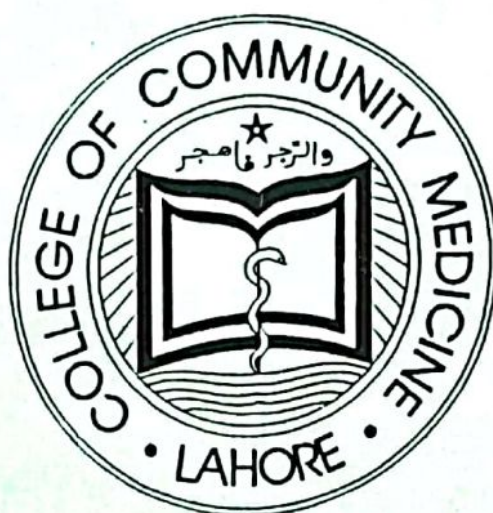


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Editorial

HANDLE LIFE WITH CARE

The slogan for WHO day on 7th April, 1993 is 'Handle life with care prevent violence and negligence.'

It is indeed an opportune time to highlight the importance of definitely avoidable deaths due to injury, violence & poisoning.

When we observe the magnitude of this problem there are about 3.5 million deaths from injury throughout the globe and about the same number become disabled with ten times becoming partially disabled through loss of limb or eye sight etc. More over injuries of all kinds cost the world community almost US \$ 500 thousand million a year in medical care and loss of productivity.

It is a matter of great concern for Pakistan like other developing nations that the deaths due to road traffic accidents and violence have reached a high water mark. The other tragic aspect being that violent soci-

eties which were unheard about a decade ago now have become so common that they appear to be a blot on the developing countries as well. Therefore it is high time that we should plan to protect against these avoidable deaths and disabilities through proper socio-cultural, educational, and health care measures. College of Community Medicine being the only institute of its own kind throughout the country, is very much ambitious to cooperate, collaborate, or provide any type of help with agencies concerned with noble cause of protection of human life against the adversities of the environment.

S.S. Naeem-ul Hameed
Principal

ROLE OF DUAA (PRAYER) IN THE HEALING PROCESS

UME KALSOOM, DMCH*

Islam has stressed upon its believers to seek medical treatment during sickness. The basic principle laid down in this respect is:

يَكُلُّ دَاءٌ دَوَاءً

"That for every sickness there is a remedy"¹.

This very principle not only encourages medical scientists to continue exploring new possible techniques for the treatment of ailing humanity but it also gives assurance to the sick that he should never lose his hope for getting cured. He should always try to seek the best available treatment for his illness.

However, Islam recommends that treatment of the body and soul should be done at the same time. Biomedical treatment if accompanied by the spiritual treatment accelerates and accentuates the process of healing. The Holy Prophet (Peace be upon him) declares: "Dua is a special weapon and protection for the believer"².

He further stresses. "Make it compulsory to get treatment from two healers that is Quran and Honey". (MISHKAT)³

Keeping this guideline in mind the Muslim Physicians, in all the periods, have been treating the ailments with a combination of Duaa

and Dawa (Medicine). Recently, certain physicians have studied the effect of prayers in healing process on scientific lines. A study was done in the psychiatric department of Allama Iqbal Medical College on the patients of Depression⁴. Sixty four (64) patients were divided in two equal groups. Each group included 20 male and 12 female patients of different socio-economic groups.

Group I was told to get up at 2.00 AM and keep waking for 2 hours. During this period they were told to say night prayers (Tahajjud) and after that to recite the following versions each for 100 times. The first version was:

أَلَا بِذِكْرِ اللَّهِ تَطْمَئِنُّ الْقُلُوبُ ه

"Verily in the remembrance of God do hearts find rest".

The second version was:

وَإِذَا مَرِضْتُ فَهُوَ يَشْفِينِ ه

"And when I sicken, then he healeth me"⁶.

Group II was the control group. It was also told to wake up for the same time i.e. 2.00 AM to 4.00 AM. They were told to do certain domestic work or read books during this waking period.

At the end of the study after 4 weeks significant results were noticed. The study group showed cure rate of

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78% as compared to only 15.6% in the control group. (Table I)

TABLE I

Cure rate at the end of the study of the two groups.

	Complete Cure		No Effect	
Group I	25	78%	7	21.9%
Group II	5	15.6%	27	84.3%

Many other physicians have worked on these lines in heart problems and other diseases at their personal level. Similar dramatic results have been noticed. A worth mentioning case in this connection is that of Mufti Mohammad Hasan (Founder of Jamia Ashrafia). His leg was to be amputated from the knee on medical grounds in early sixties. He refused to get general anaesthesia and insisted that operation should be carried on without it. He continued reciting certain versions and the whole operation was completed without anaesthesia⁷.

Modern science can explain it as the "Will Power" of a person which is effective in the process of healing. But the role of Duaa is more than that. It not only gives reassurance to the individual that he will get well, but also creates deep faith in the endless powers of the almighty Allah. Faith to such an extent that he starts feeling that nothing is impossible and that:

"God and I can do anything". This strong faith works magic and helps the person in getting hope and courage to fight against the disease. Lot has still to be explored, what magic this faith plays with the im-

munological system of the body? How does a soothing mind help the ailing body get well?

Now, when the Epidemiology has reached at the conclusion of "Multiple causation theory" for the disease process. It should not limitise itself with the biophysical causation only. Efforts should be extended to find the relationship between the physical ailments and the spiritual ailments, to explore the relationship between physical health and the spiritual health.

Success in this field can solve the problem of over-medication and also can help to save a lot of economical resources and time, being spent on medicines un-necessarily.

Moreover, if the weapon of Duaa is used on scientific grounds, it can prove very powerful in the prevention of a number of health problems.

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A COMPARATIVE STUDY OF BLOOD PRESSURE AND NUTRITIONAL STATUS OF 15-19 YEARS OLD PAKISTANI, BRITISH AND INDIAN STUDENTS

SHAHADAT KHAN*

M.Sc., M.Phil.

ABSTRACT

Ninety-six male students from three different ethnic groups (Pakistani, British and Indian) aged 15 to 19 years were screened for blood pressure, resting pulse rate and general anthropometric characteristics. Pakistani boys were both taller and heavier than Indians ($P < 0.001$) whilst the differences between the mean heights as well as weights of Pakistani and British groups were statistically insignificant. There was no significant difference in the mean systolic or diastolic blood pressure between the three groups. However, the British group had more cigarette smokers than the other two groups.

INTRODUCTION

Epidemiological studies in the United States have reported higher blood pressures in adult blacks compared with whites¹, but it is not known whether these higher blood pressures can be explained by environmental influences, including social class or diet, or whether they are caused by a genetic predisposition². Some studies indicate that black-white differences are minimized if factors such as social class or area of residence are controlled for³. Male black West Indian factory workers in Birmingham do not have higher blood pressures on average than similarly aged whites or Asians⁴. Khaw and Marmot⁵ found that white boys have higher mean blood pressures than black boys and suggested that environmental factors may be important

determinants of blood pressure. By contrast, Giovanni et al.⁶ noted a similarity of blood pressure amongst school leavers of 3 ethnic groups (white, black and Asians) in Birmingham and suggested that dietary or environmental factors may be playing a part in this younger generation. Almost no such study has been done in this country, having a different socio-economic, cultural and environmental background. In order to appraise the situation in our environment the present investigation was undertaken.

SUBJECTS AND METHODS

Ninety-six male students from three ethnic groups (19 from Aitchison College, Lahore; 16 from Brighton College, England; 61 from India-Daly College Indore, Mayo College Ajmer, Doon School Dehra Dun and Yadavindra Public School Patiala) aged 15-19 years were surveyed. British and Indian boys visited Pakistan to partic-

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ipate in centenary function of Aitchison College, Lahore, where they were recruited for this study.

Blood pressure was recorded using the method detailed by Khaw and Marmot⁵ by a senior Doctor. Pulse rate, weight and height were also recorded. Weighings were done to the nearest 0.1 kg with the subject shoeless and wearing light cloths using a high specification spring balance, and heights measured to the nearest cm using a calibrated steel pole with a steel horizontal sliding crossbar which was brought down snugly on the examinee's head. Considerable care was taken to ensure that pupils stood as upright as possible. Measurements on all the study subjects were made by the same anthropometrist.

Interview form included further information on physical activity, smoking habits, age, family size and occupation of father. Results were expressed as the mean $\pm$ s.d. and differences between groups were assessed by student's t-test.

