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Chief Editor

This is the first issue for 2007, after a successful year for the journal in 2006. A number of initiatives were started in 2006 and new members joined the editorial board, which will greatly assist our ongoing success.. The Focus on Quality Care series, which started in 2006, will continue this year.

Throughout the previous years we continued in our efforts to coach authors toward better writing by helping in the writing process and revising the manuscripts and editing. We are hoping to organise a writing and editing workshop for the Middle East in 2007.

We are indebted for all the work of the production team and the editorial board which has contributed to our continuous success. Owing to the large numbers of papers received, and the great increase in readership we are planning to increase the frequency of the journal to 8 issues per year, in addition to starting a paid subscription for hard copies.

In this issue, Bener A ,]Al-Marri S, Azhar Abdulaziz A et al. investigated the link between consultation length and patient assessment care. The objective of this study was to assess the consultation length in a tertiary care teaching hospital and in general practice. The present study in Qatar showed that the average consultation time at the Hamad General Hospital ranged from 7.0 to 17.4 minutes. The average consultation time at the PHC ranged from 4.7 to 8.1 minutes. The authors concluded that the consultation length has increased in Qatar during the decade, however, it is still short by international and western standards.

A cross sectional cohort study from Iraq evaluated mother knowledge, practice and attitude towards childhood survival. The study reveled that the Knowledge and practice of mothers was, generally, not satisfactory towards diarrhoeal disease and ante-natal care, while the knowledge of mothers about ARI risk signs were better. The authors concluded that stressing health education and breast feeding will be of significant value.

A study from Turkey examined the variables that affect patient satisfaction when they are examined by students. The authors reviewed 185 patients; answers to 13 questions. Among the patients, 92.1% pointed out that students' examinations were helpful. 84.1% of the patients felt confidence in the examination. The authors stressed that this study showed that satisfaction with student participation is high, especially in the group of elderly, married, women, and in patients with less education.

A study from Bangladesh and China discussed a new concept of the velocity and Elasticity curves of Pregnancy Wastage and Caesarian Deliveries in Bangladesh. The aim of the authors was to investigate the effect of age of mother as a cause of pregnancy wastage and delivery types. Their results revealed that the risk of caesarian delivery increases with the increased age and this risk increases faster than age.

Ali Keshtkaran A & Keshtkaran V discussed factors affecting neonatal death in Fars Province, Southern Iran, 2004. The authors stressed that neonatal death is the third most common factor of mortality in their country. The authors concluded that there is a need for more attention on care from pre-conception, during pregnancy, and during delivery.

A case report from the UK report discussed Human chorionic gonadotrophin induced Hyperemesis and Hyperthyroidism in Pregnancy. The authors stressed that Hyperthyroidism secondary to b hcg is a recognized occurrence. It is something to consider when admitting a patient with hyperemesis as hyperthyroidism worsens and mimics signs of hyperemesis.

Dr Ahmed A evaluated and compared data contained in referral forms sent by primary health care center's physicians to the diabetic clinic, with that adopted by the American Diabetes Association (ADA). A total of four hundred and thirty (430) referral forms were collected. The authors concluded that the referral form is an important tool that needs great attention and regular review, to evaluate its components and its efficacy.

A review study from Saudi Arabia discussed the use of Angiotensin Converting Enzyme Inhibitor in Diabetes. The author stressed that Diabetes mellitus is one of the diseases that affects different systems in the body. Angiotensin Converting Enzyme inhibitors (ACEI) were the first class of antihypertensive drugs shown to reduce vascular complications among diabetics, independent of blood pressure reduction. The review highlighted the points which are not known by most of physicians using ACEIs, such as the history of ACEIs and the evidence base for the use of this group of therpautics.

Finally I would like to wish all our readers, editorial board and the production team a happy new year.

Do Minutes Count for Health Care? Consultation Length in a Tertiary Care Teaching Hospital and in General Practice

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ABSTRACT

Objective: The objective of this study was to assess the consultation length in a tertiary care teaching hospital and in general practice in the developing State of Qatar. Additionally, we aimed to compare determinants of consultation length given in the literature, with those identified in general practice.
Design: A prospective descriptive study.
Setting: Hamad General Hospital and Primary Health Care (PHC) Centres, Doha, State of Qatar. This is a teaching Hospital for the Weill Cornell Medical School in Qatar.
Subjects: Patients who visited clinics at the Teaching Hospital and at the PHC and Hamad General Hospital, during the period from April to June 2005.
Main outcome measures: Length of time face-to-face with patients in consultation measured in minutes and fractions of minutes.
Results: The present study in Qatar showed that the average consultation time at the Hamad General Hospital ranged from 7.0 to 17.4 minutes. The average consultation time at the PHC ranged from 4.7 to 8.1 minutes. There is substantial inter-practice variation in consultation length. In some practices the longest average Consultant or GP consultation time is about twice that of the shortest. Consultation was longer when the doctor or patient felt that psychosocial problems were important.
Conclusion: The consultation length has increased in Qatar during the last decade; however, it is still short by international and western standards. Care provided by generalist and specialist physicians differ in terms of workload, quality and cost. Furthermore, in part both specialists and general practitioners are blamed for failure to deliver high quality care.

INTRODUCTION

Most surveys show that patients are satisfied with the care they receive through general practice, but patients often say that their consultations are too short and that doctors do not use this time well (Wilson, 1991; Bener et al., 1993). Studies about the length of consultations have investigated the effect of characteristics of the physician and the patients and the reason for the consultation on the length of consultation (Morell et al., 1986; Roland et al., 1986; Morell and Roland, 1991; Car-Hill et al, 1998; Deveugele et al., 2002; Knight, 1987). The size of a doctor's list is not an important determinant of consultation length, except when lists are extremely large or extremely small (Knight, 1986; Anderson et al., 1993). Doctors spend more time with patients who have new problems than those with already discussed problems (Morell et al., 1986; Roland et al., 1986; Howie et al., 1991; Cape, 2002). Many studies showed that general practitioners have a significant effect on primary health care services and health promotion (McPhee et al., 1984; Wilson, 1985; Howie et al., 1991; Engstrom, 2001;). In the developed and developing countries, the debate on the respective roles of medical specialists and generalists has tended to portray them as alternatives rather than seeking ways to build on the complementary skills of these professional groups (Lowe, 2000). One may evaluate the impact of a selective admitting policy that attempts to exploit the complementary strengths of specialists and generalists. Generally, the comparison of

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Lack of time in consultation with doctors is a frequent patient concern (Roland et al., 1986; Knight, 1987; Morell and Roland, 1987; Wilson, 1991; Howie, 1991; Bener et al., 1993; Carr-Hill et al., 1998; Deveugele et al., 2002; Morell et al., 2002; Cape, 2002). To evaluate and compare the effectiveness of tertiary hospital and primary health care and specialist care is a complex task and there are methodoligical differences and limitations in all studies. However, the length of consultation can be used as a marker for quality of consultation in health care assessment. We have used a recent report on consultation length in General practice in six European Countries by Deveugele et al. (2002) as a model study for Qatar. The objective of this study was to assess the consultation length in a tertiary care teaching hospital and in general practice in the developing State of Qatar. Additionally, we aimed to compare determinants of consultation length given in the literature with those identified in general practice.

MATERIAL AND METHODS

Socio-demographic background:
The State of Qatar lies on the western coast of the Arabian Gulf. Qatar is characterized by a hot summer and winter is warm with little rainfall. Oil revenues and gas constitute a corner stone in the economy, which had been used wisely to build a sophisticated social and health infrastructure. Investment in health and social development has resulted in dramatic gains in the health and well being of the people. The State of Qatar's population has been estimated to be over 850,000 in year 2006; expatriates consist of 70% of the total population.

Study design:
This was a prospective descriptive study conducted at the Hamad General Hospital and PHC Centers in Doha City and suburban area of Qatar during the period from April to June 2005.

Questionnaire and interview:
The questionnaire and criteria for the consultation length in general practice defined and proposed by Deveugele et al. (2002) was used. In the analysis, we differentiated between the presence of psychological problems and their importance. Presence of psychosocial problems for the doctor meant that the diagnosis could be coded into one of the psychosocial categories of the International Classification of Primary Care (Deveugele et al., 2002). For the patient, it meant that the patient's reason for the encounter could be coded into one of the psychosocial categories. The general practitioners assess the importance of psychosocial problems on a five point Likert scale (5= very important; 1= least important). The importance of medical and psychosocial aspects of consultation for the patient was measured by a questionnaire derived from the patient request form that used 10 of the relevant items. A translated Arabic version of the questionnaire was revised by the Consultant (SAM) [bilingual] and back translated by a bilingual GP, unacquainted with the original English version. Both translators met and made necessary corrections, modifications and rewording after considering the minor differences and discrepancies, which had occurred. The questionnaire was validated.

Primary Care:
A multi-stage stratified cluster sampling design was developed using an administrative division of Qatar into 21 PHC Districts each of approximately equal size in terms of number of inhabitants. The sample size was based on need to detect an effect size of 0.35 at a significance of 0.05 with power of 80. On this basis the computer program indicated that we needed 750 subjects to achieve the objective of our study. The PHC clinics in the literature. Many studies agree that consultations lasting less than 10 minutes do not have a significant

were instructed to structurally interview and complete a questionnaire for randomly selected patients attending their clinics in each stratum.

Patient's views were recorded through a face-to-face interview by a physician or qualified nurse to determine their view on the psychosocial component. Consultation times were then recorded. A total of 750 patients were approached and 599 expressed their consent to participate in this study.

Secondary care:
The hospital waiting time data was collected prospectively with a person dedicated to collecting accurate data.

Student-t test was used to ascertain the significance of differences between mean values of two continuous variables and for non-parametric test; Mann-Whitney's mean test was used. We used an analysis of principal components with a Varimax rotation on answers to question on the patients' questionnaire about the importance of psychosocial and medical aspects of the consultation. The level $p<0.05$ was considered as the cut-off value for significance.

RESULTS

We included 7970 patients from the Hamad General Hospital according to type of visit and physician ranking. Table 1 shows the mechanism of type of visit, mode of appointment, specialty of doctor and delay at the tertiary care Hamad General Hospital.

Table 2 depicts consultation length and waiting time for patients in specialist clinics at the Hamad General Hospital. In the present study in Qatar the average consultation time at the Hamad General Hospital ranged from 7.0 to 17.4 minutes. There is substantial inter-practice variation in consultation length.

Table 3 presents consultation lengths for patients at the Primary Health Care Centers in urban and semi-urban areas. The presented data showed that in Qatar the average consultation time ranged from 4.7 to 8.4 minutes. In some practices the longest average GP consultation time was about twice that of the shortest.
We performed a factor analysis of patients' questionnaires to look at how important medical and psychosocial aspects of consultations were in determining the consultation length. This analysis revealed two subscales - a biomedical scale with six items and a psychosocial scale with four items (Table 4). Cronbach's was 0.85 for the biomedical scale and 0.83 for the psychosocial scale.

DISCUSSION

In Qatar, both Tertiary care and PHCs provides curative and prevention services. There is no difference in the quality of service provided by PHC centers. Investment in health and social developments has resulted in remarkable gains in the health and well being of the people.

Table 5 presents information and comparison for the consultation length for patients of general practitioners in Europe (Deveugele, 2002), and in the Arabian Gulf States. The mean length of consultation for all consultations in Europe was 10.7 ± 6.7 minutes and in Arabian Gulf countries was 5.9 ± 2.4. The Six European countries could be divided into three pairs that differed significantly from each other with respect to total consultation time. Belgium and Switzerland had the longest consultation times while Germany and Spain had the shortest consultation times. The consultation times for the United Kingdom and Netherlands were average. We compared our results with six European countries; and our results are consistent with those from Germany, Spain and the United Kingdom. It seems general practitioners in Belgium and Switzerland operate in an "open market", in which patients have direct access to more than one general practitioner and specialist. In fact, the situation in Qatar is similar to that in Belgium and Switzerland where general practitioners are paid mostly by direct payments from the patient at the beginning of a consultation. Although the United Kingdom and the Netherlands, which had intermediate consultation lengths, have well-organized primary healthcare systems, with restricted patient lists and gate keeping, which general practitioners paid by capitation.

The presence of psychosocial problems in the consultation was an important factor influencing the length of consultation, and patients' and doctors' perceptions concerning psychosocial problems affected the length of the consultation. In fact the differences between the effect on doctors' and patients was highly significant. Generally, when doctors perceived a psychosocial problem, the duration of consultation increased. From the patient's perspective, the consultation time was longer when the patient expected some help on psychosocial aspects from the doctor, than when they did not. Furthermore, when the doctor perceived a psychosocial problem, the increase in consultation time was nearly twice as long as that as when the patient perceived a psychosocial problem. In fact, the physician had the largest impact on the duration of the consultation. Overall, our present study results are consistent with those from results of Wilson (1991) , Carr-Hill et al. (1987) and Deveugele et al. (2002) who stated that most differences in the consultation lengths will disappear when factors relating to physicians are controlled for.

effect on health promotion (McPhee et al., 1984; Wilson, 1985; Howie et al., 1991; Alsever, 1995; Lowe, 2000; Engstrom et al., 2001; Ogden et al., 2004). In British general practices the average consultation time ranged from 5.5 to 6.6 minutes (Wilson, 1985; Roland et al., 1986; Wilson, 1991; Carr-Hill et al., 1998; Deveugele, 2002;). In Australia the average GPs consultation time ranged from 3 to 39 minutes with a mean of 14.8 minutes (Britt et al., 2002) and in the United States (Levinson and Chaumenton, 1999) the mean visit length was 13 minutes. It was observed in Saudi Arabia, a neighboring country, time of 5.69 minutes (Al-Shammari, 1991; Bener, 1992), and in the United Arab Emirates it ranged 5 to 6 minutes (Annual Health Report 2000), and in the present study in the State of Qatar the average consultation time ranged from 4.7 to 8.4 minutes.

Managed care companies encourage primary care physicians to limit referrals to specialists and provide as much of the needed services themselves. As a result, generalist and specialist physicians are now in direct competition with one another (McPhee et al., 1984; Alsever, 1995). Many physicians in urban areas are specialists whose expertise is not really relevant to the general population, but their numbers augment the physician-population ratio (Alsever, 1995). Also, competition between generalists and specialists in a fragmented system only serves to further weaken the position of physicians in the health care industry (Cram and Ettinger, 1998). Furthermore, the referral system and communication between generalists and specialists can be further explored in Qatar and other neighboring countries populations.

Finally, efficient medical communication depends on an understanding of the patient perspective. When consulting the regular doctor, trust and satisfaction are associated. (Baker et al., 2003) The feeling of not having to hurry during the consultation is more important than the actual number of minutes (Steine et al., 2000). Patients' level of emotional involvement and their specific expectations are often undisclosed. However, short consultation time in Primary care and tertiary care and also of generalist and specialist physician competition, would always be a problem in the developing and developed countries.

CONCLUSION

The consultation length has increased in Qatar during the decade; however, it is still short by international and western standards. The care provided by generalist and specialist physicians differ in terms of workload, quality and cost. Furthermore, in part both specialists and general practitioners are blamed for failure to deliver high quality care.

Table 1. The mechanism of type of visit, appointment and delay of Hamad General Hospital in Doha-Qatar, during the period 5-16 April 2005, (N = 7970).

Variables			**Minutes Waiting**		**Minutes Seen by Doctor**	
		N	**Mean±SD**	**Median**	**Mean±SD**	**Median**
Type of Visit						
	New	1664	57.4 ± 44.0	49.5	15.7 ± 14.9	10
	Follow Up	6306	56.4 ± 45.4	47.0	13.5 ± 13.0	10
Type of Appointment	With Appointment	7339	57.3 ± 44.8	49.0	14.0 ± 13.6	10
	Without Appointment	463	50.1 ± 49.4	35.5	12.4 ± 11.4	10
	Referral from Inpatient	168	47.8 ± 42.1	38.0	14.8 ± 11.5	11
Physician Level	Consultant	3021	54.1 ± 45.1	45.0	13.9 ± 13.0	10
	Specialist/Physician	4927	58.3 ± 45.1	50.0	14.0 ± 13.8	10
Type of Delay	Missing File	341	79.7 ± 48.2	75.0	13.1 ± 13.0	10
	Delay in Lab	18	75.6 ± 48.1	71.0	19.7 ± 10.0	17.5
	Unavailability of Doctor	128	84.7 ± 54.5	75.5	13.0 ± 10.4	10
	Delay in Radiology/Ultrasound	37	87.5 ± 47.7	84.0	26.5 ± 23.8	15
	Lab Results	64	36.3 ± 28.4	28.5	16.2 ± 11.3	15
	Wrong Appointment Date	17	97.5 ± 75.2	91.0	10.4 ± 7.3	9
	Radiology Results	50	75.6 ± 52.2	64.0	26.5 ± 25.3	15
	Others	537	64.4 ± 52.6	50.5	34.9 ± 26.8	30

Table 2. Consultation length and waiting time for patients at the Hamad General Hospital during a period 5 - 16 April 2005

		Minutes Waiting		Minutes Seen by Doctor	
Clinics	**N**	**Mean±SD**	**Median**	**Mean±SD**	**Median**
Accident Emergency	10638	53.6±25.7	55.0	7.0±4.3	6.0
Allergy/Asthma	77	36.1±22.3	34.0	10.8±10.6	10.0
Cardiology	917	56.5±42.4	45.0	9.9±7.5	10.0
Chest	175	49.0±35.5	42.0	13.4±12.0	10.0
Diabetes	402	61.5±34.1	59.0	11.2±7.9	10.0
Hypertension	390	60.7±36.5	59.0	11.0±7.6	10.0
ENT	779	45.4±40.2	36.0	11.4±10.1	10.0
Gastroenterology	301	48.1±30.4	43.0	11.8±7.7	10.0
Haematology	149	103.2±60.1	103.0	17.7±12.2	15.0
Infectious Disease	85	53.3±27.5	54.5	11.8±6.0	10.0
Medicine	1035	59.9±37.7	56.0	11±7.5	10.0
Nephrology	135	43.6±32.8	40.0	9.1±6.7	6.0
Neurosurgery	164	58.8±43.9	47.5	14.1±11.9	11.0
Neurology	264	38.1±36.3	30.0	10.6±9.3	9.0
Oncology	160	83.8±73.9	68.0	14.8±12.5	12.0
Ophthalmology	1356	45.2±41.6	34.0	17.4±24.0	15.0
Pain Clinic	17	47.6±29.1	43.0	10.9±4.9	10.0
Paediatric Surgery	141	37.8±31.8	30.0	9.9±9.3	7.0
Paediatrics	697	41.9±39.8	33.0	14.9±10.8	12.0
Psychiatry	627	44.3±39.7	24.0	10.5±9.0	8.0
Rheumatology	524	66.1±38.8	62.0	13.9±11.2	10.0
Surgery	999	68.9±47.4	68.0	12.1±11.0	10.0
Thyroid	40	79.6±24.7	86.5	9.5±4.3	10.0
Transplant	41	42.1±33.4	40.0	8.4±4.2	7.0
Urology	458	95.0±63.3	89.5	12.2±12.0	10.0

Table 3. Consultation length for patients of general practitioners at the PHC in Doha, State of Qatar

Primary Health Care Centers	**Number of patients**	**Minutes Seen by Doctor**	
		Mean ± SD	**Median**
Urban area			
Airport	38	6.4±2.2	6.0
Khalifa Town	52	6.9±2.0	7.0
Al-Montaza	47	7.2±1.8	7.0
Omer Bin Khattab	48	5.9±2.4	5.0
West Bay	43	6.9±2.6	6.5
Abubaker Al-Siddiq	42	5.9±2.5	5.0
Al-Rayyan	55	5.3±2.1	6.0
Wakrah	46	7.4±2.2	7.0
Um Gwalina	48	6.8±2.5	6.5
Al-Gharafa	45	8.4±2.3	7.0
Semi-Urban area			
Um Salal	47	4.7±2.2	6.0
Al-Khor	42	8.1±3.1	7.5
Al-Shahaniya	45	5.6±2.0	6.0
Overall	598	6.6±2.1	6.8

Table 4. Factor load after Varimax rotation of 10 items of questionnaire answered by patients in principal component analysis (No. of patients = 598).

