A PROJECT REPORT

ON

CHEMOPROTOCOL CREATION

# RAJIV GANDHI CANCER INSTITUTE AND RESEARCH CENTRE,

# NEW DELHI

Rajiv Gandhi Cancer Institute and Research Centre

submitted in the partial fulfillment for PGDHM

BY

DR SRISHTI SHOKEEN

(BATCH -2021-2023)

ROLL NO - 112

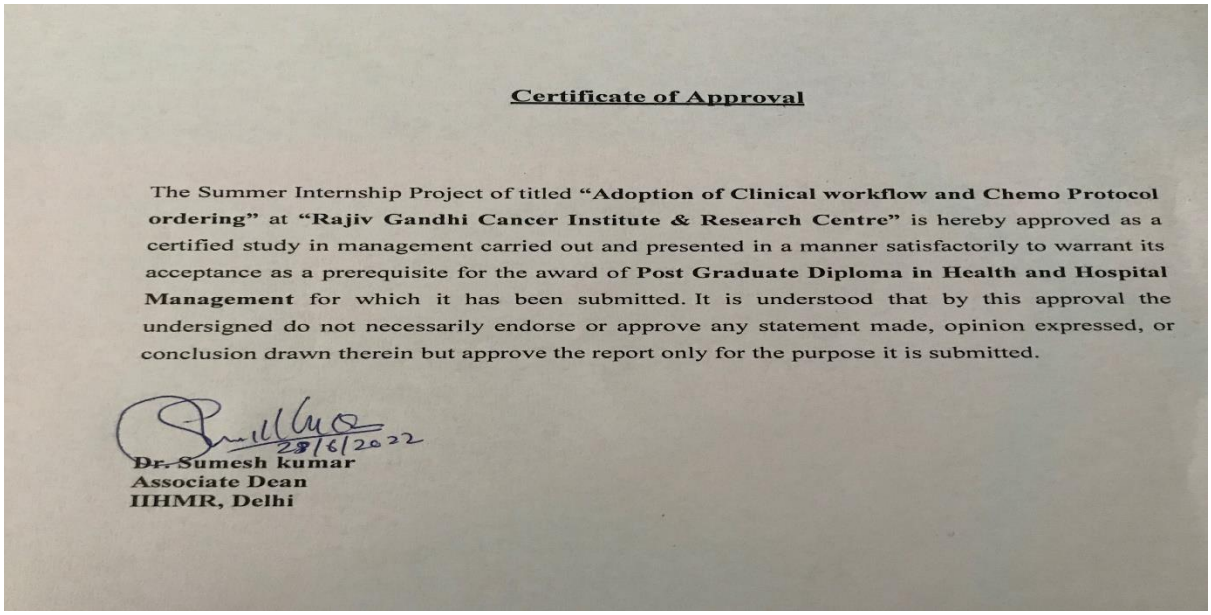
## INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT AND RESEARCH (IIHMR, DELHI)

IIHMR DELHI

under the guidance of

for two months 18 april 2022 – 18 june 2022

# SCREENSHOT OF THE APPROVAL



**Certificate of Approval**

The Summer Internship Project of titled **"Adoption of Clinical workflow and Chemo Protocol ordering"** at **"Rajiv Gandhi Cancer Institute & Research Centre"** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **Post Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed, or conclusion drawn therein but approve the report only for the purpose it is submitted.

29/6/2022

**Dr. Sumesh kumar**
**Associate Dean**
**IIHMR, Delhi**

# ACKNOWLEDGEMENTS

Firstly, I would like to express my indebtedness appreciation to Dr sumesh kumar for his constant guidance and advice played an important role in making the execution of the report. He always gave me his suggestions that were crucial in making this report as flawless as possible.

I would like to thank Mr J.P Dwivedi (CIO) , Mr Deepak Rathore (AGM, I.T Department) , Ms Sarita Kumari ( ANALYST ) at Rajiv Gandhi Cancer Institute and Research centre Delhi , and to allow in their esteemed organization to access the required data .

Finally, I am very thankful to my family who constantly gave me regular support and encouragement. I would really like to thank my seniors who helped me substantially to finish this report. In addition, I will mention my friends who additionally inspired and helped me to complete my work.

PLACE: ROHINI, DELHI (110085) SIGNATURE OF THE CANDIDATE:
DATE : 17/06/2022 NAME: Dr Srishti Shokeen

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# ACRONYMS / ABBREVIATIONS

- HIS- hospital information system
- HMIS- hospital management information system
- EMR – electronic medical records
- IP- inpateint
- OP- outpatient
- EMAR – electronic medication administration record
- I.T – information technology

# INTRODUCTION OF THE ORGANIZATION

Indraprastha Cancer Society and Research Centre is a "not for profit organization", formed under the Societies Registration Act 1860 and it had set up Rajiv Gandhi Cancer Institute and Research Centre, a standalone oncology care centre, in Delhi, in 1996. The founders of the society are a group of socially responsible self-less philanthropist, who had no financial resources but by dent of their hard work and sheer determination, were able to, initially, raise money for running the hospital. Quality, affordability and easy access, for the patients suffering from cancer were the main motivating factors for setting up of the Hospital.