RESULTS AND DISCUSSION

Ninety-six boys from the three ethnic groups (Pakistani, British and Indian) were weighed and measured in the over-all survey; the groups were well matched for age as given in Table 1 which also shows that British group had significantly ($P < 0.01$) smaller family size than the other two groups. Interestingly, British group had more cigarette smokers (18.8%) than both Pakistani (10.5%) and Indians (1.6%), consistent with the finding of Lowry *et al.*⁷

Level of nutrition have a strong bearing on the health status of a community. In the groups of Pakistani, British and Indian pupils studied, respective proportions who had weights within $\pm 10\%$ of their ideal weight for height were 57.9, 75.0 and 65.6% whereas that of 10.5, 18.8 and 14.7% fell below 90%, and that of 31.6, 6.2 and 19.7% exceeded 110% of established norms⁸. The high prevalence of overweightness found in the study participants may continue or even increase in later years of life as shown in prospective studies⁹. It is well known that obesity has serious consequences on health. In later life, complications like diabetes, hypertension, other cardiovascular diseases and affections of joints are also liable to make their appearance¹⁰.

The consequence of undernutrition may account for the small structure and physique of adult population in many parts of the world¹¹. This study has shown that Pakistani boys were both taller and heavier than the Indians, and there were statistically highly significant ($P < 0.01$) differences among their heights as well as weights. Similarly, the British group was significantly taller ($P < 0.001$) and heavier (difference not significant) than Indian group (Table 2). The trend depicted in this respect has been noted in similar study carried out in South Africa¹². While the differences between the mean heights as well as weights of Pakistani and British groups were statistically insignificant; however, the former group tended to be heavier

(by 3.3 kg) but shorter (by 2.6 cm) than the latter. Aitchison College students have been reported to have weights above established standards due to liberal rations which provide nutrients over and above their body needs¹³.

In a previous study⁵ mean blood pressures were found to be significantly different between two London schools and suggested that environmental factors may be important determinants of blood pressure. By contrast, the mean systolic and diastolic blood pressures were not significantly different between the three ethnic groups studied (Table 2); however, this finding is in agreement with similar study in white, black and Asian pupils⁶. In the U.S.A, ethnic differences have been similarly less consistent in younger age groups¹⁴.

As shown in Table 2, the British group had slower pulse rate than the other two groups (difference from the Indian group, $P < 0.01$). Such pulse rate differences have been reported by Giovanni et al.⁶ on white, black and Asian pupils. In the ethnic groups studied, an inverse relationship was noted between the mean pulse rate and height, as well as mean diastolic pressure and weight; moreover, blood pressure was not related to reported smoking. This is in consonance with the finding of Khaw and Marmot⁵.

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TABLE -1

MEAN AGE, FAMILY SIZE AND SMOKING BY ETHNIC GROUP
VALUES ARE MEANS $\pm$ S.D.

ETHNIC GROUP	PAKISTANI	BRITISH	INDIAN
Number of subjects	19	16	61
Mean age (yr.)	17.5 $\pm$ 1.3	16.7 $\pm$ 1.3	17.0 $\pm$ 1.0
Mean family size	5.5 $\pm$ 1.7	4.1 $\pm$ 0.7 *	4.9 $\pm$ 1.5
Smokers (%)	10.5	18.8	1.6

* $P < 0.01$ as compared to the other 2 groups.

TABLE 2

**BLOOD PRESSURE (BP), PULSE RATE, WEIGHT AND HEIGHT
BY ETHNIC GROUP
VALUES ARE MEANS $\pm$ S.D.**

Ethnic group n	Pakistani 19	British 16	Indian 61	All 96
Weight (kg)	68.1 $\pm$ 10.8	64.8 $\pm$ 13.8	60.2 $\pm$ 9.0*	62.5 $\pm$ 10.7
Height (cm)	174.3 $\pm$ 6.5	176.9 $\pm$ 6.2**	169.5 $\pm$ 7.2*	171.7 $\pm$ 7.5
Pulse rate (min-1)	74.0 $\pm$ 7.1	71.3 $\pm$ 6.5"	77.3 $\pm$ 7.0	75.6 $\pm$ 7.3
Systolic BP (mm Hg)	113.3 $\pm$ 7.7	110.9 $\pm$ 6.9	111.9 $\pm$ 11.3	111.7 $\pm$ 10.4
Diastolic BP (mm Hg)	67.8 $\pm$ 4.3	68.4 $\pm$ 7.2	68.6 $\pm$ 5.6	68.4 $\pm$ 5.6

Pakistani vs Indian: * $P < 0.01$, highly significant.

British vs Indian: " $P < 0.01$; ** $P < 0.001$, highly significant.

AN ASSESSMENT OF OUT-REACH ACTIVITIES OF THE MULTIPURPOSE HEALTH WORKER TEAMS IN THE RURAL AREA

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Shaheena Ayaz. DPH**

ABSTRACT

A household survey was conducted in the rural area of Chung District, Lahore, to assess the services provided by the multipurpose health worker teams. Only 57.61% of the households were aware of the existence of the teams. The number of visits by the team per year per household were only 1.62 as against the policy of about 12. The team was very successfully providing vaccination services (73.2% of responses) whereas the situation for all other services was very poor. About half of the households (54.8%) were satisfied with the team activities.

INTRODUCTION

The Multipurpose Health Worker Teams (MPHW Teams) were made up of former accelerated health programme/EPI workers, the Malaria Control Technicians and Dispensars working at RHCs, and BHUs. The male Medical Technicians (M.T.)/Sanitary Inspectors/Rural Health Inspectors work as team leaders.

The areas of activity are health and nutrition education, malaria control, T.B. control, diarrhoeal disease control, immunization against six preventable diseases and the treatment of minor ailments.

The intent of outreach team is to go to the village together, where they have to provide a package of largely

preventive services. The team members have to spend the entire day in each village covering all the villages in the area at least once a month. The team members attend the BHU for one or two days a month largely for administrative purposes¹. These teams are the product of the increasing realization that there is not enough money anywhere to meet the escalating costs of medical care and major changes are needed in the delivery of health care and effective functioning of the health system as a whole². The thinking was further reinforced by the declaration of Alma-Ata 1978 that a continuous system of health services research must be set up for the effective utilization of the available manpower and other resources, and the ultimate aim should be to coordinate health services resources with the health needs of the people³.

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The objective of this study was to assess the functions of these teams in light of their declared roles. The study also included the assessment of the community awareness about the existence of these teams and satisfaction from their services. The satisfaction element was included because changes in characteristics of the health care delivery system which affect level of satisfaction also result in changes in the level of service utilization⁴.

METHODOLOGY

The rural area of Union Council Chung District, Lahore was selected for this study. The Union Council has a population of 16797 scattered in 8 villages. There are 2753 households in the locality. Household survey was conducted to collect the information on a closed ended questionnaire. Systematic sampling technique was adopted and every third household was included in. The study which constituted a sample size of 917 households. A household was defined as a group of persons living together in a separate and independent place and single person as their head called as head of household. The respondent in this study was head of household or his representative.

Following four parameters were the basis of questionnaire:

- i) Awareness about the team by the household.
- ii) Average number of visits by the team per household per year.
- iii) Types of services provided.
- iv) Satisfaction of the people from the team services.

The questionnaire was translated into Punjab and subjected to protest. For analysis purpose the households were divided into two groups depending upon the distance from the RHC Chung the base for the MPHWH team. Distance of 2 miles was the dividing line because reaction to distance is one of indifference up to approximately two miles⁵. SPSS PC + software was selected for processing and analysis.

FINDINGS

Table No. 1 reveals awareness about multipurpose health worker team. Total households interrogated were 913 and among these 526 (57.61%) were aware about the team. In Group A 425 (55.92%) households and in Group B 101 (66.01%) households were aware of the team. This indicates that Group B households were more aware of RHC team as compared to Group A and the difference was statistically significant at $P < .05$ (Chi sq. 5.31 and D. F=1)

Table No. 2 reveals the visits by MPHWH team by households and village groups. Total annual visits by the team in all the households of RHC Chung were 1482 and the average average visits per household per year came out to be 1.62. Findings for Group A and Group B were 1.50 visits per household per year and 2.25 visits per household per year respectively. This indicates that on the whole visit rate was very low, as the policy for such teams dictates a visit at least per month i.e., 12 visits per annum.

TABLE NO. 1

AWARENESS ABOUT MULTIPURPOSE HEALTH WORKER TEAM

Awareness	Group A		Group B		Total	
	No.	%	No.	%	No.	%
Aware Households	425	55.92	101	66.01	526	57.61
Nonaware Households	335	48.08	52	33.99	387	42.39
Total	760	100.0	153	100.0	913	100.0

Chi Squ. = 5.31

D. f = 1

P < .05 (Significant)

TABLE NO. 2

VISITS BY MPH W TEAM BY HOUSEHOLDS AND VILLAGE GROUPS

Village Groups	No. of Households	Total No. of Visits /Year	Avg. No. of Visits /Household/Year
Group A	760	1138	1.50
Group B	153	334	2.25
Total	913	1482	1.62

Table No. 3 reveals types of services provided by Multipurpose Health Worker team by village group and households. Total responses were 384. Among these 281 (73.2%) were for vaccination to children, 70 (18.2%) for treatment of diarrhoea, 11 (2.9%) for MCH counselling and 22 (5.7%) for all other services including treatment of malaria, T.B and other ailments. This

indicates that the emphasis of the team is on the vaccination to children.

