drive will fail. Efforts to sell charity ball tickets to school children or to junior clerks in a Government office will not succeed, as it would if the tickets are sold through APWA or International Women's Club and funds are solicited for a cause which would interest members of these agencies. Further donation tickets for a school health programme are more likely to be purchased by the parents of school children. Mother and child seals or TB seals are mostly purchased by middle and poor classes because the problems which these charities deal mostly affect these population groups, Efforts to sell seals through other groups representing richer classes have not succeded.

Before a fund raising drive is launched, a plan of operation should be prepared with all its details. Responsibilities should be allocated specifically to

each person concerned. The plan of operation should be produced as the result of joint efforts and deliberations of various key persons involved. Plan should provide arrangements for publicity, making appeals and contacting people, collection and accounting, safe custody of funds, and direction and supervision of various activities to see that plan prepared is being followed.

Before launching the campaign all concerned should be given an opportunity to understand the total plan and their partcular cortibution in the total effort.

Fund raising drives should be made sharply, for short periods and once a year only, as otherwise we will tire our clientele and will produce in them an "appeal resistance". After the campaign is over, people should be informed about the results of the campaign. This will help int he winning continued support and confidence.

# MODERN TRENDS IN DIAGNOSIS & MANAGEMENT OF CHOLERA

*By*

***Prof. Abdul Majid Khan, M. B.B.S., D.T.M. & H., D. Bact. (London)***

Since the publication of monograph on cholera by politzer in 1959, lot of work has been done on this filth disease in those regions of the world where it is a constant health problem. Thanks to Pakistan Seato Cholera Research Laboratory at Dacca, Laboratory diagnosis and management of cholera patients has reached almost the stage of perfection. We have also learnt much about this disease in the last decade in West Pakistan, W.H.O has also actively assisted us granting fewlowships meetings both in Pakistan and abroad. This world body's attention has been acutely forcussed after the recent. Pandemic of Eltor Cholera which started in 1961 in a remote village of Indonesia and extended to all the South East Asian countries, Indo Pak. Subconlinent, middle east and even parts of Russia. The organism was first detected in West Pakistan Karachi in 1964. Since 1964, even West Pakistan has been experiencing Eltor epidemic almost every year at some places till recently. So has been the situation in some of the Middle Eastern countries. This virtually has caused panic in some countries and have put tourists and pilgrims to excessive health measures like examination of stools etc. With this brief background, I think every medical man in Pakistan should realise the gravity of the situation and benefit from others experiences and not just leave the disease to health department. It is the physician who sees the patient first and unles he is cholera conscious the disease may be detected too late when the country is already invaded. This unfortunate picture has been frequently repeated till large body of human population has been infected The situation becomes out of control and many valuable lives are lost which can be saved easily by early detection and preparedness for the treatment.

I may also point out that classical clinical picture of vomiting, diarrhoea, collapse, cramps and anuria is seen only in a fraction of cases. There are many

cases who go frequently un detected in our country by practicing physician Diarrhoea can have in any etiological factors but cholera also should be kept in mind. Such mild or subclinical cases spread the infection far and wide and this iceberg phenomenona is a feature of the present vibrio.

Moreover the eltor can remain in the gut for a long time in a true carrier state like *Salmonella typei* Whenever the organism gets an opportunity to infect healthy contacts the disease appears since such cases cannot be detected easily. Under developed parts of the world are at great risk.

## LABORATORY DIAGNOSIS

Different workers in this field have their own routine and special cholera media, for culture and some have been mode commercially availble· In our laboratory we follow the pattern of Cholera research laboratory Dacca and are quite satisfied. Main points are :

(*a*) Collection of the faecal matter, Rectal swabs either plain or soaked and dried in Monsur's liquid medium are used. Faecal matter can be put in the transport medium and certainly gives better result than swabs and where possible should be sent to the laboratory. There are two transport liquid media which are used. One is simple alkaline peptone water and the other is monsur's liquid medium. We have observed that both the media are good provided the stool sample reashes the laboratory within 6—7 hours. After that, other organisms over grow the Vibrios in peptone water and the medium becomes useless. Mansur transport medium remains equally effective for a week and isrecommended for the out station Hospitals.

(*b*) In the laboratory fresh peptone water is used for seeding which is incubated for 6 houre and then plated on Mansur's solid medium, Mansur's solid medium gives the best result after incubation overnight. It is a selective and indicator medium. The vibrio causes liquifaction of gelatin around the glistening smooth small colonies of *Vibrio Cholerae*, the centre of the Colony darkens as the time pasess. Proteus and Pseudonomas can be confused with vibrio colonies but an experienced eye can easily differentiate them. Smooth velvety nature of colonies are usually vibrio colonies.

(*c* The suspected colonies are seeded into agar media, common sugars are Mannose, Arabinose and sucrose. Pathogenic Vibrios fall in

Heiberg's subgroup (I) in which sucrose and Mannose are fermuented with the prcduction of acid only but not arabinose.

(*d*) Other media like peptons water, broth, glucose phosphate medium and agar slopes are seeded to see the typical darting motility and biological reactions for nitroso indol, V P. reactions and slide agglutination. The classical cholera vibrios and eltor biotype will give positive agglutination with Inaba or Ogawa antiserum but some vibrios will not aggultinate and are labelled as Nags.

Classical cholera vibrios are generally V.P. negative do not produce haemclysin, chick red cells are not agglutinated and are lysed by mukerjee phage 4. The eltor biotype are V.P. positive, aggultinate chick cells, are haemolytic and resistant to phage 4. Resistace to polymyxin B is also used to differntiate. There are other less common tests but there are strains which behave differently and for this reason the monoply of classical strains to cause cholera is no longer accepted. In fact due to wide variations of the strains the term vibrio cholera is used. In some typical clinical cases of cholera during the epidemic no vibrios are isolated and no increase in patients serum of specific antibody is found Such cases tend to appear during the decline of epidemic, like Nags and the Clinical name of non vibrio cholera is given. This is mentioned for the knowledge of clinicians so that they dont laugh and condemn the laboratory.

(*d*) In non endemic area like West Pakistan, disgnosis of Cholera should only be given when the above technique is faithfully followed. However, in endemic areas or in proven epidemics, quick laboratory diagnosis is given with reasonable confidence. Simplest procedure is noting the darting motility in stool of peptone water culture and if found positive a drop of polyvalent cholera antiserum is added to the preparation. This is oberved by either simple hanging drop prepration or with dark ground microscope. If the organisms stop moving in a minute, probable diagnosis of vibrio is given. More sophisticated techniques like fluorescence microscopy can be used if available.

## TREATMENT

Recent studies carried out by Phillips and associates (Phillips 1962) have demonstrated that liquid cholera stools contain electrolytes with large quantity of water but negligable protein. It is almost protein free plasma filtrate.

| | | | | |
|---|---|---|---|---|
| Cholera stools per litre. | Sodium 140m Eq | Potassium 15m Eq (p. 6G) | Chlorides 100m Eq (3. 6G) | Bicarbonates 45m Eq (2. 7G) |
| Cholera fluid composition 5-4-1 | 135 Eq | 13m Eq | 99m Eq | 48m Eq |

Sodium Chloride 5 g, sodiumbi carbonate 4 G and potassium chloride 1 g per litre in pyrogen free distilled water. Sodium lactate can be substituted for sodium bicarbonate (5.6G per litre).

