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## From the Editor



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In this issue of the journal we have variety of topics of interest to physicians and health educators. A paper from Iraq looked at Socio-demographic characteristics of children with Acute Respiratory Tract Infections (ARI) in Rapareen Teaching Hospital. The aim was to study ARI in children less than 5 years of age in Erbil city and their socio-demographic correlates. The study included 190 children less than 5 years of age with ARI. Most patients with ARI were below 1 year of age (58.9%) with mean age of 15.44 months and male gender (64.7%). The authors concluded that Factors significantly associated with ARI were younger children, boys, those with another sibling in the family with ARI, those living in low SES and overcrowded family. Improperly vaccinated children are more prone for ARI and this encourages periodic follow up visits for children.

A combined paper from UK and Qatar looked at traveller health. The study was a cross-sectional study which was conducted using Qatar International Airport as a cluster sample during June to August 2007. The objective of this study is to determine knowledge, attitudes and practices related to the prevention of travel related infectious diseases among travellers travelling to developing countries from Qatar. A total of 550 passengers were approached. The results of this study showed a very low rate of travellers seeking pre-travel health advice. The knowledge, attitudes and practices of business travellers with regard to infectious diseases prevention need to be improved. Involving all stakeholders, such as education of primary care physicians, media participation and partnerships between travel agencies and medical clinics,

are potential means of improving public perception of travel medicine in Qatar.

A questionnaire based survey from Nigeria looked at Computer and Internet Use by Doctors in a Nigerian Teaching Hospital. Of the 74 doctors studied, 51(68.9%) and 23(31.1%) were males and females respectively. 73 % of respondents could use a word processor, 51.4% a statistical package while 42% could prepare power point slides. Also 44.6 % of respondents could access the internet at home, 28.4 % at work, 31.1% via mobile phones while 47.3 % use cyber cafes. The authors concluded that physicians in Nigeria need to acquire more computer-related competencies and internet skills.

A paper from Saudi Arabia looked at Diabetic foot in Arab world. The authors noted that one of the great challenges facing the Arab countries is the lack of research and lack of publications on health problems and Diabetic foot problems are among the major complications that may face any diabetic patients at any time of their life. Diabetic foot represents a real challenge to the health providers and health system.

A paper from Bangladesh attempted to identify utilization of health services, selection criteria and satisfaction of clients between public and private hospitals. Data was collected from 4 different hospitals (2 public and 2 private hospitals). The results showed that older clients, males, clients with higher education, private service holders, clients from a nuclear family and clients with higher monthly family income were significantly more likely to receive services from a private hospital. This study suggests that consideration should be given to behaviours of doctors, of nurses and of staff of the hospitals, ensuring minimum treatment cost, supply of quality food with low cost, available pathology facilities and cleanliness of the hospitals.

A paper from Lebanon attempted to highlight the importance and role of individual educational plans (IEP) in helping students with Dyslexia, ages six to nine at cycle one of the elementary education. This study emphasizes the need for special education departments in schools where special education teachers can enhance the educational

development of students with Dyslexia through the IEPs that identify the individual points of strength and weakness of the student with Dyslexia. The results of this study showed that the efficacy of the IEP on the development of the reading level varied depending on the initial level of difficulty of the student.

A paper from Tajikistan evaluates the educational quality of teacher training centers in Iran according to factors of Pedagogy and sociology from the perspective of administrators and teachers and students of teacher training centers. They found there was no significant difference between the scores of students and administrators. In the classroom management skills, the highest mean score was assessed, and was related to the teachers and the lowest average was related to student groups.

A Case Report from Jordan and Germany looked at unusual presentation of Varicella. The authors stressed that Chickenpox is generally a benign disease in developed countries. In Germany, up to 1% of general practitioner consultations for varicella and its complications result in hospital admission. In children, bacterial superinfections are one of the most common complications. Skin and soft-tissue infections are the most frequent manifestations of this in healthy children, but life-threatening septicaemia may sometimes supervene. They highlight this with a report of a 15 year old boy with severe sepsis, which had some unusual features before skin eruption. The report is that of an unusual presentation of chicken pox with a picture of septic shock before skin eruption appeared.

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# Service Utilization, Selection Criteria and Clients' Satisfaction: A Comparative Analysis between Public and Private Hospitals in Bangladesh

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## Background

A significant portion of the population in developing countries is deprived of a fundamental right of access to basic health care. However, in recent years, many developing countries have been actively seeking to improve the quality and outcomes of the health care delivery system by engaging in a process of reform. Consequently private hospitals were introduced in addition to public hospitals to a greater extent where services can clearly fill gaps when public services are inadequate. Mostly this is because of the negative perception and belief regarding public hospitals and the service quality of private hospitals was considered better (1,2) in regard to physical infrastructure and availability of services.(3) However, the difference between the two sectors is unnoticed in terms of technical quality of care provided.(4) Private providers in Tanzania were significantly better than public ones with regard to all attributes of quality.(5) Private health providers can deliver more adequate health services than the public sector.(6) It should be noted that historically the establishment of quality standards has been delegated to the medical profession and has been defined by clinicians in terms of technical delivery of care. However, recently, patients' assessment of quality care has begun to play an important role, especially in the advanced industrialized countries. As a result, the satisfaction or dissatisfaction of clients with services has become an important area of inquiry as consumer satisfaction comes to be a major device in order to take critical decisions in the health care services.(7) Studies identified that there was a need to assess the quality of the care that the hospitals were providing as there was often concern about the performance. (8,9,10)

## Abstract

This study attempted to identify utilization of health services, selection criteria and satisfaction of clients between public and private hospitals. Data was collected from 4 different hospitals (2 public and 2 private hospitals) in the Capital City Dhaka, Bangladesh. In total, 90 clients were randomly selected and interviewed with a pre-tested interview schedule. The results showed that older clients, males, clients with higher education, private service holders, clients from a nuclear family and clients with higher monthly family income were significantly more likely to receive services from a private hospital. Clients selected public hospitals for near distance between home and hospital, easy communication and general treatment while clients selected private hospitals for quality treatment, good behavior of the service provider, reference

from doctors, cleanliness and treatment for chronic diseases. Moreover, clients were satisfied with doctor's behavior and treatment fee at public hospitals where clients were satisfied with pathological facilities, food supplies and cleanliness at private hospitals. However, clients were less satisfied with behavior of nurses and staff at both public and private hospitals. This study suggests that consideration should be given to behaviors of doctors, of nurses and of staff of the hospitals, ensuring minimum treatment cost, supply of quality food with low cost, available pathological facilities and cleanliness of the hospitals.

**Keywords:** service utilization, selection criteria, clients' satisfaction, private hospitals, public hospitals

Quality can be assessed from the point of view of the users or by using technical standards. Different studies identified that to operationalize the term quality, and to offer a framework for its definition three major attributes should be considered; structure, process, and outcome.(11,12,13) However, most of the studies assessing quality of care have looked at curative services and at structural aspects and process attributes(14,15,16) and at the relation between curative and preventive services. (17) Therefore, service providers, as a matter of fact, take the satisfaction of customers into account as a main goal of the strategies of their firms.(18) Some studies also focused on clients' satisfaction or their judgment of the quality.(19,20,21,22,23,24,25,26) This is because customers or clients of hospitals and clinics have the most direct experiences with the services provided by these institutions. It should be noted that although some feel that the customer cannot really be considered a good judge of quality and dismiss their views as too subjective. Petersen (27) suggests that, it really does not matter if the patient is right or wrong rather what counts is how the patients felt even though the caregiver's perception of reality may be quite different.

### **Service Delivery at Public and Private Hospitals in Bangladesh**

Bangladesh has a well arranged health delivery system in both public and private sectors. In public sectors, there are three tiers of the health delivery system such as primary, secondary and tertiary levels. The primary level includes Union (lowest administrative tier) level health centers, secondary level includes sub-district level health centers and tertiary level includes district hospitals, divisional hospitals and medical colleges. The most sophisticated are the tertiary level hospitals. It should be noted that a significant number of tertiary hospitals are run on a not-for profit basis.(28) However, the problem of access to health care is particularly acute in Bangladesh. About one third of the population has access to primary health services and overall

health care performance remains unacceptably low by all conventional measurements. To address the impending problems, consideration has been given to the privatization of the health sector. As a result, the Medical Practice and Private Clinics and Laboratories Ordinance was promulgated in 1982 to encourage the growth of private health-care service delivery. (29) Additional considerations were also given on the proportion of GDP allocated to the health care sector. (30)

At present, with the growing number of private health care facilities, especially in Dhaka city, the patients are gradually turning to receive services from private hospitals rather than that of public hospitals. Despite these facts, the quality of service delivery in the overall public health sector in the country remains poor.(31) More importantly, connections between families, the health system and between the various components of the health system are lacking in Bangladesh, without which 'access' to healthcare remains hypothetical, but not real.(32) In addition, an unfavorable doctor to nurse ratio, non-availability of trained nurses, lack of an institutional mechanism to bring the very poor and vulnerable people within the ambit of health service delivery, the poor attitude of the service providers towards the poor, and high service costs at private hospitals are responsible for low service utilization. In this regard, to assess the quality of services delivered at both public and private hospitals is very crucial. In particular, it is important to understand how the quality of services provided by private clinics/hospitals and public hospitals are perceived by the clients. A search of the literature suggests that no comparative study has been undertaken.(8)

In Bangladesh, the customer's viewpoint is neither sought, nor given any importance (as far as we know) in strategy formulation. Thus, very little is known about how the customers assess health-care service quality or satisfaction and select hospitals to receive

services. As the recipients of health care can provide valuable insights and as their opinions should drive meaningful changes in the system, their perspective was central to this paper. The aim of the study was to identify a selection of hospitals, selection criteria and satisfaction of health services between public and private hospitals in this country. Also this study attempted to provide policy guidelines based on the study findings so that necessary changes can be considered.

## **Methodology**

### **Participants**

This study was carried out at both public and private hospitals in Dhaka city, Bangladesh. The participants of this study were patients who received health services from both public and private hospitals. Only those participants were included into the study who were admitted to the hospital for treatment purposes. Thus out-patients were excluded from the study. The participants were selected on a random basis. Thirty participants from each of the four hospitals (total=120) were randomly selected based on the admission lists. However all the participants did not participate in the study; as a result, 25% of potential participants could not be interviewed. In total, 90 clients were interviewed from both types of hospitals. The participants were both male and female patients. It should be noted that the hospitals were selected purposively. Two of the hospitals were public and the other two were private. The public hospitals were 1) National Institute of Cardiovascular Diseases (NICVD) and 2) Institute of Kidney Diseases while the private hospitals were 1) Ibrahim Medical College Hospital and 2) Kidney Foundation.

### **Instruments**

A structured interview schedule was applied in order to collect the necessary information from the participants. It is relevant to note that the interview schedule was developed phase by phase, i.e., the primary semi-structured interview schedule was developed based on the available literature on this issue. Later, pre-test was conducted on 4

clients so that selection criteria and items of satisfaction can be understood better. Incorporating the feedback, the interview schedule was structured and finalized. The interview schedule consisted of two sections such as section one which included socio-economic characteristics (age, gender, education, monthly family income, occupation, family type, etc) and section two which included hospital related information. For example, clients' selection criteria between public and private hospitals (the participants were asked to provide a tick mark against criterion for what they prefer, either public or private hospital) and clients' satisfaction regarding the services provided by public and private hospitals (presented in Table 2). To measure the level of satisfaction, the participants were asked to tick one category out of three categories, of satisfied/neutral/not-satisfied within each item (presented in Table 4).

#### Procedure

The data was collected through one to one interview at both public and private hospitals. Overall, the interviews were carried out in three months. In total, four trained interviewers took the interviews. At the end of the interview the filled-in interview schedule was checked to rule out inconsistency if there was any. The interview schedule was edited so as to ensure that all the data was consistent. It should be noted that before conducting the interview, the clients in each of the hospitals had the rationale and purpose of the study explained to them and were also asked if they were interested in taking part in the interview. The interview was carried out with only those who agreed. The ethical standard was strictly maintained by exerting no force to take part in this study; the participants were even given the freedom to stop the interviewing at any time if they wanted. Fortunately, all proceeded with the interview.

The data was entered into the computer twice. In this regard, SPSS (Statistical Package for Social Sciences) was selected for data

analysis. At the data analysis stage, frequency was mainly distributed in regard to background characteristics of the participants (presented in Table 1), selection criteria (presented in Table 2) and clients' satisfaction (presented in Table 3). Moreover, a relationship was observed between types of hospital selection and background characteristics. In this regard, Chi-square test was used to find out whether the relationship is statistically significant or not (presented in Table 1 - next page).

## Results

### Sample Description

The mean age of the participants was 32.5 years (SD=8.5 years). Most of the participants had more than 30 years of age. More than two-thirds of the participants (45.6%) were >40 years of age while less than two-thirds (38.9%) had 31-40 years of age (Table 1). More than three-quarters of the participants (76.7%) were male while 23.3% were female. The majority of the participants were graduate, i.e., 41.1% were graduate, 28.9% post graduate and 3.3% were PhD degree holder. However, there were 10.0% and 11.1% clients who had respectively SSC and under-graduation. The majority of the participants had business (28.9%), private service (24.4%) and public service (16.7%). Other categories included housewife (13.3%), student (8.9%) and others (7.8%). The majority of the participants (55.6%) had a nuclear family while 44.4% had a joint family. The mean monthly family income was 31.240 BDT (SD=12.080 BDT). More than a quarter of the participants had monthly family income 20001-3000 BDT, more than one-fifth had 10001-20000 BDT and one-sixth had 30001-40000 BDT. BDT 400001-50000 and >50000 were respectively reported by 14.4% and 13.3% of the participants.

### Types of Hospital by Clients' Background Characteristics

With younger age (less than 30 years), clients were significantly more likely to visit a public hospital compared to private hospital (Table 1). However, clients aged more than 30 years were likely to receive health

care services from a private hospital compared to a public hospital. For example, at a private hospital, 54.3% and 53.7% of clients aged respectively 31-40 and 40+ years received services compared to 45.7% and 46.3% at a public hospital. Male clients were significantly more likely to receive services from a private hospital than that of a public hospital. More than half (52.2%) of male clients received services from a private hospital against 47.8% at a public hospital. On the other hand, females were more likely to visit a public hospital rather than that of a private hospital as 57.1% of females visited a public hospital against 42.9% a private hospital. Higher educated clients were significantly more likely to receive services from a private hospital compared to a public hospital. Clients with undergraduate, graduate, post graduate and PhD were 60.0%, 51.4%, 53.8% and 57.1% who received services from private hospitals against respectively 40.0%, 48.6%, 46.2% and 42.9% who received services from public hospitals. Public service holder (93.3%) and students (75.0%) were more likely to receive services from a public hospital than that of a private hospital. Private service holder, businessmen, housewives and others were more likely to receive services from a private hospital. Around 60% with private service, more than 60% with business, 75% housewife and 57.1% with other occupation, were likely to receive services from a private hospital.

Clients from joint family type were significantly more likely to receive services from public hospitals than that of clients of nuclear families (Table 1). It appeared that 55.6% of clients received services from public hospitals against 44.4% of clients with nuclear family and 57.5% of clients received services from public hospitals compared to 42.5% in private hospital with joint family. Clients with lower monthly family income were more likely to receive services from public hospitals while clients from higher monthly family income were more likely to receive services from private hospitals. For example, clients with monthly family

Background Characteristics	N=90	Percentage	Public Hospital	Private Hospital
<b>Age at present</b>				
<= 20	2	2.2	100.0	0.0
21-30	12	13.3	66.7	33.3
31-40	35	38.9	45.7	54.3
40+	41	45.6	46.3	53.7
<b>Gender</b>				
Male	69	76.7	47.8	52.2
Female	21	23.3	57.1	42.9
<b>Education</b>				
Illiterate	1	1.1	100.0	0.0
Up to SSC	9	10.0	77.8	22.2
Undergraduate	10	11.1	40.0	60.0
Graduate	37	41.1	48.6	51.4
Post graduate	26	28.9	46.2	53.8
PhD	7	7.8	42.9	57.1
<b>Occupation</b>				
Public service	15	16.7	93.3	6.7
Private service	22	24.4	40.9	59.1
Business	26	28.9	38.5	61.5
Housewife	12	13.3	25.0	75.0
Student	8	8.9	75.0	25.0
Others	7	7.8	42.9	57.1
<b>Family type</b>				
Nuclear	50	55.6	44.0	56.0
Joint family	40	44.4	57.5	42.5
<b>Monthly family income</b>				
<= 10000 BDT	3	3.3	100.0	0.0
10001-20000 BDT	19	21.1	94.7	5.3
20001-30000 BDT	23	25.6	39.1	60.9
30001-40000 BDT	25	27.8	26.7	73.3
40001-50000 BDT	13	14.4	23.0	77.0
>50000 BDT	12	13.3	16.7	83.3

\*Chi-square significant at  $p < 0.05$

Table 1: Selection of hospital between public and private by participants' background characteristics

income 20001-30000 BDT, 30001-40000 BDT, 40001-50000 BDT and >50000 BDT were 60.9%, 73.3%, 77.0% and 83.3% who received services from private hospitals against respectively 39.1%, 26.7%, 23.0% and 16.7% who received services from public hospitals.

