

# Integration of Preventive and Curative Health Services for Flood Survivors by LUMHS - A Successful Health Care Model for Preparedness of Future Floods in Pakistan

*(A Community Based Research Survey)*

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## ABSTRACT

**OBJECTIVES:** The objectives of this study are to collect demographic data of survivors for assessing the related common disease, to identify steps in implementation of essential preventive and curative care for flood survivors and to develop health care model for super flood disaster preparedness in Indus valley areas.

**STUDY DESIGN:** It was a cross sectional descriptive Epidemiological Study /survey. Date was collected through structured and designed proforma. This proforma was tested. 4<sup>th</sup> year MBBS students were filling proforma and survey work supervised by Faculty of department of Community Medicine & public health sciences & LUMHS clinical faculty members. The study was conducted on survivors and internally displaced people (IDPs /survivors) during super Indus river flood in August & September 2010 to observe and evaluate the role of medical university for the preventive and curative health services for flood victims to reduce the morbidity, mortality & miseries in disaster times.

**PLACE OF STUDY:** The flood victim camps on both sides of Indus river bank from Sehwan to Kotri covering districts Dadu, Jamshoro, Matiari & Hyderabad and also tent cities at Sehwan, Sabzi Mandi Hyderabad & Ghulshan-e-Shahbaz Jamshoro.

**DURATION OF STUDY:** 8<sup>th</sup> August 2010 to 31<sup>st</sup> December 2010.

**RESULTS:** Total 161700 Flood Survivors were provided health care by LUMHS medical teams, Faculty consultant, Doctors, Students & Paramedics through organizing free medical camps in tent cities and mobile camps. There were 113190 (70%) Female survivors & 48510 (30%) were Males survivors. The health teams provided curative care to 59500 (36.79%) & preventive care to 102200 (63.21) super flood survivors. Ten thousands were sheltered at the land of LUMHS campus and tent city. The common diseases were Diarrhea (21%), ARI (16%), Malaria (07%), Skin Diseases (17%), Eye Infections (08%), Ear Infections (04%), Malnutrition (15%), Injuries (02%), Sleep Disorders (0,5%), Heat Stroke (0.3%), Dog Bite (0.1%) & Unspecified (0.1%).

**CONCLUSION:** Flood survivors need preventive & curative care. The medical university can directly provide emergency health care & can contribute human resources comprising Faculty, Doctors, Students & Paramedics. 161700 were beneficiaries of LUMHS developed health care model which is one of the indigenous & successful model for future flood disaster preparedness in Pakistan. The WHO acknowledged LUMHS services for flood victims. Professor Noshad Ahmed Shaikh, Vice Chancellor, Liaquat University of Medical & Health Sciences, Jamshoro supervised & visited camps regularly.

**KEY WORDS:** Flood, preventive care, IDPs, Survivors, Indus.

## INTRODUCTION

A flood is an overview of water that submerges land which is normally dry.<sup>1</sup> There are many kinds of natural disasters. Flood is one commonly occurring natural disaster in our region particularly around the banks of big rivers. Flood devastates life, economy and causes displacement and diseases at large scale. The flood

water and its depth velocity and flow, as well as, seasonal and rainy weather make the flood damaging in vast area<sup>2</sup>.

The impact of the flood can be classified in terms of brief and long term. Spread of communicable diseases is common phenomenon during flood occurrence especially risk of infectious and water borne

diseases, as well as, due to the vector growth, the vector borne diseases also occur side by side. The food shortage and interruption and damage of road, electricity, community services like hospitals, telephone and transportation affects the people and their daily life becomes miserable. Mixing of hazardous substances of chemical nature can occur and can cause long term health impact.