1. In collapsed cases of cholera the 5-4-1 ratio cholera fluid should be administrered intravenously at a rapid speed till the pulse becomes perceptable and then slowly to combat water and electrolyte loss which accounts for most of the symptoms. Generally progress is judged by clinical observation and specific gravity estimation of the patients blood is not needed. Usually in dehydrated state the patient has already lost fluid about 1/10 of the body weight. At Seato laboratory Dacca Patient's weight is determined to assess the fiuid he is going to get to combat dehydration.

Special cholera cots are used in the treatment centre made of canvas or jute with a central hole under the buttock which makes the nursing easy. Graduated buckets are putbelow and in this way record is kept of fluid lest which is proportionally replaced.

2. Antibioties usually tetracycline is useful adjunct to fluid therapy because the vibrios die out within 3 days and the patient gets less intravenous fluid than those treated without the antibiotic. Moreover stay in hospital is considerably reduced. The dose of the antibiotic is only 1 to 1.5 grams for 2-3 days. We have observed that in recent epidemics about 20% of the Vibrios isolated are resistant to tetracycline but all strains are sensitive to chloramycetin and Furoxone which can be advantageously substituted. Recently Monsur has used high doses of cholera phages in the treatment but it was in no way better than the antibiotics.

3. Some of the cases particularly children develop hypoglycaemia which should be combated by glucose saline infusion in addition to the standard cholerafluid therapy.

4. As the intravenous therapy is comparatively difficult and costly, recent research shows that glucose when administered by mouth helps the transport

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of sodium back to the circulation and oral fluid is recommended for drinking purposes once the shocked condition is treated with intraven.us fluid therapy. This has cut down the total intravenous fluid quota per pa-tient to a remarkable degree.

Composition of oral fluid (Nalin D.R. 1968).

5.G Potassium chloride 4.2Og sodium chloride 4g sodium bicarbonate and 20G of glucose in one litre of water. Potassium citrate can replace potassium chloride in the oral fluid. The fluid can be made more palatable by orange and lemon juice.

5. In some cases there are complications like acute renal failure which can develop from any shocked condition and needs the same type of treatment.

Acidosis though noromally is controlled by the standard treatment, can be persistent even after dehydration is corrected. Such cases need only isotonic sodium bicarbonate injection with good result.

Hypokalaemia is not a real complication if standard fluid is used.

Some times patients develop tetany when excess of alkali is given and it can be treated by injection of calcium gluconate.

There is no place of older treatment of cholcra with essential oils, kaolin etc. With proper management of cholera patient no body should dic though children do die some times more due to in ability of fluid getting into their veins. Femoral and external Jugular vein is used which need an expert physician.

Recently intraperitoneal fluid thereapy has been practicised in children and adults (D. Mahalanbir 1970) with considerable success in children.

Early feeding is resorted to and the patient should not be kept hungry. Cocount juice, Banana, rice milk and bread is well tolerated and the patient should be given this type of food as early as possible.

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## APPENDIX

Alkaline-peptone water

*Composition* :

| | | |
|---|---|---|
| Peptone (preferably sugar free) *e. g.* trypticase | ... | 10.0 gms |
| Sodium Chloride | ... | 10.0 gms |
| Distilled water | ... | 1.0 lit. |

PH to be adjusted at 9.2. The mcdium is then distributed in 25 ml. quantitites in wide-mouthed screw capped bottles and autoclaved at 15 lbs pressure for 15 minutes.

Alkaline taurocholate-tellurite-peptone medium (Monsur, 1963)

*Composition*

| | | |
|---|---|---|
| Trypticase (BBL) | ... | 10.0 gms. |
| Sodium Chloride | ... | 10.0 gms. |
| Sodium taurocholate | ... | 5.0 gms. |
| Sodium carbonate | ... | 1.0 gms. |
| Distilled water | ... | 1.0 litre |

PH is adjusted automatically at 9.2 if the ingredients are of good quality and measured properly.

25ml. quantitites are distributed in screw-capped bottles and autoclaved at 15 lbs pressure for 15 minutes.

Alkaline-tellurite-taurocholate gelatin-agar (Monsur, 1961)

| | | |
|---|---|---|
| Trypticase (BBL) | ... | 10.0 gms |
| Naci | ... | 10.0 gms |
| Sodium taurocholate | ... | 5.0 gms |
| Sodium carbonate | ... | 1.0 gms |
| Gelatin (Difco) | ... | 30.0 gms |
| Agar | ... | 15.0 gms |
| Distilled water | ... | 1.0 |

Mix the ingredients and autoclave at 15 lbs. pressure for 15 minutes. Cool to about 60C and add measured quantity of potassium tellurite soluion to give a final concentration of 1 in 200,000 to 1 in 150,000. The flask is carefully shaken to mix the potassium tellurite solution avoiding undue frothing and plates are poured. PH of the medium will automatically adjust itself to about 8.5.

# AFTER A CORONARY

*By*

*Dr. A. Q. Khan*

Not all cases of coronary attacks are fatal. Many patients actually recover from an acute coronary heart attack and are able to resume a useful life. Experience has shown that proper treatment combined with rehabilitation can give a new lease of life to many patients, who have been stricken with sudden heart attacks.

The sudden closing of a coronary artery by a blood clot (thrombus) deprives the corresponding part of the heart of its blood supply and the affected portion ceases to function. An attack of coronary thrombosis usually causes severe crushing pain in the chest,accompained by weakness, pallor and sweating. Some times the pain is mistaken for acute indigestion. When such severe pain occurs a doctor should be called immediately.

Intensive research has been carried out throughout the world during the last two decades to find out the causes of coronary heart disease and it is now recognised that primary prevention of coronary thrombosis is possible, based on several recognised risk factors. Nevertheless for those who have already developed it, importance of measures to limit and postpone deterioration, disability, dependancy and a well adjusted useful life can not be over emphasized.

For the patients with a Coronary heart attack, the first hours and days after the attack are the most crucial, particularly, when there is a severe shock. The high Initial mortality of coronary thrombosis is well documented and therefore the need for most immediate medical help can not be over emphasized.

A concentrated offensive during this acute crisis can only be launched through a well organised coronary care unit, with provision to start treatment even before the patient reaches the hospital ward. This is ensured in certain

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For detail the reader is requested to refer to article "Coronary Disease—Fight with Determination" appeared on 10th September, 1970 of this news paper under "Science and Technology" Section.

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countries through despatch of ambulance service with specially trained team in charge of a physician with emergency equipment on board.

Substances which prevent the blood from clotting (anticoagulants) may be helpful in reducing the complication of thrombosis, but most of the work of healing of the damaged portion is done by the body itself. When a coronary artery is closed, neighbouring arteries increase in size and new branches develop to nourish the area surrounding the closed artery. During the healing period the heart needs as much rest as possible, so the patient must stay in bed for a considerable period. The psychological adjustment of the patient to the disease depend mostly on the physician incharge. As healing takes place, a scar forms and collateral circulation increases. This takes a while, even after the patient begins to feel quite well. How long, depends on the size of the affected area and on the individual rate of healing, but it usually takes about a month to six weeks.

