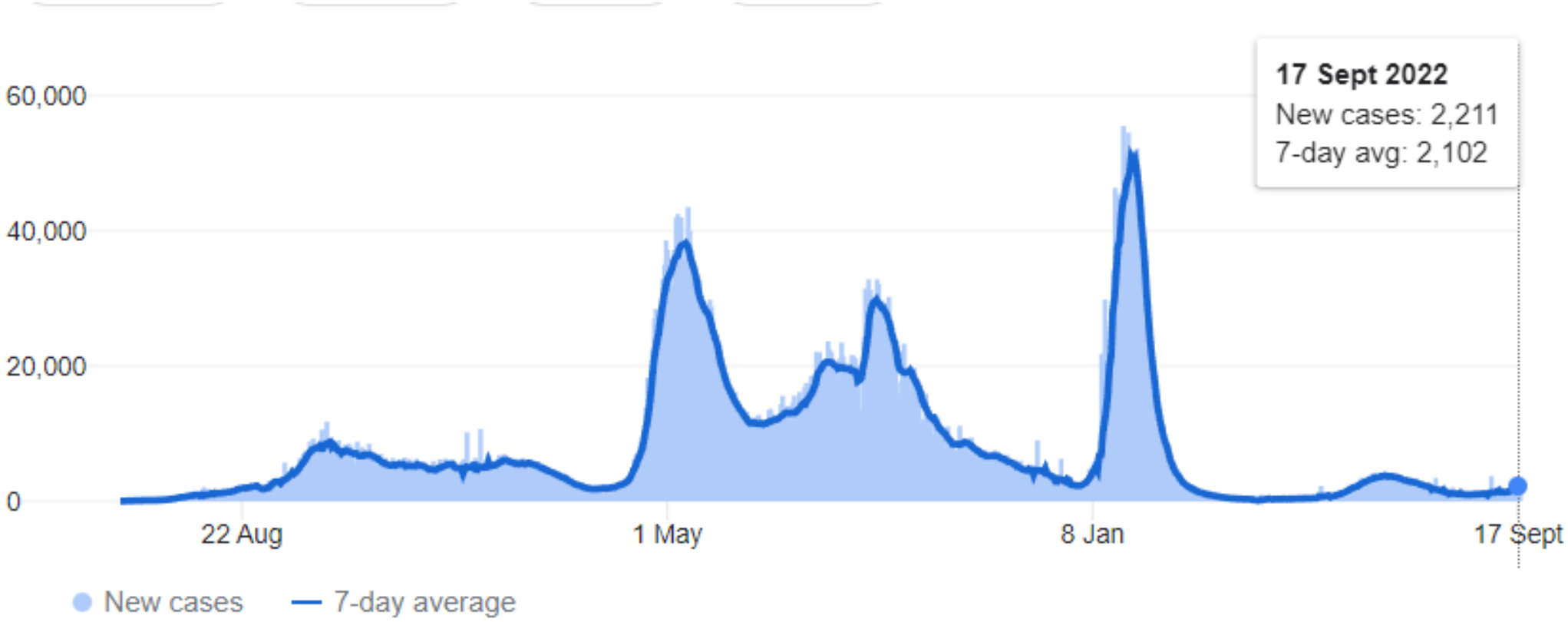
CRITICAL CARE- COVID

MCH THIRUVANANTHAPURAM

DR.ANIL SATHYADAS

Kerala

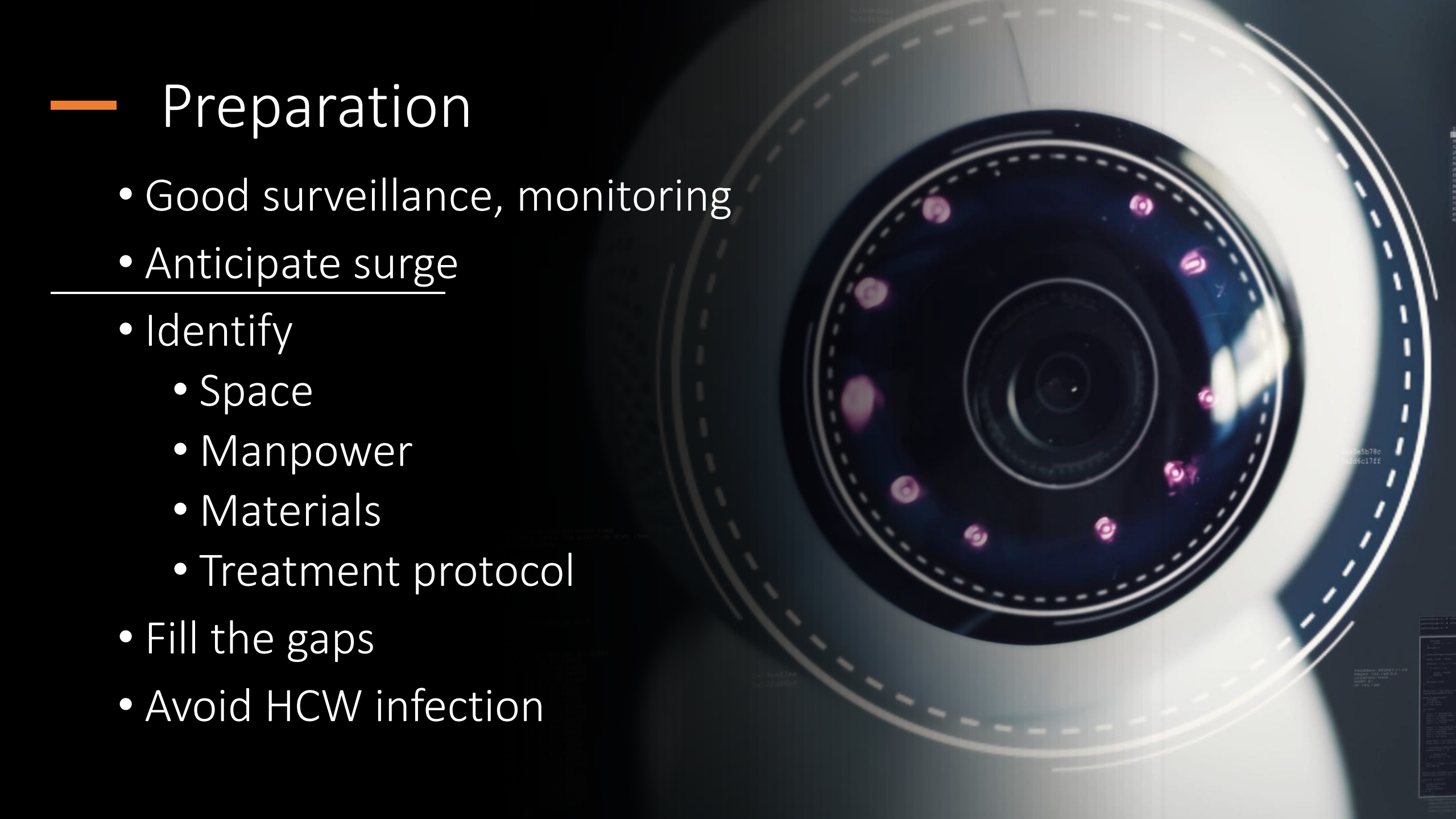

17 Sept 2022
New cases: 2,211
7-day avg: 2,102
60,000
40,000
20,000
0
22 Aug
1 May
8 Jan
17 Sept
New cases
7-day average

MCH Thiruvananthapuram

- Admission 25190
- ICU: 10-15%
- 4 levels in Multi Specialty Block was converted to COVID ICU
- Negative pressure by installing exhaust fans
- AC unit had to put in extra effort to cool the ICU