#### Selection Criteria

There were clear differences in selection criteria between public and private hospitals (Table 2). It appeared that the most common selection criterion was general treatment for public hospitals (77.8%) while the most common selection criterion was chronic treatment for

which clients (80.0%) selected a private hospital. Clients were more likely to select public hospitals (26.7%) than that of private hospitals (13.3%) due to closeness to home. More than two-fifths of clients (42.2%) selected private hospitals based on the good behavior of the service provider while 26.7% clients selected public hospitals for this reason. The majority of the clients of private hospitals (62.2%) mentioned that they preferred private hospitals due to quality treatment while 42.2% clients selected public hospitals under this logic. Due to doctor's reference, clients were more likely to select private hospitals (31.1%) than

public hospitals (20.0%). Cleanliness was another important reason for selecting the private hospitals as it was reported by 40.0% of clients in private hospital against 17.8% in public hospitals. However, due to easy communication clients were more likely to select public hospitals than private hospitals. Around half of clients (48.9%) selected public hospitals while 35.6% selected private hospitals for this reason.

#### Clients' Satisfaction

In terms of behavior of doctors, the clients of public hospitals were more satisfied (82.7%) compared to private hospitals (75.6%) (Table 3). Although

Selection Criteria of Hospital	Public Hospital		Private Hospital	
	N=45	%	N=45	%
Short distance between home and hospital	12	26.7	6	13.3
Good behavior of service provider	12	26.7	19	42.2
Quality treatment	19	42.2	28	62.2
Cleanliness	8	17.8	18	40.0
Reference from the doctor	9	20.0	14	31.1
Easy communication	22	48.9	16	35.6
Treatment of chronic diseases	12	26.7	36	80.0
Treatment of general treatment	35	77.8	10	22.2

### Multiple response set

Table 2: Clients' selection criteria between public and private hospitals

Clients' Satisfaction	Public Hospital			Private Hospital		
	Satisfied (%)	Neutral (%)	Not-satisfied (%)	Satisfied (%)	Neutral (%)	Not-satisfied (%)
Doctors' behavior	82.7	13.3	4.0	75.6	17.8	6.7
Nurses' behavior	27.8	65.6	6.7	28.4	64.9	6.7
Staff behavior	22.0	26.9	51.1	22.0	25.9	52.1
Pathology facilities	37.8	60.0	2.2	53.3	44.4	2.2
Treatment fee	68.9	17.8	8.9	42.2	51.1	6.7
Food supplies	11.1	62.2	26.7	50.4	36.2	13.3
Hospital's cleanliness	2.2	31.1	66.7	57.6	37.8	4.4

Table 3: Clients' satisfaction between public and private hospitals

13.3% and 17.8% participants were neutral respectively in both public and private hospitals, 6.7% participants in private hospitals were not satisfied with the doctor's behavior against 4.0% in public hospitals. With nurses' behavior, most of the participants were neither satisfied nor unsatisfied both in public and private hospitals. However, 17.8% participants were satisfied in public hospitals against 4.4% in private hospitals. The majority of the participants were not satisfied with the behavior of staff but participants were more satisfied with staff's behavior in private hospitals (22.0%) compared to public hospitals (12.0%). Regarding pathology facilities, clients in private hospitals (53.3%) were more satisfied compared to that of public hospitals (37.8%). However, clients' satisfaction in regard to treatment fee was high in public hospitals

compared to private hospitals. More than two-thirds of the participants (68.9%) were satisfied in a public hospital compared to 42.2% clients in a private hospital. Clients' satisfaction in terms of food supplies and hospital's cleanliness was higher in private hospitals; it appeared that 36.2% of clients of private hospitals were satisfied against 11.1% in public hospitals regarding food supplies and 57.6% of participants in private hospitals were satisfied compared to only 2.2% in public hospitals.

### Discussion

This study aimed at identifying the differentials in service uptake, selection criteria and clients' satisfaction between public and private hospitals. The findings of the study revealed that young clients were more likely to receive services from public services while clients aged more than 30 years were more

likely to receive services from private hospitals. This may be due to the reflection of bread earner argument because people with more than 30 years of age are earning members of the family and can decide on their own about where to seek health care services. As they earn money, they have more say in spending even if seeking health services from private hospitals requires spending more money. The findings of this study further revealed that male clients were more likely to receive health services from a private facility compared to female clients. It is expected because of the traditional division of health service uptake where women are often ignored or at best are allowed to receive services at the cheapest cost as it is the male person in the family who mostly decides when and where to seek health care services even in the case of women. Moreover, male members

are more valued in the family than that of female members which results in high costs for male members and low costs for female members in health care services utilization. The findings of this study also revealed that clients with higher levels of education were more likely to receive services from private hospitals. It is likely that education leads to seek out higher quality services and have a greater ability to use health care inputs that offer better care.(33) As expected, better understanding may lead the better educated people to private hospitals.

This study also found that clients with public services and students were more likely to receive health care services from public hospitals. It should be noted that compared to private hospitals, public hospitals necessitate a lower cost. It may be the fact that public service holders earn less compared to businessmen and private services holders that results in lower spending on health care by public services holders and students and hence public hospitals are preferred. On the other hand, private service holders and businessmen are likely to earn more, can spend more money on health care utilization and are likely to receive services from private hospitals. This study also identified that clients from a nuclear family were more likely to receive health services from private hospitals compared to clients from a joint family. This may be because clients from a nuclear family are more likely to have a better family condition, higher family income, better education and are able to spend more on health care needs compared to that of a joint family. As a result, it is expected that clients from a nuclear family are more likely to receive services from a private hospital. The findings of this study further revealed that clients whose monthly family income was lower were significantly more likely to receive services from public hospitals while those whose family income was higher were more likely to receive services from private hospitals. It is likely that higher family income ensures higher financial access to

better health care, facilitates family environmental set-ups for better health care service and enables acquisition of better health care(34) compared to that of a family with lower family income.

This study revealed that due to close proximity between home and hospital, clients preferred public to private hospitals. Most probably, it has two explanations. One may be that the participants were living near to the public hospital or it may be due to easy communication due to the establishment of a public hospital at the side of a main road or near to the main road. The findings of this also revealed that people selected private hospitals because of the good behavior of the service providers in private hospitals compared to that of public hospitals. It should be noted that behavior of private service providers are better than providers of public hospital services. It is expected because private hospitals are run for a business purposes so behavior may be one of the tactics of drawing clients from public to private hospitals. Consequently, clients were more likely to receive services from private hospitals. Services quality was another criterion that clients were more likely to receive from private hospitals compared to public hospitals. Quality factors are likely to strongly influence a patients' choice of hospitals. For example, the Government in Nepal made substantial investments in basic health care but the utilization remained low because of clients' negative perceptions of public health care(35). Also in Vietnam, poor quality services in the public sector led to increased use of private providers 36 (Guldners and Rifkin, 1993). It is likely that private hospitals in Bangladesh spend more money on buying up-to-date medical instruments to provide the latest treatment facilities to the clients where public hospitals cannot buy the modern medical instruments immediately because of many barriers including misuse of budget and bureaucratic tangle. As a result, private hospitals can provide quality services better and are likely to draw clients to their net.

However, quality levels are still not where patients would like them to be; many patients who can afford it are seeking treatment alternatives in other countries.(8)

This study also revealed that due to cleanliness clients were more likely to select a private hospital than a public hospital. It should be noted that in most of the cases private hospitals are cleaner than public hospitals in this country. Generally, people seek out treatment where the environment is clean. Thus, private hospital often becomes the only option for treatment. The findings of this study also revealed that due to reference of doctors, clients were more likely to receive treatment in a private hospital. It may be noted that doctors refer clients to the private hospital for treatment even if the doctors are involved with a public hospital. One explanation may be that doctors receive extra benefits due to such reference or another explanation may be that due to better treatment private hospitals are necessary. Whatever the reason may be, clients abide by the doctors' advice not only to ensure better treatment but also due to not having an alternative option, which results in receipt of services from a private hospital. The findings of this study further revealed that due to easy communication clients were more likely to select public hospitals than private hospitals. It is expected because mostly public hospitals are situated near to the main road where patients can easily reach them whereas private hospitals are often situated at a place where easy road communication may not always be possible. As a result, clients prefer public hospitals to private hospitals. The findings of this study also indicated that due to treatment for chronic diseases clients preferred a private hospital while due to general treatment clients preferred public hospitals. It is expected because treatment of chronic diseases may be better in a private hospital due to the presence of sophisticated medical instruments in private hospitals compared to public hospitals. Studies elsewhere also found that private health delivery is synonymous with quality care (4,5,6) which implies that

the public health system needs some quality adjustments to bring it up to par with private health care.(37)

This study revealed that with the behavior of doctors, clients of public hospitals were more satisfied than clients of private hospitals but most of the clients were satisfied with the doctors' behavior both in public and private hospitals. The reasons behind the satisfaction of doctors' behavior at both types of hospitals may be that doctors are well educated and experienced in communicating with clients, which generates satisfaction. The reason behind more satisfaction with behavior of doctors at public hospitals may be due to the lower behavioral expectation of the clients of public hospitals. This is because people with comparatively lower socio-economic conditions come to public hospitals who cannot afford the cost of service of private hospitals and to whom treatment is the only service from hospital rather than behavior. The findings also indicated that the clients were less satisfied with the behavior of nurses and not satisfied with the behavior of staff of both public and private hospitals. This may be due to the fact that either nurses and staffs are not well educated and hence cannot behave well toward the patients or differentiations of expectations of clients regarding the behavior of clients. It should be noted that patient satisfaction is a major quality outcome in itself.(38) The extent to which health care users are satisfied with their local providers may be a key factor underpinning their health behavior and health care utilization.(39)

The findings of this study further indicated that with the pathology facilities, clients of private hospitals were more satisfied compared to that of public hospitals. It is expected because in most of the cases private hospitals can provide more sophisticated pathology facilities than that of public hospitals. Even when patients were treated at public hospitals often they were required to be tested at private hospitals. However clients of public hospitals were more satisfied

with the treatment fee than that of private hospitals. It should be noted that treatment fee in private hospitals is much higher than that of public hospitals. Often for middle income or lower income people, the treatment cost at private hospital may be beyond their capacity. But the situation in public hospitals is different in this regard. As a result, clients of public hospitals were more satisfied with the treatment fee. In regard to food supply and hospital cleanliness, the clients of private hospitals were more satisfied. It may be noted that food in public hospitals is not considered standard to many clients while it is considered standard in private hospitals. Similarly, private hospitals are cleaner than that of public hospitals. As expected, clients of private hospitals were more satisfied in this regard.

### Conclusion

The findings of this study have some implications. Firstly, behavior of nurses as well as staff should be well directed to the clients. In this regard, training programs may need to be undertaken to provide necessary techniques and knowledge to the nurses and staff so that they can serve well the clients of both public and private hospitals. Secondly, public hospitals should be accommodated with sophisticated medical equipment and pathology facilities so that chronic treatment as well as different pathology tests can be conducted at public hospitals that may increase the clients turn out in public hospitals. Thirdly, treatment quality should be considered at both public and private hospitals but more at public hospitals. In this regard, special programs may need to be undertaken on how to ensure quality treatment that ultimately would increase the clients turn out at public hospitals. Fourthly, this study identified that public hospitals were less clean and food supply was not satisfactory at public hospitals compared to private hospitals. Thus proper consideration should be given to cleanliness and providing quality food at a cheap cost in the public hospitals in order to maximize the clients' satisfaction as patients' satisfaction is recognized

as an essential component in the evaluation of health care quality.(38) Finally, a treatment fee should be reduced at private hospitals so that clients can receive sophisticated services from private hospitals at a cheap cost. This is because private hospitals have been known to disregard social pricing considerations or to try to increase their profits by providing services that are unnecessary or even harmful.(40) Also treatment fee should be reduced at public hospitals, even providing a subsidy so that people can have modern health care at low cost.

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# Socio-demographic characteristics of children with Acute Respiratory Tract Infections (ARI) in Rapareen Teaching Hospital

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## Abstract

Acute respiratory tract infection (ARI) is a leading cause of childhood morbidity and mortality. It accounts for the second or sometimes even the first common reason for admissions in hospitals in developing countries. The Aim of this research was to study ARI in children less than 5 years of age in Erbil city, and their socio-demographic correlates.

**Methods:** The study included 190 children less than 5 years of age with ARI attending Rapareen pediatric teaching hospital in Erbil, Iraq during the four month period from November 2006- March 2007. Data was collected via modified questionnaire filled out by a researcher who interviewed mothers regarding acute respiratory infections in their children. The necessary socio-demographic characteristics of the mothers and children were collected. The control sample (192 children) collected the same data obtained for all patients.

**Results:** Most of the patients with ARI were below 1 year of age (58.9%) with mean age of 15.44 months and male gender (64.7%). Unvaccinated children, whether incompletely vaccinated or unvaccinated, and another sibling in the family with ARI is significantly related to having ARI in children below 5 years of age. Maternal factors like her SES (socio-economic status) and employment are significantly correlated with increased incidence of ARI among their children. Increase in family size and overcrowding also increase the chance of ARI among children below 5 years of age. While mother's age and regional distribution is not correlated significantly with ARI in those children. Logistic regression model showed that risk of having ARI is 22.9 times more in children with low SES and 7.18 times more likely in those who are not vaccinated compared to those are vaccinated.

**Conclusion:** Factors significantly associated with ARI were younger children, boys, those with another sibling in the family with ARI, those living in low socio-economic circumstances and overcrowded family. Improperly vaccinated children were more prone to ARI and this encourages periodic follow up visits for children.

**Key words:** ARI, Children, mothers, socio-demographic situation

## Introduction

Acute respiratory infections (ARI) are responsible for 4 million of the 15 million deaths occurring annually in children under 5 years of age. Most of these deaths are from pneumonia.(1)

Children in the first 5 years of life have between 7-9 upper respiratory tract infections per year. Clinical illness after exposure is 2-3 times more likely to develop in infants than in older children and adults. Children at daycare are at increased risk compared to those cared for at home.(2)

In the developing nations, ARI are a common cause of death in infants, especially in Central America, Africa, South America and Asia. While in developed nations, illness from ARI is much less severe.(3)

### There are 2 categories of ARI:

#### Acute Upper Respiratory infection

**(AURI):** above the vocal cords and epiglottis, and includes colds, tonsillitis and otitis media and sinusitis. It accounts for 80% of ARI.(4, 5) Although it is a benign illness it may cause significant morbidity and parental concern that may warrant admission to hospital.(5)

#### Acute Lower respiratory infection

**(ALRI):** Including and below vocal cords and epiglottis. It includes croup, bronchiolitis and pneumonia (1). It also includes epiglottitis and bacterial tracheitis.(5,6) ALRI, which is mainly manifested as bronchiolitis and pneumonia is the most common cause of hospitalization in young children.(3)

Poverty, overcrowding, air pollution, malnutrition, harmful traditional practice and delayed and inappropriate case management are reasons for high case fatality rates from such infection (7). Children attending nurseries, starting school, in institutions, in overcrowded housing and in hospitals, are at increased risk of becoming infected with respiratory pathogens.(8)

## Patients and Methods

A hospital observational study was undertaken for 4 months in Rapareen teaching hospital in Erbil city from 1st of November 2006 to 1st of March 2007 . A total of 190 children under-five years who were admitted to Rapareen hospital with a history of acute respiratory illness, were screened for this purpose.

Detailed history and examination were done for all patients with ARI with regards to its symptomatology, physical findings and anthropometric measures of children, associated illness, immunization and certain other factors.

Socio-demographic data about mothers and their children were also collected.

Mother was considered to be literate or educated if she was able to read and write, and illiterate if she was not able to (9). Crowding index was measured by dividing family size (number of family members) by number of rooms and SES was calculated according to a specific score depending on parents' information (formal education, work status of both, owned or rented house, possession of a car and crowding index). (10)

Children with known chronic respiratory problems (e.g. asthma, cystic fibrosis, congenital respiratory malformations, tuberculosis), prolonged cough more than 3 weeks and infants below 1 month of age were excluded from our study. The Control sample (of 192 children) was collected, excluding any child with acute or chronic medical illness attending pediatric surgical and dental department for simple surgical procedures like dental procedures and circumcision. Statistical analysis was done using SPSS 18.0 (Statistical Package of Social Science version 18, Chicago, IL). The data was initially presented in frequency distributions (proportions, means, and standard deviations). We used the T test to compare means and the Chi-square for categorical variables to check relationship between ARI and socio-demographical variables and P values of 0.05 or less were

considered statistically significant. We used odds ratio (OR) to estimate the relative risk of ARI by certain variables with 95% confidence interval (CI). Binary logistic regression method was used to investigate the relationship between several explanatory (predictors) variables and outcome (ARI).