When the heart healed after an attack it has a tough, tight scar and collateral circulation has developed to nourish the muscles around the scar. In most cases the scar is not large enough to interfere with the heart's ability to pump the body's blood, and when convalescence is over the patient is usually able to take up his life where he left off, with certain not-too-difficult modifications. It is reassuring to know that many of the patients survive their first heart attack and that most of them recover fully enough to enjoy many years of productive activity when carefully regulated.

Reconditioning of the heart patient should be started soon after the acute stage of the illness is over and physical activities should be gradually increased under medical supervision. Some patients do need change to a different kind of work that places less burden on the heart. In many countries local heart associations, have organised work evaluation clinics to determine how much and what kind of work certain patient can do. They also co-operate with community groups to develop programms of vocational guidance, training, and placement for patients unable to return to former occupations.

A reasonable amount of recreation and social life and indeed some exercise if the work involved is sedentary in nature is as good for a person who has had a coronary as it is for every one else.

It is advisable to avoid very strenuous or prolonged exertion because it puts extra strain on a damaged heart.

Doctor will prescribe in some detail the amount of exercise a patient can or should take and will give some general rule to follow such as : Not to run or walk too fast ; Not to walk against high wind ; Not to climb stairs unnecessarily (when one does have to mount stairs, to do it slowly and to rest now and then ; in other words to slow up in everything one does). But it is the patient himself who must abide by these rules and he is the one who in taking exercise must exercise his owu judgement as well. The doctor will make recommendation to fit the individual, and the patient himself will learn to rest before he becomes too tired.

Rest is necessary too a full nights sleep every night, and a nap or rest during the day, if possible is benefecial. If one can rest when they can, most patients find they have enough energy both for work and for leisure time activities.

Normal marital relations are not usually harmfull after convalescence. Sometimes this question may worry the patients a great deal, and when that is the case, it is wise to get their physician's advice about it.

Over weight puts an extra burden on the heart, and it is important for people who have heart disease to keep their weight at or a little below normal. They still need good amount of protien, vitamins and minerals and after weight has reached a desirable level, enough energy food to fit their activities and other nutritional requirements. During digestion, the heart's work is increased, so heavy meals make heavy demands on the heart. The more one eats, the more he weighs and carrying around and extra load of fat puts an extra strain on the heart. A low fat diet of course helps to control weight. People who have been big eaters should learn to cultivate new eating habits to keep their weight down and still get the energy and nutritional needs they require. Many heart patients find it better to get their daily food in several light meals instead of the usual three. When this is not practical, it is best to have the three meals about equal in order to avoid eating big meals though normally it is advisable to eat a heavy breakfast, moderate lunch and a light dinner.

Heavy cigarette smokers are much more prone to general atherosclerosis (hardening of the artery) and to coronary artery disease. Smoking tends to constrict the blood vessels and causes rise in blood pressure. It is advisable to give up smoking altogether. When the patient is a confirmed smoker, he should talk the problem over with his physician to over come his initial complaint of giddiness or gastric trouble for giving up smoking.

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Atherossclerosis and coronary heart disease are common complications of diabetes mellitus. Diabetes has to be thoroughly controlled with proper treatment and should be maintained through regular follow up.

Hypertension predisposes to coronary heart disease. Possible cure or preventing it from getting worse has to be ensured through constant medical attention and treatment. Mild exercise may be prescribed, because after mild physical activity, the blood pressure tends to fall. Salt intake needs to be drastically restricted.

Psychological and emotional stress is often an important precipiting factor. A driving, competitive, restless, alert, impatient, ambitious man with a pre-occupation for job deadline is more likely to die of coronary artery disease than a placid, easy going person who is apparently not nurried by inner drives and ambition. The most sensible advice to combat the effect of strain psychological stress of modern life is to maintain a balance between physical and mental activity, between work and relaxation, rest and sleep.

Though diet is not the only factor in heart disease, high blood cholesterol level is considered to be an important factor for arteriosclerosis. Sclerosis in its term promotes the formation of thrombus on the damaged arterial wall. Therefore choosing the diet sensibly has long been thought a possible measure to prevent coronary thrombo is.

Cholesterol is a waxy substance which in moderate amounts is a normal constituent in the blood. Unfortunately when the concentration of cholesterol in the blood is high, there is a tendency for some of it to deposit in the walls of the arteries producing the condition called arteriosclerosis.

Animal fats are the main culprits but so also are certain vegetable fats such as those supplied by coconute. These are very rich in saturated fats. A saturated fat is one containing a full complement of hydrogen atoms along the carbon chain that forms the backbone of the fat molecule. If the chain is lacking one pair of hydrogen atoms, the fat is called monounsaturated. The Principal fat of this type is oleic acid, which constitute about 80 per cent of the fat in olive oil. Oleic acid seems to be "neutral" in its effect on serum cholesterol, though some experts believe it may cause a slight elevation.

The oils shown to have the greatest cholesterol lowering effect are the polyunsaturated fatty acids which are lacking two or more pairs of hydrogen atoms. The most abundant and best researched polyunsaturate is linoleic acid, which constitutes 40 to 55 percent of corn, soaybean and cotton seed oils. When

vegetable oils are hardened by hydrogenation to form vegetable ghee, the linoleic acid content drcps to 12 per cent or less, the rest being converted to oleic acid or to saturated fatty acids.

The cholesterol we are worried about is manufactured by the liver. Though we obtain some cholesterol in the diet (in egg yolks particularly), body manufacture for its own need much more cholesterol than any one might obtain from food. It is the liver which regulates the amount of cholesterol in blood. A fat diet may produce a high concentration of cholesterol in the blood. The liver regulation of cholesterol can be altered by the food fats in the diet. Vegetable oils rich in linoleic acid have proved to favour an appreciable lowering of cholesterol level. A special diet rich in unsaturated fat, which takes note of the danger from animal fats and the healthy action of linoleic acid, when fed to patients who survived myocardial infarction (coronary thrombosis) was able to reduce re-infarction significantly than the control group fed on ordinary diet.

The essence of the diet is that it bans outright of severely restricts food that are ricgh in saturated fats butter, ghee, whole milk, most cheeses shortenings, vegetable ghee etc. In their place it puts foods, that are rich in the highly unsaturated liquid fats. These fats are abundant in the common vegetable oils extracted from corn, cotton seed sunflower seed and food : lean meat, fish, fruit and vegetables can be taken freely.

In a majority of cases the healing of the damaged portion of the heart is so successful that the patient has no further difficulty but some times some degree of insufficiency remains When this is the case the patient will be warned by symptoms (either difficulty in breathing or feelings of pressure or tightness in the chest) when he is overexerting. Medicine can usually relieve this discomfort. Shortness of breath associated with moderate exertion can be an early symptom of a weakened heart muscle and so is the case of unusual fatigue feeling of tiredness even when one has not been unusually active. When the heart fails to pump efficiently circulation is slowed down and fluid may gather in the tissues and cause swelling, which is usually first noticed in the feet and ankles. These should be considered as warning signals to see a physician. It is worthwhile to remember that "Some form of heart disease can be prevented ..... .....a few can be cured.