Table No. 4 reveals the satisfaction from MPH W team services. Total 496 households responded to this question and out of these 272 (54.8%) were satisfied from team activities. In village Group A 196 (49.6%) households were satisfied whereas in Group B villages 76 (75.3%) families were

satisfied from team activities. This indicates that in Group B villages more families are satisfied from team activities as compared to Group A

households, and the difference between the two groups was statistically significant at $P < .05$ (Chi sq. = 21.33 and D.F=1).

TABLE NO. 3

TYPES OF SERVICES PROVIDED BY MULTIPURPOSE HEALTH WORKER TEAM

Types of services	No. of Responses	Percentages
Vaccination Children	281	73.2
Treatment Diarrhoes	70	18.2
MCH Counselling	11	2.9
Other *	22	5.7
Total	384	100.0

* Including treatment of malaria, T.B. and other ailments

TABLE NO. 4

SATISFACTION FROM MPH W TEAM SERVICES

Village Group	Satisfied		Not Satisfied		Total Valid No.	
	No.	%	No.	%	No.	%
Group A	196	49.6	199	50.4	395	79.6
Group B	76	75.3	25	24.8	101	20.4
Total	272	54.8	224	45.2	496	100.0

No. = No. of responses

Chi Sq. = 21.33 D.F = 1 $P < .05$ (significant)

DISCUSSION

Out of the total sample, 57.60% of the households were aware of the existence of MPHWS teams. The group of household (within two miles of the team base) were less knowledgeable about the team (59.92% awareness) as compared to the group B households (more than two miles from team base) where awareness about existence of the team was 66.01%. On statistical grounds the difference was significant. The probable reason may be that team was more active in the group B villages due to better response as they had no other choice available for the services provided by the team, whereas the group A villages had an easy access not only to RHC but also other services available in the area.

Regarding the average number of visits they were alarmingly low for both the groups of household (1.62 per household/year). Keeping in view the diversity of functions of the MPHWS teams policy demands about 12 - visits/Household/Year. This demands an active investigation of the situation and the focus should be the problems of supervision and operational difficulties. The higher number of visits for the Group B villages again confirms that the team was more active in these villages for the reasons already mentioned.

When we observe these services provided by the team the situation regarding vaccination is very promising one (73.2% responses) which clearly highlight the active supervision and policy direction for the activity Re-

garding other services the team had shown least interest. In view of the fact that about 40% of the infantile deaths are due to diarrhoea and 20% are ill with diarrhoea for more than 50 days per year⁶ the response of 18.2% regarding treatment of diarrhoea shows a poor efficiency. Similar the counselling for MCH was also much below the desired level as against the fact that every 4th household had an under one year child⁷. This state of affairs demands active supervisory controls and arrangement of refresher courses for the field staff.

Another very important issue regarding the effectiveness of any service is the satisfaction of the consumer. From group B 75.3% of the households were satisfied from the team activities. Whereas the figure for Group A Villages is only 49.6%. This again confirms the higher activity of team in the group-B villages. However the overall satisfaction level is very low (54.8%).

The idea of MPHWS team was introduced in the recent past. Although it was the result of some pressures within and out side the health system, but is good enough to be exploited. At present there is practically no accountability, resulting in poor efficiency. Secondly the team has total orientation within the health system. Community involvement is entirely lacking.

In the three tier system, the peripheral and intermediate levels are actually the delivery points for

primary health care, so they need to be strengthened. This can only be done through development of proper community participation.

Forming village health committee is one way of achieving community participation, enabling rural people to understand, through actual experience, the problems, that can be solved with their own resources. By working together with health personnel (MPHW Teams) the community members can identify and analyze problems, set priorities and draw plans of action and implement them.

For that matter some changes may be made in the composition of MPHW Team and to support its activities, a village based team should have direct access to a doctor specially designated for this purpose, so that the incharge may request the doctor to join him, as the circumstances may arise particularly when having meeting with the village committee. Secondly the incharge must be trained in the art of community organization.

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VALIDITY OF CLINICAL SYMPTOMS AND MASS MINIATURE RADIOGRAPHY: USED AS A TOOL FOR SCREENING OF PULMONARY TUBERCULOSIS

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ABSTRACT

The study was carried out with the objective of finding out the validity of clinical symptom and mass miniature radiography when used as a screening tool for Pulmonary Tuberculosis.

Four villages of Union Council Chung were selected as the study universe. They are village chung, Punjgarian, Manowal and Shadab Colony. A household constituted a sampling unit for this study and total population of these villages was screened.

The study was executed in three phases. The first phase was devoted to the training of the interviewers.

The second phase was spanned by the household survey and Mass miniature radiography to screen individual for further investigation. The household survey was mainly focused on enquiry about symptoms & the study of universal variable. The symptoms included in the household survey were cough, fever of at least two weeks duration, Haemoptysis, breathlessness, nightsweats, pleural pain & weight loss. The eligibility for inclusion in the category of suspected cases was evaluated by the presence of symptoms and/or a positive X-rays.

On the basis of screening tests i.e. symptoms and/or X-ray there were 1258 individuals who were considered suspected cases. These suspected individuals belonged to 163 families.

The diagnostic tests for the confirmation of pulmonary tuberculosis were carried out during the third phase of study. The investigation included history & physical examination, radiographic examination of the chest sputum smear, microscopy for AFB (acid fast bacillus) and tuberculin testing.

The mass miniature radiography showed to be 56% sensitive and 96.4% specific; while sensitivity & specificity for the fever was found to be 71.6% and 94.4% respectively, while for cough this was 71.5% sensitive and 91.1% specific.

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INTRODUCTION

A screening test should provide a good preliminary indication of which individuals actually have the disease and which do not. This is referred to as the validity of the test. Validity has two components; sensitivity & specificity. Sensitivity is defined as the ability of a test to identify correctly those who have the disease. Specificity is defined as the ability of a test to identify correctly those who do not have the disease. These components are determined by comparing the results obtained by the screening test with those derived from definitive diagnostic procedure. The extent to which the screening results agree with those derived by the more definitive tests provide a measure of sensitivity & specificity. For simplicity, it is assumed that there is no error in the final diagnosis reached by the more definitive procedure. An ideal screening test will be 100% sensitive and 100% specific. In practice this does not occur; sensitivity & specificity are usually inversally related, that is one usually achieves high sensitivity at the expense of low specificity and vice versa.¹

The study of validity of symptoms & mass miniature radiography has an objective to recommend a better screening tool for pulmonary tuberculosis that either symptom alone, mass miniature radiography or a combination of both because if the symptom alone can serve the purpose, an enormous amount of money can be saved as mass miniature radiography is a costly procedure.

Methodology

To fulfil the study objectives the study was designed for execution in various stages which were conducive to each other. These stages were as outlined below.

Phase-I

This was initiating phase of the study, and the preliminary exercise of pretesting the survey instrument, the arrangement and training of the required staff was done during this phase.

Phase-II

In this phase the population was screened for suspected tuberculosis cases with the help of household survey and mass miniature radiography.

A. House Hold Survey.

House hold survey was conducted using the questionnaire by a team of 20-doctor, and 60 female surveyors.

An inquiry was made about the following symptoms.

a. *Fever.*

A fever of at least 15 days or more qualified for inclusion in screening.

b. *Cough.*

If the cough was present for atleast 4-weeks or more the case qualified for inclusion.

c. *Haemoptysis.*

Haemoptysis of any type was counted as a positive indication of a suspected cases.

d. *Breathlessness.*

e. *Weight loss.*

- f. Pleural Pain.
- g. Night Sweats.

B. Mass Miniature Radiography

The whole population of the study area above the age of 5 years was screened by mass miniature radiography. The person having any doubtful shadows on MMR were labelled as suspected cases and were included for further evaluation.

Phase-III

This phase comprised of the clinical and laboratory work for the intensive case finding, from among the group screened during the 2nd Phase of study.

Data Analysis

The bulk of data strongly indicated the use of electronic data processing. For this purpose the transferring and data clearing was done on DBASE 3 + and statistical analysis was carried out using SPSS PC+.

An important step in data analysis as guided by the study objectives was to find out the sensitivity and specificity of the symptoms and mass miniature radiography which were used as a screening tool.

The formulas for these tests are given as follows:-

- A. Sensitivity: $\frac{\text{True Positives}}{\text{True Positives} + \text{False Negative}}$
- B. Specificity: $\frac{\text{True Negatives}}{\text{True Negatives} + \text{False Positive}}$

Findings:

A. Demographic Profile of the study population:

The study was conducted in the four selected villages of Union Council, Chung district, Lahore. These four villages have 1544 households and a collective population of 10410.

