

T. Zafar^{1,2}, A.Zafar^{3,4}

1. Pakistan Haemophilia Patients Welfare Society, Rawalpindi/Islamabad (PHPWS), 2.Pak International Medical College, Peshawar, 3. Rawalpindi Medical college, Rawalpindi. 4.Telemedicine and E-health training center, Rawalpindi Pakistan

INTRODUCTION

Telemedicine is the delivery of healthcare services, where distance is a critical factor, by all healthcare professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of diseases and injuries, research and evaluation, and for the continuing education of healthcare providers, all in the interests of advancing the health of individuals and their communities. Pakistan launched its Health Net Project in November, 2007. The project demonstrated the use of technology as a solution for overcoming the lack of quality healthcare infrastructure in rural/remote areas of Pakistan. The objective was achieved through setting up telemedicine hubs in tertiary care centers connected via PAKSAT-1 to 4 telemedicine centers in rural hospitals, by utilizing and complementing available national resources and infrastructure. A total of fifteen satellite based telemedicine centers were established in Punjab and Sind provinces. 3 hubs in Tertiary care center at Holy Family Hospital, Rawalpindi, Mayo Hospital, Lahore in Punjab Province and JPMC, Karachi in Sind. All these centers are equipped with telemedicine peripherals to facilitate the Teleconsultations in various specialties. These have been providing Tele- consultations to their remote catchment areas. Universal service fund of Ministry of Information technology has added 12 new sites to existing network, and connectivity is now DSL based which is much more cost effective.

Hematology has now been added to Otolaryngology, Dermatology, and Surgical specialties like orthopedics. The initiative includes continued medical education program for health care professionals working in district and Tehsil hospitals and provide Teleconsultations to new patients and follow up of registered patients of Hemophilia treatment center. The Bleeding disorders are poorly understood and managed. This is due to very few clinical hematologists in the country and lack of awareness amongst healthcare professionals working in rural areas. Pakistan has only 600 Pathologists working mainly in major cities of Pakistan. Very few district Headquarter hospitals in the country have qualified Pathologists. Initial treatment of these patients is unavailable in all most all rural areas of Pakistan. Patients requiring specialist opinion or treatment have to travel to major City hospitals.

Problem Areas in Bleeding Disorders in Pakistan

Inherited bleeding disorders are a group of diseases in which there is prolonged bleeding, spontaneous or post traumatic, depending on the severity of the disease. The severity depends on the level of factor deficiency. These diseases are not uncommon in developing countries like Pakistan. The prominent in this category are Haemophilia A (factor VIII deficiency), Haemophilia B (factor IX deficiency) and von Willebrand disease (von Willebrand factor deficiency).

Management Challenges to Bleeding disorders in Pakistan

- Lack of National planning
- Not a priority
- Inadequate funding
- Inadequate Knowledge
- Lack of proper diagnostic facilities
- Inadequate factor supply
- Lack of comprehensive approach
- Family ignorance
- Non compliance of guidance
- Lack of access to services

Incidence of people with hemophilia in Pakistan

Total Population	160 Million
Male: Female	1:0.9
Universal incidence	1/5000-10000 males
Estimated	8000-16000
Registered Patients details PHPWS	
Age <15 years	70%
Factor VIII deficiency	73%
Factor IX deficiency	13%
VWD	09%
Others	05%



METHODS

Haematologists are now part of team providing specialist consultations to remote regions. Hybrid approach which combines store and forward and real time face to face consultations is being practiced.