Items	Factor Load	
	Biomedical	Psychosocial
	%	%
Used to show relevance of biomedical aspects:		
I would like the doctor to tell me what my symptoms mean.	0.71	0.20
I want doctor to talk to me about my problem.	0.66	0.31
I want doctor to explain the likely course of my problem.	0.78	0.25
I want my doctor to explain how serious my problem is	0.74	0.26
I want to be examined for the cause of my condition	0.76	0.14
I would like the doctor to explain some test results	0.73	0.13
Used to show relevance of psychological aspects		
I feel anxious and would like some help from my doctor.	0.30	0.69
I have emotional problems for which I would like some help.	0.07	0.85
I am having a difficult time and would like some support.	0.11	0.81
I want doctor to explain my emotional problems.	0.14	0.78

Table 5. Consultation length for patients of general practitioners in European and in Arabian Gulf States

EEC and Arabian Gulf Countries	References	Sample size	Minutes Seen by Doctor - Mean ± SD
Germany	Deveugelee et al., 2002	889	7.6±4.3
Spain	Deveugelee et al., 2002	539	7.8±4.0
United Kingdom	Deveugelee et al., 2002	446	9.4±4.7
Netherlands	Deveugelee et al., 2002	579	10.2±4.9
Belgium	Deveugelee et al., 2002	601	15.0±7.2
Switzerland	Deveugelee et al., 2002	620	15.6±8.7
USA	Levinson and Chaumenton, 1999	106	13
Australia	Britt et al., 2002	926	14.8
Saudi Arabia	Al-Shammari, 1991	843	5.7± 2.3
United Arab Emirates	Annual Health Report UAE, 2004	925	5.9± 2.6
State of Qatar	Present study	598	6.6±2.1

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Mothers knowledge and attitude regarding childhood survival

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ABSTRACT

Background: Since the end of the conflict in Iraq in April 2003 and resumption of the functions of the health system, consisting of 1200 PHCC which suppose to provide medical services to the community, still the Maternal Mortality Rate (MMR) is 244/100.000 live births; child Mortality rate (MR)<5 years is 131/1000 live births; and infant MR is 108/1000 live births. These figures show the impact of inadequate health services on mother and child lives, also in some part, the knowledge attitude and practice of mothers towards the services provided may play a big role in these high figures.

The direct beneficiaries would be the community at large, particularly mothers who attend the PHC center seeking ideal health services for the sake of the family. The health workers in PHC centers will get proper feedback from the outcome of this research, towards providing better health services for mothers and their children (1).

The indirect beneficiaries would be health policy makers at high levels in the government, general directors of preventive medicine in the Ministry of Higher Education and Scientific researches, and non-governmental organization community leaders.

Aim: To evaluate mother knowledge, practice and attitude towards childhood survival.

Objectives: 1. Identify the relationship between maternal characteristics and childhood survival.
2. Recognize the relationship between maternal care services and childhood survival.

Explain the relationship between provision of childhood services and survival, nutritional status and breastfeeding, growth monitoring, respiratory illness, diarrhoea, and immunization status.

Methodologies: A cross sectional cohort study on randomly selected samples of mothers having children less than 2 years, attending the primary health care centers (PHCCs) in Tikrit city from October 2004 to the end of June 2005 were included in this study.
A special questionnaire was prepared for this purpose, interviewing those mothers, who have babies less than 2 years of age, attending these PHCCs.

Results: We found that the majority of mothers were housewives (82.3%), their age group mainly between 25-34 years (86.9%). Only about 31% were highly educated. Most sampled mothers believed that breast milk is the best food for their infants, and recognize that breast milk has many advantages for infants, mothers and their families. Only about 45% of these mothers had a positive practice towards breast-feeding. Exclusive breast- feeding was low among breast-feeding mothers (28.9%). About 35.2% of mothers have no idea about what complementary food should be added in the various child age groups.

The children who had no growth-monitoring card numbered 24.2% and only 49.2% of the mothers had maternal cards. About 82.8% of mothers under study were delayed beyond the appointment given by PHC workers for their routine visits, which reflects their poor interest and indifference of these mothers to PHC services.

Conclusion: Knowledge and practice of mothers was, generally, not satisfactory towards diarrhoeal disease and ante-natal care, while the knowledge of mothers about ARI risk signs were around 65%.

These results suggest that promotion of breast feeding and educating mothers about correct knowledge and practice regarding perinatal care and diarrhoeal diseases for children, is recommended.

INTRODUCTION

Primary health care (PHC) provides basic health services for individuals, families, vulnerable groups, and the public in general. Primary health care (PHC) is the first approach the public seeks for medical care, preventive and curative. It is the responsibility of community-wide networks of health centers and units, and may occasionally outreach the people within their community [1].

Primary health care is essential health care based on practical scientific and socially acceptable methods, and technology made universally accessible to individuals and families in the community through their full participation, and at a cost that the community and country can afford to maintain at every stage of their development in the community. It is the first level of contact of individuals, the family and the community, with the national health system, bringing health care as close as possible to where people live and work, and constitutes the first element of the continuing health care process (2). The Declaration goes on to define primary health care to include prevention, health promotion, curative, and rehabilitation services.

The work of the women's health movement was important in setting this direction for health policy. It was the women's movement that pioneered the political approaches to health and health care, taking them from the domain of the personal to the domain of the political, understanding that "control over our own bodies" would be impossible without social and economic changes [3].

This, to us, is the most profoundly liberating feminist insight and understanding that our oppression is socially, and not biologically, ordained to act on this understanding is to ask for more than "control over our own bodies ", it is to ask for and struggle for, control over the social options available to us, and control over all the institutions of society that now define these options [4].

In contrast to the Alma Ata declaration, Health Canada has defined primary health care as "the first point of contact for Canadians with the health system, often through a family physician" [5].

This definition, refreshing in its brevity & simplicity, leaves unanswered important questions, including what constitutes the essential components of primary health care.

Else where, Health Canada has made a strong commitment to understanding the importance of the non-medical determinants of health practices and coping skills; health services; social support networks; gender; and clatter. The commitment dates back to the 1979 report by then federal Minster of Health, Mare Lapland, A New Perspective on the Health of Canadians [6]. Health Canada also has an expressed commitment to both gender based analysis and women's Health strategy. Its Gender-based Analysis policy and Exploring concepts is in Gender and Health.

Any reformed primary health care system must include the full range of reproductive health care services and their delivery must be organized in ways which recognize women's diversity and which promote women's autonomy, control and health.

Secondly there are conditions more prevalent among women such as breast cancer, eating disorders, depression and self inflicted injuries [7].

MATERNAL AND CHILD HEALTH

Mothers and children are vulnerable groups that need special care through maternal care; for married women in the child-bearing period, especially the pregnant and lactating, and through child care; for children below five years (infants and preschool children) [1].

Mothers are vulnerable groups that need special maternal health programs, due to:

- They are at risk of morbidity (health hazards) and mortality during pregnancy, labour and the puerperium, and which are largely preventable and controllable through maternal care.
- Maternal health is a basic requirement of fetal health and favorable outcome of pregnancy.
- Mothers are responsible for health promotion and culture of children, and family welfare, and so must be healthy, and aware of requirements of health [1].

In developing countries, more than 500,000 women die every year from complications related to pregnancy and child birth. Many other women suffer pregnancy- and delivery-related complications, that result in long-term health problems. A woman's death during childbirth often means death for the newborn, and both death and disabilities translate into emotional, social, and economic hardships for women's older children, their entire families, and even their communities [8].

Maternal and infant death can be prevented by ensuring that high quality maternal and newborn health care is accessible and that maternal health complications are recognized, referred, and treated by skilled health care, or they are deterred from seeking care by cultural barriers such as the status of women within the family and in society. They may postpone their own treatment when sick, in order to pay for care for family members, or they may not seek care at all [7].

In Iraq, a study about the frequency distribution of pregnancy education, by PHCC staff on different maternal

health aspects, shows that education about breast feeding importance is 48.71%, while, risky factors on pregnancy and labour 40.95%, and guidance by the doctor or pharmacy on the use of medicine, was found in 90.1 % [9]. (Table 1).

METHODOLOGY

3.1. Design of the Study:

This study is a cross sectional cohort study, and is conducted during the period from October 2004 to the end of June 2005.

3.2. Socio-Demographic Characteristics:

The study was conducted in PHC centers of Tikrit City, which serves a large proportion of the community of different socio economic levels. Cluster sampling was used dividing Tikrit City into 5 sectors {Al-Alam, Ibn-Sinaa, Alrazee, Ibn-Rushed, and Al-Rbidaa PHCC}.
Salahaldeen Governorate has an estimated population of {1,162,490}. Tikrit city represents {159,721} of the population. Out of Tikrit city population, 20% are in the reproductive age group {15-45} years, and another 20% of the population is under 5 years of age [71].

3.3. The Study Groups:

Random sampling from each PHCC was taken from October 2004 to the end of June 2005, by interviewing women attending PHCC for Maternal and Child health services who have children less than 2 years of age. Sample size was 5% of the women in the reproductive age group, equal to about 760. Five PHCCs were selected.

Daily visits were carried out by the investigator herself. In each day, one of the PHCCs were visited over a period of 6 months. Interviews with each woman visiting the centers were conducted separately and with complete privacy, so that the answers (especially about their opinions) were less likely to be affected by hearing the answers of others. Each question was asked in simple language. A total number of 760 women were interviewed from all the centers.

3.4. Sources of health care:

As in PHCCs in Iraq, the centers in Tikrit City provide a comprehensive package of primary health care services. There are 5 PHCCs in Tikrit city, and all of them provide antenatal and maternal child health care, and one [1] main general hospital and [2] small hospitals, and there are some health insurance clinics and many private clinics.

The main emphasis of care is on maternal and child health, school health, curative care and communicable diseases.
Among the programs that have high priorities are the expanded program of immunization (EPI), oral rehydration therapy (ORT) for control of diarrhoeal diseases, and case management of acute respiratory diseases.

3.5. Pilot Study and Pretest:

A small- scale pilot study was carried out on a sample of 30 cases including babies with their parents, to identify any areas of ambiguity in the questionnaire and to have an idea about time required and other practical points before the final study was launched.

3.6. Development of Questionnaire and Data Collection:

The questionnaire was developed to collect the following information and variables from all involved women (study population, see appendix):

The questionnaire related to:

1. Mother's Education/ Occupation.
2. Breast feeding/ Nutrition.
3. Growth monitoring.
4. Diarrhoeal diseases.
5. Acute respiratory tract infection
   - ARI (Respiratory illness).
6. Immunization.
7. Child care.

3.7. Statistical Analysis:

The data collected on (760) mothers and their babies was studied, and conventional statistical techniques were applied to the data in study of distribution by frequency percentage, bar charts, pie charts and table representations.

RESULTS

From data collected randomly from 5 health centers in Tikrit city, the data collected according to pre-set questionnaire sheets, 760 mothers attending to the PHC where subjected to the survey.

The results of the study revealed that most children were weighed 85.79% at the registration visit, while 14.21% were not recorded (Table 1).

Disappointment of mothers was high (82.89%) while those who attend one time only 17.11% (Table 2)

The results of the study shows the highest percent of housewife mothers (86.89%) were within age group 25-34 years, while the highest percent of employed mothers (33.87%) were within the age group (35-44) years (Table 3). The mothers who were attending higher education was at 31% only, while highest percent had secondary education 50% (Table 4).

The results of children according to type of feeding shows that most babies were breast feed 44.74%; 35.53% were bottle feed and 19.74% were mixed fed (Table 5).

The mothers who breastfed their children during the first hour after delivery were 30.26% only and the mothers who starting breastfeeding from 1-8 hours after delivery

were 31.84% (Table 6). The most prevalent extra food presented to the babies from 1-2 years was honey or sugar 92% (Table 7).

The mothers who knew that avoiding bottle-feeding would keep their babies breastfed were 35.26% while those who believed that exclusive breast feeding was the correct behavior to keep them breast-feeding, constituted about 28.95% (Table 8).

The results showed that 43.95% give food rich in iron for their babies while 35.26% have no idea at all about what should added according to the child's age (Table 9).

The results show that only 2.1% of mothers know the role of vitamin .A and what food contains that vitamin (Table 10).

Evidence of diarrhoea during the last two weeks among children, was 47.37% (Table 11). The results show that a high percent of mothers (37.63%) stopped breast-feeding completely during diarrhoea (Table 12). About 38.89% of mothers give fluid more than usual during diarrhoea, while 11.11% of them stopped completely
(Table 13).

The results also show that about half of mothers give antibiotic or ante-diarrhoeal medicine during diarrhoea (52.78%) while 16.67% give Oral Rehydration Therapy (ORT) only (Table14). A high percent (95%) of mothers sought medical advice for their children (Table 15) and the highest percent of mothers in the study go to the general hospital - 44.44% (Table 16).

Most of the mothers seek advice or treatment for the child when ill with difficult breathing, and most of the mothers take their children to the general hospital 24.5% and 30% to the health center (Table 17).

The results showed that only about 18.4% of mothers knew the exact amount of tetanus toxoid vaccine needed during pregnancy (Table 18). Most children are immunized, about 82%, while 4% don't know if their children have been immunized at all (Table 19).

The results revealed that only 49.2% of mothers have a maternal card (Table20), and that only 43.8% of mothers who have a maternal card were vaccinated twice, against tetanus during pregnancy (Table 21).

About 95% of mothers have space to record antenatal care visit in the maternal card (Table 22), and only 38% of mothers have one antenatal visit recorded in their card (Table 23). Only 17.9% were pregnant (Table 24).

About 54% of mothers wished to become pregnant in the next 2 years (Table25). The use of contraceptives was 86.84% (Table 26). About 33% of mothers under study go to PHCC at the last trimester of pregnancy (Table 27).

The results show that 24.2% of mothers don't know what food is good for women to prevent anaemia (Table 28).

The mothers who know the correct answer about weight gain during her pregnancy was 22.89% (Table 29).

DISCUSSION

Since the 1960s, family life programs in developed countries have yielded positive results in terms of increasing both knowledge of child development and parent-child interaction skills among families, as well as changing parental attitudes. Such programs have also been found to increase the likelihood that teen parents will return to school and obtain significantly more education. In comparison, teen mothers who have not attended parenting classes have been found to demonstrate more dependency, greater isolation, less interest in activities, more stress raising their children, and more unrealistic expectations of their children (72).

In view of these facts, it is essential to assess the knowledge and attitudes of the female population concerning different issues related to maternal and child health. This will then enable us to implement appropriate programs to improve the health of both women and children, and fight the spread of some communicable diseases.

5.1. Distribution of Study Sample:

The data collected had shown that the majority of mothers were housewives 82.3%, with most of them at age group 25-34 years (i.e. 86.9%). Only about 31% of them had higher education. These data were expected in our country, especially in our province, and a predominancy of rural habits are seen here- especially those concerned with women being employed and leaving school early in the academic life period.

About 82.8% of the mothers under study were delayed beyond the appointment given by PHC workers for their routine visits, which might reflects= their poor interest and the indifference of those mothers to PHC services. Aalso the political situation may play a role.

5.2. Knowledge and Attitude of Breastfeeding

Data from 86 countries revealed that there are very large differences in breast-feeding practices between countries, between population groups within counties, and within different groups over a period of time [73]. A downward trend in breast-feeding has been noted widely in different countries of the Middle East, especially in urban areas where mothers with raised socioeconomic status resort to bottle-feeding quite early [74].

In the current study, most sampled mothers believed that breast milk was the best food for their infants and knew that breast milk had many advantages for infants, mothers and families, but only about 45% of the mothers had a positive attitude towards breast feeding, and only 30% of the mothers were breast feeding their children during the first hour of life. Grover et al [75] in India also found that although the majority of the respondents had good knowledge towards breastfeeding, the percentage of breastfeeding in his study was also lower than it should be, and only about 9.1% of them breast fed their children during the first hour of life. The promotion of breast-feeding is one of the essential interventions for reduction of infant mortality and improving infant development worldwide [76], thus it is important to encourage mothers to start breastfeeding as early as possible. It is noticed in our current study that about 62% of mothers started breastfeeding during the first 8 hours after delivery, which agreed with what Schemes [77] at Libya noticed in his study (i.e. 65%).

In the current study, the exclusive breastfeeding rate was low among breastfeeding mothers (i.e. 28.9%). Li et al [76] in a study at Thailand also noticed a relatively low rate of exclusive breastfeeding among mothers under the study compared with the total number of breastfeeding mothers. Antenatal plans for exclusive breast-feeding and newborn feeding in hospital after birth may play key roles in the duration of exclusive breastfeeding. These findings suggest the importance of strengthening implementation of prenatal health education regarding breast-feeding [76].

Exclusive breastfeeding for about six months is increasingly being shown to be central to infant health and even maternal health due to its impact on birth spacing. Previous research has too often been based on an inadequate definition of exclusive breastfeeding, and thus has underestimated its importance. Even the giving of glucose water soon after delivery or the feeding of complementary water, are unnecessary and harmful practices [78].

The use of bottles makes breastfeeding failure more likely for a number of reasons, including nipple confusion for the infant. In the current study, about 35% of the mothers know that avoiding bottle-feeding promotes their maintenance of breastfeeding practice. Supplements provided by cup do not fulfill the sucking needs of the infant, and this may explain why traditionally complementary feeding from early ages was easier to maintain alongside continued breastfeeding than bottle- feeding seems to be [79].

Complementary food included all meals given to the child besides milk. The timing of complementary foods is of critical importance for the health and wellbeing of the child. On the one hand, before 6 months, breast-feeding offers general protection to children from diarrhoeal disease and other infections. In addition, delay in introduction of other foods offers some protection. [77]

On the other hand, after 4-6 months, growth cannot be sustained on breast milk alone. According to WHO, the International Pediatric Association and other bodies, introduction of complementary foods should commence at 4-6 months of age [77].

More than 35.7% of mothers in the current study were adding complementary food earlier than 4 months of the child's life, in comparison with 17.9% noted by Schemes [77] at Libya and 87.9% seen by Saowakontha [80] in Thai villages. About 58.6% of mothers in the current study were introducing supplementation before 6 months of age, while Al-Sekait [81] has mentioned that a study in Sudan showed about 76%-91% of mothers there were introducing supplementation before 6 months of age. This high difference suggests the big gap between knowledge and attitude of mothers in different areas of the developing countries- regarding complementary food- and the big effort that should be undertaken to overcome this poor background of these mothers in these areas, including our country.

The purpose of complementary food is to transfer the child from breast milk to family diet. The complementary food practices have been surveyed in most of the Arab countries [82,83]. The general pattern in the present study is largely the same as in corresponding socioeconomic strata.

Water, juice, semisolid food, eggs, and adding sugars and honey were the most common supplementation given for the children by mothers in the current study, which agreed with what Shembesh noticed in Libya [77], Serenius in Saudi Arabia [82], and what Patwardan in the Middle East have conducted [84].

Cultural influence plays a major role in the decision about which foods are to be introduced and at what age [82]. About 35.2% of the mothers in current study have no idea about what should be added exactly to the child at his age, but they follow the advice of older females in their families or friends. A simple question about the role of Vitamin A and what food contains that vitamin show that only 2.1% of mothers know the right answer, which gives us a clue about their poor background.

5.3. Growth Monitoring

Recent studies evaluating the efficacy of growth monitoring programs have scrutinized their educational and preventive capabilities. Advocates claim that growth monitoring can be effective if communities and mothers are more actively involved in the process of weighing and measuring, and if the technology is understood by all as an aid for disease prevention and health promotion rather than as a "curative" procedure. Others have argued that this theory is rarely possible to implement. The ways

in which preventive growth monitoring can be made possible are still under exploration, given that the reasons for such deeply imbedded "curative" expectations of growth monitoring are not fully understood. Any such understanding requires an analysis of growth monitoring within the context of the GOBI (growth monitoring, oral rehydration therapy, breastfeeding and immunization) child survival framework [85].

Upon this importance of growth monitoring of the children, the percentage of children (24.3%) with no growth monitoring card, and the percentage of children (14.2%) who were not weighed at all during the last 4 months of their age were considered high percentages.

5.4. Mother's Knowledge and Attitude Concerning Diarrhoea

Diarrhoea continues to plague the developing world, resulting in more than 3 million deaths [86]. In the current study, about half of the mothers said that their children have had diarrhoea during the last two weeks, which shows us how big the problem is in our society, especially in summer.

According to WHO guidelines for the management of diarrhoea, anti-diarrhoeal, anti-amoebic and anti-bacterials have little role to play [87]. Despite this fact, overuse of antimicrobial agents has been reported for the management of the diarrhoea conditions [88]. In the current study, although about 96% of mothers sought medical advice for their children with diarrhoea from medical personnel, about 53% of their children were taking antimicrobials for treatment. This suggests the wide abuse of these antimicrobials by the medical personnel, which leads in turn to gradual tapering in use of oral rehydration therapy (ORT) over time. In the current study, the fluid replacement for children with diarrhoea was practiced only by 38.9% of mothers correctly, which is in accordance with what Datta et al [89] found at India (i.e. only about 40% of mothers were correctly giving ORT to their children).

