INTRODUCTION

Hepatitis C virus (HCV) is an important causative agent of parenteral Non-A,Non-B hepatitis. Choo and coworkers at Chiron corporation discovered HCV group as a new viral agent of non-A and non-B hepatitis virus in 1989.

HCV is a member of Flaviviridae family. HCV is envelope virus and is approximately 50 nm in size. The HCV genome is single-stranded RNA molecule of 9500 kilodaltons. HCV is being increasingly recognized as a significant public health problem around the world as well as in Pakistan. The global epidemiology of viral hepatitis A and B is well established, although HCV data remain limited, particularly in Pakistan.

Despite the availability of sophisticated laboratory apparatus for screening of the blood, blood products remains the main mode of transmission of HCV infection as unscreened blood and blood products are still used in many developing countries. As a result, HCV is the most common transfusion transmitted infection.

Blood has been used since 1930 for various indications.

After the introduction of blood banks and better storage techniques it becomes widely used in patients. In Pakistan more than 1.5 million pints of blood are collected each year.

Among them about 65% is from replacement donors, 25% from volunteer donors and about 10% from professional donors.

The majority of acutely infected patients is asymptomatic and have clinically mild course. HCV is a major cause of chronic liver disease and
hepatocellular carcinoma (HCC)\textsuperscript{7}.

World Health Organization (WHO) estimates that about 200 million people, 3\% of world population are infected with HCV. 3-4 million people are newly infected each year. Globally 170 million are at risk of liver cirrhosis or liver cancer\textsuperscript{8}.

The ideal sample for any sero-prevalence study is a sample from general population; however, this may not always be feasible. Therefore, prevalence among healthy blood donors is often used\textsuperscript{9}.

In Pakistan, the parenteral route is the most common mode of transmission of Hepatitis C\textsuperscript{10}. This study was conducted to find out the seroprevalence of Hepatitis C in apparently healthy blood donors, which will provide insight into the overall prevalence of Hepatitis C in the general population.

Epidemiological studies conducted in the past have provided data regarding the prevalence of Hepatitis C in different parts of the World. Many studies have been conducted in Pakistan, but they are single centre studies. Such studies are necessary for ongoing preventive strategies. This large study was conducted to determine the prevalence of HCV in healthy blood donors of Khyber Pakhtunkhwa.

SUBJECTS AND METHOD
Subjects consisted of apparently healthy blood donors who reported to the blood banks for bleeding between 1\textsuperscript{st} July 2008 to March 2009. Blood samples were screened for HCV using rapid immuno-chromatographic kits.

61170 healthy blood donors were screened for anti HCV. This study was carried out at 17 blood banks and 3 teaching hospitals of Khyber Pakhtunkhwa. (Hayatabad Medical Complex (HMC), Khyber Teaching Hospital (KTH) and Lady Reading Hospital (LRH), Peshawar).

RESULTS
Over the 9 months period under study, a total of 61170 samples were screened, out of which HCV positives were 2.19\%. Total data was collected from 17 different districts of Khyber Pakhtunkhwa, FATA and three Teaching Hospitals; (Hayatabad medical complex (HMC), Khyber Teaching Hospital (KTH) and Lady Reading hospital (LRH), Peshawar).

The districts included were DHQ Hospital Dera Ismail Khan, Bannu, Dagar, Buner, Kohat, Karak, Batkhela, Mansehra, Timergara, Lakki Marwat, Nowshehra, Mardan, Chitral, Battagram.

The other hospital from which the data was collected King Abdullah Teaching Mansehra, Ayub Teaching Hospital, Saidu group of teaching hospital and agency Headquarter Hospital, Parachinar.

Results from various districts are given in Table-I.

DISCUSSION
Epidemiological studies about the blood borne diseases such as hepatitis C are more important to reveal the risk factors and risk groups. Evaluation of prevalence among blood donors is common and easy method to obtain the epidemiology of such type of infection i.e. Hepatitis C in a community\textsuperscript{11,12}.

There are some differences between normal population and blood donors, however; this approach is very common for screening studies. Such types of screening studies give insight into the problems and help us in solving difficulties in collecting information among healthy population\textsuperscript{13}.

Seroprevalence of HCV in blood donor is different in various countries. It ranges 6\% in Africa, 1.5\% in Japan, 0.6\% in USA, 0.24\% in Finland and 0.17\% in UK\textsuperscript{13,14,15,16,17,18}.

An extremely low prevalence has been reported from UK and Scandinavia (0.04 - 0.09\%), a low prevalence (0.15 - 0.5\%) from Western Europe, Israel, a moderate prevalence (0.6 - 1\%) i.e., 0.42\% in Germany, 0.68\% in France, 0.87\% in Italy, in some area of Southern Europe, a high...
prevalence (1.6 to 3.5%) in the middle east, Turkey, Japan and Extremely high prevalence in Egypt (14%)18,19,20,21. In Iran it is 0.59%.

A slightly high prevalence (0.2 - 1 %) has been reported in other European countries, Australia and North America. An intermediate (1.1-5 %) prevalence has been reported in South America, Eastern Europe, Medetarania countries.