RGCIRC is a great example of a "not for profit organization" supplementing government efforts in the area of healthcare.

Rajiv Gandhi Cancer Institute and Research Centre is today counted amongst Asia's premier exclusive cancer centres that offer unique advantage of cutting-edge technology, put to use by renowned super specialists. This potent combination of man and machine ensures world-class cancer care to not only patients from India, but also from the neighbouring SAARC countries and others. We are fortunate to have touched lives of more than 2.75 Lakh patients since inception in 1996.

The Institute offers super specialized tertiary care services in Medical, Surgical and Radiation Oncology, streamlined into dedicated Site-Specific teams. Super Specialists at RGCIRC practice an organ specific multi-disciplinary approach to cancer diagnosis and treatment, with the Tumour Board acting as a second opinion clinic for cases that are more critical than others.

We use front-line technology that helps accurate identification of each patient's unique cancer and planning of treatment for best possible results. The first hospital in India to begin robotic surgery for cancer patients, first hospital in India to install true beam for precision radiotherapy and first hospital in India to set-up a molecular laboratory.

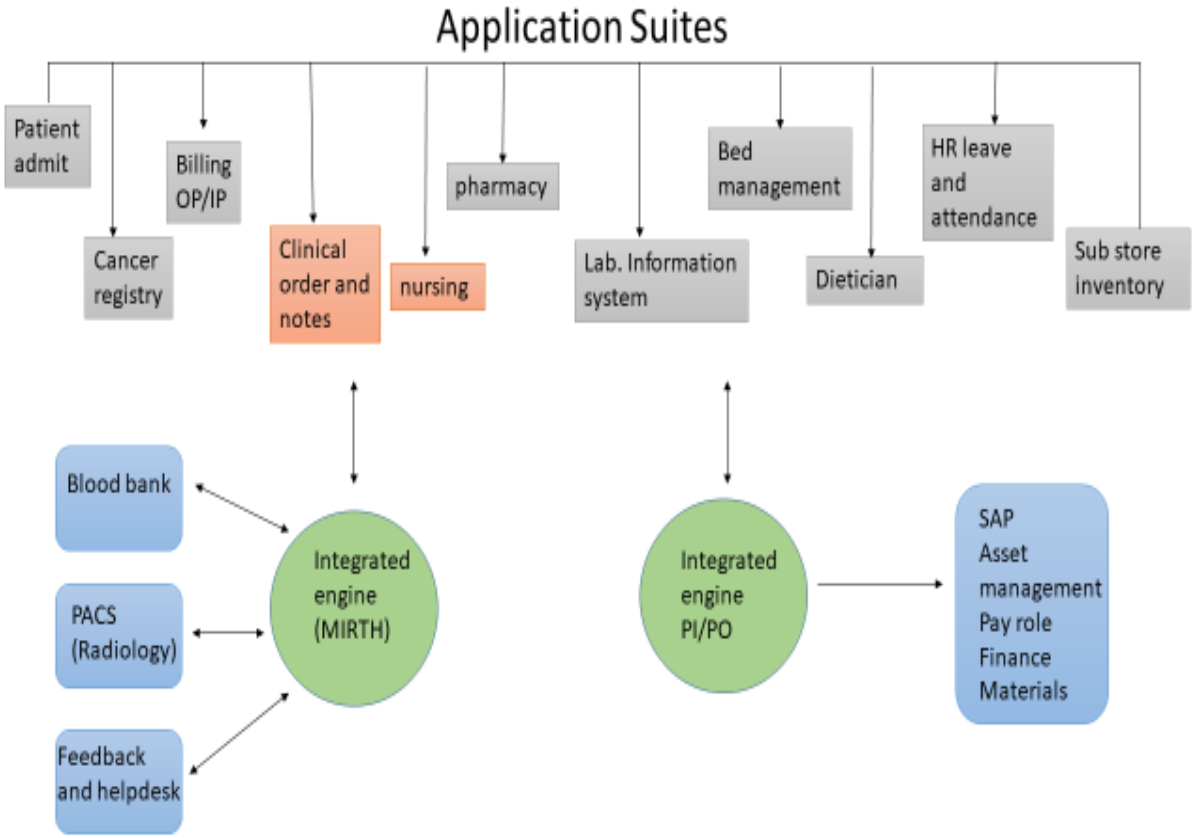
Spread over nearly 2 Lakh square feet area, with a current capacity of 500 beds, RGCIRC is one of the largest tertiary cancer care centres in the continent. RGCIRC has 14 state-of-the-art well equipped modular Operation Theatres with three stage air filtration and gas scavenging systems, and 2 Minor Operation Theatres for Day Care Surgeries.

The Institute has 51 bedded Surgical ICU and an 21 bedded Medical ICU, dedicated Leukaemia ward, separate Thyroid Ward, and an independent 22 bedded Bone Marrow Transplant Unit that is credited with pioneering unrelated donor transplants, MUD transplants, and stem cell transplants. Supportive facilities such as Renal Replacement therapies, various endoscopies (including EBUS and Endoscopic Ultrasound) are also available.