Community health education is of utmost importance for effective case management, since it has the potential to establish productive contact between the health services and the community, to increase capability of families to recognize the danger signs of diarrhoea in children and to encourage appropriate and early care seeking behaviors [90]. About 13% of mothers did not know what signs of diarrhoea need medical attention; others were seeking medical advice as soon as their children had fever or vomiting.

Effective health education can only be provided on the basis of an accurate understanding of prevailing knowledge, attitude and practices of the community [90]. This study showed that the knowledge and attitude of mothers is not satisfactory, since about 44% of mothers were taking their children to the general hospital as soon as they notice diarrhoea episodes, and only about 16% of these mothers were giving more fluids to their children, while less than 6% were giving small frequent meals to their children. Surprisingly, about 17% of mothers did not even know what to do after their children recovered from diarrhoea.

5.5. Knowledge and Attitude of Mothers About ARI:

Control of acute respiratory infections (ARI) is a major public health problem in developing countries. The child respiratory illness is one of the big problem affecting the children in Iraq in the study group. It also consumes a greater share of the government budget of the primary health sector. Implementation of case management protocols requires participation of the community to reduce morbidity and mortality from ARI. Health education programs can only be effective when designed to take into account the prevailing knowledge, attitudes and practices (KAP) of the community towards ARI in their children [91].

In the current study, mothers said that more than 52% of their children suffered from cough and/or difficult breathing in the last two weeks. This high percentage suggests the magnitude of this problem in Tikrit city. All the mothers were aware of these two symptoms, but when those with positive "cough" answers were asked about development of subsequent difficult breathing during illness, eighteen women (i.e. 4.5%) did not know , and 12% of women did not even seek medical advice for their children's difficult breathing, which is in accordance with what Simiyu [91] in Kenya found, in that the mothers had good knowledge of mild forms of ARI but not the severe forms.

It was also noticed that about 7% of mothers sought advice for their ill children from non-medical personnel, and about 14.7% did not know the main symptoms that should make them take their children to the hospital, which indicates their poor knowledge and/or attitude about the serious condition of their children. It is important to understand that low utilization of health services for moderate ARI may result in continued high mortality because of delayed identification of seriously ill children.

A KAP ARI survey in Iraq at 1995 [92] revealed that 46% of the 900 mother sample covered, could detect the risk signs of ARI related infections, with the current study showing a higher amount (about 65%), which is, perhaps, due to better diagnosis and better management, that may lead to increase the mother's knowledge about ARI.

However, on method of treatment 71% still believe in antibiotic use and 64% revert to cough medicine. In the North of Iraq, a survey was undertaken in the three northern governorates in December 1994 with the 30-cluster immunization survey. The survey revealed that

mothers are not fully aware of earlier signs and symptoms of respiratory infections in their children and when to seek medical advice, as evident in their limited knowledge about rapid breathing as an indication of ARI. However, their knowledge about difficult breathing as an indicator of acute respiratory infection and correlating that with the prognosis of their children's health, was good (92).

5.6. Knowledge and Attitude of Mothers about Immunization:

Immunization is a timely step for prevention of mortality and morbidity due to communicable diseases in the 0-5 year age group. The delivery system of immunization has many inherent problems to which an addition may be made by the people themselves, with their prejudices, carelessness and apathy ***(93)***. In the current study, a small percentage of mothers (i.e. 4%) were not vaccinating their children -or do not know if their children have received immunization at all, in spite of all the programs held for vaccinating young children, which emphasizes what we have mentioned above.

Surprisingly, about one-quarter of the mothers did not know why immunization was given to the mothers during pregnancy; others gave different answers. Also, only about 18.4 % of mothers knew the right answer about stages of immunization against tetanus. El-sherbini [(94)] in Egypt also found that about 25.5% of mothers lacked basic and essential knowledge about antenatal care. Enhancing mothers' knowledge on tetanus is important to increase the coverage of tetanus toxoid. Moreover, antenatal care would cause contact with sources of tetanus toxoid and hence increase the chance of having the immunization [(95)].

Another two questions were asked regarding the availability of space in their maternal card, for recording of such events, and the number of tetanus vaccination times reported in that card. Even though there was room to record this information, (about 96% of cards), only in 43.8% of those mother's was the vaccination reported twice, which also shows the poor knowledge and attitude concerning tetanus toxoid immunization.

5.7. Knowledge and Attitude of Mothers About Pregnancy and Family Planning:

In the current study, about 17.9% of mothers were pregnant, and 54.5% of the remaining wish to be pregnant in the next two years. Also, about 13% of females who don't want to be pregnant or who have not decided yet to be pregnant in the next two years, are not currently using contraceptive methods to avoid pregnancy. These percentages show us the poor family planning of these females.

In the current study, a low level of knowledge and attitude regarding family planning was found, in contrast to what Aja et al [(96)] in Nigeria found, The findings in their study showed a high awareness level with a moderately positive attitude, and generally a low level of practice.

Concerning antenatal care visits, about 38% of mothers only had one antenatal care visit during her last pregnancy, and 2 (i.e. 0.5%) women did not have any visit at all. This explains the poor knowledge and attitude of mothers towards the benefits of maternal care, especially if we know that about one-third (33%) of the mothers under study attend PHC centers at the last trimester of pregnancy and not before.

As an example of mothers' poor knowledge, about 22.9% of mothers know that (10-12 kg) will be gained during pregnancy, the remaining either don't know or gave a wrong response. Also, about 24% of mothers don't know what food is good for women to prevent anaemia during pregnancy; even the answers about the question regarding the amount of food taken and whether it changed during pregnancy, was disappointing.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions:

1. Only about 31% of these mothers attended high education academies.
2. About 82.8% were delayed beyond their appointment given by PHC workers for their routine visits, which reflected their indifference and poor interest towards PHC services.
3. The knowledge and attitude of mothers is, generally, not satisfactory regarding diarroheal disease for their children.
4. About 65% of mothers in our study have good knowledge about these signs compared with 46% in 1995.
5. Poor knowledge and attitude of mothers concerning immunization against tetanus, and also regarding antenatal care.

Recommendations:

1. To Ministry of Health- Directory of Health Education:

- Promotion of breast-feeding among mothers through educating them about beneficial effects by periodic conferences.
- Educating the mothers about the best KAP regarding ARI, diarrhoeal disease, and perinatal care through multiple periodic conferences and mass media.

2. To our Colleagues in Medical Colleges: Further studies should be held to evaluate the practices of mothers regarding childhood survival.

Table 1. Distribution of study sample according to the weights recorded at registration visit

Weight	No.	%
recorded	652	85.79
not recorded	108	14.21
total	760	100.00

Table 2. Distribution of study sample according to their attendance of appointments

Attendance to appointment	No.	%
at time	130	17.11
delayed	630	82.89
total	760	100.00

Table 3. The relationship between age of mother and their work status

	work status				total women at age group	
Mother age group	Housewife	% of age group	employed	% of age group		% of total
12-24	180	71.43	72	28.57	252	33.16
25-34	334	86.98	50	13.02	384	50.53
35-44	82	66.13	42	33.87	124	16.32
Total	596	78.42	164	21.58	760	100.0

Significant (P value < 0.05)

Table 4. Distribution of study sample according to mothers' education

Mother education	No.	%
cannot read and write	54	7.11
read and write (primary)	90	11.84
intermediate & secondary	380	50.00
University & post graduate	236	31.05
Total	760	100.00

Table 5. Distribution of women according to type of feeding of their infants

Type of feeding	No.	%
breast fed	340	44.74
bottle fed	270	35.53
mixed	150	19.74
total	760	100.00

Table 6. First time mothers who breast-fed their children

Time of starting breast feeding	No.	%
During 1st hour after delivery	230	30.26
From 1-8 hours after delivery	242	31.84
More than 8 hours	238	31.32
Don't remember	50	6.58
Total	760	100.00

Table 7. Type of extra-food presented to the babies aged 1-2 years

Type	yes		no		Total no. of cases
	No.	%	No.	%	
water / herbal teas	259	78.48	71	21.52	330
semi-solid food (gruel porridge or semolina)	330	76.74	100	23.26	330
fruits or juices	300	69.77	130	30.23	330
carrot squash, mango or papaya	232	53.95	198	46.05	330
leafy green vegetables (spinach)	216	50.23	214	49.77	330
meat or fish	190	44.19	240	55.81	330
lentil peanuts or beans	240	55.81	190	44.19	330
eggs or yogurts	342	79.53	88	20.47	330
honey or adding sugar	396	92.09	34	7.91	330
adding fat or oil	260	60.47	170	39.53	330

Significant (P value < 0.05)

Table 8. Mother attitude in the 1st month to keep breast-feeding

Attitude	No	%
Does not know	132	17.37
exclusive breast feeding	220	28.95
avoid bottle feeding	268	35.26
frequent sucking to stimulate production	140	18.42
Totals	760	100.00

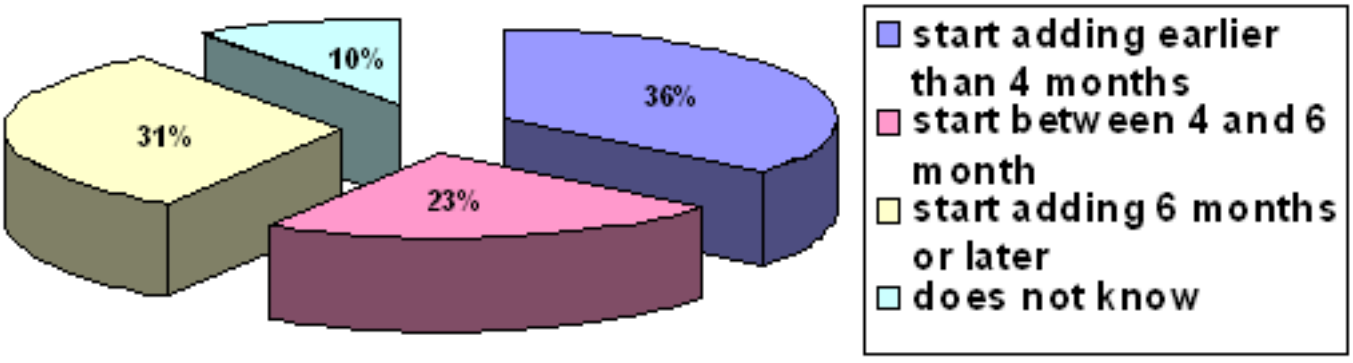


Fig (1): Evidence of initiation of food for the first time

Table 9. Type of additional foods.

Knowledge regarding food type	No.	%
Does not know	268	35.26
add oil to food	158	20.79
give food rich in Iron	334	43.95
Totals	760	100.00

Table 10. Mother knowledge about the importance of Vitamin A

Question	they know		Does not know		Total
	No.	%	No.	%	
Which Vitamin prevent night blindness?	16	2.11	744	97.89	760
Which types of food contain Vitamin A?	16	2.11	744	97.89	760

5.2. Growth Monitoring

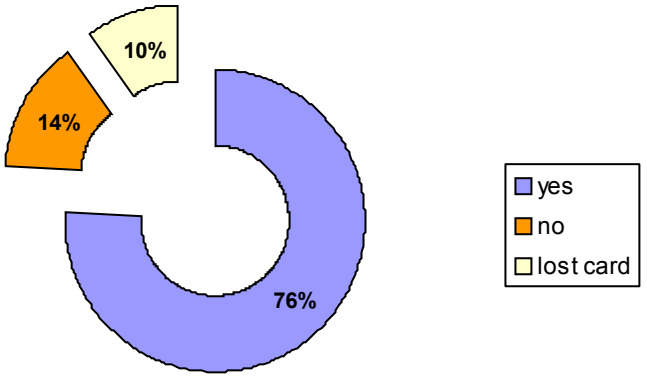


Fig (2): Evidence of having child's growth monitoring / promotion card

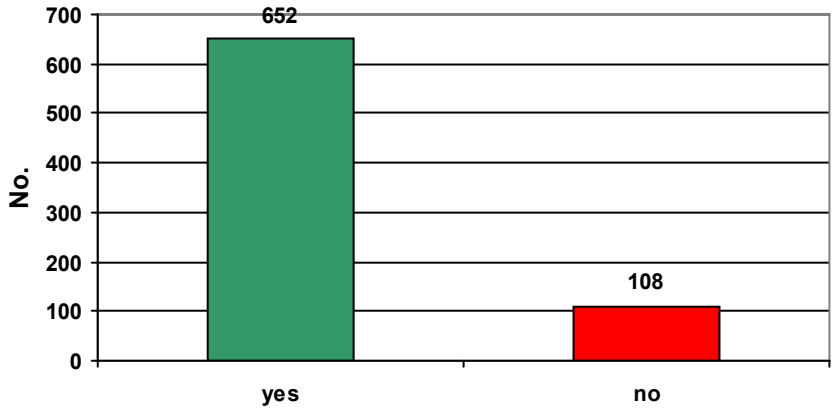


Fig (3): Evidence of weighing the child in the last four months.

Table 11. Evidence of diarrhoea during the last two weeks among infants

Evidence of diarrhoea	No	%
Present	360	47.37
Absent	400	52.63
Totals	760	100.00

Table 12. Attitude towards breastfeeding during diarrhoea.

Evidence of breast feeding	No.	%
more than usual	156	20.53
same as usual	134	17.63
less than usual	30	3.95
stopped completely	286	37.63
child does not breast feed	26	3.42
does not know	128	16.84
totals	760	100.00

Table 13. Provision of fluid during diarrhoea.

Provision of fluid	No.	%
more than usual	140	38.89
same as usual	90	25.00
less than usual	60	16.67
stopped completely	40	11.11
exclusive breast feeding	30	8.33
totals	360	100.00

Table 14. Type of treatment during diarrhoea.

Type of treatment	No.	%
nothing	18	5.00
ORT	60	16.67
sugar-salt solution	22	6.11
cereal based ORT	30	8.33
infusion or other fluids	40	11.11
Anti-diarrhoeal medicine or antibiotics	190	52.78
total	360	100.00

Table 15. Evidence of seeking advice and/or treatment for the diarrhoea

Evidence of seeking advice	No.	%
Present	342	95.00
Absent	18	5.00
total	360	100.00

Table 16. Source of advice and/or treatment for the diarrhoea.

Source of advice	No.	%
General Hospital	152	44.44
Health center/clinic	100	29.24
Private clinic/ doctor	46	13.45
Pharmacy	20	5.85
Village health worker	10	2.92
Traditional healer	6	1.75
Relatives and friends	8	2.34
Total	342	100.00

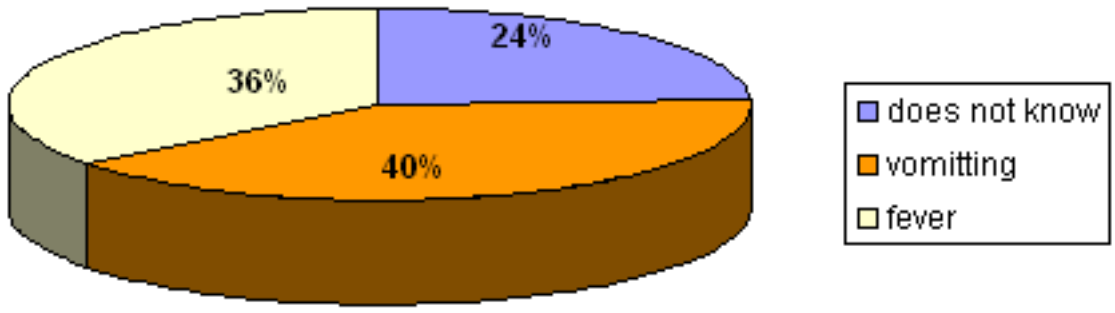


Fig (4): Signs/ Symptoms which would lead the mother to seek advice or treatment for diarrhoea.

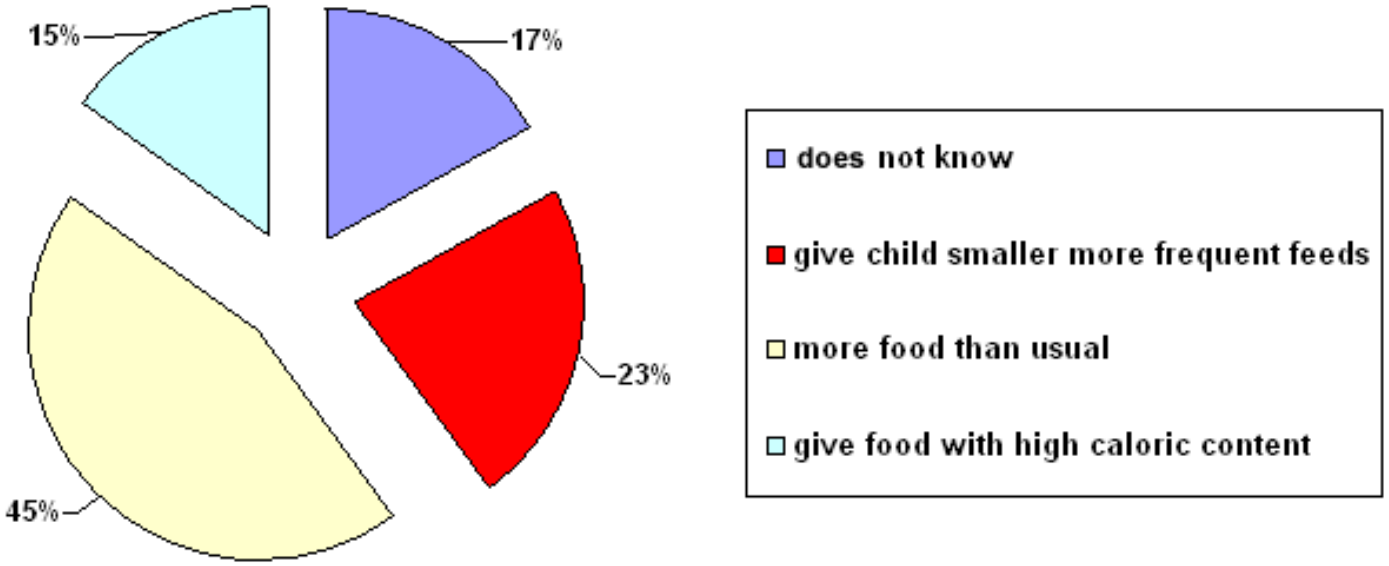


Fig (5): Action taken when the child is recovering from diarrhoea

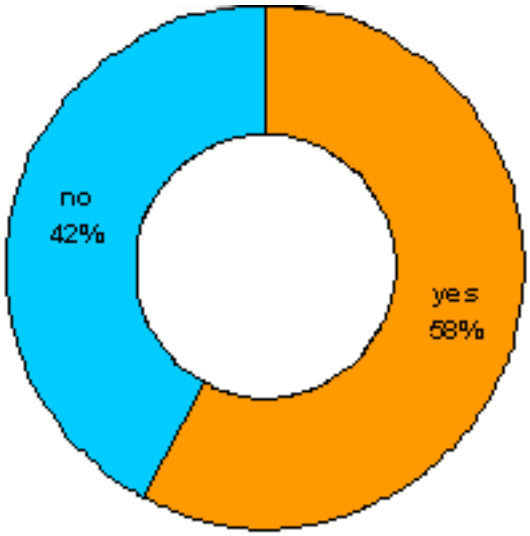


Fig (6): Evidence of infants illness with cough or difficult breathing in the last two weeks.

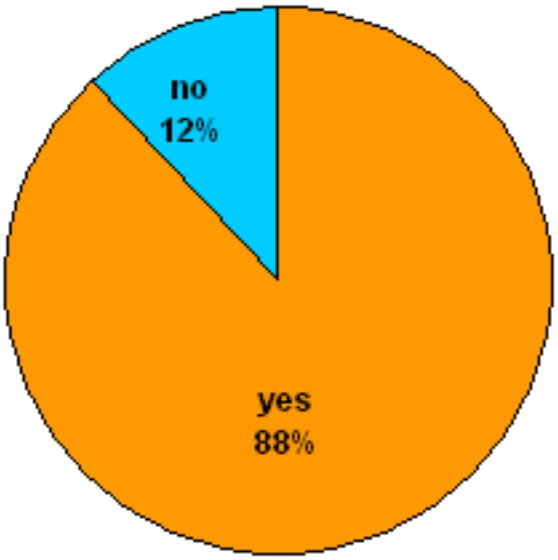


Fig (7): Seeking advice or treatment for the infants when ill with difficult breathing.

Table 17. Source of advice and/or treatment when child is suffering from difficult breathing.