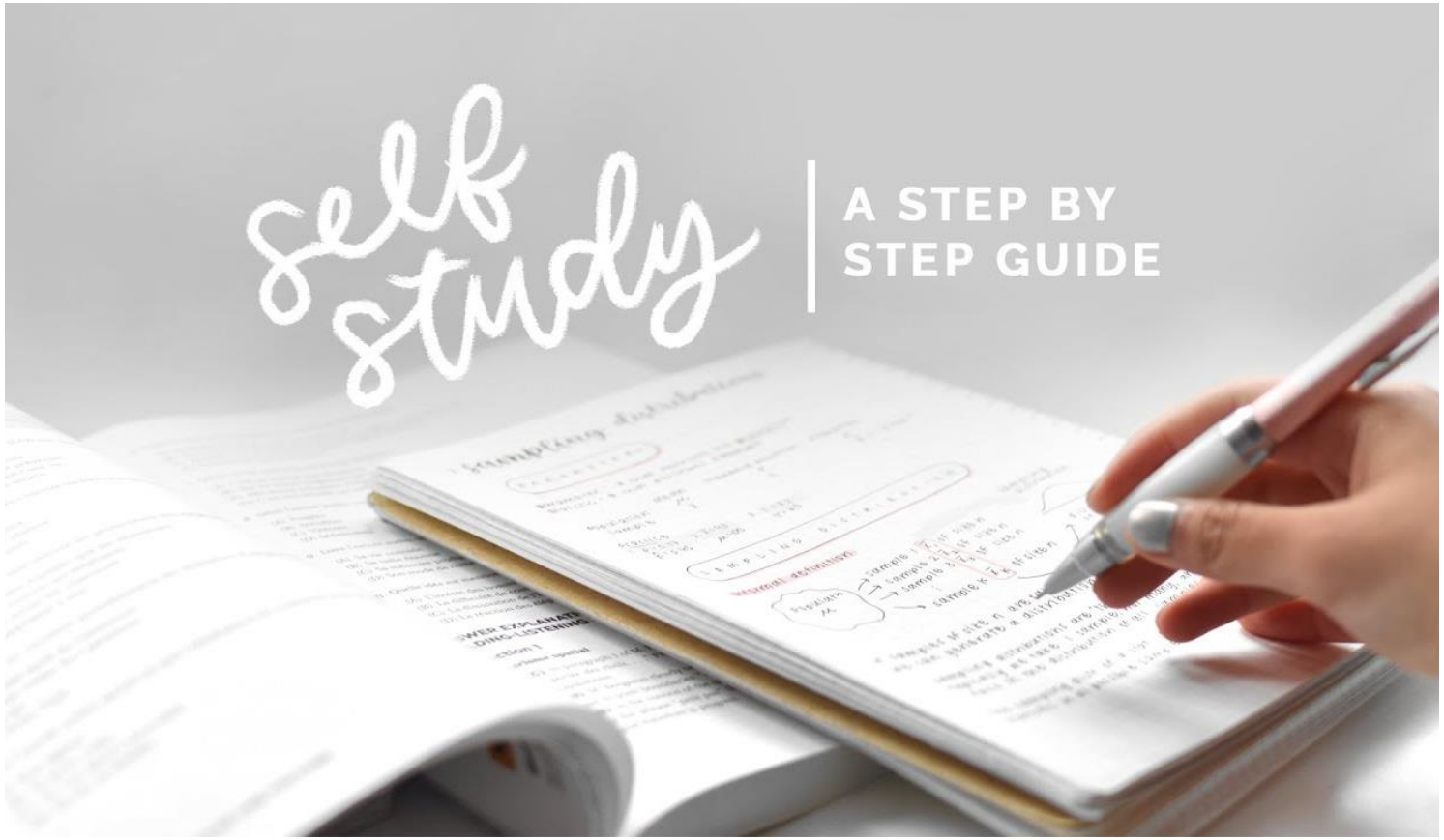
Preparation

- Good surveillance, monitoring
- Anticipate surge
- Identify
  - Space
  - Manpower
  - Materials
  - Treatment protocol
- Fill the gaps
- Avoid HCW infection



Filling the gap

- Few trained in Critical Care: Doctors, Nurses
- Few ICU beds
- Medicines
- Oxygen
- Ventilators
- Special devices
- Treatment with strong evidence-Protocol development



Training

Being a *new* disease & the first state – Homework

Faculty & Resident training

- PPE
- Ventilatory support
- Management

Nurse-ICU training

Physical

Online

Training

- Medical management
- Rationale use of Oxygen
- Investigations
- Triaging
- High flow nasal canula
- Non-invasive ventilation
- Invasive Ventilation
- Infection control practices