RGCIRC is committed to bringing the benefits of cutting-edge technology to its patients. The Institute offers best in class techniques such as whole-body robotic surgery, Intra-Operative Brachytherapy, True Beam (the next generation Image Guided Radiation Therapy), PET- MRI fusion, High Frequency Ultrasound, Tomosynthesis (first-of-its-kind revolutionary 3D mammography machine), Nucleic Acid Testing (for safest possible blood), and advanced diagnostic and imaging techniques, including Digital PET CT, Circulating Tumour Cell testing, liquid biopsy, and Next Generation Sequencing. Institute has established Molecular Laboratory for gene profiling, Biorepository (Tissue Bank) for clinical and research purpose and a dedicated Cath Lab for cancer patients has been started to do all interventional radiology procedures, few such as portal venous embolization, carotid artery embolization, TACE, TARE etc.

RGCIRC has been consistently ranked amongst India's Best Oncology Hospitals, and has been the recipient of many awards, including National Business Leadership & Service Excellence Award 2017 for Best Oncology Hospital in India, Indy wood Medical Excellence Award 2017, Most Trusted Hospital in Oncology 2017 by India Today (Reader's Digest), India's Most Trusted Hospital for Oncology (Readers' Digest Most Trusted Brands 2016) and Runner up in Finest India Skills & Talent Award 2020 organized by Fire & Security Association of India.