Source of advice	No.	%
General hospital	187	42.50
Health center	132	30.00
Private clinic	42	9.50
Pharmacy	27	6.10
Village health worker	18	4.09
Traditional healer	12	2.72
Traditional birth attendant	6	1.36
Relatives and friends	16	3.63
Total	440	100.00

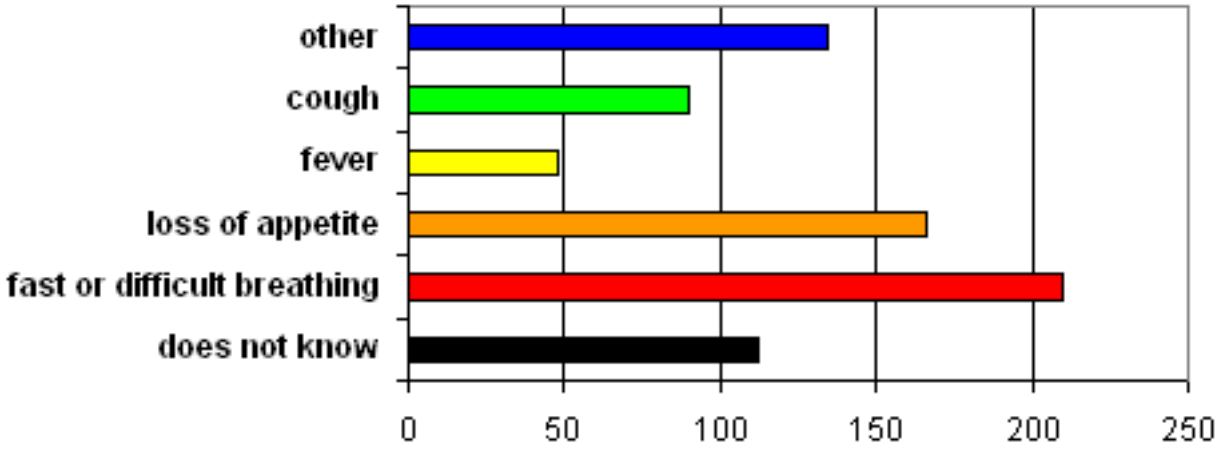


Fig (8): The reason for taking the child to a health facility.

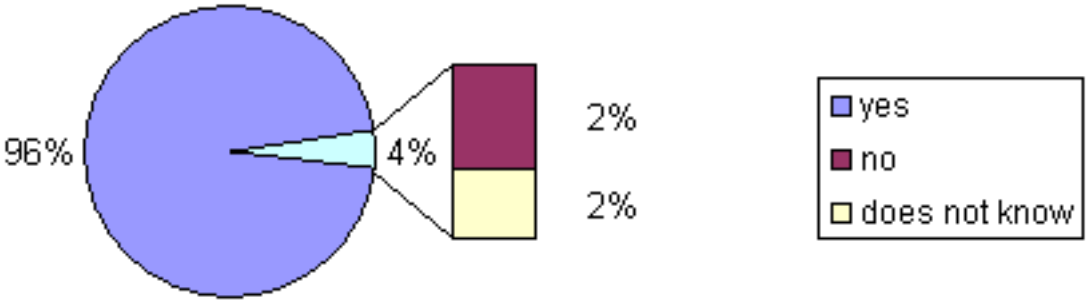


Fig (9): Evidence of receiving immunization by the child.

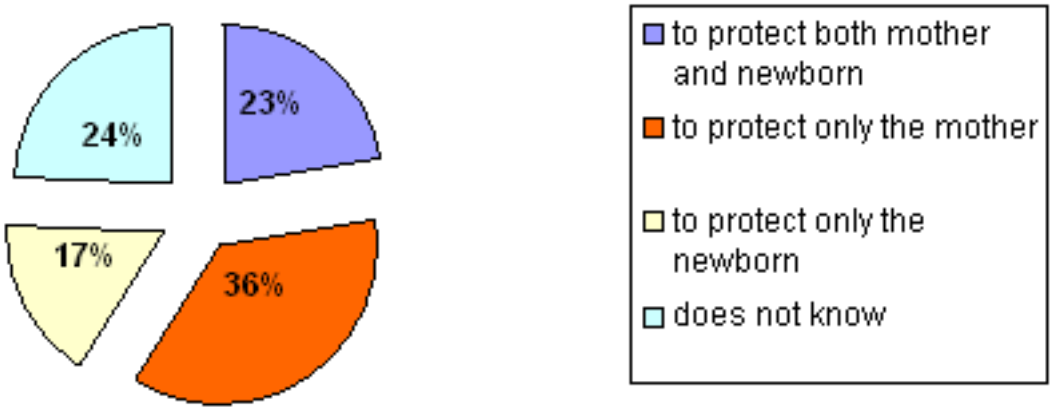


Fig (10): Knowledge of the reason women need immunization against tetanus.

Table 18. Knowledge of the number of immunizations the pregnant women needs for protection.

Knowledge	**No.**	**%**
one	172	22.63
two	140	18.42
more than two	110	14.47
none	194	25.53
does not know	144	18.95
total	760	100.00

Table 19. Presence of immunization card for the child

Presence of card	No.	%
Available	630	82.89
Not Available	130	17.11
Total	760	100.00

Table 20. Presence of Maternal card.

Presence of card	No.	%
Present	374	49.21
Absent	386	50.79
Total	760	100.00

Table 21. No. of Tetanus Toxoid vaccination in the maternal card

Times	No.	%
one	190	50.80
two	164	43.85
none	20	5.35
total	374	100.00

Table 22. Presence of space to record antenatal care visits

Presence	No.	%
yes	356	95.19
no	18	4.81
total	374	100.00

Table 23. Evidence of recording mother's antenatal visit

Evidence	No.	%
one	136	38.20
two or more	218	61.24
none	2	0.56
total	356	100.00

Table 24. Evidence of current pregnancy.

Evidence	No.	%
Present	136	17.89
Absent	624	82.11
total	760	100.00

Table 25. Evidence of desire to become pregnant in the next 2 years.

Evidence	No.	%
Present	340	54.48%
Absent	225	36%
Does not know	59	9.5%
total	624	100.00

Table 26. Usage of methods to avoid pregnancy (contraception).

Usage of contraceptives	No.	%
Present	264	86.84
Absent	40	13.16
total	304	100.00

Table 27. First time of visiting health professional after getting pregnant.

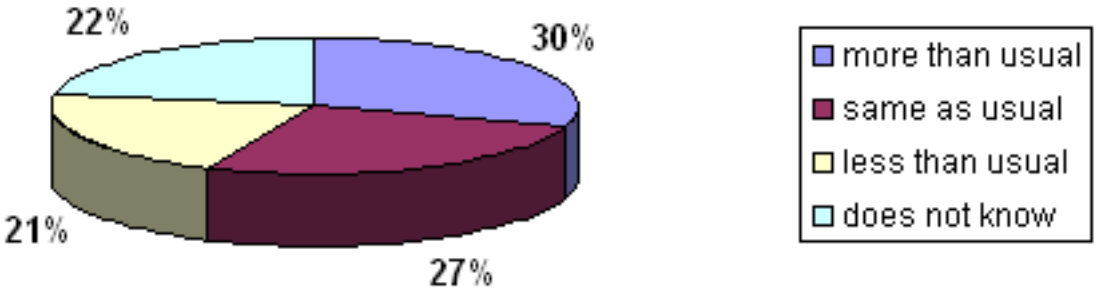
Type	No.	%
first trimester 1-3 months	154	20.26
middle of pregnancy 4-6 months	234	30.79
last trimester 7-9 months	250	32.89
no need to see health professional	64	8.42
does not now	58	7.63
total	760	100.00

Table 28. Knowledge of types of food that are beneficial for pregnant women to prevent anaemia.

Knowledge of type of food	No.	%
Does not know	184	24.21
Proteins rich in iron (egg, fish, meat)	340	44.74
Leafy green vegetables	236	31.05
total	760	100.00

Table 29. Knowledge of how much weight a women should gain during pregnancy.

Knowledge of weight	No.	%
10-12 kg.	174	22.89
gain weight of the baby	374	49.21
does not know	212	27.89
total	760	100.00



Fig(11): Amount of food taken during pregnancy.

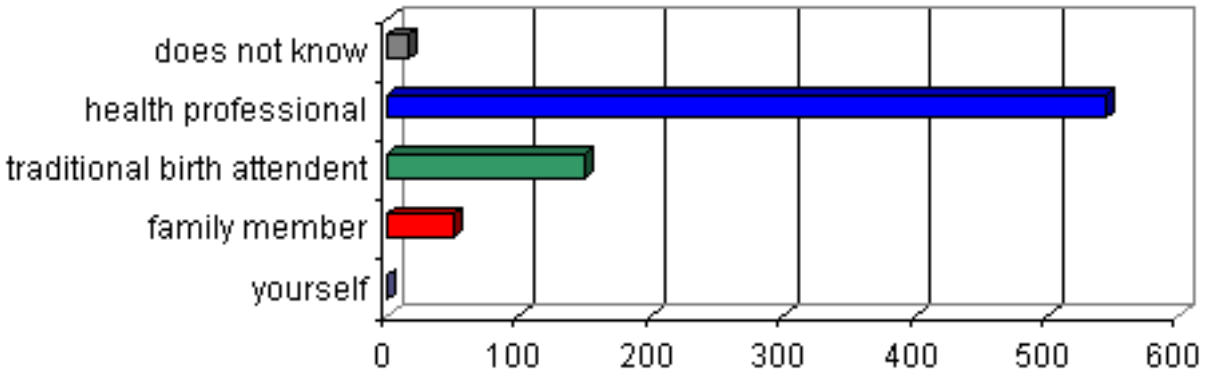


Fig (12): Knowing the person who tied and cut the cord during delivery.

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Is it a proper referral form?

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ABSTRACT

Background: The diabetic clinic at King Faisal Hospital is a referral clinic. Referral is an important process between the Primary health centers (PHCs) and hospitals. It is a two way process. The referral form is a request written by the primary health center physician and sent to the specialist clinics. The referral form contains data about the patient regarding his/her current illness.

Objective: To evaluate and compare the data contained in the referral forms sent by primary health care center's physicians to the diabetic clinic in comparison with that adopted by the American Diabetes Association (ADA) and the recommendations adopted by the quality assurance of primary health care committee (Ministry of Health -KSA-1992).

Method: Four hundred and thirty (430) referral forms were collected during the period of Jan 2002- Dec 2003. The sample was stratified into 16 classes according to the primary health care centers. A total of 215 referral forms were selected by random simple systemic method (2:1) from each class. Each form was reviewed; information in each form was analyzed. Data were classified into two parts; administrative and medical. A scheme containing the standard information required, was designed. Degree of performance in each part was calculated.

Result: Two hundred and fifteen (215) referral forms were randomly selected (89 male and 126 female). Administrative performance was 94.18% and the medical performance was 22.48% (P-value <0.0001)

Conclusion: The referral form is an important tool and needs great attention and regular review to evaluate its components and its efficacy.

INTRODUCTION

Referral of a diabetic patient is not just a form full of unnecessary data, but it is a work of art representing the most valuable data, which can help the patient when he/she met the specialists. Referral is an important activity. The long journey with diabetes can be interrupted by inappropriate referral forms. For example, ignoring the emotional reaction to the diagnosis of diabetes or one of its complications can affect the process of gaining medical data from the patients.

The referral process is initiated by the Primary Health Care Centers (PHCs) physicians. The aim of the referral system is to request help in the diagnosis or management of health problems which failed to be solved at the level of the PHC center. The referral form should be clear and complete. It should be filled out by the physician or trained medical staff. The referral form is given to the patients or to the accompanying medical staff in case of urgent referral.

PATIENTS AND METHODS

Four hundred and thirty referral forms were collected between Jan 2002-Dec 2003 (178 male and 252 female). The sample covered all Gurayat primary health care centers.

The sample was stratified according to the number of the PHCs, into 16 classes [table 1]. From each class a randomized selection was performed, using the simple systemic method at ratio of 2:1.

Two hundred and fifteen referral forms were selected (89 male and 126 female). Data written in the referral forms was classified into two parts; administrative and medical. A scheme of standards required to be filled in the referral form was designed depending on the standards of medical care of diabetic patients published on the Annual Medical Recommendation 2004, by the American Diabetes Association and the recommendations published by the Quality Assurance in primary health care manual produced by the Quality Assurance committee of the

Saudi Ministry of Health in 1992 .

The designed Scheme contained the following points:

Administrative section:
This section covers the following points:
Name of the PHC center, Patient name, Family medical record number, Direction of the referral, Date of the referral and Name with signature of the physician

The Medical section covers the following points:
1. Personal history: (name, age and sex)
2. Chief complaints
3. Medical history: (present illness, relevant past history either medical or surgical, family history, social history, diet history, physical activity history, drug history and reproductive history)
4. Investigation: (recent investigations, previous 3 fasting blood glucose tests results or previous HbA1c results if available, history of previous abnormal investigations - dates and action taken)
5. Examinations include recent examinations related to diabetes, previous positive examinations related to diabetes.

Performance on each part was calculated using home personal computer statistical software.

RESULTS

Two hundred and fifteen (215) referral forms were reviewed (89 male, 126 female), the administrative part was filled in 94.18% of the sample while only 22.48% of the sample filled the components of the medical part [table 5&6). None of the selected sample contained data about history of physical practices or foot examination (Table 2).

Diet history and its pattern were found only in 0.01% of the sample (3 patients). None of the referral forms included the height of the patient (0%) ,while only 8 referral forms included weight of the patient (0.037%) (Table 3).

While blood pressure was an important variable on the diabetic patient referral forms, blood pressure was recorded in 157forms only (73.02%) (Table 4).

Only twelve patients (0.05%) were referred urgently while 177 patients (82.32%) were electively referred and 26 patients (12.09%) were not titled (Table 5).

DISCUSSION

A referral form is the mirror which reflects the picture of the diabetic patient at the level of primary health care. Usually the PHC medical team has social interactions with the patients. This distinct relation if organized and utilized in a proper manner will provide great help and facilitate the patient referral process to a specialist consultation [1].

In our study, we planned to answer the following questions:

Did the referral forms reflect the state of the diabetic patient at the moment of referral?

Is the information (administrative and medical) clear and complete?

Analysis of the information included in the referral forms proved that the administrative part is sufficiently performed (94.18%) while the medical part is not performed properly (22.48%).

The great difference between the administrative and medical performance was very obvious (71.7%). This difference related to different causes, some related to the person filling out the referral form; others to the patient; and others were varied reasons.

The skill of history taking was decreased in some physicians due to different reasons. Little chance for attending training workshops or courses greatly affects physicians, particularly those who work in remote areas. Only 21.39% succeeded in take the medical history in a proper manner while only 36.74% succeeded in writing the chief complaints of the patient, properly [2].

Only 63.26% wrote the diagnosis instead of the patient complaints, in the place where they should have written the complaints [2].

Variability of health programs at the level the PHCs, limit the time given to the care of chronic diseases, so the medical care team may forget /neglect important clues in the patient history or examination [1]. Both history of physical activity and foot examination were not included in any referral form reviewed, while only 3 forms contained data about diet [3,4].

The term of body mass index (BMI) was not used in any referral form, even height was not recorded in any referral form while weight was recorded in only 8 forms. The body mass index is an indicator for obesity which is a very important risk for the development of diabetes, or it can affect the degree of control or even facilitate the developing of chronic complications of diabetes [5].

Deficiency of medical equipment may be taken as a cause of decreased medical performance, but in our study, we found that lack of interest is stronger explanation.

Some components of the medical performance does not need special investigation, like foot examination. Diabetic foot problem are a preventable condition as long as foot care is continuously encouraged. Annual foot examination should be performed by PHCs physicians, or by trained staff and trained patients at home [3, 4]. Poor interpretation of the type of referral and contrast between the contents of the referral form was noticed in 0.03% of our sample (data included in the referral form was not correlated with the type of referral).

Of our sample, 82.32% were electively referred. These patients can be managed easily at the level of PHCs. In 40% of the electively referred patients physicians stated clearly that the referral was made upon request of the patient (the manual of Quality Assurance of PHC allow only =<5% of the patients to be referred by their own request) [1].

Disturbance of the patient-doctor relationship and the growing of negative feelings between them, force the patient and the doctor to use this system in an inappropriate manner [6].

The bad compliance of the patients was responsible for false data registered in the referral form [6]. Some patients do not give a true picture of their illness or their drug regimens or the duration of fasting required for their investigations. Illiteracy and lack of health education may make the history taking or examinations very difficult processes [7]. Circulating wrong beliefs among the community about the examinations or investigations will affect the accuracy of data presented in the referral form. Some patients believe that blood withdrawal for investigations is a harmful process, so better to avoid it. Under this belief they may refuse to do any blood investigations or pretend to have self monitoring system at their homes and gave imaginary results. Others avoid regular investigations to escape facing the fact that their blood glucose is not controlled. Regular investigations are an important clue in helping the PHC physician reflect the real picture about the degree of control of his/her patient [8].

Speaking about diet is a very difficult activity in the PHCs especially if there is not a dietitian responsible for this job. Analysis of the local food and commenting on its suitability for diabetic patients is another difficult job, needing a trained person. Diet control is on of the important components of management of diabetes [9]. Only 3 doctors in our sample gave details about diet and its efficacy in controlling their patient.

Physical activity is another component located beyond the thinking of the PHCs physicians. None of the referral form contained any data about this part of management, although physical activity was proven to decrease the level of blood glucose in diabetic patients [10,11].

Blood pressure is also an important sign which needed careful observation. Elevated blood pressure is a high risk factor for development of coronary heart diseases in diabetics or being a component among the other components needed to develop an insulin resistance syndrome [12,13,14]. Systolic blood pressure is using as a component in many charts designed to calculate the predictive risk rate to develop coronary artery diseases in future [12].

The better efficiency at the administrative part was due to the fact that regular observation and inspection focuses on this part mainly. Sometimes this part was filled by non- medical staff, so both medical and non-medical staff checked this part before the referral was sent to the specialists. This part is given top priority over the medical part [15].

A concept that the medical part will be reviewed again by a specialists or consultants is common among PHCs physicians and that may make them less accurate in filling out the medical data, but for the administrative part, it will not be checked again due to differences in medical records.

CONCLUSION

The referral forms did not reflect a clear picture of the patients referred, and marked deficiencies in the medical part of the referral form were noticed while the administrative part was sufficiently performed.

RECOMMENDATION

Training programs should be encouraged. Selective training workshops should be organized and strong health education should be initiated. Regular inspection and evaluation of a random sample of the referral forms will reflect mistakes and allow physicians to improve themselves. Special referral forms for diabetic patients should be designed.

Table 1. Classes* of the selected sample.
*Each class represents a Primary Health Care center

Class (16)	Male (89)	Female (126)	Total (215)
1	3	1	4
2	0	1	1
3	1	1	2
4	3	1	4
5	1	3	4
6	3	3	6
7	2	4	6
8	15	11	26
9	7	8	15
10	12	7	19
11	16	17	33
12	4	20	24
13	12	15	27
14	2	6	8
15	5	3	8
16	3	25	28
Total	89	126	215

Table 2. Analysis of administrative data.

Average score	Clearance of hand writing	Referring Physician name	Date of referral	Direction of refer	PHC name	Family record number
94.18%	190 forms 88.3%	215 forms 100%	200 forms 93%	215 forms 100%	215 forms 100%	178 forms 82.79%

Table 3. Performance in medical part:

Average score	Foot care	Physical history	Diet history	Current therapy	Physical examinations	Medical history	Chief complaint
22.48%	0 forms 0%	0 forms 0%	3 forms 0.014%	107 forms 49.7%	107 forms 49.7%	46 forms 21.3%	79 forms 36.7%

Table 4. Analysis of vital signs and physical signs

Respiratory Rate	Temperature	Pulse	Blood press ure	Height	Weight
41 forms 19.06%	110 forms 51.16%	109 forms 50.69%	157 forms 73.02%	0 forms 0%	8 forms 0.037%

Table 5. Analysis of types of referral

Not stated	Elective	Urgent
26 forms 12.09%	177 forms 82.32%	12 forms 0.059%

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Diabetes Mellitus and Angiotensin Converting Enzyme Inhibitors

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INTRODUCTION

Diabetes mellitus is one of the diseases that affect different systems in the body. The kidneys are an example for those organs affected by diabetes. The longer the duration of the disease, the more effects on the body organs. Diabetic nephropathy is a term used to define the kidney affected by diabetes. Microalbuminurea is the early manifestation of diabetic nephropathy. Angiotensin Converting Enzyme inhibitors (ACEI) were the first class of antihypertensive drugs shown to reduce the vascular complications among diabetics, independent of blood pressure reduction [1].