## Results

Age wise distribution showed that 78 out of 190 patients were between the ages 1-5 years (Table 1); however 58.9% of patients were less than 1 year of age (Figure No.1)

Out of 190 patients with ARI (Table No.2 - page 14), 64.7 % were males and 35.3% were females; this correlation was statistically significant (OR= 0.61with 95% CI: 0.41-0.93) as shown in Table 2. ARI is more common among unvaccinated and partially vaccinated children compared to controls and it was highly significant statistically (OR= 6.03 with 95% CI: 3.4-10.6). Also there was a significant difference in the correlation of ARI and control cases with presence of another family member with ARI as (OR= 0.15 with 95% CI: 0.1- 0.3).

Most mothers of children with ARI were not employed and were housewives and it is statistically significant (OR= 2.2 with 95% CI: 1.2-3.9), while ARI is not significantly related to Mother's age. There were no significant differences in the correlation of ARI and control samples with Mother education (OR= 0.86 with 95% CI: 0.6-1.3) and maternal smoking (OR =0.91 with CI: 0.41-2; such OR is suggestive of a weak correlation despite insignificant P value). ARI is more common among those with low SES and it was highly significant statistically (OR= 0.1 with 95% CI: 0.05-0.14) and significantly correlated with increased family size, less rooms in the house and high crowding index. There is no statistical significant correlation of ARI with Regional distribution compared to control (OR= 1.22 with 95% CI: 0.71-2.1).

Table 3 (page 15) summarizes the effect of each predictor by using

Age group in years	Number	%
< 1 year	112	58.9%
1-5 years	78	41.1%
Total	190	100%

Table 1: ARI &amp; age distribution

## ARI in different age groups

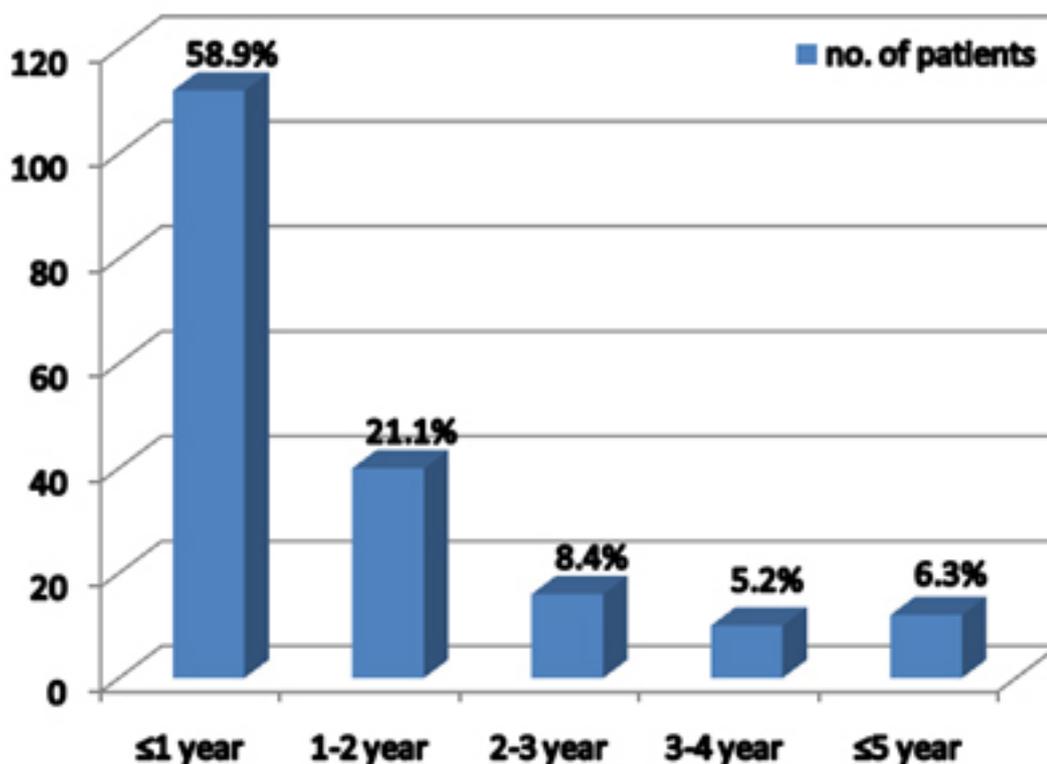


Figure 1: ARI in different age groups

coefficient logistic regression. It shows that age, gender, vaccination and SES coefficients are statistically significant. A child is 0.97 less likely to have ARI with increasing age while male gender is 2 times more likely than female gender to develop ARI. Children who are partially vaccinated are 3.97 more liable to have ARI than vaccinated children while those who are not vaccinated are 7.18 times more likely to have ARI than vaccinated children. Those with Low SES are 22.98 more likely to develop ARI compared to those with High SES.

### Discussion

ARIs are major causes of morbidity and mortality in many societies particularly developing countries. Most patients with ARI below 5 years of age were less than one year; this

agrees with studies done in Iraq (11,12) and Saudi Arabia (13) as it shows that the most vulnerable group were young infants. Clinical illness after exposure is 2-3 times more likely to develop in infants than in older children and adults(2).

Males were affected more than females and this result agrees with a study in Tikrit teaching hospital in Iraq (12) where males are 1.5 more likely to have ARI than females. Other studies in Iraq (11), Saudi Arabia(13) and India (14) support that male gender was more affected.

Studies (12, 13, 14, 15) support that ARI is more common among those who didn't receive vaccination properly, but a study done in Iraq in 2005(12) showed that immunization was weakly associated with

occurrence of ARI while it is highly related to severity of ARI. This can even support the present study results as all cases were severe enough to necessitate admission to the hospital.

The study of Kanchi and Kakeri (14) agrees with ARI incidence increase among children with low SES, as in our study.

There was no significant association between ARI and residency as shown in another study in Iraq 2005 (12), while Saeed and Bani (13) showed that ARI is more prevalent in those who live in Rural areas, which disagrees with our study and this may be related to the fact that our study includes inpatient children only.

	Control (n= 192)	Patients with ARI (n=190)	P	OR
<b>1. Children's characteristics</b>				
A. Gender			0.02	0.61
- Male	102 (53.1%)	123 (64.7%)		
- Female	90 (46.9%)	67 (35.3%)		
B. Age (months)	26.30	15.44	<0.01	
C. Vaccination			<0.01	6.03
- Vaccinated	174(90.6%)	117(61.6%)		
- Not or incomplete	18 (9.4%)	73 (38.4%)		
D. siblings in family with ARI			<0.01	0.15
- Yes	32 (8.4%)	106(27.7%)		
- No	160(41.9%)	84 (22.0%)		
<b>2. Mother's characteristics</b>				
a. Employment			0.01	2.02
- Employed	40(20.8%)	20 (10.5%)		
- Not	152(79.2%)	170(89.5%)		
b. Education			0.48	0.86
- Literate	110(57.3%)	102(53.7%)		
- Illiterate	82 (42.7%)	88 (46.3%)		
c. Age (years)	28.67	28.07	0.39	
d. Smoking			0.82	0.91
- Smoking	13 (6.8%)	14 (7.4%)		
- Not	179 (93.2)	176 (92.6%)		
<b>3. Socio-demographic characteristics</b>				
a. SES			<0.01	0.1
- Low	44 (22.9%)	147(77.4%)		
- Medium or high	148(77.1%)	43 (22.6%)		
b. Residence			0.46	1.22
- Urban	162 (84.4%)	155 (81.6%)		
- Rural	30 (15.6%)	35 (18.4%)		
c. family size	5.43	6.32	<0.01	
d. No. Of Rooms	2.75	2.47	0.01	
e. crowding index	2.35	2.85	<0.01	

Table No.2: Subsets of variables associated with ARI

Category	Beta	P-value	OR	95% CI	
				Lower	Upper
Age	-0.03	<0.01	0.97	0.95	0.98
Gender <sup>a</sup>	0.70	0.01	2.03	1.18	3.46
Vaccination <sup>b</sup> - Partially vaccinated - Not vaccinated		<0.01			
	1.38	<0.01	3.97	1.95	8.08
	1.97	0.04	7.18	1.02	50.57
ARI in another sibling <sup>c</sup>	-0.18	0.50	0.83	0.49	1.41
SES <sup>d</sup> - Low SES - Medium SES		<0.01			
	3.13	<0.01	22.98	6.35	83.18
	0.55	0.36	1.74	0.52	5.79
Employment <sup>e</sup>	-0.31	0.43	0.72	0.33	1.60
Crowding index	-0.12	0.22	0.88	0.72	1.07
Constant	-1.20	0.06	0.30		

a female reference group

b vaccinated reference group

c ARI in another sibling ( no ) reference group

d high SES reference group

e mother employment ( yes ) reference group

**Table 3: Test of binary logistic regression**

Maternal correlates such as mother's education status and employment (despite crosstab showing a significant association with employment but Logistic regression was not significant) are not significantly related to ARI in their children while in other studies (12, 16) found a strong association of ARI with parents' education, maternal education and employment of the mother. House wives constitute 98.7% of mothers of children with ARI (12). While Saeed and Bani (13) showed that ARI is more prevalent among children with an employed mother, this may be explained by difference in rules for period allowed for caring of infants after delivery and

number of work occupied mothers.

Maternal smoking has a weak correlation with ARI. This agrees with the study of Yousif and Khaleq (12) that demonstrated there was no association of development of ARI with smoking.

The present study demonstrated no significant association of ARI with presence of ARI in another household sibling by logistic regression model opposite to other studies (12, 16). The study of Yousif and Khaleq (12) resulted in that children with household members affected with ARI were 4.17 more at risk to develop ARI than those with

no such history. This association was statistically significant in our study when crosstab by Chi-square and relative risk was determined.

Overcrowding and large family size were additional risks for acquiring ARI in children (12, 13, 15, 16)

### Conclusion

- Most of the ARIs occurred in children below the age of 1 year.
- It was observed that boys are more prone to acquire ARI than girls.
- ARI were more common in children belonging to low socioeconomic status, overcrowded family, or who were incompletely or not vaccinated.

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# Computer and Internet Use by Doctors in a Nigerian Teaching Hospital: A Survey of the Wesley Guild Unit of Obafemi Awolowo University Teaching Hospitals Complex

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## Abstract

**Objectives:** To determine the level of computer proficiency, accessibility to the internet and the use of computer-based resources of respondents.

**Methodology:** A questionnaire based descriptive survey of seventy-four doctors in Wesley Guild Unit of OAUTHC was carried out. The questionnaire was self administered and the results were analyzed using SPSS package (Version 11). Frequencies and Pearson's correlation test of significance were done and the results displayed in tables and Charts.

**Results:** Of the 74 doctors studied, 51(68.9%) and 23(31.1%) were males and females respectively. Mean age was  $34.3 \pm 11$  years. 73% of respondents could use a word processor, 51.4% a statistical package while 42% could prepare power point slides. Also 44.6% of respondents could access the internet at home, 28.4% at work, 31.1% via mobile phones while 47.3% use cyber cafes. Reading and sending emails is the predominant internet based activity (51.4% of respondents). Of the 74 respondents, 59.5% had electronic versions of some of their text books but only 52.7% use them. Even though 45% were aware of free online self learning

modules only 40% of the respondents participate. In all, only 12.2% of respondents felt paper based health records are better than electronic records.

**Conclusion:** In today's world of increasing change and complexity, doctors in this study need to acquire more computer-related competencies and internet skills.

## Background

In a world of increasing change, complexity and competition, computers and the internet are important tools for medical workers. The recent evolution in healthcare and health service delivery is accounted for not only by an explosion of medical knowledge but also by progress in science and technology and societal changes(1, 2). Indeed, clinical practice has improved as a result of these technological interventions and a new field of applications called health (or medical) informatics has emerged(3, 4, 5).

From generation, storage, retrieval and transmission, keeping patient health information, to monitoring patients receiving home care, health management information system, remote assistance for instant opinion and to guided performance of procedural skills in patient management, computers have literarily "invaded" the healthcare profession(6). Particularly, our capability to collect, store, process and manage data has been revolutionized by computers. Beyond the traditional pen and paper, health data can now be collected by novel equipment such as portable digital appliances, hand held devices, health cards etc. Storage of this data is done, not on wooden or metal shelves, but in electronic health records or more heterogeneous information systems, which in turn facilitate fast and easy data access and transmission (7).

Medical education is not left behind in this trend. With a computer and internet, a student can get access to references and information quickly. Doctors for example can participate remotely in distant Clinical meetings via the internet video streaming, video-conferencing facility. Multimedia, a viable replacement for the conventional projectors, opens possibilities for new types of interaction with an audience which hitherto did not exist(8, 9).

In most parts of the developing world however, a wide technological gap exists with functional and efficient

implementation of informatics applications occurring only in a few pockets in the developing world. In most parts of the developing world, computer and internet use, though rising is still very low. Correspondingly, there is a paucity of literature on the use of computers and internet among health practitioners in the developing world, hence this study set out to determine doctors' computer proficiency, access to the internet and use of computer-based resources in a Nigerian teaching hospital (10, 11).

## Methodology

The survey was conducted between May and June 2009 at the Wesley Guild Hospital Unit of Obafemi Awolowo University Teaching Hospitals Complex (OAUTHC).

Ethical clearance was obtained from the OAUTHC ethical clearance committee. A pre-tested, self administered 47-item questionnaire was distributed to all consenting doctors in the hospital. The questionnaire obtained demographic information, highest level of training, proficiency in computer use, internet access, computer ownership and use of computer-based resources. Data were entered into the computer and analysed with the Statistical Package for Social Science software (SPSS, Version 11). Frequencies and inferential statistics were used and the results were displayed in tables and charts.

## Results

**Demographic Characteristics**  
Out of the 74 consenting respondents, 51(68.9%) were males and 23(31.1%) were females. Their age range was between 21 and 59 years, with a mean age of  $34.3 \pm 11$  years. The house officers constituted most of the respondents, 30(40.5%), while 2 medical officers (2.7%), 23 registrars (31.1%) and 19 consultants (25.7%) accounted for the rest of the study subjects. The average length of professional practice of the respondents was 7 years, with 54(73%) having only a graduate degree in medicine and 20 (27.0%) having acquired professional qualifications in their chosen fields of specialization.

Proficiency in computer use  
Figure 1 of the Appendix shows that a relatively high proportion of respondents was proficient in word processing and internet use compared to power point slide preparation and use of statistical software. 73% of respondents could use a word processor. Out of the 54 males, 38(74.5%) could use a word processor compared with 15(65.2%) Twenty-one (70%) of house officers, both medical officers, 13 (87.0%) of the registrar, 6 (75.0%) of the senior registrars and 11 (57.9%) consultants reported satisfactory proficiency in the use of a word processor. Figure 2 shows that most respondents acquired computer-based competencies through self study.

## Accessibility to the internet/ Ownership of a personal computer

Table 1 shows that most respondents 68(74%) had internet access with 28 (38.2%) having more than one source while Figure 2 shows that the majority (51.4%) use the internet predominantly for emailing. All the respondents could use the internet proficiently. With specific reference to accessing the internet at home, 14(73.7%) of consultants, all of the senior registrars, 33% of the registrars, 50% of the medical officers and 20% of house officers had such access at home. Of all the respondents, 50(67.3%) owned personal computers (PC) and all but two of the consultants (89.5%) had a personal computer. Concerning the cost of a PC, 14 house officers (46.7%) compared to three consultants (15.8%) felt it was expensive.