***The Institute is accredited by NABH and NABL and has Green OT and Nursing Excellence certifications.***



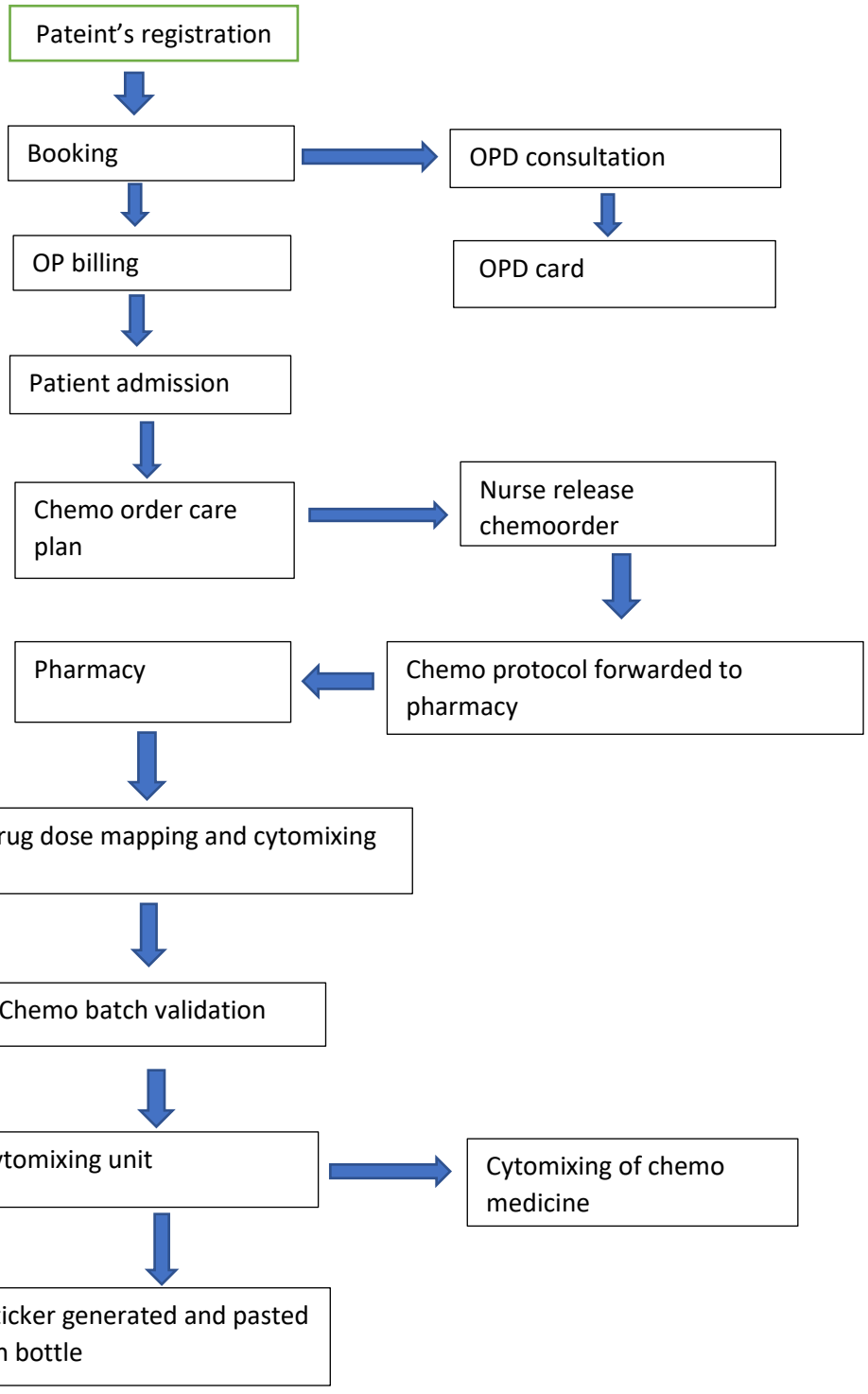

**INTRODUCTION**

An effective Electronic Health Record (EHR) system provides an integrated patient- centric care delivery system. Rajiv Gandhi Cancer Institute and Research Centre, Delhi has sucessfully implemented and working on HER, Hospital information system (HIS), Picture Archiving and Communication System (PACS), Laboratory Information Management System (LIMS) and few other software according to the requirement of sepecific department.

RGCI use the PARAS software which is implemented by Srishti Software Application pvt. Ltd. Banglore. PARAS is a Patient Centric, Comprehensive & Integrated Healthcare delivery platform conforming to the best clinical and administrative practices. PARAS covers the complete spectrum of patient care using fully integrated enterprise class solutions. It is designed to suit the needs of all kinds of healthcare providers including hospitals, clinics, laboratories, daycare centers, diagnostics, etc. This helps in creating a totally paperless and filmless hospital that can run profitably and compete in the market.

# INTRODUCTION OF CHEMOFLOW

Chemoprocess workflow -



Chemoflow process-

1. At first the user will do New Registration of the patient.
2. After registration, booking of the patient will be done, in OPD Consultation.
3. When OPD consultation is done, an OPD Card of the patient is generated.
4. For Chemo treatment, the patient needs to get admitted.
5. So, New Admission of the patient will be done.
6. Now the doctor will process Chemo order care plan to the patient for the particular Protocol.
7. After Doctor's role, nursing role starts.
8. as the Doctor prescribes medicines to the patient, Nurse will do Drug Dose Mapping, Strength of the drugs are Validated.
9. Pharmacy Role- Now the Pharmacy will process chemo medicine process.
10. Cytomixing signing is done.

Now the Nurse will start EMAR treatment

## OBJECTIVE OF THE STUDY:

- To study the role of IT in chemoflow
- To study chemoflow process in RGCI -RC.
- To analyze the steps involved in chemoprotocol creation .

## PURPOSE OF THE STUDY :

- The purpose of the study is to find the answers to the questions through application of paras for chemoflow . The main aim of the study is to find out the problems with the chemoprotocol creation through paras and how to solve that problem .

## SCOPE OF THE STUDY

The scope of this project was to analyze the steps involved in the creation of chemoprotocol from I.T department of RGCI-RC , errors involved and how to rectify those errors .