All heart cases can be cared for best if diagnosed early".

"People who are willing to try for serenity who are able to go ahead with less speed and less worry, who face their handicaps without fear, coaxing their

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hearts along without letting their impairment become an obsession these are the people who have the best chance for a full, happy and lengthy life despite heart trouble".

Some years ago a well-known doctor wrote the following letter to a patient who had suffered a heart attack. It contains sound advice even for those who are in good health.

"Dear Mr. Blank :

You have evidently made an excellent recovery from your recent heart attack. That attack should have warned you to live a life which would lessen the work of your heart. However, you have continued to be overweight ; you have been eating and drinking as much as you desire You have carried on strenuous business activities, working long hours and often at top speed. You have not curbed your quick and, at times' rather violent emotional reactions. The load on your heart has been too heavy. Hence you are now incommoded by shortness of breath and other disturbing symptoms.

You come to me for advice, as you have gone to other doctors, perhaps hoping that I can give you a drug which will enable you to carry on as you have been doing. Unfortunately there is on such drug. But let me outline a regime which will help you immensely if, after a period of almost complete physical, emotional and mental rest, you will follow it very conscientiously :

1. You should bring your weight down to what is normal for your height, built and age. This reduction must be brought obout slowly, by modifying your diet and by graduated exercises-not by reducing drugs. Refrain permanently from overloading your stomach.

2. You must cut down the extent and speed of your physical activities. Do not run to catch a train, hurry up stairs, attempt to park a car in a closed-in space, or use any set of muscles to the limit of your vigour. Refrain from physical effort immediately after eating, and do nothing that will make you short of breath. If at any time you begin to breathe fast, or experience a constricting chest pain, lie down and rest.

3. You must indulge in mental tasks only when your mind is fresh, and cease them when you become weary. Thus you will be able to give your best consideration to business problems with the least strain to yourself.

4. You must curb your emotional reactions. When I tell you that I have known a patient's blood pressure to Jump sixty points almost instantaneo-

usly in response to an outburst of anger, you can understand what strain such reactions can throw upon the heart. I realize that you are quick on the trigger and inclined to blame those whose behaviour incites you, rather than to consider yourself foolish for letting them disturb you. Such a viewpoint is not uncommon.

The great scottish surgeon John Hunter, suffering from much the same conditions as you, and appreciating the effect of such emotional reactions upon his heart, said that his life was in the hands of any rascal who chose to annoy him. Even he forgot that he should discipline himself, and he had a fatal attack during a fit of anger.

Whenever a business problem starts to vex you, or you begin to get angry, let yourself go limp all over. This will dissipate your mounting inner turmoil.

5. Try to be cheerful under all circnmstances. Unfortunately, you are a moody man, given at times to considerable sadness. Such a state does not lend itself to the proper energization of the heart and blood vessels, It may seem to you that to be cheerful when you are inclined to sadness is easier said than done. Let me make a suggestion : Whenever you are feeling down in the dumps, think of some particularly pleasing worthwhile experience you have had. Your mood will often respond to the thought.

If you were a smoker, I should have to tell you to refrain entirely, as I believe tobacco to be injurious to those afflicted with degenerative cardiovascular lessions.

Your heart is calling for a complete change in your ways. It is further asking that it be permanently housed in a lean, cheerful, placid man who will intelligently curb his physical, mental and emotional activities.

I have number of patient who years ago had the same thing happen to their hearts as has happened to yours. Today they are still enjoying a sense of well-being and are doing valuable work. You may similarly respond if you will seriously follow the fore-going regime."

Research workers are constantly discovering new facts and gaining greater understanding of coronary disease. The out look for coronary patients these days is much better than it was even a decade ago and it is certain to become better still.

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# PUBLIC HEALTH IMPORTANCE OF BIRTH AND DEATH REGISTRATION*

*By*

*Dr. Mohammad Akram Parvez M.B.B.S., D.P.H., D.E.C.D. (Prague)***

The value of Birth and Death Registration for legal purposes to prove the date, place of birth and establish one's family relationship can not be denied. Apart from the legal purpose, the use of birth and death registration is perhaps the greatest in public health field than its combined use in all other fields of activities.

Many Government and private agencies use the information on population and its composition to draw up their social and economic plans in connection with housing, education facilities and other social security programme. However, none of these agencies is so directly and deeply connected, as is the public health to know as to where, when and how a particular vital event has taken place.

The necessity to know the circumstances under which each individual birth and death has taken place is greatest in public health field to formulate its actions, programmes for the well being not only of the individual or his family but also for the community and the nation as a whole. Most of the information recorded concerning an event of birth or death is used by public health department without which no public health measure can be adopted with confidence.

The records of birth and death not only throw light upon physiclogical aspect of births, diseases, deaths, race fertility but also provide a base for the better understanding of population changes and are a mean for assessing the effectiveness or failuie of public health pr grammes applied for the reforms of insanitary conditions.

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*Paper presented at the Cento Symposium on 'Demographic Statistics' held in November, 196[illegible] at Karachi,

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To know as to what is the leading cause of death in a particular area, which age group and sex has the highest mortality, and whether or not preventive vaccination inoculations have produced any changs in mortality from a particular disease, all these need information based on a correct and complete registration system.

Thc crude birth rate which may be determined by relating the total births to the estimated population is a very rough guide to the fertility of the given community and may not be of much value to the Public Health authorities as they would like to know whether or not the birth rate in different areas of the same country varies between wide limits and that the sex ratio and proportion of life births/still births is constant at different places. They would also like to know if there are any seasonal fluctuations in this Phenomena as any public health programme can only be planned scientifically provided the above information is forthcoming.

Timely warnings to the public and mobilization of extra public health resources in the hour of need can only be done if the public health administration has the knowlodge of various population characteristics, the extent of withdrawals because of death and the number being replenished due to natural increase.

A health planner will proberbly be groping in the dark if he has no knowledge of the population needs in the shape of number of new born babies, expectent mothers and deaths by type of diseases and injuries. The point being emphasized is that mere estimates of various vital indices though have their own value, do not pinpoint the problem in the Public health field. The information needed should be total precise with location so that the needy can be attended to with the least delay as otherwise there are all possibilities of the spread of the pestilence, calamities to un manageable proportions. It was because of this in view that deaths from Cholera and plague were required to be written in red ink by the police in the death registers so that they could easily catch the eye of the Health Administrators.

A complete recording of deaths is sufficient for the calculation of death rates but is not enough to meet the Public Health needs as it only gives the idea of the force of mortality. Other factors influencing mortality such as locality, age, sex, occupation and causes of death have their own importance either alone or in various combinations and must be recorded and analysed to give a clear picture of the Problem to the Public Health authorities. It will therefore, be

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see, that information required by the Health authorities is to be elaborate and can only be made available from a well established system of birth and death registration. This, however, does not mean that survey and other sampling techniques applied to elucidate the above information are of no value.

