

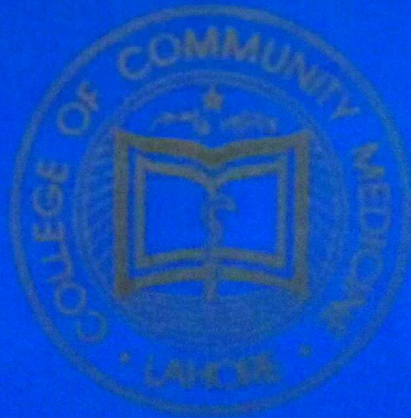
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EDITORIAL

DEVELOPMENT AND HEALTH

Development may be defined as a process which would lead to "Goal-Oriented" changes for the purpose of improving human life. It implies progressive improvement in life styles, working conditions and in quality of life. Development, thus, is a process of organizing and carrying out prudently conceived, and rationally aimed activities directed towards achieving defined goals. But it would be fallacious to consider development only in terms of sustained economic growth. Development, in fact, necessarily implies accompanying positive social and political changes.

Good health and productivity are the basic objectives of development. They are reciprocal and complimentary. Without health, productivity can hardly gain momentum, and similarly without productivity opportunities for acquiring better health cannot develop. Only people who enjoy good health can enjoy working, and are likely to achieve a high degree of productivity. Health is not only basic to leading a happy life but is necessary for all purposeful and productive activities in a society. It is man's most precious asset and its promotion is essential for sustained economic and social development. Unfortunately, often, social planners forget this simple truth, and squeeze health out of their "Planning horizons".

It is universally accepted that health is a fundamental human right. Health and Development are closely inter-linked and are inseparable. Thus, good health is both a major pathway towards development, as well as an end-product.

A large number of nations of the World are finding themselves handicapped in meeting the felt health needs of the masses, especially in rural and poor urban communities. Advances in medical technology and therapeutics have further widened the gap between the "haves and have-nots". Post-war models of western health systems have not worked in Third World countries because of different cultural, economic, political and geographical settings, and also due to different patterns of health and disease. The framework in which health status is maintained is different for the rich and poor worlds.

In the presence of scarcity of economic and human resources, different methodologies and different system approaches are indicated. We have to identify the methodologies which are required because of changing social philosophies and aspirations.

The low priority assigned to health by planners and administrators has resulted in lack of dynamic relationship between health and development. Submissive and obliging health planners and administrators have therefore continued to adopt the old models of Health Care Delivery Systems in the Third World countries, which have out-lived their utility. Health officials, usually lacking political support, have found it convenient to be accommodative, rather than aggressively attempt to win the necessary political support for essential health-based social changes.

The capital and maintaining costs of urban based hospitals and health centers, and the use of inappropriate technologies and non-productive operational methodologies, account for the bulk of health expenditure in Pakistan. Urban population which constitutes about 20 percent of the population absorbs about 80 percent of the health budget and available health manpower. The distribution of qualified health manpower is skewed. Highly qualified and experienced health personnel feel little responsibility towards poor people specially in the rural areas and urban slums. This has resulted in an extraordinary situation. The limited services available to rural population are under-utilized and work at low level of efficiency. Poorly framed priorities do not coincide with consumer needs.

Medical skills and services are distributed on the basis of political pressure and in response to the demands of pressure groups. They are also dependent upon the sophisticated norms set up by super-

specialized experts who have major concern for persons and not for communities. Unequal economic factor encourages and supports the concentration of medical skills in a few urban metropolitan areas. Economic framework is also responsible for the brain-drain of medical skills from the already depleted Third-World countries to the developed industrialized World. The net result of all the above anomalies is that health care system is developed in such a way that it serves selectively the interests of a small percentage of richer population. The cost-explosion caused by high-technology-care, and demand by pressure groups for super-specialized personnel not only depletes resources available to poor, but perpetuates the state of deprivation and want.

Culturally people have high regard for medicine. They have a mistaken belief that practice of medicine can solve all their woes. They have not realized that social problems of development cannot be solved by medicine but require a mix of socio-economic and political approaches. Without this support the health dilemma cannot be solved. Medicine can no longer be visualized as one of the most fundamental contributors to good health. The determinants are controlled by the social order and political maturity of a nation.

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COMPUTER-BASED MULTIMEDIA PATIENT EDUCATION SYSTEM FOR PRIMARY CUTANEOUS MALIGNANT MELANOMA

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Overview of Melanoma

Over the last few years, the eyes of public health have focused much attention on malignant melanoma. This stems largely from United States data (Canadian data is scarce), which shows that the incidence of malignant melanoma is rising faster than any other form of cancer, and it is doing so in an exponential fashion¹. This is reflected in the lifetime risk figures for the development of malignant melanoma which are 1 in 1500 for 1935, rising to 1 in 105 for 1991, and projected to rise to 1 in 75 by the year 2000 if current trends continue² (Figure 1). These numbers are especially alarming when one considers that this form of cancer kills predominantly young and middle-aged adults. The result is a very high number for potential years of life lost, namely 17.1 years³.

removal. After all, the ten year survival rate for a lesion less than 0.85 mm thick is 95.7% whereas thicker lesions have decreasing survival rates⁵ (figure 3). Thus improving early detection is important, however prevention of new lesions is the most desirable situation. It seems logical then to focus on improving primary and secondary preventative strategies. It is the family physician who is in the ideal position to provide these services.

Fig. 1 Lifetime Risk of Melanoma

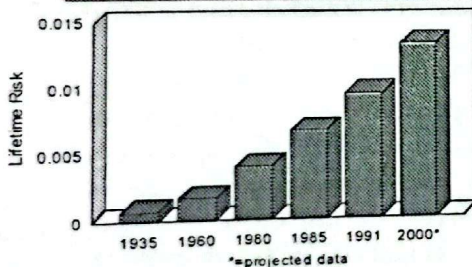
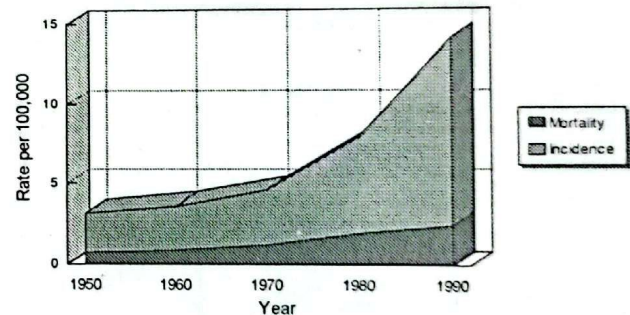
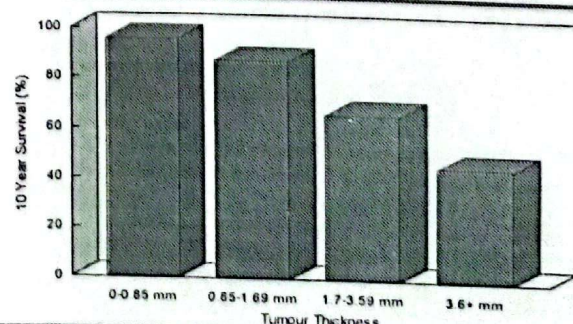


Fig. 2 Incidence and Mortality of Melanoma



The Mortality rate continues to rise as well, albeit in a linear fashion (almost leveling off), with 1994 estimates of 3% for men and 3% for women⁴. Despite the alarming rise in incidence and the more level rise in mortality of this disease (Figure 2), five year survival has increased substantially from approximately 40% in 1940 to approximately 80% presently⁵. This has occurred without any change in the major treatment modality-surgery. The small rise in the mortality rate and the increase in cure rate are probably a result of earlier detection and treatment of thin lesions. This data seems to suggest that patient survival with malignant melanoma is directly related to earlier detection and

Fig. 3 Ten Year Survival Rates of Melanoma



Primary Prevention

Primary prevention involves reducing the risk of acquiring a certain illness or disease⁶. This can be achieved through a number of avenues.

- mass media campaigns
- directed campaigns in schools, workplaces etc.
- education from health-care professionals during office visits.

The thrust of such education should be towards identifying high-risk individuals, and towards promoting sun protection and avoidance. The high-risk group⁷ would include individuals who:

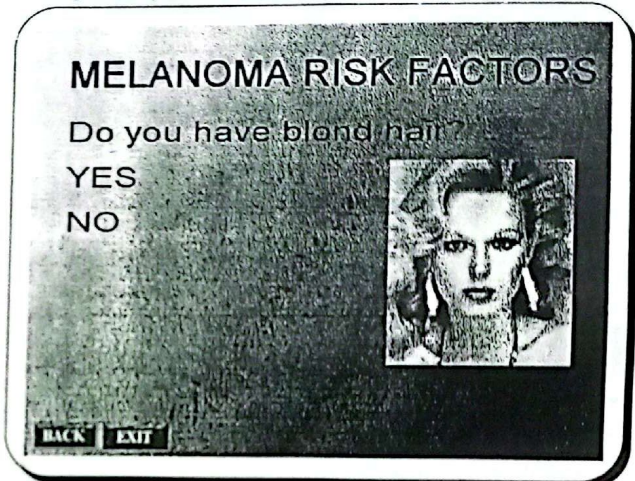
- have a large number of typical moles
- have atypical moles
- have a family history of malignant melanoma
- have had prior melanoma
- have a history of repeated severe sunburns, ease of burning, freckling or inability to tan.

This group should be made aware of their increased risk and taught strict guidelines as to sun

protection/avoidance (i.e. appropriate clothing, hats, sunscreens etc.). The same message should be directed towards the general public as well, but the thrust need not be as intense.

The final step in the primary prevention strategy is an assessment of its effects on incidence and mortality. This is currently being examined as present strategies are relatively new, and it takes a number of years to see changes in these parameters.

Fig. 6 Sample screen from risk factor assessment questionnaire



Secondary Prevention

Secondary prevention involves early detection and prompt treatment of disease⁶. Its aim is to cure disease and to limit disability. This can be achieved via public education and/or screening. Public education appears to be a very important factor in the early detection of malignant melanoma, if one looks at studies illustrating the reasons for delayed diagnosis. A British study in 1986 concluded that patient delay in seeking medical attention was a key factor in the delayed diagnosis of malignant melanoma⁸. In another study, Cassileth et al. found that both patient and physician delay lead to an average diagnostic delay of 12.7 months after the patient noted a new or changing lesion⁹. The average time sequence of event can best be shown using a diagram¹⁰ (figure 4)

"A" represents the time between recognition of a new or changing lesion and the time when the patient became suspicious. This interval was 7.3 months on average. "B" represents the time before the patient sees his/her doctor after becoming suspicious and it averaged 1.5 months. "C" represents the time delay due to physician inability to recognize the lesion as malignant melanoma and was on average 3.9 months.

Cassileth et al. showed, in a different study conducted in 1987, that patients reacted slowly to the

FIGURE 4

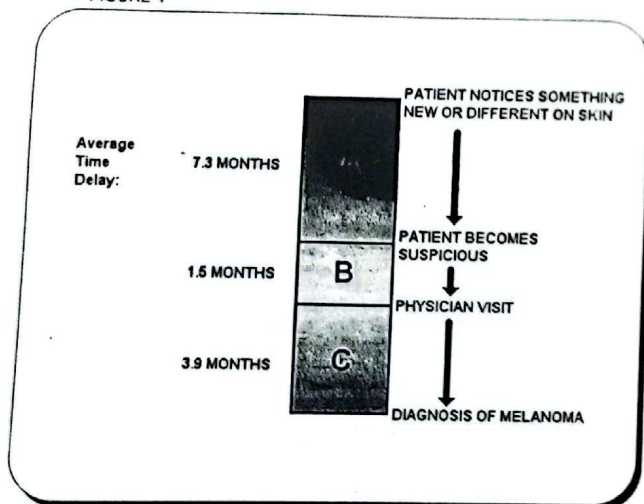
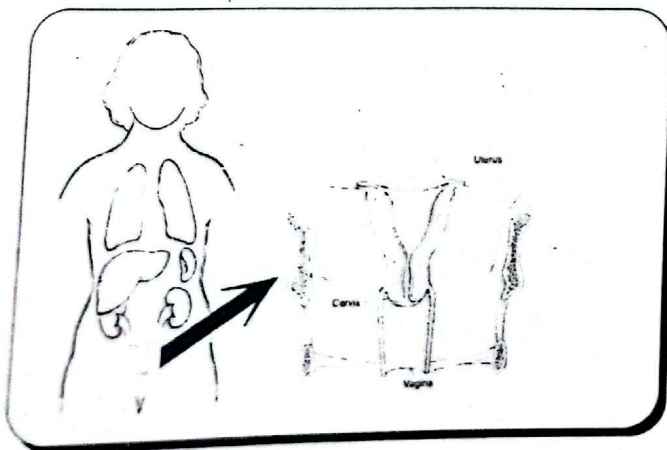
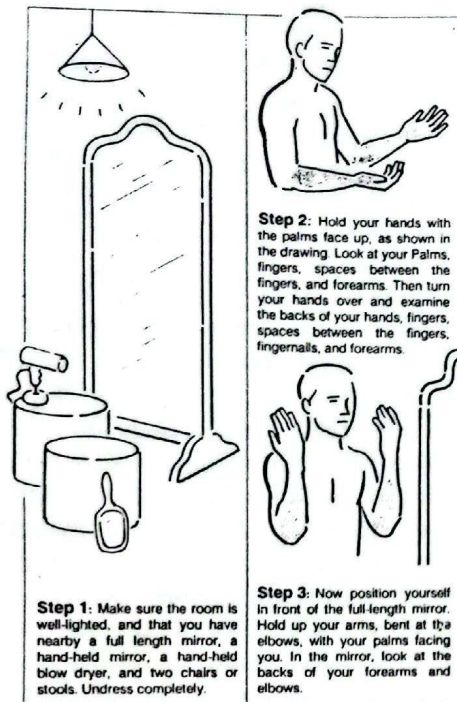


Fig. 5 Sample frame from animation sequence illustrating growth and metastasis of cancer (cervical cancer used as an example)

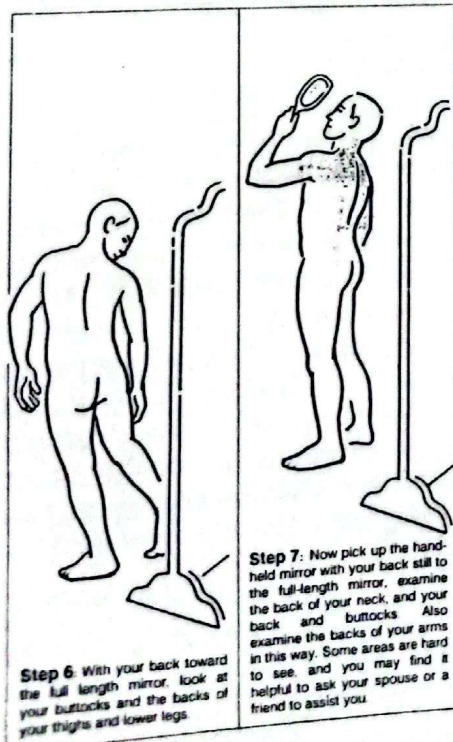


early signs of malignant melanoma (i.e. change in size or colour), and more quickly to the late signs such as



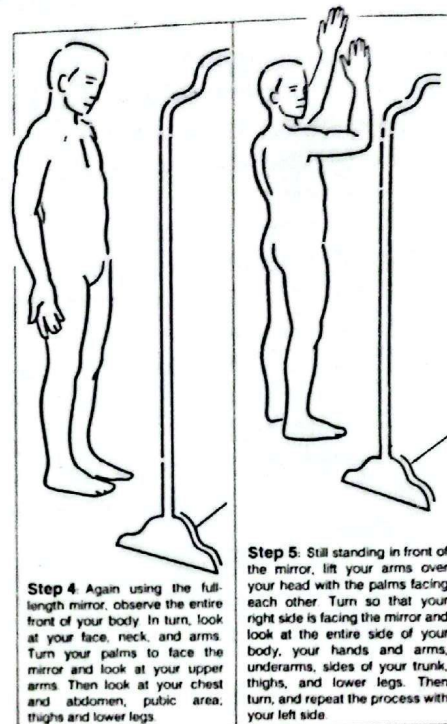
Exercise

bleeding or ulceration¹¹. The patients that saw their physicians in response to the early signs of malignant melanoma were found to have significantly thinner lesions at excision and thus greater curability.



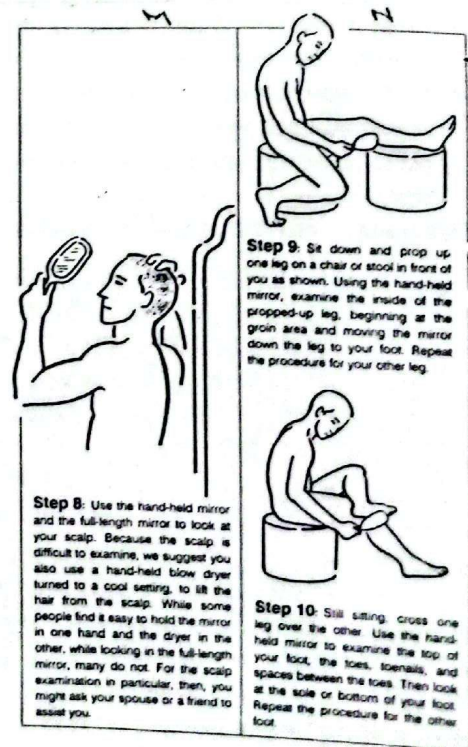
Exercise

There seems to be a major role for the education of patients about malignant melanoma, including self skin examination, and the need to seek medical



Exercise

attention if they see the early signs of this disease. After all, if lesions are removed earlier, the likelihood of cure will be increased (as discussed earlier).



Exercise

Besides patient education and self-screening, secondary prevention of malignant melanoma involves patient screening by their physicians. In many ways this disease meets the fundamental requirements of a screening program:^{6, 7, 12}

1. Melanoma is an important health concern as evidenced by its rising incidence and mortality.
2. The natural history of melanoma is known and there is a recognizable pre-metastatic phase.
3. Visual examination of the skin appears to be a suitable and acceptable screening test.
4. An accepted treatment is available for early disease and this treatment is effective in reducing morbidity and mortality.

On the other side of the issue, further preparation of primary care physicians is required before widespread patient-screening efforts can be implemented⁷. Furthermore, there is very scarce data to show whether generalized screening for malignant melanoma is effective in reducing mortality or is cost-effective, and to date no randomized control trial of screening versus no screening has been done^{7, 12}. Anecdotally, screening for malignant melanoma seems to show promise, but more work needs to be done in the areas of implementation and in evaluating its effectiveness.

It is clear from the preceding discussion that malignant melanoma is an important health concern, and that public education is needed with the aims of increasing public awareness of this illness, defining high-risk individuals, preventing new lesions, and promoting the recognition of early lesions. It is with these goals in mind that we have created a computer-based interactive educational tool for malignant melanoma. Before discussing our program, let us look at some general aspects of computer-based education

Computer in Patient Education

Computer-based education is certainly not a new field, as the first literature on this subject started coming out in the mid to late 1970s. One of the first studies using this "new" technology was done by Fisher et al. in 1977¹³. They examined "clean-catch" urinespecimens from women after spoken, written, computer, and no instruction. They found that the computer-instructed group did better than the written group (based on bacterial contaminants on urine culture) and at least as well as those patients that had received spoken instructions. This paper and other early work sparked interest in the use of computers in patient education. This led to the development of programs on risk reduction and chronic diseases. An example of

the former, the Kardia (a program dealing cardiac risk factors), was evaluated by Chen et al. in 1983¹⁴. They placed this education module in the waiting area of a family practice unit and found that 97% of the 109 people that used the program favoured the use of such programs. Furthermore, 90% of the same group found the computer very useful in improving their "health" knowledge. An example of the latter is diabetes education. Many programs are available that teach diabetic patients how to administer insulin, adjust insulin doses, self-test blood glucose, manage their diets, and monitor for complication¹⁵. One such program on improving dietary habits in diabetics was shown by Turning et al. to reduce blood hemoglobin A1C and maintain these reduction for 1 year¹⁶. Other more recent programs have been developed for preoperative/postoperative counselling and decision-making¹⁷. One such program on benign prostatic hypertrophy was designed by Wennberg et al¹⁸. The program showed patients the risk and benefits of surgical and non-surgical treatment in an interactive format. A prototype of this program was used in an HMO in Denver, Colorado between 1989 and 1991 and it was shown to reduce the number of surgeries by 44%. Today there are many other programs available on a variety of topics ranging from asthma, cancer, and cardiology to venereal diseases and weight control. They provide information on various diseases (especially chronic), medication compliance, disease prevention, and patient decision-making¹⁹.

It is largely the renewed interest in patient education in general that has led to the growth of computer-based patient education¹⁹. The patients of today want to be well-informed about their illnesses and the interventions that they undergo. Many of those with chronic conditions want to be actively involved in their treatment plans. It is these issues that form, in part, the basis of patient-centred care. Several studies have shown that better medical outcomes occur if patients become more knowledgeable about their illnesses and play a bigger role in their treatment process. Another important issue is that of "informed" consent. Patients require a great deal of knowledge surrounding a procedure in order to make their consent truly "informed". In fact, this issue has been at the centre of numerous medico-legal cases. In many cases, the above goals are not being met because of poor doctor-patient communication.

Several barriers exist in the process of effective patient education¹⁹. The first and probably the most important one is a lack of the health-care providers' time. It is very difficult to provide adequate patient education in a busy office setting, because often the

need for such education is unanticipated when patients are booked. A second barrier is the financial aspect; many physicians do not think that they are adequately compensated for spending time on patient education and thus minimize its use. Another major problem is an administrative one. Physicians receive numerous educational tools from journals, conferences, drug company representatives etc., but these tools are often set aside in a corner or closet in the office. In this way, these tools are not readily available for use when the need for them arises.