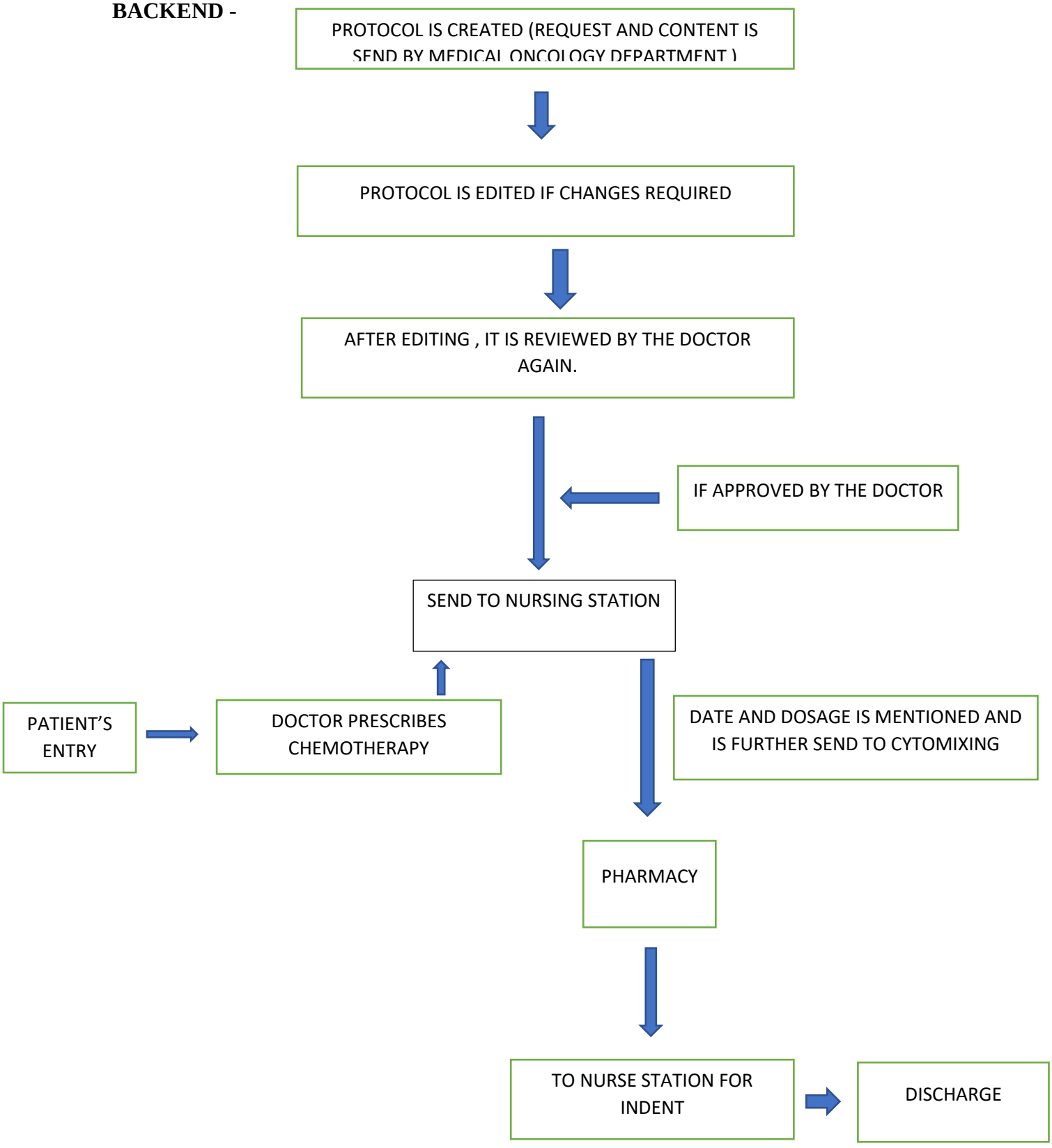
# METHODOLOGY

**STUDY AREA :** Rajiv Gandhi Cancer Institute & Research center , Rohini

**STUDY DESIGN** : observational
Observation was done during the beginning of the internship along with practical hands on experience was gained while working on the PARAS application to understand the complete process .The working of the application was explained by Mr deepak Rathore ( AGM I.T Department ) verbally .