The present system of Registration of Births and Deaths in this country is not adequate and therefore not in a position to meet the requirements of Health Planning, surveillance and evaluation.

Although a system of Vital Registration does exist in this country but because of lack of interest at various levels and also for want of financial resources the system though in vogue since long has not been able to make appreciable improvement. Much has been and can be said about the deficiencies and its causes but the need of the hour is as to how best the improvement can be made in the shortest possible time.

There are much more competent persons in this country than myself to enlarge upon the subject and to give us a way out of the situation. However to my mind the following needs consideration :

(*a*) Creation of the necessity for Birth and Death Certificate ;

(*b*) A good Civil Registration Organisation which in the initial stages be capable to keep an eys on all vital events occuring under its jurisdiction ;

(*c*) A well crganised Health Statistical Services.

Regarding creation of the necessity of Birth and Death Certificates efforts are needed to educate the public, regarding the insistance upon the production of birth/death certificate by various agencies, organisations who usually asked for proof of age.

This will certainly be a long term measure.

As regards Civil Registration Organization it may be added that the same does exist in this countay and has existed since long as already pointed out but has not been able to produce the desired results, perhaps for lack of interest on the part of authority or the general public and may be both.

The interest of the general public can only be created if they are made conscious of its usefulness and become aware of its necessity. As submitted earlier it is a long term process and not much dependence can be had on this

measure in the early stages. However, it is necessary that efforts should be devoted towards this direction, as it is only this measure which is going to pay in the long run and it will be due to this awareness that a complete registration system ean be insured.

Regarding interest of the authority it is added that in the past the official responsible for the registration of births and deaths was an illiterate watchman who had no idea of the importance is with the Union Councils and though it is now in good hands yet it will be seen that the official responsible for vital registration is so much overworked with other jobs that he hardly finds time to dovote to this side. It therefore, appears that the organization should have a whole time official for registration of vital events of the area under his jurisdiction. This will enable him to find sufficient time to look around in the area and inquire about the happening of vital events so that none is missed and in case an event is missed he can be held responsible for negligence. If it be assumed that whole time official will be able to look after, an area of 10 thousand population it will mean that in this country with a population of over 110 million about 11 thousand Registrars will be needed with an expenditure of about Rs. 16 million on their salaries alone. The other expenditure on supervision and the main office called the Registrar General Office when included, the total expenditure may stand at Rs. 25 million per year. On the assumption that about 7 million births and deaths take place in this country, one may say that expenditure for registration and processing of each vital event would be about Rs. 4.

The amount may look clossal but is not more than the expenditure incurred on 3 or 4 large sized hospitals. Since it is not likely that the amount mentioned above will be made available for the purpose whose importance and necessity has not yet been realised, it may be worthwhile to start the scheme slowly and in a few areas and perhaps the large Urban Areas may be more suitable for this purpose in the first instance.

As regards the establishment of a well organized Health Statistical Services, it may be added that as pointed out earlier the the biggest user of the data on Birth and Death Registration is the Health Department. It, therefore, becomes imperative that the main Statistical Organization responsible for processing of data on Civil Registration be attached with the Health Department. The same is more desirable because of the fact that the death is directly related to the disease and to find out the case fatality and to determine the forces of mortality of various diseases, the association of the health statistic Office and the Registrars General of Births & Deaths becomes essential.

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# REGISTRATION OF BIRTHS AND DEATHS IN PAKISTAN

*By*

*Muhammad Khalid Hayat Khan**

AND

*Mian Mahmud Ahmad***

## History of Registration of Births and Deaths in Pakistan.

The system of registration of vital events in Pakistan is a legacy of the system introduced in the British Punjab, Bombay and Bengal Presidencies in the latter half of the 19th Century. The history of present vital statistical system in the areas now comprising Pakistan dates back to 1864 when the registration of deaths was decided in the former Punjab Province. An extract of letter No. 47 dated 17th May, 1865,[1] written by the Inspector General of Dispensaries Punjab, while submitting the Annual Report on the Dispensaries for the year 1864 to the Secretary to the Government of Punjab is re-produced below :

> "It would have been of interest and useto have contrasted the health of the various districts during the past year; and, had there been reliable statistics on which to found any comparison, I would have ventured to offer some remarks on the subject. This want of statistical information will, it is hoped, soon cease to exist, as the registration of deaths has been decided on, and in a short time will enable us to gather some idea of the healthiness or otherwise of the various parts of the province."

The figures of deaths registered in the province during the year 1865 were

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Note :

This Paper was presented at the Cento Symposium on Demographic Statistics, held in Karachi from 5th to 12th November, 1968.

included in the Annual Report[2] of the Inspector General of Dispensaries, Punjab, for that year. The Inspector General while commenting on these statistics remarked :

> "I have further compiled mortuary returns for the year, and they are herewith submitted. These returns are also open to the objection that they are incomplete. It is however to be remembered, that it is the first attempt at obtaining statistical information regarding the mortality of the province ; and that the machinery we have to work with is not competent to undertake anything unless it be of the simplest description. It is also something, to be thrown into the balance against incompleteness, that we have very general testimony to the fact that the information contained in these mortuary returns, although not rigidly accurate, is a fair approximation to the truth."

The registration of deaths in this province was started in accordance with the standing orders issued by the Inspector General of Police, Punjab, uuder Section 12 of the Police Act, 1861 (Act V of 1861).

The mortality statistics for the year 1866 were also appended to the Annual Dispensaries Report[3] of the Punjab for that year. However, from the year 1867 these statistics were included in the Annual Report of the Sanitary Commissioner, Punjab, and later on in the Annual Public Health Report ands till later in Annual Health Report.

The Sanitary Commissioner, Punjab, in 1869 submitted proposals for :

(*i*) Securing efficient registration of births and deaths in municipal towns and also in Military Cantonments and Hill Sanatoria, and

(*ii*) improving the system of registration of deaths in rural districts.

In his report[4] for the year 1869 he stated that considerable progress had been made towards placing the registration of births and deaths on a legal footing. Bye-laws were framed under Section 11 of Act XV of 1867. These bye-laws were adopted by all the Saddar Towns (district stations) of the province. Such bye-laws were adopted by all the other towns in the province in due course of time. Under these bye-laws the head of the household was made responsible for reporting the events of births and deaths to the municipal registry office. In some towns this duty was entrusted to the *Mohalladar* and the sweeper of the *Mohalla* (ward).

The birth statistics for the Punjab appeared for the first time in the Annual Report[5] of the Sanitary Commissioner, Punjab, for the year, 1870. The

registration of births in the rural areas of this province started in 1880. The Sanitary Commissioner, Punjab in his report[6] for the year 1879, stated :

> "The system of birth registration which upto the end of 1879 was only confined to the Municipal towns and the rural circles of two districts from which birth returns were submitted voluntarily, has under the orders of the Punjab Government been extended from the beginning of 1880 to all the villages in each district of the province, an arrangement which will perfect the whole system of registration and very much increase the value of the returns."

In his report[7] for the year 1880 while commenting on the birth registration the Sanitary Commissioner remarked that the chief event in the field of vital statistics had been the extension of the system of birth registration in all the districts of the province from the beginning of the year 1880.

