Original Article

To Evaluate the Efficacy of Microplan for Emergency Department of Medical Colleges laid by the Uttar Pradesh Government of India in Reference to the COVID-19 Pandemic

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Objective : To evaluate the efficacy of MICROPLAN for screening and segregation of patients coming to Emergency Department (ED) of Medical Colleges of state, laid down by Uttar Pradesh Government of India, in reference to the COVID-19 pandemic.

Materials and Methods : This is a retrospective, observational case series. Data were collected from May 01, 2020, to May 31, 2020, from Emergency Department, SN Medical College, Agra, Uttar Pradesh, India.

Results : Out of 1856 patients, 1516 patients were tagged green or non-suspects (81.68 %) and 340 were tagged red/ suspects (18.31%). Out of 340 red tagged patients, 87 came to be positive for 2019- nCoV by RT-PCR (25.58 %) and out of 1516 green tagged patients, 24 patients tested positive for 2019- nCoV by RT-PCR (1.58 %).

Conclusion : MICROPLAN laid down by Uttar Pradesh Government of India, in reference to the COVID-19 pandemic has certainly avoided mixing covid and non-covid patients, helped us to break the chain of infection, and above all prevented our medics, paramedics, and patients from getting an infection from asymptomatic corona patients. We recommend this plan to be implemented at every emergency department during covid pandemic in India.

[*J Indian Med Assoc* 2021; **119(8):** 18-20]

Coronavirus disease 2019 (COVID-19) is a rapidly evolving global pandemic that has already caused profound effects on public health and medical infrastructure globally[1] including India. In the present COVID outbreak, there was a serious need to start emergency services to cater patients who were suffering from different other ailments, but seeing the massive spread of novel coronavirus disease every patient whether showing typical clinical features of corona or not, must be considered as a suspect until proven otherwise. This article focuses on the success of MICROPLAN for Management of Patients in Emergency Department (ED) of Medical Colleges laid down by Uttar Pradesh Government, with special reference to the COVID-19 pandemic.

During the COVID-19 Pandemic, the focus of the whole medical fraternity is on novel corona virus management, which in turn severely compromised the

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Editor's Comment :
- MICROPLAN for Management of Patients in Emergency Department (ED) of Medical Colleges, with special reference to COVID-19 pandemic laid down by Uttar Pradesh Government, has definitely avoided mixing of COVID and non-COVID patients thus helped in curtailing the infection among patients, paramedical and medical personals.
- We recommend implementation of this plan to every Emergency department during covid pandemic.

routine outdoor and indoor functioning leading to increased morbidity and mortality of non-corona patients. So, to combat this Uttar Pradesh Government came up with a MICROPLAN for Management of Patients in Emergency Department (ED) of Medical Colleges of Uttar Pradesh, for the management of Medical, Surgical Emergencies and trauma for Non-COVID patients. Every hospital, therefore, had two different care areas for the management of patients:

(A) COVID Care Facility for management of COVID-19 patients.

(B) Emergency Department for the management of Medical & Surgical Emergencies for Non-COVID patients.

These two areas A and B should be separate to avoid cross infection and accidental admission of the suspect or confirmed COVID-19 patient in the Non-COVID area.