The reno-protective effects of ACEIs were not only beneficial to those with overt nephropathy (stage of macroalbuminuria), but also extend to cover those with incipient nephropathy (stage of microalbuminuria) even if they were not hypertensive [2]. Slow deterioration in renal function should not discourage the use of ACEIs in patients with renal insufficiency [3]. On the other hand a rapid progressive rise in Serum Creatinine following initiation of ACEIs should prompt the immediate discontinuation of the agent and further evaluation of the patient for advanced renovascular disease [3]. The development of orally active Angiotensin Receptor Blockers (ARBs) has been added as an alternative method to inhibition of the effect of angiotensin II.

Several effects of ACEIs that may contribute to renal protection and have been related to the association of rise in Kinins which is also responsible for some of the side effects associated with ACEI therapy, such as dry cough [4]. The renal protection effect is related to the antihypertensive effects in normal and hypertensive patients, renal vasodilatation resulting in increased renal blood follow and dilatation of the efferent arterioles.

The objective of this article is to highlight the points which are not known by most physicians using the ACEIs, such as the history of ACEIs and the base evidence for the use of this group of medications.

HISTORY OF ANGIOTENSIN CONVERTING ENZYME INHIBITORS:

In 1954,Skeggs and co-workers start to recognize substrates participated in the physiology of the renin-angiotensin system [5].

In 1956 Skeggs et al potentially purified the enzyme responsible for conversion of the inactive Angiotensin I to the active vasoconstrictor angiotensin II in the presence of chloride ion from horse plasma [6].

In 1965, Ferreira showed that non-toxic ethanol extract of the venom of Brazilian viper- Bothrops Jararaca- potentiated smooth muscle contraction, hypotension and increased capillary permeability induced by bradykinin [7]. A few years passed before it become clear that Angiotensin Converting Enzyme was bradykininase inhibited by the Bradykinin potentiating factor (BPF). In 1968, Bakhle reported that BPF was a potent inhibitor of angiotensin converting enzyme of dog lung homogenate, and the long delayed purification of the active components of BPF was initiated by two groups [8]. The first one led by Ferreira in 1970 [9] and the second group was led by Ondetti in 1971 [10]. Structure-activity correlation among analogs of BPF suggested that these snake venom peptide inhibitors compete with substrates for binding to the active site of ACE.

In early 1974, the efficacy of converting-enzyme inhibitors as antihypertensive drugs had been demonstrated, but it was early to be presented in an oral form for use in chronic therapy. In the early 1980, the effort succeeded, by Squibb to develop the oral form and receive approval from the FDA [11] .Captopril was the first ACEI to appear in the market with a trade name - Capoten [11]. Since that date a series of discoveries of other members of the group of ACEIs started to appear, and in which there were differences in pharmacokinetic activity.

PHYSIOLOGY OF ANGIOTENSIN-RENIN-SYSTEM (ARS):

The Angiotensin-Renin-System (ARS) is located mostly in our kidneys. The system plays a major role in maintaining blood pressure, fluid and electrolytes in our body [12,13]

The system is composed of two parts. The first is the functional part which contains the hormones and enzymes that mediate the functions of the system. The second part is the anatomical part which contains the anatomical structures. (Figure 1)

A) The functional part:

Renin:
Renin is a glycoprotein synthesized as long preprohormone

with 406 amino acid residues. The active Renin contains 340 amino acid residues and primarily and exclusively is produced by the kidneys. The active renin is formed in the secretory granules of the Juxtaglomerular cells in the kidneys.

The function of the renin is to split Angiotensin - I from Angiotensinogen or the Renin substrate [14].

Angiotensinogen:
Is a protein synthesized in the liver .It is composed of 453 amino acid residues with a characteristic 32 amino acids signal sequence that is removed in the endoplasmic reticulum [15].

Angiotensin I:
Is a physiologically inactive decapeptide produced by splitting Angiotensinogen by Renin [15].

Angiotensin II:
Is a physiologically active octapeptide known previously as Hypertensin or Angiotonin. Its half life is 1-2 minutes [15].

Angiotensin III:
Is a physiologically active heptapeptide resulting from metabolism of Angiotensin II [15].

Angiotensin Converting Enzyme (ACE) or Kininase II:
Is a dipeptidyl carboxpeptidase that converts Angiotensin I to Angiotensin II [15].

The Bradykinin which is one of the vasodilator hormones is inactivated by the same enzyme. Most of the converting enzyme that forms Angiotensin II in the circulation is located in endothelial cells [16]. Most of the conversion occurs as the blood passes through the lungs. Conversion also occurs in many other parts of the body.

Angiotensins have different functions in the human body (Table 1).

B) The anatomical part:

Angiotensin II receptors [17]:
There are at least two classes of Angiotensin II receptors (AT).One of them is the Angiotensin recptor 1 (AT1).The gene for this receptor is located on chromosome 3. The other receptor (AT2) is less important than the previous one. Its gene is located on chromosome X. The effect on the same receptor may differ from tissue to tissue. An example of this is the AT1 receptors in arterioles and AT1 receptors in adrenal cortex .They are regulated in opposite ways. An excess of angiotensin II will down regulate the vascular receptors but up regulate the adrenal cortical receptors making the gland more sensitive to Aldosterone stimulating effect. AT1 receptor is classified into two subtypes. AT1A is located mainly in the blood vessel walls, the brain and other organs. It mediates most of the known effects of Angiotensin [18].

The AT1B is found in the anterior pituitary and the adrenal cortex.

AT2 receptors are more plentiful in fetal and neonatal life, but they persist in brain and other organs in adults. AT2 receptors are important in fetal kidney development, modulation of pressure-natriuresis,angiotensin II-induced renal production of nitric oxide and renal conversion of prostaglandin E2 to prostaglandin F2alpha [19]. In addition, experimental evidence suggests that AT2 receptors may counterbalance some of the effects mediated by AT1 receptors.

The juxtaglomerular apparatus:
Renin is produced by the juxtaglomerular cells. These cells are epitheloid cells located in the media of the afferent arterioles as they enter the glomeruli. It is also found in granular Lacis cells that are located in the junction between the afferent and efferent arterioles.

The macular densa is a modified region of tubular epithelium located at the beginning of the distal convoluted tubule in proximity to the juxtaglomerular cells.
The juxtaglomerular cells in combination with macula densa cells are called the juxtaglomerular apparatus.

How is the Renin-Angiotensin-System stimulated in diabetes mellitus?
Diabetic patients need to stimulate their sympathetic nervous system more than non diabetics, due to their need to:

- increase the secretion of insulin from the beta cells through stimulation of beta2 receptors.
- dilate the renal arterioles through stimulation of beta 1 & 2 receptors.

Why do diabetics need to dilate their renal arterioles?
Diabetes as a multisystem disease has different progressive effects on human body organs. The kidneys are one of these. Different pathological changes occurr in kidneys. The sum of these pathological changes may lead to deterioration of renal functions due to vascular and interstitial changes (Figure 2).

The renal affection in diabetes will stimulate the Angiotensin-Renin - System (ARS). Deterioration of diabetes control itself will add more to the degree of

stimulation of the ARS.

In addition recent research has found that the tissue ARS can be present in abundance in some tissues such as adipose tissue. Investigation of Angiotensin in adipose tissue began in 1987 when Angiotensin-mRNA was found in peri-aortal brown adipose tissue and in cells found within the rat aorta wall [20]. Also recent studies showed solid evidence for the existence of an intrinsic Angiotensin generating system in the pancreas s.Recent epidemiological data showed that administration of ACEI in hypertensive patients may exert a protective role in prevention the occurrence of diabetes [21]. This fact explains why some antidiabetic drugs such as Thiazoladinodiaone can decrease blood pressure in obese diabetics when used.

ACEI in the recommendations of the international health bodies:

The clinical recommendations and the guidelines of many medical and diabetic societies or associations include the recommendation of using ACEI in diabetes.

The European Society of hypertension-European Society of cardiology guidelines for the management of arterial hypertension indicates the use of ACEI in the following conditions:

- Congestive heart failure, left ventricular dysfunction
- Post-myocardial infarction
- Non- diabetic nephropathy
- Type 1 diabetic nephropathy, proteinuria

But they indicate Angiotensin Receptor blocker in the following conditions:

- Type 2 diabetic nephropathy
- Diabetic microalbuminurea
- Proteinuria
- Left ventricular hypertrophy
- ACEI induce cough

Superiority of ACEI in preventing the aggregate of major cardiovascular events is limited to two trials, one against diuretics/beta blockers and the other against Calcium antagonists.

Canadian Hypertension Education Program recommendations.

ACEI is recommended as initial therapy for the following conditions:

- Diabetes mellitus with nephropathy
- Diabetes mellitus without nephropathy
- Angina
- Prior myocardial infarction
- Heart failure
- Post cerebro-vascular accident or transient ischaemic attack
- Renal disease
- Left ventricular hypertrophy

The American Diabetes Association (ADA) clinical recommendations.
The ADA state that all diabetic patients older than 55 years with or without hypertension, but with another cardiovascular risk factor (history of cardio-vascular diseases, dyslipidaemia, microalbuminuria or smoking) an ACEI should be considered.

Combination of ACEI and ARBs can be used in treatment of albuminuria and diabetic nephropathy.

The 7th report of the joint national committee on prevention, detection, evaluation and treatment of high blood pressure.
This report indicates the use of ACEI in the following conditions:

- Hypertension with acute coronary syndromes (unstable angina and myocardial infarction)
- Post myocardial infarction
- Heart failure
- Diabetic hypertension
- Chronic kidney disease. Limited increase in serum creatinine of as much as 35% above the baseline with ACEI or ARBs is acceptable and should be a reason to withhold treatment unless hyperkalaemia develops.
- Cerebrovascular disease.

Management of high blood pressure in African Americans.
All antihypertensive drug classes can be used by African Americans to lower their blood pressure. in terms of efficacy, there is no rationale for using race as a reason to avoid certain classes of agents in African American patients with high blood pressure. When prescribing ACEI for blacks, clinicans should note that compared with whites, African Americans appear to be at increased risk for ACEI associated angioedema or cough or both.

Clinical trials assess the use of ACEI in diabetic and non diabetics:
In these trials, patients with type 2 diabetes mellitus have been randomized to receive ACEI as initial therapy and to compare the outcome of these patients with the other group receiving other antihypertensive drugs.

- The UK prospective diabetes study (UKPDS-1998)

compared the effect of Captopril versus Atenolol [22]

- Micro-Hope Diabetic substudy (2000) of the larger heart outcomes prevention evaluation study [23] compared the use of Ramipril versus placebo.
- The Appropriate Blood Pressure Control in Diabetes (ABCD-1998) trial [24] compared the use of Enalapril versus Nisoldipine
- Captopril Prevention Project (CAPPP-2000) compared the use of Captopril versus diuretic or beta-blockers [25]
- Fosinopril versus Amlodipine Cardiovascular Events Trial (FACET-2000). This trial compared the use of Fosinopril with Amlodipine [26].

CONCLUSION

Angiotensin Converting Enzyme inhibitors are a class of antihypertensinve drugs which should be recommended for use by all diabetic patients, especially those with type 2 diabetes mellitus. It can also be used as a renal protective drug.

Figure 1. Components of the Angiotensin-Renin-System

Functional part	Anatomical part
• Renin • Angiotensinogen • Angiotensin I • Angiotensin II	• Angiotensin receptor s (AT1A,AT1B,AT2) • Juxta-glomerular apparatus

Figure 2. Pathological changes due to diabetes specific to kidneys:

- Nodular glomerulosclerosis described by Kimmelstiel and Wilson.
- Thickening of afferent ranal arterioles
- Diffuse glomerulosclerosis

Table 1. Function of Angiotensins

Angiotensin I	Angiotensin II	Angiotensin III
• Precursor of Angiotensin -II	• Arteriolar constriction (4 – 8 times as active as Nor-epinephrine) • Increase the secretion of Aldosterone • Facilitation of the release of Nor-epinephrine • Contraction of mesengial cells with resulted decrease in glomerular filtration rate. • Direct effect on the renal tubules to increase Sodium reabsorbtion • Decrease the sensitivity of the baroreflex on the brain and this potentiates the pressor effect of Angiotensin II • Act on the brain to increase water intake • Increase the secretion of vasopressin and ACTH	• 40% pressor activity of Angiotensin II • 100% of Aldosteron-stimulating activity.

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Human chorionic gonadotrophin induced Hyperemesis and Hyperthyroidism in Pregnancy

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ABSTRACT

A 33 year old female with a singleton pregnancy presented with hyperemesis gravidarum at 6 weeks gestation in her second pregnancy. Thyroid function tests revealed biochemical hyperthyroidism. After multiple admissions to the hospital, her hyperemesis settled with conservative management and thyroid function tests returned to normal at 10 weeks without any antithyroid treatment. Hyperthyroidism secondary to b hcg is a recognized occurrence. It is something to consider when admitting a patient with hyperemesis as hyperthyroidism worsens and mimics signs of hyperemesis.

CASE REPORT

33 year old gravida 2 para 1 was referred by her general practitioner at 6 weeks of gestation with severe nausea and vomiting. She was dehydrated, unable to tolerate fluids orally and had diminished urine output with ketonurea. There was no abdominal pain, bowel or urinary symptoms. Thyroid function tests showed TSH<0.5 (normal 0.4-6) and elevated free T3 and T4. Full blood count, and urea and electrolytes were within normal limits. Ultrasound scan showed a singleton pregnancy consistent with her dates. She was clinically euthyroided. Thyroid peroxidase antibodies were normal. She was managed with intravenous fluids and antiemetics. The medical team advised conservative management of her hyperthyroidism. Despite a further admission, which was managed conservatively, by 10 weeks gestation her thyroid function tests returned to normal.

A symposium of her thyroid function tests is given below:

TSH(0.4-6)	free T4(9-26pmol/l)	free T3(2.5-5.5)
6 weeks <0.5	28.5	5.6
10 weeks <0.5	15.1	4.5

DISCUSSION

Hyperemesis gravidarum is a severe and intractable form of nausea and vomiting in pregnancy. It may result in weight loss; nutritional deficiencies; and abnormalities in fluids, electrolyte levels, and acid-base balance. The peak incidence is at 8-12 weeks of pregnancy, and symptoms usually resolve by week 16. Hyperemesis gravidarum occurs in 0.5-10 cases per 1000 pregnancies. The prevalence increases in molar pregnancies and multiple pregnancies. The cause of severe nausea and vomiting in pregnancy has not been identified. Extreme nausea and vomiting may be related to elevated levels of estrogens or human chorionic gonadotrophin. Hyperemesis is associated with hyperthyroidism, pyridoxine deficiency, and psychological factors.[1]

Thyroid function tests change during normal pregnancy due to the influence of two main hormones, estrogen and human chorionic gonadotrophin. HCG is produced in large quantities during pregnancy, particularly at the end of the first trimester. Due to its molecular similarities with TSH, Hcg weakly stimulates the maternal gland to increase its hormone production and slightly suppress TSH in the first trimester. Estrogen increases the amount of thyroid hormone binding protein in the serum which increases the total thyroid hormone levels in the blood, however free hormone levels usually remain normal.[2]

Assessment of thyroid function during pregnancy should be done with a careful clinical evaluation of the patient's symptoms as well as measurement of TSH and free, not total, thyroid hormones.

Measurement of thyroid autoantibodies may also be useful in selected cases to detect maternal Graves disease or Hashimoto thyroiditis and to assess risk of fetal or neonatal consequences of maternal thyroid dysfunction.[3]

B hcg exists as several isoforms depending on carbohydrate content. Desialated isoforms, which are produced more abundantly in cases of b hcg induced hyperthyroidism, have greater thyrotrophic activity than the commoner sialated isoforms. Therefore, the quality rather than quantity of b hcg is important in the development of b hCG induced hyperthyroidism. This also explains why pregnancy, with high bhCG concentrations comparable to those reported in this case, is not usually associated with thyrotoxicosis.[4]

The incidence of hyperthyroidism in pregnant women has been estimated at 0.2%. Most women have symptoms before pregnancy, but some will demonstrate symptoms for the first time during pregnancy.

The most common cause of hyperthyroidism during pregnancy is Graves disease, which accounts for 85-90% of all cases. Other causes include Sub-acute thyroiditis, Toxic multinodular goiter, Toxic adenoma, TSH-dependent thyrotoxicosis, Exogenous T3 or T4, Iodine-induced hyperthyroidism, and Pregnancy-specific associations: Hyperemesis gravidarum and Hydatidiform mole.[5]

Diagnosis of hyperthyroidism during pregnancy is important because untreated or poorly treated hyperthyroidism can lead to adverse obstetrical outcomes. These include first-trimester spontaneous abortions, high rates of still births and neonatal deaths, two- to threefold increases in the frequency of low birth weight infants, preterm delivery, fetal or neonatal hyperthyroidism, and intrauterine growth retardation. Diagnosis of Graves disease can be difficult because healthy pregnant women may exhibit tachycardia, palpitations, mild heat intolerance, emotional lability, diaphoresis, and warm, moist skin.[6]

For these reasons, diagnosis of hyperthyroidism during pregnancy needs to be made on careful clinical observations and well-conceived laboratory testing.

As most cases of hcg induced hyperthyroxinemia are transient, the thyroid function tests usually return to normal by the second trimester without treatment. However in those women with persistent hyperemesis and hyperthyroxinemia in the second half of pregnancy, antithyroid drug therapy should be considered.[7]

Thyrotoxicosis can exacerbate and mimic the symptoms of hyperemesis. Thyroid function tests should be measured in all pregnant women with hyperemesis and the results should be carefully interpreted.

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Family Medical Centre Patients' Attitudes Toward Senior Medical Students' Participation in the Examinations

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ABSTRACT

Introduction: Examination of polyclinic patients is an invaluable part in student medical education. The aim of this study is to determine the variables that affect patient satisfaction in students' visits.

Methods: 185 patients who attended the Family Medicine Clinic of Uludag University participated in this study and were asked to answer the questionnaire consisting of 13 questions. Variables differed in the observed demographic data.

Results: Among the patients, 92.1% pointed out that students' examinations were helpful. 84.1% of the patients felt confidence in the examination.

Discussion: From this study, according to the collected data, we can say that communication between the patients of our clinic and the students, is satisfactory and therefore, we can also say that most of our patients have positive thoughts about the participation of the students in their examinations. Satisfaction from student participation is high, especially in the group of elderly, married, women, and patients with less education.

Key words: Family Medicine, Patients' Attitudes, Senior Medical Students.

INTRODUCTION

Supporting clinical medical education with primary care experience is an invaluable component in medical students' education. Attitudes of the patient toward being a part of medical education are a very important factor in education quality. In recent years, services have changed from focus on care of hospital inpatients to ambulatory patients. This caused changes in the format of medical education. Patients' attitudes were very positive with participation of medical students in the visits at internal medicine, surgery, and dermatology clinics [1,2,3].

Family Medicine, which forms a big part of medical education, and which has a great role in giving the philosophy of general medicine to the students, is one of the areas where the patient-doctor communication is most put into practice [4,5,6,7]. Observations showed that medical students are accepted generally by the patients [3,8,9,10]. However, advantages and disadvantages of participation of students to the examinations were not clear.

Positive communications between the patients and students have important effects on determining the expectations of the patients [11]. At the same time, training well-educated primary care doctors also has a big importance on constructing the organisation of changing health services and providing good quality healthcare [2,12,13]. This study is designed to observe the attitudes of patients toward participation of senior medical students in their examinations.

METHODS

Uludag University Faculty of Medicine is a university hospital that serves the Marmara Region of Turkey. This study was done at Fethiye Family Medical Centre, where senior medical students do the patient examinations, and it is located in the main building of Uludag University Department of Family Medicine.

The patients who applied to Uludag University Faculty of Medicine Department of Family Medicine and who were seen by students' were included in this study. The patients

whose examinations were completed were asked to voluntarily fill out the questionnaire forms anonymously. Students examined all the patients during their practice. The questionnaire forms consist of 13 questions that contain demographic information, education status, and their opinions about participation of medical students in the examination period.

Senior medical students do a 4-week family medicine rotation, examining the patients before the responsible lecturer. First, medical students introduce themselves to the patient, take the medical history and before the responsible doctor arrives, they finish the examination of the patient. Then, students collect all findings, present them to the responsible lecturer and finally they end the visit together by evaluating the patients.

Statistical analyses, double frequency charts, comparison of the distribution of categorized answers were observed with ki-square. Five pointed Likert scale was used in the questionnaire form and the highest point was given to the most accepted (1 being strongly disagree, 5 being strongly agree). Variation analyses were made to compare the average of the answers to the demographic variables and one-way ANNOVA statistics were made to show the harmony in variables. SPSS 9.0 program was used at all analyses.

RESULTS

A hundred and eighty five people were included in this study. Demographic data are presented on Table 1. 98.2% of the patients stated that the patient examination is a necessity, 1.7% of the patients were undecided, only 0.1% of the patients did not answer this question. Opinions of the patients about student participation in their examinations are summarized in Table 2.