It is clear that patient education has become an issue of paramount importance in today's medical practice, but that there are still a number of barriers to its adequate delivery. This is exactly why computer-based education is becoming more popular. The computer offers many advantages^{19,20}.

1. It is easily accessible to the patient and can be adapted for various settings (eg. office, shopping mall etc.)
2. It allows the patient to learn at his/her own pace, and to review the material several times over.
3. The message provided is consistent, but can still be individualized to suit various patient's needs.
4. The computer offers privacy of instruction, which may be important for topics such as sexual problems or substance abuse.
5. The computer can be made constantly available, whereas the health-care professional is not.
6. This form of education is cost-effective because it decreases use of staff time.
7. A record of educational activities and outcomes can be kept automatically.
8. The computer can provide very interactive learning (unlike a video which is not interactive) and can teach through various methods including games and simulations. It allows the patient to choose what they want to learn about a particular subject.

It is these advantages that makes the computer a good educational tool for the general population, but especially for the elderly, children, and those with slowed learning. This form of patient education has its drawbacks as well. These are as follows²⁰:

1. Illiterate or blind individuals cannot use this medium effectively.
2. Software, although much more abundant than previously is still limited. This situation is constantly changing as more and more programs are being developed.

3. Certain patients/healthcare providers may still be fearful of computers. This situation can be alleviated by proper computer instruction of the staff. Ideally, a good patient education program should be very user-friendly.
4. The initial cost of hardware and software may be prohibitive. This must be balanced with the time saved by office staff and potential increased patient satisfaction in the long run²¹.

We feel that these downsides are easily outweighed by the benefits of this medium.

Computers clearly have an advantage over the traditional education tools such as booklets and pamphlets in the area of information storage as well. They can systematically store numerous different programs, which are easily available at the touch of a button. Thus they save not only teaching time, but also the time spent hunting for other teaching modalities in the office setting. We will now take a closer look at the program that we have developed.

Our Computer-Based Patient Education Module

We have developed a multimedia patient education module for malignant melanoma. It is clear from the earlier discussion about melanoma that this disease is a major health concern and that it is one that lends itself towards primary and secondary preventative strategies. It is also clear from our prior discussion that computers are a new and effective means of patient education. It is the marriage of these two premises that lead to our development. An extensive literature search on the Medline, Health, and Cinahl networks revealed no literature on a similar undertaking for patient education on malignant melanoma. There are obviously pamphlets, booklets and television programs on this subjects. The only apparent similar undertaking to date was discussed in article by Demirjian²². In 1990, a group of dermatologists affiliated with the Royal Victoria Hospital and the Sulzberger Institute of the American Academy of Dermatology used digitized pictures of cutaneous pathology to create a module called "The Primary Cancers of the Skin". This module was used to teach dermatology to medical students, residents, and other physicians. In 1992, a second such module entitled "The Pigmented Lesions of the Skin" was developed by a group of physicians affiliated with the Montreal General Hospital and the Royal Victoria Hospital. It is this work that has inspired us to unite the important health issue of melanoma with the most appropriate technology to communicate its message to

the public. The tool that we have created is intended for use by the general public and has been designed at a grade 8 reading level. It allows the patient to access areas which are interesting and important to them. Teaching occurs via a variety of modalities including text, pictures, animations, and sound. This modality can easily be placed on a computer in a physician's office, a school, a workplace, or any public place. In the office setting, patients can play with the computer while they are waiting to see their physician. This would allow them to bring to the attention of their doctor any suspicious lesions during their present or future visits. Alternatively, they can be directed to use the computer after their visit if their physician has found them to be at high risk for melanoma. This would save a lot of their physician's time and would provide the patient with valuable information that they may not otherwise receive with respect to melanoma prevention and early detection. We feel that the dimensions of sight, sound, and interactivity offer the patient a unique and potentially superior educational experience when compared to the other media presently available on melanoma such as brochures, posters, and televisions.

Summary and Discussion

In summary, we have looked at the growing health concern surrounding malignant melanoma and determined that patient education is definitely needed to curb this growth. Patient education for this disease should be based on the primary and secondary prevention modalities of the classical disease prevention model. The ideal aim of this preventative strategy is disease prevention via sun protection strategies etc., and the next best thing is early detection of thin lesions. After all, early removal of thin lesions was found to be curative in the majority of patients.

We then examined computer-based patient education and its advantages and disadvantages. In our view, the benefits seemed to far outweigh the downsides. Most of the disadvantages were related to specific situations that would probably become non-issue if other factors are weighed in such as computer training and the valuable time saved by office staff. In this part of the discussion, various available modalities were briefly looked at.

In the final section of our discussion, we united these two topics in the development of our education module. We found that the subject of melanoma lends itself very well to a video-based educational format. Given all of the advantages of computer-based patient education and the fact that computers have high resolution video capabilities, we felt that this was the

ideal medium to communicate the "melanoma message" to patients. Obviously our intent with this particular program is to teach patients about malignant melanoma, but on a larger scale this program acts as a prototype for future educational programs on a wide variety of health issues. We can make no conclusions as to the usefulness of our module in achieving our preventative goals, more can we conclude whether this form of melanoma education is better than those modalities that already exist. These questions would provide potential research objectives and applications for our program in the future. It would be fairly easy to test the effectiveness of this form of education on primary and secondary prevention of malignant melanoma. With respect to primary prevention, the computer could automatically collect and analyze data via epidemiological questions and pre/post testing. In the case of secondary prevention, initial epidemiological data could be collected during the educational session, and then further data added and collected upon patient follow-up with their physicians. The future prospects are certainly endless and exciting, and we hope that you will find our development useful in the education of your own patients.

Details of the Computer-Based System

The program was created with HSC Interactive, a multimedia icon-based programming language. The user can step through the program by using the mouse to point and click. No keyboard input is required. The user may choose from the following topics in the main menu:

Test your knowledge - a short pre-test for users to test their present knowledge of melanoma

What is melanoma? - a series of modules which explain what cancer and melanoma are (see Figure 5), including graphical statistics illustrating the dangers of melanoma

Are you at risk? - teaches the user what the main melanoma risk factors are by performing a self-assessment of risk factors (see Figure 6)

Prevention of melanoma - a series of modules explaining the importance and methods of sun avoidance, self skin examination, and skin examination by physicians (includes a complete guide to self-examination which can be supplemented by a patient handout⁵ - see Figure 7)

Treatment of melanoma - teaches the user the basics of current melanoma treatment modalities

References- list of current reference articles and books for further study

By making a particular selections, the user advances to either a teaching module or another menu from which they may choose another option. Users are also given the option of stepping backward at any point if they wish to review a particular module. The teaching modules themselves consist of colour pictures (eg. skin lesions, microscopic views of cancers), colour animations (eg. illustrating tumour growth and spread), sounds and speech (eg. to teach the user the correct pronunciation of certain medical words) and descriptive text.

Minimum System Requirements

1. IBM or compatible computer with 80486, 25MHz, with 8 Mb of RAM and mouse
2. VGA 1MB 24 bit graphics card with ability to display 32768 colours simultaneously in 640*480 (eg. ATI Wonder XL 24) and VGA colour monitor
3. 8 bit digital sound card (eg. SoundBlaster Pro), MCI compatibility required
4. 20Mb of free hard disk space
5. Microsoft Windows 3.1

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THE ROLE OF ORGANIZATION, ADMINISTRATION, MONITORING AND PERIODIC REPORTING IN AN OUTPUT ORIENTED HEALTH SYSTEM

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Problems

The birth rates, and infant mortality in Pakistan are still one of the highest in the world. There has been a fall in crude death rate. High birth rates, in the presence of falling death rates, have rendered Pakistan the ninth most populous, country in the world. The population of Pakistan was 84.6 million in 1981 but was estimated to be 110 million to 125 million in mid 1991. Our current estimates of annual population growth rate range from 2.85% to 3.15% (Crude birth rate 42.56/1000 and crude death rate 11.26) inspite of the fact that handsome financial allocation of billion rupees was made to control it in 7th five year plan period (1988-1993). In other words the 7th five year plan has been unsuccessful in implementing its population control programme with reference to its objectives. The system and its inputs, did not meet the requirements for child survival and birth control.

Demographic Indicator of Pakistan

Total Population	124.8 Million
Crude Birth Rate	41/1000 Pop.
Crude Death Rate	11/1000 Pop.
Growth Rate	3.2%
Infant Mortality Rate	95/1000 LB
Maternal Mortality Rate	5/1000 LB
Contraceptive User Rate	12% MWRA

Source: State of World Children 1994, UNICEF

Failure to lower birth rate and infant mortality rate may have been due to inadequacy of allotted resources, of culture base life styles, etc but it may also be due to defective managerial approach resulting in non-effective professional performance. We may need additional innovative inputs for ensuring the required outputs, Pakistan gives a very high priority to MCH programme, which is expected to provide support and

inducement to communities, leading to a smaller family norm besides soliciting other favourable health related out put for mothers and children. Our main thrust in Pakistan is through F.P & MCH outlets. The Ministry of Health, Government of Pakistan, operates 8677 MCH Center, and the population welfare department provides 1000 F.P & MCH outlets. In addition several NGOs, have 430 units offering F.P & MCH services. The main effort is costing colossal national resources. What has, been missing in our system that the inputs have not yet given the outputs in terms of the expected indicators.

Administrative management is essentially a question of the organization of manpower, material resources and strategy for the accomplishment of a desired goal. It requires and intimate knowledge and understanding of great many factors, including people as well as materials, plus a great deal of curiosity, imagination, determination integrative ability, and good judgement. In a field of MCH (Public Health) there also is required a greater than usual social consciousness and understanding. It involves the power and ability to influence if not to determine the happiness, welfare and even the lives of a large number of people, beginning with the staff of the agency and extending out to include every member of the public. This represents a truly great responsibility.

In a sound and scientific organization, goals must be established, then making plans for their attainment, creating a sound organization providing for practical level of authority and co-ordination, recruit and manage good personnel, delegate responsibility and concomitant authority with rules and regulations needed for smooth operation & efficient work plan & provision of continued leadership & keep the plans & programmes of the organization constantly in tune with social forces on which depends its success and survival.

The MCWAP, since its birth, has been trying to meet an urgent need of the mothers and children. It actively promoted health and welfare of families, with particular emphasis on mother and children who being the vulnerable group fall an easy prey to adverse

environment. Activities aim to develop and demonstrate good quality services through scientific & sound organization, administration with a system of monitoring and reporting for effective, supportive management leading to measurable output indicators.

Before operationalization of the project expected population and work load was calculated especially with reference to mothers and children. Output oriented evaluation criteria for workers performance and impact evaluation was also laid down which was then monitored and evaluated on regular basis.

Expected Population of Each M.C.H Unit

Population	5000
Married Women	1000
Non-Productive Women	250
Productive Women	750

Expected Work Load for each MCH Unit.

Type of Work	No. of Cases	Contact Needed
Antenatal	250	250/Month 10/Day
Pre-Conceptional Care.	500	500/Month 20/Day.
Infant	250	250/Month 10/Day
Pre-School age	1000	333/Month 14/Day

Output Oriented Evaluation Workers Performance

1. Live Birth
2. Survival of Children
3. Survival of Mothers
4. Spacing of Family
5. Vital Data

The report of performance of the comprehensive MCH care projects I am going to present developed in city of Lahore. (The city has an estimated population of 60 million.

The basic objective of the projects was to study if through scientific organization, administration, & with a system of monitoring & reporting, when channeled through MCH Center can enhance CPR for lowering CBR and in addition, provide primary health cover to mother & children.

I. Integrated MCH & F.P Project

Developed in the metropolitan city of Lahore and adjacent to two rural areas.

The project commenced in July 1984, but was fully developed by January 1985. It covers a population of 61, 410 persons (Urban = 50, 683; Rural = 10, 727) and consists of 10 scattered communities (5,000 - 6000 persons each) one MCH centre, with a whole time staff of one qualified lady health visitor, one trained birth attendant and 2 under training birth attendants was located in each of these communities.

Services of graduate medical doctor were available for a group of 5 health clusters (for administrative, clinical and preventive work), and all the ten units were under the administrative control and supervision of a medical director supported by a public health nurse. These two workers directed, guided and supervised the total programme. They checked records, observed and supervised professional performance regularly, giving support and, cope with any situation which needed remedial action instead of just reporting faults.

The Project was under the over all control of one honorary Project Director and a Deputy Project Director (Professors of Prev. Med) who were responsible for operational planning, administration, fiscal management, overall supervision, continued education for staff, monitoring and evaluation.

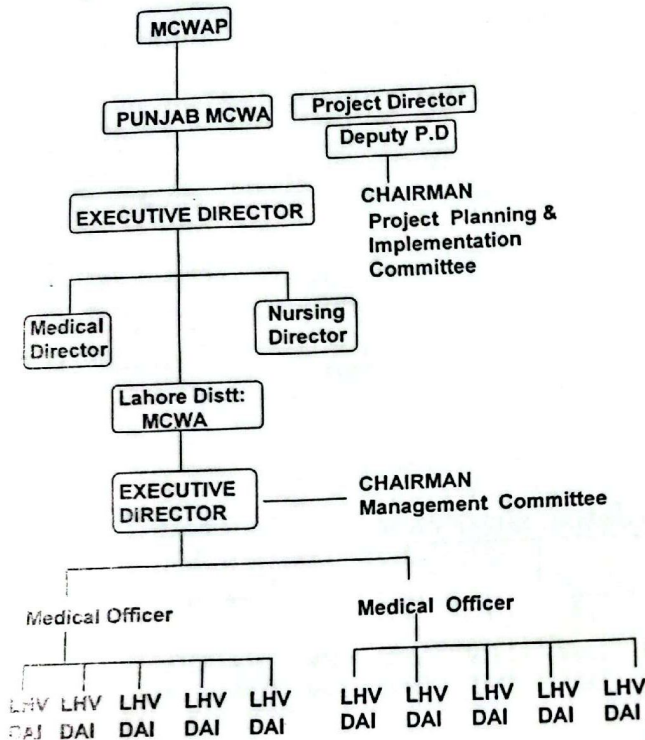
Output Oriented Evaluation Impact Evaluation

1. Decreased Infant Mortality
2. Decreased Maternal Mortality
3. Decreased Birth Rate
4. Decreased Death Rate
5. Decreased Morbidity
6. Economic Benefits
7. Availability of Data

Activities Undertaken

1. Survey of the specified areas for collecting basic demographic data.
2. Families registration for MCH Care.
3. Preconceptional care offered for preventing high risk pregnancies & Family Planning Services in target population.
4. Ante-natal care
5. Keeping contact during lying in period.
6. Post-Natal Care.
7. Infant Care (Breast-Feeding Supplemental Food & Growth Monitoring)

ORGANIZATIONAL STRUCTURE OF THE INTEGRATED M. C. H. & F. P. PROJECT



8. Pre-School Child Care.
9. Nutrition Services & treatment of nutritional diseases.
10. Spacing of reproductive activity & avoidance of pregnancy when high risk is attached.
11. Primary Medical Care at centres & referral for serious conditions.
12. Preventive inoculation to children & pregnant Mothers for prevention of tetanus neonatorum.
13. Training of indigenous Dai.

II. Urban MCH Project

This project started in April 1987, was funded partly by NGOs CC for population welfare and partly by PMCWA Community of 25,000 population selected in urban area of Lahore.

- Population divided in 5 sectors.
- Each sector with about 5,000-6000 population, to offer comprehensive M.C.H.. Services (including F.P)
- 5 M.C.H units of service were housed in one building.
- Objective is to try and show.
- 1. Greater efficiency in inputs due
- To constant supervision by M.D & N.D.
- Resulting in more positive outputs.

A COMPARATIVE STATEMENT OF VITAL RATES LARECHS URBAN MCH COMPLEX 1987-1992, LAHORE

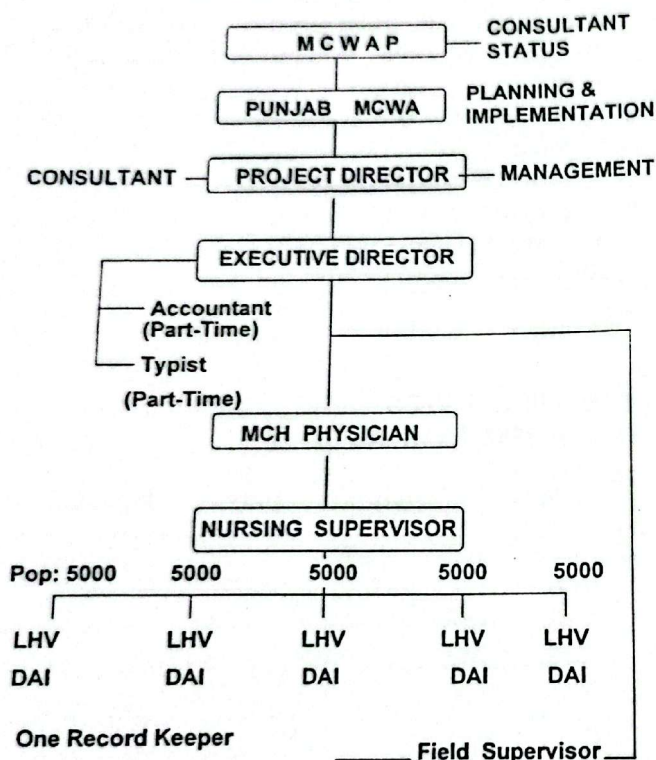
Particulars	1987	1988	1989	1990	1991	1992	Pakistan
Crude Birth rate/1000 Pop.	39.13	32.25	30.13	27.98	26.89	26.22	40
Crude Death rate/1000 Pop.	6.55	5.38	5.47	5.18	5.03	4.6	12
Infant Mortality rate/1000 L. births	67.12	58.28	54.39	46.34	47.14	46.07	80-100
Growth rate%	3.25	2.68	2.46	2.28	2.18	2.16	3.2%
Contraceptive Prevalence rate%	21.3	28.74	32.43	33.51	36.45	38.78	11.14
Maternal Mortality rate% L. Births	1.98	1.1	1.15	2.4	3.72	-	4-6

- MCH physician was responsible for the programme, staff will work

- As a team, with goal & competition spirit.

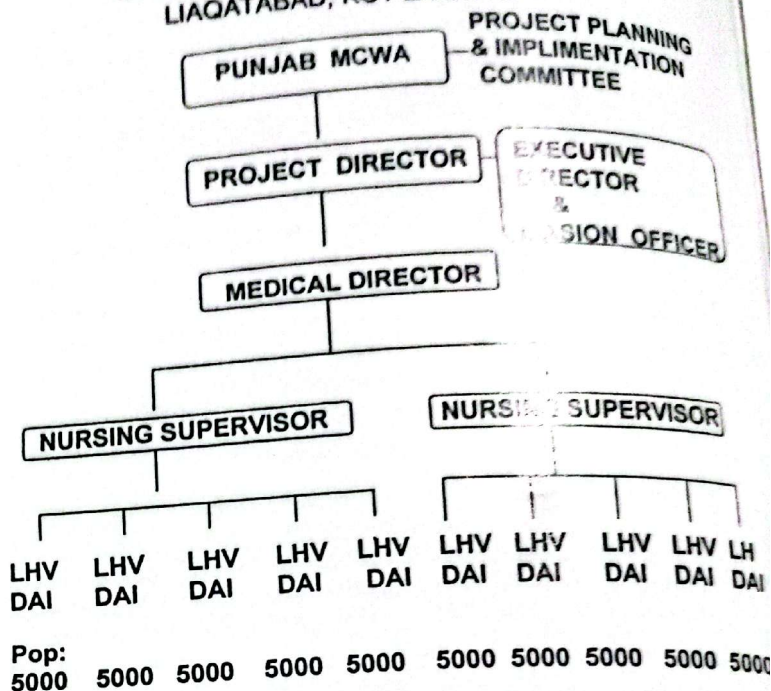
- Honorary Project Director was responsible for planning organizing & implementation, the help of monitoring and evaluation of the project with honorary consultation in MCH.
- Travelling time will be saved and used for technical work by supervisory staff.
- Wastage of resources/money will be saved, by reducing distant travelling.
- Transport has been provided to field team, supervisory staff & consultants.
- Working together will facilitate development of continuing education & morale boosting activities of staff of 5 units by evaluation & comparing their work.

ORGANIZATIONAL STRUCTURE OF URBAN M. C. H. PROJECT

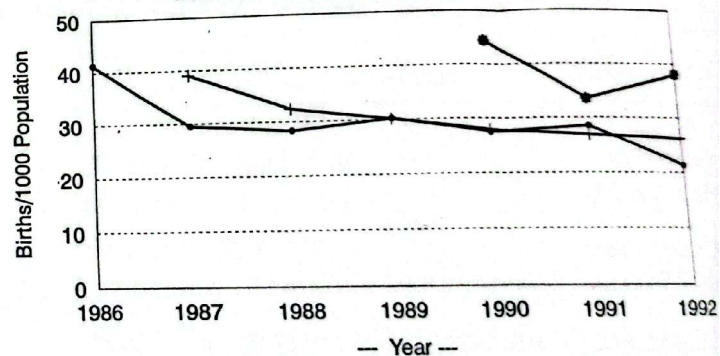


offered by the project. Ten health units housed in one building were organized in Liaqatabad - Kotlakhpat area of Lahore.