MATERIALS AND METHODS

This was a retrospective, observational case series. Data were collected from May 01, 2020, to May 31, 2020, from the Emergency Department, S.N. Medical College, Agra, Uttar Pradesh, India. The study included 1856 consecutive patients who came to the screening area of the emergency department for various complaints. Based on the protocol as laid in micro plan for emergency, we started our Emergency Department (ED). Before entry into the ED, the patient first entered the reception area which is the First Screening Area at the Non-COVID Hospital entrance. All patients were screened based on the pre-designed questionnaire[2]. This questionnaire changed depending on the stage of the epidemic. Temperature monitoring via infrared thermometers was performed for all patients. Any corona suspect patient was immediately tagged as RED and others as GREEN. Based on this categorization, RED tagged patient was referred to the COVID-19 triage in the dedicated COVID facility and GREEN tagged patient not suspected to be COVID-19 were referred to the Second Screening Area in the Non-COVID facility/Hospital. In case a suspect COVID-19 patient is identified then immediately the tag was changed from GREEN to RED and the patient was referred to the COVID-19 triage in the dedicated COVID-19 Facility/Hospital. Patients not suspected to be COVID-19 were continued to wear the GREEN tag and subjected to investigation for confirmation of COVID-19 status. RT-PCR is the Gold Standard investigation[3]. All GREEN tagged suspect cases were admitted in the HOLDING Area ward till their report came. Patients admitted in this area must be categorized as STABLE or UNSTABLE depending on the ABCDE approach of the internationally accepted Emergency Severity Index. If the test results were negative and the patient did not require admission, he/she was sent home with instructions for Home Quarantine for 14 days. However, if the patient needed admission, he/she was admitted to the respective DESTINATION ward. If the test results were positive, the tag was immediately changed from GREEN to RED and the patient was referred to Isolation in the dedicated COVID Care Facility/Hospital. All patients were screened based on a pre-designed questionnaire and segregated into a red tag (COVID suspect) and green tag (non covid). Patients were admitted in their respective wards, red tags patients were admitted into dedicated COVID facility, and green tags into holding area of the emergency department. RT-PCR (2019- nCoV) of every patient was done (Fig 1).

RESULTS

Out of 1856 patients, 1516 patients were tagged green or non-suspects (81.68 %) and 340 were tagged red/ suspects (18.31%) (Fig 2). Out of 340 red tagged patients 87 came to be positive for 2019- nCoV by RT-PCR (25.58 %) (Fig 3) and out of 1516 green tag patients 24 patients tested positive for 2019- nCoV by RT-PCR (1.58 %) (Fig 4)(Table 1).
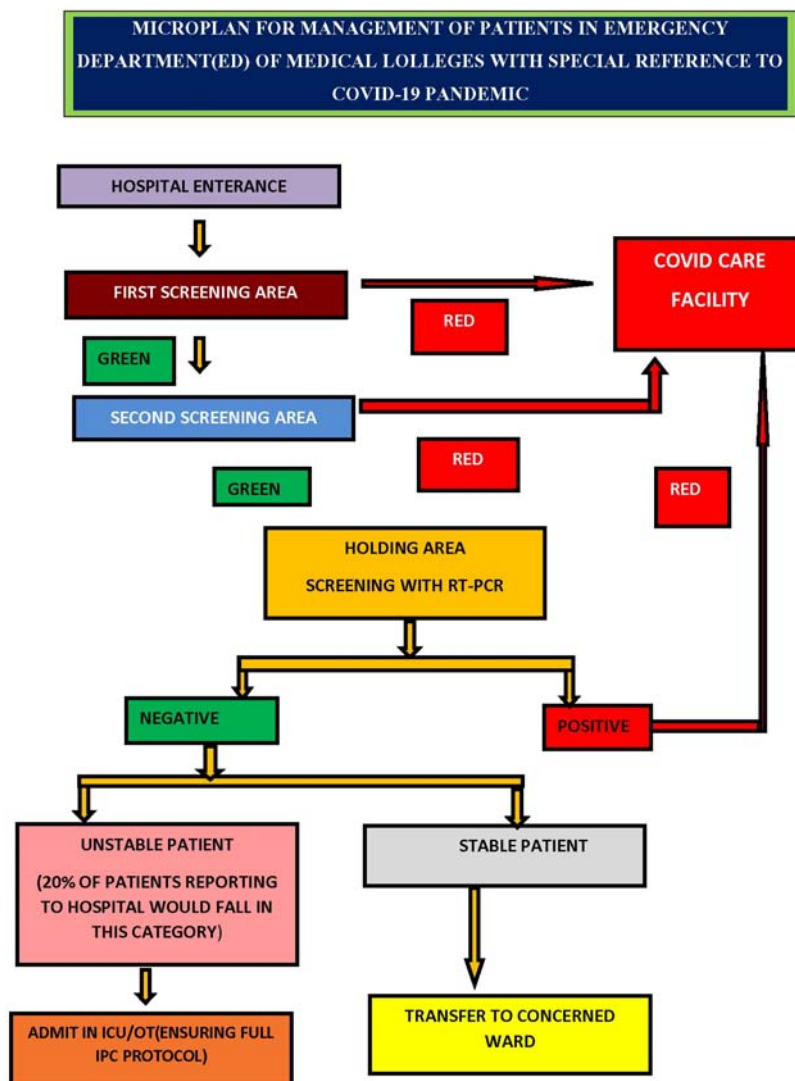