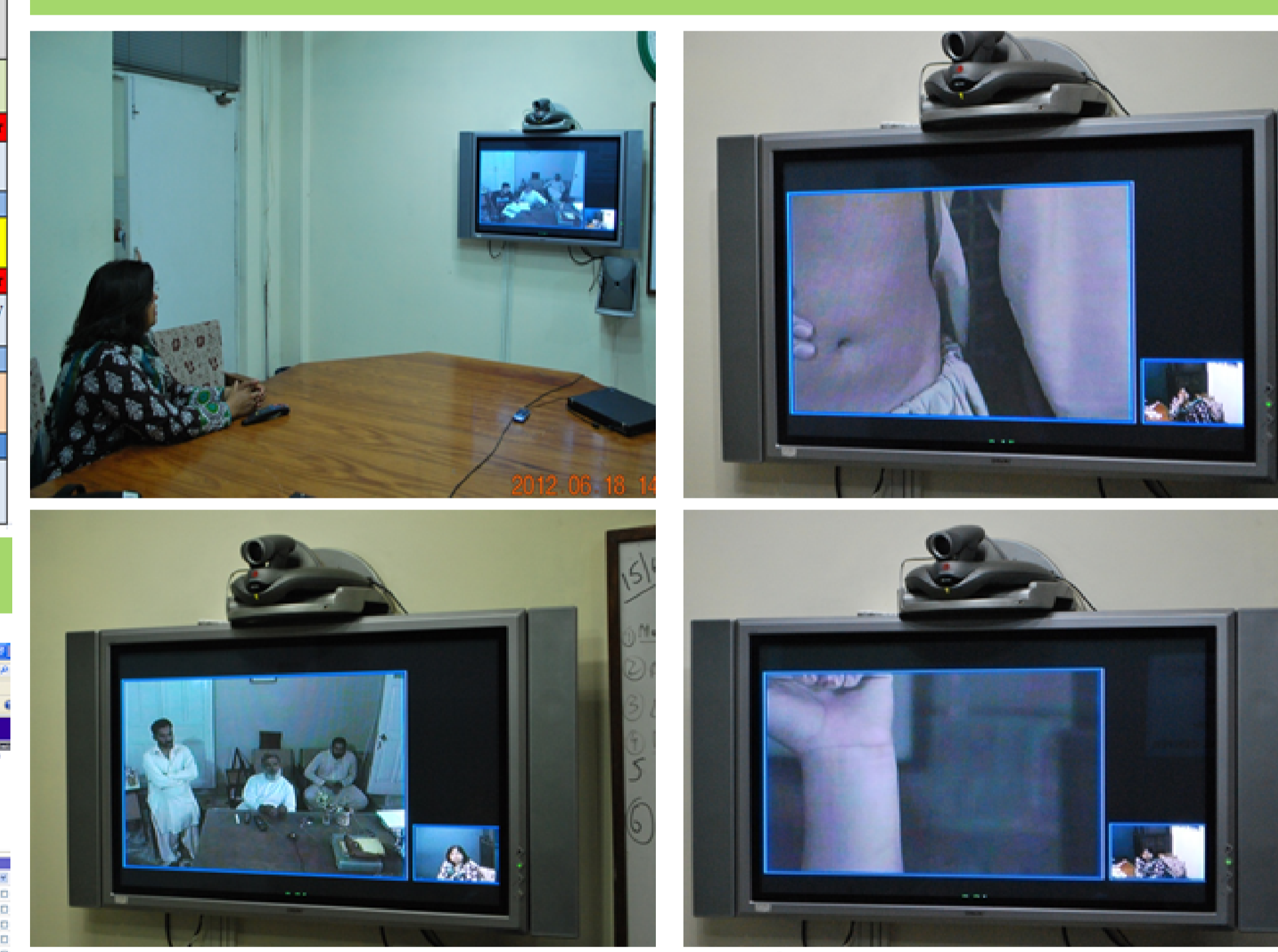
Patients referred are scheduled for consultations 2 days a week. Emergency Tele consultations do not require prior appointments. Patients relevant data, initial treatment record and images are uploaded on the Med web server. Face to face consultations take place on scheduled date and time.

Consultation are given by the consultants from the hub site, the prescriptions are scanned and uploaded on the server through DSL from where it can be printed at the remote site.

Speciality Weekly Teleconsultation Schedule, HFH Hub & Blood Disease Center

	ATTOCK	PINDIGHEB	KHUSHAB	D.G. Khan	Chabral	Talagang	Diamail	Mirre
MONDAY	Cyber Paediatric	Cyber Paediatric	Cyber Paediatric	Cyber Paediatric	Cyber Paediatric	Cyber Paediatric	Cyber Paediatric	Cyber Paediatric
TUESDAY	G. Surgery	G. Surgery	G. Surgery	G. Surgery	G. Surgery	G. Surgery	G. Surgery	G. Surgery
WEDNESDAY	ENT	ENT	ENT	ENT	ENT	ENT	ENT	ENT
THURSDAY	Orthopedic	Orthopedic	Orthopedic	Orthopedic	Orthopedic	Orthopedic	Orthopedic	Orthopedic
FRIDAY	Plastic Surgery	Plastic Surgery	Plastic Surgery	Plastic Surgery	Plastic Surgery	Plastic Surgery	Plastic Surgery	Plastic Surgery
SATURDAY	Urology	Urology	Urology	Urology	Urology	Urology	Urology	Urology