**Use of Computer based-resources**  
Forty-four respondents (59.5%) had electronic versions of some of their text books and only 23 (52.7%) of them used their e-books. Forty-five percent were aware of free online self learning modules; 40% of these participated in online learning. Only twenty-two respondents (29.7 %) had ever subscribed to an e-journal with 33(44.6%) knowing websites with resources specific to their area of interest. Concerning e-journal subscriptions, 47.4% of consultants,

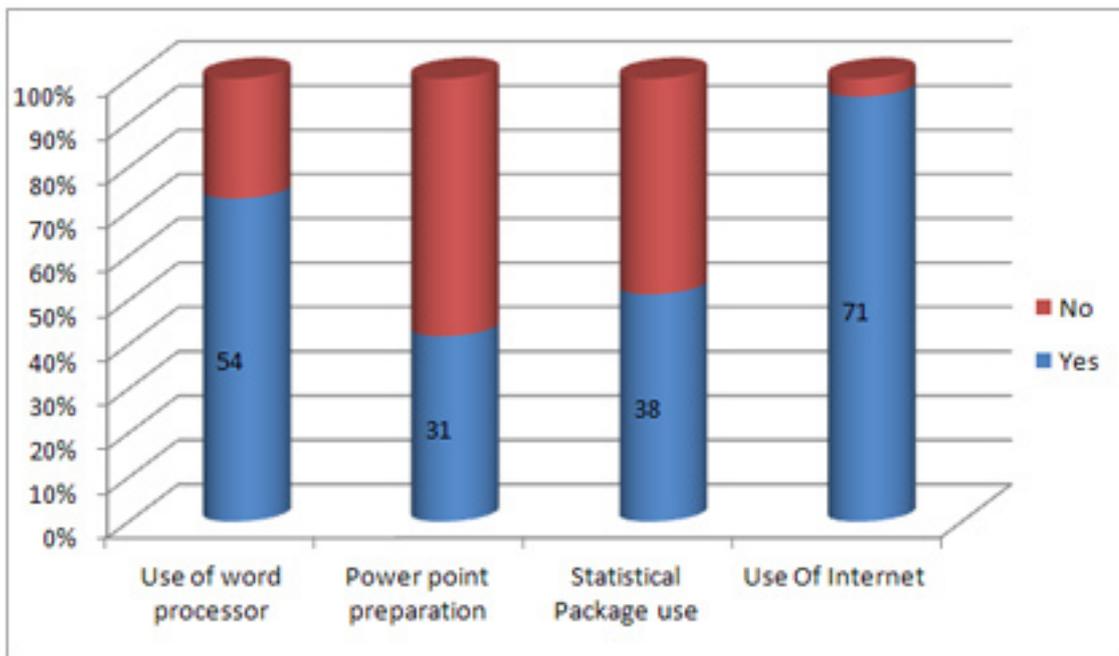


Figure 1: Proficiency in Computer-based Competencies

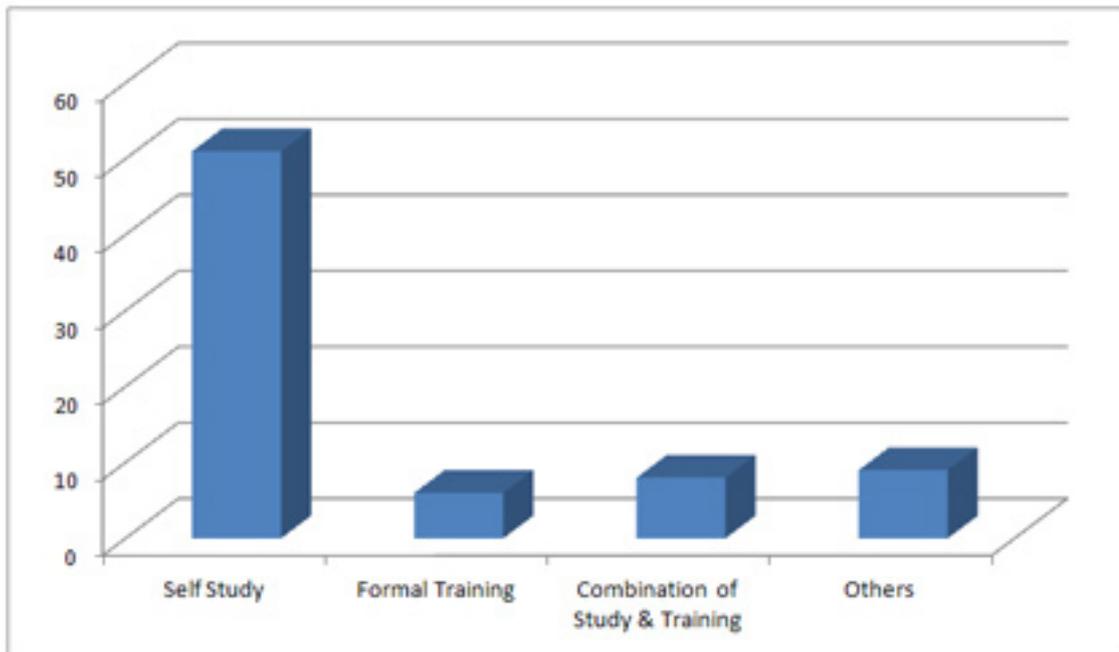


Figure 2: Respondents' method of acquisition of Computer based competencies

Place	Number Of Respondents
Home	33(44.6%)
Work	21(28.4%)
Via Mobile Phones	23(31.1%)
Cybercafé	35(47.3%)
None	6(10.9%)
More than one source	28(38.2%)

Table 1: Respondents' means of accessing the internet



**Figure 3:- Predominant internet activity of respondents**

33.3% of senior registrars, 23.3% of registrars and 20% of house officers had ever attempted subscribing. Respondents' reasons for not using computer based resources included lack of a personal computer, poor electricity supply and poor internet access. On the issue of electronic medical record (EMR), 65 (87.8%) felt EMRs were better than paper-based records, which is currently in use in the hospital.

#### Significant Associations

Ownership of a personal computer was associated with use of word processors ( $p=0.001$ ), use of a statistical package ( $p=0.045$ ), preparation of PowerPoint slides ( $p=0.001$ ), ability to search Medline / Pubmed unaided ( $p=0.003$ ), access to the internet at home ( $p=0.011$ ). When possession of word processing skills was correlated with possession of other computer-related skills, it was found to associated with the ability to use a statistical package ( $p=0.006$ ) and ability to prepare power-point slides ( $p=0.001$ ).

#### Discussion

This study shows that ownership of a personal computer was central to the ability to use one well. This is similar to the finding of Bello et al(10) among all health workers at Ife hospital unit of OAUTHC in 2000. Asangansi et al (12) reported in 2007 that 51.7% of 145 doctors in the University College Hospital, Ibadan owned a

computer and 37.9% could not use word processing software. In a study of a selected population of doctors in Enugu State, Nigeria in 2000 by B. C Ozumba (13), 0.5% of respondents searched the internet regularly.

The overall proficiency of the respondents in computer based competencies was below average. With 42% capable of making power point slides and 51.4% able to use statistical software, these findings contrast with what was found in the developed continents of the world. Appalachian Region Informatics Consortium Survey of 2005 in Ohio, United States showed that 91.4% of doctors could use an Electronic Medical Record (EMR) (14). In the Canadian Medical Association physician resource survey of 2000, 84% of doctors showed computer use proficiency(15). Similarly, higher values were seen in a study of student doctors in Malaysia in 2002, where 94.4% of the subjects could use a computer well(16). Also, in a survey of doctors in eleven countries across North America, Europe and Asia, 44% of these doctors accessed the internet mainly in their homes, with 86% owning personal computers(17).

Males are more proficient in computer use when compared to females. 72.2% of our males respondents can use a word processor while 63.2% of the females can do the same. This is similar

to findings in earlier done studies. Asangansi et al(12) found that 73.3% of males in their study could prepare slides while only 52.3% of females could prepare their presentation slides.

Computer-based competencies tend to cluster in the same people. Possession of one computer-based competency was found to enhance the chances of possessing another competency. Use of a word processor, for example, correlated significantly with use of a statistical software ( $p=0.006$ ). This supports the findings of Asangansi et al, who found that doctors who could use word-processing software were more likely to be able to use a statistical software ( $p=0.001$ ) and prepare presentation slides ( $p=0.000$ ).

Awareness of free online self-learning modules was found to be low, with less than half being aware of such. Of those who are aware of such, only 45% had ever participated in any online module. In a study in University Of Lagos in 2003, Ogunyade and Oyibo(18) discovered that 52% of the 250 students who studied were aware of Medline on CD-ROM while only 24% had used it. Odusanya and Bamgbala(19) in Lagos also reported that 80% of their final year medical and dental students had used the computer, but the use of software applications was very poor (19%). Reasons adduced to these may be low computer

possession, epileptiform electricity supply and lack of uninterrupted supply.

Introduction of Medical informatics modules in undergraduate medical school curriculum is strongly indicated in the light of medical practice in today's 'computer- ruled' world. The developing world needs to take this more seriously if we are to stand shoulder- to-shoulder with people from the developed nations. Ownership of a personal computer by all doctors should be encouraged and if possible facilitated. Training and re-training on basic and advanced medically relevant computer applications should be done for doctors at regular intervals.

Continuing medical education (CME) is essential in this era of evidence based medical practice. Widespread awareness of free online CME modules is needed to encourage doctors to keep themselves abreast of changes in medicine.

Computers are here to stay with us. All doctors in developing countries must change their paradigm as regards proficiency in the use of computers and computer-based resources.

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# Travellers Knowledge, Attitudes and Practices on the Prevention of Infectious Diseases: Qatar-Doha International Airport Study

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## Abstract

**Background:** Infectious diseases remain endemic in many of the under developed and developing countries worldwide. Travellers to these countries are at risk of contracting these diseases.

**Objective:** The objective of this study is to determine knowledge, attitudes and practices related to the prevention of travel related infectious diseases among travellers travelling to developing countries from Qatar.

**Design:** A cross-sectional study was conducted using Qatar International Airport as a cluster sample during June to August 2007. Qatar residents travelling to developing countries were eligible for the study. A structured

questionnaire was developed that included common characteristics like socio-demographics, travel information, preparation and also on the travellers' perception of risk of infectious diseases at their destination, and knowledge attitude and practice toward pre-travel health consultation.

**Results:** A total of 550 passengers were approached and 401 travellers agreed to participate and the response rate was 74.5%. Only 111 (27.7%) of respondents sought general information about their destination before their trip. Similarly, less than one fifth, 76 (19%) of travellers sought travel health advice or a health consultation. Among the 325 travellers who did not seek pre-travel health advice, 156 (48%) did not know they should, 69(21%) perceived that

they were not at risk, 63(19.4%) already knew what to do, and 33 (10.2%) said that they were too busy.

**Conclusion:** The results of this study showed a very low rate of travellers seeking pre-travel health advice. The knowledge, attitudes and practices of business travellers with regard to infectious diseases prevention need to be improved. Involving all stakeholders, such as education of primary care physicians, media participation and partnerships between travel agencies and medical clinics, are potential means of improving public perception of travel medicine in Qatar.

**Keywords:** Travel medicine, Airport, Infectious Diseases, Knowledge Attitude Practice

## Introduction

It is estimated that more than one billion people travel each year by air [1] and between 20-70% of the 50 million travellers travelling to the developing world are affected by some travel related infectious diseases every year [2]. Travelling to different countries exposes travellers to the risk of infectious diseases of the host countries. Many destinations nowadays are going to developing countries with a high risk of many infectious and tropical diseases such as malaria, travellers diarrhoea, respiratory tract infections, hepatitis A and B, skin diseases and sexually transmitted infections [3]. Threatening diseases such as SARS and Avian influenza and the other re-emerging diseases like malaria, tuberculosis (TB) and tropical diseases have already affected the tourism industry which is a valuable source of income to many countries [3, 4]. The developed countries spend much more in medical care and in circumstances such as an outbreak.

Travellers take personal precautionary measures but these are often inadequate therefore WHO has strongly recommended pre-travel medical consultation and examination for travellers to endemic countries [5]. The benefits of pre-travel preventive measures have been evaluated [6]. Some factors were found to be associated with increased risk of health problems and others were inconclusive. Africa and South East Asia were found to have higher rates of illness, (68%) compared to all other destinations (37.5%) [7]. Pre-travel health advice given by GPs was found to reduce the need for medical assistance while abroad; it also reduces GP workload in terms of post-travel health consultations with returning travellers [8]. Another important issue is the cooperation that is nowadays needed between different parties involved in travel issues such as the health sector and tourism and travel agencies should be established for the benefit of travellers [9]. This study adds to the evidence that travel agents do not take their responsibility for travel health seriously [10]. This

study will be a first step to clearly assess and understand the traveller's knowledge, attitude and practice towards prevention in Qatar.

The objective of this study is to determine knowledge, attitudes and practices related to the prevention of travel related infectious diseases among travellers travelling to developing countries from Qatar.

## Subjects and Methodology

This is a cross-sectional study conducted at the Qatar International Airport during the period June to August 2007. Inclusion criteria for participants to be eligible for the study were all travellers travelling from Qatar to visit developing countries that are known to have some risk of infections according to WHO. Only Qatari or Non Qatari adults who have residency status in Qatar were enrolled. We excluded any participant who did not meet the inclusion criteria or who was not willing to participate.

A structured questionnaire was developed, which included common characteristics like socio-demographics, travel information, preparation and also on the travellers' perception of risk of infectious diseases at their destination. Another series of questions were placed to assess the attitude and practice towards pre-travel health consultations.

We recruited pre-trained interviewers who were multilingual for face to face interviews. They were stationed at the departure lounge after the passengers had checked in. The study was conducted in equal shifts during morning and evening to widen the spectrum of travellers and destinations. Cluster sample from Qatar International Airport was used and subjects were selected systematically among travellers from the waiting lounge till the required sample size of 400 was achieved. Each participant received a leaflet with information on Hepatitis A, Hepatitis B and Malaria prevention after completing the questionnaire.

This study was approved by Qatar

Medical Research Ethics Committee at Hamad Medical Corporation. Also written permission from Doha International Airport authorities was obtained for the purpose of the study. Only travellers who gave verbal consent were interviewed. All personal information was treated with strict confidentiality.

Data was analyzed using the Statistical Package for the Social Sciences (SPSS) software. Data are expressed as counts and percentages as well as mean and standard deviation (SD) unless otherwise stated. Chi-square analysis was used to test for difference in proportions between two or more groups for categorical variables. A p-value less than 0.05 was considered to be statistically significant.

## Results

A total of 550 travellers were approached and 401 completed questionnaires. 149 travellers refused or returned incomplete questionnaires, which gives a response rate of 74.5%. The majority of respondents were males 336 (83.8%) and 65 (16.2%) were females, and were aged 18 to 83 years with a mean age of 36.9 years (Table 1 - next page).

The majority of travellers were travelling alone 225(56.1%). Among those travelling with others, companions included friends 80(20%), spouses or partners (12.7%) and travellers with colleagues, children and others were below (10%) (Table 1). 132 (32.9%) of the participants began preparing for their trip 1 month or more in advance and only 109 (27.2%) had less than 1 week for trip preparation. More than half of travellers were planning to stay for more than 1 month at their destination 222 (55.4%). Interestingly 47(11.7%) travellers planned to travel to more than one destination and 34(8.5%) planned to backpack during their trip.

Table 2 (page 25) shows the perception of risk of diseases at destination among travellers. The majority of the travellers classified their destination as low risk or no risk

Variables	Frequency	Percentage
<b>Gender</b>		
Male	336	83.8
Female	65	16.2
<b>Age Group</b>		
<30	131	32.7
30-40	116	28.9
40-49	84	20.9
≥ 50	70	17.5
<b>Nationality</b>		
Qatari	79	19.7
Non Qatari	322	80.3
<b>Occupation</b>		
Retired	6	1.5
Business	12	3.0
Clerical/Administrative	113	28.2
Police/Military	13	3.2
House Wife	27	6.7
Student	44	11.0
Professional	54	13.5
Manual	132	32.9
<b>Purpose of visit</b>		
Tourism/Holiday	118	29.4
Business/Work abroad	24	6.0
Visit to family/friends	222	55.4
Research education	4	1.0
Others	23	5.6
Medical Treatment	10	2.5
<b>Length of stay at destination</b>		
≤14 days	107	26.7
>14 days	294	73.3
<b>How long ago trip was organised</b>		
<7 days	109	27.2
8-28 days	160	39.9
> 28 days	132	32.9
<b>Travel companions*</b>		
Alone	225	56.1
Family	63	15.7
Friends/Colleagues	88	21.9
Others	20	5.0

Table 1: Characteristics of Travellers and their travel profile

\* More than one answer allowed (percentage do not add to 100%)

Diseases	High risk	low risk	No risk	Don't know
Hepatitis A	63(15.7)	112(27.9)	78(19.5)	148(36.9)
Hepatitis B	57(14.2)	105(26.2)	73(18.2)	166(41.4)
Malaria	70(17.5)	129(32.2)	121(30.2)	81(20.2)
Yellow fever	25(6.2)	86(21.4)	110(27.4)	180(44.9)
Typhoid Fever	21(5.2)	93(23.2)	138(34.4)	149(37.2)
Cholera	41(10.2)	125(31.2)	86(21.4)	149(37.2)
Polio	20(5.0)	124(30.9)	143(35.7)	114(28.4)
Rabies	16(4.0)	89(22.2)	175(43.6)	121(30.2)
HIV/AIDS	61(15.2)	161(40.1)	102(25.4)	77(19.2)
Meningitis	25(6.2)	115(28.7)	96(23.9)	165(41.1)
Influenza	154(38.4)	170(42.4)	42(10.5)	35(8.7)

Table 2: Perceived risk of diseases at destination among travellers (N=401)

for infectious diseases and a greater part of them were unable to perceive risk at destination.

