Welcome to WBMT's live webinar

We will start shortly

COVID-19 and stem cell transplantation, a Worldwide perspective

Welcome

By Prof. Hildegard Greinix,

President Worldwide Network for Blood & Marrow Transplantation

Program and speakers

- Management of donors during the pandemic – *Dr. Feras Alfraih,*
  King Faisal Specialist Hospital and Research Centre, Riyadh, Saudi Arabia

- Transplant recipients; COVID-19 guidelines and real-world - *Prof. Clarisse Machado,*
  Institute of Tropical Medicine, Universidade de Sao Paulo, Sao Paulo, Brazil

- Chinese experience - *Prof. He Huang,*
  The First Affiliated Hospital, Zhejiang University School of Medicine, Hangzhou, China

- Data from the EBMT registry during COVID-19 - *Prof. Per Ljungman,*
  Karolinska University Hospital, Stockholm, Sweden

- Chimeric Antigen Receptor T Cell Therapy during COVID-19 - *Dr. Miguel Angel Perales,*
  Memorial Sloan Kettering Cancer Center, New York, USA

- Panel discussion: “Sharing experiences from different world regions”
  Moderation by *Assoc. Prof. Sebastian Galeano* and *Prof. Yoshihisa Kodera*

Webinar process

- Technical problems? Please use the chat function in your ZOOM menu

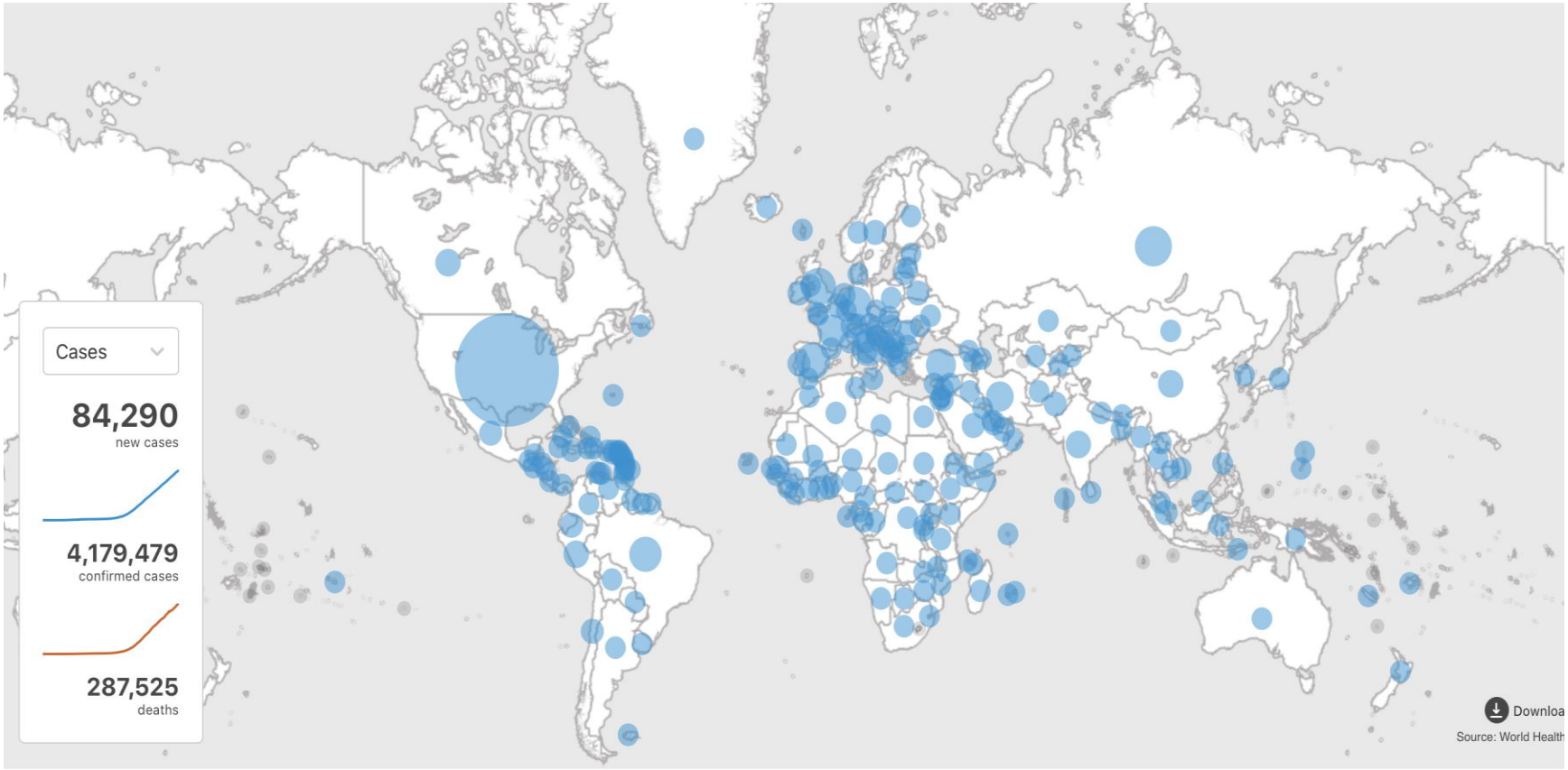
- Questions? Please use the Q&A function also in your ZOOM menu