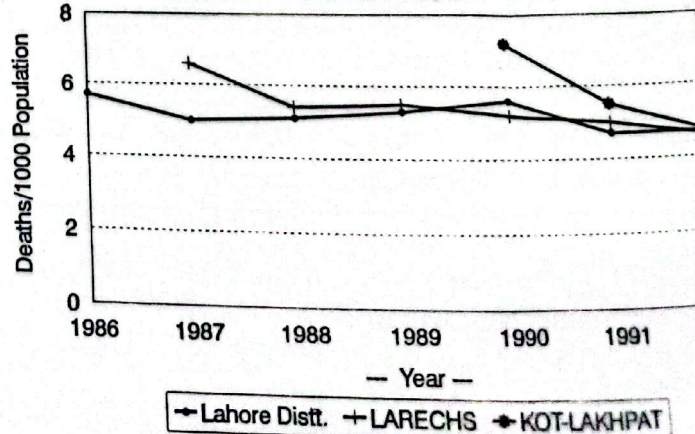
ORGANIZATIONAL STRUCTURE OF URBAN M. C. H. & F. P. PROJECT LIAQATABAD, KOT LAKHPAT



CRUDE BIRTH RATE MCWAP PROJECTS, LAHORE



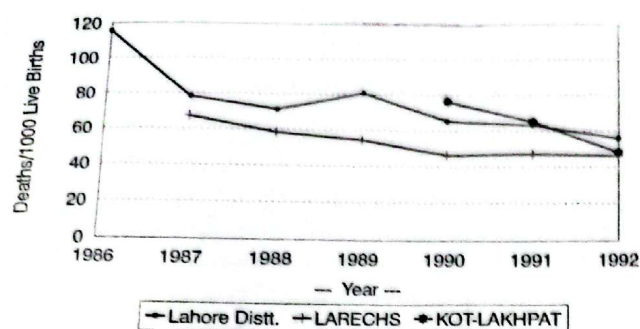
CRUDE DEATH RATE MCWAP PROJECTS, LAHORE



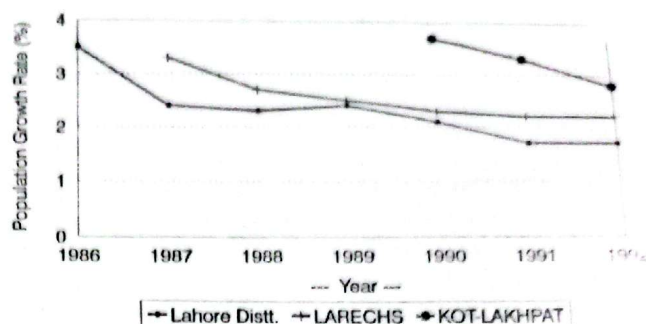
3. Urban MCH & FP Project, Liaquatabad - Kotlakhpat

After the successful operation of Urban Maternal and Child Health Project for purposes of replication of our results, another similar project with a population double the size (i.e. 53, 176) was opened in October 1990, in an extremely disadvantaged group of population having all the negative health indicators in collaboration with Pathfinder International, for demonstrating greater effectiveness of Family Planning acceptance through comprehensive MCH Services. Family Planning was basic component of services

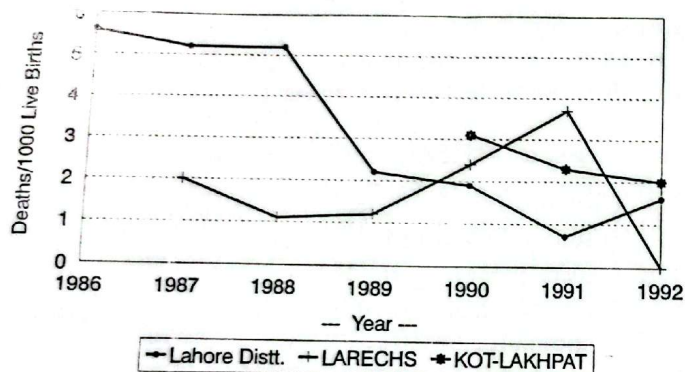
INFANT MORTALITY RATE MCWAP PROJECTS, LAHORE



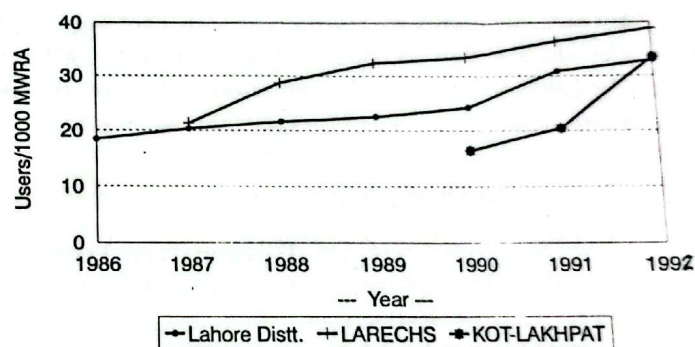
POPULATION GROWTH RATE MCWAP PROJECTS, LAHORE



MATERNAL MORTALITY RATE MCWAP PROJECTS, LAHORE



CONTRACEPTIVE USE RATE MCWAP PROJECTS, LAHORE



Conclusion

Given professional skills and other ingredients these achievements have resulted because of combined effect of the administrative model developed, most of the inputs are similar to those used by other MCH unit in the country but differ in quality. However monitoring and periodic reporting (through peer review) appear to be the most outstanding input. Individual and team motivation are as essential as basic professional knowledge and skill. Only challenging jobs which have opportunities for achievement, recognition, responsibility advancement and growth can motivate personnel.

Running health unit successfully must be treated as a management endeavor, and the unit should be organized and administered on the principles of management behaviour. It is only thus that maximum gains would result from our efforts for attaining good health.

The continued efforts by MCWAP provides a source of inspiration and insight for those of us who are working to improve the health of women and children and children around the world/country.

If the whole of Pakistan could make progress in Maternal and Child Health and Family Planning at the same rate as MCWAP programmes (I have described) there would be no doubt that WHO targets would be met by Pakistan, by the year 2,000 or very soon after.

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INFANT MORTALITY - CAUSES AND SOCIOECONOMIC CORRELATES

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Summary

A cross-sectional survey of a periurban area of Lahore was carried out and data was collected on Infant Mortality through house to house survey. 922 families with live births during 1991 were selected as target families. 85 infants (0-1 year) died during 1991. The Infant Mortality rate was calculated as 92.19 per thousand live births. This study highlighted the different causes of infant mortality and socioeconomic correlates.

Deaths due to delayed labour and birth trauma was noted to be number one killer contributing 31.66% of total infant deaths and diarrhoea was rated as number two, sharing 16.47% of total infant deaths. Effects of education of fathers and mothers were inversely related with infant mortality. The effect of family income was also inversely related with infant mortality. Illiterate mothers experienced infant mortality rate of 110.86 / 1000 live births while mothers having matric and post-matric qualifications experienced I.M.R. of 63.34 / 1000 live births. The illiterate fathers experienced 95.24 / 1000 live births and educated fathers experienced infant mortality rate 87.43 / 1000 live births. The effect of family income on infant mortality was also profound. In low income group (below rupees 400 per capita per month) the rate is 100.158 per thousand live births where as in income above rupees 800 the infant mortality rate is 35.71 per thousand live births. With Chi-square test these results statistically significant.

Introduction

Infant mortality rate in Pakistan has been alarming for decades. "Infant mortality rate (I.M.R.) is defined as number of deaths of infants under one year of age per 1000 live births. More specifically this is the probability of dying between birth and exactly one year of age"[1].

Infant mortality is a sensitive index of health conditions of a community or a country. "Among all infant deaths 33% (one third) occur within one week of birth and 22% of deaths occur in 2nd to 4th week. In other words, more than half of infant deaths occur within four weeks of birth (neonatal death), the remainder are post-neonatal death i.e. 5th to 52nd weeks"[2].

During last three decades there is substantial reduction in infant mortality and child mortality in most of the developed countries."[3]. Causes of high infant mortality in Pakistan are many and vary from community to community. These can be divided into three groups.

- (a) Conditions in mothers which ultimately results in the death of the babies.

- (b) Circumstances during the neonatal period resulting in loss of babies lives.

- (c) Causes present in the babies itself.

"The causes of neonatal deaths are birth injuries, tetanus neonatorum, asphyxia, convulsions and pneumonia"[4]. Poor livings and environmental conditions have considerable influence on infant mortality. WHO, UNICEF and other agencies have launched many programmes for improving the health status of infants and children but are doing nothing to the underlying causes of infant death which are poverty, low wages, food shortage, unclean water, unhygienic surroundings and entry of women in such type labours that prevent breast feeding, sexual exploitation, abandonment of children and preference of delivery by untrained Dais.

Magnitude of Problem Infant mortality rate in India Pakistan was 215 per thousand live births during 1901-1905 where as in England and Wales for the same period the rate was 138 per thousand live births,"[5] "In the year 1918 Maternity and child Welfare Act in England and Wales was enacted and after that there was emergence of Maternal and Child Health as discipline"[6]. "During 1947-51 England brought down the infant mortality to 35 per thousand live births a

in 1955 even down to 24.9 per thousand live births but in India the rate was 127.1 during 1947-51 and 100.4 per thousand live births in 1955"[7].

Table 1. Mortality Rates by Five-Year Periods, 1950-1979

Year	Mortality/1000 briths					
	Neonatal		Postneonatal		Infant	
	PLM	PFS	PLM	PFS	PLM	PFS
1950-54	94	94	72	84	166	178
1955-59	85	85	53	72	138	157
1960-64	74	81	52	72	138	157
1965-69	74	81	52	60	126	141
1970-74	70	78	46	58	116	136
1975-79	70	84	44	61	114	145
1978-79	83		42		125	

Source: Infant and Child Mortality in Pakistan: Some Trends and Differentials Z. Sathar, Journal Biosocial Sciences, 1985[8]

PLM Population, Labour Force, Migration study 1979-80

PFS Pakistan Fertility survey 1984

The decline in infant mortality, however, has been quite small in Pakistan as compared with other developing countries. Available evidences indicate that in Pakistan infant mortality declined by around 37 percent during 1901-1965(I). This figure is quite low when compared with Taiwan and Singapore, which attained about 80 percent decline in 25 years between 1935-39 to 1960-64(II).

Table 2. Regional Trend in Infant Mortality

	Infant Mortality Rates	
	1965	1985
Pakistan	149	115
Bangladesh	153	123
India	151	89
China	158	35
Sri Lanka	63	36

Sources: World Bank Development Report 1987 (UNICEF 1988)[8]

Similarly Sri Lanka, Malaysia, Jamaica and Mauritius attained about 60 percent or more decline in

infant mortality during the same period of 25 years (II). "However during the period 1962-65 to 1984-86 infant mortality in Pakistan declined from 136 per thousand live births to 112 per thousand live births respectively showing about 18 percent decline over the corresponding period"[9].

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Father's education has sure impact on infant mortality, according to a study by Awan AH in Lahore (Pakistan) in 1986. Cohort study was conducted and a sample of 1395 live born babies from urban and rural areas of Lahore (Pakistan) was studied for deaths or their survival (during the period from November, 1984 to 30th September 1985). The study showed that the group with poor educational status of fathers in urban area had an infant mortality rate of 120.31 per thousand live births as compared to 62.91 per thousand live births amongst the better educated group. While in rural area the babies of fathers having lower education experienced an infant mortality rate of 112.4 per thousand live births as compared to 100.00 per thousand live births in the other[10].

Mother's educational status also has strong inverse relationship with infant's mortality. Precisely the education of mother either directly or through improved utilization of health services has better effect in reducing the infant mortality. As acknowledged by UNICEF "girl child is the investment for the future"[11].

Therefore if we in Pakistan will not invest on girl child there will be more low birth weight babies as Malik MS. has advocated by his study. A retrospective hospital-based study was conducted in Paediatric Unit 11, Nishtar Hospital, Multan Pakistan During 7 months for the year 1988, 292 neonates were admitted and out of which 68 died. Therefore 23.3 percent deaths occurred. It was observed that 30 percent deaths were in less than 7 days of age while 18.6 percent death were in more than 7 days of age. It was also found that first week death rate was inversely proportional to low birth weight [12].

Family income also has great impact either directly or indirectly through interaction with other basic needs and thus have a big effect on mortality.

The study conducted by Awan AH in Pakistan showed that the families where father had an income

per capita of rupee below 200 per month experienced infant mortality rate of 115.74 per thousand live births and the second group experienced infant mortality rate of 98.08 per thousand live births. The difference between either groups was statistically significant (standard Error + 1.64) [13].

A study was conducted in a 'Katchi abadi' in Pakistan to study the Morbidity and Mortality Patterns and concluded " In 10000 population of katchi abadi the overall infant mortality rate was 188.5 and under five mortality rate was 218.5".[14].

There are wide variations in infant mortality between geographical areas of the country and between different socio-economic groups. Therefore the study was conducted to find out the causes of infant mortality in the particular area of Lahore and to find out its socio-economic correlates.

Material and Method

The present study is a cross-sectional survey. It is a retrospective study, designed to collect the mortality data of infants and its probable causes, in a defined periurban area.

AIMS and OBJECTS

To collect (a) the mortality data of under one year of age, (b) to find out the major killers of infants and (c) socio-economic correlates, during the calendar year 1991 in the said community.

The related information was gathered from the self administered proformas filled in through house to house survey based on recalled obstetric history. Population of the universe (study area) was 27095 persons and total 4428 families were residing in study area. 922 house hold families with live births during 1991 were selected as target families.

Table 3. *Related information about population in Study Area for the year 1991*

1.	Total Population	27095
2.	Total Families	4428
3.	Family Size	6.12
4.	Numbers of Families with Infants (0-1 year)	922
5.	Number of Infant deaths	85
6.	Alive Infants	837
7.	Neo-natal Mortality Rate	59.65
	per thousand live births	
8.	Post-Neonatal Mortality Rate	32.54
	per thousand live births	
9.	Infant Mortality Rate	92.19
	per thousand live births	

The related data collected from the target families was tabulated along with the information already on record with books of MCH Centre. The tables are made according to the (a) level of literacy of fathers and mothers separately (b) income status of the family and (c) causes of neonatal deaths and post-neonatal deaths. The neonatal post neonatal mortality and infant mortality rates are calculated separately.

Results

The infant mortality rate according to the level of literacy of fathers and mothers are calculated separately in table 4 and table 5 respectively. It has been observed that the infant mortality rate is quite different amongst the different educational statuses. For effect of income status of the family, the infant mortality rate are calculated for 3 income stratas separately in table 6. The mortality rate is fairly high in families with low income as compared with the families having income of Rupees 801 and above per capita per month.

Table 4. *Infant Mortality as Related to Educational Status of Father*

Educational Status	No. of Fathers having Status	No. of live Birth	No. of Infant Deaths	Infant Mortality Rate per 1000 L.B.
Illiterate	378	378	36	95.24
Under Matric	178	178	17	95.50
Matric/Post				
Matric	366	366	32	87.43
Total	922	922	85	92.19

Table 5. *Infant Mortality as Related to Educational Status of Mother*

Educational Status	No. of Fathers having Status	No. of live Birth	No. of Infant Deaths	Infant Mortality Rate per 1000 L.B.
Illiterate	460	51	110.86	
Under Matric	241	241	20	82.98
Matric/Post				
Matric	221	221	14	63.34
Total	922	922	85	92.19

Table 6. *Infant Mortality Related to Income Status of Family*

Income status per capita per month in Rupees	No. of families falling in the status	No. of live births	No. of Infant Deaths	Infant Mortality Rate per 1000 live birth
0-400	629	629	63	100.158
401 - 800	209	209	19	90.90
801 and above	84	84	3	35.71
Total	922	922	85	92.12

Chi - square test was applied on Table 4, Table 5 and Table 6 and the results are statistically significant

Table 7. *Percentage Distribution of Deaths of Infants (0-1 year), According to Causes.*

Diseases	1st Day	1st Week	2nd to 4th weeks	5th to 52 weeks	Total
Diarrhoea	-	2	1	11	14
Respiratory Tract Infection	-	2	0	6	8
Delivery Causes	19	7	1	0	27
Pre-Maturity	4	2	1	0	7
Congenital Malformation	5	5	0	1	11
Tetanus	-	-	2	1	3
Infections	-	-	0	1	1
P.U.O.	-	1	1	9	11
Unknown	-	2	0	1	3
Total	28	21	6	30	85
%	32.94	24.709	7.05	35.29	100%

The causes of infant deaths are tabulated in Table 7 and 8 according to the age of the infants, dividing into four groups (i) deaths on first day of birth, (ii) during first week of birth, (iii) during 2nd to 4th week of the birth and (iv) between 5th to 52nd week of age. 32.94% (28 out of 85) deaths occurred on 1st day of birth, 24.709% (21 out of 85) during 1st week. 7.06% (6 out of 85) during 2nd to 4th week and 35.29% (30 out of 85) during 5th to 52nd weeks.

Table 8. *Percentage Distribution of Deaths of Neonates and Post-neonates According to Causes of Deaths*

Diseases	Neo-nates 0 - 4 Weeks	Post-Neonates 5th to 52nd week Deaths	Total	%
Diarrhoea	3	11	14	16.47
Respiratory Tract infection	2	6	8	9.41
Delivery Causes	27	0	27	31.76
Pre-Maturity	7	0	7	8.24
Congenital Malformation	10	1	11	12.94
Tetanus	2	1	3	3.53
Infections	0	1	1	1.18
P.U.O.	2	9	11	12.94
Unknown	2	1	3	3.53
Total	55	30	85	100%
Percentage	64.71	35.29	100%	

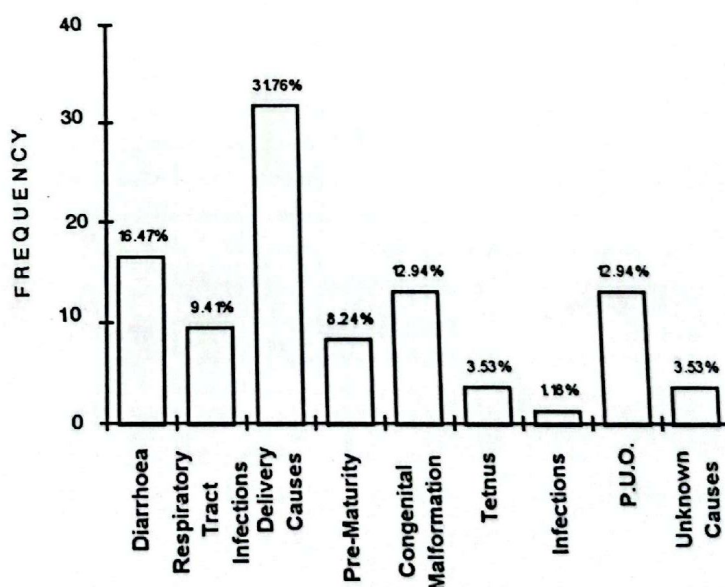
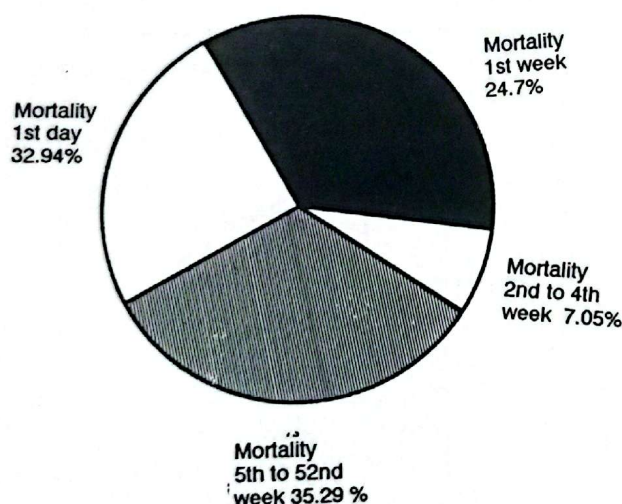
**Fig. 1** Bar Diagram showing percentage distribution of Infant Deaths according to causes of Deaths

Table 9. *Mortality Rates Among Neonates and Lost neonates*

	No. of Deaths	Mortality Rate
Neonates	55	59.65 per thousand live births
Post-Neonates	30	32.54 per thousand live births
Infants	85	92.19 per thousand live births

55 neonatal deaths (0 - 4th week) occurred with neonatal mortality rate of 59.85 per thousand live births, where as 30 infants died during 5th to 52nd week with post-neonatal mortality rate of 32.54 deaths per thousand live births.

PIE - Chart showing percentage distribution of Infants Deaths 0 - 52nd week (0 - 1 year)**Table 10.** *Percentage Distribution of Infant Deaths Due to Delivery Causes / Pre-maturity in Primagravida and Multipara mothers*

	Total infant Deaths	Delivery Causes		Pre-Maturity	
		Deaths	%age	Deaths	%age
Primagravida					
Mothers	21	13	61.90	2	9.52
Multipara					
Mothers	64	14	21.87	5	7.81
Total	85	27	31.76	7	8.24

There were 21 infant deaths in primagravida mothers out of which 13 neonates died due to delivery causes (delayed labour, birth trauma etc.) and 2 neonatal deaths due to pre-maturity. In multipara mothers 64 infant deaths occurred out of which 14 neonates died due to delivery causes and 7 due to pre-maturity. The neonatal death due to delivery causes is very high in primagravida mothers.

Discussion

The study conducted during the year 1991 in the periurban slums of Lahore concludes that there is inverse relationship between infant mortality and educational status of fathers and mothers and also with the family income.

