Guidance for BMT Center Functioning during COVID-19 Pandemic

Programmatic
- Establish and activate the Hospital Incident Command System (HICS).
- Establish and activate the Hematopoietic Cell Transplantation/Immune Effector Cell (HCT/IEC) Emergency Preparedness Team (HEPT).
- Minutes for HEPT activities should be recorded.
- Disseminate disaster operations memos regularly to keep all staff informed of changes in operations.
- Adhere to social distancing at all times.
- Triage all non-staff members at building entrances. Consider closing some entrances to limit building access as possible.
- Be aware of potential need for escalated security.
- Institute COVID-19 testing with rapid turnaround.
- Ensure clear guidance for staff from Human Resources (HR) re management of exposure, symptoms, etc.
- Ensure staff performing nasopharyngeal (NP; throat not needed) swab for COVID know to use only one swab per patient, not two.
- Staff with direct patient care should be fit tested for N95 respirator/ mask and trained in proper techniques of reuse.
- Employees who are age 60 or older, pregnant, or diagnosed with an immunosuppressive disorder should request a medical exemption from providing direct care for patients testing positive or under investigation for COVID-19.
- Limit research activities to those that are potentially curative.
- Establish reliable application for remote conference calls. Beware of crashes.
- Recognize that the situation is fluid, alter the guidance as appropriate, and ensure rapid dissemination of modified operations.

Health Care Provider and Allied Health Care Professionals
- Any MD or allied health professional that is not involved in direct patient care should preferably work from home.
- All PharmDs, Social Workers, Fellows, coordinators should work remotely.
- Establish mechanism for majority of administrative staff to work from home.
- Set up cross coverage for MDs and staff so if one gets sick all their responsibilities automatically go to the other person (buddy system).

Cellular Therapy Activities (both HCT and IEC)
- Establish a triage algorithm to delay and/or cancel as many HCT and IEC activities as possible. These include but are not limited to:
  - Patients with predicted low (<20%) probability of disease-free survival (e.g. CAR T cell candidates with high disease burden and elevated LDH; acute leukemia with persistent disease; etc.);
  - Patients with significant underlying cardiac and pulmonary comorbidities (at higher risk of NRM);
  - Diseases that can likely withstand a delay in HCT/IEC (low-grade lymphomas; intermediate-risk MRD-negative AML in CR1; MRD-negative ALL in CR1; MDS without excess blasts; stable MPN/MF/CML; multiple myeloma).
- For asymptomatic patients whose cellular therapy cannot be delayed, screen and swab within 72 hours of their admission and/or start of conditioning/lympho-depletion regimen.
- As capacity deteriorates increase stringency of requirements to proceed to HCT/IEC.
Inpatients:
- Require faculty, APPs, pharmacists, and nurses to use personal protective equipment as required by each clinical situation.
- Staff with clinical interactions should always wear a procedure mask, at least in clinical areas, assuming supply allows.
- Recognize that PPE supplies may be limited, ration according to institutional guidelines as needed, and follow institutional recommendations for safe reuse of PPE when required due to supply limitations.
- Patients with COVID-19 exposure: Importance of clear communication by Infection Control to identify the first and last day of each exposure, to screen and test as necessary, and to quarantine for 14 days from the last day of most recent exposure.
- COVID+ patients: establish center-specific workflow.
- Create COVID floors for inpatients and dedicated rounding teams that are COVID only.
- Get palliative care involved in COVID+ patients and have goals of care.
- Non-COVID patients: To protect patients / staff and restrict PPE use, establish the workflow for rounding and minimize the number of staff entering the patient room.
- Perform one exam per patient per day (either by APP or MD), if appropriate. In select patients where exam is unlikely to inform assessment and management, forgo physical exam.
- All PharmDs work remotely but are available to come in if need be (busulfan PK calculation).
- Encourage all staff to maintain appropriate distancing (2m/6ft), both while rounding and in workrooms, which are often at nursing stations.
- Encourage virtual rounds (Webex, Zoom, or comparable), which allows everyone on the team to discuss patients in real time without being in the same location.
- Ban all visitors/caregivers, except under extenuating circumstances and pediatric patients.
- Ensure clear plan as to where patients will be housed immediately upon discharge if not returning home.