HSCT Donors Management during the COVID-19 Pandemic

Feras Alfraih, MD, MBA

King Faisal Hospital, Riyadh, Saudi Arabia

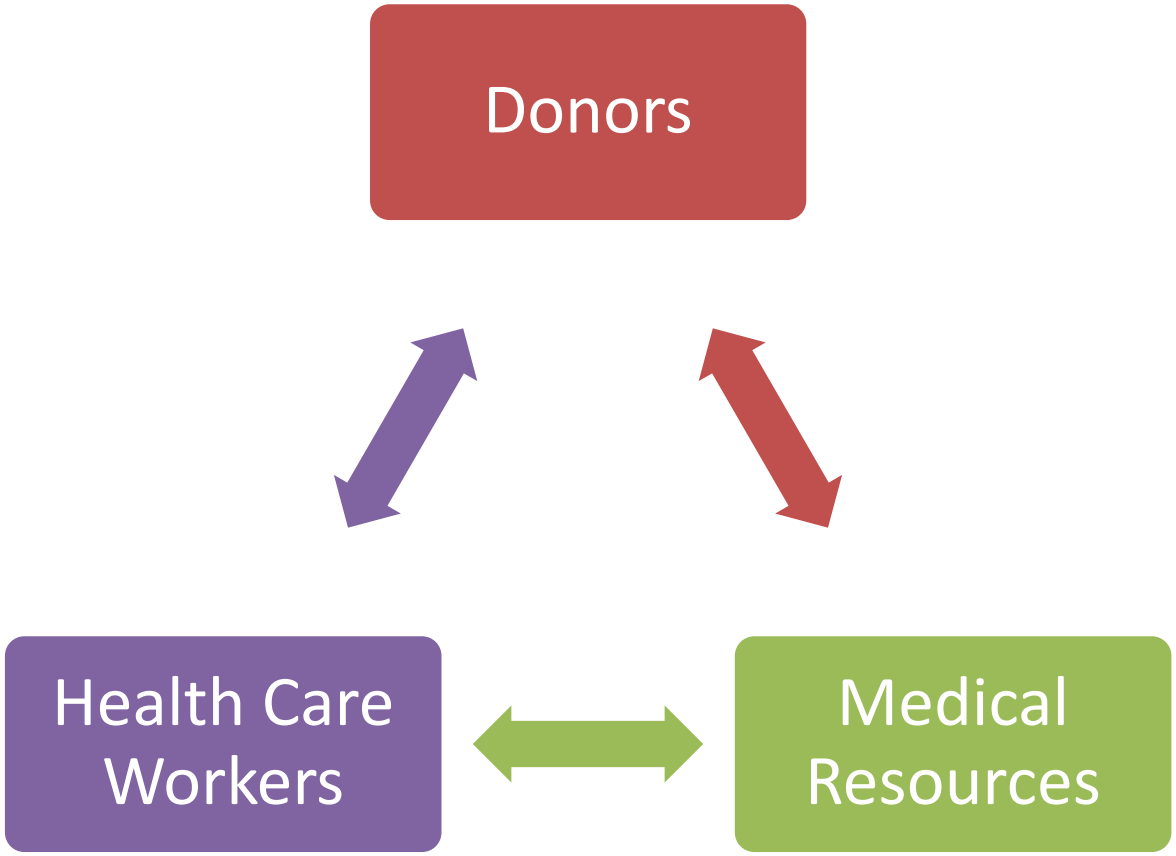
WHO COVID- 19 Dashboard



Globally, as of **6:50pm CEST, 13 May 2020**, there have been **4,179,479 confirmed cases** of COVID-19, including **287,525 deaths,** reported to WHO.