There were 5449 (52.3%) males and 4961 (47.7%) females. Male to female ratio is 100:91 and the average family size is 7. The females in the age group 15-45 yrs. constitute 21.5% of the general population and 43.7% of the female population.

In the study area the population below the age of 15 years is 46.2% of the total population. Individuals above the age of 60 yrs. form 4.1% of the general population.

B. Results of screening

1. Screening survey results symptoms

Table-I

The household survey used to screen the symptom positive persons for further examination showed the pattern as given in table I. The sensitivity & specificity of the various symptoms is also presented.

2. Mass miniature radiography:

Table - II

Table shows the results of mass miniature radiography. The MMR is shown to be 56% sensitive and 96.4% specific in the present study.

TABLE-I

SCREENING SURVEY RESULTS - SYMPTOMS:

Symptom	Healthy	Patients	Sensitivity	Specificity
Fever	565	161	71.6%	94.5%
Cough	904	161	71.6%	91.1%
Haemoptysis	72	45	20%	99.35
Breathlessness	433	136	60.4%	95.7%
Weight loss	303	106	47.1%	97%
Pleural Pain	430	95	42.2%	95.8%
Night Sweats	307	125	55.6%	97%

TABLE - II
SCREENING SURVEY RESULTS - MMR

X-Ray	T.B Positive [Row %]	T.B Negative [Row %]	Total [Col %]
Positive	126 [30.1%]	293 [60.9%]	419 [4.9]
Negative	99 [1.2%]	8075 [98.8%]	8174 [95.1%]
Total	225 [2.6%]	8368 [97.4%]	8593 [100]

Sensitivity : 56%
Specificity : 96.4%

C. Suspected individuals:

There were 1258 individuals who were labeled suspect cases on the basis of symptoms reported by them during the household survey and on mass miniature radiography. These individuals belonged to 163 families. There were 632 (50.2%) males and 626 (49.8%) females among the suspected individuals. The population below 15 yrs. of age was 654 (51.9%) while fe-

male population between 15-45 years age groups was 222 constituting 17.6% of the total population.

Patients population profile:

On the basis of history & Physical examination, X-ray Chest, Sputum examination for acid fast bacilli and tuberculin testing 225 patients suffering from pulmonary tuberculosis were identified in 163 families in study

area. The average family size of these household was 8. There were 115 (51.1%) males and 110 (48.9%) female patients 92 (39.1%) of the patients were below the age of 15 years. Females between 15-45 yrs, constituted 12.4% of the patient population and 25.5% of the female patients population.

Discussion: In this study screening was done to identify the suspected cases of pulmonary tuberculosis, using Mass miniature radiography and household survey as the screening tool. The household survey was used to collect information regarding:

- a. Demographic variables.
- b. Symptoms of tuberculosis as discussed previously.

After screening the suspected individuals were subjected to diagnostic procedures for the confirmation of presence of disease a total of 225 individuals were detected to be suffering from pulmonary tuberculosis. These 225 patients belonged to a total of 163 households. The MMR yielded 56% sensitivity and 96.4% specificity. The most sensitive symptom was fever and cough - 71.6% sensitive. While the most specific was found to be haemoptysis at 99.3% specificity. On the basis of these screening tests 1258 individuals were indentified as suspected cases.

Cornell, Frame & Franks (1985) observed that all the new cases of active tuberculosis were diagnosed because of symptom and in their study. The symptomatic individuals were considered the high risk group.²

In a report of antituberculosis centre of shanghai it was observed that 75% of tuberculosis patients are discovered through symptom.³ The practicability and usefulness of the MMR and symptom, combined as screening devices for the identification of suspected cases was found to be very significant during the course of this study. Perhaps it will not be an exaggeration to state that the symptom based screening is as good as any other screening tool. Test of validity for various symptoms revealed that if a search is made for various symptom combination in the population we can pick out almost all the cases of disease and more over this method is cost effective as compared to Mass miniature radiography or any other technique.

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MEDICAL AUDIT OF CARDIOLOGY OUTPATIENTS BASED UPON CERTAIN SELECTED STANDARDS/CRITERIA

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Dha Gohar Wajid*** MPH, MSc., Ijaz Ahmed Shah****

ABSTRACT

Medical Audit is an emerging specialty in the quality management of health care services. This technique was used to study the health care services delivered to the out-patients at Punjab Institute of Cardiology. Different standards were developed with the consultation of experts in the field. Only those standards were used which have least disputed values.

Patient registration and maintenance of records was excellent, though waiting time was too long and the time spent by the doctor on an individual patient met the standards in only 31% of cases. Detailed C.V.S. examination was done in only 31.7% of cases. The examination of genitourinary and central nervous systems were badly ignored. In 79.3% of case, provisional diagnosis was made on the same day and in 74.5% cases treatment was started on the same day. Insufficient requests for the routine tests was the rule though results of such investigations were received promptly. There were however long delays in the receipt of results of special investigations. In only 56.6% of cases final diagnosis was made by second visit. Health education was provided to only 4% of cases. These findings indicate areas for improvement.

INTRODUCTION

Evaluation of health care has rapidly developed over the last 30 years. One of the main factors which

has stimulated the move towards evaluation has been the growing awareness of scarcity of resources for health sector, especially in developing countries. In order to provide the best services within these financial constraints, it has become necessary to assess whether the resources are being used logically.¹ In most of the countries hospital services attract a major portion of health resources, even small gains in effectiveness and efficiency promise to yield important benefits in the delivery of health services to individuals and to the community.²

Medical audit is a special form of evaluation of medical care and is based upon criteria (things to be

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measured) and levels/standards to be achieved. In medical audit, quality is defined as a degree of conformity with standards of accepted principles and practices. Each specialty is faced with a different situation. The criteria which can be measured depend upon the nature and variety of the conditions which are managed and the information systems available.³

Medical audit has gained wide acceptance as a measure of quality of health care in the USA since seventies⁴ and in the late eighties the United Kingdom recognized that medical audit is an essential component of high quality clinical practices.⁵ In Pakistan though it is non-existent but it is gaining importance and mention has been made in the National Health Policy of 1990.⁶ The department of Public Health and Hospital Administration at College of Community Medicine Lahore, has taken a lead in this respect and started educating the professionals concerned and at the same time doing evaluations. The objectives of this study were to assess the quality of current medical care provided to cardiology out-patients at the Punjab Institute of Cardiology by measuring certain parameters against pre-defined standards and to identify gaps and deficiencies in the provision of out-patient medical care.

METHODOLOGY

Levels or standards to be achieved for the purpose of medical audit were established with the help of experts in the field. After extensive discussions,

standards to be achieved were agreed upon, keeping in view the resources and facilities available. It was kept in mind that the process of medical audit should be quick, cheap and feasible.

A sample of 150 cases was decided. Out of a total of 800 case files available, 100 cases were selected for retrospective review by systemic sampling. Another 50 cases were selected by quota sampling for concurrent review. First 10 patients reporting to the out-patient department were selected for 5 consecutive days, thus making a total of 50 patients.

A close-ended questionnaire was prepared with the help of concerned professionals and pre-tested in a different hospital. Data were collected from 15th July 1990 to 31st July 1990. The collection of data was done by the authors themselves in all the cases in which decision making was involved on the basis of subjective evidence, such as; examination of different systems. It was important to do so, to ensure the quality of data. Two other persons were trained to collect data from record files. All questionnaires were checked daily for missed or incorrect entries. Documented as well as informed consents were taken from relevant persons. Confidentiality was maintained throughout the survey. Table 1 gives the summary of criteria established and the standards to be achieved in this study.