It was noted that only 27 families with infant deaths consulted the qualified doctor whereas 58 families out of 85 with infant death had opinion/treatment from quacks and hakeems. During first day of birth 28 neonates died, and during first week the death rose to 49 i.e. 57.647% of total infant deaths. 7.06% infant died from 2nd to 4th week and there were 35.29% post-neonatal deaths. The neonatal mortality rate is fairly high i.e. 59.65 per thousand live births where as post-neonatal mortality rate is 32.54 per thousand live births. When analysed the main killer was found to be Delivery causes which killed 27 neonates and 7 died due to pre-maturity. There were 14 infant deaths due to Diarrhoea. Three (3) died due to Diarrhoea before 6th months of age where as eleven (11) died due to Diarrhoea after 6 months of age. 11 deaths occurred due to Pyrexia of unknown origin and 11 due to Congenital malformation, Respiratory tract infection killed 8 infants, 3 by Tetanus and remaining died due to causes not diagnosed.

The modern specialised care facilities could not reduce the mortality rate of the periurban slum as all the services are centralised in the city. There is lack of interest of residents, in personal hygiene and education. It was observed during interviewing that parents are not interested in educating the children and pay very little attention towards their welfare.

The infant mortality rate amongst illiterate fathers is 95.24 infant deaths per thousand live births and amongst illiterate mothers is 110.86 infant deaths per thousand live births. The rate is falling with education of parents, amongst matriculate/post-matriculate fathers it came down to 87.43 infant deaths per thousand live births and amongst matriculate/post-matriculate mothers it is 63.34 infant deaths per thousand live births.

per thousand live births. The effect of mothers education is more significant.

Form the results it appears that there is marked difference in infant mortality amongst different stratas of family income and statistically it is also significant.

In the income group of rupees 0 - 400 per capita per month 629 infants were born and 63 died with infant mortality rate 100.10 per thousand live births. In 2nd group of rupees 401 - 800 per capita per month 209 infants were born and 19 died with infant mortality rate of 90.90 per thousand live births. In the last group of rupees 801 and above there were 84 live births and only 3 infant deaths with mortality rate of 35.71 per thousand live births. These results showing inverse relationship of infant mortality with the economic status of the family.

Over all infant mortality rate of the community during 1991 is 92.190 per thousand live births. But with illiterate father and mother the mortality rate is 95.24 and 110.86 per thousand live births respectively and in families with low income, the mortality rate is 100.158. The picture shows the poor health administration and poor health status of the community due to lack of health education/knowledge.

Kachi abadies and these urban slums are becoming major problem for health, as well as worsening the sanitary conditions of the cities. The government should provide education and health education facilities for the awareness of the residents of these communities. Availability of services and awareness of their utilisation are interlinked with each other.

The information about the causes of mortality is also very important for the health administrators to consider. In order to reduce the infant mortality especially neonatal mortality the health education of fathers and mothers is important. 27 neonates died due to either birth trauma or delayed labour. In 1991 there was no MCH centre or any government or private hospital in the community. Almost all the deliveries were carried out at the residences by traditional dais. Only a few delivered at the hospital.

The parents need motivation and assistance from government or NGOs about educational and health facilities for the families. Maternal and Child Health Centres can play important role in reducing the mortality firstly by the services provided at the centres and secondly by educating mothers through

Health Educators and lady Health Visitors. More indigenous Dais should be trained for such communities on top priority basis. Multipurpose Health Workers should be employed to educate the residents in slum katchi abadies and rural areas about the basic health knowledge.

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ASSESSMENT OF BREAST FEEDING & WEANING BELIEFS & PRACTICES AMONG MOTHERS IN A SUBSECTION OF LAHORE.

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Summary

Beliefs & Practices regarding infant nutrition were assessed in an urban community of Lahore in a longitudinal study following infants from birth to twelve months of age. Quantitative and qualitative data were gathered by following nutritional record of 52 infants, and through focal group discussions and in depth interviews. It was observed that 98.1% of infants started breast feeding and 54.25% continued till 12 months. However, mean age for exclusive breast feeding was 1.075 months. Breast feeding initiation time was delayed to 47.4 hours, and prelacteal feeds were given to 94.2% of infants. Herbal fluids were continued throughout infancy with the presumption to regularize gastrointestinal tract functions. Water was considered essential since very first day. Complementary feeding was common due to perceived breast milk insufficiency. Breast feeding was stopped earlier in female infants and those of illiterate and low socio-economic group mothers. Weaning was earlier in infants of upper socio-economic group and literate mothers. Mothers from upper socio-economic group and literate group were being influenced more by the advice of health providers and were lesser followers of customs and traditions. Working women were facing problems in feeding their children specially exclusive breast feeding during early infancy. More over breast fed children were better in their weight gain during infancy. So our recommendations are, that culturally oriented and targeted efforts and considerations are required to improve the literacy of the community and media should also be used effectively to educate the community specially about health matters. Health sector specially related to MCH services should educate appropriate feeding techniques to mothers as a target group. Working women should be facilitated at their work place so that exclusive breast feeding is possible for them during early infancy.

Introduction

Breast Feeding and Weaning Practices have a great effect on the health of infants.⁽¹⁾ The importance of the question is understood when the consequences of inappropriate feeding are considered.

It has been consistently demonstrated over the years and in many countries that bottle fed infants contract more illness and are much more likely to die in childhood than those who are exclusively breast-fed for the first six months of life.^(2,3,4) In those early months even supplementary feeding with powdered milk can bring a ten fold increase in the risk of deaths.⁽⁵⁾

Delayed and inappropriate weaning practices cause problems of malnutrition and defective growth. Data from 12 longitudinal or semi longitudinal studies in which measurements were made at 3 monthly intervals summarized by Waterlow indicates that in developing countries growth tends to fall off as early as the third month of age.^(6,7,8,9,10, 11, 12)

Too early or too late initiation of fluids and solid/semisolid foods carries an increased risk of

diarrheal disease and malnutrition.⁽³⁾ In order to design effective Public Health interventions it is important to understand the complexities of mother's beliefs and behaviours concerning feeding of the infants.

Materials and Methods

It is a descriptive, qualitative, longitudinal study to explore the breast feeding and Weaning beliefs and practices among mothers having infants, followed from birth to 12 months of age. The study was conducted in a well defined geographical area (3-4 Km in diameter) of urban Lahore with total population of 8767. Birth rate of the area is 23.95 and growth rate 2%, while infant mortality rate in 1992 was 52.3. The study population consists of all the mothers in the area with infants born from January 1993 to April 1993. Fifty two newborns were registered during the period. Both the mother and infant were followed till 12 months of age, as planned. For preliminary study and follow up visit series of questionnaire were developed to collect demographic

and socioeconomic characteristics of the families and to learn their beliefs and observe practices regarding infant nutrition. Informal and formal interviewing with mothers (the key informant) was done and Focal group discussions and in depth interviews were conducted with different individuals and groups of the community to find the information regarding our study in detail.

Basic Variables

A. Socioeconomic Status:

Categorical responses to individual questions on education and occupation of the marital couple, total family income and some of the house-hold possessions were ranked to assign higher value to higher socioeconomic status.

The scores for individual items were coded and summed together to get a summary score of socioeconomic status for each family.

B. Sex of the child

C. Education of parents.

Outcome Variables

A. Weight (Kg) measured at every visit with the same balance scale

B. Feeding Pattern:

a) Beliefs of mothers and

b) Reported practices of mothers through interviews on the following topics:

1. Exclusive Breast Feeding:

The infant has received only breast milk from her/his mother and no other nutritional fluids or solids with the exception of drops of syrups consisting of vitamins, mineral supplements or medicines (including prelacteal feeds and herbal fluids).

2. Predominant Breast Feeding:

The infant's predominant source of nourishment has been breast milk. However, the infant may also have received water and water based nutritional drinks. With the exception of fruit juices and sweetened water, no food based fluid is allowed under this definition.

3. Complementary Feeding:

The child has received both breast and top milk (fresh or formula) irrespective of getting any other fluid.

4. Bottle Feeding:

The child has not received breast milk and is being given top milk (fresh or formula) from a bottle with a nipple/teat or a cup.

5. Weaning:

Semisolid/solid foods other than breast or top milk (fresh or formula) are introduced.

a. Time of addition of semi-solids/solid.

b. Type of semi-solid/solids.

Data collection was done in 3 Phases as described below:

Phase 1.

12 interviewers (10 postgraduate students of maternal and child health (M.C.H.) and 2 Lady Health visitors (L.H.V.s) of the M.C.H. Department) and 10 additional interviewers (trained birth attendants) were recruited. Training and orientation sessions were arranged during December 1992 to conduct field interviews.

Baseline survey was conducted during January 1993 to find the basic demographic data and detect pregnant mothers expecting to deliver during next 3 months. Verbal consent was obtained from the mothers to be included in the study. Pilot study was done in the same month to pretest the questionnaires.

Phase 2.

All of the newborns from 11th January 1993 to 1st May 1993 were registered (including those registered during the pilot study). Fifty two newborns were registered during the period. First visit, to register the newborns and record their feeding patterns at that time, was paid within 1st week after birth.

Phase 3.

All of the registered mothers and their infants were followed at monthly intervals upto 12 months of age. Following inquiry was made through Interviews:

At first visit:

- Type and place of confinement.
- Pre-lacteal feeds.
- Type of feeding given to the child.
- Addition of pacifier/water/other fluids.
- Quality and quantity of supplementary milk feed if added to primary breast feeding.
- Maternal belief regarding infant feeding.

At follow up visits:

- Type of feeding given to the child.
- Addition of pacifier/water/other fluids.
- Quality and quantity of supplementary milk feed if added to primary breast feeding.
- Time of initiation of solids/semi-solids.
- Types of solids/semi-solids being given.
- Quality and quantity of different solid/semi-solids.
- Interviewing staff collected informations recorded.
- Weight (Kg) and health status of the infant.

- h. Hygienic conditions observed by the family regarding general cleanliness and provision of fly-proof system in the house.

Focal Group Discussions

Focal group discussions were conducted with following groups:

1. Trained Birth Attendants (T.B.A.s) of the area.
2. Mother-in-law.
3. Nursing mothers not included in the study.
4. Non-lactating mothers.

In-Depth Interviews

In-depth interviews were conducted with 12 individuals from different sects of life including:

Mother from different socioeconomic groups,
Mothers-in-law,
Working mothers,
Nutritionist,
Trained birth attendant,
Doctor - a gynecologist and a paediatrician,
Homeopathic doctor,
Father,
Religious leader,
Hospital routines.

Obstetrical and neonatal units of 4 local hospitals were observed and studied regarding infant feeding in the neonatal period.

Quality Control

Cross check were made at random by the investigators by paying visits to the respondents. Informations collected by the interviewers were tallied. They were guided and retrained when and where found essential.

Results

Basic Characteristic of the Study Group

Mother's ages ranged from 15 to 35 years, mean age being 26.5 years. Average family size was 5.6 and mean per capita income was Rs. 822.36 per month. Of the 52 infants, 10 were first born, while 63.5% of infants were born at hospitals. Of the total mothers, 57.7% were literate and 42.3% from upper socioeconomic status (USES).

Female infants were 51.9% of the total cohort. Of the 52 families 34.6% were observing good hygienic conditions having effective fly proof arrangements at their homes, while 65.4% of families had no such arrangements at their residences.

Prelacteal Feeds

Although 98.1% children were being breast fed during first week of life, 94.2% were fed on Prelacteal feeds prior to initiation of breast milk and 6.4% of infants were deprived of the colostrum.

The most popular prelacteal food was Honey, offered to 31.7% of infants as a custom.

Herbal preparation were given 25.1% of infants with the belief that these are essential to clean the stomach and regularize gastro intestinal tract function during early days of life. Saline water was given to 26.9% of infants mainly to clean the intestinal passages or as a replacement feeding during early days due to the concept that milk does not come during early days of life. In 16.4% of cases milk was given due to the same belief (Table 1).

In 30.6% of cases it was the health care staff suggesting mothers to provide Prelacteal feeds. Mothers-in-law were responsible in making decision in only 11.8% of cases while in 37.7% of cases mothers themselves or maternal grand mothers decided to give Prelacteal feeds.

In 47.1% of infants the prelacteal feed was offered only once, while in others it was given for more than one time.

Honey was almost always given through finger tip. Of other fluids 40% were given with cup and spoon and 26.9% through feeders. However one mother had provided tea to her child during first three days of life through a loop of cloth.

Table 1. Frequency Distribution of type of Prelacteal Feeds

Type of Prelacted Feed	No.	%
Honey	33	31.7
Water and additives	28	26.9
Herbal Preparations	23	22.1
Milk	17	16.4
Others	3	2.9%
Total	10	100%

In-depth interviews and focal group discussions with health care providers including traditional birth attendants (TBAs), a gynaecologist and a pediatrician believed that some thing must be given to the child before initiation of breast feeding. The gynaecologist and paediatrician were of the opinion that this is essential to know the patency of passages and to make

th child adjust to his environments. Among TBAs 90% were of opinion that saline water is very essential and good to give during early three days to clean the intestinal passages. Almost all of the mothers and mothers-in-law of different socioeconomic and educational groups were of the same opinion.

Table 2. Frequency Distribution of Reasons of Feeding Prelacteal Feeds

Reasons of giving Prelacteal Feeds	No.	%
Custom	35	34.3%
To clean stomach	24	23.5%
Replacement of Breast milk	31	30.4%
Maintain child Health	10	9.8%
Others	2	2.0%
Total	102	100%

Breast Feeding

Breast milk was initiated to 98.1% of infants during first week of life. Only one infant of the study group was not offered breast milk because her mother believed that her milk was poisonous which had killed her previous child only a year ago. Mean initiation time for breast milk was 47.4 hours. This time was much more than the mothers believed for starting of breast milk which was 35.9 hours. Initiation time in primipara was 55.64 Hours as compared to 45.12 Hours in multiparas. This time was also delayed in home deliveries (55.92 hours) compared to 42.48 hours in hospital deliveries.

Health staff was influencing 30.8% of cases for initiation of breast milk. Either it was their advice which made mothers decide about it or it was hospital routines which were responsible for that.

The commonest factor for delay in initiation of breast milk was perceived milk insufficiency (44.5%) during early days of life. (Table 3)

Mothers of upper socioeconomic group (USES) were more conscious of maternal health (61.5%) and were more under the influence of health staff (60%) as

compared to mothers of low socioeconomic group (LSES).

Similar results were obtained for the literate mothers, who were more under the influence of health staff (69.2%) and were more conscious about the maternal health (85%).

Major perception of mothers of LSES group (69%) was that milk is insufficient while 55.2% of the illiterate mothers were also of the same opinion.

Same difference in different socioeconomic and educational groups were observed in focal group discussions and in depth interview. Literate mothers and those from upper SES were of the opinion that their decisions are under the influence of health care staff while the mothers from LSES and those who were illiterate talked more of customs and traditions. However, most of the all group believed that breast feeding is not possible during first two or three days of life.

Breast Feeding Patterns

Although 98.1% of infants were being breast fed during 1st week of life, only 38.5% of them were on exclusive breast feed. By the age of 3 months no one was on exclusive breast, while 90.10% of the infants were still on breast. Of the 52 infants, 46.2% were being fed both on breast and bottle milk. By the age of 5 months almost all the children were getting complementary bottle or were on weaning foods in addition to breast milk.

On an average infants were fed exclusively on breast only for 1.075 mothers.

However, at 12 months of age 56.25% of infants were still being breast fed. Approximately 90% of breast fed infants were given "on demand" feed. During focal group discussion, literate and working mothers favoured scheduled feeding both from breast or bottle.

At 12 months of age 56.2% of the infants were still being breast fed. Among them 36.8% were of the illiterate mothers as compared to 69% of the literate group. The result was statistically significant with P value of 0.02 in Mantel Haenzel test. No significant difference was observed among infants of different socioeconomic groups or sex.

Stopping of Breast Feeding

At 12 months of age breast feeding had been stopped in 43.8% of infants. Of this group 66.7% were females, 66% from LSES and 57.1% were infants of illiterate mothers.

Table 3. *Frequency Distribution of Reasons for Initiation of Breast Feeding Comparison Between Practices and Beliefs*

Reasons of Initiation of Breast Milk	Practices		Beliefs	
	No.	%	No.	%
Health care	20	30.8	9	14.5
provider's advice	29	44.6	12	19.4
Breast milk insufficient	13	20.0	3	4.8
Maternal Health	2	3.1	15	24.2
Initial milk good	0	0.0	2	3.2
Initial milk not good	0	0.0	13	21.0
Tradition	1	1.5	2	3.2
Media	0	0.0	6	9.7
Others	0	0.0		
Total	65	100	62	100

Table 4. *Comparison of Defferent Patterns of Feeding During Infancy*

Age	Exclusive breast fed	Exclusive bottle fed	Mixed fed	Total breast fed
First week	38.5%	1.9%	46.2%	98.07%
1 month	22.4%	6.1%	40.8%	94.23%
2 month	14.3%	8.2%	46.9%	92.15%
3 month	-	10.2%	57.1%	90.19%
4 month	-	10.9%	65.2%	90.19%
5 month	-	13.0%	84.01%	84.31%
6 month	-	16.3%	79.6%	84.00%
7 month	-	18.4%	81.6%	82.00%
8 month	-	19.1%	80.9%	82.00%
9 month	-	25.0%	75.0%	76.00%
10 month	-	25.0%	75.0%	76.00%
11 month	-	38.5%	61.5%	65.30%
12 month	-	43.7%	56.3%	56.25%

The most common reasons for stopping breast feed were the perception of breast milk insufficiency (22.2%) or that mother's health was not considered to be good enough to continue breast feeding (22.2%). In 25.0% of cases it had to be stopped as the mother had become pregnant. (Table 5)

Table 5. *Reasons of Stopping Breast Feeding by 12 Months*

Reason of stopping breast feed	No.	%
Next pregnancy	7	25.9
Breast milk insufficient	6	22.2
Mother sick/busy	6	22.2
Baby sick/reposed	5	18.5
Mother died	1	3.7
Breast milk poison	1	3.7
Effect of evil eye	1	3.7
Total	27	100

The mother was sure that her milk had dried due to the effect of evil eye (Nazar) and so the infant had stopped taking breast feed.

Discussions with focal groups and interviews with individuals revealed that mothers were confident about their ability to breast feed their infants. They were of the opinion that there are certain constraints in their decisions to continue exclusive breast feeding. It did not seem possible for working mothers to continue it when they join their duty after only six weeks of the confinement. Mothers also have to do shoppings for the family and participate other activities outside their homes. To adjust to all these responsibilities mothers have to accustom their infants on bottle milk since very beginning, which can be continued even during their absence.

Some of the mothers believed that whatever they eat, is passed to the infant. Hard things (including some of the pulses, cereals, vegetables and beef) cause flatulence and other gastrointestinal troubles. So either mother should get very selective food or the child has to be put on herbal fluids or teas etc. During the period they are being breast fed. Literate mothers desired that they should be guided in these matters by health personnel and the media and they should be kept in contact with the latest developments in knowledge.

Bottle Feeding

During 1st wk. 48.1% of infants had been put on bottle feeding and by the age of 5 months approximately 97% were getting it.

During 1st week 64% of the bottle fed infants were being given fresh milk, the most common being that of buffalo (56%). By the age of 6 months 80% bottle fed infants were on animal milk, buffalo's share being 70%. By the age of 12 months 97.5% were on fresh milk, with 95% of buffalo's milk. During all times approximately 56% of infants were provided milk through feeder and teat and the rest through cup and spoon.

Reasons of Bottle Feeding

The commonest reason for starting bottle was perception of breast milk insufficiency (70.6%). While in 17.6% of case health staff was responsible for it.

Mothers had also put infants on breast to accustom them to bottle so that they were free to move outside home for their job or shopping (11.8%). In depth interviews explored that feeding of milk through bottle is considered more convenient as compared to the feeding with cup and spoon.

Amount of Milk and Dilution

During first week of life mean amount of top milk (fresh or formula) being provided to the infants was 3.68 oz. Mean amounts in USES and Literate group were higher than their counterparts in other groups although the difference was not statistically significant. Of the milk being given 76% of infants were getting diluted milk at first week. By the age of 3 months 46% of them were getting diluted milk and by the age of 5 months about 30% were still getting diluted milk in varying proportions.

Distribution of Milk Feed in Different Group

During first week female infants were being given more bottle feed (56%) as compared to male infants (44%). Mean amount of milk being given to female infants was also higher (4.60 oz) as compared to 2.5 oz in male amount.

Infants of Literate mothers at that time were getting more bottle milk (53.3%) as compared to 40.0% in illiterate group.

Fluid Intake

During first week 86.5% of infants were being provided with different fluids in addition to the milk feed (breast or bottle). By the age of one month 98% of them were getting fluids. By three months of age 100% of infants were getting fluids.

Type of Fluids

During first week plain water was being given to 32.3% of infants, while 23.1% were getting water with some additives such as sugar glucose, salt etc. Of the 52 infants 40% were being provided with herbal fluids and 4.6% were getting honey. (Table 6)

Reasons For Giving Fluids

The commonest reason for giving herbal fluids was to regularize gastrointestinal tract functions (37.8%) and for water to avoid thirst (21.6%). Water was also being given as a cooling agent (9.5%) Nutritional fluids (juices, soups) were given to improve strength of the infant. (Table 7)

Focal group discussions with trained birth attendants, mothers, and mothers in law in different socioeconomic groups revealed that most members of the community and health providers (including homeopathic doctors, TBAs and doctors) were of the opinion that it is very essential to continue water throughout the infancy starting from very first day of life. They also believed that herbal fluids are essential to keep the child healthy and to regularize the gastrointestinal functions.

Amounts of Fluids

Mean amount of Herbal fluids being given during first week was approximately 10 ml/day. While water was provided approximately 25 ml/day and water with additives, approximately 60 ml/day.

By the age of one month, water was being given approximately 76 ml/day and Herbal fluids 18 ml/day, while water with additive 58 ml/day. At 3 months water was given 102 ml/day, water additives 125 ml/day and nutritive fluids 90 ml/day.