Management of symptomatic COVID-19 patients
- COVID+ clinical pearls from hospitalist:
  - Pulse Ox (<94% RA) and chest imaging as appropriate (lung infiltrates +/- consolidation) have been two most useful tools to determine O2 requirement and/or admission.
  - Consult ICU/intubation team when COVID+ patient requires 6L but O2 sat remains 92% or less.
  - Create a COVID pager to call COVID response team from ID for positive patients.
- Treatment:
  - There are no FDA-approved antiviral therapies for COVID-19 to date. Consult with ID regarding treatment options, and suitability for hydroxychloroquine +/- azithromycin.
  - Encourage enrolling patients in clinical trials where possible.
- ICU:
  - Utilize experienced intubation teams for all intubations: Only 3 people in room - anesthesia, respiratory therapist, and RN. Negative pressure rooms dedicated for intubation and fully stocked to limit time and exposure during this high-risk procedure to personnel. Increased PPE for this team.
  - There seems to be benefit from prone position for ventilate patients, although this requires more resources from staff to do so.
- Involve Palliative Care involved in all COVID+ patients. Have goals of care discussions and support family via video.
Outpatients
- Screen all non-staff members for symptoms at building entrances and ensure efficient workflow for subsequent triage.
- Consider closing some entrances to limit building access as possible.
- Ban caregivers from in person outpatient visits (rare exceptions).
- Cancel all non-essential visits, like anniversary visits, survivorship, vaccines.
- Reduce in-person visits as close to zero as possible.
- Change as many outpatient visits to telemedicine visits as possible.
- Provide guidance to staff re documentation and billing codes for telemedicine.
- Minimize all non-essential lab work and radiology appointments.
- Decrease parenteral cancer therapy utilization in a safe and effective manner.
- Oral therapies should be favored, when clinically appropriate.
- PJP prophylaxis: stop inhaled and IV pentamidine and switch to either Bactrim or atovaquone.
- Consider delaying taper of immunosuppression beyond 3 months who are not on high-dose corticosteroids. The intent is to reduce likelihood of flare or new onset GvHD during taper that would increase use of limited clinical resources. Hold post-transplant maintenance therapies if possible.
- Have goals of care conversations in the context of potential CoVID19 with all patients as clinically appropriate.
- Extend the frequency of RN visits for Mediport flushes to 10-12 weeks given the low level of evidence to do more frequently.

Management of COVID-19 patients (Outpatient)
- Patients with positive COVID-19 test result will be invited to participate in remote monitoring by APPs and RNs.
- Participating patients will be sent a questionnaire daily that asks about respiratory status, fever, and general performance status. Patients who indicate that they are experiencing respiratory decline, persistent fever, or decreasing performance status will be contacted by the COVID-19 Cohort Monitoring Team (CCMT) for assessment and direction, in consultation with the primary care team. Participation will end when the patient reports being afebrile for 72 hours after 7 days from enrollment.

Blood products and Growth factors (adapted from NCCN draft guidance)
- In the setting of potential blood product shortages, and to protect patient and staff from COVID exposure as a result of frequent outpatient visits, suggest broadening the use of growth factors (myeloid, erythroid, thrombopoietic), and lowering transfusion thresholds.
  - Target lower thresholds for hemoglobin (7g/dL) and platelet (10K/mcL), if appropriate.
  - Broaden the use of erythropoietin stimulating agents. Caution: risk of thrombosis.
- Expand prophylactic use of G-CSF to minimize risk of febrile neutropenia, and, consider self-administration of daily filgrastim or use of long-acting pegfilgrastim. Caution: avoid use in case of respiratory symptoms, or, confirmed or suspected COVID-19 to avoid potential risk of increasing inflammatory cytokines.
**Allogeneic Donors**
- Cryopreserve all related and unrelated donor products ahead of transplant admission and definitely before start of any cytoreduction.
- Prioritize PBSC over bone marrow products.
- For all allo-transplants have a primary and a backup donor. Where possible, prioritize domestic donors/ cord blood banks over international donors.
- Screen and swab all asymptomatic donors within 72 hours of their line placement and/or collection.

**Autologous Donors**
- For patients being mobilized with G-CSF and plerixafor (usually starts on Fridays), screen and test prior to, or, on the same day as starting G-CSF.
- For patients undergoing chemo-mobilization, screen and test before starting chemotherapy, and, before starting cell collection.
- Cancel collection in patients who tests positive.

**Coping with Stress**
- Establish center-specific workflow for support groups.

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