

COVID Warriors

**A Digital Platform for Management of COVID-19
in a Tertiary Care Hospital**

Dr. Bijoy Johnson

Consultant in Healthcare Data Analytics

Baby Memorial Hospital

COVID Warriors

Patient
Experience

Patient
Care

Research

Employee
Experience &
Safety

Resource
Optimization

COVID Warriors

COVID Self Declaration Dashboard

Filter

Source

Self (BD)

30153

Self (O)

24945

Source %

12%

10%

77%

Patient

108726

Bystander

116998

Visitor

18174

Vitals

HR

133

BP

134/92

RR

20

SPO2

82

Last updated: Mar 31 2020 3:25 pm

Vitals Monitoring Graph

Heart Rate:

Heart Rate (per minute)



BMH
more than care

Patient Entry Pass

Name: Suresh Kumar

Place of Residence: Kozhikode

Valid till: Aug. 29, 2020, 11:32 a.m.

Scan QR code to verify:



Note: Please scan the QR code at the

Patient Experience

Education & Awareness

Since 1987
BMH
more than care

COVID Screening

health authority?

No

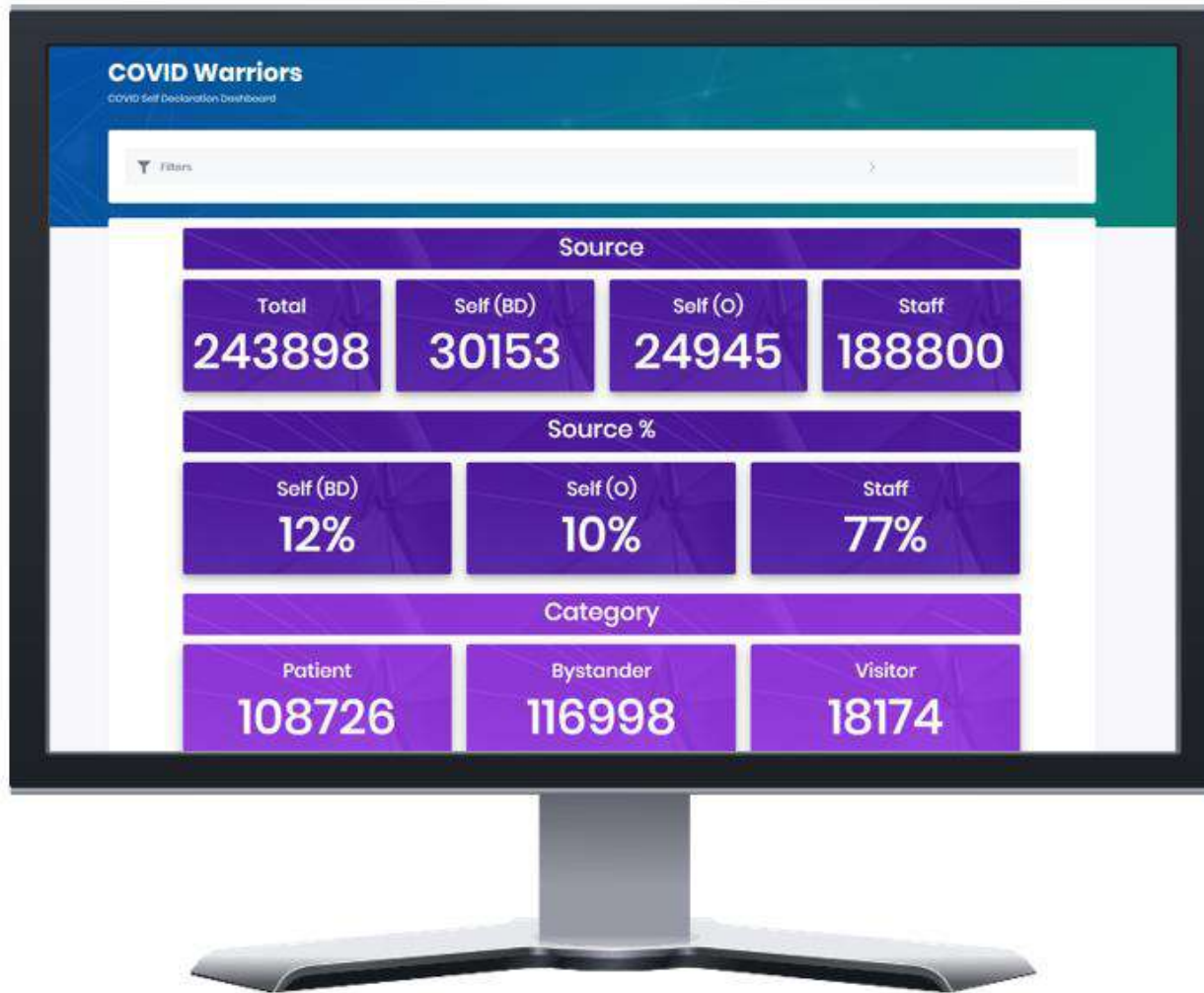
Did you have any international / inter-state travel in the last 14 days?