https://covid19.who.int

Impact on HSCT Donation



Donor

COVID-19 pandemic era:

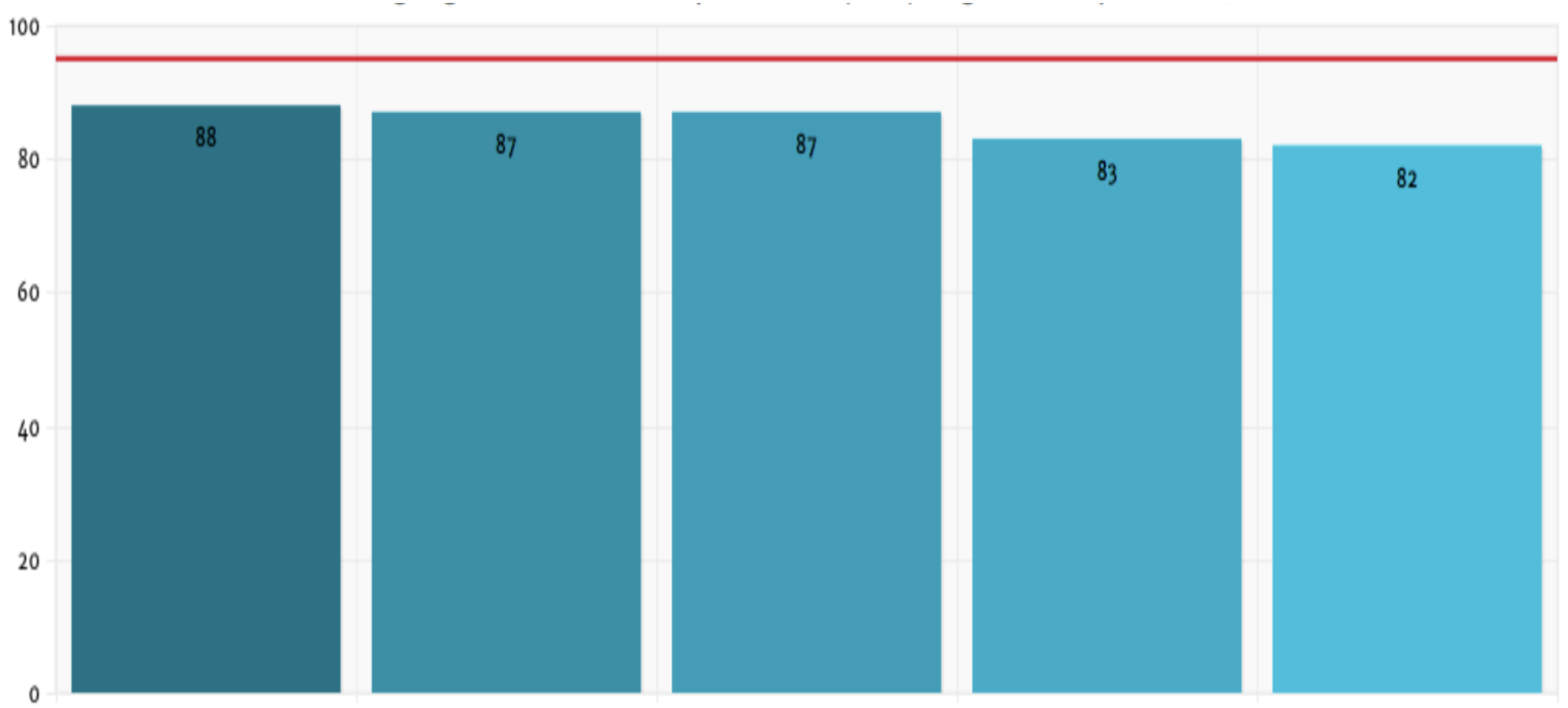
1) Availability of donors:

