Radiology Preparedness at a Level I Trauma Center Safety Net Hospital in the Time of COVID-19

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Purpose

- To discuss the operational challenges presented to our radiology department by the COVID-19 pandemic and highlight implemented measures.
Our hospital services an indigent and minority population, which has been especially hard hit by COVID-19.

The state-wide quarantine significantly impacted outpatient volume, which decreased by approximately 90%.
Effects on Department

- It was essential for us to rethink the daily operations of our entire department in order to meet the increasingly pressing needs of the hospital created by the pandemic.
- To address the impact of the surge in COVID-19 patients, we held daily multidisciplinary huddles with clerical and clinical staff.
- We foremost needed to alter the distribution and need of services we provide and to ensure the safety of our staff.
- All imaging modalities saw a dramatic decrease in usage.
- We triaged pre-existing appointments according to level of urgency.
- Screening mammograms were deferred, while preserving patients who needed stereotactic biopsies, with highly suspicious lesions by BI-RADS criteria.
- MRI and Ultrasound outpatient examinations decreased significantly.
Effects on Department

- We continued consultations through teleradiology services.
- Specific inpatient IR services increased, such as Shiley dialysis catheter placement in the many COVID-19 patients who developed renal failure.
Preparing our Staff

- We informed all staff to consider every patient as COVID-19 positive, and instructed them in proper doffing and donning of PPE and handwashing techniques.
- We also constructed protective barriers around reception areas.
- Despite several staff members falling ill, we were able to maintain essential services through creative redeployment.
- Our institution has also provided resources to better ensure the mental health of personnel.
Restructuring of the Hospital

- Multiple inpatient floors were converted to dedicated COVID care units.
- We restructured our staffing matrix to provide increased coverage on nights and weekends.
- To handle the increased demand for chest CT and plain chest films, we implemented structured reporting with new COVID-19 templates.
- Teleconferences and webinars were provided to our radiology residents and attending staff focusing on the coronavirus.
Resident Redeployment

- Our radiology residents were redeployed to newly created COVID-19 teams, to assist with patient care on the floors.
- It was necessary to redistribute the workload among the remaining residents.
- Nurses and technologists were reassigned within our department, as well as to the hospital command center.
In order to prevent cross-contamination with COVID-19 positive patients, we reserved one of our CT units for outpatients.

Portable X-Ray machines were designated for use on high volume COVID-19 floors staffed by dedicated teams of radiology technologists.

We used clear plastic wrap to protect our portable machines from surface contamination.

Signage was posted to redirect patient traffic within the radiology department.

To further protect the department, all COVID positive sonograms were performed bedside, utilizing modified targeted protocols to minimize staff exposure.

Safety zones were created within the department by redirecting patient flow.

Obtaining PPE for our radiology staff was extremely challenging, especially for N-95 masks.

To protect our radiologists, we converted a remote site on the hospital campus to a reading room, while maintaining a skeletal staff on-site.

A dedicated pager was implemented by our department for use by clinicians to preserve communications.
Conclusion

- As the COVID-19 census declines, restoration of departmental operations is paramount.
- A multiphasic reopening includes rescheduled clinic visits and expanded hours of operation to handle the expected surge of deferred cases.
- Some of the measures which we instituted will be maintained such as separation of COVID and non-COVID work areas.
- As a safety net hospital, our facility cares for an underserved population in the context of budgetary limitations.
- The COVID-19 crisis required many changes, including workflow and safety issues, which placed additional strain.
- The landscape has now changed forever and things will not return to the way they were prior to the pandemic.
- We will continue to see more COVID-19 patients and many of the initiatives we began will likely be permanent.