No

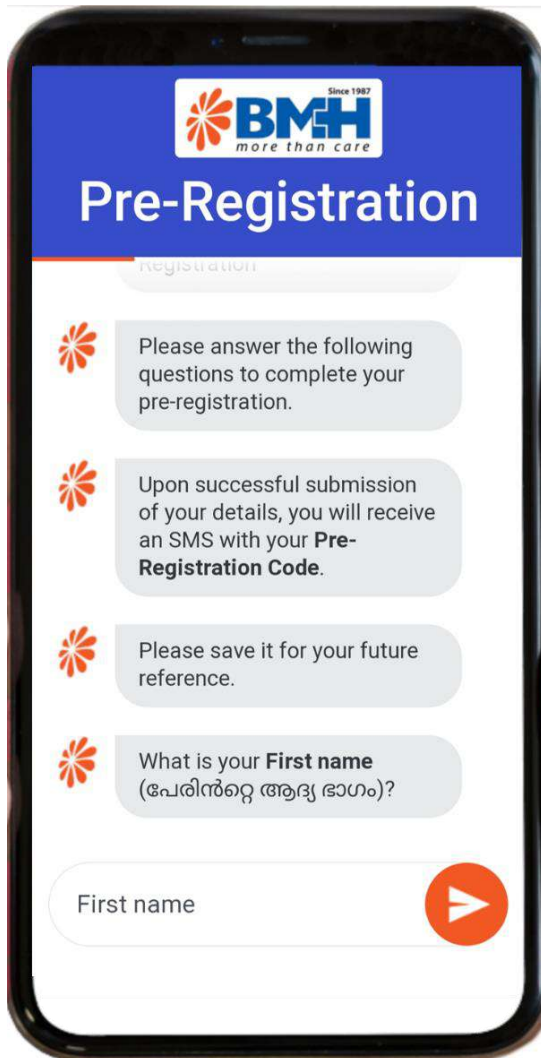
Did you have any contact with patients diagnosed with COVID-19?

No Yes

Touchless Self Declaration



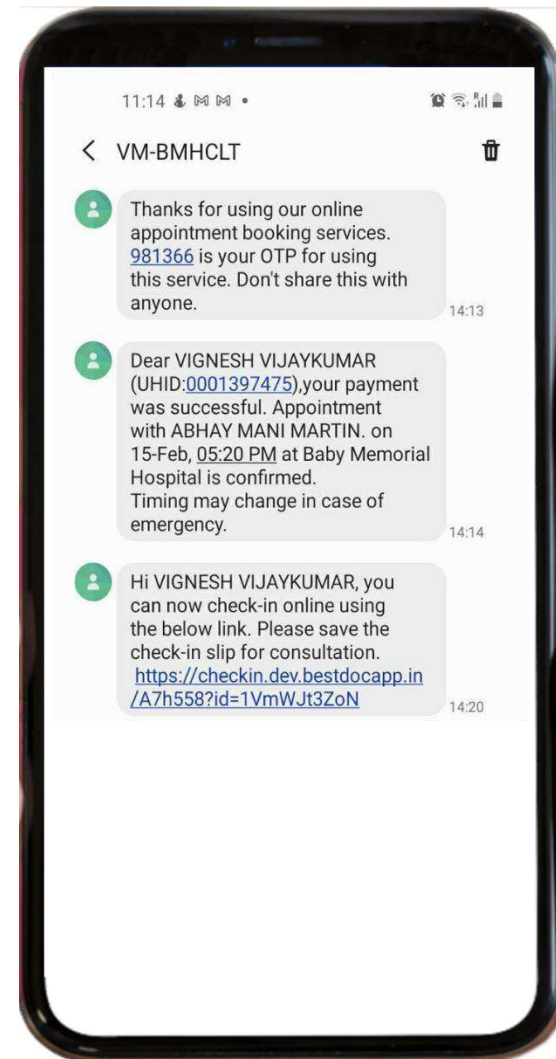
Touchless Transactions



The image shows a smartphone screen displaying the BMH (Babymemorial Hospital) Pre-Registration app. The app has a blue header with the BMH logo and the tagline "more than care". Below the header, the title "Pre-Registration" is displayed. The main content area is white and contains four instructions, each preceded by an orange flower icon:

- Please answer the following questions to complete your pre-registration.
- Upon successful submission of your details, you will receive an SMS with your **Pre-Registration Code**.
- Please save it for your future reference.
- What is your **First name** (പേരിന്റെ ആദ്യ ഭാഗം)?