92.1% of the patients stated that participation of the students in their examination was helpful for them, 5.6% of the patients were undecided, and 2.3% of the patients responded that this practice was not useful.

84.1% of the patients felt confident about the participation of the students in the examinations, 9.1% of the patients expressed that they had no idea, and 6.8% of the patients expressed that they did not feel confident in the examinations.

76.6% of our patients expressed that they were not disturbed by the participation of the students, 78.4% of the patients expressed that participation of the students to the examinations did not cause waste of time, and 72.6% of them expressed that this participation did not prevent them from explaining their illnesses; they also expressed that they could easily explain their illnesses.

For the internal reliability of analysed data, Cronbach Alpha index was calculated. Cronbach Alpha, which is a reliability coefficient, was found approximately 80.0% (0.7972). At the same time, it can be said that internal consistency of data is very good because there was not any negative relationship between total correlations and any variables, or total correlation between variables was not very low.

According to the results of ANOVA, there was a meaningful difference between the answers of young and old patients about the idea of patient examination being necessary or unnecessary in medical education. When the ages of the patients increase, response to this subject became more positive (p=.014). Older patients received the highest score (4.857). Middle-aged (30-60) patients (4.796), young (<30) patients received less (4.581) scores. It was also the same for the people who thought that student examinations were helpful (p=.031).

It was noted that gender, which was one of the demographic data, was the most distinctive point regarding the idea of examination of the patients by students as being a necessity in medical education (p=.025). 82.2% of women and 65.0% of men had very positive thoughts about this subject.

When we consider the marital status of the patients, 79.6% of the married patients, 62.5% of the single patients had the thought of practical education being a necessity, and this was found meaningful (p=.042).

The confidence in being examined by students is much higher in patients with less education (p=.033). The thoughts about student examinations of patients being useless is very common in patients with less education (p=.031). This seeming contradiction between these two results may be caused by their low education level. In addition, the effect of education level on explaining illnesses, while students were participating in their examinations, is clear in patients with less education (p=.013).

DISCUSSION

Before medical students graduate, the increased opportunity for communication with patients, and the increased number of interviews and examinations, is a golden opportunity for these students who are going to start their medical professions in the near future. Positive feedback from the examined patients to students is also very motivating for students.

In our study, a large percentage of our patients found the participation of students in clinical examinations very helpful. The percentage of satisfied patients who were

examined by the students is 82.0%. 92.1% of the patients found students' examination useful for themselves and 84.1% of the patients found the examination dependable. This shows that our students have been successful in patient communication.

At the same time, 98.2% of the patients agreed with the concept of patient examination by the students, is a necessity during medical education, 88.8% of the patients agreed with the idea that this kind of education is very useful for the students. 76.6% of the patients were not disturbed by being examined by the students, 78.4% of the patients believe that this was not a waste of time; only 20.9% of patients could not explain their illnesses. This shows that patients are very pleased with the participation of the students in these visits (3). Also, it shows that the patients are ready for this kind of service to help students' education.

When we compare the demographic data of our patients and patients' attitudes, we can conclude that patient attitudes about this kind of education as a necessity in medical education and the increase in opportunity for doing the examinations as helpful, is directly proportional with age. Women, compared to men, believe more in the necessity of practical education, in medical education. Married patients, compared to single patients, also believe in it more. When we consider the education levels, the examination's usefulness seems to increase with decrease in education level. However, the percentage of difficulty in explaining their illnesses and the thought of examination being useless, increased. Our patients with less education may not be able to express their thoughts about this subject totally.

In our study, attitudes of lecturers toward the participation of students in visits were not considered. This could have changed the interaction between the patients and the students, because in our clinic, lecturers evaluate the students.

In the light of data provided by this study, we can say that communication between the patients and the students is satisfactory (5,8,10). The patients felt positive about participation of the students in their examinations. Satisfaction of the elderly, married, women, and patients with less education toward students' services is very high.

In the Family Medicine rotation, which is the last part, shaping medical students' education, working at the outpatient clinics is invaluable. Patients whose positive attitudes toward students are going to make this education best are very important teachers in this period. This study supports that patients should be more active in medical students' education.

Table 1. Demographic characteristics of the cases

Age		
<30	55	30.1%
30-60	114	62.3%
>60	14	7.6%
Gender		
Male	61	33.5%
Female	121	66.5%
Marital Status		
Not married	34	19.7%
Married	130	75.1%
Wife/Husband died	7	4.0%
Divorced	2	1.2%
Education		
Primary school	66	36.1%
Secondary school	28	15.3%
High school	59	32.2%
University	30	16.4%

Table 2. Opinions of the patients about the participation of the senior medical students in their medical examinations

Work questions	I totally agree	I agree	Undecided	I disagree	Absolutely disagree
Patient examination is a necessity in medical education	139 (75.5%)	42 (22.7%)	4 (1.7%)	-	-
Examinations by students were helpful for me	75 (42.4%)	88 (49.7%)	10 (5.6%)	3 (1.7%)	1 (0.6%)
I felt confident about the examinations of the students	72 (41.2%)	75 (42.9%)	16 (9.1%)	9 (5.1%)	3 (1.7%)
Being received by the students made me uncomfortable	8 (4.7%)	15 (8.8%)	17 (9.9%)	85 (49.7%)	46(26.9%)
Examinations of the students were totally useless	4 (2.3%)	11 (6.3%)	8 (4.6%)	83 (47.4%)	69(39.4%)
Being examined by the students made me uncomfortable	11 (6.4%)	12 (7.0%)	8 (4.7%)	74 (43.0%)	67(39.0%)
Examining patients is useful for the education of the students	111 (61.6%)	49 (27.2%)	1 (0.6%)	10 (5.6%)	9 (5.0%)
Participations of the students in the examinations were a waste of time	7 (4.1%)	17 (9.9%)	13 (7.6%)	68 (39.8%)	66(38.6%)
I couldn't explain my complaints because of the participation of the students in my examination	22 (13.2%)	13 (7.7%)	11 (6.5%)	62 (36.9%)	60(35.7%)

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Factors affecting neonatal death in Fars Province, Southern Iran, 2004

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ABSTRACT

Background: Neonate refers to a child in the first 28 days of life. Neonatal death is the third most common factor of mortality in our country. One of the worldwide obligations of our country is to reduce the mortality rate of children under the age of five years, in 2005. So, attention to factors of child death, particularly neonatal death is of importance.

Aim: This study was conducted to determine factors affecting neonatal death in Fars Province, Southern Iran in 2004.

Methods: This descriptive study was carried out on 417 cases of neonatal death in Fars Province in 2004. A questionnaire including reasons for neonatal death was submitted to Fars hospitals and health centers. Any deaths, were recorded in the questionnaire. Collected data was entered into Access Software and was statistically analyzed.

Results: The ratio of death to live births was 6.99/1000 with the mortality of 3.82/1000 was related to prematurity and 1.68/1000 due to congenital malformations.

Also, the age of 85.(13%) of their mothers was between 18 to 35 years and 34.29% of dead neonates were in the first position (? Do they mean prima gravida, ?prematurity ?breech position - I've tried to match it to the data given but it does nor correlate with anything I can see. OK I looked at the tables and it probably means prima gravida BUT the tables have all wrapped around so I cannot tell - do you have them in a better format on the original as the staff will have trouble trying to work them out - even a 'print screen' would do. I've highlighted in blue for you, the areas where these stats are discussed but unfortunately none match the figures given here) of birth, 72.43% of them died in the first week of birth and 52% weighed less than 2500g.

Conclusion: Regarding the high preterm labor or premature neonates and congenital malformations, more attention to care pre and during pregnancy seems necessary. Also, during labor and post labor care, special attention
is required to reduce neonatal death due to injuries during labor and infectious diseases.

Key Words: Fars, Neonatal death, Factors

INTRODUCTION

Annually four million infants die in the first four weeks of life, around the world, while 99% of these deaths occur in low and middle-income countries. The rate of neonatal death is one of the most important health indexes of a country. In 2000, this rate was 2/1000 in Japan, 21/1000 in China, 57/1000 in Pakistan and 18/1000 in Indonesia.[1]

Neonate refers to the first 28 days after birth and neonatal death is one of the biggest health problems, which may be neglected. Annually, 20,000 infants die in Iran and if the estimation of still birth is added, the mortality (from 22 weeks of pregnancy to 28 days after birth) will increase to more than 35000 neonates, so this is considered as the third common factor of mortality.[2,3,4]

The neonatal mortality rate is 18.3/1000 in Iran at present

(2000, DHS) and in spite of the reduction in this rate, in infants and children under 5 years during the last 15 years, neonatal mortality has remained stable and accounts for 50% of deaths in children under 5 years of age.[5] Prematurity, low weight, congenital malformation and infectious diseases are factors affecting neonatal death in Iran.[2,6] The index of neonatal death did not reduce in Fars Province during these years and even an increase was observed in some areas of the province. This index was 16.41/1000 in rural areas of the Province in 2001 and the most common causes were prematurity and malformation.[7] So, this study was conducted to determine the causes and factors affecting neonatal death in the region, for intervention measures and future programs.

METHODS AND MATERIALS

In a descriptive and analytical study, a questionnaire was provided to record and evaluate the causes of neonatal death which were provided for all hospitals and urban and rural health centers from the beginning of the year 2004. The collected questionnaires were sent to the Office of Fars Province Neonatal Death Committee for evaluation and correction and accuracy. Data were entered in Access Software and were statistically analyzed. The population of this study was all dead neonates recorded in Fars Province.

RESULTS

The reasons and factors affecting neonatal death among 417 recorded cases in urban and rural areas are presented in Tables 1-4 and Figures 1-3. In figure 1 the rate is based on births and percentage according to total death. The most common cause of neonatal death was prematurity (57.07%) and the lowest one was low birth weight (3.84%). This frequency is demonstrated in Table 1 and was higher in males.

Figure 2 shows that the highest neonatal mortality rate was in the families whose mother's age was in the age group 18-35. The highest rate of births in 2004 was in this age group.

Table 2 shows neonatal death based on birth order. The highest mortality rate was in the first birth followed by second and third orders respectively. Of course it should be noticed that the first, second and third births (particularly the first) were seen more often. Regarding the importance of neonatal death in the first, second and third orders, they were reported separately in Table 2.

The data in Table 3 showed that 67% of neonatal mortality rates were in the gestational age of 37 weeks in 2004. Although prematurity was recognized as the most important factor of neonatal death in Fars Province, attention and accuracy in completing the questionnaire for causes of death causes would be important. Fig 3 shows neonatal mortality rate in different age groups, from which 30% of neonatal deaths occurred in the first day and 42.45% after 1-7 days. Generally, 85% of neonatal deaths occurred in the first week and 50% in the first 24 hours after birth.[6]

Table 4 shows the relationship between neonatal death and birth weight. 52% of neonatal deaths occurred in the less than 2500 g weight group, whereas, no mortality was seen in 18.5% of neonates in relation to birth weight. 89.69% of births and 81.77% of mortalities were in hospitals showing the high percentage of labor in hospital, which seems reasonable. On the other hand, infants with medical problems are usually admitted to hospitals with the above mentioned causes. The most common cause of death in infants in the present study, was related to the physicians (48.68%); and midwives (47.24%); explaining the mortality rate of the majority of infants in the hospitals. It is notable that 2.88% of dead infants were delivered by untrained personnel. In the present study, it was shown that the percentage of normal labor (62.35%) was more than that by Caesarian section (3.18%).

DISCUSSION

The findings of this study showed that the most common causes of neonatal death were prematurity and malformation, which are similar to the previous studies in Iran and in the world. In relation to this, evaluations on 96,797 cases of neonatal death in 45 countries and 56 studies on 13,685 cases of death in 29 countries, have established seven classifications for the main causes of neonatal death including severe infections, neonatal tetanus, diarrhoea, asphyxia, prematurity and congenital malformation.[8]

The results of the present study used the same classification. It is notable that based upon the above-mentioned classification, in the countries with neonatal mortality rate of 45/1000, more than 50% of deaths have been due to severe infections, neonatal tetanus and diarrhoea, whereas, in the countries with neonatal death less than 15/1000, severe infections covered less than 20% of death causes, and malformations and prematurity were also of importance.[9] Neonatal death occurrence in Iran was affected by four main diseases and disorders including prematurity, low birth weight (which accounted for 71% of deaths), congenital malformations, laboring injuries and infections that were similar to neonatal death causes patterns in developed countries. [1,6,10]

The present study, the comparison between death causes and sex of dead neonates showed that the only difference was between prematurity and infant sex, in which the

prematurity was reported more in males and other death causes were equal in both sexes. These results may be due to this aspect that the [8] females had a more desirable biological capacity during the neonatal period than males.[11] but care was given more for males than females.[12]

It was shown that 85.13% of neonatal deaths occurred in mothers aged 18-35 years. Regarding the marriage age in Iran, these findings do not seem out of place. Also, similar results were obtained from another study conducted in 2002, while the causes of deaths were prematurity and malformation and 79.5% of dead infants had mothers aged 18-35 years and the majority of deaths also occurred in the first birth orders , while in the present study 43.29% of neonatal deaths were reported in the first order too.

In the studies conducted on the direct causes of neonatal death in 2000, it was shown that 28% of neonates had gestational ages less than 37 weeks. It is notable that in the countries with more than 29/1000 of death, the cause by infection was more than prematurity as the cause of death, and prematurity was seen even less in countries with few neonatal deaths, which may be due to concealed deaths due to prematurity in the group with infection.[9,14]

In the present study, 67.14% of infants died in the first 37 weeks of pregnancy, which is similar to international results.

Low birth weight is also one of the indirect and important causes of neonatal death while 18 million low birth weight infants are born annually[14], whereas, only one half of the newborns were weighed at the time of birth[15] and although low birth weight included 14% of newborn infants, this figure covered 60-80% of dead infants.[13] In the present study, it was shown that 52% of neonatal death occurred in [9] weights lower than 2500 g, whereas, 18.46% of dead infants had no recorded weight in this study.

Finally, regarding interventions to reduce neonatal death in the countries with high and stable neonatal deaths and with regards to the results of available studies and the present one, it was shown that programs in remote and low income areas and with, more pregnancies at risk, more attention seems necessary to care for first births and during the first week of birth. More care during the pregnancy period is needed to reduce preterm labor. Hospitals far from the centers with newborn intensive care should be equipped, folic acid administration three months before pregnancy would be beneficial, and equipment and emergency ambulances with portable incubators to transport a newborn to more equipped centers would reduce the risk of mortality rate.

Table 1. Frequency of neonatal death causes in relation to sex in Fars Province, 2004

Sex	**Male**		**Female**		**Total**	
Death cause	No	Rate	No	Rate	No	Rate
		(1000)		(1000)		
Prematurity	15	0.49	7	0.2 4	22	0.3 7
Genetic or Congenital Malformation	12	0.39	4	0.14	16	0.27
Laboring injuries	49	1.6	5	1.75	100	1.68
Low weight	127	4.16	101	3.47	228	3.82
Unknown (missing)	1	0.03	1	0.34	51	0.85
Total	204	6.68	164	5.63	41 7	6.99

Table 2. Neonatal mortality based on the birth order in Fars Province, 2004

Birth order	Frequency	%
1	143	34.29
2	81	19.42
3	77	18.46
4-6	50	12
7-9	15	3.6
Unknown	51	12.23
Total	417	100

Table 3. Neonatal mortality rate based on the gestational age in Fars Province in 2004

Gestational Age	**Frequency**	**%**
Under 34 wks	176	42.20
34-37 wks	104	24.94
37-42 wks	117	28.06
Over 42 wks	10	2.4
Unknown	10	2.4
Total	417	100

Table 4. Neonatal mortality rate by weight, 2004

Weight (g)	Frequency	%
Unknown	77	18.46
Less than 999	3	0.72
999-1499	117	28.06
1500-2499	97 2	3.26
2500-3999	111	26.62
Over 4000	12	2.88
Total	417	100

Fig 1. Frequency of neonatal death causes in Fars Province in 2003.

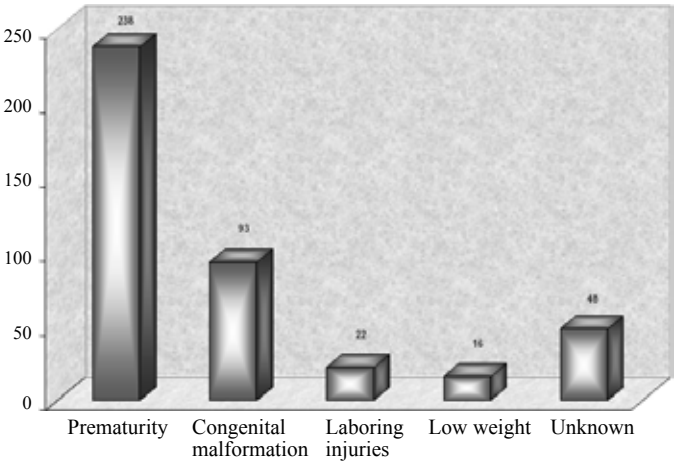


Fig 2. Reported neonatal mortality rate by age of mothers in Fars Province, 2003.

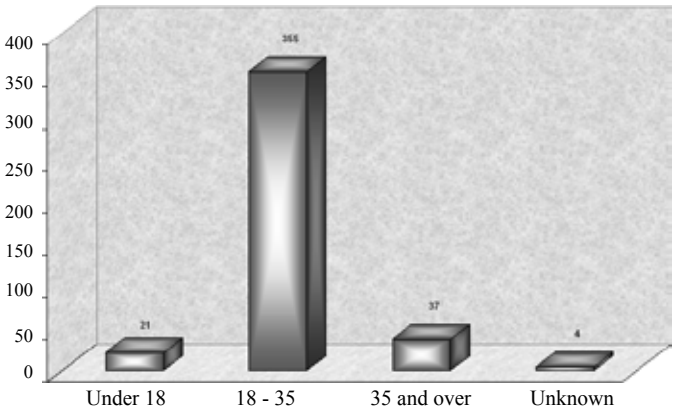
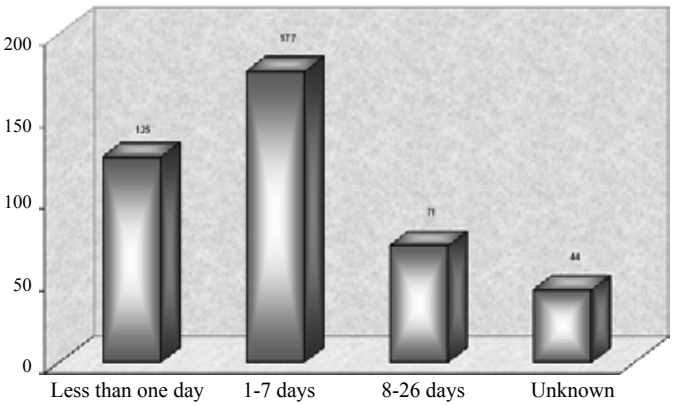


Fig 3. Neontal mortality rate by age in Fars Province, 2003.



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Antibiotics: Friend Or Foe?

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IRAQ

PART 1 - INTRODUCTION

The introduction of antibiotics into medical practice in the 1940s revolutionized man's ability to cure infectious diseases. Now after more than sixty years health practitioners around the world can no longer expect their choice of antibiotic to work. Health professionals are losing the fight against antibiotic-resistant 'super bugs' and few drugs are in development to counter this growing threat.

Resistance occurs as a result of antibiotic use, and we are using tonnes of antibiotics, and every time we use an antibiotic, either in food production or by prescription, we affect not just the person, but also all living organisms and all future organisms. The cavalier use of antibiotics has resulted in the progressive depletion of cost-effective agents from our armamentarium. A dangerous pattern has emerged in which, as a new antibiotic is introduced, there is a rampant overuse or misuse resulting in accelerated development of resistance.

Additionally antibiotics can make us sick. One may ask how could that be possible? Well the answer is simple; all drugs come with adverse effects and antibiotics are no exception.

Antimicrobial agents are associated with side-effects, which are usually tolerated because the benefits outweigh the toxic effects. Clinicians know about these side effects but are likely to understand that additional adverse events, such as the overgrowth of resistant microorganisms can eventuate. Overgrowth itself can precipitate a secondary infection, which can be more difficult to treat. Resistant organisms then spread to other patients and the environment, and contribute to increasing antimicrobial resistance worldwide. Organisms exposed to antimicrobials undergo molecular changes that might enhance virulence. Enhanced pathogenicity would affect the patients, particularly if the organism is also multiply resistant.