Only 111(27.7%) of respondents sought general information about their destination before their trip. Similarly, less than one fifth 76(19%) of travellers sought travel health advice or health consultation. Among the 325 travellers who did not seek pre-travel health advice, 156 (48%) did not know they should. 69(21%) perceived that they were not at risk, 63(19.4%) already knew what to do, 33(10.2%) said that they were too busy.

Table 3 (next page) includes factors associated with seeking travel health advice. Being a Qatari, female and having a higher education level (secondary school or higher) were more likely to seek pre-travel health advice. Also those who perceived their risk of hepatitis A and malaria as low/high and those intended to stay less than 28 days tended to seek pre-travel health information.

## Discussion

Our study is similar to other airport studies using the ETHAB methodology and guidelines. Sampling travellers after boarding has the advantage of reflecting a more representative sample over studies carried in specialised travel clinics [11]. The response rate in our study was 74.5% which is

comparatively less than the Spanish airport study [12]. Non responders were mainly late comers, busy or those not willing to participate. The morning / evening shifts were found necessary to include a broad spectrum of destinations after reviewing departure schedule with airport authority.

More than half of travellers are travelling alone and similarly more than half of them were visiting family and friends reflecting the non-national single residents travelling to their home countries to stay for more than 1 month at their destination 222 (55.4%). Around 30% are travelling for tourism/holidays which is in the main reason for travel in other western airport studies [13-18]. 85% of travellers previously had visited a developing country before which adds more exposure to various types of risks. The most visited countries by Qatari travellers were Thailand followed by Syria and Malaysia.

In our study 27.7% sought general information before travel regarding their destination. This low figure can be explained by the fact that the majority were non-nationals and were going back home and they claimed to know what to do. Our travellers have the lowest rate compared to other studies with regard to pre-travel health advice and consultation 76(19%). The rate was 36% in a USA study [14], 52.1% in

a European [15], 60% in a Swedish study [17] and 86% in Johannesburg [18] (Table 4). About 50% of those sought pre-travel health advice, consulted a Family physician/general practitioner and family/friends and were approximately equally, followed by internet at 19.7%. In western studies general practitioners and travel health clinics were the most frequent source of pre-travel health advice as found in the Swedish and South African travellers [17, 18]. Travellers could have had received the wrong advice by their families as inappropriate pre-travel health advice was illustrated to be given, even by health professionals [19-21]. Only 9 (11.8%) had sought pre-travel health advice by a specialised travel clinic. A similar result found in a Korean study [13] and an Australian study [16], which reflects the lack of awareness in these two studies as well as our sample. Factors associated with pre-travel health advice seeking were easily understood including higher education, and those who perceived a higher risk of hepatitis A and malaria. Females were also found to be more cautious about their health and visit physicians more frequently [22]. Also those who planned their trip less than 28 days were found to be associated with seeking pre-travel health advice because they tended to be of higher education level, and going for a short vacation, which is in contrast to other studies with 39% of Swedish travellers [17] and more

Variables	Seeking Advice (n=76)	Not Seeking Advice (n=325)	Odd Ratio and 95% Confidence Interval*	P Value
Age group (Years)				
>40	23	117	1.00	
<40	53	208	1.30(0.73-2.30)	0.346
Nationality				
Non Qataris	55	267	1.00	
Qatari	21	58	1.76(0.95-3.25)	0.054
Gender				
Male	55	281	1.00	
Female	21	44	2.44(1.29-4.60)	0.003
Education group				
Lower Education	20	138	1.00	
Higher Education	56	187	2.44(1.29-4.60)	0.002
Length of stay				
≥28 days	30	192	1.00	
<28 days	46	133	2.21(1.29-3.81)	0.002
Do you plan to backpack during your trip				
No	68	299	1.00	
Yes	8	26	1.35(0.54-3.30)	0.477
When plans made for travelling				
<14 days	28	159	1.00	
≥15 days	48	166	1.64(0.95-2.84)	0.058
Plan the travel outside city				
Yes	5	42	1.00	
No	71	283	2.11(0.76-6.30)	0.122
Perceived risk of Hepatitis A				
Do not know/No risk	32	194	1.00	
Low/High Risk	44	131	2.04(1.19-3.49)	0.005
Perceived risk of Hepatitis B				
Do not know/No risk	40	199	1.00	
Low/High Risk	36	126	1.42(0.83-2.42)	0.170
Perceived risk of Malaria				
Do not know/No risk	28	174	1.00	
Low/High Risk	48	151	1.98(1.15-3.41)	0.009

\* p &lt; 0.05

Table 3. Factors associated with Pre-travel health advice seeking behaviour

	Sweden n=957 [17]	Switzerland (23) n=946	United States [14] n=404	Asia Pacific (9) n=2101	Qatar Current Study N=401
Mean age of travellers	45	NA	42.4	37.6	36.9
Sought travel health information before departure	60%	61.2	36%	32%	19%
Sought travel health information > 28 days before departure	40%	51.5	25%	NA	2.7%
Sought travel health information from GP	60%*	27.2*	60%*	73%*	2.2%*
Sought travel health information from Travel/vaccination Clinic	30%*	15%*	10%*	12%*	2.2%*
Having malaria chemoprophylaxis to a high risk destination	97%	21	46%	40%	1%
Hepatitis A immunization coverage	40%	25.5%	24%	5%	14.5%
Hepatitis B immunization coverage	3%	NA	29%	3%	19.5%

NA: not available.

\*More than 1 answer allowed, percentages do not add to 100

**Table 4. Comparison with other airport studies**

than 60% of Spanish travellers [12]. In practice, those going for a longer duration were believed to be at higher risk and in need of more protective health measures [5].

Our study revealed that a great proportion of travellers are unaware of the travel related infectious diseases at their destination even if the destination is their home country. These findings emphasize the need for proper health education and promotion activities and campaigns directed to both the public and health care providers. It is also evident that there is a lack of awareness regarding the promotion and improvement with regard to specialised travel health clinics in Qatar.

### Conclusion

In conclusion, the results of this study show a very low 19% of travellers sought pre-travel health advice. Expatriates, especially the skilled and unskilled workers need special attention by the

Governmental Authority in terms of advice and services for their home visits. Involving all stakeholders like education of primary care physicians, media participation and partnerships between travel agencies and medical clinics are potential means of improving public perception of travel medicine in Qatar. The ultimate health goal of travel is to stay healthy abroad and after returning home.

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# Diabetic foot in the Arab world

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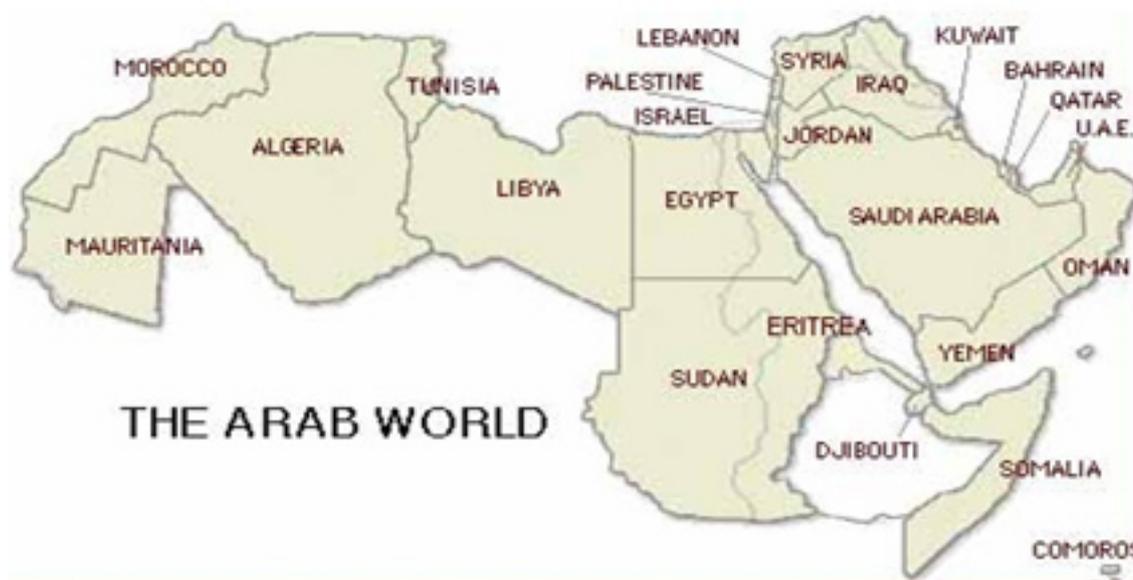
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## Introduction

Arab world refers to Arabic speaking countries expanded from the Atlantic Ocean in the west to the Arabian Gulf in the east and from the Mediterranean Sea in the north to the horn of Africa and Indian Ocean in the southeast (Figure 1) (1).



One of the great challenges facing the Arab countries is the lack of research and lack of publications on health problems.

Diabetic foot problems are among the major complications that may face any diabetic patient at any time of their life. Diabetic foot represents a real challenge to health providers and the health system.

In 2005 the International Diabetes Federation (IDF) published a statement position (2) about some diabetes complications. In this statement, data from epidemiological studies have indicated that between 40 - 70% of all lower extremities' amputations are related to diabetes. Eighty five (85%) of all amputation related to diabetes is preceded by

2007		2025	
	Country		Country
1	Nauru	1	Nauru
2	United Arab Emirates	2	United Arab Emirates
3	Saudi Arabia	3	Saudi Arabia
4	Bahrain	4	Bahrain
5	Kuwait	5	Kuwait
6	Oman	6	Tonga
7	Tonga	7	Oman
8	Mauritius	8	Mauritius
9	Egypt	9	Egypt
10	Mexico	10	Mexico

Table 1: List of top ten countries in prevalence of diabetes mellitus (20-79 year age group)

foot ulcers. Researchers established that between 49-85% of all amputations can be prevented (2). This means that significant reduction in the amputation rate can be achieved by adopting well structured preventive policies.

Due to lack of publications on diabetes and its complications in the Arab world we usually encourage our readers to apply the role of 15 to imagine the situation (Box 1)

**The role of 15 \***

15% of people with diabetes develop ulcers  
 15% of ulcers develop osteomyelitis  
 15% of ulcers result in amputation

\* Armstrong, David G. and Lavery, Lawrence A. (2005). Clinical Care of the Diabetic Foot. American Diabetes Association. ISBN-10: 1580402232

In 2007, the treatment of diabetes and its complications in the United States cost around 116 billion American dollars on its direct expenses; at least 33% of this cost was linked to treatment of foot ulcers (3). Interestingly the higher the ulcer grade the higher the cost of care(3).

Looking to the cost of care of diabetes and its complications in Arab countries in comparison with the United States and Europe, we noticed the small budget directed to it(4).

In the Arab world the prevalence of diabetes has been raised dramatically within the last two decades. This may be attributed to the changes that occurred in the Arab world cultures towards westernization (5). Interestingly the prevalence of diabetes and its complications are still low in the Arab countries located in the west part of the Arab world and becoming higher as we move to the east of Arab world. I think this finding needs more investigations and it is an area for research. Six of the Arab countries located in the east are among the top ten highest prevalence list of the international diabetes federation (Table 1 - above).

**Diabetic foot continuum:**

This is the environment where the income of diabetic foot risk factors work together to produce diabetic foot problems as an outcome (Figure 2 and 3, opposite page).

**Neuropathy:**

Studies in the Arab world showed a prevalence range of neuropathy between 38-94% in diabetic foot cases (6,7,8) . Sensory neuropathy is a major component of the development of

diabetic foot ulceration. Loss of protective sensations such as pain may predispose the patients to recurrent injuries without feeling its occurrence. We observe a case of a diabetic patient with bad self foot care attending with abscess on the dorsum of the right foot due to the presence of a foreign body (piece of glass) for more than three months.

Motor neuropathy leads to atrophy of the small muscles of the foot and this leads to foot deformities. Development of foot deformities with lack of foot care awareness and lack of foot wear centers in the Arab world participate considerably in increasing foot problems in diabetic patients.

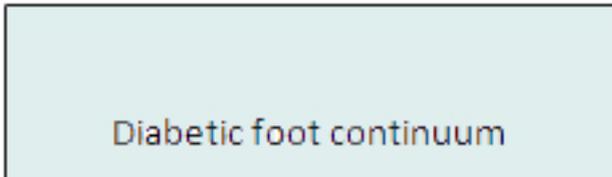
Autonomic neuropathy which leads to dry, cracked skin with fissures, is a common presentation in clinical practice. The unique characters of weather in most Arab countries (hot, dry) make it very difficult to change the cultural beliefs on foot wear. Sandals are the commonest footwear in the Arab countries, particularly the traditional sandals (Figure 4 - page 32).

**Angiopathy:**

Avicenna (980-1037 AD) ,the famous Arab doctor described diabetic foot gangrene and the association between diabetes and diabetic foot (9) . The prevalence of lower extremities vasculopathy was varied based on the method used to detect

Diabetic foot risk factors

Figure 2: Pathway to diabetic foot problems



Diabetic foot problem

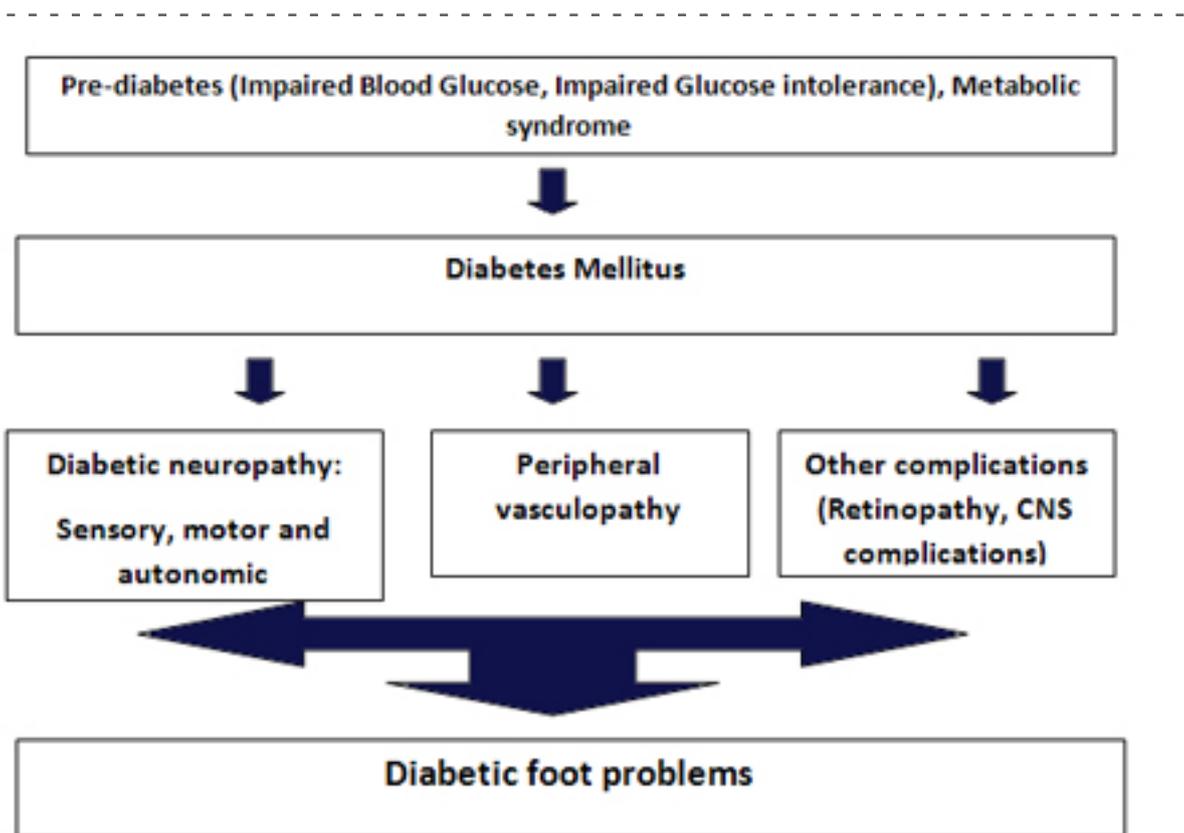


Figure 3: Diabetic foot continuum



Figure 4: Picture shows different styles of improper foot wear

the vasculopathy. Prevalence of peripheral vascular disease had a range of 50 - 78.7% (7, 8, 10).

**Life style:**

In many Arab world countries, life style is sedentary. In a comparative international study of population (11) , physical activity prevalence across 20 countries using the international physical activity questionnaire (IPAQ), Saudi Arabia was the only Arab country that participated in this study. The result of the study showed that the prevalence of low, moderate and high physical activity in Saudi Arabia was 40%, 33.8%, 26.2% respectively, while it was 15.9%, 22.1% and 62% respectively in the United States.