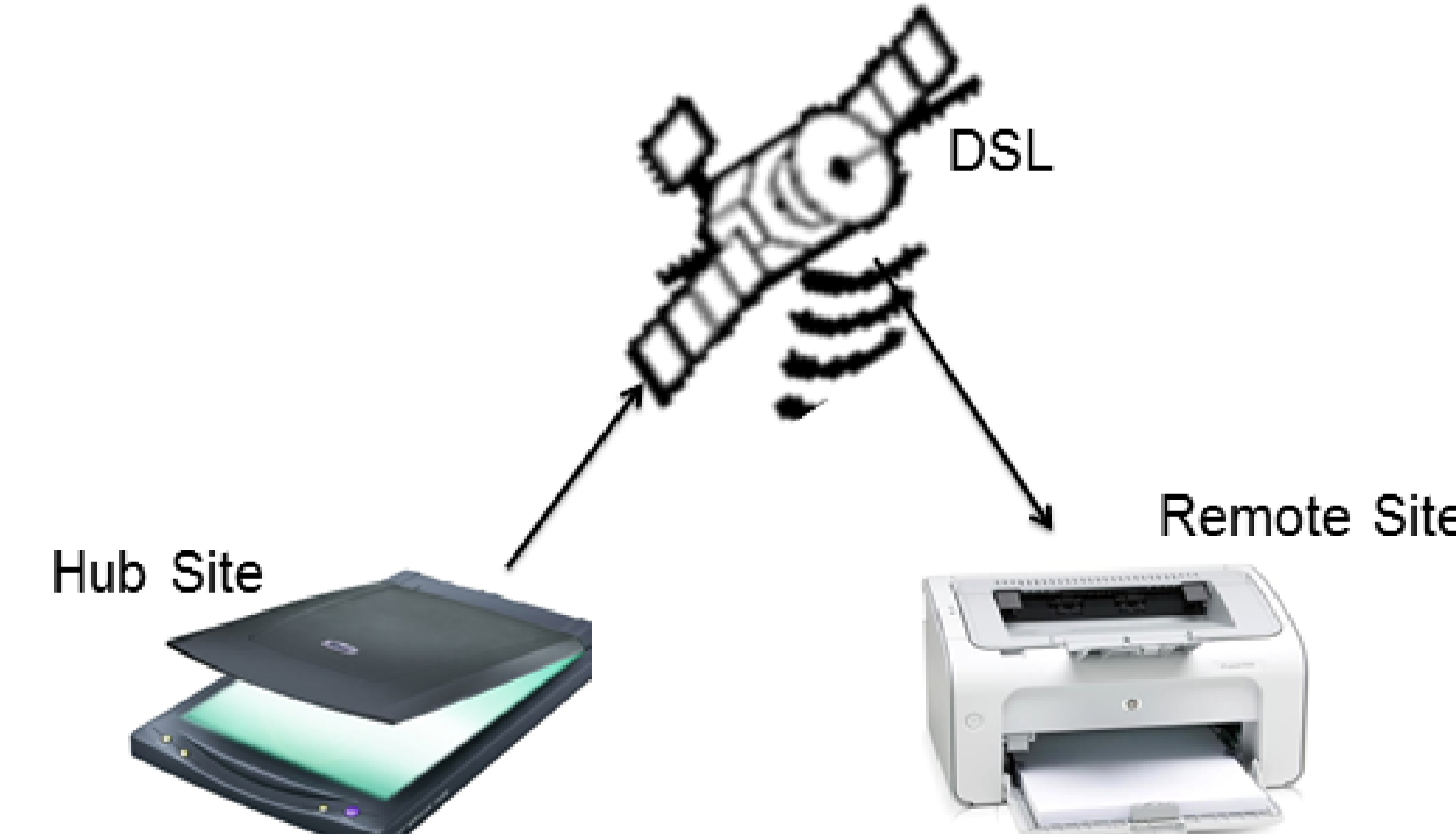
Teleconsultations



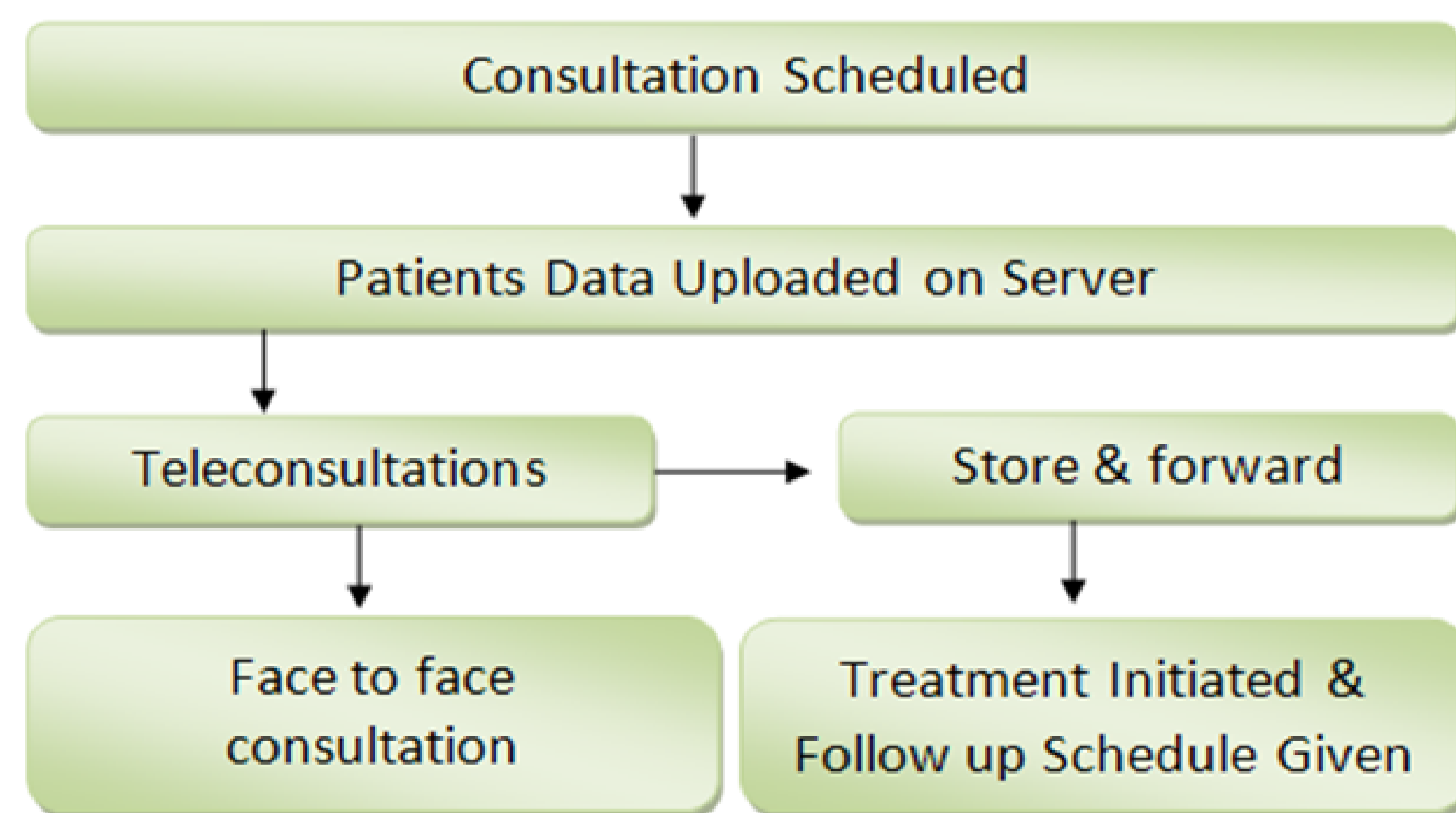
Patients Data Uploaded On Med web Server

DEMOGRAPHICS: Patient Information

Patient Name: Safa, Araf
 Patient ID: HP-105
 SSN: _____
 Sex: _____
 Category: _____
 Marital Status: _____
 Civilian Occupation: _____
 Religion: _____
 Race: _____
 Home Phone: _____
 Work Phone: _____
 Accession Number: 1340098748
 Study Description: _____
 Operator: _____
 Referring Physician: _____
 Referring Physician Phone: _____
 Modality: RF
 Address: Araf Safa



Teleconsultations Flow Chart



RESULTS

Haemophilia Clinic Initiative: Total consultations-10, 3-VWD Severe, 4-Haemophilia A (factor VIII deficiency), 3-Haemophilia B (factor IX deficiency), **CME Program for Hemophilia care:** Training workshops conducted on various aspects of Haemophilia for Doctors, Nurses, Paramedical Staff, Patients and their families.

Hemophilia Diseases	Total number
VWD	03
Hemophilia A (Factor VIII deficiency)	04
Hemophilia B (Factor IX deficiency)	03
Total Consultations	10



CONCLUSIONS

Any Existing Telemedicine Set up can be efficiently utilized to incorporate the specialty of blood diseases especially haemophilia. Training of remote Doctors and Para medical staff for initial management of bleeds and other complication of bleeding disorder can help improve care of these patients by limiting unnecessary travel to the center which lessen's the burden not only at the center but also on the patients.

