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Research Letter

Universal preoperative SARS-CoV-2 testing can facilitate safe surgical treatment during local COVID-19 surges

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Editor

In June 2020, the state of Texas began experiencing a surge of COVID-19 cases, with the number of daily new cases increasing from approximately 600 on 1 June 2020 to over 8000 on 1 July 2020[1]. This rapid increase forced the state to restrict elective medical procedures to increase the availability of resources to respond to the surge. This included the postponement of elective operating room procedures, with an exemption for those that were immediately and medically necessary[2]. The University of Texas MD Anderson Cancer Center implemented a universal screening and SARS-CoV-2 testing programme for patients who required time-sensitive oncological surgery, beginning on 6 April 2020. This programme facilitated our continued provision of crucial and timely surgical services to patients, even in the midst of this local surge. Given the association between SARS-CoV-2 infection and postoperative morbidity, our goal was to recognize asymptomatic infection in patients before proceeding with elective surgery, to protect both patients and healthcare workers[3,4].

Patients with scheduled surgery were screened to confirm they were not exhibiting symptoms of SARS-CoV-2 infection, and subsequently tested within 72 h of planned surgery. Test specimens were obtained using nasopharyngeal swabs, and results generated using reverse transcriptase-polymerase chain reaction assays. Test results were required before patients entered the operating room, and surgery was deferred for all patients with positive tests. We measured the effectiveness of our testing programme using confirmed postoperative SARS-CoV-2 infection as a primary outcome. Clinical data were obtained using multiple inputs, including structured electronic health record elements, clinical note text, laboratory results, and operative logs. All patient-level data were aggregated and analysed using the Palantir Foundry platform (https://www.palantir.com/palantir-foundry/). County-level population data were obtained from the Texas Department of State Health Services[1].

A total of 5234 asymptomatic SARS-CoV-2 tests (4649 patients) were performed before scheduled operating room procedures between 6 April and 24 July 2020. The first positive asymptomatic preoperative test was on 25 May 2020, before the rapid increase in local COVID-19 cases. From 6 April to 24 May, the mean number of new cases per day in Texas was 963 (i.q.r. 868–1142) and the mean rate of test positivity in the state was 6.2 (i.q.r. 5.7–9.8) per cent. During this time period, there were no positive preoperative tests (0 of 1671). Between 25 May and 24 July, 51 of 3563 preoperative tests (1.4 per cent) were positive. This corresponded with a local increase in cases, with a mean of 4430 (1843–8196) daily new cases in Texas, and a mean test positivity rate of 11.7 (6.8–14.2) per cent) (*Fig. 1*). No patient who had surgery after a negative preoperative SARS-CoV-2 test developed confirmed COVID-19 within 2 weeks of the operation. There were no confirmed cases of surgical patient-to-patient or patient-to-provider transmission during the index admission period.

Universal preoperative SARS-CoV-2 testing allowed the safe continuation of surgery at a large cancer center in the USA during a recent surge of coronavirus cases. The number of positive preoperative asymptomatic tests increased before the recognized surge, emphasizing the need for ongoing testing, even when community prevalence is low, and investment in testing capacity to ensure timely reporting. Identification of each asymptomatic infected individual prevented the exposure of potentially hundreds of at-risk hospitalized patients and healthcare providers[5]. With intermittent and unexpected local surges in coronavirus cases, implementation of universal preoperative testing programmes is essential for the safe delivery of surgical care during the COVID-19 pandemic.