- Psychological/Stress Impact
- Transportation/travel restrictions

2) Safety of donors

Donor Availability at Verification typing Stage

Donor availability at Workup Stage



Psychological Impact

- Visiting health care facilities is a concern of many donors.
- Possible solutions:

Optimize communications

Home Healthcare visits

Virtual medical assessment

Transportation/travel restrictions

- <u>Cryopreservation:</u>
- Extensive experience on using it in autologous HSCT.
- However, it represented <2% of Allo HSCT. [1]

NV Frey et al Bone marrow transplantation

Concerns from Cryopreservation

Concern over delay of neutrophil and platelet engraftment due to damage of the graft during cryopreservation.

Increased incidence of transfusion reactions due to the presence of DMSO as a cryoprotectant.

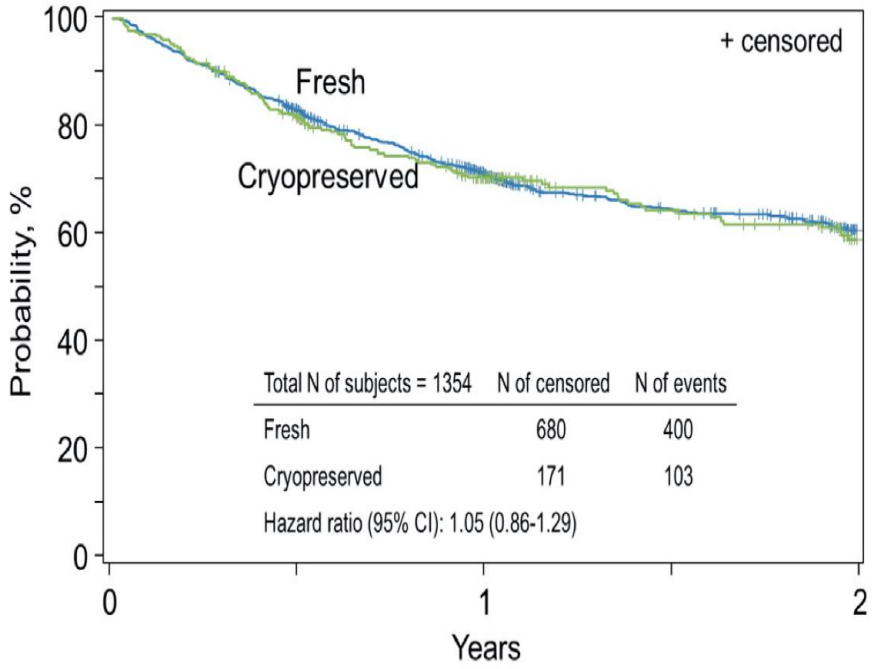
Increased incidence of bacterial contamination of the graft due to increased handling in the freeze/thaw process.

Increased incidence of collecting grafts which are never utilized, putting the donor through an unnecessary harvesting procedure.

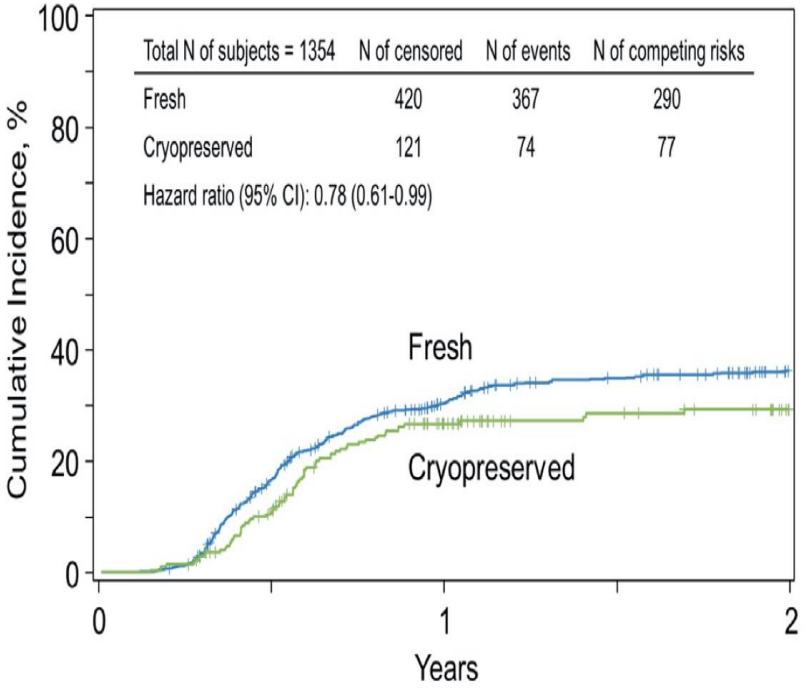
NV Frey et al Bone marrow transplantation