Pacifier

At first week 15% of infants were put on pacifier. By the age of two months the rate increased to 30.6%. However, by the age of three months the rate started falling. But after 4 months it remained constant till 12 months (21.7%). (Table 8)

The commonest reason (72.7%) to put the baby on the pacifier was to keep him quiet. However, one mother told that she had started giving pacifier as a remedy for milk spill. She claimed that after putting the baby on pacifier, the problem of spilling of milk was corrected.

In 75% of cases it was mother herself who decided about this practice. In 12.5% of cases it was maternal grand mother suggesting the use of pacifier. Mothers of LSES were practicing pacifier relatively more (35.7%) as compared to those of USES (23.8%).

In infants of illiterate mothers were being given more pacifiers (40.9%) as compared to those of literate mother (22.2%).

Male infants were being preferred (34.8%) for putting them on pacifier as compared to female infants (26.9%).

During focal group discussion and depth interviews mothers believed that pacifier is no good for the child, however, it is a very convenient and cheap way to keep the child shut when mother is busy.

Weaning

Weaning Age

Weaning in 14% of infants had been started by the age of three months and 62% were getting it till 4 months of age. By the age of 7 months all of the infants had been put on solid/semi solid foods. (Table 9)

Table 6. Distribution of Fluid Types Given at Different Ages

Fluid Type	First Week	M O N T H S					
		1	2	3	4	5	6
Honey	4.6%	-	-	3.2%	-	-	-
Herbal	40%	40%	39.1%	38.7%	44.6%	52.6%	38.5%
Water	32.3%	38%	37%	41.9%	40.5%	29.8%	28.2%
Water & additives	23.1%	1%	21.7%	9.7%	10.8%	12.3%	23.1%
Nutritive fluids	-	8%	2.2%	6.5%	4.1%	5.3%	10.3%

Table 7. *Distribution of Reasons for Giving Fluids at Different Ages*

Reasons	First week	M O N T H S			
		1	2	3	4
Avoid thirst	21.6%	48%	47.8%	44.1%	50.0%
Cooling agent	9.5%	2%	4.3%	-	-
Give strength	4.1%	%	2.2%	11.8%	-
Regularize GIT	37.8%	40%	23.9%	29.4%	25.0%
Health staff suggested	8.1%	-	4.3%	2.9%	-
Miscellaneous	18.9%	6%	17.4%	1.8%	18.1%

Table 8. *Distribution of Infants put on Pacifier at Different Ages*

Ages	No.	%
First week	8	15.4
1 month	13	26.5
2 month	15	30.6
3 month	13	26.5
4 month	13	26.5
5 month	10	21.7
6 month	10	21.7
12 month	10	21.7

Mean age of weaning for female infants was relatively higher (4.63 months) compared to male infants (4.22 months). Of the male infants 91.3% had been initiated solid food by the age of five months, while only 74.1% of female infants had been put on solids by that time.

Of the different socioeconomic groups, 95.5% of infants of USES had been put on solid/semi solid food by the age of five months, while only 71.4% of the infants of LSES had been put on weaning foods by that age.

Results were statistically significant with the P value 0.029.

Literate mothers started weaning much earlier, thus 100% literate mothers had put their infants on weaning foods at 5 months while only 55% of the illiterate group had started weaning by that time. Result was statistically significant with the P value 0.0006.

Table 10. *Comparison of Practices & Beliefs in Distribution of Type of Initial Weaning Foods***Table 9.** *Frequency Distribution of Age of Initiation of Weaning*

Age	No.	%
3 month	7	14
4 month	24	48
5 month	10	20
6 month	8	16
7 month	1	2
Total	50	100

Mean age of initiation of weaning was 4.4 months which was very near to the maternal beliefs (4.41 months).

Type of Food	Practice	Belief
Banana	36.2%	25.4%
Commercial Foods	29.0%	13.5%
Milk based Foods	15.9%	17.5%
Biscuits	8.7%	8.7%
Rice	4.3%	23.8%
Fatty meals	2.9%	4.0%
Egg	1.4%	8.4%
Yogurt	1.4%	1.0%
Meat	-	0.8%

Weaning Foods

The most popular initial food had been banana, given to 36.2% of infants. Second commonest food being given to 29% of infants was commercial foods. (Table 10)

The commonest milk based food was found to be Rusk soaked in milk or tea.

Distribution of weaning foods had been different in the following months.

The most common trend was noted for staple foods, while use of commercial foods was decreased gradually.

Separate cooking for preparation of weaning foods for infants at 4-6 months had been 18.8% of families, while at 12 months it was decreased to 9.4%.

Apart from being given different weaning foods, major food given at nine months to 87.8% of infants was milk. Mothers believed that child has to rely upon milk as major food till 28.86 months of age.

However on an average all of the infants were being given all of the things from the family table by the age of 9.98 months. When the mothers were asked about their belief about the age of infant to get all from the family table, the mean age told was 12.67 months.

No significant difference in the choice of initial weaning food had been observed in different socioeconomic groups except that commercial foods were more popular among LSES, as 11.5% of the infants of LSES were being given commercial foods as compared to 6.7% in USES. However in the later weaning period (after 5 months) the trend was reversed. Thus at 6 months of age only 1.8% of the infants from LSES were getting commercial foods,

while 20% of infants of USES were getting this type of food at that time. After this age no child from LSES was given commercial foods.

The most popular food for infants among LSES after 5 months had been staple food (Bread and Rice) which was being given to 67.8% of infants while 38.3% of the infants from USES were getting staple food (Rice and Bread) at that age. The difference was statistically significant P value being 0.0002. Infants of USES in later weaning period were getting commercial foods (20%), meat and eggs (10.9%) and fruits (21.9%).

Similar trends were observed for different educational groups; Thus 12% of infants of illiterate mothers were getting commercial foods during early weaning period (4-5 months), while 6.8% infants of literate mothers were being given the same. In later weaning period only 7.4% infants of illiterate mothers were being given commercial foods as compared to 21.4% of infants of literate mothers. Preference for staple foods after 6 months of age among infants of illiterate mothers was significant.

Thus 77.7% of them were getting bread or rice, while only 16.2% of infants of literate mothers were getting it. The result was statistically significant with the P value=0.00015

Major trend of literate mothers was for commercial foods (21.6%), meat and eggs (16.2%), fatty meals (10.8%) and fruits (21.6%).

No significant difference had been observed in male and female children for selection of weaning food during early period. However, male infants were being preferred for commercial and fatty foods in the later months (after 6 months of age).

Table 11. *Distribution of Different Foods Being Given to Infants at Different Ages*

Type of Food	4 months	6 months	9 months	12 months
Fruit/vegetable	20.4%	22.4%	19.1%	9.3%
Commercial food	9.9%	11.2%	5.1%	5.3%
Milk based food	10.0%	4.3%	11.2%	6.7%
Rice	16.8%	19.0%	20.2%	20.9%
Fatty meals	1.0%	4.3%	3.4%	2.7%
Yogurt	1.0%	0.9%	1.7%	2.7%
Meat	2.1%	-	2.2	8.0%
Bread	30.3	33.6	30.3	32.0

Thus 21.6% of male infants were getting commercial foods and 10.8% were being given fatty meals as compared to female infants among whom 7.4% were getting commercial foods and none was provided fatty meals at the age of 10 months.

Reasons	Practice	Belief
Accustom to other foods	10.2%	6.2%
Give strength 11.6	3.1%	
Advised by health staff	0.7%	-
Increased requirement of the infant 76.2%	90.8%	
Advised by relatives	1.4%	-

Reasons for Initiation of Weaning

The commonest reason to decide to start weaning had been mother's perception of increased food requirements for the infants, which was reported by 76.2% of mothers. Other reasons are shown in the (Table 12).

Staple foods (Bread and Rice) in 74.8% of mothers, Fruit in 38.4% and fatty meals among 28.2% were considered to be promoting strength.

At different period the commonest reason for selection of a food was its convenience to prepare and feed (52%) or because it was well accepted by the infants (34.2%) or it was considered to be helpful in promoting health of the child (10.6%).

In focal group discussions mothers were of the opinion that solids/semisolids should be started by the age of 4-6 months. Most of them were of the opinion that home made fresh foods are better as weaning foods. Banana and custard were also thought to be good for the infant, as they can be prepared and fed conveniently.

Some of the mothers from LSES gave their opinion about commercial foods to be good as an initial food.

Weight

Although no statically significant difference was observed in weight gain of the infants during their infancy in relation to their feeding patterns; However exclusively bottle fed children remained behind those being breast fed throughout their infancy period (Table 13).

Infants who were given weaning foods were found higher i weight gain during their weaning period (4-6

months) (Table 14). After 6 months of age all of the infants had been put on weaning foods.

Table 13. Comparison of Weights of Breast and Bottle Fed Infants

Age	Bottle fed	Breast fed
First week	2.48 kg	3.418 kg
1 month	3.90 kg	4.13 kg
2 month	4.57 kg	4.85 kg
3 month	5.04 kg	5.59 kg
4 month	5.66 kg	6.28 kg
5 month	5.69 kg	6.39 kg
6 month	5.45 kg	6.85 kg
7 month	6.76 kg	7.50 kg
8 month	7.16 kg	7.89 kg
9 month	7.96 kg	8.16 kg
10 month	8.30 kg	8.56 kg
11 month	8.60 kg	8.80 kg
12 month	8.64 kg	8.86 kg

Table 14. Comparison of Weights of Infants in Relation to their Weaning Pattern

Age	Weaning initiated	Weaning not initiated
4 month	6.12 kg	5.47 kg
5 month	6.77 kg	5.77 kg
6 month	7.03 kg	6.47 kg

Discussion

Breast feeding remains the first and preferred method of infant feeding by the majority of Pakistani women. (13,14,15) However, inappropriate practices such as provision of prelacteal feeds, discarding of colostrum and delay initiation of breast milk may all have a negative impact on lactation.

Child survival strategies usually recommend exclusive breast feeding for first four months of life. Different studies on child feeding practices from around the world show that exclusive breast feeding is rare and that early supplementation with water and other fluids is common. (2,3,8,9) Prelacteal feeds mainly

honey and ghutti (some herbal preparation) are given to 80% of children. (11,12,13)

In Pakistan Nagra et al (16) report that 60% of infants were receiving supplementary milk feeds by 3 months of age.

Jalil et al (17) report that 50% of a poor urban population in Lahore, Pakistan were receiving nutritive or non-nutritive supplements by one month of age due to perceived milk insufficiency.

Milk was also reported as first supplementary food given by 32% of mothers from a low income urban settlement in Karachi. (11,12,14) Similar findings have been reported from Turkey, Indonesia, Kenya and various parts of India. (18,19,20,21,22,23,24,25,26,27,28)

The addition of supplementary milk to the diets of young infants is not without risk since the milk may be diluted with unsafe drinking water and bottle hygiene is generally poor. (29,30) Popkins et al (31) indicate that the likelihood of diarrhoea increases 4.7 to 13.1 times depending on the age of the infant when nutritive fluids are added.

Ashraf et al (31) report that only 9% of infants from various levels of urbanization and income were exclusively breast-fed for the 1st 4 months of life.

The cultural belief regarding infant feeding and the variation in this system reflected in maternal attitudes play an important role in determining the nutritional status and growth patterns of children. As is evident in the study by Mull in Pakistan (29) early bottle feeding sometimes has been due to the fear that the mother was carrier of "Saya" (evil spirit) and could pass it to her child through her milk.

The pattern with regards to age at initiation of solids is important. A study conducted in 1985 in Baluchistan reports the average age for starting solids in various regions of Baluchistan to be 8.3 months. (15) However this pattern appears to be changing. Studies in 80s report that by the age of three to four months 42% of he infants were receiving solids.

Focal group discussions with mothers in Pakistan also indicate that there is a trend towards earlier introduction of solids by about four months of age. (8)

Regardless of when solids are started, it appears that the food offered to the child is often inadequate in amount and nutritional value. Very few mothers prepare special foods for the child. In study in Karachi 17% of the mothers prepared special food for the child. (14)

We have tried in this longitudinal study to furnish both quantitative and qualitative information about local beliefs and practices of infant feeding in relation to socio-economic status and education of parents and sex of the infant. Findings of this study may help us to

develop a series of culturally specific interventions in order to modify behaviour in this area. This may help to reduce morbidity and mortality among children.

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WORLD SUMMIT ON MEDICAL EDUCATION - THE CHANGING MEDICAL PROFESSION

Edinburgh 8-12 August 1993

RECOMMENDATIONS

Preamble

The World Summit on Medical Education of 1993 was a major international event in the field of medical education. The precursors of this Summit were the 1978 World Conference on Primary Health Care in Alma Ata (of the then Soviet Union) where the global programme of Health for All by the Year 2000 was adopted, and the WFME World Conference of 1988 which formulated the *Edinburgh Declaration*. The *Declaration* established the directions for medical education to advance the health and well-being of mankind. Progress towards these goals has been considerable despite the impediments of underdevelopment in some countries, development reversals in other countries, and the complexity of the change process itself. Proceeding with the task is imperative. It cannot be left to chance and drift.

The 1988 World Conference established an organizational structure for advancing the quality of medical education with four levels of action: global, regional, national and Institutional. The six Regional Associations of WFME, linked with the six Regional Offices of WHO, interacting with other agencies and institutions, notably UNICEF, UNESCO, UNDP and the World Bank represent an extensive international network for achieving the changes required in medical education. The 1988 Conference launched a series of projects and activities, which have continued to the present.

The World Summit of 1993 faced a new set of challenges. Global changes are under way that are profoundly affecting medical education: Vast increases in population in some countries; extensive shifts in national and regional political structures; economic recession; shrinking resources; wars and violence; the spread of the AIDS pandemic; resurgence of diseases that were thought to be contained; health care systems in disarray with inadequate coverage of populations; and costs rising out of control. There is public perception that medical schools fall seriously short in their response to these challenges.

Universities and medical schools are too often seen as preoccupied with their own academic affairs and detached from the concerns of their society. The

trend of medicine towards becoming a business enterprise is a serious diversion from its traditional commitment to caring and healing. Advances in biomedical technology are sometimes perceived as reducing humanism in medicine. Doctors have been seen as unsympathetic towards certain patients such as those with AIDS.

Medicine has been under intense scrutiny. Advances in science have opened new doors towards better patient and community care; improved health care systems offer promise of greater equity; and innovations in medical education provide important options for change. But there are serious shortcomings in medical education.

The 1993 World Summit examined a wide range of problems that impinge on medical education. Two hundred and forty delegates from 80 countries, each a leader in his or her own country, were present. The UN agencies, WHO, UNICEF, UNESCO, UNDP, and the World Bank, and many non-governmental organizations and bilateral aid organizations foundations and professional associations provided active support and were represented at high level.

The central challenge to the Summit was to develop a systematic overview of the full range of problems, identify appropriate responses, and formulate strategies to implement recommendations world wide.

The Issues

The Wider Context

Public expectations of medicine are very high. Demand for health services will increase with the democratic process that is emerging in many parts of the world. The traditional role of the doctor as healer, coupled with dramatic advances in biomedical science, have created a wider demand for services. While perhaps initially often supply driven, the benefits of modern medicine are sought by knowledgeable consumers, and the market responds.

But the context in which the doctor functions has also been changing, in a dynamism with its own problems and complexities; patterns of demography, morbidity and mortality have shifted; doctors have frequently seemed unable to monitor the cost implications of their clinical decisions; health services have failed to reach those in greatest need; costs have

risen with no end in sight; market forces at work in health care have distorted medicine towards commerce; specialists are produced beyond requirements while generalists are needed but not available; prevention of illness is minimized; and the perception has grown that the revered role of the doctor as guardian of health and companion during suffering now frequently seems to be a vestige of the past.

In the face of these changes and criticisms, where does medical education stand and what is the position of its guardians, the universities? The paradox is that despite these criticisms, there have been important advances in both the science and quality of medicine, and of medical education. New concepts essential to the promotion of health and the treatment of disease have been incorporated into curricula. More effective methods of teaching have evolved. Medical education has moved beyond the academic cloisters into the midst of societal realities where the health needs are greatest. But this great progress has been too fragmented, has left far too many medical schools untouched, and has failed to develop the necessary critical mass for consolidated change.

Medical education is faced with the urgent need to get its house in order, to diminish weakness and expand its strengths. Yet that task is made difficult because so many aspects of its domain are not under its control. The context in which medicine is practised is societal with economic, cultural, political, bureaucratic and environmental parameters. Medicine must become a more effective agent in bringing order to the settings and systems where it must do its work.

The ethical basis of medical practice has contributed greatly to the reverence in which it is held. Medicine's understanding of itself in terms of the moral values that underlie the relationships between doctors and patients, and health care providers and communities, is increasing. Medical ethics is increasingly seen as a required part of curricula, and its teaching is moving from the classroom to the bedside and into the community where students can learn from interactions with others. But the same global turmoil that is affecting medicine in general is also felt in the ethical field. Advances in science as well as limitations of resources raise new ethical questions. The appropriate model of science in medicine is no longer simply biomedical, but also social and psychological. A new ethical field concerns value for money, and the ethics of priority and resource allocation in relation to the needs of patient and communities. Social justice and equal opportunities for all gains growing support. Greater emphasis on participatory democracy has led to shifts in medical decision-making, from the

traditional role of the doctor as sole arbiter to greater direct involvement of patients and communities. Trends towards the commercialization of medicine raise serious ethical questions of conflict of interest for doctors. AIDS and other chronic conditions challenge doctors' social sensitivities and ethical responsiveness. Thus, ethics have a different and extended role in medical education, enriching understanding of the basic values of the profession. Profound challenges to moral reasoning and action now face doctors and the institutions that produce them.

Emerging Challenges

Among the greatest challenges for the medical profession is the *health transition*: there is a shift from the diseases of deficiency and infection in developing countries towards cardiovascular and other diseases akin to those in developed countries. Populations are ageing: the average life span globally is now 65 years; in developing countries it is 63 years. Cancer, cardiovascular disease, and diabetes are major killers in developed and developing countries. The cost of chronic care for persistent morbidity far exceeds that of curing an acute infection. At the same time, many developing countries have yet to surmount the illness burdens due to infection and malnutrition. Knowledge about infection and malnutrition has advanced far beyond its application. The treatment of tropical disease care exemplifies how meagerly the findings of research are applied.

Health care systems are imperfect. Society's discontent with spiralling costs, actual or perceived poor quality, and lack of accessibility - all apparently worsening - imposes itself on governments. The underserved and under insured are the norm, though less politically vocal. Doctors are insufficiently aware of the health status of those who do not present themselves to their clinics.

There is uneven implementation of primary health care in many countries because of dire poverty, vested interested or competing priorities, often defence related. Many developed countries' per capita health expenditures exceed the total per capita gross national product of developing countries. Doctors often maintain a primarily disease oriented approach. On the other hand, some low income countries have chosen to invest in health an other social sectors to their benefit. The political changes and economic turmoil and Eastern Europe threaten social safety nets. New market forces may have unpredictable effects on the health sector and doctor's behaviour.

There is a *professional imbalance of specialists in relation to generalists*. In developed countries

particularly, the public may prefer to consult specialists, even for uncomplicated complaints. Society cannot afford the numbers wanted, nor should it. Meanwhile capable generalists remain underemployed, seek expensive post-graduate qualifications or emigrate. Specialists are unlikely to settle in underserved area. A well-trained family practitioner is often not regarded as having had 'special' training despite relevant postgraduate certification. A medical school department might produce an excess of specialists in part of justify its existence. Distributional imbalances are reflected in a surplus of doctors with shortages of nurses or other less costly and often more effective health professional.

The *technological advances* of our time astound the public and professional alike. The biomedical knowledge explosion of the past 40 years is said to have surpassed that of all prior human history. Society has wisely invested in medical research; it is now important to give greater attention to its cost, the application of its findings, and ethical factors involved. To cope with scientific advances, doctors need new knowledge and skills.

AIDS uniquely highlights doctors weakness. This 'catastrophe in slow motion' challenges doctors' communication skills; responsibility for long-term, compassionate care; ability to face issues such as death, sexuality, alternative life styles, and therapeutic impotence; and knowledge of public health and infectious disease. Furthermore, the AIDS-doctor interaction is a prototype of many more common ailments of modern society: drug abuse, the host of chronic diseases of ageing populations, and other new or recrudescing infectious diseases.

The Responses of Medical Education

Ethical medicine strives to do good and to do no harm. While admittedly many of the solutions to their above challenges lie beyond doctors' knowledge or even the responsibilities of the health sector itself, the medical profession must fulfil its social contract better. The doctor for the 21st century must be redesigned.

Doctors must promote health, prevent and treat disease, and rehabilitate the disabled in a compassionate, ethical way. Increasingly they must do this within resource constraints. But society, the profession, and medical educators call for more. Doctors have also to be better providers of primary care; communicators; critical thinkers; motivated lifelong learners; information specialists; practitioners of applied economics, sociology, anthropology, epidemiology and behavioural medicine, health team managers; and advocates for communities.

The Direction of Reform

Medical educators in 1988, after intensive consultation, proposed the 12 reforms of the Edinburgh Declaration:

- relevant educational settings
- a curriculum based on national health needs
- emphasis on disease prevention and health promotion
- lifelong active learning
- competency-based learning
- teachers trained as educators
- integration of science with clinical practice
- selection of entrants for non-cognitive as well as intellectual attributes
- balanced production of types of doctor
- multiprofessional training
- continuing medical education.

These changes have been adopted and tested in many but by no means the majority of medical schools, and found to be effective strategies for dealing with the shortcomings of medical education. The conservatism of the medical profession and universities, and the complexities of required change, have resulted in slow response to those who are leading innovation and calling others to follow.

While the principles of the *Edinburgh Declaration* stand, their further implementation requires bold, clear, attractive, feasible strategies.