Fig 1 — Flow chart for Micro plan for Emergency Department

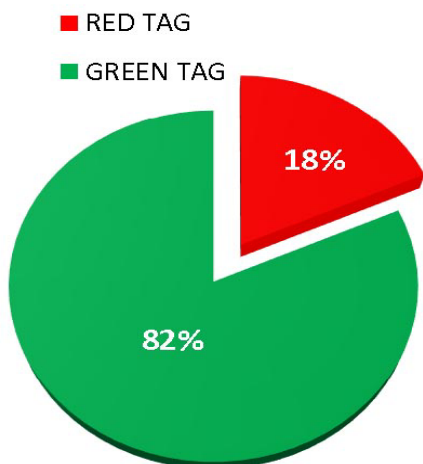| Table 1 — Percentage distribution of Red Tag and Green Tag Patients						
Total Patients Admitted in ED	Total Green Tag Patients among Admitted Patients(%)	Total Red Tag Patients among Admitted Patients(%)	Positive Patients among Green Tag (RT PCR Positive)	Positive Patients among Red Tag (RT- PCR Positive)	% Positivity among Green Tag Patients	% Positivity among Red Tag Patients
1856	1516(81.68%)	340(18.31%)	24	87	1.58 %	25.58%

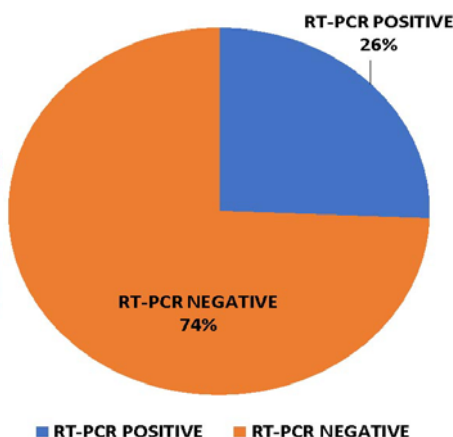Fig 2 — Distribution of Red Tag and Green Tag among total patients

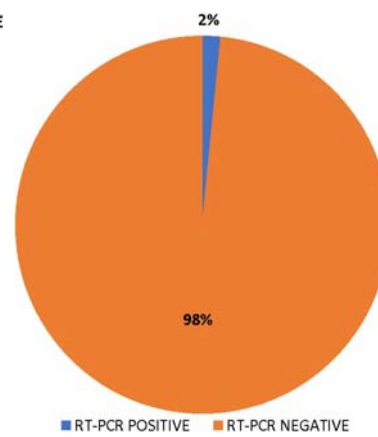Fig 3 — Percentage of RT-PCR Positive patients among Red Tag patients

Fig 4 — Percentage of RT-PCR Positive patients among Green Tag patients

CONCLUSIONS AND RELEVANCE

Screening is recommended in every patient who comes to the emergency department as it can segregate suspects from non-suspect with the help of very simple questionnaire. The green tag patients were those who did not have any signs of corona and can be considered as clean patients at first glance and can be shifted directly to the concerned department without testing but this MICROPLAN for Management of Patients in Emergency Department (ED) of Medical Colleges, with special reference to COVID-19 pandemic laid down by Uttar Pradesh Government, was designed in such a way that it considered every patient as suspect whether green or red tag. If we analyse the observations even few green tag patients incidentally turned out to be positive, probably these patients were asymptomatic carriers[4], and if we had not adopted above protocol than we would have surely considered them as clean cases and would have transferred them to concerned speciality wards. Inwards they would have mixed up with other patients and transmitted infections to them. So, the above protocol has certainly avoided mixing infectious and non-infectious patients, helped us to break the chain of infection and above all prevented our medics, paramedics and patients from getting infected from asymptomatic corona patients.

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