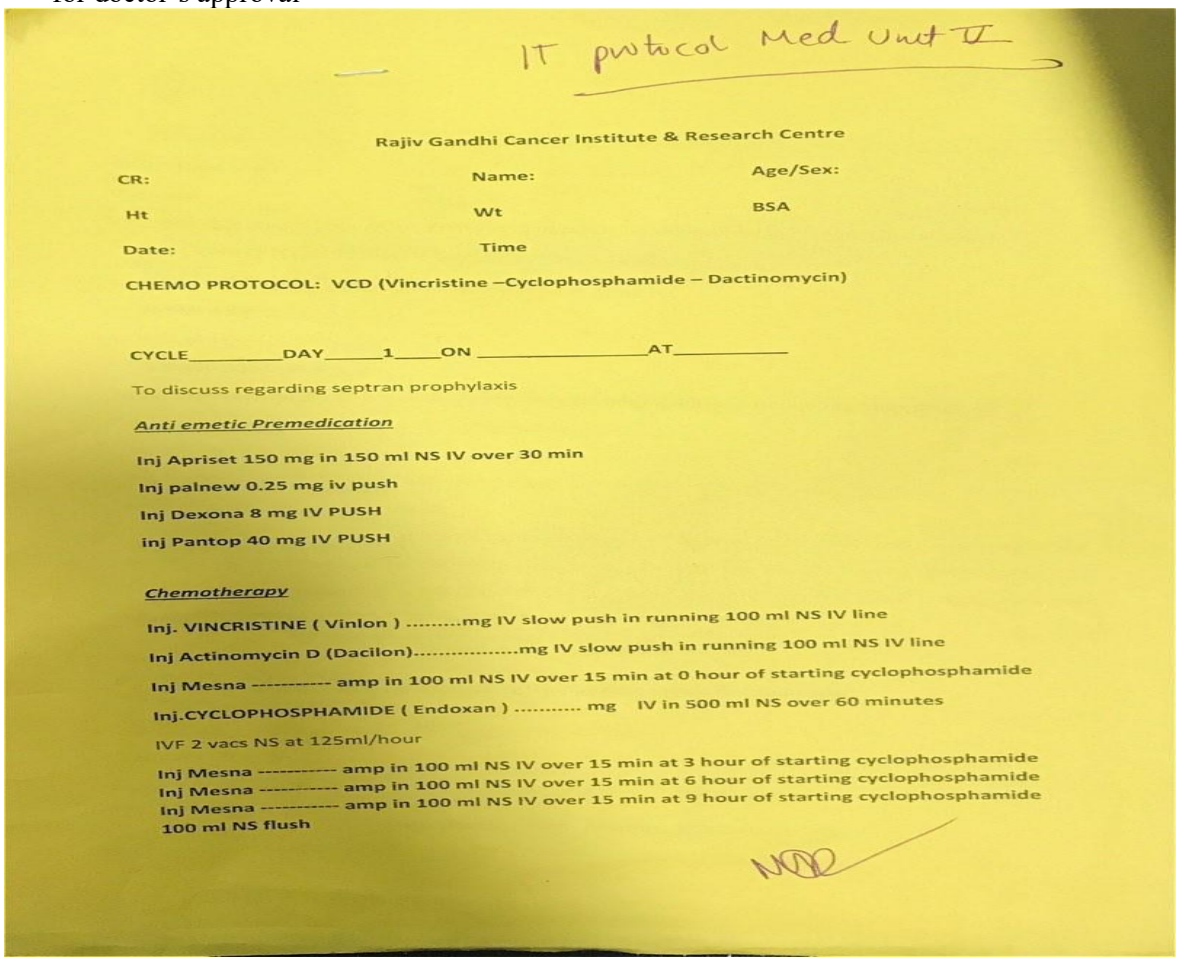
**PERIOD OF STUDY :** 8 weeks

**BACKEND -**


PROTOCOL IS CREATED (REQUEST AND CONTENT IS SEND BY MEDICAL ONCOLOGY DEPARTMENT )
PROTOCOL IS EDITED IF CHANGES REQUIRED
AFTER EDITING , IT IS REVIEWED BY THE DOCTOR AGAIN.
IF APPROVED BY THE DOCTOR
SEND TO NURSING STATION
PATIENT'S ENTRY
DOCTOR PRESCRIBES CHEMOTHERAPY
DATE AND DOSAGE IS MENTIONED AND IS FURTHER SEND TO CYTOMIXING
PHARMACY
TO NURSE STATION FOR INDENT
DISCHARGE

## MODE OF COLLECTING DATA FOR CHEMOPROTOCOL -

- Protocol creation as requested by medical oncology department after being approved from the doctor .
- Below is the image of how the data looks like .
- After receiving this data then it is updated online and a protocol is created which is further sent for doctor's approval



IT protocol Med Unit II

Rajiv Gandhi Cancer Institute & Research Centre

CR: Name: Age/Sex:

Ht Wt BSA

Date: Time

CHEMO PROTOCOL: VCD (Vincristine –Cyclophosphamide – Dactinomycin)

CYCLE_____DAY_____1____ON _____AT_____

To discuss regarding septran prophylaxis

*Anti emetic Premedication*

Inj Apriset 150 mg in 150 ml NS IV over 30 min

Inj palnew 0.25 mg iv push

Inj Dexona 8 mg IV PUSH

inj Pantop 40 mg IV PUSH

*Chemotherapy*

Inj. VINCRISTINE ( Vinlon ) .....mg IV slow push in running 100 ml NS IV line

Inj Actinomycin D (Dacilon).....mg IV slow push in running 100 ml NS IV line

Inj Mesna ---------- amp in 100 ml NS IV over 15 min at 0 hour of starting cyclophosphamide

Inj.CYCLOPHOSPHAMIDE ( Endoxan ) ..... mg IV in 500 ml NS over 60 minutes

IVF 2 vacs NS at 125ml/hour

Inj Mesna ---------- amp in 100 ml NS IV over 15 min at 3 hour of starting cyclophosphamide

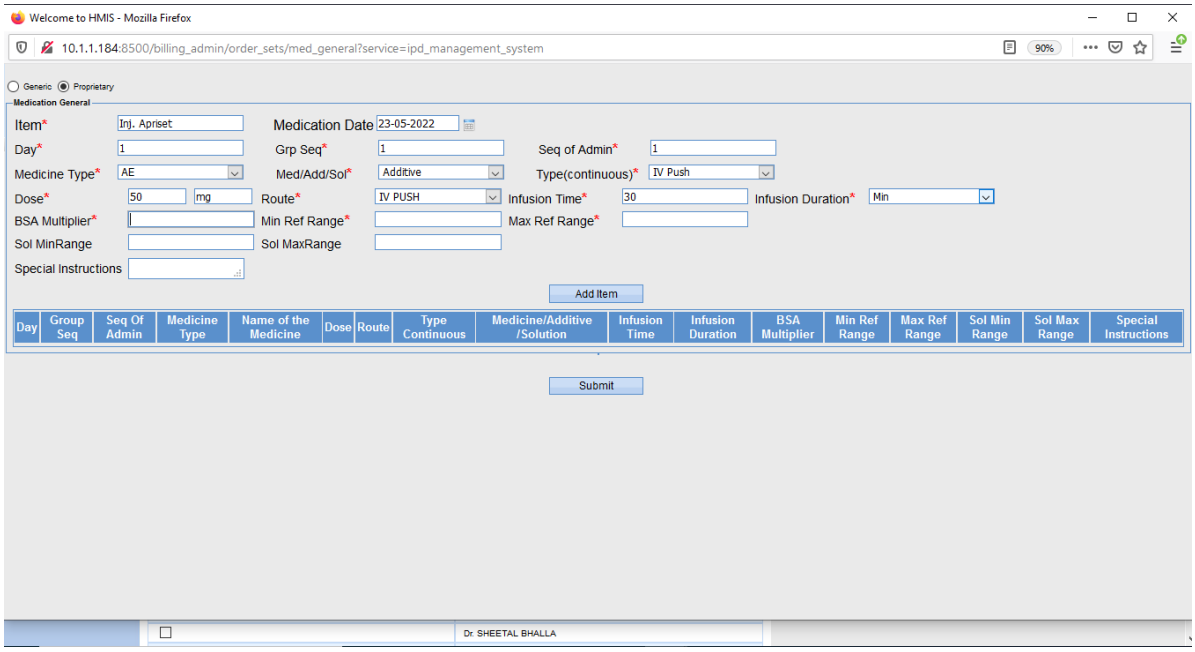
Inj Mesna ---------- amp in 100 ml NS IV over 15 min at 6 hour of starting cyclophosphamide