PROTOCOL FOR NURSES

MONITORING & PROCEDURES

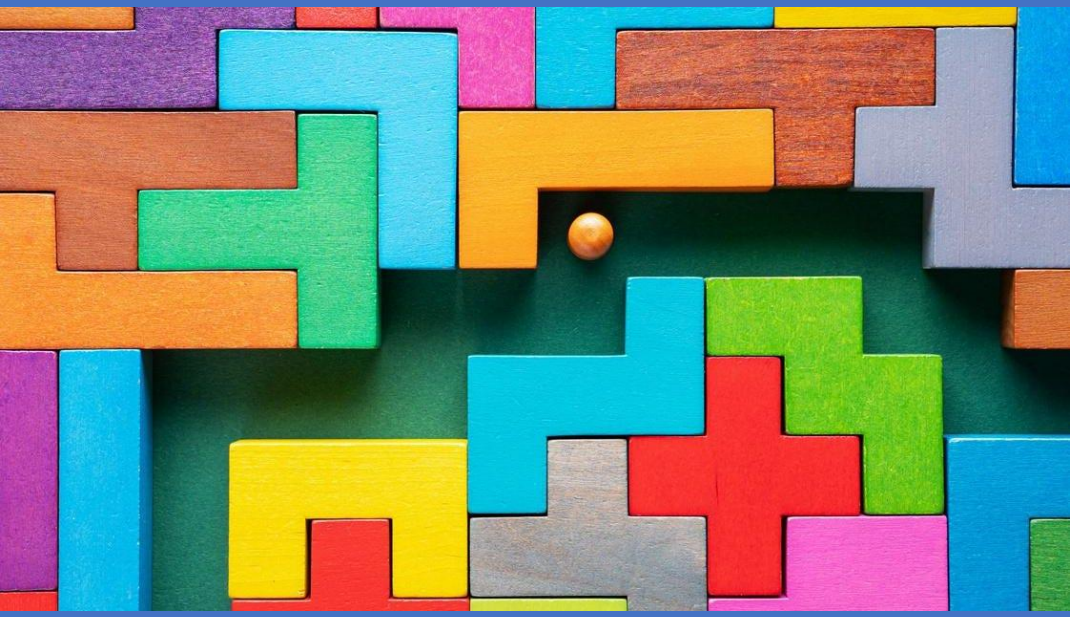
MDICU

Team- ICU

- Trained Critical care specialist
- Faculty, residents from Pulmonology, Anaesthesiology, Medicine
- Senior residents of medical allied super specialties
- Nodal officer, assistant nodal officers
- Daily meeting for individual case discussion

First wave

- Difficult
- Definitive / new treatment yet to come
- Steroids
- High mortality
- Early identification and triaging
- Prognostication was difficult
- Invasive ventilation had higher mortality



- Refractory hypoxemia
- Severe respiratory distress
- Feeding with Non-invasive ventilation
- Prone positioning
- Who is who!!
- Phones were allowed on request
- Radio / music player

Plateau

- Timely modification of protocol
- Remdesivir
- Monoclonal Antibody
- Ventilator pool increased
- Transport ventilators capable of high FiO_2 (Shift to CT)
- High flow nasal cannula available
- High mortality: Pregnant, obese, immunosuppressed, aged
- “How patient fought the infection”

