The transformation of hospital medicine to tackle the COVID-19 pandemic crisis

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ABSTRACT
The coronavirus disease 2019 (COVID-19) pandemic is placing extraordinary strains not only on hospital-wide systems but most especially on hospital medicine across the nation. The specific challenges faced by our hospitalist services are unfathomable. Hospitalist leaders are tasked to rapidly restructure clinical operations to accommodate the large surge in COVID-19 patients. In this perspective, we focus on the management strategies conducted by the Division of Hospital Medicine to tackle the major crisis that specifically impacted the general medicine services.

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Stony Brook University is a large tertiary care academic center on Long Island, one of the most hard-hit area, with roughly 1.5 million inhabitants. The first patient with suspected COVID-19 was seen in our hospital on 7 February 2020. Since then, we have seen more than 2,300 COVID-19 cases which required us to increase our medicine service capacity by 75%. In order to meet this growing demand, our hospital opened an incident command center and created additional hospital beds [1]. Therefore, we activated a protocol to maximize Emergency Department (ED) throughput and space optimization. In this perspective, we focus on the management strategies conducted by the Division of Hospital Medicine to tackle the major crisis that specifically impacted the general medicine services.

1. Three top priorities
In order to handle the flux of patients over the past several months, we prioritized our focus on the following three areas: 1) Restructuring of medical staff and units to increase capacity; 2) Strong partnership with Graduate Medical Education (GME) and hospital leadership; and 3) Electronic Health Record (EHR) augmentation to include COVID-19 patient recognition and management.

1.1. Restructuring of the medicine units – the staffing model
Our strategies entail the designation of ICU and non-ICU medicine units. Non-ICU units included all step-down and general medicine floors which are under the section of Hospital Medicine within Department of Medicine. Many of our non-essential units (e.g., surgical, endoscopy, cardiology) were transformed into medicine units which allowed us to create an additional 200 medicine beds. We dissolved our traditional team names, attending directed and teaching services to create new team structures to allow for the minimum number of staffing with contingency planning. Each newly created team was unit based and consisted of a maximum of 15 patients. Each team included one attending physician and one Clinically Equivalent Team (CET) member. CET members were variable and allowed the flexibility to include two residents or two advanced practitioners or one advanced practitioner and one resident per team.

Our Medical Admitting Hospitalist served as an administrative liaison to maintain unit geography by working in close collaboration with centralized throughput office responsible for bed assignments. We were able to form a strong collaborative team

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with our Emergency Department (ED) colleagues, who assisted with cross coverage of admitted Medicine patients held in emergency room. Additionally, we added advanced practitioners stationed in the ED to conduct admissions to the Hospitalist services.

The Hospitalists were the main drivers of the inpatient COVID-19 teams, they are well-suited clinicians who are comfortable with high acuity patients and can fit into a myriad of clinical positions. In addition to the general medicine floors, Hospitalists were also charged with the management of all step down or intermediate care units. To create support and guidance to the Hospitalists, a strong partnership with our pulmonary division to create a co-management protocol was created for these units. This ensured that our patients were readily screened for ICU level of care, and care coordination and transition to ICU level were conducted by the co-management teams for these units.

1.2. Partnership with GME and hospital leadership

Given the tremendous increase in the volume of patients, the surge furthers the need for providers to staff the additional units. In order to fulfill the capacity of attending physicians to each unit, a deployment protocol for physicians was conducted up by senior hospital leadership. Staffing plan was submitted by each department regarding which staff could be redeployed due to cancellation of elective surgeries, ambulatory clinics, etc. These sub-specialty and ambulatory physicians were deployed to serve as Hospitalists and assigned to general medicine units. Additionally, our fellows were granted attending physician privileges in their core specialty, this augmented the staffing of attending physicians. Private pulmonary outpatient practice groups in the Long Island area were also recruited to join the pulmonary ICU and non-ICU units.

Residents across all departments were recruited to join the COVID-19 medicine teams led by Graduate Medical Education (GME) leadership. They were assigned to CET units based on a scheduled protocol in accordance with the Accreditation Council for Graduate Medical Education released guidance around the roles of physician trainees during the pandemic [2]. All redeployed staff were educated through a series of virtual training sessions through Microsoft team’s application.

1.3. Leveraging the electronic health record

The EHR is an integral part of care delivery; therefore, it is crucial for Informatics departments to augment their existing systems to provide caregivers with the tools to manage the COVID-19 crisis. This helps to maximize efficiency and ensure that evolving treatment plans are standardized across the institution.

The Stony Brook Medicine Informatics Technology (SBMIT) department developed several processes in our existing Cerner Millennium EHR to support the transformation of the Hospitalist medicine services. In collaboration with our ED colleagues, an order called ‘Person Under Investigation’ (PUI) was developed to provide a care set that includes all the relevant lab testing, diagnosis and treatment protocols to aid the management of COVID-19 patients. Additional features were built into this PUI order to allow for the automatic generation of a ‘COVID isolation code,’ this was followed by an electronic message that was sent through the paging system to alert our health-care epidemiology team. As the cases of COVID-19 surged in the hospital, these features played a valuable role in enabling our hospital system to keep up with the pace of admissions and reduce the administrative burden on the clinical teams. Our front-line caregivers are always alerted of PUI status upon opening a patient’s chart. The PUI alert indicator contains educational links and instructions to guide our staff with the use of Personal Protective Equipment.

Due to the high volume and acuity of COVID-19 patients being cared for by re-deployed providers, our current patient handoff method (Called IPASS) was expanded to include additional relevant information such as isolation codes, code status, health-care proxy information, oxygen requirements, labs, and ventilator settings.

Finally, we needed a process to ensure safe transition of care for the patients being discharged. Since our COVID-19 patients often require several follow appointments, a structured communication process with our case management team was developed to ensure close follow-up both via telehealth and in-person visits. SBMIT created a standardize message template which was completed by the discharge provider to alert our case management team to assist with setting up of the required appointments and conduct close post-discharge follow up. COVID-19 related educational materials with evolving DOH and CDC guidelines were also embedded in the discharge paperwork of all patients.

2. Conclusion

With the coronavirus epidemic spreading, hospitals around the world continue to prepare for a flux of COVID-19-infected patients. Health-care institutions around the globe can learn from each other as to what measures prove effective in dealing with the
COVID-19 crisis. We believe that through sharing best practices across institutions, we can hopefully adapt ideas and create processes and adjustments in our workflow to help Hospital medicine flourish in mitigating the COVID-19 crisis.

Acknowledgments
The authors wish to thank Dr. William Wertheim (Vice Dean for Graduate Medical Education), Mark Sands (Chief Medical Officer), Vincent Yang (Chair of the Department of Medicine), Margaret McGovern (Dean for Clinical Affairs), Joseph Chapelle (Division Chief of OB/Gyn), Todd Griffin (Chair of OB/GYN), and Mathew Tharakan (Chief Medical Information Officer) for their unwavering support and leadership.

Disclosure statement
The authors declare no conflict of interest.

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