But the habits of physicians seem difficult to change. Clinicians have a responsibility to select the correct antibiotic as soon as they diagnose infection, depending on proper culture and sensitivity tests, but lack of access to, or use of, appropriate diagnostic facilities, and slow or inaccurate diagnostic results encourage prescribers of antibiotics, to use them inappropriately. In particular, the lack of accurate tests at point-of-care, to achieve a rapid diagnosis, is a significant problem for many diseases and is an area in which future research could be very beneficial.

Empiric treatment of infections with a reasonably well-defined clinical presentation is more likely to be more appropriate than that of infections with undifferentiated presentation e.g. malaria presenting with fever alone. In this latter situation the differential diagnosis may be wide and therefore empiric treatment protocols will necessarily need to be broad - leading to a higher likelihood of unnecessary antimicrobial therapy.

I can estimate that in Iraq the barefoot doctors prescribe antimicrobials for 60% of all patients seen without diagnostic services. The occurrence of overgrowth, or superinfection, as a direct result of antibiotic consumption, is less well understood by prescribers. It is a travesty to refer to a fact that deaths from acute respiratory infections, diarrhoeal diseases, measles, AIDS, malaria and tuberculosis accounts for more than 85% of the mortality from infection worldwide.

Resistance to first-line drugs in the pathogens causing these diseases ranges from zero to one hundred percent. In some instances resistance to second -and third line agents is seriously compromising treatment outcome.

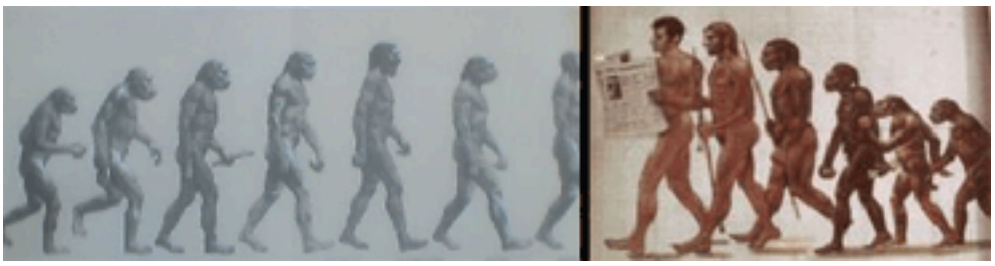
Added to these major killers is the significant global burden of hospital - acquired (nosocomial) infections usually caused by resistant pathogens; the emerging problems of antiviral resistance and the increasing threats of drug resistance in parasite diseases such as African trypanosomiasis and leishmaniasis.

The massive increases in trade and human mobility brought about by globalisation, has enabled the rapid spread of infectious agents, including those that are drug resistant.

While richer countries, to a large extent, are still able to rely on the latest ANTIMICROBIALS to treat resistant infections, access to these life-saving drugs is often limited or totally absent in many parts of the world.

Prevention of infection should be the primary goal to improve health and to reduce the need for antimicrobial therapy. Where appropriate, vaccine uptake should be improved to achieve this.

PART 2 - The History of Medicine



2001 BC	*Here, eat this root.*
1000 AD	*That root is heathen.*
	Here, say this prayer.
1850 AD	*That prayer is superstition.*
	Here, drink this potion.
1920 AD	*That potion is snake oil.*
	Here, swallow this pill.
1945 AD	*That pill is ineffective.*
	Here, take this penicillin.
1955 AD	*Oops....bugs mutated.*
	Here, take this tetracycline.
1960-1999	*39 more "oops"....*
	Here, take this more powerful antibiotic.
2006 AD	*The bugs have won!*
	Here, take this root

- Anonymous

I am very concerned about resistance and believe that every person on the planet should be concerned about it too but now we have a world in which a multiply resistant bacteria can be as dangerous as an inherently virulent one. This is likely to be true when an immune compromised patient, or one who is simply elderly and/or suffering from other chronic diseases encounters an opportunistic, drug insensitive organism, that would be otherwise totally benign.

One may ask what is antimicrobial resistance? Well resistance to antimicrobials is a natural biological phenomenon. The introduction of every antimicrobial agent into clinical practice has been followed by the detection in the laboratory of strains of microorganisms that are resistant, i.e. able to multiply in the presence of drug concentrations higher than the concentrations in humans receiving therapeutic doses. Such resistance may either be a characteristic associated with the entire species or emerge in strains of a normally susceptible species through mutation or gene transfer.

Resistance gene encodes various mechanisms, which allow microorganisms to resist the inhibitory effects of specific antimicrobials. All the antimicrobial agents have the potential to select drug-resistant subpopulations of microorganisms. With the widespread use of antimicrobials, the prevalence of resistance to each new drug has increased. The prevalence of resistance varies between geographical regions and over time, sooner or later, resistance emerges to every antimicrobial. While there is much evidence that support the view that the total consumption of antimicrobials is the critical factor in selecting resistance, the relationship between resistance and use is not a simple correlation. In particular, the relative contribution of mode of use (dose, duration of therapy, route of administration, dosage interval) as opposed to total consumption, is poorly understood. Paradoxically, under-use through lack of access, inadequate dosing, poor adherence and substandard antimicrobials may play as important a role as overuse.

There is a consensus, however, that the inappropriate use of antimicrobial agents does not achieve the desired therapeutic outcomes and are associated with the emergence of resistance. For this reason improving use is a priority if the emergence and spread of resistance is to be controlled. The WHO Global Strategy defines the appropriate use of antimicrobials as the cost effective use of antimicrobials which maximizes clinical therapeutic outcomes, while it minimizes both drug toxicity and the development of antimicrobial resistance. The choice of appropriate antimicrobial agent is straightforward when the causative pathogen(s) is/are are known, or can be presumed with some certainty from patient clinical presentation. However, in the absence of reliable microbiological diagnosis or when several pathogens may be responsible for the same disease presentation, empiric treatment, often with broad-spectrum antimicrobials, should be guided by national or local antimicrobial resistance surveillance data and treatment guidelines.

The reality is often far removed from this ideal. Surveillance of antimicrobial resistance is essential for providing information on the magnitude and trends in resistance and for monitoring for the effect of interventions. Modern techniques have enabled the development and applications of molecular methods to determine the presence of specific resistance genes in microbes. They are widely used to detect genotypic resistance in viruses such as HIV and HBV and, in the future, may form the basis of a system to monitor antiviral resistance. However,

these molecular methods rely on sophisticated technology that is not available in many settings.

The solutions are inappropriate use of antimicrobials, through:

- educating patients and the general community on the appropriate use of antimicrobials.
- educating the patients on the importance of measures to prevent infections, such as immunisation, vector control, use of bednets, etc.
- educating patients on simple measures that may reduce transmission of infection in the household and the community, such as hand washing, food hygiene, etc.

Patient related factors that are thought to contribute to the problem include the following:

- **Patients misinterpretations:** Many patients believe that most infections, regardless of aetiology, respond to antimicrobials and thus expect to receive A PRESCRIPTION FROM THEIR PHYSICIAN for any perceived infection.
- Also many patients believe that new and expensive medications are more efficacious than older agents; this belief is shared by some prescribers and dispensers and often results in the unnecessary use of the newer agents as well as of older agents in their class. Patients commonly misunderstand the pharmacological action of antimicrobial agents. In the Philippines, isoniazide is viewed as a (Vitamin for the lungs) and mothers purchase isoniazide syrup for children (with weak lungs) in the absence of documented tuberculosis. Patients also fail to recognize that many brand names may actually be the same antimicrobial resulting in the unnecessary of overstocking of some agents .For example, specific patients demands caused one pharmacy in south India to stock more than 75 of the 100 or so brands of co-trimaxazole available. Self medication with antimicrobial is often sited as a major factor contributing to drug resistance regardless as to whether the patient's illness will benefit from antimicrobial treatment, also self medicated antimicrobials are often inadequately dosed or may not contain adequate amounts of active drugs, especially if they are counterfeit drugs.
- **Self medication.**
- **Advertising and promotion:** direct-to-consumer advertising allows pharmaceutical manufacturers to market medicines directly to the public via television, radio, print media and the internet. Where permitted, this practice has "the potential to stimulate demand by playing on the consumer's relative lack of sophistication about the evidence supporting the use of one treatment over another" These advertising methods are apparently quite effective, since pharmacists are frequently able to guess the feature advertisements of the previous day 's television programmes based upon daily customer requests for specific medications.
- **Poor adherence to dosage regimens:** in the vast majority of studies, it was the lack of patient understanding and provider communication that led to more instances of non-adherence. Many methods have been used to ensure adherence to antimicrobial therapies. These include the fixed dose combinations to minimize the number of the tablets or capsules, special calendars, blister packing, DOT (directly observed therapy) for tuberculosis, other course-of-therapy packaging using symbols in labeling, and more simplified therapy.

Velocity and Elasticity Curves of pregnancy wastage and Caesarian Deliveries in Bangladesh

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ABSTRACT

The aim of this paper is to investigate the effect of age of mothers as a cause of pregnancy wastage and delivery types. Using the information from 2967 mothers from Rajshahi District within the reproductive span (15-49 years), we have found that the proportion of pregnancy wastage to live births in two ages of reproductive years is tremendously dodgy whereas in other age groups, between 20 and 35, these are comparatively benign. Further, 6717 births were studied to investigate the flow of caesarian deliveries over the ages. We found 359 caesarian deliveries against 6,358 natural (vaginal) deliveries. Some statistical tools were used and the velocity and elasticity curves were drawn to analyze the risk of pregnancy wastage and caesarian deliveries. Our result shows that the risk of caesarian delivery increases with an increased age and this risk expands with age.

Keywords and phrases: Pregnancy wastage, Caesarian delivery, Vaginal delivery, Velocity curve, Elasticity curve, and Polynomial regression.

INTRODUCTION

Pregnancy is a female state that is produced due to the implantation of the fertilized ovum in the uterine endometrium and ultimately giving rise to a foetus; and pregnancy wastage is the loss of product of conception normally or therapeutically (Jeffcoate, 1975). Pregnancy wastage can be classified as intra-uterine foetal death, abortion, and menstrual regulation (Jeffcoate, 1975; and Shaw, Soutter and Stanton 2003). In our study, we have dealt with the normal pregnancy wastage that is not therapeutic.

Every year about eight million women suffer from pregnancy related complications and over half a million die. About 99% of these are in developing countries (WHO, 2004). Most of these deaths can be averted even where resources are limited. The poor reproductive health of women, in third world countries, is an outcome of the general neglect of health and nutrition in childhood and adolescence, which affects their future well being (De Silva, 1998). In 1987 Ardebili, Kamali, Pouranssari and Komarizadeh studied the reproductive behaviour of 1525 pregnant women. The type of pregnancy termination that resulted in live birth or abortion has a significant relationship to the age of the mother. Again, the highest percentage of abortion was observed in (15-19) age group and the highest number of natural deliveries was observed in the age group (20-29).

Khandait et al (2000) examined complications of the reproductive health of married women and envisaged the age factor as a cause of stillbirth, accumulating with other factors. Yasakawa and Tayahashi (1990) observed that the age-specific maternal mortality was rising with age. They also investigated that pregnant women aged over 35 faced more pregnancy complications with high risk. Another study by Breart, Blondel, and Maillard (1987) acclaimed with the risks of late pregnancy for mothers and their births indicated that there was excess risk for mothers over age 35 but the difference is decreasing relative to the general population (mothers before 35). They also found that the risk of mothers over 34 was 3.6 times higher in 1975 and 2.6 times higher in 1983 than for the general population. Study on scheduled caste women of Punjab experienced the least number of abortion and stillbirths in the age group (25-29) and the risk of pregnancy wastage increases with age (Sidhu and Sidhu, 1988). Similar results by Banerjee and Hazra (2004) showed that the rates of pregnancy wastage in two extreme age groups (<20 and 35+) are relatively higher. This evidences indicates that there exists an age-specific relationship of pregnancy wastage and mothers' age.

Further, Kim, Byun, and Lee (1991) studied over 2874 mothers and observed 342 caesarian deliveries against 2532 vaginal deliveries. They included several factors like, education, occupation, residence (big cities, urban,

and rural) and age of mother at birth to explain the delivery status. As to the mothers age at delivery they found that 10.4% of C-section (caesarian sections) were under age 24, 12.1% were in (25-29), and 14.1% were over 30. Thus, there is an increasing trend of C-section with age. But, the exact relationship of pregnancy wastage and caesarian deliveries with respect to their flows over the age of the mother, is still unknown. In this paper, an attempt has been made to investigate the age-specific flow of pregnancy wastage and caesarian delivery.

DATA AND METHODS

Data

The data were collected from a field survey conducted in the district of Rajshahi of Bangladesh. We collected information from 2967 mothers by preparing an open-ended questionnaire. Also, the delivery status of 6717 births were under investigation and our data evaluated only the delivery types (caesarian and vaginal).

Methods

In this paper we have used the logic of equilibrium level of satisfaction, velocity and elasticity curves. The logic of equilibrium has been extensively using in the field of economics especially in demand analyses. The concept of velocity has a greater applicability to the physical sciences and recently it has been used in human biology. On the other hand, elasticity of goods, demand and income elasticity, explain the speed of relative change and replacement (Varian, 2003; Chakravarty, 1997 and Dewett and Chand, 1999).

Equilibrium level of satisfaction

Equilibrium level of satisfaction leads to the intersection of two curves at a particular point. When one curve is downward sloping and the other is going upward from the origin, then both the curves intersect each other at a particular point. At that point values on both the curves are equal. For example, if we consider a demand and a supply curve. Then the equilibrium level of demand and supply attains at the point of their intersection (Varian, 2003, Chakravarty, 1997 and Dewett and Chand, 1999).

Velocity curve

To draw the velocity and elasticity curves we fit the polynomial regression models. The velocity curve is just the first derivative of the fitted polynomial regression line with respect to age (Gasser et al., 1984; Ali and Ohtsuki, 2001; Islam et al., 2003). The polynomial regression model of order 'p' (Gujarati, 1995 and Montegomery and Peck, 1982) is of the form:

where all the parameters ( ) and the error terms (u) follow the usual assumptions. Now, the velocity curve is just the

$$y = f(x) = \varphi_0 + \varphi_1 x + \varphi_2 x^2 + \ldots\ldots\ldots\ldots + \varphi_p x^p + u \qquad (1)$$

$$\frac{dy}{dx} = f'(x) = \varphi_1 + 2\varphi_2 x + 3\varphi_3 x^2 + \ldots\ldots\ldots\ldots + p\varphi_p x^{p-1} \qquad (2)$$

Elasticity curve

The elasticity can be computed using the formula mentioned by Dewett and Chand (1999), Chakravarty (1997) and Varian (2003) as

$$\varepsilon = \frac{d\log y}{d\log x} = \frac{x}{y}\frac{dy}{dx} = \frac{x}{y} f'(x) \qquad (3)$$

We can comment on the speed of relative change or replacement using the following criterion:

(a) if then the overall process is inelastic,
(b) if then the process is elastic and the speed of relative change is negative, that is, speed of change of y is slower than x,
(c) if then the process is elastic and the speed of relative change is positive, that is, the values of y increases faster than x,
(d) if then the relative change is proportionate to each other and in this case both the factors change equally likely.

Cross validity predictive power

The cross validity predictive power has been used to examine the rigidity of the fitted polynomial regression models. The cross validity predictive power due to Stevens (1996) and Khan and Ali (2003) is

$$\rho^2_{rcv} = \begin{cases} 1 - w(1 - R^2); & R^2 \geq 1 - w^{-1},\ w = \dfrac{(n-1)(n-2)(n+1)}{n(n-k-1)(n-k-2)},\ n > k+2 \\ 0; & otherwise. \end{cases} \qquad (4)$$

where R2 is the coefficient of multiple determination, n is the sample size, k is the number of regressors used in the model. Further, the stability of R2(Stevens, 1996, Khan and Ali, 2003, Islam et al., 2003) can be computed as: $\eta = R^2 - \rho^2_{rcv}$

NUMERICAL RESULTS

First of all, we simply present the observed values, computed proportions (Table 1) and smoothed proportions (Table 2) both for urban and rural areas. The proportion of pregnancy wastage to live birth is calculated by dividing the number of pregnancy wastage by the number of live birth in a specific age group. Similarly, proportion of pregnancy wastage to mother and that of caesarian deliveries to vaginal deliveries (Table 1) have been computed. Our aim is to know the age-specific flow of pregnancy wastage and caesarian deliveries. So, we have

used smoothing techniques, "4253H, twice" from Minitab window 12.0 to obtain the smoothed values (Table 2).

Plotted smoothed proportions (Fig.1) intersect each other at a certain point and at this point equilibrium status is achieved. We observe that for rural areas, pregnancy wastage to live birth and to mother, is equal at age 23. But, in urban areas this is at age 25. At these points proportion of pregnancy wastage to live birth and to mother are equal, that is, number of live birth equals number of mother. In other words, at that point every mother yields a live birth with minor risk of pregnancy wastage.

A matter of regret is that for delivery status much data for different age groups especially the last two age groups, are not available for urban and rural areas separately. Thus, we were compelled to conduct our study combining urban and rural areas together.Consequently, we have nested our focus on equilibrium level for proportion of pregnancy wastage to live birth and proportion of caesarian deliveries to vaginal deliveries. At age 25 this equilibrium level is achieved. Thus, at 25 years of mother $\frac{Pw}{Lb} = \frac{Cd}{Vd}$ that is, for non-zero pregnancy wastage (Pw), Live birth (Lb), and Vaginal delivery (Vd) we have caesarian delivery $Cd = \frac{Pw \times Vd}{Lb}$ that explains the minor risk of pregnancy wastage and live birth reduces the risk of caesarian deliveries. Elaborately, we can say that live birth and vaginal deliveries are fixed at certain non-zero level then increase (or minor risk) of pregnancy wastage yield increases (or minor risk) of caesarian delivery. Similarly, if pregnancy wastage and vaginal delivery is fixed at certain non-zero levels then the increase of live birth substantially reduces the risk of caesarian delivery. Moreover, we can say that if a woman gives a live birth vaginally then the risk of caesarian delivery for the next birth is very low. Here it is mentionable that these comments are valid only if such equilibrium condition is achieved. Thus, our findings elucidate that the women at age 25 in Bangladesh bears low risk for child bearing with respect to less risk of both pregnancy wastage and caesarian deliveries. To check the liability of our results we formed a control group that includes all the respondents of age 25 years. Then we performed a study over every single year. One caveat that we faced was availability of data in every single year; especially the information on birth and delivery types for respondents after 35 years of age was really shaky. However, we did it for those single year's respondents to whom data were available. To accumulate the joint effect of both factors (pregnancy wastage and caesarian delivery) we added the proportion of pregnancy wastage to live birth and proportion of caesarian delivery to vaginal delivery for every single year. We found that this was the lowest at the single age year 25 and was 0.0524. Thus, we may assure that our results related to the equilibrium level of age (25 year) are true.

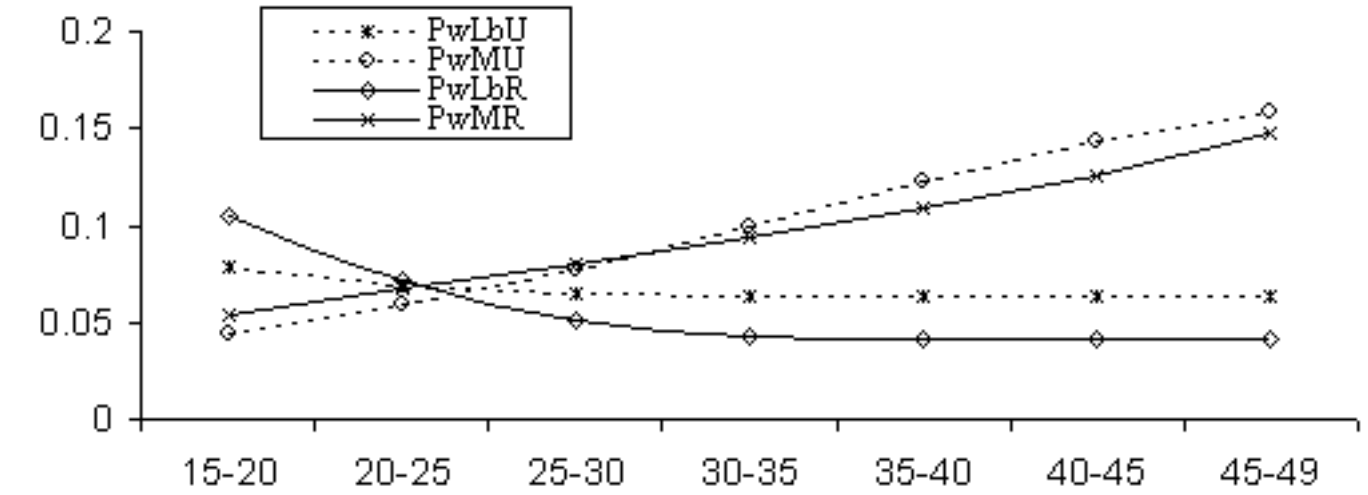
Thereafter, we fitted statistical models to those smoothed proportions and found that third order polynomial regression model better explains the age-specific flow of both pregnancy wastage and caesarian deliveries. Our fitted models are highly stable (Table 3). Further, the velocity and elasticity of caesarian deliveries and pregnancy wastage (Table 4) have been computed.