TABLE 1
SUMMARY OF CRITERIA ESTABLISHED AND DESIRED STANDARDS
FOR MEDICAL AUDIT

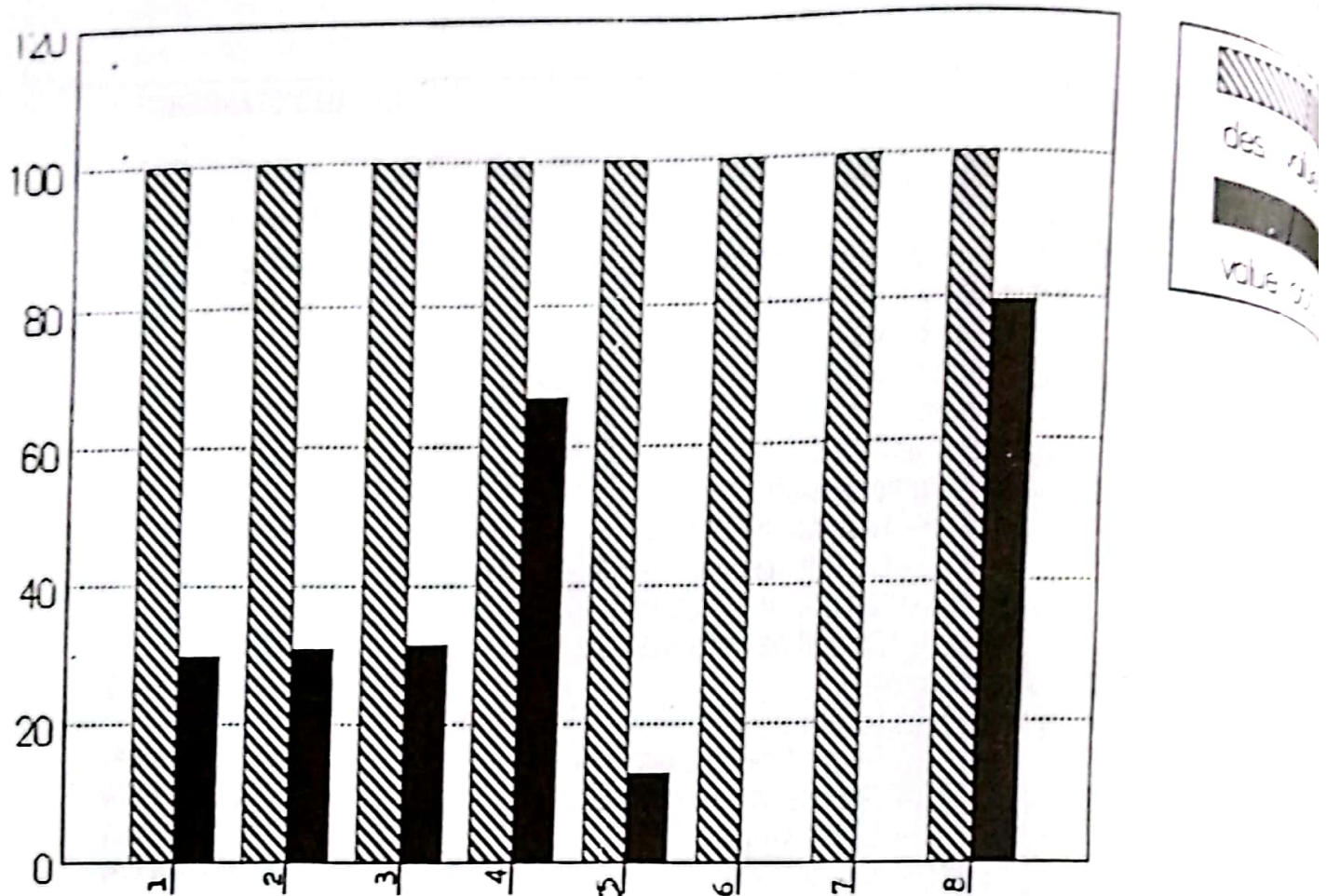
CRITERIA MEASURED		DESIRED STANDARDS
1.	Patient registration at reception	100%
2.	Waiting time	10 minutes
3.	Patient's personal medical file opened	100%
4.	Patient's examined by a doctor	100%
5.	Examination time on 1st visit	15 minutes
6.	History taking and recording of findings in case notes	100%
7.	Detailed examination of C.V.S.	100%
8.	Brief examination of other systems:	
	-- Respiratory system	100%
	-- Gastrointestinal system	100%
	-- Genitourinary system	100%
	-- Central nervous system	100%
9.	Provisional diagnosis made	100% Same day
10.	Baseline investigations requests	
	-- Routine blood examination	100% Same day
	-- Routine urine examination	100% Same day
	-- Chest X-Ray	100% Same day
	-- E.C.G.	100% Same day
11.	Initial treatment started	Within 24 hours
12.	Results of baseline investigations received	Within 48 hours
13.	Results of special investigations received	100%
14.	Final diagnosis by 2nd Visit	100%
15.	Diagnosis made by same physician	100%
16.	Follow-up appointment	100%
17.	Imparting of Health Education	

RESULTS

Out of total of 150 cases, there were 5 blank case files. These were not included in the analysis. Patient registration at the reception was found to be 100%, a personal medical file was opened for every patient and all the patients were checked by a medical officer or a cardiologist.

Figure 1 gives the summary of levels achieved as percentage of standards established for achievement, for waiting time, examination time, physical examination of different systems and provisional diagnosis made by doctors. Gaps and deficiencies can be readily identified in the areas of patient waiting time, time spent for

FIGURE 1
COMPARISON OF DESIRED LEVELS WITH
LEVELS ACHIEVED FOR DIFFERENT CRITERIA



examination in the first visit, detailed examination of CVS and other systems.

Out of 145 patients, only 46 (31.7%, 95% CI 24.1 - 39.3) had detailed examination of their C.V.S. Out of a total of 95 examined by medical officers, 29 (30.5%, 95% CI 21.2 - 39.8) underwent detailed examination of the C.V.S. Similarly cardiologists examined 50 cases, 17 (34%, 95% CI 20.9 - 47.1) of which had their C.V.S. examined in detail as per criteria. Respiratory system examination was conducted on 97 (66.9% 95% CI 59.2 - 74.6) at the desired levels, 75 being performed by

medical officers and 22 by cardiologists. Nineteen (13.1%, 95% CI 7.6 - 18.6) patients had a brief examination of gastrointestinal tract as per set standard. Genitourinary system and central nervous system were not examined at all. In 115 (79.3%, 95% CI 72.7 - 85.9) cases provisional diagnosis was made on the first visit.

Table 2 gives the comparison of desired standards and standards achieved for different investigations, starting of initial treatment, the diagnosis made by the physicians and follow-up of cases.

TABLE 2
COMPARISON OF DESIRED STANDARDS WITH STANDARDS ACHIEVED FOR
DIFFERENT INVESTIGATIONS, DIAGNOSIS AND TREATMENT

Criteria Established	Desired standard	Standard achieved (%)	95% CI
1. Baseline investigations requested:			
-- Routine blood examination	100% Same day	15.2	9.4 - 21.0
-- Routine urine examination	100% -do-	11.6	6.4 - 16.8
-- Chest X-Ray	100% -do-	6.2	2.3 - 10.1
-- E.C.G.	100% -do-	86.2	80.6 - 91.8
Initial treatment started	Same day	74.5	67.4 - 81.6
Results of baseline investigations received	Within 24 hours	83.7	77.7 - 89.7
Results of special investigations received	Within 48 hours	14.6	8.9 - 20.3
Final diagnosis by 2nd visit	100%	55.6	48.5 - 64.7
Diagnosis made by physician attending the patient initially	100%	33.8	26.1 - 41.5
Follow-up appointment	100%	51.2	43.1 - 59.3

A total of 172 investigations were requested on the first visit or on the same day. To achieve the standards all the 4 tests had to be performed on 145 patients giving a cumulative total of 580 tests. Instead only 172 (29.6%, 95% CI 25.9 - 33.3) tests were requested. Out of 172 investigations already ordered, 144 (83.7%) were received within 12 to 24 hours. In 48 (33.1%) cases, special investigations such as exercise tolerance test, echocardiography, lipid profile etc. were ordered. Out of a total of 48 special investigation, results of 7 (14.6%) special investigations could be received

within 48 hours. A total of 48 such investigations were ordered. Final diagnosis was arrived at in 82 (56.6%) cases on first or second visit. Seven (4.8%) had a final diagnosis given on third visit, whilst in 56 (38.6%), 95% CI 30.7 - 46.5, no final diagnosis was recorded or specified.

From those 89 patients with a final diagnosis, in 19 cases diagnosis was made by the same cardiologist attending the patient initially and in 4 cases another cardiologist made the diagnosis. Similarly 36 cases had their final diagnosis made by the same

medical officers and 30 by some other medical officers.

While 108 (74.5%) had their treatment commenced on the same day, 37 (25.5%) were prescribed no medication on their first visit.

DISCUSSION

Proper record keeping is an important adjunct to good quality care and out here the hospital administration has not failed in its duty. All patients included in the study had their registration done at the outpatients reception and allocated medical record numbers and tickets issued to each patient.

A maximum waiting time of 10 minutes was made a standard. This was achieved in only 30% (95% CI 22.5 - 37.5) of cases. There were 12 physicians of different categories staffing the cardiology out-patients working 6 hours a day, giving a total of 72 hours. On average 22 patients attended the out-patients per day during the study period. It comes as a surprise indeed that a mean patient waiting time of 30 minutes was observed in this study.

It was established that at least 15 minutes should be spent on detailed examination of the C.V.S. including a brief run through of other systems. Mean examination time of 4.7 minutes was observed however.

It has long been recognized by management engineers and managers that it is impossible to keep employees busy 100% of time during a normal working day. Delays occur because of

normal break times, use of bathroom, boredom, unavoidable interruptions. These factors are referred to as personal fatigue and delay time (PFD). On average, this usually amounts to a factor of 17 to 20% and must be taken into account and the standards adjusted accordingly. For example; if a particular normal standard for a given activity is 15 minutes (0.25 hours) and a PFD factor of 20% is used, the standard time becomes 0.30 hours per activity ($0.25 \times 0.20 = 0.05 + 0.25$)⁷ Applying PFD factor of 20% to 72 hours of physician time available for running the out-patients, one is still left with 4.8 hours per physician giving a cumulative time of 57.6 hours which was available to handle an average daily load of 22 patients.