There is great change that vector and water borne diseases can quickly increase and take the form of epidemic. Climate change is global phenomena changing the weather pattern in many countries like hurricane, tornadoes and high temperature waves. The experts in metrology visualize that after 1985 flood and other weather related natural disasters are on rise<sup>3</sup>. The countries like India, Pakistan, Bangladesh & Myanmar where major rivers flow round the year particularly in monsoon season keep the history of floods and devastation of the area causing diseases and displacement<sup>3</sup>. Millennium development goal 7 is related to environment which is to decrease major killer diseases such as malaria. The floods and other disaster policies and actions could help to achieve this goal<sup>5</sup>. The WHO estimates that on the basis of 14 major floods which occurred during the period of 1970 and 1994, the diarrhea was in the epidemic form during flood which hit African country of Sudan in the year 1980. This disaster was complicated by massive population migration and population dislocation. Diarrheal diseases were very common in Mozambique floods in year 2000 while cholera epidemic in west Bengal was reported in 1998<sup>6</sup>. Pakistan has history of repeated floods by Indus River. 2010 flood was one of the super flood having no precedent in last seventy years. Only in Sindh as per provincial disaster management authority official figures 7254355 people were flood affectees<sup>5,6,7</sup>. The dilemmas and difficulties confronted by flood survivors and IDPs are many including environmental degradation and climate change issues<sup>8,9,10</sup>. The WHO Health Sector Bulletin No 12 Summary of Sindh Flood Response Report on flood in Pakistan has mentioned about fifteen various health care models specially Helping Hand and Relief and development (HHRD) model in Sindh one of the earliest which also blended preventive care curative care and health education hand washing and hygienic kit services but could reach to 22000 individuals and other or-

ganization Care provided Primary Health Care services in Badin Mirpurkhas, Sanghar could reach 37531 flood affectees.<sup>11</sup> The Bohre committee in 1946 recommended integration of preventive and curative health services in sub continent very close to our model<sup>12</sup>.

**Purpose of study:** The study was conducted on survivors and internally displaced people (IDPs / survivors) during super Indus river flood in August & September 2010 and to observe and evaluate the role of medical university for the preventive and curative health services for flood victims to reduce the burden of morbidity, mortality & miseries in disaster times.

**Objectives:**

1. To collect demographic data of survivors for assessing the related common disease.
2. To identify steps in implementation of essential preventive and curative care for flood survivors.
3. To develop health care model for super flood disaster preparedness in Indus valley areas.
4. To highlight the role of medical university, students and faculty in relief work and mobile free medical camps.
5. To conduct research on flood disaster situations.
6. To share experience of organizing of health care services for survivors of super Indus flood 2010.

**MATERIAL AND METHODS**

It was a cross sectional descriptive Epidemiological study /survey. Data was collected through structured and designed proforma. This proforma was tested. 4<sup>th</sup> year MBBS students were filling proforma and survey work supervised by Faculty of department of Community Medicine & public health sciences & clinical faculty members.

**Setting and duration:** The flood victim camps on both sides of Indus river bank from Sehwan to Kotri covering districts of Dadu, Jamshoro, Matiari & Hyderabad and also tent cities at Sehwan, Sabzi Mandi Hyderabad & Ghulshan-e-Shahbaz Jamshoro from 8<sup>th</sup> August 2010 to 31<sup>st</sup> December 2010. The data was analyzed on SPSS version 16.

**Inclusion criteria:** Only flood survivors were included in the survey, examined by LUMHS team.

**Exclusion criteria:** Survivors seen by other medical teams were also excluded.

**RESULTS**

1. Table I shows that there were total 161700 Flood Survivors who were provided health care by LUMHS Faculty, Doctors, Students & Paramedics through static & mobile camps, Among them .There were 113190 Female (70%) & Males were 48510 (30%).

2. Table II shows type of health care category preventive and curative. The data of table II showed that the health teams provided curative cure to 59500 (36.79%) & preventive care to 102200 (63.21) survivors.

3. Table III gives pattern of common diseases /health problems identified by treating doctors were Diarrhea (21%), ARI (16%), Malaria (07%), Skin Diseases (17%), Eye Infections (08%), Ear Infections (04%), Malnutrition (15%), Injuries (02%), Sleep Disorders (05%), Heat Stroke (03%), Dog Bite (01%) & Unspecified (01%). In all 12 common problems were observed among flood survivors and given treatment and medicine as well health education.

4. Table IV showing distribution as per age below <5 years and >5 years.

Model of integrating preventive and curative health care was designed by LUMHS and its testing in 7 flood affected district showed that a Medical University with Department of Community Medicine with clinical Department can blend and provide preventive and curative and health educational services in flood affected .LUMHS Model provided health services to 161700 flood victims at relief camps out of these 102200(36.21%) received preventive care and 59500 (36.70%) curative care. Our health care model helped 11390 (70%) females and 48510 (30%) males.

The Role of Medical University is high lighted in launching out reach programme for Disaster situation like this super Indus Flood and fast and large health care programme can be organized under any medical University like LUMHS.