At the bottom, there is a text input field labeled "First name" and a red circular button with a white right-pointing arrow.



Patient Care

COVID Patient Assessment

Initial Evaluation:

COVID Category

Moderate Symptoms with Comorbidity (Cat B)

Clinical Severity

Mild Disease

☐ History of contact with COVID-19 patient?

Symptom Details

☒ Cough

☒ Fever

☐ Breathlessness

☐ Sore Throat

☐ Diarrhoea

☐ Nausea

☐ Chest Pain

☐ Vomiting

☐ Hemoptysis

☐ Nasal Discharge

☐ Body Ache

☐ Sputum

☐ Abdominal Pain

Symptom Start Date

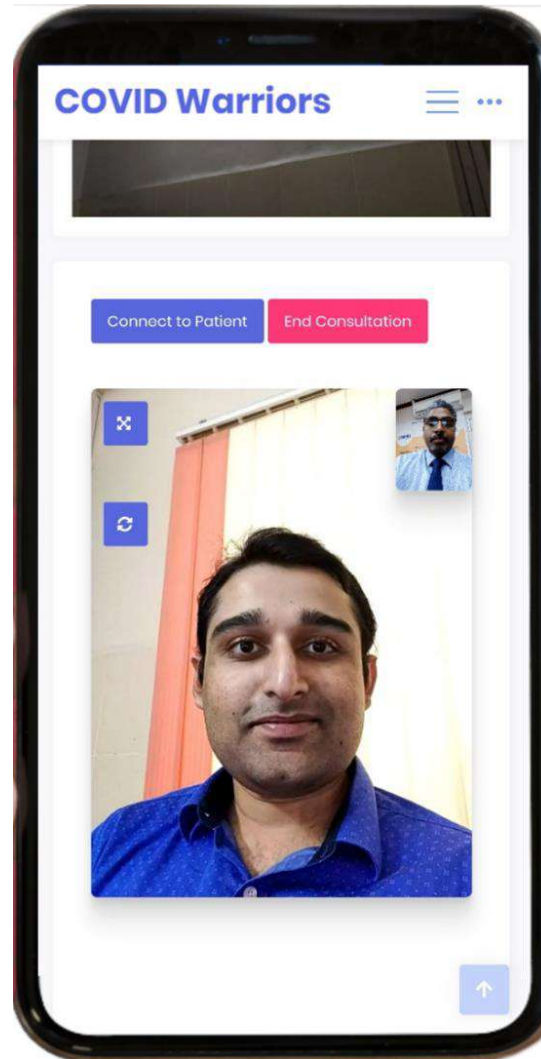
09/08/2021

History of Present Illness

File Edit View Format

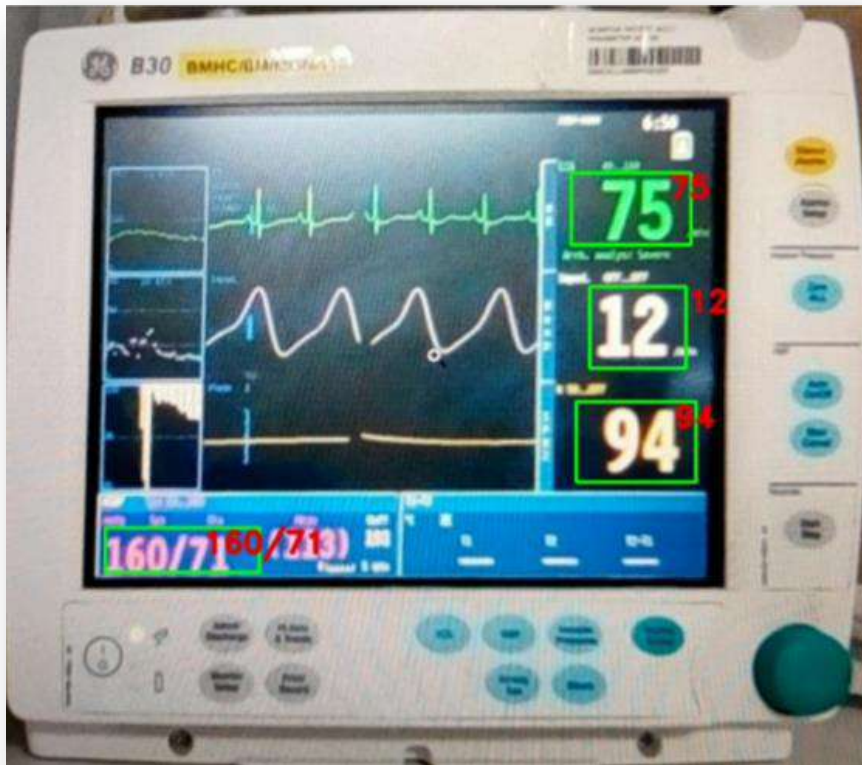
← → Paragraph **B** *I* ☰ ☷ ☹ ☹ ☹ ☹ ☹ ☹

Video Consultation



Cognitive Capabilities

Computer Vision



Natural Language Processing

Voice recognition

Use speech recognition in the device keyboard to insert data into the textbox below.

The patient has a heart rate of 72 per minute, respiratory rate of 21 per minute, BP is 120/84 mm of Hg, oxygen saturation is 100%

☐ Automatically insert vitals data when I finish dictating all parameters.

Insert Data

Clear



BMH Care Portal



ICU Monitoring:

Vitals



Image Capture



Voice Recognition



Oxygen Therapy



GCS



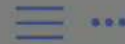
Sugar & Urine



Notes



BMH Care Portal



Voice recognition



Use speech recognition in the device keyboard to insert data into the textbox below.

Heart rate 72, Respiratory rate 22, Blood pressure 120 / 80, Saturation 100.

☒ Automatically insert vitals data when I finish dictating all parameters.