While describing the procedure of registration of births in rural areas the Sanitary Commissioner in his report[6] for the year 1879 wrote :

> "The registration of births as well as of deaths to be reported by the village *Chowkidars*, who will have two books, one for births and one for deaths in which the entries can, on the *Chowkidar's* report, be made by any resident of the village who can write, and the lumbardars of each village are held responsible that these entries are made."

In 1876 *Chowkidara* Rules were notified under the Punjab Laws Act, 1872 whereby the duties of the *Chowkidars* under various Acts were put together. These rules included the duties of the village headman and the village watchman towards reporting the births and deaths in the rural areas.

In 1886 the then Government of India passed the Births, Deaths and Marriages Registration Act which provided for the voluntary registration of births and deaths among certain classes of persons for more effectual registration of those births and deaths and of the marriages registered under Act III of 1872, or the Indian Christian Marriage Act, 1872, and of certain marriages registered under the Parsi Marraige and Divorce Act, 1865 and for the establismhent of general registry offices for keeping registers of those births, deaths and marriages.

This Act came into force from Ist October, 1888 and extended to whole of British India and applied also to the British subjects in the Indian States.

The persons whose births and deaths were registerable under this Act were the following :

(*a*) In British India the members of every race, sect or tribe to which the Indian Succession Act, 1865 applied and in respect of which an order under Section 332 of the Act was not at the time in force and all persons professing the Christian religion,

(*b*) In the Indian States to the British subjects being members of a like race, sect or tribe or professing the Christian religion.

The Local Govenrments were also empowered to extend the operation of this Act to any other class of persons, either generally or in any local area. Generally speaking this Act applied to East Indians, Jewes, Armenians and Parsis as well as to the Europeans and Christians.

This Act, however, does not seem to have ever been extended to the registration of births and deaths of the communities other than those mentioned above in the areas now comprising Pakistan.

It may not be out of place to mention here that before 1901 the former North West Frontier Province also formed a part of the then Punjab Province. As such the Rules applicable in the settled areas of the former North West Frontier Province were the same as in the former province of the Punjab.

The registration of births and deaths in the municipal towns in the former Punjab and North West Frontier Province continued to be carried out under various Municipal Acts. In the Cantonment areas the registration was done under the Cantonment Act. For the rural areas although the District Boards Act gave the power for registering births, deaths and marriages to the District Boards, the function of registering births and deaths was never taken up by the District Boards and the registration continued under the Police Rules and the *Chowkidara* Rules till the enforcement of Basic Democracies Order, 1959.

The former Sind Province in earlier days formed a part of the Bombay Presidency and the registration of deaths in these areas perphaps commenced in 1866 becuase in the Report[8] of the Sanitary Commissioner with the Government of India for the year 1884 the average mortality figures for the past 19 years (1866-1884) have been mentioned. The birth registration in the Bombay Presidency was started in 1871. The exact system of registration in vogue at that time is not apparent from the reports of the Sanitary Commissioner to the Government of India. However, the Sind area was relatively deficient in

registering births and deaths. The Sanitary Commissioner to Government of India in his report[9] for the year 1883 while commenting on the registration system in Bombay Presidency remarked :

> "In the Sind Division however, it is still backward, and the results of the Presidency as a whole are vitiated from this cause".

In the former Sind Prov nce the registration of births and deaths in urban areas was carried out under Municipal Act and in rural areas the registration of vital events was done by the revenue officials The lowest revenue official the *Tapadar* had to maintain the records of births and deaths in village Form XI for all the villages under him. The *Tapadar* was responsible for the custody of this Form.

In Sanitary Committee villages and in some other large villages, sub-registers of births and deaths were entrusted to Pond *Munshis* and School Teachers. However the entries in these sub-registers were also taken on the register of the *Tapadar*.

In former Baluchistan the births and deaths were not registered in any area except Quetta City and Quetta Cantonment. The registration in Quetta City was carried out under the Quetta Municipal Law, 1946 and in Quetta Cantonment according to the Bye-Laws framed under Cantonment Act, 1924.

The system in vouge in East Pakistan has its foundations in the system introduced in the Bengal Presidency around the last quarter of the 19th Century.

The Sanitary Commissioner with the Government of India while reviewing[10] the annual reports of the local Sanitary Commissioners for the year 1869 (in May 1871) commented as follows in respect of Vital statistical system in Bengal Presidency :

> "With the exception of a few statements regarding Cholera in some districts and these are confessedly in-accurate and incomplete, the Sanitary Commissioner for Bengal gives no vital statistics for his Province. In his remarks on this most important question, Dr. Smith observes that it had been intended to commence mortuary registration from the 1st of November 1869, but that, owing to unforeseen difficulties its introduction was postponed till the 1st July, 1870. How far these arrangements have actually been carried into effect, I am not aware ; but judging from the very imperfect information which is obtainable regarding Cholera in the several districts of the Lower

Provinces during 1870 and during the past months of the current year, it would be seen that the system is not yet in good working order.

Bengal proper is the only province of India from which no statistical information regarding the deaths among the people in any part of it during the year 1869 can be obtained".

Commenting on the mortality statistics of Bengal the Sanitary Commissioner with the Government of India in his annual report[11] for the year 1871 remarked ;

"It is very remarkable that in Bengal Proper, the portion of this Presidency which has been longest under our rule, the results are very much un-satisfactory than in any other part of the empire."

The registration of deaths was started in Bengal during the latter half of 1870. In 1873, the Bengal Council Act, No. IV regarding registration of births and deaths was passed. In accordance with this Act the registration of births was started in 1875 in some selected towns. The registration of deaths which had already been started in 1870 came under the purview of this Act.

Pointing out the defects in the registration of deaths in Bengal the Sanitary Commissioner with the Government of India in his report[12] for 1875 stated :

"Over the province generally registration of deaths can hardly be said as yet to have been seriously attempted, and the mere selection of certain areas in which a special agency has been appointed for the purpose, must rather tend to interfere with earnest endeavours to carry out the system over the country generally where no such machinery has been provided. A registration moreover, which embraces only $4\frac{1}{2}$ per cent population and $2\frac{1}{4}$ per cent of the area of the province, must, for practical sanitary purposes, be most incomplete."

The registration of births in the rural areas of Bengal was started in 1892.

The registration of births and deaths in the rural areas in East Pakistan is still carried out under the Births and Deaths Registration Act of 1873 (The Bengal Council Act No. IV of 1873). In the Municipal towns it was carried out under the Bengal Municipal Act 1932 till it was replaced by Municipal Administration Ordinance, 1960.

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In West Pakistan the registration of births and deaths in the rural areas is now carried out under the Basic Democracies Order, 1959 and in the urban areas under the Municipal Administration Ordinance, 1960.

Under the Basic Democracies Order, 1959 registration of births and deaths in the rural areas is the responsibility of the Union Councils. The head of the family has been made responsible for getting the event (birth or death) registered within 4 days of its occurrence either at the office of the Union Council or to report the event to the *Chowkidar* (watchman) of the village who will get the same registered at the office of the Union Council. Model bye-laws for the registration of births and deaths were framed by the Government of West Pakistan for adoption by the Union Councils and the registration is carried out under these bye-laws.