Adding up waiting time, examination time and another 15 minutes for history taking, a hefty 40 minutes is consumed in dealing with one patient on his first visit. Therefore, handling 22 patients should not utilize more than 14.6 hours, while physicians had 57.6 hours at their disposal in which they may well have been able to see about 86 patients daily.

Thus for patients having to wait for 30 minutes and then being examined for only 5 minutes is unjustified. One does not have to go far to dig out reasons for this discrepancy. It was observed that doctors come late and there are long tea breaks. Moreover, all doctors were not available all the time. Some were on leave, others being absent for reasons best known to them. Given all this, it can hardly be called an efficient use of time.

Average time spent on clinical examination of patients on their first visit was 4.2 minutes and 5.2 minutes in case of medical officers and cardiologists respectively. This is too short a time to satisfactorily run through various systems on a first visit. As already mentioned a reasonable examination time would be 15 minutes. Consequently important findings might be missed resulting in misdiagnosis or no diagnosis at all to the detriment of patient. One of the possible reasons for not having provisional diagnosis made on the first visit in 20.7% of cases may be insufficient time spent on diagnosing a case.

It is pathetic to note that 68.3% had no detailed examination of C.V.S., 66.9% underwent brief examination of respiratory system, whilst 13% that of G.I.T., genitourinary and central nervous systems were not touched upon by both categories of physicians. It follows therefore, that examination of all systems comprises good clinical practice. Evidence points in the other direction at the institute.

To achieve the required standard, all 4 baseline investigations (routine blood and urine examination. Chest X-Ray and E.C.G.) were to be requested on first visit. Only 29.6% of such requests materialized with an overwhelming majority (86.2%) of E.C.G. requests, chest X-Rays registered a very low 6%.

One palpable reason for such a low count on chest X-rays is the non-availability of X-ray machine. But this is not the only reason. Requests of

blood and urine examinations were also a low priority despite a well equipped laboratory. On the other hand E.C.G. requests registered very high (86.2%). This reflects a "One system" approach on part of the clinicians. A change in attitude and practice is required which in turn will help promote good quality of clinical care. Piecemeal or incomplete requests regarding investigations might well prove an impediment in arriving inevitable attrition in patient morale and confidence. Nonetheless good news is that whatever baseline investigations were requested, their results were made available on the same working day.

Findings show that only 33.1% special investigations were requested based upon provisional diagnosis made earlier. There are a number of reasons for such a performance, for example; echocardiograms, treadmill for exercise tolerance test and other specialized facilities to carry out such investigations were not available at the time of study.

Results of such investigations should have been available by 48 hours. This was achieved in only 22.9% of cases. The probable reason seems to be that of those who were referred outside the Institute for specialized tests only a small percentage succeeded in getting them done with an inevitable delay whereas others might have decided not to have these tests done at all.

As per set standard, 100% diagnosis by second visit was achieved

in only 56.6% of cases. In 38.6%, no ultimate diagnosis was recorded or specified. Little time spent on examining a patient, non-availability of special investigational facilities and attrition on part of patients are some of the possible reasons for this finding.

A good number of cases are not necessarily seen by the same physician attending the patient initially. This is more evident for medical officers. Out of 66 cases finally diagnosed by medical officers, 36 (54.5%) were done by that same medical officer, attending the patients initially. A figure of 19 out of 23 is found in case of cardiologists. A note of caution is added here. Some of the patients reporting to the out-patients had already been diagnosed by physicians not belonging to the Institute. However, these findings make it amply clear that patients are seen by different doctors on their subsequent visits especially in case of junior medical staff.

Two conclusions can be made from these findings. Firstly, most patients are dealt with by junior medical staff and there appears to be no supervision by senior staff members in majority of cases. Secondly, majority of patients were not seen by the same physician (though not exactly true in case of cardiologists) attending the patient initially.

Upshot of this might result in difficulty in establishing physician patient report and good communication. In a tertiary care teaching establishment, such as this Institute, it is

not a good practice to leave a major proportion of patients unsupervised by senior medical staff.

Health Education is one of the most cost effective interventions. A large number of diseases could be prevented with little or no medical intervention if people were adequately informed about them and if they were encouraged to take necessary precautions in time, for example; by motivating them to change their habits and ways of living.⁸ A physician has an important role to play. Unfortunately our undergraduate medical education does not give much importance to this subject. Thus it was not surprising to find that only 4% of the patients studied in the concurrent review were imparted health education.

Re-visits are required to change medications in the light of results of investigations entailing a change in diagnosis. Even if a diagnosis is not revised, a patient's condition has to be monitored and medications altered according to his or her condition, thus warranting a re-visits. It is a good practice to make a written note of next appointment in the case notes. Although 33.8% of patients were asked to re-visit the out-patients department, in only 12% percent of such cases, a note to this effect was made in their personal files as well.

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PREVALENCE OF ABO AND RH BLOOD GROUPS IN STUDENTS OF RAWALPINDI, MEDICAL COLLEGE, RAWALPINDI

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ABSTRACT

ABO and Rh blood grouping was performed in eight hundred and seventy two medical students to find out the prevalence of these blood groups. The commonest blood group was B (37.50%), the next common blood group was O (28.21%). The A blood group was found in 23.28% of the medical students. The least common blood group observed was AB (11.01%) Rh-positive blood group was present in 94.38% of the students while 5.62% showed Rh-negative blood group.

INTRODUCTION

Blood grouping is very important in medical practice because of its fundamental role in blood transfusion¹ and the genesis of certain disorders like hemolytic disease of the newborn². Blood grouping has medicolegal importance³. There is association of certain blood groups with various diseases e.g., the relationship of blood group O with peptic ulcer⁴ and ischemic heart disease⁵.

Landsteiner was the first person who in 1900 made the discovery of ABO blood groups⁶. He was able to divide human blood into three blood groups namely A, B, and O. The fourth blood group was discovered by Von De Castello in 1902⁷.

In 1940, Landsteiner and Wiener discovered the Rh system of blood groups⁸. The membrane of human red cell contains a variety of antigens called agglutinogens. Antibodies against agglutinogens are called agglutinins. They are present in the plasma naturally or they may be produced by exposure to the red cells of another individual⁹. At least 30 commonly occurring antigens and hundreds of other rare antigens have been found in human red cells. Most of these are weak. However, two particular groups of antigens are more likely to cause blood transfusion reactions namely, ABO and Rh antigens¹.

This study was carried out to find out prevalence of ABO and Rh blood groups in medical students and compare this with the already reported prevalence of these blood groups in general population.

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SUBJECTS AND METHODS

This study was conducted in the Physiology Department, Rawalpindi Medical College, Rawalpindi. Eight hundred and seventy two students were studied. Their ages ranged between 18 to 22 years. Three antisera, anti-A, anti-B and anti-D were used. The method adopted was that of Dacie and Lewis¹⁰.

RESULTS

Distribution of ABO blood group in medical students are shown in Table-I

BLOOD GROUP	NO. OF STUDENTS OBSERVED	PERCENTAGE
A	203	23.28%
B	327	37.50%
O	246	28.21%
AB	96	11.01%
Total 872		100.00%

Table-II shows distribution of Rh-blood groups in medical students.

BLOOD GROUP	NO. OF STUDENTS OBSERVED	PERCENTAGE
Rh-Positive	823	94.38%
Rh-Negative	49	5.62%
Total 872		100.00%

DISCUSSION

ABO and Rh blood grouping occupies the most important place in blood transfusion. The prevalence of ABO blood groups in medical students was blood groups, B-37.50%, O-28.21%,

A-23.28% and AB-11.01%. This is similar to the results of studies conducted in Pakistan by Lodhi in 1960¹¹ and by Bernhard in 1967¹². In Saudi Arabians, the percentage distribution of ABO blood groups, is O-53.33%, B-24.09%, A-8.92% and AB-3.66%¹³. In Western European people, the relative frequencies of ABO blood groups are, O-46%, A-42%, B-9% and AB-3%³. These results show that the prevalence of ABO blood groups in Pakistan is different from that in Saudi Arabians and Western European people. In medical students, Rh-positive blood group was found in 94.38% and 5.62% showed Rh-negative blood group. This prevalence is different from the results of study conducted in North West Frontier Province of Pakistan by Bernhard which showed Rh-positive blood group in 67% and Rh-negative blood group in 33% of the population¹³. In Northern Indians, the percentage distribution is, 98.9% Rh-positive and 1.1% Rh-negative¹⁴ which is almost similar to results of the present study.