Insert Data

Clear

Speak now



1 2 3 4 5 6 7 8 9 0

Q W E R T Y U I O P

A S D F G H J K L

↑ Z X C V B N M ⌫

?123

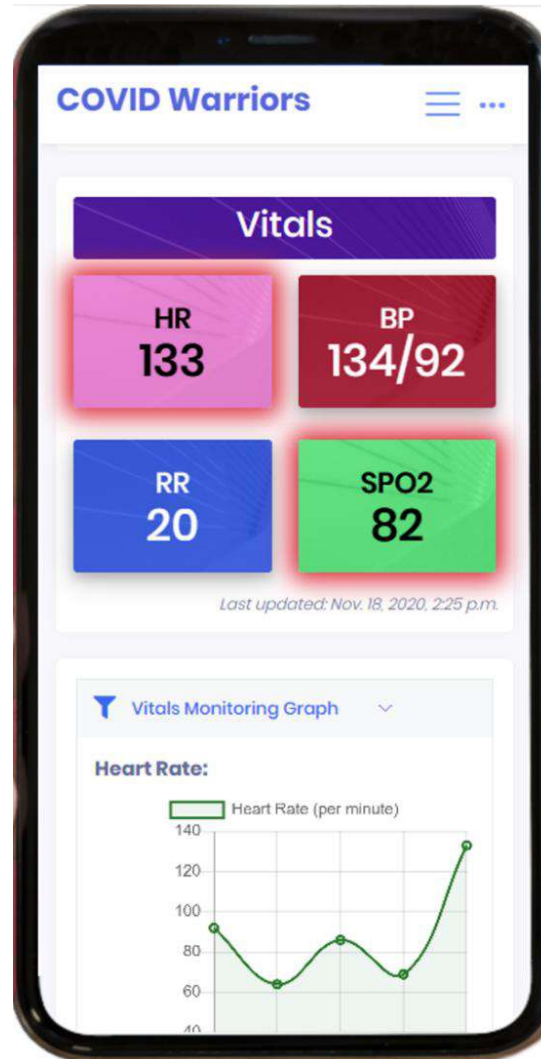


English

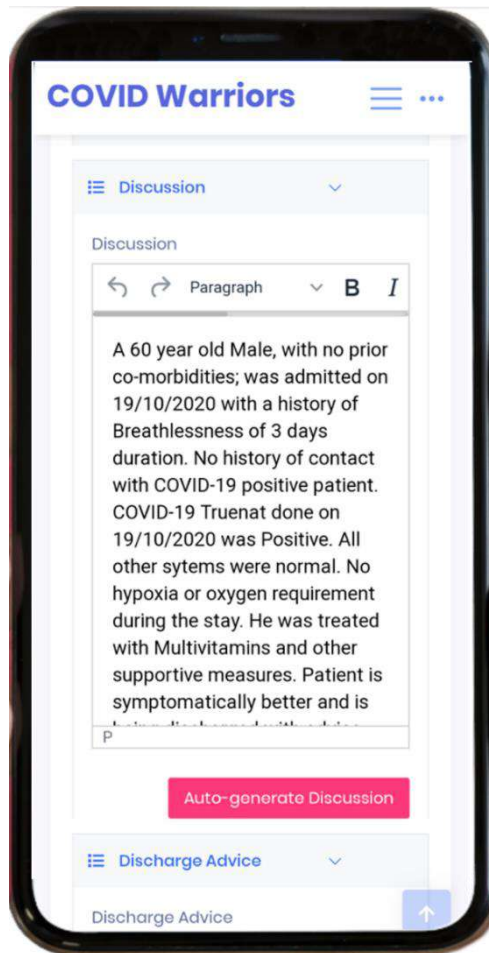
.




Cognitive Capabilities



Discharge Summary Generator



 **BMH**
Bharat Mahila Health

COVID Discharge Summary

| | |
|-------------------------------------|---------------------------------------|
| Name: Suresh Krishnan | UHID: 3456361 |
| Age/Gender: 53yrs / Male | IP Number: ADM14091 |
| Admission Date: June 2, 2020 | Discharge Date: Sept. 19, 2020 |

Admitting Consultant: ANOOP KUMAR A.S.

Diagnosis

COVID Category: Mild Symptoms (Cat A)
Clinical Severity: Mild Disease

Clinical History

Symptom Start Date: Oct. 3, 2020
Presenting Complaints: Cough, Fever, Breathlessness

History of Present Illness:
Fever for 1 week

Comorbidities: Diabetes, Hypertension, Coronary Artery Disease

COVID Test Results

| | |
|--|--|
| Admission Test Date: Oct. 1, 2020 | Discharge Test Date: Oct. 3, 2020 |
| Test Type: Antigen Test | Test Type: RT-PCR |
| Test Result: Positive | Test Result: Negative |

General Examination

| | |
|----------------------------------|----------------------|
| pallor: Yes | Icterus: Yes |
| Clubbing: Yes | Cyanosis: Yes |
| Gen. Lymphadenopathy: Yes | Oedema: Yes |

| | |
|--------------------------------------|--------------------------------|
| Blood Pressure: 120/120 mm Hg | Pulse Rate: 72 / minute |
| Respiratory Rate: 16 / minute | Temperature: 98.0 °F |
| Saturation: 100% on room air | GCS: E4 V5 M6 |