Overweight and obesity are another health problem affecting the foot in diabetic patients through creating extra load in deformed or injured feet. Obesity has become an epidemic problem worldwide and particularly in the east Mediterranean and Middle East region. Prevalence of 3-9% overweight and obesity has been reached among preschool children (12) . In school children it reached 12-25% (12). Marked increase in prevalence of obesity has been noted among adulthood ranging from 15-45% (12) . In adulthood women

it reached 35-75% and in adult men 30-60% (12).

**Diabetic foot in the Arab world:**

The prevalence of diabetic foot varies considerably in the Arab world, but there are some factors shared between most Arab countries that make it high:

**1) Weather and foot wear**

In most Arab countries the weather is hot and dry most of the year. This makes the habit of wearing closed shoes and stocks to be rejected by a lot of patients and instead they prefer to wear sandals. Sandals are not good protective foot wear. They expose the feet to heat, dryness and injuries.

**2) Habits:**

Walking bare footed especially inside houses, is still a common habit in many regions in the Arab world

**3) Religion:**

Ninety percent (90%) of the Arab population are Muslims. They pray five times per day where the feet have to be washed before praying. These maneuvers help patients to inspect their feet as well as clean them. Washing feet before prayers and prayers offer some sort of physical massage to the feet .Trammeling the nails is a habit encourage by Islam, but it should

be done properly so as not to harm the toes. Also every year millions of Muslims in doing Hajj, which is a holy practice, and among whom are a lot of diabetics, unnoticed physical injuries may harm the feet of diabetics. Diabetes education and foot care is an important issue before going to do Hajj.

**4) Education:**

The percentage of illiterate people is higher in the Arab world than in western countries. Lack of education leads to unawareness of the problem and the methods of prevention. Interestingly, one study showed that 90% of screened diabetic patients had poor knowledge about their disease and 96.3% had poor awareness about its control (13) .

**5) Traditional medicine:**

Herbal medicine and herbal medications are still commonly used in many Arab countries. We observed a lot of complicated diabetic feet presented for medical care after severe deterioration due to herbal medications.

**6) Health care system and health care providers:**

Health resources available for diabetes care and diabetic foot management differs considerably among Arab countries and still the management of diabetic foot is not based on a multidisciplinary team

approach. Due to the frequency and long hospital stays, diabetic foot cases usually consume a considerable part of the health care budgets. For this reason the hospitals administrative and health providers are reluctant to admit diabetic foot patients in its early presentation which creates more complicated cases and more amputations.

**7) Rehabilitation:**

Still physical and social rehabilitation is an underdeveloped field in Arab countries. Patients with amputations may wait a long time till they can succeed to get an orthotic device. Sometimes the cost inhibits the patient from seeking help. Still we continue to hear stories about patients isolating them self after amputation and living a lonely depressive life. Also lack of jobs for amputees has a negative impact on their life and their families.

**Current situation:**

The future is looking bright as there are a lot of efforts being done in many Arab countries to improve the outcome of diabetes and its complications. In Saudi Arabia there are about 20 well equipped diabetes centers with highly trained manpower. Also in Sudan there is a pioneer project to initiate a series of diabetic foot care centers through the country. The international diabetes foundation supports a lot of Arab countries to train physicians on how to give proper care to diabetic foot patients. Saudi Ministry of Health cooperates with university of Toronto to conduct an international wound care course (IIWCC) in the area and it was accomplished in 2008-2009. Also a lot of well designed training programs run in many Arab countries and a lot of symposiums and conferences are arranged to discuss the issue of diabetes and its complications.

**Conclusion**

Diabetes care in the Arab world is still in its beginning and a lot of effort on research areas are urgently needed. Health authorities need to implement preventive policies and invest more budgets on training programs and problem awareness programs. A

structured multidisciplinary approach should be encouraged in the field of diabetes care. The need for national registries is urgent in Arab countries.

**(Table 2: Prevalence of diabetes and diabetic foot risk factors and problems in Arab countries can be found on pages 34 and 35)**

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Country	Prevalence of diabetes	Prevalence of diabetic foot
Tunisia (14)	9.9% (9.5% in men and 10.1% in women) It doubled in 15 year period	Data not available
Morocco (15)	6.6%	Data not available
Algeria (16,17,18)	10.6% (10.8% male , 10.5% female)	Diabetic foot ulcer:11.9% Neuropathy 84.85% Peripheral arteriopathy :78.78%
Mauritania (19)	1.88% 1.3% males 2.29% females	Data not available
Libya (20)	Data not available	Peripheral arteriopathy 60% Neuropathy 40% (20)
Sudan (21,22,23)	3.4% 5.5% in north Sudan 8.6% in Khartoum	Neuropathy 37% Peripheral vascular disease 10%
Egypt (24,25)	2.4% rural 8.4% low socioeconomic class 10% high socioeconomic class	Foot ulcer 1% Diabetic neuropathy 22%
Somalia (26)	2.3%	Data not available
Djibouti (27)	4.1%	Data not available
Yemen (28)	4.6% (7.4% male , 2% female)	Data not available
Sultanate of Oman (29)	16.1%	Data not available
United Arab Emirates (30)	DM 29.2% Pre-diabetes 24.2%	Neuropathy 34,7% Peripheral vascular disease 11,1%
Qatar (31)	Neuropathy 34,7% Peripheral vascular disease 11,1%	Data not available
Bahrain (32,33)	DM 25.5% Pre-diabetes 14.7%	Neuropathy 36.6% Peripheral vascular disease 11.8% Foot ulcer 5.9%
Kuwait (34)	12.8%	Data not available
Iraq (35,36)	21.4%	Diabetic foot 2.3% Neuropathy 13% Amputation 0.7% Peripheral vascular disease 0.2%

Syria (37)	15.6%	Data not available
Lebanon (38,39)	11.3%	Peripheral vascular disease 18.3%
Jordan (40,41)	17.1%	Diabetic foot ulcer 5% Neuropathy 19% Amputation 5%
Saudi Arabia (42,43,44)	23.7%	Peripheral neuropathy 13.7 - 35.9% Diabetic foot 4.3% Amputation 1.9%
Palestine (45,46)	9.6%	Data not available

**Table 2: Prevalence of diabetes and diabetic foot risk factors and problems in Arab countries (this page and previous page)**

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# The Quality of Education Teacher Training Centers in Iran

Due to pedagogy (aspects of education) and sociology factors from the perspective of students, teachers and administrators of Teacher Training Centers

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## Introduction

Today, quality of education is based on fitness of what is taught and what is learned with present and future needs of learners, according to their specific situations and future prospects. In this concept, quality should be considered as major changes in many aspects of the educational system that have an impact on the increase or decrease of the quality of education.

These aspects include: Objectives of the educational system, Main systems and sub-systems of education, Input of the educational system (students, teachers, Facilities, Equipment, Procurement etc.), Curriculum (Tuition program), Educational Technology, Social environment, Political environment and Cultural environment.

Flip Komez (1985), speaks of the dimensions of quality of education. He finds these dimensions, much broader than quality. These factors and dimensions from the perspective of systems, are within data of the components of process and output of the education system. (Pardakhtchi, 1375)

Quality of the education system in general, and education in particular is possible when all its dimensions are considered, and one of the most important elements that will be affected by all components of the educational system, is the teacher and the quality of her/his education from all aspects, because the quality of teacher training, enhances the quality of education. It means that the quality of teacher training and qualifications and abilities in this system are the main agents of education, and will determine what kind of policies and programs can be performed; or how they can be hoped to make changes in strategies and traditional approaches. In this regard, studies are conducted that indicate the method and the difference

## Abstract

The present study was to evaluate the educational quality of teacher training centers in Iran according to factors of Pedagogy and sociology from the perspective of administrators and teachers and students of teacher training centers. The statistical population in this study consists of all managers, all teachers and all students of teacher training centers in the whole country and to select samples we used the cluster sampling multi-stage technique. We divided the country into five parts (clusters) based on geographic areas north, south, center, East and West and then randomly we selected from each cluster (part) two provinces and then randomly selected two centers of each province, a center for girls and a boy's Center. All administrators and teachers of selected centers have formed the sample

administrators and teachers. We randomly selected 100 students from various years of each center. Results showed that in the professional and practical skills, knowledge of society, knowledge of learners, their planning, and use of technology skills by teachers, the lowest average is related to teacher groups in teacher training centers and the highest average is related to student groups. There was no significant difference between the scores of students and administrators. In the classroom management skills, the highest mean score was assessed, and is related to the teachers and the lowest average is related to student groups.

**Keywords:** Pedagogy factors, Teacher Training Centers, sociology factors

between standards and behavior (Korthagen, 2010) and this issue of our research indicates the need for change and reconstruction of the teacher training programs. Quality of education has a crucial role in learning and in real human progress and is influenced by internal and external elements of the classroom and includes providing good logistics and a good learning environment.

In this regard, Professor Lorrain Anderson has analyzed the findings of many researchers about the increase of teachers' performance, in 1991. In this work, regarding the performance of teachers, he offers to developing countries systems that be followed, internship experiences with procurement of apprenticeships and in-service training in the early years of teaching. (Anderson, Lorraine 1991)

Between 1980 to 1994, Roof (1378) in his research study on the global movement for improving teacher training, offers a selection of major initiatives that industrial and semi-industrial countries have implemented based on needs and circumstances and their capabilities in the field of teacher training, and believes that these countries can be divided into three categories: countries that are at the information stage of movement, countries that are stable in the stage of movement, and countries that are in the development stage of movement. In industrial countries in the development stage, the evolutionary movement can be seen in the great scheme of Erasmus that was implemented in European Union countries. The project was implemented in stages of visibility Movement (1987) and in the development stages and the evolutionary movement (1995), the new name of Socrates, has taken on all levels and educational levels. These programs show the necessity of change and reconstruction of teacher training programs. (Zecavati, 1384)

A comparative study was conducted in 1994 by the Association of Asia Pacific (APEC). In this study, eight

countries, were compared in terms of education and especially training of teachers according to the objectives, mode of selection, content of teacher training programs and preparation of teachers. Countries studied identified teacher quality as a goal and they focused on teacher training programs. The purpose of teacher quality, in this study considered science education, subject knowledge, skills and attitudes needed for effective teaching, as well as having a deep understanding of the process of child development and communication skills, ethics and updating learning ability. Countries studied were America, France, Germany, New Zealand, Hong Kong, China, Japan and Canada. The results showed that teacher education is an essential element of education development. On this basis these countries are lengthening the period of teachers' education and increasing practical training (internship), are points of emphasis in teachers' education. (Velma Cobb 1991, Quoted by Molaei nejad 1384)

Ahmadi (1385), has reviewed and assessed the educational programs and technician courses of teacher training in Iran. The results of this evaluation indicate inconsistencies and discrepancies in the three aspects of curriculum, intended, performed and earned in educational courses of teacher training courses. Accordingly, he suggests the need for change and reform of the curriculums of training courses. Also in recent years, information and communication technologies are important factors that influence the teacher training programs.

Also in recent years, information and communication technologies are important factors that have an impact on teacher training programs. Meanwhile a number of countries including Britain, France, Japan and Malaysia have put in a lot of effort towards implementing it in their country.

These studies, indicate that for giving quality to teacher training changes are required in selection of teachers, teaching them aspects of education

(Pedagogy) before service and during service, sociological issues and other items.

Accordingly, most countries, for teacher training in pre-service and during service, do systematic and wide planning and to promote the quality of education, they have provided programs, along with the progress of science and technology that in this case can be pointed to measures taken in some countries, for example: Preparing the standard of teacher training by Britain, France and Japan, and provide internship programs for students - and teachers.

Because in total, review of structure and content of teacher training requires a deep foundation which is attached to cultural boundaries (Blomeke, Paine 2008) and requires that such studies be carried out as unique in every country and culture. Despite the implementation of some research in recent years in Iran, since in recent decades there has been changing notions related to childhood and (Perira 2009) it is necessary to create, training facilities, in line with social changes alternating with these concepts and within the culture of our society, by teachers and making these changes requires careful qualitative review. This study has sought to use the internal assessment approach in teacher training centers to act to measure the quality and reveal strengths and weaknesses and offer some solution to the quality of teacher training centers in some aspects of Pedagogy and Sociology.

## Research Methodology

The present study was to evaluate the educational quality of teacher training centers in Iran according to factors of Pedagogy and sociology from the perspective of administrators and teachers and students of teacher training centers. Considering the nature of the object and purpose of study and because the present design is a process that is performed to evaluate the educational quality of teacher training centers in Iran, in terms of purpose, the type of research, was developed and applied.

In terms of data gathering, and research method used, it is a descriptive study. Descriptive research includes the ways that their goal is to describe the situation of Phenomena investigated. Descriptive research can be run for greater recognition of the situation or to assist the decision-making process (Sarmad et al, 1379). Because for data collection methods we used field method, in this study we use survey method for data collection. On the other hand, because this study intends to judge the merit, value or suitability of programs in the teacher training centers, this type of research is also evaluated.

### Research Tools

Tools used in this study included : a questionnaire designed by the researchers, and their reporting is a particular survey questionnaire consisting of three administrators, teachers and students.

Validity: content of the questionnaire was determined and approved with comments from experts and teachers of teacher training centers. Checks on the results of structural validity, were made through the implementation of factor analysis with the main components method in the final run on 570 students, administrators and teachers of teachers training centers. It can also be identified in the six subscales, which include : professional practice, knowledge of society, knowledge of learning, planning skills, classroom management skills and technology skills. Validity of questionnaires in the final run, was by using Cronbach's alpha coefficient formula for the whole questionnaire was assessed in  $0.962 / 0$ .

### Participants

Participants in this study consisted of all managers, all teachers and all students of teacher training centers in the whole country and to select samples we used the cluster sampling multi-stage technique. If (in this way) at the first, we divided the country into five parts (clusters) based on geographic areas north , south, center, East and West and then randomly we selected from

each cluster two provinces and then randomly selected two centers of each province, a center for girls and a boy's Center. All administrators and teachers of selected centers have formed the sample administrators and teachers. In regard to students, we randomly selected 100 students from various years of each center.

### Results

The results of Table 1 (opposite page) show that:

1. The quality of teachers' Professional and practical skills evaluated from the perspective of students is good, from the perspective of teachers is Moderate, and from the perspective of managers is very good.
2. The quality of teachers' community recognition assessed from the perspective of students is Moderate, from the perspective of teachers is weak, and the level of managers is good.
3. The Quality of learner's Cognitive skills of teachers assessed from the perspective of students is Moderate, from the view of teachers is weak and from the perspective of managers is Moderate.
4. Quality of teachers' planning Skills assessed, from the perspective of students is moderate, from the perspective of teachers is weak and from the perspective of managers is moderate.
5. The quality of teachers' technology skills has been assessed, and from the perspective of students is at a very good level, from the perspective of teachers it is moderate and from the perspective of managers it is good.
6. The quality of teachers' classroom management skills has been assessed from the perspective of students as moderate level, from the perspective of teachers as very good and from the perspective of managers as moderate.
7. Eventually, the average of training quality in teacher's training centers

that was assessed by teachers in all examined sub-scales, is lower than other groups.

To check the significance of these differences and responses to the research hypotheses using multivariate analysis of variance of the results are shown in the next table (see Table 2 opposite page).

Results of Table 2 shows : the F values calculated in a grade of quality of professional and practical skills , knowledge of society, knowledge of learners, planning skills, technology skills and classroom management skills of teachers, is significant in the level of  $P < 0 / 00$ , in other words, the educational quality of teachers in teacher training centers, from the perspective of administrators, teachers and students has a significant difference.

In order to know which pair of means (averages) is significant, using Scheffe post hoc test. The results show that in professional and practical skills, knowledge of society, knowledge of learners, planning skills and teachers' technology, the lowest average assessment is related to the Teacher Training Centers group and the highest average is related to students. In classroom management skills, the highest average score that was assessed, was related to the teachers and the lowest average was related to the student group.

The value of the calculated coefficient of determination obtained in professional and practical skills  $0/18$ , recognition of society  $0/09$ , cognitive skills of learners  $0/13$ , planning skills  $0/06$ , skill in the use of educational technology  $0/11$ , and finally classroom management skills  $0/14$ .

In other words, 18 percent of the variance of educational quality of teacher training centers is explained by the professional and practical skills of teachers, 9 percent by the teachers' knowledge of society, 13 percent by cognitive skills of learners , 6 percent by planning skills, 11 percent by skills in the use of educational technology and finally

Statistics	Group	Professional and practical skills	Community recognition	Learner's Cognitive	Planning skills	Technology skills	Classroom management skills
Average (Mean)	Student	2/91	2/47	2/54	2/57	3/11	2/51
	Teacher	2/13	1/88	1/93	2/13	2/42	3/29
	Manager	3/01	2/65	2/85	2/75	2/89	2/59
Standard deviation	Student	0/64	0/71	0/61	0/67	0/73	0/68
	Teacher	0/48	0/43	0/45	0/52	0/55	0/76
	Manager	0/47	0/55	0/48	0/54	0/65	0/49

Table 1: Mean and Standard Deviation of Educational Quality Questionnaire Subscales in the Three Groups

Source change	Total square	Degrees of freedom	Mean square	F test	Significant level
Factor1	14385/40	2	719270	66/60	0/000
Factor2	2300/40	2	1150/20	31/03	0/000
Factor3	5277/26	2	2638/63	45/29	0/000
Factor4	403/96	2	201/98	18/89	0/000
Factor5	942/21	2	471/10	37/49	0/000
Factor6	199/25	2	99/62	52/27	0/000

Table 2: Summary of Multivariate Analysis of Variance Data

14 percent by teachers' Classroom management skills.