Velocity curves in (Fig. 3) show that velocity of pregnancy wastage to live birth both in urban and rural areas yield negative magnitude but that of caesarian deliveries yield positive magnitude. Thus, we can say that the pregnancy wastage decreases over ages whereas caesarian delivery increases. Elasticity of pregnancy wastage to live birth is less than unity up to the age 30 and thereafter these values lie between -1 and +1, that is, up to age 30 the system is elastic and inelastic thereafter (Table 4). In other words, the risk of pregnancy wastage decreases with the increase of age and the speed is faster than the speed of age. However, the pregnancy wastage to live birth in urban areas is almost inelastic (Fig.4). But, for caesarian deliveries the elasticity is always greater than one and so the risk of caesarian deliveries increase with the increase of age (Fig.4). Furthermore, the risk of caesarian delivery (speed) increases faster than the increase of age.

CONCLUSION

Risk of pregnancy wastage and caesarian deliveries change with age. Increased age increases the risk of caesarian delivery, but decreases the risk of pregnancy wastage. However, in the extreme age groups pregnancy wastages are observed substantially larger. Equilibrium condition for risk of pregnancy wastage and caesarian delivery yields 25 year as an ideal age of child bearing for Bangladeshi women, as both the risks are in tolerable situations. Therefore, no pregnancy before 25 and only one birth at this age can avail of acceptable risks of pregnancy wastage and caesarian delivery in Bangladesh. Different country and regional differences may draw different risks and age structure for pregnancy wastage and caesarian deliveries. Early marriage (before 18 years) and teenage motherhood is a stark reality behind the plight of female health hazards in Bangladesh. A proper policy towards safe motherhood (no birth before 25 years) may be helpful to overcome the pregnancy related deficiencies as well as to control the population growth to a large extent.

Figure 1. Smoothed proportion of pregnancy wastage to live birth and to mother



Here PwLbU and PwLbR represent pregnancy wastage to live birth for urban and rural areas; PwMU and PwMR refer to pregnancy wastage to mother both for urban and rural areas, respectively.

Figure 2. Equilibrium level of pregnancy wastage and caesarian deliveries

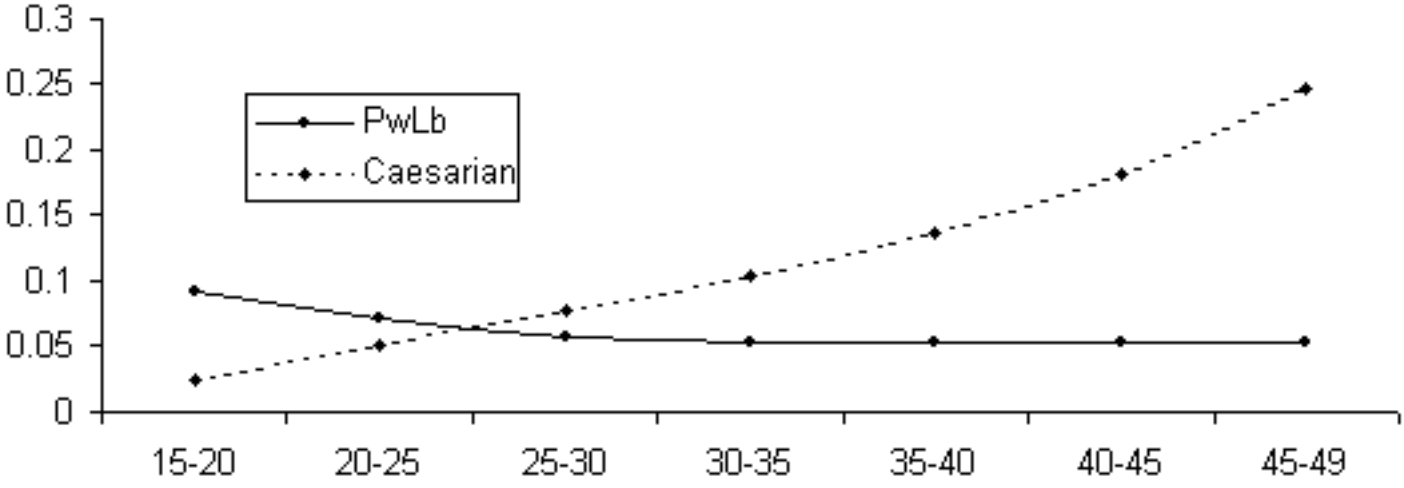
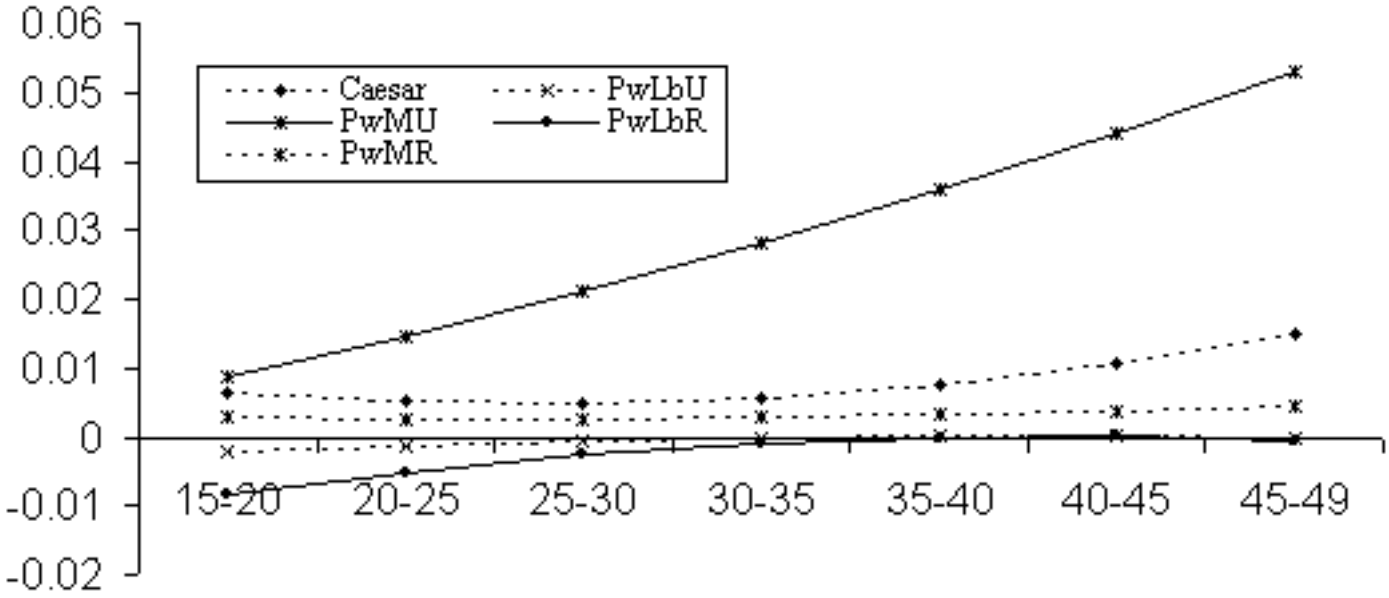
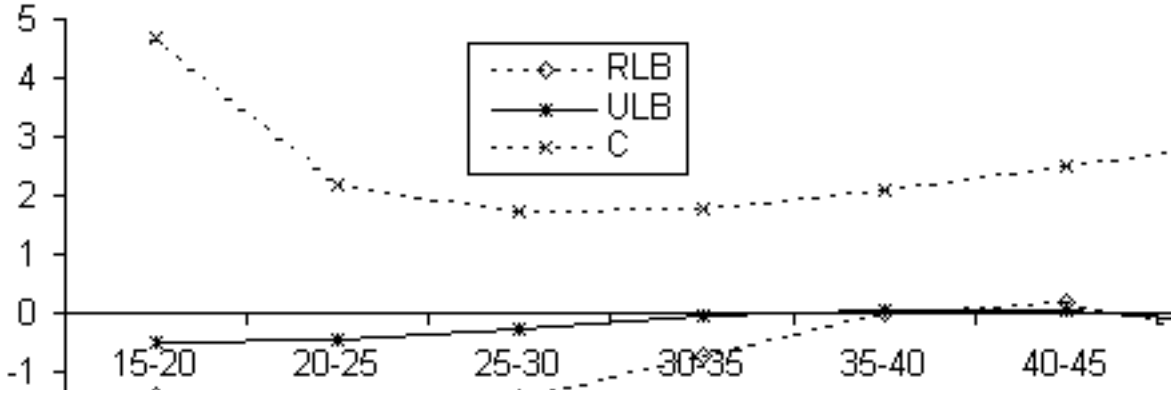


Figure 3. Velocity of pregnancy wastage and caesarian deliveries



Here Caesar indicates caesarian deliveries. All other notations are same as in Fig.1.

Figure 4. Elasticity of pregnancy wastage and caesarian deliveries



Here RLB, and ULB indicate elasticity of pregnancy wastage to live birth in rural and urban areas, and C stands for elasticity of caesarian deliveries in total (urban and rural) areas.

Table 1. Pregnancy wastage to mother and live birth

	Urban					**Rural**					**Urban & rural**		
	Observed Values					**Observed Values**					**Observed Values**		
Age	Birth	Pw	M	PwLb	PwM	Birth	Pw	M	PwLb	PwM	V	C	Cv
15-20	21	2	45	0.095238	0.044444	72	8	149	0.111111	0.053691	2062	51	0.024733
20-25	203	12	202	0.059113	0.059406	341	22	319	0.064516	0.068966	2297	132	0.057466
25-30	388	23	324	0.059278	0.070988	601	28	351	0.046589	0.079772	1296	94	0.072531
30-35	523	32	324	0.061185	0.098765	566	30	261	0.053004	0.114943	481	49	0.101871
35-40	519	34	277	0.065511	0.122744	598	21	229	0.035117	0.091703	164	24	0.146341
40-45	446	29	191	0.065022	0.151832	404	17	141	0.042079	0.120567	54	8	0.148148
45-49	268	17	107	0.063433	0.158879	170	7	47	0.041176	0.148936	4	1	0.25
Total	2368	149	1470			2752	133	1497			6358	359	

Here Pw, M, PwLb, PwM, V, C, and Cv indicate Pregnancy wastage, Mother, Proportion of pregnancy wastage to live birth, Proportion of pregnancy wastage to mother, Vaginal delivery, Caesarian delivery, and Proportion of caesarian delivery to vaginal delivery, respectively.

Table 2. Smoothed proportion

AGE	**Urban**		**Rural**		**Urban & rural**	**Urban & rural**
	PwLb	PwM	PwLb	PwM	PwLb	Caesarian to vaginal
15-20	0.078165	0.044444	0.105083	0.053691	0.091624	0.024733
20-25	0.069348	0.059143	0.071963	0.067360	0.070656	0.051604
25-30	0.064310	0.076591	0.051199	0.080151	0.057755	0.077014
30-35	0.063146	0.098643	0.042820	0.093503	0.052983	0.10428
35-40	0.063337	0.123023	0.041145	0.108585	0.052241	0.135726
40-45	0.063433	0.143879	0.041347	0.126115	0.05239	0.180715
45-49	0.063433	0.158879	0.041176	0.147056	0.052304	0.246312

Notations are explained in Table 1.

Table 3. Fitted models

Variables		*Fitted Models*	*R2*	*CVPP*	*Stability*
Urban	Pregnancy wastage to live birth Pregnancy wastage to mother	$\hat{Y} = 0.162602 - 0.007868X + 0.000204X^2 - 0.00000174X^3$ $\hat{Y} = 0.087904 - 0.007856X + 0.000374X^2 - 0.00000372X^3$	0.9998 0.9997	0.9988 0.9983	0.0010 0.0014
Rural	Pregnancy wastage to live birth Pregnancy wastage to mother	$\hat{Y} = 0.394198 - 0.026097X + 0.000638X^2 - 0.00000516X^3$ $\hat{Y} = -0.012650 + 0.005186X - 0.000104X^2 + 0.00000137X^3$	0.9997 0.9999	0.9983 0.9994	0.0014 0.0005
Both	Caesarian deliveries to live birth	$\hat{Y} = -0.188978 + 0.020187X - 0.000589X^2 + 0.0000075X^3$	0.9998	0.9988	0.0010

Table 4. Velocity and elasticity of pregnancy wastage and caesarian delivery

	Velocity			**Elasticity**		
	PwLb		Cv	PwLb		Cv
Age	Rural	Urban	Urban & Rural	Rural	Urban	Urban and Rural
15-20	-0.00851	-0.002327	0.006463	-1.4141	-0.52079	4.665101
20-25	-0.00522	-0.001331	0.005073	-1.64836	-0.43254	2.165553
25-30	-0.00271	-0.000596	0.004808	-1.44058	-0.25358	1.715809
30-35	-0.00098	-0.000122	0.005668	-0.74046	-0.06274	1.789762
35-40	-1.57E-05	9.14E-05	0.007653	-0.01449	0.054272	2.111322
40-45	0.000172	4.34E-05	0.010763	0.176498	0.028944	2.517524
45-49	-0.00041	-0.000266	0.014998	-0.47722	-0.19916	2.897614

Notations are explained in Table 1.

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Research networks

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INTRODUCTION

The growth of the academic discipline of primary care all over the world has led to more primary care practitioners taking part in research. Primary care has a generalist personality [1], and several research methods are therefore needed to understand the multifaceted interaction between medical and psychosocial factors in the discipline [2]. Evidence-based medicine has conventionally relied on efficacy research-research conducted under comparatively perfectly controlled conditions. The conclusions of efficacy research though, possibly will not be suitable for real-world conditions in which medical practices face multiple rival demands, and patients have multiple comorbidities and special inclinations. Efficacy research furthermore, is usually performed in academic medical center sites whose populations are not representative of the general population [3]. On the other hand, effectiveness research refers to studies conducted under real-world conditions. More than one half of all office visits in the United States are to primary care practitioners [4]. Effectiveness research for many clinical questions thus needs to be conducted in primary care settings. Practice-based research networks (PBRNs) have been fashioned as primary care laboratories for performing effectiveness research[5,6].

WORLD WIDE DEVELOPMENT

The development of primary care research in the World, varies widely. Generally there are three levels of development of primary care research. Firstly, in many economically developed Western countries research in primary care is already well recognized. Academic institutions have traditionally supported the primary care disciplines for many year. Clinicians are enthusiastically drawn in (often through primary care research networks), and governmental support (although limited) has been offered. In another group of countries, also including some Western developed countries, it is only lately that primary care disciplines have achieved a minor position in the academic institutions and support for research is only minimally available. In a third group of countries, there is almost no organized training or research in the primary care disciplines or it is just beginning in a few locations. Wretchedly in some of these countries, war and political volatility have made the pursuit of any scholarly agenda practically unfeasible in the face of serious issues of physical and economic survival.[7-9]

Primary care research networks (PCRNs) are becoming a global resource for research [9]. Data from the International Federation of Primary Care Research Networks (IFPCRN) indicates that PRCNs, which link clinicians in community practices as partners with academic researchers, now exist in at least 39 countries with interest evident in many more. The IFPCRN which is organized under Wonca, has been developed to facilitate communication between these networks, to aid in their development and the dissemination of success stories. National federations of networks exist in the US, the UK, and Canada.

In the United Kingdom primary care research networks started in the 1960s. The networks gradually formed an important part of the backbone of primary care research by 1980[10]. It took another 20 years s for political recognition of their importance so that primary care research was specifically included in the NHS research and development strategy for England and Wales for the first time in 1997.

Research network endeavor in primary care has developed around the world. In the United States multiple small and large networks have materialized since 1980. For example, the Ambulatory Sentinel Practice Network has effectively recruited large numbers of patients to studies in the United States and Canada [11]. The Dutch Sentinel Stations in the Netherlands have been collecting data since 1970. Health sector reforms in Eastern Europe have encouraged international collaboration through networks. For example, the European General Practice Research Workshop is facilitating collaboration between several eastern European countries, and Scandinavian general practice researchers network with primary care workers in the Baltic states.

REGIONAL DEVELOPMENT

Regional development in research includes the establishment of a number of research networks, including Saudi Arabia research group, Middle East Primary Care Research Network (MEPCRN), and Middle East Network on Aging (MENAR). The aim of the MENAR is to develop Geriatrics and Gerontology Research in the area. There are currently more than ten countries represented in the network.

MEPCRN was established recently due to a substantial research need in primary care in the Middle-East. Research is an essential prerequisite in developing the specialty further in the region, and in developing evidence-based practice. Areas of research fields that have been neglected includes a substantial part of illness and disease presenting

to health services, of which the bulk is only encountered in primary care.

In addition, the behavioural aspects, multidisciplinary cooperation and teamwork, are among areas that traditionally have been ignored in research. The aim of the MEPCRN is to develop family medicine research in the region. Membership in the MEPCRN is being developed rapidly, and now includes representatives from many different countries.

PRACTICE IMPROVEMENT

PBRNs have newly assumed a function separate from, but related to, their research mission: practice improvement. Primary care research networks (PCRNs), have the potential to incorporate different efforts for quality, including education and services [12]. There is a rising appreciation that primary care is not able to live up to its promises to provide high-quality and accessible chronic illness and preventive care to all patients [13,14]. Therefore, PBRNs are increasingly seen as institutions that can simultaneously conduct effectiveness research and catalyze practice change.

A number of authors have reported on PBRN-based research with implications for practice improvement [15-18]. These authors, however, do not comment on obstacles that may come up in harmonizing the dual goals of research and practice change. Primary care research provides "the missing link in the development of high quality, evidence based health care for populations."[19, 20]

FEATURES OF PRIMARY CARE RESEARCH NETWORKS

A systematic review of the literature about public and private sector networks to draw lessons about network management, was carried out in the UK [21]. The study identified 3 types of network structure: enclave, a structure based on shared commitment; hierarchical, one with a regulatory organizational core; and individualistic, one with a loose association of affiliates.

A network presents a set of pathways for people and ideas to come together. Networks may facilitate the coordination of diverse activities and disseminate information quickly, membership can be closed or open, and the direction can be rigidly defined or self organised. Closed, rigidly defined networks for example, road systems, tend to have outcomes that are more predictable. Open, self organising networks, for example, the internet, tend to be more uncertain.

Research networks lead to multidisciplinary coalitions of researchers, provide extensive ownership of research activity, and encourage members to disseminate research findings quickly. They do not have to focus only on research. Indeed, there may be value in researchers sharing a network infrastructure, which is slow to build and expensive to maintain, with those concerned with education and service development. This will enhance opportunities for collaboration and reduce costs[22,23].

A network comprises "a set of nodes and the set of ties representing some relationship, or lack of relationship, between the nodes." [24] Nodes are people, places, or organizations that enable multidisciplinary transfer of information, broker partnerships for quality improvement, and access a variety of resources and power. They are places where different paths converge, and the means whereby a network reaches places that bureaucratic structures cannot reach [25].

CONCLUSION

Primary care networks could help incorporate academic and service initiatives for research purposes and, equally importantly, development purposes. Coordinators of networks must, however, ensure that managing the complex interactions involved does not hinder good primary care research. Hickner [26] stresses that the power of practice-based research networks is the ability to help practitioners examine vigilantly what matters in practice, and to test these ideas in a broader field with friends who are skilled at collaboration. We must not lose this original inspiration. Practice-based research has the possibility to lead to quality improvement , to train and assist practices to adopt these improvements, and to judge how the improvements are working for practitioners, practice staff, and patients. Research and practice improvement can be innate partners, with research acting as a facilitator of practice change.

Notwithstanding the optimism articulated above, huge challenges linger in the task of developing the research needed to improve the world's health care at its most fundamental level. In all cases the lack of sufficient funding for primary care research remains a major issue, even in the developed countries, and is particularly problematic given the need to build the infrastructure for research in primary care and the lack of trained primary care clinicians with researcher skills. Furthermore, due to historical factors in several countries where the "GPs" were physicians receiving no supplementary education beyond basic medical school education, there is an absence of effective primary care clinician leadership in academic institutions. A strong primary health care research system, with adequate power to tackle local and national needs and the ability to relate evidence to practice and policy making, is required in each country.

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