

Supplementary Online Content

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eAppendix. Surgical Services

This supplementary material has been provided by the authors to give readers additional information about their work.

eAppendix. Surgical Services

Trauma & Acute Care Surgery Service (Red)

Normally, this service would be responsible for all trauma activations and consults as well as acute care general surgery consults. After restructuring, the service was also responsible for trauma and acute care surgery consults during the day. At night, the service was responsible for taking “line” consults. This service consisted of a chief resident, a PGY-3 midlevel general surgery resident, and a PGY-1 intern. The chief resident and PGY-3 alternated covering the weekends. The interns alternated weekly between hospital coverage and non-voluntary offsite time. On Thursday and Friday, the intern also covers the thoracic service. The PGY-3 of the service would be responsible for all general surgery consults.

Condensed General Surgery Services (Rainbow)

Bariatric surgery, endocrine surgery, surgical oncology, pediatric surgery, kidney transplant surgery and liver transplant surgery were combined into one service (“Rainbow” service) (**figure 4**). This condensed service was staffed by a chief resident or PGY-4, a midlevel general surgery resident PGY-3 or PGY-2, and an intern. During the week of non-voluntary offsite time, the senior residents alternated weekly on this service. The midlevel resident also took call on Friday nights to cover a non-surgical COVID-19 unit on Friday night to complete a 24-hour shift and would be off during the weekend. Interns on the service alternated weekly. At night, the general surgery attending of the service was responsible for non-trauma acute care surgery consults.

Fellow Services

On several services, subspecialty fellows were deployed to cover their specialty services, allowing senior and mid-level residents to be redeployed to other areas of need (**figure 4**). These services include colorectal surgery, vascular surgery, and thoracic surgery. One junior resident would be assigned to each of these services to assist the subspecialty fellow.

Procedure Team

Due to the severity of illness as well as the surge of new cases, a dedicated “procedure” team was created to assist all ICUs as well as attempt to limit exposure risks to providers caring for COVID-19 patients. This service was available to all ICUs to assist with bedside vascular access procedures such as arterial lines, central venous catheters, temporary non-tunneled vascular access for dialysis, as well as feeding tubes, and Foley catheters. A vascular attending and a senior general surgery resident were assigned to these roles to ensure that the procedures progressed as efficiently as possible to reduce exposure time among providers and minimize the risk of having to readjust or replace the line due to failure.

Night Coverage

A chief resident redeployed to the surgical ICU also oversaw the night general surgery service (**figure 4**). A rotation of PGY-3 general surgery residents were responsible for taking all general surgery consults as well as consults to the procedure service. One intern was responsible for the surgical floor. The intern for vascular surgery would cover the surgical floor Friday nights and would be off during the weekend.

Intensive Care Units

In China, the percentage of admitted COVID-19 positive patients requiring ICU care ranged from 5% to 32%.¹⁹⁻²⁰ To meet the demand of the anticipated surge of COVID-19 patients, New York Governor Andrew Cuomo mandated all NYC hospitals increase ICU bed capacity by 50%. To meet this demand, most operating rooms and PACU were converted into ICUs, creating 60 additional ICU beds across the hospital,¹⁶ and some outpatient recovery rooms located in an ambulatory surgery center were also converted into ICU beds.

The surgical ICU and burn ICU at our hospital each have 20 beds. In the surgical ICU, this was an expansion by converting step-down beds into ICU beds. Surgery residents and attendings were also redeployed internally to manage the newly converted ICU beds from outpatient operating rooms. During the pandemic, senior coverage was provided by a surgical critical care fellow during the day and a general surgery chief resident overnight, and these units are overseen by critical care faculty (**figure 4**). Midlevel general surgery residents take in-house 24 hour call rotating every 4 days. In addition to this call resident, there are 1-2 mid-levels residents, an intern, and PA during the day as well as an intern and PA overnight.

Affiliated Institution Coverage

Jamaica Hospital Medical Center

A total of 9 general surgery residents rotate at Jamaica Hospital Medical Center. Normally, teams (PGY4-5, PGY2-3, and PGY-1) would rotate taking a 24-hour call every 3 days with a “swing team” (not post-call and not on-call) available on weekdays for 4-6 week rotation blocks. During the pandemic, the swing team was on non-voluntary offsite time to serve a reservoir to activate for quarantined residents but was eventually returned to normal once resident quarantine levels dropped. To mitigate anticipated resident fatigue, the rotation block, which is normally 4-6 weeks, was changed to 2 weeks.

Memorial Sloan Kettering

PGY-4 general surgery residents covering colorectal surgery and gastric mixed tumor service were sent as normal. PGY-1 residents covering thoracic surgery. Three general surgery residents remained at Memorial Sloan Kettering during the pandemic.