Oxygen Therapy >

ICU Stay >

Discussion v

Discussion

File Edit View Format

Paragraph

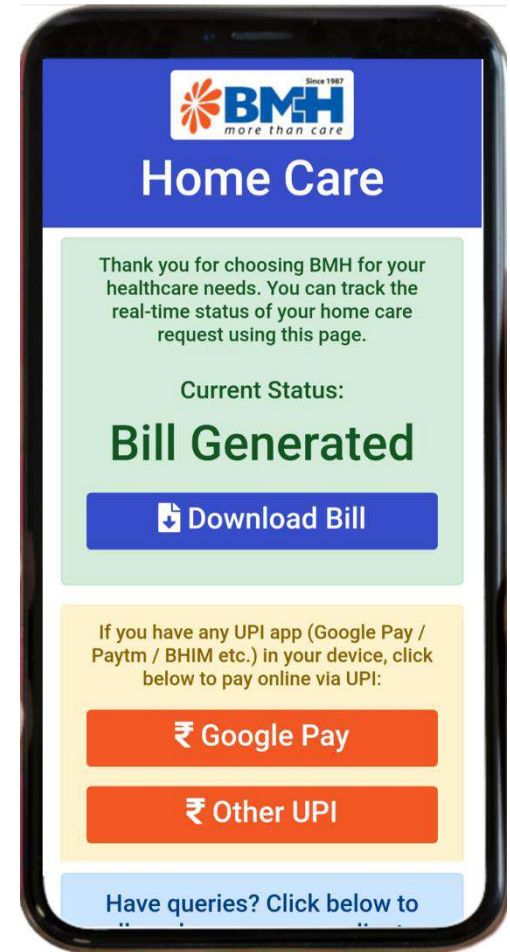
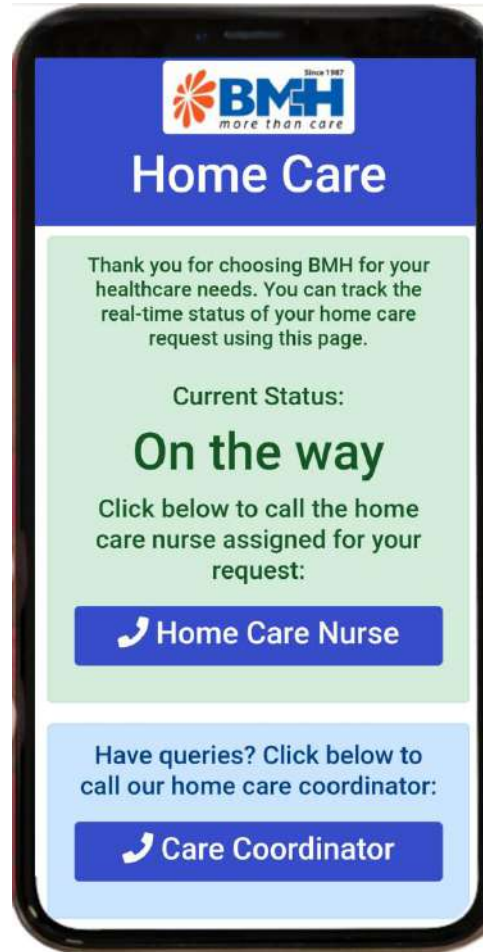
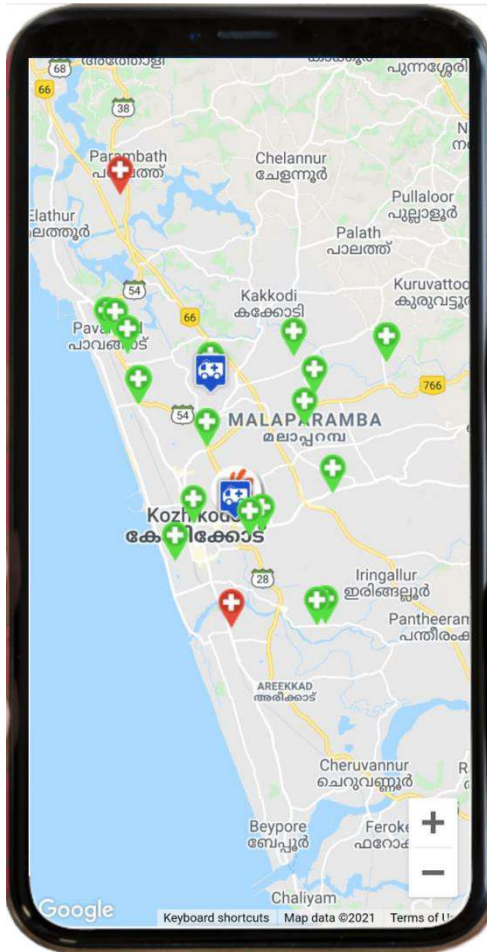
P