The registration of births and deaths in the urban areas is carried out under the Municipal Administration Ordinance 1960. The head of the household is responsible to get the event registered at the registration office. In respect of births the *midwife/dai* present at the confinement is also required to report the birth to the registration office.

The following details are noted in the birth and death registers in respect of each event :

*Birth Register*

1. Annual Serial No.
2. Date of report of birth.
3. Date of birth
4. Sex of the child.
5. Name of the father and/ or grand father of the child.
6. Place of Birth.
7. Occupation, Caste, religion and residence of the father.
8. Name of the child.

*Death Register*

1. Annual Serial No.
2. Date of report of death.
3. Date of death.
4. Name, Caste, religion and residence of the deceased.
5. Name of the father (or husband) of the deceased.
6. Sex of the deceased.
7. Age of the deceased.
8. Cause of death.

9. Name of the *dai*/midwife who attended on birth.

10. Name, parentage and residence of person making the report and his signatures or thumb impression.

9. Place of death.

10. Name, parentage and residence of the person reporting the death and his signatures or thumb impression.

**Working of the Registration System.**

In West Pakistan the Municipal Committees, Town Committees and Cantonment Boards send a copy of entries in the birth and death registers for a week on the expiry of that week, to the District Health Officer of the district concerned. The District Health Officer also receives copies of entries in the birth and death registers of the Union Councils for a month after expiry of that month. These copies are then transmitted to the Director of Health Services of the concerned Region, there being six Health Regions at present in West Pakistan. From these copies, monthly birth and death returns of the towns and rural areas of the districts are compiled manually in the statistical section of the Regional Health Directorate, this section being in charge of a qualified statistician. The annual statistics of births and deaths for the province as a whole are consolidated at the Provincial Health Secretariat.

In East Pakistan, the District Health Officers/Civil Surgeons receive the reports of births and deaths from the rural and urban areas of their districts which finally reach the East Pakistan Bureau of Statistics for mechanical tabulation. The final tabulations are forwarded by the Bureau to the Director of Health Services, East Pakistan where these are incorporated in the annual reports.

In theory the returns of any month would reach the tabulation office with a delay of about one month and the final tables should be ready within a month of receipt of the copies of birth and death registers in the tabulation offices. In practice, however, the system does not work so smoothly. The district offices are not able to send the copies to the tabulation offices in time as they seldom receive such copies from the registration units punctually. The punctual receipt of such returns by the district offices is rather a rare phenomenon.

In West Pakistan due to manual tabulation preliminary returns for parts of districts are difficult to compile. The completed tables, therefore, become available after a lapse of a few years. Similar situation prevails in East Pakistan

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where inspite of mechanical tabulation the data become available after long delays.

Moreover the extent of coverage in different parts of the country is unknown in the sense that it cannot be stated definitely that events registered in all the towns and villages covered by the registration system have been accounted for in the final tabulations. This deficiency is further confounded with under-registration of vital events prevalent to different extents in various urban and rural areas.

In the former Punjab Province where the registration system was comparatively better than other areas in Pakistan, it was estimated[13] that during the period 1950-52, the actual number of births was 27 per cent higher than the number of registered births and the actual number of deaths was 53 percent more than the number of registered deaths. For the same period for the registration areas of West Pakistan the registered deaths were estimated[14] to be 50 per cent of the actual number of deaths and the registered births to be 63 per cent of the actual births.

The registered events[15] of births and deaths for the year 1951 for East Pakistan, estimated from the vital rates compiled by Ahmad[16] would come to 29 per cent and 23 per cent respectively of the actual events occurred.

If the birth and death rates for East and West Pakistan for the period 1961-64 as reported to the Director General of Health, Government of Pakistan be compared with the Population Growth Estimation Project crude birth and death rates[17] given by longitudinal registration for the period 1962-65 the extent of registration in West Pakistan would appear to be 57 per cent and 50 per cent of the expected number of births and deaths respectively and in East Pakistan it would be 30 per cent and 38 per cent of the expected number of births and deaths respectively.

**Limitations of the System.**

As has already been pointed out that the system suffers from varied extent of under-registration and is not able to distinguish between local areas of extremely poor registration and those with fairly complete registration. Moreover the areas covered by the registration system in actual practice are not known. It is possible that many villages and parts of the cities may not be reporting births and deaths at all. Institutional events in large cities may also escape registration.

It is also questionable whether all the accidental deaths are being registered at all due to their being registerable at the place of occurrence. It is possible that many events are registered at the place of normal residence or the burial places rather than the place of occurrence. It is even not known whether dates of occurrence of events are correctly reported. A few events of many years ago can appear in tables of a particular year due to the tabulations being undertaken according to date of registration.

The causes of death are un-reliable as the same are reported by lay persons. Most of the deaths when tabulated according to cause fall into undefined categories rather than specific causes of death. The medical certification of the cause of death is not possible due to acute shortage of doctors in the country. As such the International List of Diseases and Causes of Death is not being followed for classification of deaths according to cause. The age-reporting suffers from similar defects as are exhibited in census age returns. In the case of births, the age of mother and the order of birth/live birth are not registerable which is a handicap for detailed analysis of these statistics.

The basic limitation of the system is an almost complete lack of control over the registrars who are neither properly trained for carrying out this duty nor their work in this respect is being properly supervised. The registrars do not realize the importance of this work due to other administratively more important duties assigned to them. The existing rules on the subject are not rigidly enforced by the registration authorities even in the urban areas.

The divided responsibility between the Health Department and the Basic Democracies and Local Government Department does not lead to a very well coordinated effort towards improvement of the existing situation.

**Suggestions for Improvement.**

For a long time to come the country cannot afford to have whole time registrars of births and deaths for different local areas as the cost is prohibitive. If each Union Council could appoint a vaccinator who could perform the duties of prevention and control of infectious diseases as well as registration of births and deaths then the Health Department could exercise better supervision and control over the registration system. During the training period of such staff members, at the time of their employment, they could be made conversant with various vaccination and registration rules and returns. A comprehensive manual could be drawn up embodying the relevant sections of various Acts, Rules, Regulations and Bye-laws covering registration.

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The list of items to be registered for births and deaths may be so enlarged as to cover at least the basic requirements in this respect laid down by the United Nations. It would be preferable if the items listed by the United Nations as first priority items are also included for being registered for each vital event.

In the beginning more efforts should be concentrated on registering all events occurring in various local areas and health facilities be developed on the basis of a more efficient registration system in the local areas. This would be an incentive for local areas to achieve completeness of registration. The efficiency of the field health staff should also be judged from their achievement in attaining a high level of registration.