I. RECOMMENDATIONS FOR ACTION

The following recommendations are the conclusion of the 1993 Summit, emerging from the invited papers, the plenary discussions, and the working groups. A brief commentary on each issue is followed by examples of recommended actions and expected outcomes. The responses are neither exhaustive nor universal and await multi-level review, amplification, and interpretation in the regional, national and local context.

(A) PRACTICE AND POLICY

1. *The Disjunction Between Medical Education and the Medical Practice Environment*

Good medical education demands a useful match with the health care system. A contemporary doctor cannot be trained in university hospitals alone. Without such partnership, the educational programme will be of limited relevance to the realities of practice, and will not provide appropriate training to meet the needs of the population to be served. Such disjunction, when the medical education system is divorced from the health

care delivery services, is still an unfortunate reality in many countries.

Action: Effective administrative and working relations between universities and the health services, including local health care organizations and communities, are essential to achieve coherent interactions between education and practice. The skills acquired in reformed curricula should be relevant to the needs of the practice setting and the community.

Outcome: New political and institutional arrangement to ensure relevance between education the needs and patterns of practice, and professional satisfaction that what was learned can be usefully applied.

2. *National Health Human Resources Planning: Implications for Medical Education*

It is a matter of relevance to both need and efficiency in the use of human resources that countries should systematically determine the numbers of health workers required, and the competency profiles of each category. When such planning is not done, health manpower can be seriously out of balance, with costly redundancies and failure to meet actual needs. Of course, the skills, attitudes and motivations of health personnel and crucial to their effectiveness. Thus, planning should involve those who will produce the relevant trained staff, those who will sue them, and those for whom their service is provided.

Action: Ministers of Health and Education, training institutions, and representatives with a public perspective should carefully link their policies and programmes to ensure coherence in the production and utilization of trained staff. In societies where formal national health workforce plans do not exist, it will be necessary to develop agreed approaches in training institutions and user groups in sensitive determination of needs.

Outcome: (1) a balanced health labour force; (2) sound foundations for educational development and efficient utilization of trainees; and (3) mechanisms for adjustment of the content and quality of the health care staff.

3. *Health Care Systems: Implications for Medical Education*

Most health care systems are complex, costly, inequitable, and poorly understood by patients and doctors alike. Even doctors who receive a sound, innovative medical education may not find satisfaction due to health system realities such as consumer expectation, remuneration, regulation, and more important, fundamental system inadequacies. Health

care systems can be designed and implemented that are equitable, effective, and affordable.

Action: Medical schools must become more involved in health system development as well as staff training. Research into services and teaching in service settings will expose students to alternative models and possibly create patterns of health care in which they will more readily choose to work.

Outcome: Better prepared doctors, a better served public, and better use of resources.

4. *Specialists and Generalists: Seeking a Balance*

An efficient and cost effective health system must include generalists able to screen and treat most health problems and refer only a small proportion for specialist care. Many developed nations have too many specialists and too few generalist. Even in such cases, some specialty areas (such as psychiatry) may be underrepresented.

Action: Formulate policies based on the epidemiological and financial realities of the country with attention to enhancing the status of the primary care doctor.

Outcome: More appropriate types and relevant numbers of doctors.

5. *The Health Transition: Education Preparation*

The health profiles of developed and developing countries in many respects are converging. Aggregated life expectancies in developing countries are high and also the toll of chronic disease of adults, including the elderly. The new social diseases (violence, drug abuse, family disintegration) affect vulnerable groups throughout the world.

Action: Health sciences institution should study and teach relevant aspects of this health transition.

Outcome: Graduates of medical schools who can anticipate, recognize and respond to significant demographic, epidemiological and behavioural phenomena affecting the populations they serve, and provide relevant care in terms of health promotion, prevention, cure and rehabilitation to the patients they treat and the communities they serve.

6. *AIDS and other Chronic Diseases: The Challenge to Understanding and Compassion*

The effect of AIDS on the health of the public and of individuals, on national health systems, and on doctors is increasingly devastating. The disease has revealed both social and technical gaps in the preparation of doctors to cope with the pandemic. These professional deficiencies have important applications other more common disease.

Actions: Broaden and deepen medical education to extend: prevention, public health, ethics, social science, health promotion, communication, longitudinal commitment to dying patients, holistic medicine, team management infectious disease, human sexuality and human rights. Assure that students actively follow ambulatory patients with AIDS and/or other chronic diseases through the various stages of their illness, including ambulatory care, for a sufficient length of time.

Outcome: A more competent, compassionate, holistic doctor with a keener self-awareness.

(B) THE EDUCATION RESPONSE

7. *Institutional Policy and Government in Support of Medical Education*

Institutions exhibit various patterns of behaviour. Many medical schools have no mission statement. Some rarely review medical curricula which remain department driven and/or externally prescribed. Conceivably, the absence of mission statement and the presence of nationally mandated curricula create passive institutions which in turn produce passive graduates. Administrative structures for planning and implementing curricular change are often lacking or unauthoritative, and examination methods are unrelated to educational goals. Clearly there are many impediments to change.

Action: Institution behaviour of medical schools needs study, with special attention to the formulation and implementation of their mission. At the same time medical faculties should create teams from different disciplines to design and implement programmes of general medical education that are more responsive to local need.

Outcome: More focused directions for institutional development, more effective investment in education enhanced relevance of graduates.

8. *Selection Procedures for Admission to Medical Schools*

Medical school admission procedures should be based on institutional mission and capacity, and national health workforce targets. The open entry system is obsolete. Selection procedures are essential and everywhere endorsed, but in too many medical schools are arbitrary and at worst chaotic.

Action: The principles of selection should be clear, equitable and valid. Medical schools should design admission criteria that address both academic and nonintellectual characteristics, such as social commitment and minority status. Attitudinal assessment techniques should be studied in every

medical schools for validity in identifying the necessary non-cognitive qualities of would be entrants.

Outcome: Graduate from medical schools who can better respond to national health need.

9. *Medical Teacher Development for Improved Medical Education*

Medical teachers are often appointed mainly for demonstrated biomedical research ability with little focus on their teaching abilities and communication skills. There is justifiable concern that the poor learning habits of medical students are frequently compounded by lack of educational expertise in their teachers. However, skills learned in research improve the ability of teachers to the students grasp the concepts of biomedical, social and psychological sciences.

Action: Medical schools should institute programmes to enhance the teaching expertise and communication ability of their staff. Moreover, medical teachers should be required to improve the educational process. Teachers should be selected, promoted and rewarded, in part, according to teaching ability and contribution to educational development. Monitoring of teachers performance, including input from students, should be used further to improve teaching.

Outcome: Improved medical teacher and medical students development.

10. *Medical Student Involvement in Planning and Evaluating Medical Education*

The role of students in their own education is vital. Students of today are the teachers of tomorrow. They should be involved in curriculum planning and teaching. Perhaps more idealistic and less encumbered than teaching staff and administrators, they are potent agents for necessary educational change.

Action: Students should be valued partners at every level of medical education: planning of objectives, medical school governance, curriculum teaching, and evaluation.

Outcome: Medical education responsive to a wider constituency: society, the institution, teaching staff and especially students, its active recipients.

11. *The Place of Science in Relation to Medicine*

Science lies at their heart of an effective curriculum. The methods of science are essential to defining problems and measuring impact of intervention in the care of both patients and communities. Science teaching cannot be departmentalized and confined to preclinical years. The curriculum as a whole requires scientific and critical thinking, the basis of evidence based medicine.

Action: Emphasize the scientific approach when imparting learning skills. Consider departmental reconstruction which promotes horizontal and vertical integration of biomedical science and also the behavioural and social sciences in clinical and community health disciplines. Emphasize economic, statistical, managerial and informational sciences as relevant to clinical work.

Outcome: A multi-science based practitioner who can remain abreast of the scientific advances and understand their relevance to the field of practice.

12. *The Ethical Basis of Medical Education*

There are fundamental values and moral principles that characterize and pervade medical practice. The principles of ethics are applicable at two levels: in the clinic and hospital for the well-being of a patient; and in communities, for the well-being of population. Both call for comparable relationships: doctor to patient on the one hand, and health care provider to community on the other. The social contract between them calls for care that is both right and good: right -- of an appropriate technical standard, and good -- in keeping with the values and priorities of the patient or the community. Another, and newer, field of medical ethics concerns determination of priorities and allocation of resources in relation to needs.

Action: Ethics should always receive full attention in the medical school, in all clinical encounters, and in the community. Consultative groups should continually explore ethical principles in relation to the different cultural groups and devise appropriate curricular models.

Outcome: More compassionate practitioner and institutions and better served patients and communities.

13. *Teaching and Learning Strategies and Methods*

Competence and motivation for lifelong learning, particularly in view of the information explosion, is enhanced by effective learning methods. Problem-based learning sharpens skills of analysis, synthesis, and evaluation, necessary for clinical problem-solving. Training in the critical reading of scientific reports enables graduates to identify key advances in their own field. Community-based learning enhances relevance. Technological advances in educational methods, such as computer assisted learning, simulation and distance learning, may have roles to play in many settings.

Action: Educational institutions and associations should encourage active methods of learning which are student-centred and promote the organization of national and regional networks for the production of appropriate and relevant learning materials. Learning

strategies should be competency-based and accord with local needs of health staff. Validation studies on assessment techniques and evaluation of innovations in the curriculum are required.

Outcome: (1) A medical doctor, competent in the local context, and motivated to remain so; and (2) relevant learning materials and assessment techniques.

14. *Curricular Option for Coping with Information Overload*

Curriculum overload is a fundamental and increasing problem with medical education, even if learning is enjoyable, and students are capable and appraise themselves.

Action: Working Groups at international and regional levels should consider reviewing representative curricula. Examples include those based on systems teaching; or problem based learning or 'core and options', with key modules, such as ethics or primary health care. A carefully sequenced core curriculum supplemented by special study modules holds promise, particularly if it promotes self-directed learning. The core emphasizes foundation, such as critical thinking and communications and interview skills, irrespective of a trainee's future career path. Curricular options provide in depth learning according to specific interests and needs.

Outcome: Assured basic competence with the range of expertise required by society, institutions and students.

(C) THE CONTINUUM MEDICAL EDUCATION

15. *Postgraduate Medical Education: a Holistic View*

Educational planning for postgraduate education may not be rational in several ways. It has to be in a context of overall staff allocation, otherwise excessive numbers of doctors with ill-chosen skills will continue to be trained. Academic interest in specialist training may override commitments to the training of generalists. Generalist trainings programmes often lack professional recognition and public confidence. Training in all specialities is weak in preparing trainees for the socioeconomic and epidemiological conditions of primary care. Specialist training and certifying examinations may not be appropriately matched. There are unresolved ambiguities, in that general practitioners are now accredited in many countries as specialists in general practice.

In many developing countries graduates are trained to be ready to undertake independent practice on leaving medical school. Mission statements of medical schools should specify the types of graduates to be produced, so that the competence assigned to

postgraduate education and specialist training programmes are explicit.

Action: There is need for a holistic view in planning for the broad fields of postgraduate education, with policy making mechanisms that can support production of balanced numbers of generalists and specialists. The postgraduate training programmes need to be carefully related to the local context in which they will be practised, and linked with undergraduate and continuing educational programmes.

Outcome: Balanced production of generalist and specialist doctors, trained with relevance to local needs, and linked in a continuum with undergraduate and continuing education.

16. *Continuing Medical Education and Lifelong Learning*

Undergraduate medical education and postgraduate education, regardless of their duration, are insufficient to ensure lifelong competence. Moreover, institutional curricular change has little impact on those already in medical practice. Complex social, political, epidemiological and technological changes will always affect professional competence in unproductable ways. Continuing medical education is essential to maintain the competencies of newer graduates, to influence the practices of older graduates, to remedy practice gaps, and to enable all doctors to respond to the challenges of the professional environment.

Action: As CME depends highly on learner motivation, self-directed learning skill must be mastered in under and postgraduate education. The content of CME must be responsive to the needs of the practitioners with both professional and public input. CME needs thoughtful education planning including: objectives, strategies, skills and the assessment. International CME networks and resource centres are needed for sharing and support. Countries must allocate funds for, and monitor, the overall process and outcome.

Outcome: A well informed and competent medical workforce, predisposed continuing self directed learning participating in the responding to change.

D. PARTNERS IN LEARNING

17. *Health Teams and Multi-Professional Education*

Doctors alone cannot provide all health care. Contemporary doctors work in teams representing many different professions. Learning together in teams and groups enhances early professional socialization and provides opportunities for leadership development.

Action: Multi-professional education, where members of different health professions are trained together,

establishes and enhances the ethos of teamwork, and the essential collaboration of medicine with allied health personnel.

Outcome: More cost-effective doctors who can work as members of health care teams, with enhanced respect for colleague, and for the benefit of patients and communities.

18. *Participation of Communities in Medical Education*

The Summit endorsed the many initiative under way in different parts of the world, both developed and developing, towards community orientation of medical education, and community participation in determining health policy. Communities must be given an active part in decision making and action for health. People have to be enabled to make the best possible choices, and have to be offered protection against preventable disease.

Action: The many projects and the growing literature on community participation health and development need to be embraced by all educational institutions. The community's range of choices. Participation of communities in medical education and in institutional administrative decisions is now essential.

Outcome: Community participation will encourage interdisciplinary learning and multiprofessional team work. A larger community role in the educational process will increase the accountability and relevance of medical education, enhance community compliance with health initiatives, and promote development and improved health.

19. *Communication with Patients and Public*

Adequate communication skills with patients, colleagues and the public are basic necessities of clinical work. Dissatisfaction of patients and the public is due more to poor communication than to any other professional deficiency.

Action: Medical schools should identify how to improve communication skills in all future doctors. Methods should include observation of and participation in various communication activities, especially patient interviews and case presentation; and involve written and spoken communication with the public, the different communities, varying cultures, and the media. Teaching staff should be appointed who are competent, to ensure the promotion of such communication skills.

Outcome: Doctors who are skilled communicators, better able to listen, understand and advise patients, inform and educate the public, and speak for patients, communities and society.

20. *Wider Participation in decision - Making Including the Public*

Communities seek to be better informed and to have greater influence over their health care system. Patients are entitled to more participation in and control over their individual care, which will make them increasingly responsible for their own health.

Health is much influenced by factors outside the health sector. As we move from a disease to a health orientation, to preventing illness and promoting health, other sectors must be involved. Doctors in the future will increasingly have to concern themselves with issues not directly concerned with health.

Action: Problem-based learning in the community will confront students with real demands for participation on the part of patients and the public. Caring for patients with AIDS or other chronic conditions demands that the student learn how to involve them as partners. Consultative groups reviewing health management policy should include adequate community representation.

Outcome: Doctors accustomed to and benefiting from sharing power with patients and the public, and openly debated and public social policy.

(E) SETTINGS FOR LEARNING

21. *Real-World Settings for Medical Education*

Medical education is typically hospital-bound, often concentrated on the tertiary level, and characterized by rare disease and expensive treatments. The work habits and supports systems are not applicable to the health care system as a whole. While of undeniable importance to postgraduate specialty training, the teaching hospital can mislead students or frustrate general training.

Action: Various environments, both medical and non-medical (workplace, schools, villages, households) will expose students to a more realistic array of health problems, human conditions, and professional role models, to enlarge and enrich their hospital experience.

Outcome: When based on rigorous scientific principles, including clinical epidemiology, the use of wider settings will produce better equipped, more satisfied practitioners, equipped for providing primary care and more aware of the necessity for multi-professional team work.

22. *Commitment of Universities to Population-based Medical Education*

Medical education that is based on a sequence of clinical encounters in hospitals overlooks the

epidemiological context of a patient's health, and liability to disease. Primary health care according to need. These considerations require assessment of groups in defined populations regardless of whether they present for medical care.

Population-based education calls for those most in need, often on account of poverty, to be identified with care provided for them which at present they do not receive. Population-based education inevitably calls for community surveys, participation of the public, and feedback.

Action: Regardless of an institution's mission, interest, or location, its effectiveness is enhanced by an explicit commitment to the health of a defined population and the supporting health care system.

Outcome: Teaching, studying and providing initial care to individuals and communities, and people in their homes, in the context of the needs of a defined population, helps an institution to interpret and to meet its obligation to the society which it serves.

II. INTERNATIONAL COLLABORATION

The call at the 1988 World Conference for a global collaborative programme was firmly endorsed. Only a responsible, effective partnership, in which all nations participate, can implement the many reforms recommended.

Action: A partnership among all responsible organization, association, institutions and individuals must be formed, and this network must be charged to ensure that the Summit's recommendations receive proper debate, implementation, and monitoring. The World Federation, the co-sponsoring agencies WHO, UNICEF, UNESCO, UNDP and the World Bank, and all other bodies represented by their delegates at the Summit constitute the programme's organizational framework.

Outcome: A redesigned doctor for the 21st century with a global network in place to promote, implement and resource the specific twenty-two recommendations, and their inevitable reinterpretation in the changing future.

The World Summit on Medical Education records its commitment to the urgent effort to bring about the changes identified. The summit is convinced these changes are essential if medical education institutions are to be effectively responsive to the needs of their societies, and if those they produce are to have the technical, social and ethical competence required of the doctor of tomorrow.

ASSESSMENT OF THE KNOWLEDGE OF COMMERCIAL SEX WORKERS IN LAHORE ABOUT AIDS AND THEIR HEALTH CONCERN

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Summary

Twenty two female commercial sex workers from the red light area of Lahore were interviewed in depth about their self-reported health concerns, social background, sexual practice and knowledge of AIDS. The women were recruited for interview with the assistance of a physician working in the area, and interviews were subsequently conducted in Crescent Clinic, which is his private practice. The age range of the women was 14-50. Religion was, with one exception, Muslim. Interviews were analysed in order to reveal common patterns in responses. Self-reported health concerns included common ailments such as backache and fatigue, but did not include sexually transmitted diseases. Analysis revealed that the majority of the interviewees had not heard of AIDS. The majority of respondents did not use any contraception, far less condoms of which some respondents had no experience. The major conclusions are that urgent action is needed to bring about awareness of the risk of HIV infection and other sexually transmitted diseases, accompanied by intensive programmes designed to help commercial sex workers to implement changes in sexual practice. The authors have used HIV as the generic term for HIV/AIDS whilst acknowledging that in Pakistan the distinction is blurred and the term AIDS is most often used and refers to both HIV infection and AIDS.

Introduction

Pakistan has a low prevalence of HIV infection relative to many other countries, including those in South Asia. Officially reported figure (June 1994) stand at 751 cases of HIV infection and 42 cases of AIDS, although estimates suggest that there may be closer to 20,000 cases of HIV infection (personal communication with Dr. Zafar Iqbal Toor, National AIDS Programme). The Ministry of Health, in collaboration with the World Health Organization, has recently produced a strategic plan for AIDS Prevention and Control which recommends a number of interventions, including improved surveillance, management of sexually transmitted diseases, raising public awareness through mass media campaigns and targeting "high risk groups", to control the further spread of HIV infection in Pakistan [1].

Although a National AIDS Programme was established in 1988, HIV prevention in Pakistan is in its infancy. Until recently there was a government imposed ban on mentioning HIV in the mass media. The first public information advertisements about HIV/AIDS appeared in newspapers and on television on 31 March 1994. Not surprisingly then, public awareness about

HIV infection is very low. Between 1991-2 a sample of 5,433 women with children under twenty four months were surveyed in Pakistan to discern levels of awareness about health issues including HIV infection. Ninety six per cent reported that they had never heard of HIV; the remaining four per cent could not correctly identify either modes of transmission or methods of prevention [2]. A survey of secondary school teachers, who might be expected to have greater awareness of HIV because of higher levels of education than the general population, revealed that of 52 teachers interviewed only 35 had heard of AIDS [3]. The public information campaign introduced during 1994 may have raised awareness somewhat, although it should be noted that levels of literacy are low with a rate of only 26% [1]. In addition, access to the mass media is not widespread. The Pakistan Health Education Survey revealed that 31.7% of respondents in rural areas had access to television, whilst only 19.5% of all respondents reported reading newspapers [2].

A number of groups have been identified by the National AIDS Programme as having an increased risk of HIV infection. Prostitutes are being targeted, in addition to truck drivers, intravenous drug users, recipients of blood and blood products and men who

have sex with men [1]. Since the beginning of the global epidemic, commercial sex workers (CSWs) have been widely considered to be at increased risk of becoming infected with HIV and contracting other sexually transmitted diseases. Sex with multiple partners is often cited as the reason for increased risk amongst sex workers, although lack of opportunity or power to use a condom during intercourse may be an equally or more important factor [4]. In addition to increased personal risk, the role of CSWs in the spread of HIV infection has been a source of much debate. Most of this debate has centered around the common perception that CSWs constitute a 'bridging group' through which heterosexual transmission of HIV infection can occur [5].

In 1991 a system of sentinel surveillance of groups considered to be at high risk of HIV infection was initiated. A two month point prevalence study was conducted between October and December 1993 in Lahore. Of 594 female CSWs screened for HIV infection, eight tested positive, representing between 1-2% (personal communication with Dr. Zafar Iqbal Toor, National AIDS Programme).

Prostitution is illegal in Pakistan, however it is estimated that some 10,000 women in Lahore are engaged as "dancing girls", with the majority of these women also working as CSWs (personal communication with National AIDS Programme).

The red light district of Lahore dates from the 17th century when the city was the centre of the Moghul Empire. It was the largest and most famous in the sub-continent and women were brought to court to sing, dance and provide other entertainment. Now at the foot of the magnificent Moghul Fort in the Old City of Lahore is the area known locally as Heera Mandi, which translates as "Diamond Market", a double entendre which refers to the areas historic association with the diamond and jewel trade, as well as euphemistically to the trade in women. It is within the narrow and winding streets of this part of old Lahore that the majority of CSWs in Lahore live and work.