## Conclusion

Characteristics of study participants showed that about 91 percent of cases of managers and 85 percent of teachers have a master's degree. Linda and Arlyng (2000) showed that there is a direct relationship between academic achievement and Teachers' educational evidence. The most frequent experience of managers was less than 10 years, while teachers' group is more than 20 years. Studies on the effect of teaching experience on students' learning indicate that there is relation between teachers and the effectiveness of their teaching. Over 90 percent of administrators and teachers of groups of samples have passed training courses related to their field. Studies show that what have the greatest impact on the effectiveness of teachers is the knowledge of teaching.

Ashton and Crocker (1987) found that there is a significant relationship between teachers' performance and their skill courses. Monk (1994) also showed that skill courses had a positive impact on teacher's preparation, and this improves the students' learning. Between the quality of professional and practical skills of teachers in teacher training centers, are different views of administrators, teachers and students. Quality of professional and practical skill is assessed from the perspective of teachers is moderate, from the perspective of students is good, and from the perspective of administrators is very good. The value of the calculated coefficient of determination shown in professional and practical skills is 18. This means 18 percent of the variance of educational quality of teacher training centers is explained by the professional and practical skills of teachers. Teachers teaching methods, is one of the key elements for students' success. So one of the areas that needs serious attention from the reformers of teacher training programs is to familiarize students and teachers with varied teaching methods. The

ways that make them active in the process of teaching - learning (Dol 1987). The most important factor in giving quality to teachers' training centers' performance that has been evaluated from the perspective of administrators, teachers and students is teaching and training methods used by teachers. Training methods will give direction to the whole educational process and with regard to effective training methods that are done, designing effective learning environments, will improve the quality of teaching process - learning. The best teacher is one who has the ability to create new methods and best practices, is not a particular way, but is an art. Every teacher should strive to create the capability to discover new methods (Dal 1987). (Mehr Mohammadi 1379), quoting Lyndvarlyng (2000) cited research findings of Donal Ferguson in 1991 and concluded that there is a direct relationship between the teacher comments about the exam qualification certificates and teaching experience with students' progress.

One of the strongest connections seen in this area includes tests that measure the amount of basic skills and teaching knowledge. Studies show that there is a direct connection between student learning and using a set of teaching methods. (Mehrmohammdy, Mahmoud (1379)).

From the perspective of administrators, teachers and Students, there is a difference between the quality of teachers' community recognition of teacher training centers. The quality of teachers' community recognition has been assessed from the perspective of students : as moderate, from the perspective of teacher, weak, and from the perspective of managers, good. The value of the calculated coefficient of determination shows that 9 percent of the variance of the educational quality of teacher training centers is explained by the teachers' knowledge of society.

From the perspective of managers, teachers and students, the fifth factor for giving quality to the teacher

training centers is knowledge of society by teachers. Teachers can be successful, operate teaching and learning processes according to identifying their community needs to deliver the ultimate goals in the areas of cultural, social and political. Determining the teacher's role as a leader in the new millennium, including the roles that have been highlighted recently in discussions of central school, issues such as globalization, "Technology and the huge social and economical changes" are complex and influential factors so that teachers are forced to have knowledge in curriculum, communication and cooperation with other people. (Molai Nejad 1384)

From the perspective of managers, teachers and students, there is a difference between learner's Cognitive skills. The Quality of learner's Cognitive skills of teachers has been assessed from the perspective of students as Moderate, from the view of teachers as weak and from the perspective of managers as Moderate. The value of the calculated coefficient of determination shows that 13 percent of variance of educational quality of teacher training centers is explained by cognitive skills of learners . Studies have shown that there is a positive relationship between student learning and the level of flexibility, creativity and teachers compatibility with the needs of student. Effective teachers are those who adjust their teaching to students with different needs and different dimensions of well-known educational purposes and various methods.

The next factor, is the teachers' recognition of learners as one of the important pillars of learning is effective communication between teachers and students. If a teacher fails to find an effective way to communicate with their students and fails to understand the interest and needs of his students, he cannot have implemented the curriculum successfully and has impaired learning- teaching process. Using the first factor, namely, using effective methods of teaching and using them timely and appropriately, needs

of learners, abilities and their learning styles.(Ebrahimi, Ali 1377).

From the perspective of managers, teachers and student, there is a difference between teachers' planning skills of teacher training centers. Quality of teachers' planning Skills has been assessed, from the perspective of students as moderate, from the perspective of teachers as weak and from the perspective of managers as moderate. The value of the calculated coefficient of determination in planning Skills shows that 6 percent of the variance of educational quality of teacher training centers is explained by the teachers' planning skills.

In terms of teachers, teachers' planning skills, has been rated as last. However, since the educational system is a centralized system, curricula and planning are done as a focus. This agent is effective in relation to the main cause or the use of teaching methods (professional skills), but it has less importance, though the in new educational system, teachers are regarded as the principal curriculum planner and it would be an important and effective factor in relation to giving quality to the teacher training centers' work.(Ebrahimi, Ali (1377)

From the perspective of managers, teachers and student, there is a difference between technology skills of teachers. The quality of teachers' technology skills has been assessed, from the perspective of students as at a very good level, from the perspective of teachers as moderate and from the perspective of managers as at a good level. The value of the calculated coefficient of determination in technology skills of teachers shows that 11 percent of variance of educational quality of teacher training centers is explained by teachers' technology skills.

From the perspective of teachers, administrators and students educational giving quality, application and proper use of technology in education is important, including the ability to organize training materials, use of media appropriate with features for learners, educational goals and facilities issues.

(Fardanesh, Hashem, (1372).

From the perspective of managers, teachers and student, there is a difference between teachers' classroom management skills.

The quality of teachers' classroom management skills has been assessed from the perspective of students as at a moderate level, from the perspective of teachers as very good and from the perspective of managers as moderate. The value of the calculated coefficient of determination in classroom management skills shows that 14 percent of variance of educational quality of teacher training centers is explained by teachers' classroom management skills. Today, the teacher will be responsible for overseeing and guiding through the teaching and learning. Students are entrusted with responsibility for their learning, and teachers as a planner, organizer, are entrusted with guidance and control tasks of the students' learning. Thus, according to new methods of teaching, classroom management plays an important role in the success and effectiveness of teaching and the learning process. Designed learning environment, using teaching methods according to the learners needs and conditions in the classroom, leading students to achieve goals in education, creative thinking and etc. will have a central role in classroom management and educational quality.

Considering the present results, the survey results of teachers, administrators and students of teacher training centers and relying on theoretical foundations of this research is suggested as the process to improve the quality of teacher training centers to consider the following points.

#### **A. attracts experienced teachers and specialists in the fields:**

- 1) Professional skills teacher (especially familiarity with models and modern training methods)
- 2) Meet the needs, abilities and learning styles of students in specific age levels
- 3) Introduction and proper use of educational technology in the teaching process - learning

4) Implementing classroom management successfully and having the necessary skills in this area

5) Recognition of Society

6) Planning Skills

**B. To hold in-service courses to enhance skills and knowledge in the field of the studied factors**

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# The Role of Individual Educational Plans in Helping Cycle One Students with Dyslexia to Become Better Readers

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## Abstract

The purpose of this study is to highlight the importance and role of Individual Educational Plans (IEP) in helping students with Dyslexia, ages six to nine at cycle one of their elementary education. This study emphasizes the need for special education departments in schools where special education teachers can enhance the educational development of students with Dyslexia through the IEPs that identify the individual points of strength and weakness of the student with Dyslexia. The results of this study showed that the efficacy of the IEP on the development of the reading level varied depending on the initial level of difficulty of the student.

## Introduction

The Role of Individual Educational Plans in Helping Cycle One Students with Dyslexia to Become Better Readers

Dyslexia is a brain-based type of learning disability that specifically impairs a person's ability to read (Hallahan, 2005). These individuals typically read at levels significantly lower than expected despite having normal intelligence. The severity of the disorder varies however common characteristics among people with dyslexia include difficulty with spelling, phonological processing (the manipulation of sounds), and/or rapid visual-verbal responding (Shaywitz, 2003).

Dyslexia is characterized by difficulties with accurate and / or fluent word recognition and by poor spelling and decoding abilities (Gillon, 2004). These difficulties typically result from a deficit in the phonological component of language and are often independent of cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge. According to the International Dyslexia Association 15-20% of school students in the United States of America are dyslexic.

Moreover, there are major federal laws which protect the rights of people with disabilities. The two that are more commonly quoted for persons with dyslexia and related disabilities are The Individual with

Disabilities Education Act (IDEA) and The Rehabilitation Act of 1973 (Section 504).

IDEA provides the right to a free, appropriate public education which includes the right to special education and related services for children with disabilities from age three to 21, or high school graduation, whichever comes first. Students with Dyslexia receiving services through special education would come under this law. A parent or educator can refer a child for special education and related services. Once a child is referred, the school district must conduct evaluations to determine whether the child has a disability. Parental consent is required. From the time a referral is made districts have a "reasonable time" to evaluate and offer services to children identified as needing help.

The Rehabilitation Act of 1973 (Section 504) is a civil rights statute that protects all persons, including school age children, from discrimination on the basis of a disability by any entity receiving federal funds. It also provides protection for students with disabilities while attending most colleges and employees who take on people with disabilities in workplaces receive federal funds. Section 504 is much broader. As a result, in some cases, elementary and secondary students with disabilities who are not eligible for services under IDEA may be able to obtain help under Section 504. College students can also receive accommodation under Section 504.

These Laws, which we lack in our Arab countries, plays an important role in helping students with dyslexia. In Lebanon as most of the Arab world we do not have enough data and statistics for the number of students who suffer from dyslexia. Most of them leave school at early stages, or join vocational schools. A minority go to the Ministry of Social Affairs, where they undergo an IQ test and other tests in which they receive as a result a handicapped card, and lately a learning difficulty card, where they can join specified schools which are sponsored by the Lebanese government. With a quick search you will find that none of these schools are ready to help students with dyslexia. On the other hand the remaining gifted minority joins private schools that are very expensive and claim that they help students with dyslexia. To what extent they help, is not supervised, or credited, or legalized. Based on this we felt that we needed to study if the special education departments inside regular schools who offer individual educational plans to help students with dyslexia can be a good service to such students.

### Individual Educational Plans

An individual educational plan is a plan that is set by the school and all the specialists at school (special education teacher, psychomotricity specialist, speech therapist, psychologist, social worker, class teacher, and staff).

This plan takes into considerations the strengths and weaknesses of the dyslexic student (Kirk & Gallagher & Anastaslow, 2003). The objectives are short and long term goals.

In our research we have used The Jordan Oral Screening Test (JOST), and Jordan Written Screening Test to determine the level of reading of cycle one students. The IEPs based on the points of strength and weakness is identified by the test.

The first part of the IEP highlights the child's main disability. It then goes on to list the priority educational need. Simply put, it would state the child's main education weakness.

Sometimes, two or more priority educational needs are addressed.

The second part of the school's IEP states how the child's priority needs must be met.

The third part states one or two specific goals that the student has to work on during the school year. The IEP states how he/she would learn the task. The fourth part of the school's IEP states how often the teacher or the special education teacher will provide assistance to the child. Fifthly, the plan states how often the child will be tested on the goal. Sixthly, the plan states any therapies that the student must be provided with school, if services are available. The plan must state how often the child will be receiving the services, if they will be provided at school, how many days a week, and how many total hours a week. The parents have a right to ask for this amount to be increased or decreased as they see fit. Seventhly, any behavioral problems a child might be having at school become part of his/her priority education need and will be addressed. Eighthly, every adult present at the meeting will be asked to sign the IEP and come up with a date for the next academic year's meeting.

### Review of Literature

Studies indicate that an increase in the number children with dyslexia, and also an increase in the numbers of students with special needs in general in the United States, as it reached 465000 students (Salem, 2006). In Arab countries, we don't have accurate statistics or studies about students with special needs. We have personal effort and studies from Ahmad Aw'ad (Karyouty & others, 2001) which showed that 52.24% (number of students= 245) of grade five students have reading problems in Arabic. Moreover, 57.96% of students have writing problems, 57.96% have problems in reading comprehension, and 68.16% have problems in their vocabulary bank, and expressive language. Mostafa Kamel's study (Karyouty & others, 2001) based on 419 students showed 26% with reading problems,

and 28.4 with writing problems. Kamal Abou Samaha (Sindakly, 2008) states that 15% to 20% of the Jordanian students have learning difficulties.

### Purpose of the Study

The problem of having students struggling in our Lebanese schools based on the number of students who achieve below average results in their academic profile, and due to the increasing number of drop out students, as stated by the Central Department of statistic that 40% of students drop out between Grade 1 and Grade 12 for different reasons (CDS 1994), we assume that the major reason is their inability to master the objectives needed for reading and writing. Based on this, new formats or structures may be able to serve the needs of these students, which we suggest that this can be through special education departments. The purpose of this study is to test the hypothesis that the individual educational plans improve the reading abilities of students with dyslexia. Moreover, the study aims to emphasize the importance of special education departments in regular schools to help students with special needs.

### Method

In Lebanon all public and private schools teach two main languages either Arabic and English or Arabic and French, and some private schools teach three and a few of them, four languages. We chose one private school in the capital Beirut, where the administration in this schools agreed to participate in our study.

We took all students with below average grades in both languages Arabic and English, as dyslexia is not limited to a specific language and whatever the language the student who has dyslexia studies, he/she will face difficulties. All of them were in grade three where they were almost nine years. They were boys and girls, but we didn't study the gender differences in this study as we leave it for further studies.

We have followed the experimental

research approach method, where the eighteen grade three private school students were divided between a control group and an experimental group. We introduced the independent variable which is the individual educational plans.

It is clear in cycle one classes that some students struggle with school work and especially with reading and writing. When we talk about these students it is important to state that social promotion as stated by the Lebanese ministry of education and higher education was still working until the last academic year (2009-2010), where schools are not permitted to fail or ask any student to repeat grade 1, 2 and 3. This added difficulty to the students who suffer from dyslexia as they reach grade four and they are still struggling with letters. This leads us to assume that the individual educational plans can help students with dyslexia by addressing their personal weaknesses, and setting measurable goals that can clearly show the educational development (which is specified by reading the English language in this research).

The individual educational plans were set and implemented by us during resource hours which are special hours assigned on a daily basis to work with the students of the experimental group on a one to one basis, and almost all the objectives that are worked out are at the same time implemented during regular school hours by the class teacher. The average resource hours for each student didn't exceed 5 hours per week.

### Measuring Instruments

We used the Jordan Oral Screening Test (JOST) to measure the reading level of both the experimental and control groups. Moreover, we used the Jordan Written Screening Test (JWST) to identify the points of weakness of each student in both the experimental and control group. Furthermore, we used the JWST in planning the individual educational plan for each student in the experimental group. Reliability estimates the consistency of the

measurement or the degree to which an instrument measures the same way each time it is used in under the same conditions with the same subjects, while the validity measures the degree to which we are measuring what we are supposed to measure, or the accuracy of the measurement. For our test both reliability and validity were tested by the author and were placed in a kit that is named Jordan Dyslexia Assessment.

Most of the private schools in Lebanon use American books to teach the English language (some use British books, or the official book by Ministry of education), and it is considered as the first language, that is why we didn't find any difficulties in applying the JOST and JWST.

### Study design and procedure

The study duration was for almost one school year. We started by selecting the students, who face reading difficulties: we then divided them into two groups, the control group, and the experimental group. After that, we did the pre-test for both groups. We prepared the individual educational plan for each student in the experimental group, and implemented it for three months. Then we did the post-test for both groups and calculated the results.

### Statement of research question

How can we measure dyslexia in students and to what extent can the individual educational plans help these students with dyslexia to overcome their reading problems?

### Limitations

The research is limited to one school in Beirut due to the daily needed work of the individual educational plans. It was also limited to development in the English language due to the measuring instrument used to measure the reading level of the student.

### Findings (Results and Interpretations)

The results of the pre-test show that almost all of the results do not vary. Considering the control group, the lowest grade was received by the

student A.K. as he got 1.8 over 10, and if we follow the Lebanese official grading system which asks for 5 out of 10 as a passing grade, we find that the gap is equal to 32%. If we consider the passing grade 7 out of 10 as in private schools, we find out that the gap is 52%.