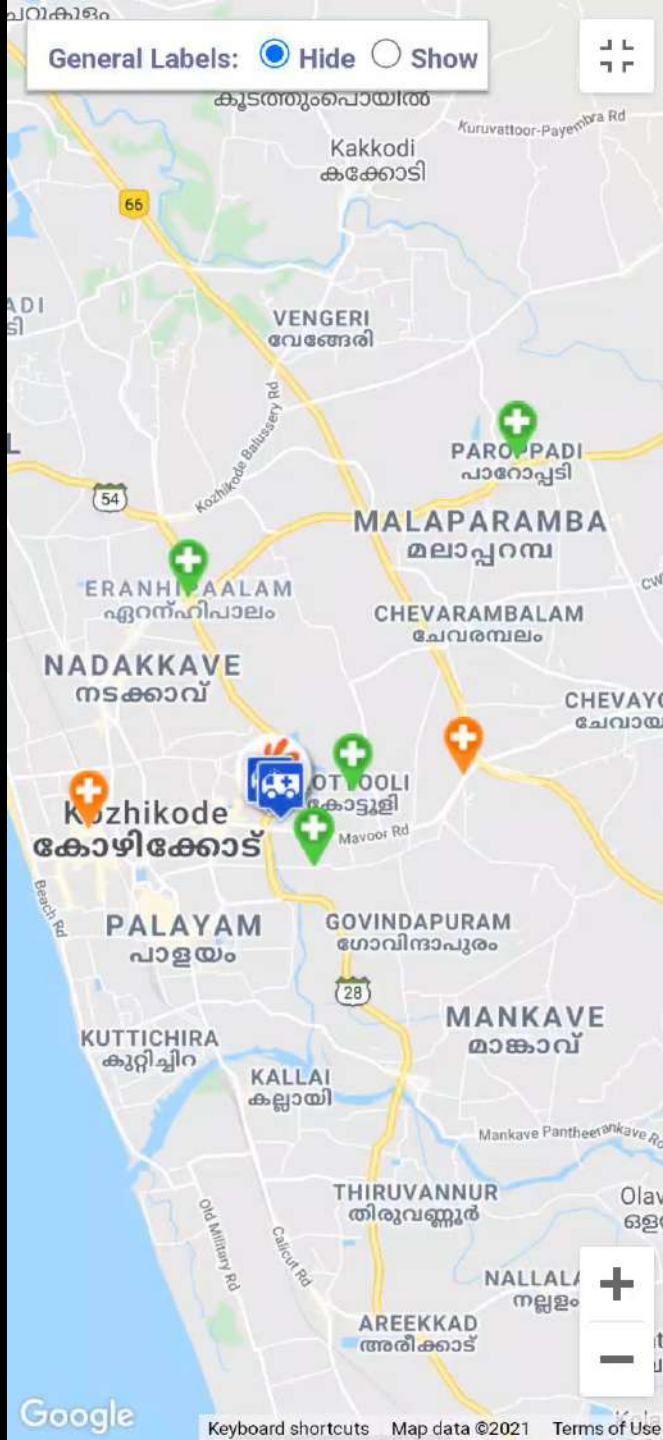
Auto-generate Discussion

Discharge Advice >

Submit

COVID Home Care

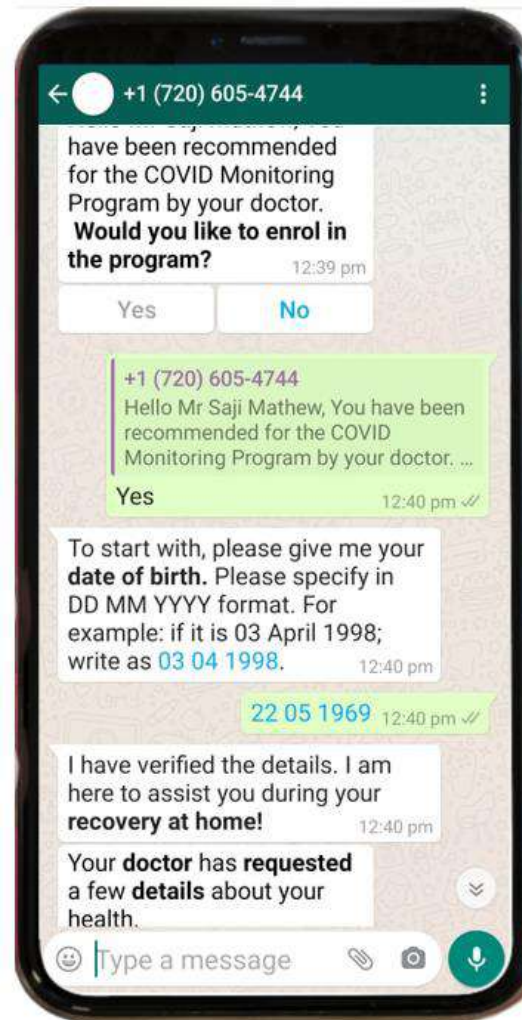




General Labels: ☒ Hide ☐ Show



Conversational AI



Resource Management

Bed Status Dashboard

Bed Status

Operational

128

Occupied

113

Vacant

15

Vacancy by Location Category

COVID Ward

5

34

COVID Room

8

67

COVID ICU

2

27

COVID Transit

7

25

Occupancy by Location Category

COVID Ward

29

COVID Room

59

COVID ICU

25

COVID Transit

18

Discharge Tracker

Pending

26

Pre-discharged

41

Complete

21

Discharge timeline for Thomas Joseph

Pre-discharge marked at 11:33 AM, 25/3/2021.

Discharge summary completed at 11:59 AM, 25/3/2021.

Medicine return completed at 12:01 AM, 25/3/2021.

Discharge bill completed at 12:27 PM, 25/3/2021.

Bill payment completed at 12:51 PM, 25/3/2021.

Room vacated at 2:02 PM, 25/3/2021.

FATHIMA N

...