Each night between the hours of 11 pm and 1 am "agents" invite potential clients into the houses which line Taj Mehal Street, the centre of Heera Mandi. Inside one or more women are waiting and men are offered a performance of singing and dancing. For an additional fee, sex may also be sold. Little is known about the working lives of the women in Heera Mandi. Within the context of a conservative Islamic society such as Pakistan, discussion of sexual behaviour is generally uncommon; prostitution in particular constitutes a taboo since it is prohibited in Islamic teachings. No research into the sexual behaviour of

CSWs in Lahore has been published to date. In this paper the authors present the findings of in-depth interviews conducted with female CSWs in Lahore during March and April 1994.

Methodology

Prostitution in Pakistan is criminalised and widely viewed as an offence to religious and social morals. In some quarters there is denial that prostitution exists at all and widespread underestimation of the extent of the commercial sex industry amongst those who do acknowledge its existence. Access to those who earn a living through commercial sex work is very difficult, since to surprisingly the men and women engaged in such work constitute a marginalised group. Fear of public exposure and legal action mean that CSWs in Lahore are reticent to give interviews or to talk at all with persons from outside of their own community. Indeed, until recently it was only possible for surveillance units to obtain blood for HIV testing with the assistance of the local police [6].

Access to potential respondents was initiated by contacting the National AIDS Programme in Islamabad in order to locate medical doctors practising in Heera Mandi. In this way, Dr. Ikram of Crescent Clinic was identified and agreed to facilitate the research by allowing the use of his clinic to conduct interviews with patients, some of whom are working as CSWs.

Although there are numerous traditional healers offering diagnosis and treatment of disease in Heera Mandi, Crescent Clinic is one of only three medical practices in the area. From the clinic, Dr. Ikram conducts general practice between the hours of 7.00 and 11.00 p.m. In addition, he is engaged by the National AIDS Programme Surveillance Team to draw blood, in the course of his regular consultation, for HIV testing and to distribute condoms when appropriate. The clinic measures approximately 1.65 by 4.8 meters and consists of one small waiting area and one consulting room. The clinic is located in the heart of Heera Mandi, some 500 meters from Taj Mehal Street, where the majority of CSWs work. Dr. Ikram has been practising in the clinic for three and a half years, and in this time has established a degree of trust within the community. Initially, it was hoped that the researchers would be able to interview commercial sex workers who came for a consultation with Dr. Ikram. This did not prove possible, since the number of CSWs visiting the clinic on any one day was variable and much time could be spent waiting for a potential interviewee. Dr. Ikram agreed to use his connections with the "agents", or pimps, known to him to bring in women for interviews.

Although some 40 women were interviewed, the total number of respondents from whom data is presented here is 22. Eighteen women were excluded because although they were willing to participate in the research, they did not identify themselves as commercial sex workers. Some of the women excluded claimed that they were retired from such work, whilst others denied ever having been engaged in it. In such cases, women were interviewed, but questions pertaining to sexual practice with clients were not asked.

The interview consisted of a schedule of questions in the form of a guided conversation focusing on social background, health concerns, sexual practice and knowledge of HIV and AIDS. Each interview, which was conducted in Urdu, lasted approximately one hour. Prior to each interview the researcher explained that the researchers were interested to discover any health problems and concerns which the women might have. Having sought and gained agreement of the respondent the interview was then conducted. At the end of the interview, the women were able to ask any questions which they had concerning their health and often availed themselves of an opportunity to have an examination and prescription from the female medical doctor conducting the interview. In this way, some respondent came for interview spontaneously without the contact of an agent, having heard through word of mouth that a female medical practitioner was available at Crescent Clinic.

Social Profile of the Sex Workers

The age range of the women interviewed was 14 to 50 years; one respondent did not know her exact age, but was clearly within the age range above. The youngest girl interviewed, aged 14 years, reported that she had been working for three months, whilst another aged 16 years said that she had been singing and dancing for as long as she could remember, and selling sex for the last three to four years. The remainder of the women had been working for between 3 and 30 years. Eight of the women reported that they had begun work at the onset of menstruation.

Every respondent was asked her religion, and all respondents reported that they were Muslims. Although not expressively asked, during the course of the interview virtually all respondents reported that they were, or had been married. It was not possible to determine whether the marriages were perceived as binding and permanent or based on Muta'a. Marital breakdown, which was reported by many of the

respondents, was frequently cited as a reason for taking up commercial sex work in the first instance.

All but five of the respondents had children. The main distinction between those who had children and those who did not was age: the younger women were childless, with the exception of one woman aged 38 years who had never conceived. One respondent, aged 16 years, had missed one period and presented for a pregnancy test during the course of the research at the clinic. Family size ranged from one to nine living children, although the maximum number of live births reported was sixteen. Four women said that their children were residing with relatives usually in villages elsewhere in the Punjab, but the majority had children residing with them in Heera Mandi.

Reports of earnings ranged widely. One woman, aged fifty years old, reported that she might sometimes have sex for twenty rupees, whilst one woman reported receiving one lakh (100,000 rupees) on the occasion of her first sexual encounter. Three women said that they did not know how much they earn since in two cases the male agent took care of income and expenses and in the third the woman's grandmother, she acts as her agent, did so. The average amount reported per client was between 1,000-2,000 rupees. It should be noted that women were often unclear and contradictory when talking about earnings. Some studies of CSWs have suggested that accurate reporting is difficult to achieve since women sometimes inflate their actual earnings, which they may see as reflecting their 'value' or 'worth' [7]. A number of women commented that the work, and salary that can be commanded, is "seasonal": that is dependent on the health of the economy generally, holiday seasons and number of women offering competing services. One woman stated that too many girls are entering the profession and lowering the market price. Each woman was asked how she entered into commercial sex work. The answers can be divided into two categories: first, those women who said it was their "family business"; and secondly, women who reported some misfortune or misadventure which led to their entry to the profession. Ten respondents reported that commercial sex work was a family business. One respondent aged 50 years already had one daughter also working as a CSW, and said that she had no objections to her other daughters taking up this work after the menarche. One woman reported that although she had been educated to college level, her family, business was that of prostitution and she expected, like her sisters, to engage in it as an occupation. The same respondent said that her financial affairs and procuring of clients were managed by her grandmother.

The remainder of the women reported that some misfortune had brought them to the profession. The women who reported this usually described themselves as having come from "noble families" (in other words, prostitution was not their family business) and had 'fallen' into prostitution through circumstance rather than choice. These women told stories of marital breakdown, usually desertion by their husband. Five women also reported that their husbands were addicted to heroin, precipitating either marital breakdown or economic dependence on the earnings of the wife. One told a story of a blind father who could not offer support for his large family, necessitating her work as a CSW. Pickering et al in their research with Gambian CSW's have reported that respondents often related sad family histories which led them to prostitution, but that these histories may have been fictional accounts offered as a moral justification for engaging in commercial sex work [7]. It is not possible to verify the reports given by respondents, but it should be noted that displays of emotion were often very heart felt.

In all cases the women were represented or managed by an agent who procures clients and manages financial affairs to some degree. It was very difficult to raise the question of relationships with agents, since Dr. Ikram and the interviewers depended upon the goodwill of the agents to conduct research. Suspicions were aroused by asking detailed questions about the relations between women and agents who were all men except for the previously mentioned grandmother. Women were often accompanied by their agents and observation suggests that surface relations were cordial, with some women joking and showing general frivolity with the men accompanying them. It is not possible to make more meaningful observations. None of the women were asked about, or volunteered information on, marital or sexual relations with agents but all were forthcoming in stating that the agent procures clients on their behalf.

Each respondent was asked about her level of education. Of twenty two respondents only three had received any education at all: two had received primary education (up until 4th class in the first case and 6th class in the second), whilst one had completed her matriculation and the first year of a college course, thereafter joining the family business of sex work. None of the other women were able to read or write but this is not surprising since the female literacy rate in Pakistan is only 21 per cent [8].

Sexual Practice amongst Commercial Sex Workers

Respondents were asked a number of questions about their sexual practice, including information about

type of sexual activity, avoidance of sexual activity, number of clients and practices with regard to contraception, most especially condoms.

All respondents were asked what kind of sex they sell. Without exception the women replied that they offered only vaginal and never oral or anal sex. Some respondents commented that "other parts" may offer such services, but they themselves did not, and would not, at any price. The *quran* was offered in the case of oral and anal sex as the *quran* forbids such practices. Women were also asked in relation to oral sex, but they refused to answer either prayer and to eat so that they did not defile themselves in this way. Some of the respondents reported that they are sometimes asked for such services, but all said they refused. Two respondents reported that foreign men, American and British, always request anal sex.

When asked if there are any times when they avoid sexual contact, all but two of the respondents stated that they avoid sex during menstruation and late pregnancy. In addition some identified the holy months as being a time of sexual abstinence. Reasons given for abstinence during the menses were that it is dangerous for the health of the women, that it is forbidden by the religious faith and that clients would not want to engage in sex with a woman during menstruation. One woman feared that were she to attempt to have sex with a client during her menses he might report her to the police leading to her arrest. One woman, aged 40 years, said that a woman can have sex at any time, whilst another aged 45 years, said that she doesn't care whether she is menstruating or not since the "injury" is to the man not the woman. This respondent followed up her statement by asking the interviewer if any harm could come to a woman who engaged in penetrative sex during menstruation.

The number of clients reported by the respondents varied a great deal. One 27 year old respondent said that she "belongs" to just one man who takes care of all her financial needs. The number of clients of the other women, who were not exclusively active with one man, varied between one and seventy clients per week. There was no apparent difference in terms of the age of the women in how many clients she had each week. One young woman of sixteen years reported 20 clients per week, whilst the most active woman, aged 45 years, reported between five and ten men each night, and added the comment that she could have twenty per night if she so chose.

Only a minority of the women reported use of contraception, explaining the large family size reported by the older women which was between five and nine surviving children. When used, contraception was seen as a means of preventing pregnancy rather than prevention of sexually transmitted disease, reflected in the contraceptives of choice: three had been given contraceptive injections, two used oral contraceptives and one used an IUD. One woman reported that she had already had the menopause, so had no further

worries about pregnancy. Four women reported termination of pregnancies. No woman reported use of condoms: three of the women under twenty years said that they did not know what a condom was, and did not recognize one when it was shown to them. Only two women reported ever having used a condom, in both instances on the express request of a client. Those women who knew about condoms were asked why they didn't use them. Without exception these women replied that clients would not want to, adding that men come to Heera Mandi to enjoy themselves and do not want their pleasure spoiled by using condoms. Such statements are common amongst CSWs, worldwide, who have reported that the major reason for not using condoms is client resistance [9].

The attitude towards contraception and pregnancy was generally one of fatalism. Most women felt that children were a natural and inevitable consequence of sexual activity. One woman, aged 45 years expressed a commonly held view when she stated that "If Allah wants child to come He brings it. If he wants a child the condom will break anyway".

Self-Reported Health Concerns

All of the women interviewed said that they worried, to varying degrees, about their health. Fifteen of the women reported fatigue, which they explained as a result of singing and dancing and long hours worked. All but one of the women said that they suffered from excessive vaginal discharge and reported other symptoms suggestive of sexually transmitted disease. Many health concerns expressed were high blood pressure, kidney problems respiratory problems and fevers.

When asked if ill health might be associated with their work, the respondents largely stated that their work caused tiredness. Vaginal discharge, even when excessive, was not perceived as related to CSW. One woman stated her work may put her at increased risk of infectious disease since "We see all types of men and if the men have a sickness, then we may catch it".

Women were asked whether or not they had sought medical consultation or treatment with the last twelve months. Half of the interviewees had done so, reporting that they had attended Crescent Clinic and other practitioners for treatment of ailments varying from influenza to fevers. None had sought treatment for vaginal discharge, although all those reporting current symptoms requested that the interviewer, who is medical doctor, prescribe for them.

Knowledge of HIV Infection and Aids

Of the women interviewed only three had heard of AIDS. Nineteen of the respondents then had never heard of AIDS, despite of the fact that our research was concurrent with the launch of the government AIDS

awareness campaign. Of those three women who reported having heard about AIDS, only one was able to describe the syndrome and modes of transmission with any degree of accuracy, and she was distinct from other interviewees in that she had completed her education to college level, could read and write Urdu, and to some lesser degree English, and she had lived abroad. She had heard of AIDS whilst living with family in the U.K. In common with the other women interviewed, she did not, however, practise safer sex with her clients.

One other woman who had heard of AIDS stated that it is "the disease of foreigners", reflecting a commonly held view in Pakistan. The third respondent, said that she had heard of AIDS but was not able to offer any information about it to the interviewer.

Although knowledge alone is not sufficient to bring about changes in sexual behaviour which may reduce risk of HIV infection [10], it is nonetheless pertinent to note that the vast majority of our respondents were not even aware of any risk to their health from HIV infection.

Discussion and Conclusion

This research suggests that there is a considerable and urgent need for action to bring about HIV awareness amongst CSWs in Lahore. Whilst clearly at some risk of HIV infection, the women interviewed have little or no knowledge of this risk or how to protect themselves and their clients from it. There is no established pattern of condom use, which might offer the women protection from HIV and other sexually transmitted infections.

To date, the media campaign launched in Pakistan to raise HIV/AIDS awareness had not reached the women interviewed. Since the research ran concurrent with the launch of the campaign it is likely that future research will reveal an increased level of knowledge amongst some women working in Heera Mandi. Nonetheless, it is essential that such public awareness campaigns are accompanied by more direct interventions aimed at CSWs in Pakistan. As other authors have suggested, HIV/AIDS control programmes must ensure that they teach how to accomplish reduction of risk in addition to disseminating facts [11]. Transmission of HIV is facilitated by lesions caused by sexually transmitted disease, particularly syphilis and chancroid [12]. Our research suggests that CSWs in Heera Mandi are at risk of sexually transmitted diseases and have little access to diagnosis and treatment. In addition to educational initiatives, the women working in Heera Mandi are in

need of comprehensive health services to protect their sexual health. There are no women doctors currently practising in the area and within the cultural context of Pakistan, All women including CSWs, are reticent to undergo gynecological examination by a male doctor.

In addition to targeting CSWs in Pakistan, "agents" are an important group with whom to work. Research shows that pimps exert a considerable degree of control over the work and practice of CSWs [4]. Although this research did not discuss directly on the relationship between CSW and agent, all women stated that agents procure the clients and also control financial matters. In the course of this research little was learned about clients, except that they come from all walks of life and all strata of society. It would be productive in terms of HIV prevention to investigate possible motivating factors for the use of condoms amongst clients of CSWs in Pakistan. Many respondents believe clients are reluctant to use condoms: this perception may or may not reflect reality but is corroborated by interviews undertaken in Lahore which suggest that CSWs do not suggest condom use for fear of losing clients to women who will have unprotected.

The development of culturally appropriate HIV/AIDS awareness is crucial since cultural determinants clearly act as barriers or can facilitate healthy behaviours [11]. The women expressed fatalistic attitudes towards conception which means that few use contraception. A similar attitude towards the risk of HIV infection may develop if direct intervention does not accompany the Government media campaign. Religion plays an important part in the lives of the women interviewed as demonstrated by their reported refusal to engage in un-Islamic practises such as oral and anal sex. Since it has been reported that religious figures can be instrumental in shaping responses to HIV/AIDS [14], working with religious leaders will be an important feature of any educational work in Heera Mandi.

Acknowledgement

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PATTERN OF URINARY CALCULI IN RAWALPINDI AREA A STUDY OF 100 CASES

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Summary

In a total of 100 urinary calculi received for chemical analysis, calcium oxalate was the commonest chemical constituent (97%). Pure calculi constituted 52% (Calcium oxalate - 49%; Urate - 02%; and Cystine - 01%). Amongst the mixed calculi (48%), the commonest were the calculi containing calcium oxalate with magnesium & ammonium phosphates (17%); followed by those containing calcium oxalate & uric acid (12%); calcium oxalate, uric acid & ammonium phosphate (10%); calcium oxalate & Calcium phosphate (03%); calcium oxalate, ammonium oxalate & uric acid (03%); calcium oxalate & ammonium phosphate (02%); and Calcium oxalate & ammonium oxalate (01%), respectively. Uric acid was found as a chemical component in 26% of calculi.

Introduction

Urinary calculi at all levels of urinary tract are common in Pakistan. According to a study on 1,423 patients admitted at nephro-urology department of JMPC, Karachi, renal calculi were the commonest urinary problem, occurring in 17.9% of patients (1). In another hospital, 7.1% of major surgical procedures were performed for urinary calculi (2). The patients in our country seem to be afflicted with calculous disease at a relatively earlier age as compared to in western countries (3). The highest incidence of renal calculi is recorded in third and fourth decades of life (4). Males are more commonly affected than females (2).

Rizvi (1975) analyzed urinary calculi from 271 patients, and observed that pure calcium oxalate stones were the commonest, followed by mixed stones containing calcium oxalate and urates. He also reported that mixed stones containing phosphates were relatively more common amongst the vesicle calculi, and that pure urate stones were relatively uncommon at all levels of urinary tract (4).

The aims and objects of the present study were to evaluate the chemical composition of urinary calculi in patients belonging Rawalpindi and Islamabad regions, compare our findings with published data from other regions, and to evaluate the age and sex distribution of patients suffering from renal calculus disease.

Materials and Methods

A total of 100 consecutive, surgically removed urinary calculi received for chemical analysis were

included in this study. Every calculus was washed to remove blood clots, dried in hot air oven, crushed and powdered with pestle and mortar. A small amount of this powder was treated with two drops of concentrated sulphuric acid to char any organic matter, and was thoroughly mixed in 100 ml of deionized water.

Chemical analysis was performed to analyze for calcium, magnesium, ammonium, oxalates, uric acid, phosphates and cystine. For this purpose, commercially available kit (E. Merck) was used. The composition of stones was thus assessed and tabulated.

Results

Age Distribution

The ages of patients in this series ranged from 4 years to 70 years, with a mean $\pm$ SD of 37.6 ± 16.1 years. As shown in table 1, the peak incidence was in the third decade (28%, followed by fifth (20%), fourth and sixth decades (17% each), respectively.

Sex Distribution

In a total of 100 cases of urinary lithiasis, 77 were males and 23 females, with a male:female ratio of 3.35:1. Sex distribution is elaborated according to chemical composition of calculi in table 2.

Chemical Composition of Calculi

As elaborated in table 2, calcium oxalate was the commonest chemical component, and was present in 97% of stones analyzed; 49 of them were pure calcium oxalate stones, whereas, in the remaining 48 cases calcium was mixed with other chemical constituents.

Table 2. Breakup of 100 cases of Urinary Calculi Depending on Chemical Composition

Type of Calculus	Total	Males	Females (M)	M:F Ratio (F)
PURE CALCULI				
Cal Ox	49	38	11	3.45:1
Urate	02	-	02	0:2
Cystine	01	01	-	1:0
MIXED CALCULI				
Cal Ox + Amm Ph + Magnesium	17	14	03	4.67:1
Cal Ox + Uric Acid	12	11	01	11:1
Cal Ox + Uric Acid + Amm Ph	10	07	03	2.33:1
Cal Ox + Cal Ph	03	02	01	2:1
Cal Ox + Amm Ox + Uric Acid	03	02	01	2:1
Cal Ox + Amm Ph	02	01	01	1:1
Cal Ox + Amm Ox	01	01	-	1:0
Total	100	77	23	1:0

Cal Ox = Calcium Oxalate; Amm Ph = Ammonium Phosphate;

Cal Ph = Calcium Phosphate; Amm Ox = Ammonium Oxalate;

Table 1. Age distribution of 100 Cases of urinary Lithiasis

Age Range Years	Percentage
1 to 10	06
11 to 20	08
21 to 30	28
31 to 40	17
41 to 50	20
51 to 60	17
61 to 70	04

In 48 mixed calculi, calcium oxalate was invariably present. It was mixed with ammonium magnesium phosphate in 17%, uric acid in 12%, magnesium and phosphate in 10%, calcium phosphate (apatite) in 3%,

ammonium phosphate alone in 2%, and ammonium oxalate in 1% of cases.

Uric acid was found as a chemical component in 26% of calculi; two of them were pure uric acid calculi; amongst the remaining 24%, uric acid was mixed with calcium oxalate in 12%, ammonium and calcium oxalate in 10%, and calcium as well as ammonium oxalate in 3% of cases.

Pure urate (2%) and pure cystine calculi (a%) were uncommon.

Discussion

Age Distribution

Urinary calculi are the most prevalent between 20 and 40 years of age (4,5 and 6). However, Khan et al reported a peak incidence between 16 and 20 years of age (3). Zafar et al, in a series of 505 urinary stones, observed three peaks, i.e., below 10 years, between 21 and 30 years and above 51 years of age. In the present study, maximum patients were observed in third decade

(28%), followed by fifth decade (20%), fourth and sixth decades (17% each), respectively.

Sex distribution

In the present series, males were more commonly affected, with a male: female ratio of 3.35:1. This finding conforms with the previous studies which have shown a male preponderance with a male:female ratio between 2:1 and 4.5:1 (4,5,6, and 7).

Stone formation within the urinary tract has a widely varying incidence in different parts of the world, or even in different parts of an individual country (8). Urolithiasis is common in all regions of Pakistan (1, 3). A few reports regarding the chemical composition of urinary calculi from different region of Pakistan, have been published previously (4,5,7). Such studies are of significance because the knowledge of composition of calculi is essential for understanding the aetiology and for streamlining the management of urolithiasis (9).