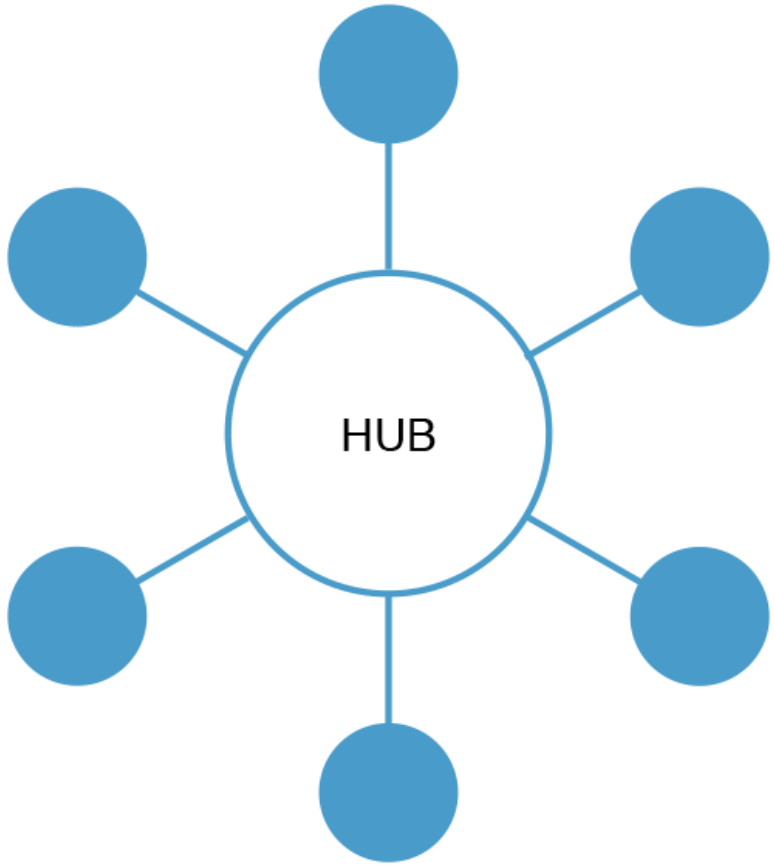
Technology

- Central nursing station-relocation
- Monitoring camera
- Protocol education
- State Training Division NHM
- Online classes
  - Weekly for residents

Communication

- Video calling facility with mobile on request
- Telephonic debrief with family members
- Close relatives were allowed to visit their dear ones
- Psychological counselling

Hub & Spoke model, Tele ICU



Second wave

- New drugs came into limelight
- Protocol modification-International, National, State
- Triage better
- Many survived with timely management
- Late presenters had higher mortality
- Less severe disease
- Steroid responders Vs Non responders

Oxygen leak!

Rational use of Oxygen

KMSCL
Dr. DILEEP

	Date	Total Active COVID CASES	category	Patients in Ventilator support	% of active cases required	Patients in ICU without ventilator support	% of active cases required ICU without ventilator support	Patients in ward with O2 Support	% of active cases required O2 Support in wards	O2 requirement for ventilator patients	O2 requirement for ICU patients without ventilator support	O2 requirement for patients in the ward	Total O2 requirement for COVID patients in the state (in Cum)	O2 requirement in MT	Total requirement
	15.04.2021	69868	covid	162	0.23	442	0.63	535	0.77	11664.00	4709.95	5700.96	22074.91	28.67	73.07
			non covid	223		855		847		16056.00	9110.88	9025.63	34192.51	44.41	
	16.04.2021	80019	covid	164	0.20	441	0.55	588	0.73	11808.00	4699.30	6265.73	22773.02	29.58	74.43
			non covid	229		908		786		16488.00	9675.65	8375.62	34539.26	44.86	
	17.04.2021	93686	covid	172	0.18	443	0.47	686	0.73	12384.00	4720.61	7310.02	24414.62	31.71	75.39
			non covid	217		900		790		15624.00	9590.40	8418.24	33632.64	43.68	
	18.04.2021	103004	covid	180	0.17	491	0.48	576	0.56	12960.00	5232.10	6137.86	24329.95	31.60	74.25
			non covid	219		811		791		15768.00	8642.02	8428.90	32838.91	42.65	
	19.04.2021	118673	covid	184	0.16	506	0.43	709	0.60	13248.00	5391.94	7555.10	26195.04	34.02	80.00
			non covid	240		833		868		17280.00	8876.45	9249.41	35405.86	45.98	
	20.04.2021	138673	covid	201	0.14	518	0.37	800	0.58	14472.00	5519.81	8524.80	28516.61	37.03	81.84
			non covid	228		873		824		16416.00	9302.69	8780.54	34499.23	44.80	
	24.04.2021	198576	covid	261	0.13	695	0.35	1142	0.58	18040.32	10008.00	12169.15	40217.47	52.23	99.66
			non covid	238		880		694		16450.56	12672.00	7395.26	36517.82	47.43	
	30.04.2021	303733	covid	356	0.12	862	0.28	1556	0.51	24606.72	12412.80	16580.74	53600.26	69.61	110.32
			non covid	197		787		600		13616.64	11332.80	6393.60	31343.04	40.71	
	08.05.2021	423514	covid	475	0.11	948	0.22	1900	0.45	32832.00	13651.20	20246.40	66729.60	86.66	123.02
			non covid	180		660		568		12441.60	9504.00	6052.61	27998.21	36.36	
	15.05.2021	500000	covid	1150		3500		4000		79488.00	50400.00	42624.00	172512.00	224.04	259.17
			non covid	180		600		560		12441.60	8640.00	5967.36	27048.96	35.13	
	31.05.2021	520000	covid	1196		3640		4160		82667.52	52416.00	44328.96	179412.48	233.00	268.13
			non covid	180		600		560		12441.60	8640.00	5967.36	27048.96	35.13	
	15.06.2021	400000	covid												
			non covid												
	30.06.2021	350000	covid												
			non covid												

THANK YOU