Inj Mesna ---------- amp in 100 ml NS IV over 15 min at 9 hour of starting cyclophosphamide

100 ml NS flush

- After doctor's final approval it is then send to nursing station
- Role of the nurse is to release it to pharmacy where drug dose mapping is done .

## Process of protocol creation




- After receiving the request from medical oncology as shown in the image on previous page, we start filling up the required field in the image above , which includes dosage name , date ,type of medicine ( solution , additive , infusion) , time , route (IV , slow push , oral ), any special instructions included .
- After we fill this we submit and then we add doctor's name as well (options provided).
- It is then send to the doctor for further review .
- If there is any correction or anything needs to be edited , then it is edited from the backend as shown in the flowdiagram above .

**Protocol Name: A FOLFOX - 6(Med-5)**
**CYCLE 1 DAY 1 ON 13-03-2019 12:24**

View C
Record

1. Cap. Aprecap.(Cap Aprepitant) 125mg oral

2. Inj. Emeset(Inj Ondansetron) 8mg + Inj. Dexona(Inj. Dexamethasone) 8mg in NS(Sod. Chloride) 100ml intravenous over 30Min

3. Inj. Bevatas(Inj Bevacizumab) mg in NS(Sod. Chloride) 100ml intravenous over 40Min

4. Inj. Oxiplat(Inj Oxaliplatin) mg in 5 Pct Dextrose(Dextrose 5%) 500ml intravenous over 120Min via CLAVE CONNECTOR

5. Inj. Biovorin(Inj. Leucovorin Calcium) mg in NS(Sod. Chloride) 500ml intravenous over 120Min via CLAVE CONNECTOR

6. Inj. Fluracil(Inj 5-Fluorouracil) mg in NS(Sod. Chloride) 100ml intravenous over 30Min

7. Inj. Fluracil(Inj 5-Fluorouracil) mg in NS(Sod. Chloride) 1000ml intravenous over 24Hrs

8. Inj. Fluracil(Inj 5-Fluorouracil) mg in NS(Sod. Chloride) 1000ml intravenous over 22Hrs

9. NS(Sod. Chloride) 100ml intravenous over 30Min

**CYCLE 1 DAY 2 ON 14-03-2019 12:24**

1. Cap. Aprecap.(Cap Aprepitant) 80mg oral

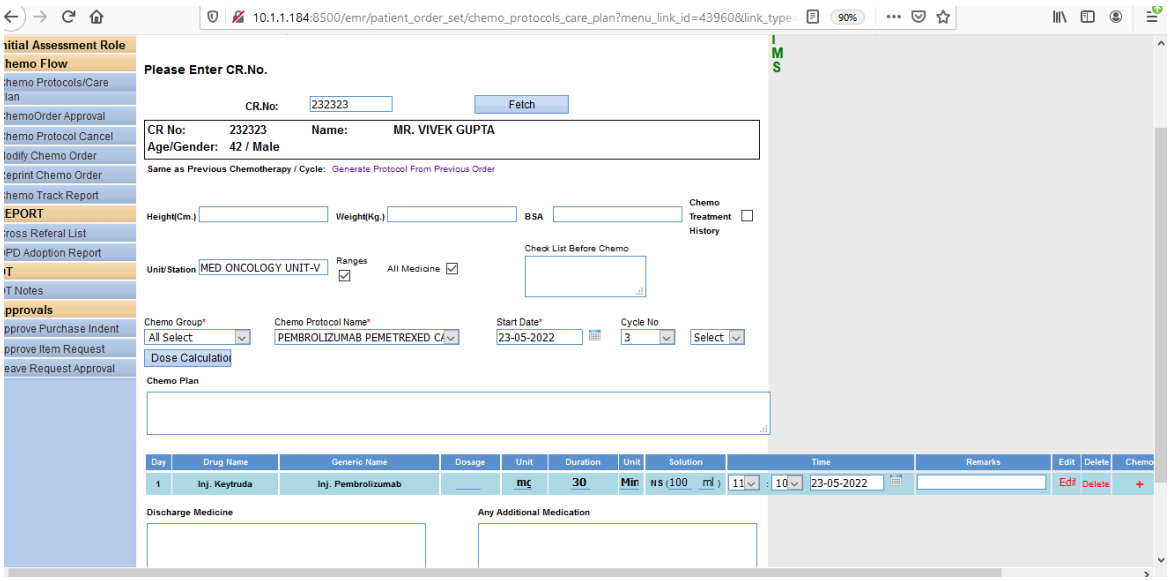
**Remarks:**

Prepared By:**AKDEWAN_7124**

Signed By:

Activ
Go to

Edit Order | Sign | Reject Order




- Care plan name – name of the protocol
- Care plan group – ref to the department (various department on the basis of help needed ) for eg ; hematology oncology , medical care unit -v .