6247854

B7 / B780

SURESH KUMAR

Awaiting Discharge



PD

DS

MR

DB

BP

RV

HAMEED K

Credit

3648915

C4E / 743B

RAJANISH K

Awaiting Discharge



PD

DS

MR

DB

BP

RV



6th Edition

CAHOTEC 2021



Equipment Availability

COVID Warriors

Equipment Dashboard

Equipment Usage

17



5

Ventilator

44



7

Multiparameter Monitor

11



2

BiPAP

9



4

High Flow Nasal Cannula

28



12

Syringe Pump

14



6

Infusion Pump

Employee Experience & Safety

Staff risk assessment

Staff Details:

Employee Number

Employee Search

Got employee data

Hospital staff

☒ COVID symptoms?

Symptom details:

☒ Cough

☒ Fever

☐ Breathlessness

☐ Sore throat

☐ Diarrhoea

☐ Nausea

☐ Chest pain

☐ Vomiting

☐ Hemoptysis

☐ Nasal discharge

☐ Body ache

☐ Sputum

☐ Abdominal pain

Symptom start date

Symptom start date

Symptom details

Symptom details

BMH Intelligent Assistant

BIA: BMH Intelligent Assistant

Hi Sunena, I am BMH Intelligent Assistant.

Welcome to BMH Care Portal.

You are currently in the Bed Board [B10] section.

Would you like me to provide a brief walkthrough of this page?



Yes



No

Research

Research Studies

BMH Med. J. 2021;8(3):103-109. **Research Article**

Adverse Drug Reactions in ChAdOx1 nCoV-19 vaccine among Health Care Workers

Shaji Thomas John, Alexander KG, Gayathri K

Baby Memorial Hospital, Kozhikode, Kerala, India

Address for Correspondence: Dr. Shaji Thomas John, MD, FIAMS, FIAP, Chief of Clinical Support Services, Baby Memorial Hospital, Kozhikode 673004, Kerala, India.

Email:doctorshaji@hotmail.com.

Abstract

Background: Severe acute respiratory syndrome by Coronavirus 2 (SARS-CoV-2) infection and the resulting Corona virus disease 2019 has afflicted millions of people. The safety profile and effectiveness of the vaccines available are of great concern as vaccination is the main stay of control of the disease, other than the usual Covid appropriate behaviour measures.

Objective: To study the incidence and extent of adverse reactions based on age and sex after ChAdOx1 nCoV-19 vaccine (AstraZeneca Oxford Covid Vaccine) in Health Care Workers.

Study Design: An online questionnaire through a cloud-based survey software by Google Forms was sent; and the adverse events experienced were collected 7 days after the first and second doses of the vaccine.

Participants: Health Care Workers in an urban multispecialty hospital.

Symptom

Oth

Brea

Cl

Swelling (F



6th Edition

CAHOTECH 2021



Outcomes Achieved



Outcomes Achieved

- COVID risk assessment chat bot used by **15000+** users across the country.
- **2.5 lakh** visitors screened till date using the self declaration system.
- **70% reduction** in time for COVID discharge summary generation
- Achieved **95% utilization** of COVID care areas and equipment
- Additional **revenue generation** through optimizing home care service delivery
- **Optimize care delivery** of ICU patients by utilizing computer vision

Outcomes Achieved

- **Robotic Process Automation (RPA)** for submission of data to government authorities
- Use of **AI powered chat-bots** enhanced user experience
- **Geo-tagging** with **real-time travel time estimation** helped streamline home care services
- **Geo-fencing** helped ensure data security and privacy
- **Minimize COVID exposure** of staff
- **Low-cost incremental innovation** developed by the in-house IT team

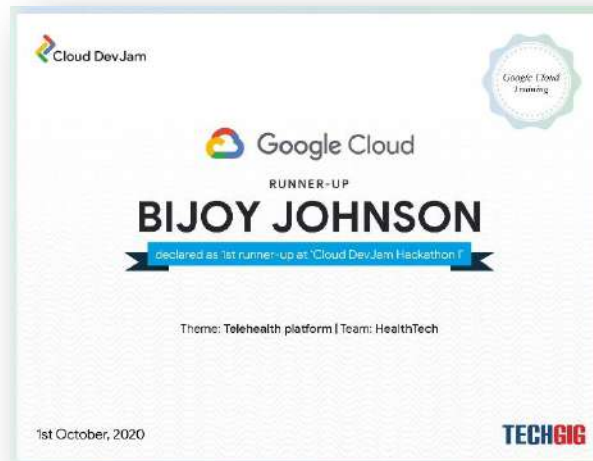
Awards & Recognitions



Digital Technology Senate Award 2021



Frontline Warriors' Award 2021



Runner-up in the Cloud DevJam Hackathon conducted by **Google Cloud**



Thank you!