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FASTING GLYCAEMIC PATTERN IN CHILDREN OF DIABETIC PARENTS

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ABSTRACT

Two hundred and one children (105 from diabetic families and 96 from non diabetic families) were evaluated for the detection of fasting blood glucose level. The fasting blood glucose level ranged from 70-136 mg % and 70-104 mg% in the children of diabetic and non-diabetic parents respectively. Evidence of hyperglycaemia was present in a small group (2.8%) of offsprings belonging to diabetic parents. An increased trend in fasting blood glucose level was observed in children of diabetic families. No such trend was observed in control group.

INTRODUCTION

Susceptibility to both insulin dependent diabetes mellitus (IDDM) and non-insulin dependent diabetes mellitus (NIDDM) is determined to a substantial extent by genetic factors. These probably interact with an environmental trigger, to induce expression of the disease state¹. The evidence of this has come from family, twin and population studies.

It has been demonstrated that diabetics have an increased frequency of family history of diabetes, ranging from 25-50% compared to 15% in non-diabetics. Pincus and white² examined 523 diabetic probands and found the prevalence of the disease (defined on clinical grounds only) in close relatives to be 23% compared to 10% in comparable relatives of 153 non-diabetic probands.

Studies on twins may answer the question whether familial clustering of diabetes is predominantly due to

genetic or environmental factors. In early twin studies concordance rate in monozygotic twins varied from 45-96% depending on selection criteria whilst in dizygotic twins only 3-37% were concordant for diabetes^{3,4}. Similarly Barnett et al⁵ reported a marked difference of concordance rates between NIDDM (91%) and IDDM (54%), and suggested that environment (also known as "stress") plays an important role. Obesity is probably the most influential factor.

It has been established by population genetic survey⁶ that for the relatives of patients with type I diabetes mellitus (the 1st degree of kinship) a risk of developing the same type of diabetes is 2.5%. The risk of developing this disease was in direct correlation with the number of risk and healthy relatives and their ages. The present study was therefore designed to evaluate the increased risk of diabetes mellitus in children of diabetic parents, and to provide

guidance to improve dietary habits of diabetic families for better control of the disease.

MATERIAL AND METHODS:

105 children (male 64; female 41) of 30 known diabetic families from Lahore city were studied. A complete history of each family was recorded, regarding present and past illness, symptoms relating to diabetes, its onset and duration, family history of diabetes and finally anti-diabetic therapy regarding its dosage regime and duration of treatment. A control group of 96 children (male 56; female 40) from 30 healthy non-diabetic families were included in the study for comparison for their blood glucose level with the children of diabetic parents. None of controls had a first degree family history of diabetes. Age of all the subjects ranged between 1 to 30 years. Urine, as well as blood samples from each subject were taken before breakfast and screened for glucose. Fasting blood glucose level was measured according to the method described by King and Wooton⁷. Urine sugar was detected by using commercially available reagent strips (ames).

RESULTS

Table I shows distribution of experimental group according to diabetic status and type of diabetes. The diabetic status was categorised as follows.

Group I: Both parents having diabetes mellitus.

Group II: Only mother having diabetes mellitus.

Group III: Only father with diabetes mellitus.

In 8 out of 30 families both parents were diabetic with 15 parents having NIDDM. This group included 18 children, of whom 2 had hyperglycaemia, one of them being obese. 14 families belonged to group II where only mothers were diabetic; 12 mothers had NIDDM and the remaining 2 were having IDDM. This group comprised of 53 children, out of whom one had raised blood glucose level than normal. Third group included 8 families where only fathers were diabetic; 7 out of 8 had maturity onset diabetes mellitus and the remaining one was having IDDM. 34 children belonged to this group.

The over all fasting blood glucose level done in 105 offsprings of diabetic group ranged between 70-136 mg% (Table-II); out of 105 subjects only 3 (2.8%) had hyperglycaemia.

Fasting blood sugar level in 96 children of non-diabetic parents varied between 70-104 mg% (Table III).

The distribution of mean fasting blood glucose level in relation to age in the two groups is shown in Table IV. Relatively higher mean fasting blood glucose level (94.5 mg%) was found in children of diabetic group when compared with controls (85.5 mg%) of the same age group.

DISCUSSION

Diabetes mellitus is a syndrome with multifactorial causes having heredity, obesity, diet, infection, stress and strain of life and socio-economic conditions as contributing factors alongwith aging process and other unknown factors yet to be discovered but heredity plays a key role in the genesis of diabetes mellitus⁸. Another study⁹ confirms that genetic factors are essential to the occurrence of IDDM and NIDDM and recent advances in molecular biology have improved the understanding of diabetic heredity. In our findings fasting blood glucose level ranged between 70-136 mg% (mean 94.5 mg%) in experimental group, whereas the range was 70-104 mg% (mean 85.5 mg%) in control group. This wide range in experimental group as compared to controls may be indicative of the susceptibility and/or possible role of heredity in the development of diabetes mellitus in later life. The prevalence of diabetes mellitus has been reported to be 2% in close relatives of IDDM¹⁰ and 2.5% in NIDDM⁶, with probable factors of pregnancy, obesity, stress, drug treatment and age. In our study 2.8% children (1 male, 2 females) of diabetic parents had raised fasting blood glucose level and their ages ranged between 26-30 years. Moreover, 2 out of 3 hyperglycaemic children were obese. Obesity has been taken as one of the risk factors¹¹ and the chances of developing diabetes mellitus increases with advancing age¹² and old age¹³.

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TABLE-1
DISTRIBUTION OF DIABETIC FAMILIES AND THEIR CHILDREN

Group	Diabetic Status	Type N.I.D.D	Type I.D.D.	No. of Families	No. of Children	No. of Children with Raised F/ Blood Glucose Level	Non Obese	Obese
I.	Both Parents	15	1	8	18	2	1	1
II.	Only Mother	12	2	14	53	1	1	--
III.	Only Father	7	1	8	34	0	--	--
Total		34	4	30	105	3	2	1

TABLE-II
FASTING BLOOD GLUCOSE LEVEL IN CHILDREN OF DIABETIC PARENT

Group	Fasting Glucose Level (mg %)	No. of Cases			Total %
		Total	Male	Female	
I.	70-80	46	25	21	43.81
II.	81-90	27	19	8	25.71
III.	91-100	22	14	8	20.96
IV.	101-110	7	5	2	6.67
V.	111-120	1	1	0	0.95
VI.	121-130	1	0	1	0.95
VII.	131-140	1	0	1	0.95
Total		105	64	41	100.00

TABLE - III
FASTING BLOOD GLUCOSE LEVEL IN CONTROL GROUP

Group.	Fasting Glucose Level (mg %)	No. of Cases			
		Total	Male	Female	Total %
I.	70-80	53	31	22	55.21
II.	81-90	16	10	6	16.67
III.	91-100	22	13	9	22.91
IV.	101-110	5	2	3	5.21
<i>Total</i>		96	56	40	100.00

TABLE - IV
MEAN FASTING BLOOD GLUCOSE LEVEL
IN RELATION TO AGE IN EXPERIMENTAL AND CONTROL GROUPS

Group	Age (Yr)	CONTROL		EXPERIMENTAL	
		No. of Children	Mean F/Glucose Level (mg %)	No. of Children	Mean Glucose Level (mg %)
I.	1-5	5	75.2	2	88.0
II.	6-10	12	81.3	12	85.3
III.	11-15	30	83.2	15	89.6
IV.	16-20	25	87.4	32	86.2
V.	21-25	17	93.2	25	85.8
VI.	26-30	7	89.1	18	95.1
<i>Total</i>		96	85.5	105	94.5

'PROCESS EVALUATION' OF EMERGENCY DEPARTMENT OF THREE TEACHING HOSPITALS

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ABSTRACT

This study was done to make an assessment of Emergency Deptt. (E.D) of three teaching hospitals. Four least disputable standards were developed to study the process of patient care. All the three hospitals fall much below the standards regarding transport of patients on hospital ambulance (2%), immediate attendance of critical patients on arrival in E.D. (60.71%) provision of all medicines etc from E.D. (20%) and provision of emergency diagnostic facilities from within the hospital (59.55%). The cumulative score (achievement of standards) of all hospitals for all indicators was 25.35%. Probable reasons may be lack of communication system, inadequate training of staff and of course attendance of E.D by those patients who are not actual emergency cases.

INTRODUCTION

In the context of health an emergency is an unforeseen event or occurrence that affects an individual in such a manner as to require immediate care (Physical, Psychological, or Social)¹.

Emergency Medical Care Services are those services, needed subsequent to an unexpected and sudden medical or traumatic event. Such events call for quick medical judgements and prompt action. A priority objective of an emergency medical care services is to decrease avoidable death and disability rates².

There are two levels of emergency medical services³. Prehospital care

which is provided at the point of occurrence and during transit to hospital. A well-designed and well-staffed ambulance system with proper communication system is must for this. Usually life saving procedures are adopted by this care. The second level is of emergency care provided within the hospital.