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# BRIDGING SHORTAGE OF ANIMAL PROTEINS IN OUR DIET

*By*

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According to a recent estimate made by the Protein Committee of Pakistan (NSC 1968), the consumption of proteins in the country averages 45.4 gm. per head per day. The animal proteins account for 23.6 per cent of the total protein intake as against the desirable extent of 50 per cent (Moltram, 1963). The shortage of animal proteins is likely to amount to 44 million maunds by 1985. In our diet, animal protein should form half of the intake of total proteins. However, even if they are allowed at the rate of 40 per cent of the total protein intake, a shortage of 14.3 gms. of protein per head per day or a total of 15 million maunds of proteins of animal origin per year is needed. The present trends in population growth indicate that protein gap would continue to increase by fourfolds by 1985 unless well planned measures are instituted to remedy the situation.

## I. Main Sources of Animal Proteins

Main sources of animal proteins are milk, meat, egg and fish. The major factors responsible for the existing shortage of animal proteins are firstly because of poor performance of livestock and poultry and secondly due to huge losses during storage and marketing. Increase in milk and meat (beef and mutton) require long term development plans. The Animal Husbandry Department have undertaken work on a number of projects.

Poultry and fish production are the quickest and the easiest methods of increasing the production of proteins of animal origin. The Government is already concentrating on the development of marine and inland fisheries resources.

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**II. Beef Research Centre, Sibci.**

(*a*) *Beef Breed* : With a view to develop beef breed of cattle, Drought Master beef breed of cattle was imported from Australia and work on cross-breeding with Bhagnari, Thari and Sahiwal breeds, is in progress. The main objects of this breed is to evolve beef breed which should not only stand hot climate, but should be able to improve the feed conversion ratio. The first phase of the experimental work has given encouraging results.

(*b*) *Australian Sheep Breed :* Our indigenous breeds of sheep are multipurpose breeds for wool, mutton and milk. In this Age of Science and Technology, efforts are being made to develop specific breeds for specific purposes. With this in view one hundred Australian Mutton Sheep Breed have been imported for crossbreeding work with indigenous sheep breeds. The main object of the programme is to develop mutton breed which mature early and give suitable quantities of meat.

(*c*) *Peking Ducks from China* : It has been reported that Peking Ducks of China mature early like Broilers and each breed gives about 1.75 killos of live weight at a relatively early age. The egg production rate in Peking Ducks is also high and the possibility of developing a breed of Duck which can stand our environment is being explored. The idea is to utilize our village ponds organized ponds and water logged areas so as to improve our rural economy. It may be of interest to mention here that Ducks are comparatively resistant to diseases. The experimental work on Peking Ducks is already in progress in Lahore.

**III. Rearing of Unwanted Calves**

Research work at the Animal Nutrition Section, College of Animal Husbandry, Lahore was started to study the possibility of rearing unwanted calves and bullocks on cheap rations. The results of the experience were very encouraging. A scheme titled "Rearing of unwanted calves" has been prepared and is being processed.

**IV. Milk Production**

In West Pakistan sufficient quantity of milk is available in the rural areas but the problem lies in the marketing of milk from the milk pocket areas to the areas of demand. A large quantity of milk is not properly utilized in rural areas. The Government of Denmark was requested to send a mission to study the problem of Dairy Industry in West Pakistan during October, 1969. The report of the Denish Mission has been received recently and it is being proces-

sed. The development of milk Chilling Centres in milk pocket areas is the immediate need. The Animal Husbandry Department have two Milk Processing Plants in operation at Lahore and Karachi. The two plants are producing about 40,000 packets of milk a day and all steps have been taken to boost up the production of these plants. With these plants there are three milk Chilling Centres in operation in the milk pocket areas. The Project Directors milk Plants at Lahore and Karachi have moved UNICEF for the installation of more milk Chilling Centres so as to improve the shelf-life of the milk to be marketed. The privately owned milk plants are also being assisted to improve their production and marketing operations.

**V. Broiler Production.**

Realising the acuteness of the situation, the Government of West Pakistan has started a project with the help of World Food Programme termed as "Increased Broiler Production Scheme". This scheme envisages broiler production to the tune of 10 million and an increase in layers by one million by the end of 1973. This would contribute to substantial increase in the production of proteins of animal origin in terms of poultry meat and eggs. The project is having an impact on the development of poultry industry which in turn will influence the national health status.

Under "Action Programme" monthly targets have been fixed for broilers and layers production and for the month of May, 1970 the target of 3.5 million broilers and 0.5 million layers have been accomplished. The following measures have been adopted to achieve the targets.

1. Emphasis on broiler production (an 8-week old broiler weighs about 2.8 lbs., whereas a desi chick attains this weight in a period of six months) by Poultry growers throughout West Pakistan.
2. Introduction of utility breeds of poultry to improve egg production.
3. Upgrading Desi poultry breeds with exotic breeds like white leghorn and RIR.
4. Arrangement for the supply of parent stock of exotic poultry breeds.
5. Manufacture of poultry equipment at Karachi, Lahore, Lyallpur and Rawalpindi.
6. Supply of balanced poultry feeds at cheaper rates through feed mills located at Karachi, Rahim Yar Khan, Lahore, Gujranwala and Lyallpur.

7. Effective disease control measures through mass vaccination.
8. Organisation of marketing facilities at places of production i.e. Karachi, Lahore and Rawalpindi.

Considerable incentives have been given to the poultry growers in view of Governors Conference recommendations. The big hatcheries are in operation in Karachi and Lahore to meet the growing needs of the poultry growers. In the private sector organized farms have been established at Karachi, Lahore, Lyallpur, Rawalpindi, Gujranwala, Sheikhupura, Multan, Sahiwal, Hyderabad and Quetta. A number of farms are being planned in other cities, keeping in view the demands of the people. Major feed ingredients have been supplied at subsidized rates to reduce the prices of commercially prepared poultry feeds. The result is that the poultry growers are getting feed and chicks at reduced rates. The capacity of the present feed mills to produce poultry feeds comes to about 8700 tons per year. The reduction in prices of poultry feeds and day-old Chicks due to W.F.P. grains has benefitted the poultry growers to save about Rs. 500 for raising 1000 broilers in a 8-week period.

*Day-old Chicks* : The hatching capacity of the three hatcheries at Karachi and Lahore is about 1.5 lac day-old chicks (broilers and layers) per week. By the end of June, 1970, it is hoped that the hatching capacity will be increased to about 2 lac chicks per week. Even then two more hatcheries are being planned to meet the growing demands of poultry growers. The prices of eggs and broilers fluctuate due to factors not always connected with supply and demand. The elimination of middle-man would help in the stabilization of prices. More processing plants with adequate storage facilities are being planned to provide ready market for broilergrowers at Karachi, Lahore and Rawalpindi.

## VI. Disease Control

Major poultry diseases such as Rani-khet disease, Spirochaetosis, Fowlpox, Coccidiosis have been brought under control by adopting prophalytic measures under a well planned Disease Control Programme. During the year 122.5, 12·7 and 4.7 lac doses of Rani-khet disease, Fowl-Pox and Tick fever respectively were produced at the West Pakistan Veterinary Research Institute, Lahore. The Animal Husbandry Department is also rendering technical advice on planning, housing, management, feeding and marketing of poultry and poultry products.

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With these concerted and coordinate efforts on the part of the Government, private sector and industry, improvement in the intake of proteins of higher biological values such as poultry and eggs has taken place. Efforts are being continued to further enhance the production of these vital protective foods for our people.

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