If we take the highest grade of H.D., who received 4.2 over 10, we find that his gap is equal to 8% when we consider the passing grade 5 out of 10, and 28% if we consider the passing grade 7 out of 10. On the other hand, the experimental group lowest grade was 1.8 over 10, we find that his gap is equal to 32% when we consider the passing grade 5 out of 10, and 52% if we consider the passing grade 7 out of 10. If we take the highest grade of Y.S. who received 3.8 over 10, we find that his gap is equal to 12% when we consider the passing grade 5 out of 10, and 32% if we consider the passing grade 7 out of 10.

Table 2 shows clearly a difference in the mean between the two groups, as the result of the experimental group showed 4.225 and the result of the control group 3.100. The same thing applies for the standard deviation, and we find out that the T-test result is 2.24 which is higher than the table T which is 2.14. This clearly shows statistical differences in favor of the experimental group. Moreover, if we calculate the results of the experimental group in the pre-test and post-test, we find out that it ranges from 0.6 to 2.0 which indicates a progress of 6% to 20%, and the following table shows the results in details.

If we compare the results of the pre-test and post-test of the experimental group, we find out that it ranges from 0.6 to 2.0 which indicates a progress of 6% to 20%, and the following table (Table 3 page 46) shows the results in details. On the other hand, if we compare the results of the pre-test and post-test of the control group, we find out that it ranges from 0.0 to 0.2 which indicates a progress of 0% to 0.2%, and the following table (Table 4 p46) shows the results in details.

Control Group	JOST result	Reading Average Result	Average out of 10	Experimental Group	JOST Result	Reading Average Result	Average out of 10
1-A.K.	2.9	0.9	1.8	1-M.H.	3.7	1.7	3.4
2-M.I.	3.0	1.0	2.0	2-O.R.	4.0	2.0	4.0
3-A.T.	3.6	1.6	3.2	3-J.M.	3.6	1.6	3.2
4-H.D.	4.1	2.1	4.2	4-S.G.	3.0	1.0	2.0
5-H.K.	3.4	1.4	2.8	5-M.S.	2.9	0.9	1.8
6-H.C.	3.6	1.6	3.2	6-A.M.	3.5	1.5	3.0
7-H.H.	3.8	1.8	3.6	7-L.G.	3.8	1.8	3.6
8-A.F.	3.7	1.7	3.4	8-Y.S.	3.9	1.9	3.8
9-J.H.	5.2	3.2*					
10-E.D	5.1	3.1*					

\* We have excluded these two students from the study as their reading level is not that far from their class average.

Table 1: Pre-test results of Jordan Oral Screening Test (JOST) for control and experimental groups

Control Group	JOST result	Reading Average Result	Average out of 10	Experimental Group	JOST result	Reading Average Result	Average out of 10
1-A.K.	3.0	1.0	2.0	1-M.H.	4.2	2.2	4.4
2-M.I.	3.0	1.0	2.0	2-O.R.	5.0	3.0	6.0
3-A.T.	3.6	1.6	3.2	3-J.M.	4.2	2.2	4.4
4-H.D.	4.2	2.2	4.4	4-S.G.	3.4	1.4	2.8
5-H.K.	3.4	1.4	2.8	5-M.S.	3.2	1.2	2.4
6-H.C.	3.6	1.6	3.2	6-A.M.	3.9	1.9	3.8
7-H.H.	3.9	1.9	3.8	7-L.G.	4.5	2.5	5.0
8-A.F.	3.7	1.7	3.4	8-Y.S.	4.5	2.5	5.0

Table 2: Post-test results of Jordan Oral Screening Test (JOST) for control and experimental groups

Experimental group	Average out of 10 (pre-test)	Average out of 10 (post-test)	Difference
1-M.H.	3.4	4.4	+1.0
2-O.R.	4.0	6.0	+2.0
3-J.M.	3.2	4.4	+1.2
4-S.G.	2.0	2.8	+0.8
5-M.S.	1.8	2.4	+0.6
6-A.M.	3.0	3.8	+0.8
7-L.G.	3.6	5.0	+1.4
8-Y.S.	3.8	5.0	+1.2

Table 3: The difference between the pre-test and post-test results for the experimental group

Control group	Average out of 10 (pre-test)	Average out of 10 (post-test)	Difference
1-A.K.	1.8	2.0	+0.2
2-M.I.	2.0	2.0	+0.0
3-A.T.	3.2	3.2	+0.0
4-H.D.	4.2	4.4	+0.2
5-H.K.	2.8	2.8	+0.0
6-H.C.	3.2	3.2	+0.0
7-H.H.	3.6	3.8	+0.2
8-A.F.	3.4	3.4	+0.0

Table 4: The difference between the pre-test and post-test results for the control group

## Summary

This research shows that students with mild dyslexia, and average difficulties, benefitted from the individual educational plans to a significant degree. While those with severe difficulty only benefitted in a limited way. We can conclude that the individual plans improve the reading abilities of students who suffer from dyslexia. Furthermore, in a regular school it is recommended to offer this service through a special education department. This can be done with educational specialists, special education teachers, and other specialists such as speech therapist and psychomotricity, and others as needed. On the other hand, more research is needed to be able to get the maximum benefit from the regular school system for students who suffer from severe dyslexia.

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(Arabic references for this article are on page 28)

# Unusual presentation of Varicella: Case Report

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## Abstract

Chickenpox is generally a benign disease in developed countries. In Germany, up to 1% of general practitioner consultations for varicella and its complications result in hospital admission. In children, bacterial superinfections are one of the most common complications.

Skin and soft-tissue infections are the most frequent manifestations of this in healthy children, but life-threatening septicaemia may sometimes supervene. We highlight this with a report of a 15 year old boy with severe sepsis, which had some unusual features before skin eruption. The aim of our report is to highlight an unusual presentation of chicken pox with a picture of septic shock before skin eruption appeared.

**Key words:** varicella, disseminated intravascular coagulopathy, septic shock

## Introduction

Primary infection with varicella (chicken pox) is usually more severe in adults and immunocompromised patients. Although it can be seen year-round, the highest incidence of infection occurs in winter and spring. The disease presents with a prodrome of fever and malaise one to two days prior to the outbreak of the rash (1). The rash begins as erythematous macules that quickly develop into vesicles. The characteristic rash is described as "a dew drop on a rose petal." The vesicles evolve into pustules that umbilicate and crust. A characteristic of primary varicella is that lesions in all stages may be present at one time (2). Although varicella is commonly regarded as a mild disease, serious complications and death may occur (3). Varicella is not notifiable in Germany. Countrywide varicella sentinel surveillance was initiated in April 2005 to evaluate the effects of vaccination. Operative details of the sentinel system have been described elsewhere (4).

## Case Presentation

A 15-year-old male immigrant from the Ukraine, a known patient with history of Factor VII deficiency, previously had a history of severe trauma which resulted in spastic tetraplegia, and discharge with tracheostomy and gastrostomy tube. After a period of three months in intensive care he was transferred to the rehabilitation center.

(Day 1) On 25th of July 2007 he was referred from the Rehabilitation center to our intensive care unit with a high grade fever of 39.6°C, with pallor, hypotonia and massive bleeding from tracheostomy tube and rectum. GCS 8/15. Blood pressure 50/30 mmHg, desaturation under 80% and immediately started therapy as septic shock and disseminated intravascular coagulation (DIC) stabilization of respiratory system.

The patient was intubated and invasive ventilation was started. Fluid replacement by normal saline, Ringer lactate, whole fresh blood transfusion, fresh frozen plasma was given and catecholamine treatment (Dobutamine and Noradrenalin) was started to maintain blood pressure. Blood was extracted for CBC. Electrolytes, CRP, Lactate, PTT, INR Fibrinogen, D-Dimer, AT III, blood culture. Intravenous broad spectrum antibiotics (Meropenem and Teicoplanin) were initiated.

Initial investigation showed pronounced metabolic acidosis and anaemia, prolongation of PTT and INR, and low levels of Fibrinogen, AT III, Factor VII and platelets count, but CRP < 1,0 mg/l (NB < 5) was normal.

Upon these results, the patient was given fibrinogen, AT III, Factor VII, and platelets transfusion, Vit K and Omeprazol.

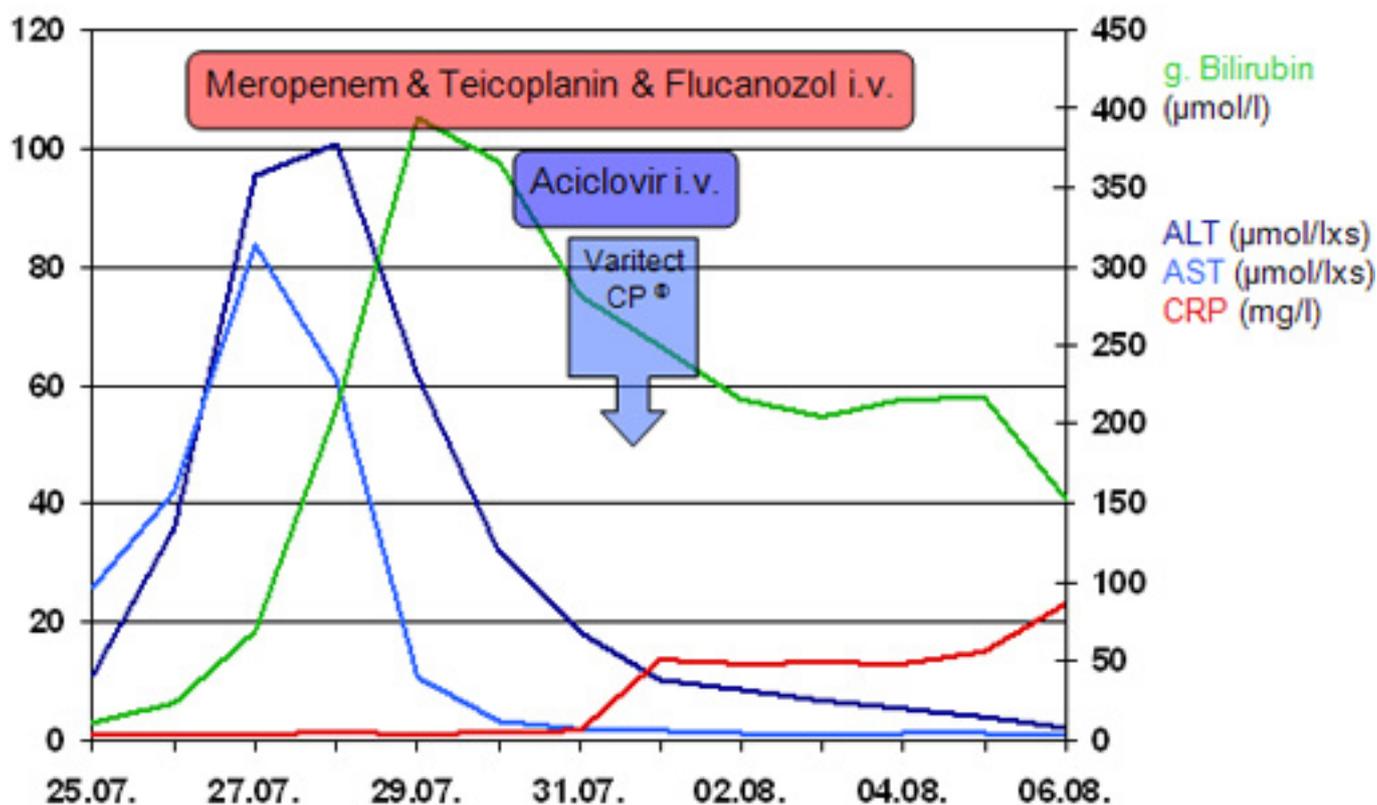


Figure 1: CRP, Bilirubin, and liver enzyme during clinical course in a patient with unusual presentation of varicella

(Day 2) On ventilator BP 100/60 mmHg liver felt 2cm BCM with span 8cm but liver enzyme elevated. Abdominal ultrasound was without any pathology.

(Day 3 and 4) High fever 39.2°C generalized pitting oedema in nature and yellowish sclera with hepatomegaly span 10cm so blood culture for Candida taken and he was started on Fluconazol. (Figure 1).

(Day 5) Three pustules with vesicle rash appear on upper site of chest. (Figure 2a - next page), so swab culture was taken and the results were positive for varicella zoster:

VCV-PCR (swab from skin) positive  
 VCV-RT-PCR (EDTA-Blood) 50.320 copies/ml  
 VCV IgG (serum.) Positive (340 mU/ml)  
 VCV IgM (serum.) Negative

Therefore treatment with systemic acyclovir, diphenhydramine, promethazine, and topical calamine were started.

Blood culture at this time was negative for Candida so Flucanazol

was discontinued. EBV, CMV, Hepatitis A/B/C, HIV 1+2 all were negative.

(Day 7-10) The exanthema covered all the body, Figure 2b (next page), and temperature decreased however chest x-ray showed left side atelectasis and physiotherapy was initiated. After two weeks of acyclovir treatment there was significant improvement the skin lesions crusted, and the laboratory results were back to normal (Table 1) but patient continued his treatment for physiotherapy and was discharged from our hospital, to the rehabilitation center for care.

### Discussion

Transmission of chickenpox occurs in susceptible hosts via contact with aerosolized droplets from nasopharyngeal secretions of an infected individual or by direct cutaneous contact with vesicle fluid from skin lesions (5). In our case there was a history of contact of chicken pox with a patient in the same rehabilitation center 10 days before presentation. Airborne transmission of VZV to

susceptible nursing staff has also been reported in a hospital unit (6). Primary infection with VZV routinely occurs during childhood and is usually a benign self-limited illness in immunocompetent children. However, varicella can be a severe disease in adolescents, adults, and immunosuppressed or immunocompromised individuals of any age. Secondary cases in household contacts appear to be more severe than primary cases (7). We describe an otherwise spastic tetraplegic immigrant child who received a national programme of vaccine in his country (Ukraine) except varicella vaccine. In Germany, up to June 2004, vaccination against varicella was only recommended for special risk groups and their contacts and as post-exposure prophylaxis. Universal varicella vaccination of all children 11 to 14 months of age was recommended by Germany's Standing Committee on Vaccination in July 2004. (8) The main objective of this recommendation was reduction of morbidity, and varicella complications (VC) and consequently, the economic burden of disease. (9). The clinical manifestations of varicella in healthy children



Figure 2a: Classic initial lesion of varicella described as a 'dew drop on a rose petal'



Figure 2b: After two days the typical rash of varicella appeared all over head and trunk

generally develops within fifteen days after the exposure and typically includes a prodrome of fever, malaise, or pharyngitis, and loss of appetite (5), followed by the development of a generalized vesicular rash, usually within 24 hours. In our case the presentation as septic shock with DIC and before skin rash and vesicles appeared was a very unusual presentation of varicella. The measurement of acute-phase proteins, especially C-reactive protein, is a useful marker

of inflammation that reflects the severity of infection. In our case it is remarkable that C-reactive protein was very low at the beginning of the disease and slightly increased after the skin rash appeared.

Chickenpox is one of the common viral illnesses of children, the incidence of which has declined significantly with vaccination. Although extremely rare, all children who develop fever, signs of sepsis and rash appearing any time during

the illness should undergo all tests and culture should be taken to detect the pathogen and treated successfully.

### Conclusion

We report a child who developed disseminated intravascular coagulopathy with septic shock before skin eruption of varicella appeared. Dramatic improvement was seen after treatment with acyclovir.

	25.07	27.07	29.07	31.07	02.08	04.08	06.08
WBC 4.512.5Gpt/l	9.8	13.9	7.8	4.1	6.5	6.9	6.6
Htc 0.36-0.4	23.6	0.32	0.32	0.26	0.32	0.325	0.317
Plat.150-400Gpt/l	11	42	66	36	78	114	132
INR 0.9-1.2	4.9		2.26	1.86	1.4	1.35	1.38
aPTT 25-43s	221	46	37	38	38	35	37
Fibrinogen 1.50-4.50g/l	<0.25	1.40	1.70	2.2	3.9	5.1	3.6
DDimer<132ng/ml	>19.000	>19.000					2200
CRP<5.0 mg/l	<1.0	1.0		12.6	13.6	13	15
ALT <0.75 µmol/l	11.0	100	31.7	8.4	6.6	5.1	4.03
AST<0.77 µmol/l	12.5		3.2	1.11			1.22
AT III 80- 120%	38	58	36	34		52	78
Factor VII 70-180%	9%	2%					
Bilirubin <17 µmol/l	9	156	366		204	201	192
Albumin 35-52g/l	22	29	26.6	33	33.6	34.6	35.2
PH 7.35-7.45	7.12	7.34	7.32	7.42	7.49	7.44	
HCO3 22-26mmol/l	10.2	18.8	20.5	23	24.3	22.4	

Table 1: Laboratory results during clinical course of a patient with unusual presentation of varicella

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