There are three categories of emergency health care departments, comprehensive, basic and limited⁴. Category I. Provides comprehensive care for almost all types of emergencies. The emergency department of teaching hospitals fall in this category which are the subject matter of this study. Studies have demonstrated that 15% to 20% of deaths due to emergencies could be avoided if prompt effective care would have been available at the scene of emergency, on the way to hospital and

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within it. For the patients with a heart attack, severe respiratory distress or extensive bleeding, the difference in time may be a life or death matter.⁵

From these observations it is clear that the successful process of emergency care largely depends upon.

- i. Minimum response time of ambulance system to transport the patient to hospital.
- ii. Immediate attendance of the patients by qualified medical personnel on arrival in the E.D.
- iii. Provision of all the treatment and medication by the E.D.
- iv. Provision of all the diagnostic facilities for emergency care by the hospitals.

These observations provided the bases for development of indicators for this study.

Although the comprehensive emergency health care services are provided by all the teaching hospitals but there are not set standards for their proper operation. In the health policy of 1990, a mention has been made of emergency departments. Policy states that no emergency will be denied emergent care. All cases will be provided treatment and medication by the hospital free of charge⁶.

The department of Public Health and Hospital Administration has taken the first step in this direction which involves the development of least disputable minimal standards and then evaluation of the services.

This serves dual purpose. Firstly through evaluation it improves the service and secondly it educates the health service personnel. Present study focuses on emergency departments of three teaching hospitals (category - I comprehensive emergency care).

METHODOLOGY

The objective of this study was to assess that how far the emergency departments conform to the minimum "process standards" of emergency care and then make comparison among different hospitals. Three teaching hospitals having category I comprehensive emergency health services were selected. These included Sandeman (Provincial) Teaching Hospital Quetta, Chandka Medical College Teaching Hospital Larkana and Hayat Shaheed Hospital Peshawar. Keeping in view the resources available, the time factor and flow of patients, 100 patients were taken from Sandeman hospital 150 patients from Chandka hospital and 150 patients from Hayat Shaheed hospital for study purpose. This constituted a total number of 400 patients.

For studying the process of emergency departments, parameters were selected by reviewing the literature and consulting the experts in this field. Following four least disputable standards were developed.

- i. 100% of the critical patients be shifted to hospital on ambulance.

- ii. 100% of the critical patients be attended immediately (within 5 minute) by trained medical personnal on arrival in emergency department.
- iii. 100% of all the patients be provided treatment and medication from the emergency department for emergency care.
- iv. 100% of all the patients be provided diagnostic facilities from within the hospital for emergency care.

For this study the critical patient means a patient who was in such a condition that his life was threatened by his condition and which demanded immediate medical attention.

A proforma was developed and observation was made round the clock by trained personnel to complete the number of patients decided for each hospital.

For analysis purpose frequency cross tables were developed and percentages were used for comparative purpose. To see the overall results cummulative percentages were calculated.

FINDINGS

1. Ambulance Facility

Only a neglible number of patients (2%) were transported on ambulance to all the hospitals. There is no remarkable differences regarding the individual hospitals as the percentage stands 1% for Sandeman hospital, 2% for Chandka Hospital and 2.7 for Hayat Shaheed Hospital. (Table - I)

TABLE - I
DISTRIBUTION OF PATIENTS ACCORDING TO THE MEANS
OF TRANSPORT USED TO REACH EMERGENCY DEPT.

Mean of Transport to Emergency Deptt.	Sandeman Hospital		Chandka Hospital		Hayat Shaheed Hospital		Total	
	No.	%	No.	%	No.	%	No.	%
Hospital								
Ambulance.	1	1	3	2.00	4	2.7	8	2.00
Private Vehicle.	99	99	147	98.00	146	97.3	392	98.00
TOTAL:	100	100	150	100	150	100	400	100

2. Timeliness of care for critical patients.

Immediate attendance of the critical patients was only in 65.22% cases at Sandeman, 34.04% cases at Chandka & 88% cases at Hayat Shaheed Hospital. For the total patients only in 60.71% of cases the standard was achieved (Table - 2)

TABLE - 2
DISTRIBUTION OF CRITICAL PATIENTS ACCORDING TO THE
TIME LAPSE BETWEEN ARRIVAL AND EXAMINATION BY THE
DOCTOR

Time Lapse in Minutes	Sandeman Hospital		Chandka Hospital		Hayat Shaheed Hospital		Total	
	No.	%	No.	%	No.	%	No.	%
0 - 5	15	65.22	16	34.04	37	88	68	60.71
6 - 10	8	34.78	23	48.93	5	12	36	32.15
11	0	0	8	17.03	8	0	8	7.14
TOTAL:	23	100	47	100	42	100	112	100

3. Provision of medicines to the patients.

Table - 3 reveals that total medicine was provided to 8%, 34.7%, 13.3% of patients at Sandeman hospital, Chandka hospital, Hayat Shaheed hospital respectively. Of total patients only 20% of patients received all medicines from the emergency department.

TABLE - 3
DISTRIBUTION OF PATIENTS ACCORDING TO THE
SOURCES OF MEDICINES

Source of Medicines.	Sandeman Hospital		Chandka Hospital		Hayat Shaheed Hospital.		Total	
	No.	%	No.	%	No.	%	No.	%
Emergency Department.	8	8	52	34.7	20	13.3	80	20.0
Partial Form E.D	56	56	76	50.6	92	61.3	224	56.0
Market.	36	36	22	14.7	38	25.4	96	24.0
TOTAL:	100	100	150	100	100	400	100	100

4. Availability of diagnostic investigations facility.

This facility was provided into 48.27% cases at Sandeman hospital, into 39.63% cases at Chandka hospital and into 82.2% cases at Hayat Shaheed Hospital. For total cases facility was available only for 59.55% of cases.

TABLE - 4
DISTRIBUTION OF PATIENTS ACCORDING TO THE
INVESTIGATIONS FACILITY PROVIDED

Source of Invest-igations.	Sandeman Hospital.		Chandka Hospital.		Hayat Shaheed Hospital.		Total.	
	No.	%	No.	%	No.	%	No.	%
Hospital	14	48.27	42	39.63	75	82.2	131	59.55
Partially by the hospital.	15	51.73	47	44.33	4	4.7	66	30.00
Private.	0	0	17	16.04	6	7	23	10.45
TOTAL:	27	100	106	100	85	100	220	100

DISCUSSION

Findings are discussed here in comparative terms and in toto.

Regarding pre-hospital care and transport of patients although it is difficult to standardize that so much percentage of patients should have come on hospital ambulance, yet it is very much clear that the use of

hospital ambulance in only 2% of total cases is not promising one. Among the individual hospitals no one is better than the other. There may be many reasons for this state of affairs and perhaps lack of proper communication system stands at the top, which needs to be improved for all hospitals.

One of the important factors in saving the life of critical patients is timeliness of care. Therefore the standard for critical patients was that 100% of them be attended immediately on arrival in the hospital. This standard was achieved in only 60.71% of total cases. The situation however was very poor in case of Chandka hospital where for only 34.04% of cases the standard was achieved.

The probable reason may be the lack of proper training in emergency care and also lack of realization of importance of timeliness of care for critical patients to the staff working in the emergency department.

Provision of life saving drugs and other essential treatment requirements is must for good emergency care. This is the care which should be free of cost to every one so that no life may be left to the risk of death just because of economic reasons. But the situation is very alarming. Only 20% of the patients were provided with all emergency treatment and medication etc. Among the individual hospitals Chandka teaching hospital has slightly better position (34.7%). This situation demands an active investigation of the

reasons for this state of affairs. However, the immediate need is to reallocate more funds for the purchase of medical supplies to all the emergency departments of different hospitals.

An other important aspect of good emergency care is the provision of emergency diagnostic services within minimum possible time and free of cost. This means that for all patients admitted to emergency department the diagnostic investigations should be available from within the hospital. The irony of the fact is that inspite of availability of almost all diagnostic facilities within all teaching hospitals, only in 59.55% of the cases this facility was rendered in toto. However the situation was very promising one in Hayat Shaheed hospital. The facility was provided to 82.2% of patients. One of the probable reason is the influence of private laboratories on the hospitals in general. The situation demands change in the attitude of at least emergency staff.

Finally when we observe the cumulative standards achieved in individual hospitals (15.08% in Sandeman, 24.94% in Chandka and 31.85% in Hayat Shaheed Hospitals) and cumulative standard achieved for all hospitals (25.35%) the situation appears very disturbing one. It is generally claimed that about one third of the patients attending the emergency departments are not true emergencies. They attend the E.D, because they have nowhere else to go because of economic or other seasons⁷. Even if we take this into account the

achievement of standards at 25.35% level is far low.

This situation demands urgent action on National level, including development of communication facilities, coordination of ambulance services, training of emergency staff, provision of all types of emergency medications to E.D's, and provision of all types of diagnostic facilities to emergency patients from within the hospitals.

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