In the present study, 97% of the urinary calculi contained calcium oxalate; pure calcium oxalate stones were observed in 49%. Amongst mixed stones (48%), the common chemical components were: calcium oxalate and uric acid (12%), and calcium oxalate, uric acid & ammonium phosphate (10%). Pure calculi were uncommon (3%). Table 3 compares our findings with two previous reports. The results of the present study are close to a series from Peshawar (5), which showed calcium Oxalate in 94% of calculi. However, in this series, amongst the mixed stones containing calcium oxalate, struvite was much less frequent, whereas apatite as well as bruchite were more common as compared to our cases (table 3).

The findings of another series from Multan (7) were different from our study (table 3) in the following respects:

- (i) Pure calcium oxalate stones and mixed stone containing calcium oxalate were less common.

- (ii) Mixed stones containing apatite were more common, and

- (iii) Pure urate stones and mixed stones containing uric acid were much more common.

In view of the findings in our series and two previous reports cited above (5,7), it is felt that similar studies should be conducted in different areas of the country to further evaluate the geographical variability of chemical composition of the calculi.

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AIDS/HIV PANDEMIC - UPDATED GLOBAL STRATEGY

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AIDS (Acquired Immune deficiency syndrome) is caused by retrovirus i.e Human Immune Deficiency Virus (H.I.V-I and H.I.V-2) and is characterised by break down of body's Immune system, leaving the host vulnerable to life threatening opportunistic infections, neurological disorders and unusual malignancies. [1].

Modes of Transmission:

HIV is transmitted in three ways:

- Sexual contact,
- Through blood and
- From mother to child.

HIV transmission through sexual intercourse accounts for about 3/4th of all HIV infections world wide. Therefore, it is a Sexually transmitted disease like other STDS (Sexually Transmitted Diseases Syndromes). HIV infection can also be transmitted through blood i.e. recipients of blood, blood products, intravenous drug users (by needle sharing), and rarely a person may have accidental inoculation. Minimum required volume of blood to transmit the infection is 0.1 ml., and the risk of infection followed by a needle prick with HIV positive blood is 0.5 percent. [2].

Transmission of HIV from mother to child includes transmission during pregnancy, delivery and through breast feeding.

Approximately one - third of children born to HIV infected mother will acquire HIV infection from their mothers. So the majority of infections occur during pregnancy and delivery. Only 15% of breast fed babies of HIV +ive mothers may become infected through breast feeding.[3].

Studies have shown that HIV is not transmitted by casual everyday contact, by hugging and kissing, through food and water, by sharing of utensils, using public latrines, and by biting of insects. (mosquitoes).

Magnitude of the Problem

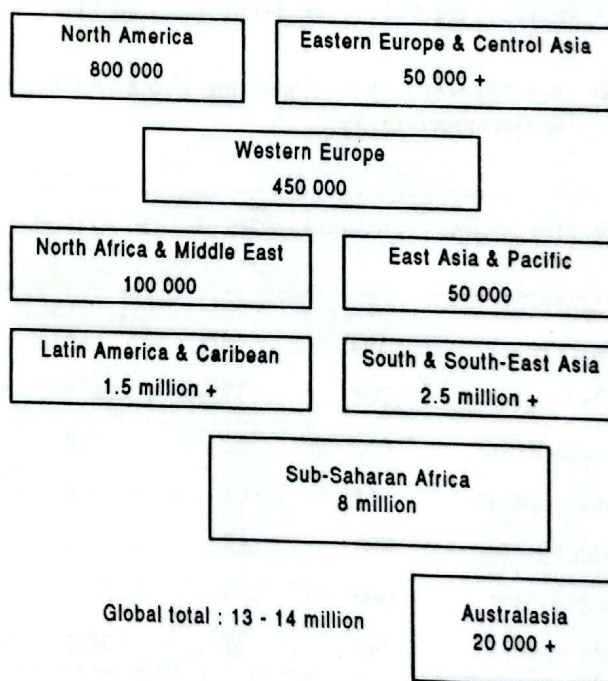
Acquired immune deficiency syndrome was first recognised during the year 1981, among homosexual men in USA. The causative agent, Human Immune

Deficiency Virus (HIV) had been identified in 1983. By the mid 1980s it became clear that the virus had spread unnoticed throughout the world and its effects had reached the pandemic proportions.

This pandemic consists of many separate epidemics. Each epidemic has its own distinct origin, in terms of geography and specific population affected, and involves different types and frequencies of risk behaviours and practices, for example having unprotected sex with multiple partners and sharing drug injection equipments.[4].

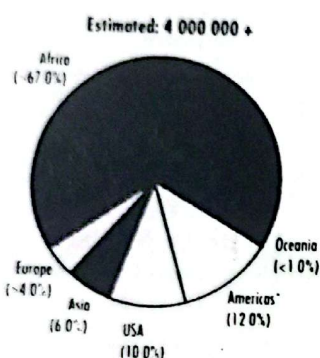
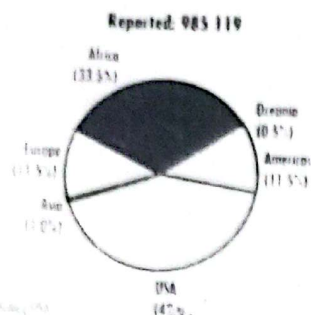
"By mid 1994 more than 17 million HIV infections are estimated to have occurred. But the estimated distribution of HIV infected adults alive in mid 1994 globally are 13-14 million.[5]

Estimated Distribution of HIV-infected adults alive in mid - 1994



The officials of National AIDS Prevention and Control Programme (NAP), along with the help of NGOs were able to conduct sero-positive surveys in high risk groups, at different AIDS centres. Such as

prostitutes, STDs, drug users, trans-sexuals, prisoners, tuberculous patients and truck drivers." [6].



Total number of AIDS cases in adults and children from the start of the pandemic until mid 1994

Tab. Sero Survey Report (Pakistan) From October 15 to December 10, 1993.

High risk groups	Screened	No of HIV+ive	P. R./1000
Prostitutes	594	8	13.5
STDs	961	12	12.5
Drug users	659	02	3.0
Trans - sexuals	61	01	16.4
Prisoners	300	04	13.4
T.B. Patients	600	-	-
Truck drivers	300	03	10.0
Total:	3475	30	8.6

Source: Aslam N, AIDS: The Biggest Threat to Humanity Today; The News: 12:94.

Global Strategy for the Prevention and Control of AIDS

The International policy framework was laid down in 1987 for fight against AIDS. Three main objectives were set in:

- * to prevent the infection with HIV.
- * to reduce the personal and social impact of HIV infection.
- * to mobilise and unify the national and international efforts against AIDS.

In spite of all efforts the pandemic has evolved dramatically since 1987. Therefore after distillation of all the valuable experiences gained in the past five years, the GPAS (Global Programme on AIDS) proposes the following six ways to meet the new priorities of the pandemic.

Updated Global AIDS Strategy 1992

1. An increased emphasis on the adequate and equitable provision of health care, as the large number of people already infected with HIV will progress from asymptomatic infection to AIDS.
2. Expanded and more effective treatment for other sexually transmitted diseases which are now known to increase the risk of HIV transmission.
3. Reduction in vulnerability of women and off-spring through health education and economic improvements.
4. Removal of legal and cultural barriers to deliver frank messages about sexual transmission.
5. Immediate planning in anticipation of socio-economic impact of the pandemic.
6. A great focus on communicating effectively to overcome the stigmatization and discrimination.[7].

Strong political will is required at each and every step of planning implementation and evaluation of the National AIDS Programme, only then we would enable the goals of the updated strategy to be met.

Updated Policy For Breast Feeding Practices

Breast feeding should continue to be promoted supported and practiced in all countries irrespective of the prevalence of HIV infection in the country. Overall benefits of breast feeding are more than the risk of HIV infection.

Research

The research activities aimed at identifying and developing effective ethical and economical biomedical

advances in the prevention and treatment of HIV infection and AIDS should be promoted. Various means for Research are:

1. Vaccine development: to develop effective and appropriate HIV vaccine.
2. Clinical research and drug development:
 - to elucidate natural history of HIV infection in the developing countries.
 - to elucidate the drugs for the treatment of HIV infection and for the prevention and treatment of HIV related illness.
3. Diagnostic: To evaluate the tests for the diagnosis of HIV infection and other STDs in order to develop optimum testing procedures and strategies for use in developing countries.
4. Epidemiological research and surveillance:
 - to learn more about the known modes of transmission (i.e. through sex, blood and perinatal infection).
 - to identify risk factors and co-factors which enhance the HIV infection.
 - to project trends in the spread of HIV/AIDS and its future demographic impact.
5. Social and behavioural research KAP studies:
 - to find out the extent of knowledge about AIDS;

- To study the attitude and practices for prevention and control of disease;
- To study the ethical issues surrounding the HIV and AIDS prevention and control programmes.

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CONVERSION RATE OF MANTOUX TEST AFTER BCG VACCINATION IN STUDENTS OF NISHTAR MEDICAL COLLEGE, MULTAN.

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Summary

Tuberculin test widely used as a standard to determine the previous exposure of the body to tubercle bacilli. It can also be used to determine the presence of cell mediated immune response in the body, after giving BCG vaccine. We checked the tuberculin sensitivity of 94 previously tuberculin-negative adult subjects, three months after giving BCG and obtained a 78.7% positive rate. This suboptimal immune response, combined with the fact that the protection granted by BCG against tuberculosis is considered to be incomplete, underline the need to stress active case detection and treatment in addition to BCG vaccination for the control of the disease in the community.

Introduction

Tuberculin test is a standard method of diagnosis previous exposure to tubercle bacilli (active or attenuated). It depends upon presence of tuberculin hypersensitivity. Conversion of tuberculin test (from negative to positive) after BCG assumes that there is a concomitant acquisition of immunity [1]. Although this immune response may not be protective in nature [2], a positive tuberculin test does indicate reactivity of the body against tubercle bacilli. At the same time, conversion of tuberculin test from negative to positive in any individual after administration of BCG would be an evidence of the potency of the vaccine.

We carried out a study of tuberculin testing after BCG vaccination to find out the immune response to BCG in adult subjects and to determine the potency of BCG vaccine supplied by the Health Department.

Materials and Methods

The study was conducted in 1993, in Nishtar Medical College, Multan. BCG vaccine (supplied by Health Department, Punjab) was injected intradermally at deltoid region of upper arm in 94 second year medical students who previously responded negative to 5 TU of PPD (supplied by National Institute of Health, Islamabad). They were retested with same PPD 5 TU, three months after administration of BCG. Mantoux test was read as positive if there was an area of induration more than 10 mm in diameter at the site of injection, three days after administration of PPD.

Results

Seventy four subjects out of 94 reacted positive to tuberculin, three months after BCG vaccination; giving a BCG uptake rate of 78.7%.

Table 1: *Tuberculin Reactivity After BCD Vaccination*

Result	Number	Percentage
Positive-reactors	74	78.7%
Negative-reactors	20	21.3%
Total	94	100%

Discussion

BCG vaccination has been in use since 1927 as a method of prevention against tuberculosis [2]. BCG is routinely given in most developing countries. In Pakistan BCG vaccination of newborns is being promoted under the expanded programme of immunization since 1982.

Development of an immune response in the body after administration of BCG can be determined utilizing the tuberculin test which indicates uptake of the vaccine. This response which depends upon cell-mediated immunity can be considered analogous to

antibody formation in relation to other vaccines [3]. However, tuberculin positively depends upon other factors also e.g. tuberculin hypersensitivity may result from contact with non pathogenic environmental mycobacteria that may confound the interpretation of tuberculin test [4]. In various parts of the world where weather conditions are warm and humid, it is customary to consider reaction smaller than 10 mm as not significant and attribute them to cross reactivity with environmental mycobacterial antigen [4].

Repeated skin testing may boost reaction size, whether the primary reactivity was directed to M. tuberculosis or was non specific [4 & 5]. Tuberculin reactivity declines with advancing age.

Malnutrition may also lead to negative or milder tuberculin response. Anergy is the condition in which dermal tuberculin response is negative in the face of infected person [4].

Overwhelming infection e.g., milliary tuberculosis may also give a negative responses. The test may also be negative in immuno compromised patients e.g., suffering from AIDS, or those taking steroids. Long term controlled studies have shown the efficacy of BCG vary from zero to 80% under that different circumstances [3].

Our study indicates that vaccine used for immunization is effective in generating an immune response in the body in 78.7% of the subjects. Although

it is hopeful, the absence of a response in rest of the 21% would further lower the protective efficacy of the vaccine as a pre-ventive measure against tuberculosis in the community.

At the national level, prevention of tuberculosis cannot be relied upon BCG alone. Case finding and treatment is perhaps more important in controlling the disease [2].

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SOCIAL OBSTETRICS: A MULTIDIMENSIONAL APPROACH TO HEALTH PROMOTION AND DISEASES PREVENTION IN WOMEN AND CHILDREN

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Summary

As in many domains, women occupy a pivotal position between policy and practice in health. In writing about third world women, Peggy Antrobus states:

"Their central role in human survival places them at the centre of the balance between population and land, reproduction and production, between sustainable development and ecological disaster, between a more human world and one which denies a common humanity to the majority of the world's population.....unless their values, views and vision serve as a central focus for our policy making we cannot achieve the ultimate goal of peace".

To this the writer would like to add that we cannot achieve the goal for Health for all by the year 2000 for which primary Health Care (PHC) is the key approach.

Introduction to Women's Health

Women in developing countries are often in poor health and overburdened with work; they are often anaemic, many suffer from malnutrition and PARASITISM and chronic ill health from lack of adequate health care, especially during pregnancy and childbirth. Early marriage, repeated childbearing, ignorance, poverty and manual labour all have deleterious effects.

Women's special needs have often been ignored by health planners and women have thus had to bear a disproportionate share of unmet health needs. The extra burdens that women carry in health and development related matters can be seen in two ways. First, although women experience the same pressing problems as men for example, lack of access to resources, under employment or unemployment, lack of training opportunities they are always the most affected. Women are usually the last to be given resources, to be listened to and consulted about their own needs, to be beneficiaries of health and development schemes. In fact even in household activities of daily meals, they have to survive on left overs after the men folk have had their meals.

Secondly, many problems are unique to women, for example in relation to their roles in child-bearing and rearing and their discrimination against them in almost all social, economic and political areas to a treater or lesser extent, in all countries of the world.

Pregnancy Related Risks

In the industrialized countries, the average life time risk for a woman of dying of pregnancy-related

causes is between one in 4,000 and 10,000. In contrast, for a woman in the developing countries the average risk is between one in 15 and one in 50. These countries commonly have maternal mortality rate of 200 times higher than those of Europe and North America the widest disparity in all public health statistics.

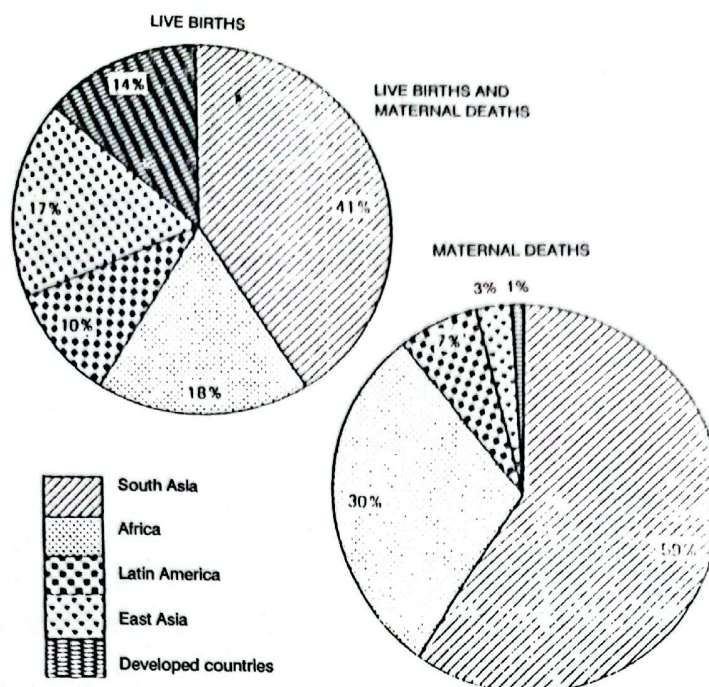
Maternal deaths and injury in developing countries, is a tragedy that has been largely ignored by those who set national and international health priorities, because those who suffer generally live in remote places, as poor and illiterate.

Under the spotlight of the United Nations Decade for women (1976-85), the sheer scale of the suffering associated with maternity became widely recognized. So, too, did the crucial fact that most of the suffering is preventable, and that Health for All by the year 2000 is just an empty slogan if glaring inequities in health care provisions are allowed to continue.

In India, adolescent girls have been relatively neglected. They are an important target group for two main reasons. Firstly girls marry early and often begin having children before their own adolescent growth is complete. Secondly, adolescent girls in pregnancy are at a higher OBSTETRIC risk than adult women [Mothers & children, 1994 volume 13, number 1].

Reproductive Health

Half a million women-wives, daughters, sisters, mothers of families, pillars of the community die each year from pregnancy related causes and childbirth. In contrast only a tiny fraction (6000) of 50000 deaths, take place in developed countries. All the rest occur in developing countries (see figure 1)



Source : Safe Motherhood Newsletter, WHO.

Fig. 1 : Live births and maternal deaths in selective developing and developed countries

Older Women

The health picture for older women is different from that of younger age group, for example women who become pregnant after the age of 35 years, especially those with more than three children, are at greater risk than mothers of 20-34 age group.

Nutrition

The importance of adequate diet during pregnancy needs no further emphasis. Malnutrition affects more than 500 million people. Factors that contribute to this situation include inadequate distribution and poor post-harvest storage. But the biggest problem is poverty and the rising costs.

Between 20-45% of women of child-bearing age in the developing world don't eat the WHO-recommended 2250 calories a day. Anaemia is a serious consequence of iron deficiency in mothers. It may be caused by insufficient iron in the diet especially when pregnancy and breast feeding put additional demands, on the mother. MALNUTRITION in children frequently results from ignorance and lack of supplementary feeding.

Family Planning

A spectrum of family planning methods is available to the population, Yet, not less than 40% of

the women, especially in rural communities is denied contraception.

One of the most pernicious misconception is that high mortality rates restrain population growth rates in countries with high fertility rates, and that lowering death rates will increase the growth. On the basis of this false premise, some have suggested that resources for child survival be diverted to family planning.

High birth rates are still a major problem for most developing countries. Bangladesh, Pakistan, Egypt, Kenya, India and the Philippines are notorious examples. However, it is a reality that promoting family planning without improving nutrition, health education and social equity has consistently failed.

An Agenda for Action

The changing epidemiological profiles of developing countries, in the area of maternal and child care are presenting a challenge. The primary emphasis of the Agenda is on changing the role of the departments of OBSTETRICS in view of the multidimensional areas they embrace. This change requires three main components. The Role of hospitals in PHC in the context of maternal and child care, the establishment of multidimensional model and Health Research.

Role of Hospitals in PHC

The Primary Health Care approach envisages that a hospital becomes responsive to the community of its location. A hospital is required to become a community institution. This calls for involvement of the specialists, more so a teaching hospital, in local health services. Without prejudice to the high level technology, the staff should provide advisory and technical support to the PHC services, in this context to the MCH component, and ensure that the three levels of preventions, Primary, secondary and tertiary become fully operative, "Such an approach will be a major step in medical education and will provide a basis for a curriculum change. Unfortunately, even the most exclusive tertiary care hospitals are used for Primary Care by the local elite. The attention of the most highly trained specialists is concentrated on caring for minor health problems of the wealthy and politically powerful group.

A Multidimensional Model

Investment in the establishment of a model for community needs that will embrace its various dimensions, the socioeconomic, primary care, Family Planning, Immunization unit (for training), traditional birth attendants health counselling, nutrition and a well supported tertiary care, besides the routine work of an OBSTETRICAL DEPARTMENT seems to be a far sighted intervention. However Fatima Hospital of Baqai University complex has embarked on the task of establishing such a model in the hope that this will have a motivational effect on other institutions. This hospital serves a rural population in the Gadap area with a sparsely distributed population where the per capita income is at the level of Rs. 1,000/-per anum (\$50). The main partner in meeting this challenge is the Baqai Institute of Health Sciences through its component of Community Medicine. Its tertiary care is unique and the department of OBSTETRICS of Baqai Complex shares the financial burden of this care.

Previous experience of Health Education at the community level supported with domiciliary midwifery at the rural community level has brought down the maternal and infant deaths by 50%. The present efforts of the hospital with its reoriented model will not doubt considerably influence a substantial reduction in the morbidity pattern as well.

Health Research

Knowledge is power and research is essential for advancing health. Health research is not limited to

studies undertaken only by trained scientists. It can be pursued by a broad range of people using the scientific method. Valid and scientific health research can be conducted by governmental and non-governmental staff, district health managers, and even the community.

The purpose of health research whether it is done by village health worker or by molecular biologists, is to generate new knowledge.

Research done by students of BAQAI MEDICAL COLLEGE during the initial phase of training brought out on analysis, interesting findings in the rural communities which enabled adequate interventions for improvement. The studies were on knowledge, attitude and practice (KAP) on:

1. BREAST FEEDING
2. IMMUNIZATION
3. PERSONAL HYGIENE

An analysis of the self administered questionnaire showed that:-

- (i) Large number of women commenced breast feeds on the second or third day
- (ii) Immunization of infants was refused to the fear of fever.
- (iii) Majority of village folk did not wash hand after toilet

Simple intervention by health educations brought about a remarkable change, although persuasion had to be made over a period of more than one year.

In conclusion it is stated that An Agenda for action for a change in the role of departments of OBSTETRICS seems essential, and an appropriate term for it will be SOCIAL OBSTETRICS to justify its multidimensional facets. This has three components, the ROLE OF HOSPITALS in PHC, establishment of a multidimensional model illustrated by Baqai University and Health Research.

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