**TABLE I: GENDER WISE DISTRIBUTION OF SURVIVORS WHO WERE GIVEN PREVENTIVE AND CURATIVE CARE BY LUMHS TEAM DURING SUPER FLOOD 2010**

Gender	Number	%
Male	48510	30%
Female	113190	70%
<b>Total</b>	<b>161700</b>	<b>100%</b>

**TABLE II: DISTRIBUTION OF SURVIVORS BY TYPE OF PREVENTIVE & CURATIVE CARE**

Type of Care	Number	%
Preventive	102200	63.21%
Curative	59500	36.79%
<b>Total</b>	<b>161700</b>	<b>100%</b>

**TABLE III: COMMON DISEASES/HEALTH PROBLEMS AMONG FLOOD SURVIVORS MEDICALLY EXAMINED AND GIVEN CURATIVE CARE BY LUMHS TEAM**

Curative Care	Number	%
Diarrhea	12495	21%
ARI	9520	16%
Malaria	4165	07%
Skin Diseases	10115	17%
Eye infections	4760	08%
Ear infections	2380	04%
Malnutrition	8925	15%
Injuries	1190	2%
Sleep disorders	2975	05%
Heat Stroke	1785	03%
Dog Bite	595	01%
Unspecified	595	01%
<b>Total</b>	<b>59500</b>	<b>100%</b>

**TABLE IV: AGE DISTRIBUTION OF FLOOD SURVIVORS GIVEN PREVENTIVE & CURATIVE CARE BY LUMHS**

Age	Number	%
<5 years	97020	60%
>5 years	64680	40%
<b>Total</b>	<b>161700</b>	<b>100%</b>

## DISCUSSION

This study is showing that diarrhoeal diseases were most common problem. The second common disease was acute respiratory infections (ARI) related to crowded and unhygienic living condition and aggravated by low immunity and poor nutritional diet and droplet infection.

The skin disorders specially itching and payoderma, fungal infection and scabies were also common, eye infection were also reported due to virus and trachoma infectious agent. The conjunctivitis was clinical picture in eye patients. Displacement, food, drinking water shortage and poor shelter conditions were the risk factors and determinant of poor and deteriorating health condition leading to rising rate of communicable and water born diseases.

These common diseases are same as reported in other flood disaster, by WHO and other countries like India, Sudan and Mozambique<sup>5</sup>. This study gives the common disease pattern of flood disaster as reported by Ilyas & Bhalwal in their research and academic publications available on the internet, textbooks and other sources of electronic information<sup>4,9</sup>. The super flood in Pakistan affected 20 million out of this 7 million people were in need of humanitarian assistance including medical care. WHO also reported the diseases Diarrhoea, ARI, Skin, malaria and measles. This pattern was similar to our study<sup>10</sup>. As disaster is serious disruption of the function of the society Tele health can be used in such situation, Floods are Meteorological and hydrological phenomenon<sup>13,14,15</sup>. Nutrition and dietary intake are important determine net of health of population<sup>16</sup>, This factor needs more attention in flood victims There are countries around the world water ways prone to floods are often carefully controlled.<sup>18</sup> Ecosystem and biodiversity depend on freshwater The floods brings lot of fresh water and improve biodiversity in flood plain.<sup>19,20</sup>

## CONCLUSION

Flood survivors need preventive & curative care. The universities can directly provide emergency health care & can contribute human resources comprising faculty, doctors, students & paramedics. 161700 were beneficiaries of LUMHS. The health care model developed by LUMHS is one of the indigenous & successful model for future flood disaster preparedness in Pakistan. The WHO has acknowledged LUMHS services for flood victims. The NGOs, National disaster management authority and university should work together to mitigate the disaster like Indus super flood.

## ACKNOWLEDGMENT

The LUMHS Entire Faculty and Members of Flood

Relief Committee headed by Professor Noshad Ahmed Shaikh, Vice Chancellor, LUMHS, Jamshoro and Muhammad Saleh Rajar, Registrar LUMHS are acknowledged for providing administrative, transport and financial backup to reach more than 100000 flood survivors of super Indus River. We also acknowledge efforts of Faculty of Community Medicine & Public Health Sciences and 4<sup>th</sup> year MBBS students who reached to survivor and extended their volunteer services.

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