- Doctor’s name is selected as mentioned on the protocol .

# GENERAL FINDINGS :

## MAJOR FACTORS AFFECTING THE FUNCTIONING OF THE PROGRAMME :

Although electronic records have the potential to transform the health care system from mostly paper-based industry to one that utilizes clinical and other pieces of information to assist providers in delivering higher quantity of care to the patients.

Financial issues , including adoption and implementation costs , ongoing maintenance costs , loss of revenue associated with temporary loss of productivity and declines in revenue , present a disincentive for hospital. Its adoption and implementation costs includes purchasing and installing hardware and software , converting paper charts to electronic ones , and training end users.

Disruption of work-flows for medical staff and providers , which will result in temporary losses in productivity . This loss of productivity stems from end -users learning the new system and may potentially lead to losses in the revenue .

Electronic records are often associated with fewer redundancies , fewer errors .

Another potential drawback of electronic records is the risk of patient privacy violations , which is an increasing concern for patients due to increasing amount of health information exchanged electronically , to relieve some these concerns , policymakers have taken measures to ensure safety and privacy of patient data.

Errors due to lack of end-user training .

## IMPLICATIONS FOR CLINICAL PRACTICE AND RESEARCH :

A chemotherapy plan recognition method can have several clinical uses .Within clinical systems at point of care, the output of this method can assist providers the clinical task of treatment plan abstraction by providing a summary of the patient's treatment history .

This could also be used for outcomes databases and comparative effectiveness research by providing information on the therapies and transitions in therapies for a patient population.

## LIMITATIONS:

Though data driven approach has its advantages, it does not come without its limitations. To recognize a plan, this method relies on repetition of pattern – be it a single drug (for simple plan) of a group of drugs (for compound or complex plans). For compound plans (where a sequenced group of drugs itself repeats temporarily), if a group of drugs occurred only once, the pattern did not recognize the group as a single plan . Due to this and a few data-errors the method did not detect majority of the complex plans, especially in the smaller sets.

# CONCLUSION

New chemotherapy protocols continue to be developed and evaluated everyday requiring a flexible and easy extensible method for chemotherapy plan recognition. existing flowsheet methods of presenting chemotherapy data in the EHR do not sufficiently provide an abstract representation of the patient's treatment history. We believe an automated data -driven method for chemotherapy plan recognition could provide useful output for both clinical and clinical research uses.

# SUGGESTIONS FOR IMPROVEMENT

Ensuring privacy of patient's data. Implementing strict, no tolerance penalties for employees who access files inappropriately.

End users should be well trained and refresher training is a must after a while.

# REFERENCES

https://www.rgcirc.org/about-rgcirc/

Manuals from the I.T department.

Mr Deepak rathore verbally explained the process .

## (Completion of Summer Internship from respective organization)

The certificate is awarded to

**Name** Dr SRISHTI SHOKEEN

In recognition of having successfully completed his/her
Internship in the department of

**Title** CHEMO PROTOCOL CREATION

and has successfully completed her Project on

Title of the Project

**Date** 17/06/2022

**Organisation** RAJIV GANDHI CANCER INSTITUTE & RESEARCH CENTRE

He/She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning

We wish him/her all the best for future endeavors

Author 17/6/22

**Organization Supervisor**

**Head-HR/Department Head**

## Certificate of Approval

The Summer Internship Project of titled **"TITLE OF YOUR PROJECT"** at **"YOUR ORGANIZATION** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **Post Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed, or conclusion drawn therein but approve the report only for the purpose it is submitted.

**Name of the Mentor**
**Designation**
**IIHMR, Delhi**

## FEEDBACK FORM

**(Organization Supervisor)**

**Name of the Student:** Dr SRISHTI SHOKEEN

**Summer Internship Institution:** RAJIV GANDHI CANCER INSTITUTE & RESEARCH CENTRE ROHINI SEC-5, DELHI-110085

**Area of Summer Internship:** I.T DEPARTMENT

**Attendance:** 90%.

**Objectives met:** Gained essential background knowledge in terms of Chemoprotocol creation & how it involves I.T dept.

**Deliverables:** Assisted & contributed to the team. gained fulfilled tasks set out by supervisors from the department.

**Strengths:** Communicates effectively, Detail oriented & can learn new things quickly.

**Suggestions for Improvement:** Could improve on time management & be more collaborative during problem solving.

**Signature of the Officer-in-Charge (Internship)**

Author 17/6/22

**Date:** 17th June 2022
**Place:** ROHINI, DELHI