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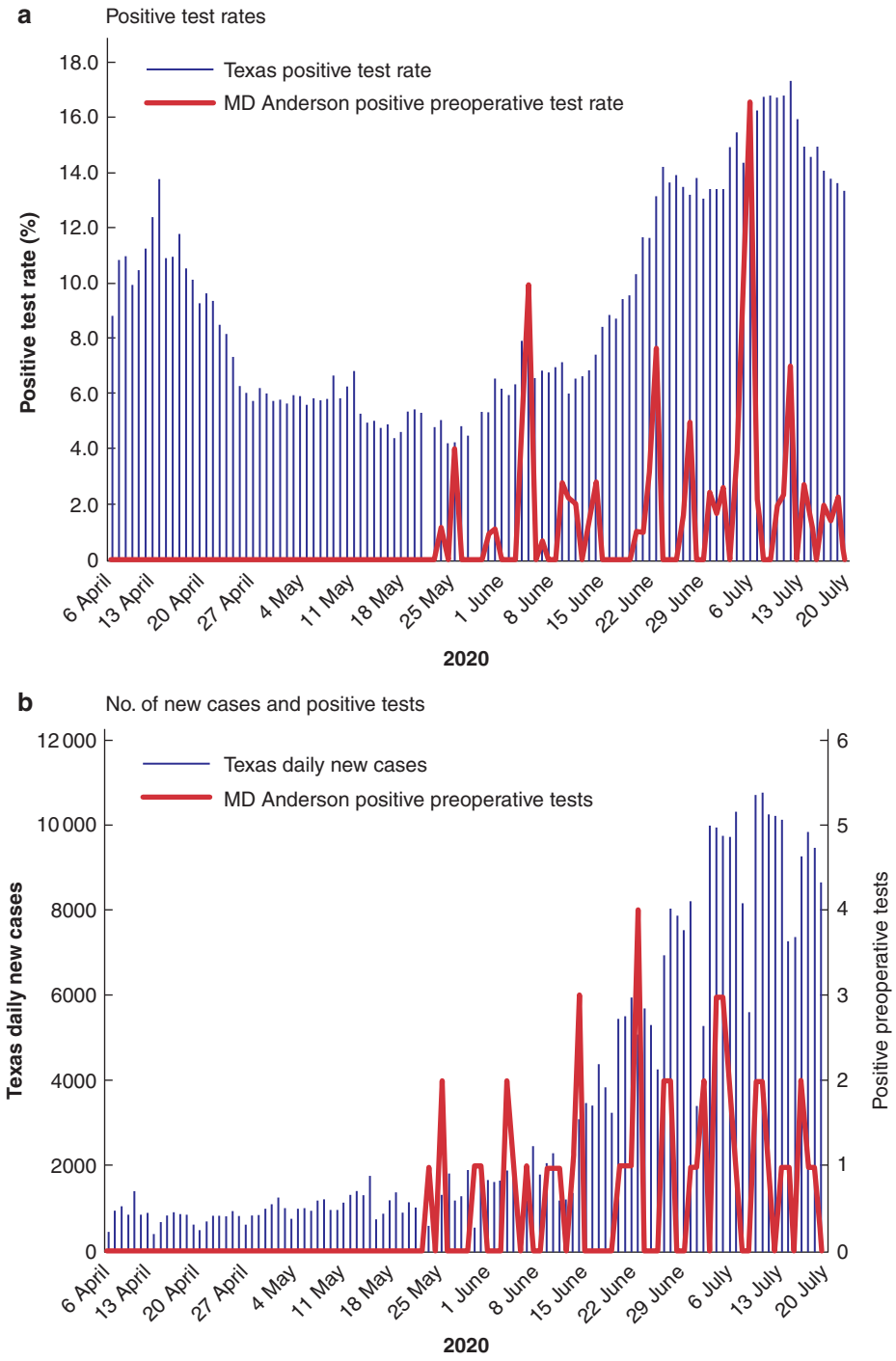

Fig. 1 Positive test rates and numbers of new SARS-CoV-19 cases in Texas, and positive preoperative test rates and number of positive preoperative tests at MD Anderson Cancer Center between 6 April and 24 July 2020

a) Daily positive test rate for SARS-CoV-2 infection in Texas and positive test rate for asymptomatic patients tested before surgery at MD Anderson Cancer Center. **b)** Daily number of new cases in Texas and daily number of positive tests during universal asymptomatic preoperative testing at MD Anderson Cancer Center.

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