In South East Asian countries, prevalence in Japan is 1.21 % and in Singapore 0.37%. The prevalence of HCV in blood donors of India varies from 1-1.5 %, It has been reported as 6 % for all blood bag collected in Bangladesh24,25,26,27,28.

Exact Sero-prevalence of Hepatitis C virus could not be established for Pakistan like developed European countries due to lack of representative study at national level. The cumulative prevalence ranges from 0.13-6%, the average prevalence is estimated to be 4.1%29. Pakistan remains in the intermediate HCV prevalence area30. Prevalence of Hepatitis C among blood donor reported in literature during the last 10 years is given in table-II.

The Sero-prevalence observed in our study was 2.19%. Various national studies published in the last 10 years were compared with this study. The mean prevalence for HCV of these studies was 2.98 %.

<table>
<thead>
<tr>
<th>Hospital Name</th>
<th>Subjects Screened</th>
<th>HCV Positive %age</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHQ, Hospital, Chitral</td>
<td>1183</td>
<td>0.76%</td>
</tr>
<tr>
<td>DHQ,Hospital, Mansehra</td>
<td>994</td>
<td>8.45%</td>
</tr>
<tr>
<td>DHQ,Hospital, Karak</td>
<td>297</td>
<td>4.00%</td>
</tr>
<tr>
<td>DHQ,Hospital, Lakki Marwat</td>
<td>8</td>
<td>0.00%</td>
</tr>
<tr>
<td>DHQ,Hospital, Bannu</td>
<td>135</td>
<td>2.22%</td>
</tr>
<tr>
<td>DHQ,Hospital, D.I Khan</td>
<td>1405</td>
<td>0.98%</td>
</tr>
<tr>
<td>DHQ,Hospital, Kohat</td>
<td>393</td>
<td>0%</td>
</tr>
<tr>
<td>DHQ,Hospital, Mardan</td>
<td>1209</td>
<td>2.56%</td>
</tr>
<tr>
<td>DHQ,Hospital, Timergarah</td>
<td>574</td>
<td>0%</td>
</tr>
<tr>
<td>DHQ,Hospital, Batkhela</td>
<td>687</td>
<td>0.29%</td>
</tr>
<tr>
<td>DHQ,Hospital, Haripur</td>
<td>145</td>
<td>0.69%</td>
</tr>
<tr>
<td>DHQ,Hospital, Battagram</td>
<td>43</td>
<td>5.28%</td>
</tr>
<tr>
<td>KTH, Peshawar</td>
<td>13870</td>
<td>1.20%</td>
</tr>
<tr>
<td>LRH, Peshawar</td>
<td>29479</td>
<td>2.83%</td>
</tr>
<tr>
<td>HMC, Peshawar</td>
<td>3981</td>
<td>1.78%</td>
</tr>
<tr>
<td>King Abdullah Teaching Hospital</td>
<td>798</td>
<td>10.76%</td>
</tr>
<tr>
<td>Ayub Teaching Hospital, Abbotabad</td>
<td>5571</td>
<td>0.63%</td>
</tr>
<tr>
<td>DHQ hospital, Daggar,Buner</td>
<td>110</td>
<td>2.98%</td>
</tr>
<tr>
<td>DHQ hospital, Parachinar</td>
<td>190</td>
<td>2.13%</td>
</tr>
<tr>
<td>DHQ hospital, Nowshehra</td>
<td>98</td>
<td>6.0%</td>
</tr>
</tbody>
</table>

Table-I. District wise results
The sero-prevalence reported in various selected studies is 2.2% from Peshawar, 5.14% from Islamabad, 4% to 6.2% from Rawalpindi, 2.89% to 4.97% from Lahore, 3.26% from Sialkot, 0.27% from Multan, 6.8% from Karachi and 1.87% from Quetta. So it was noted in these various studies that HCV sero-prevalence ranges from 0.27% to 6.80%, among healthy blood donors from various parts of the country.

The highest sero-prevalence has been reported from Karachi and Rawalpindi.

The sero-prevalence in our study was 2.19% which is almost the same as compared to study done by Ahmad J et al.

In Pakistan, blood transfusion is still a major source of HCV transmission. Possible reason for this includes lack of resources, weak
infrastructure, ill-equipped resources, poorly trained staff, inadequate policy implementation, frequent power breakdown and ineffectve screening of blood donors for anti HCV antibody.

CONCLUSIONS

It is concluded that Hepatitis C virus infection has become a major public health problem in Khyber Pakhtunkhwa, like rest of the country and blood is one of the main source of transmission. Therefore, screening of blood donors and selection of blood donors is necessary. The epidemic of HCV still continues due to lack of education, and unawareness of the disease, shortage of medically qualified, scientifically trained health workers and lack of health infrastructure. To limit and prevent the spread of Hepatitis C, public awareness by print, social and electronic media is the need of time. Resource allocation is necessary for amelioration of the weak infrastructure and ill-equipped blood banks and training of the staff.

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REFERENCES


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“Hardships often prepare ordinary people for an extraordinary destiny.”

C.S. Lewis