CIBMTR Data on PTCY Patients

1a. Overall Survival



1b. Chronic GVHD



M. Hamadani et al. Biol Blood Marrow Transplant (2020)

- NMDP required all MUDs to be cryopreserved since March 23.

- WMDA recommended cryopreserved, if possible.

WMDA Recommendations:

- Optimize communications
- Stem cell counts to be available before the start of conditioning.
- Validated assays for the evaluation of thawed cellular therapy products at transplant centre.
- Specialized courier in transportation of such products to be arranged.

Donor

- Pre-COVID-19 Pandemic
- COVID-19 pandemic era:

1) Availability of donors:

- Psychological Impact
- Transportation/travel restrictions

2) Safety of donors

Donor's Safety

1. Follow safety hygiene measures and social isolation 28 days before collection.
2. Screening: for symptoms of COVID-19

   +ve COVID-19 PCR: exclude from donation.

   For how long? 28 days (ASTCT)/ 3 months (EBMT/BSBMT).
3. Risk factors: Contact with COVID-19 patient or travel/residence in higher risk area than transplant centre

   Deferral period: 28 days.
4. Donors should be contacted 14 days post-harvest to evaluate for any symptoms suggestive of COVID-19.

WMDA recommendation

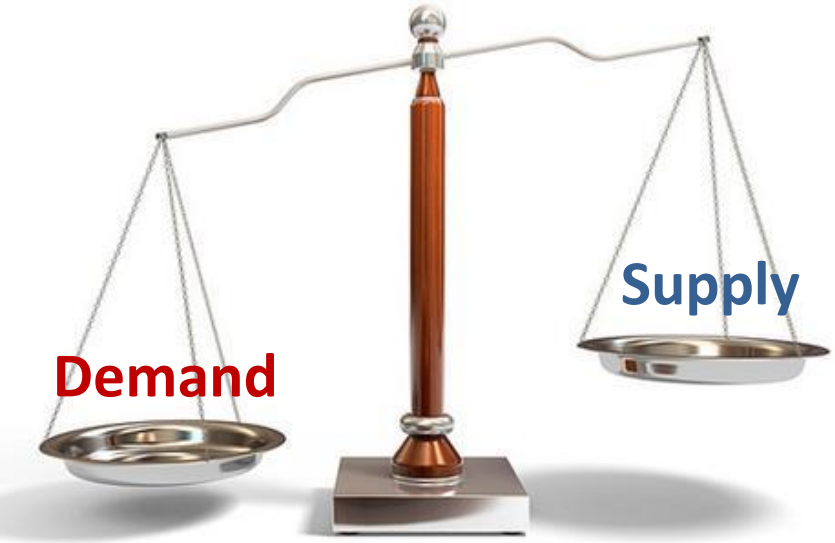
Safety

- Donors to be tested prior to collection (EBMT/FGM)

Is COVID transmittable by Stem cell products?

Currently there is no evidence.

Medical Resources



Ethical Values and Principles:

I. Treat people equally

II. Maximize benefits

III. Give priority to the sickest

IV. Reward instrumental value

EJ Emanuel et al NEJM 202

PB vs BM Collection?

	BM	Peripheral Blood
Resource Utilization	 (e.g. OR, ventilators & anaesthetist)	
Stem Cell Count (CD3/CD34)		
Exposure risk at Health care facility		 

Health Care Workforce

Certain groups of healthcare professionals for example, above 60 years of age, pregnant or on immunosuppressive agents are given medical exemption because of COVID-19

Blood samples shipped within two weeks (donors)	52.244 (74%)
Work ups requested	25.906
Work up cancellations	3461 (13%)

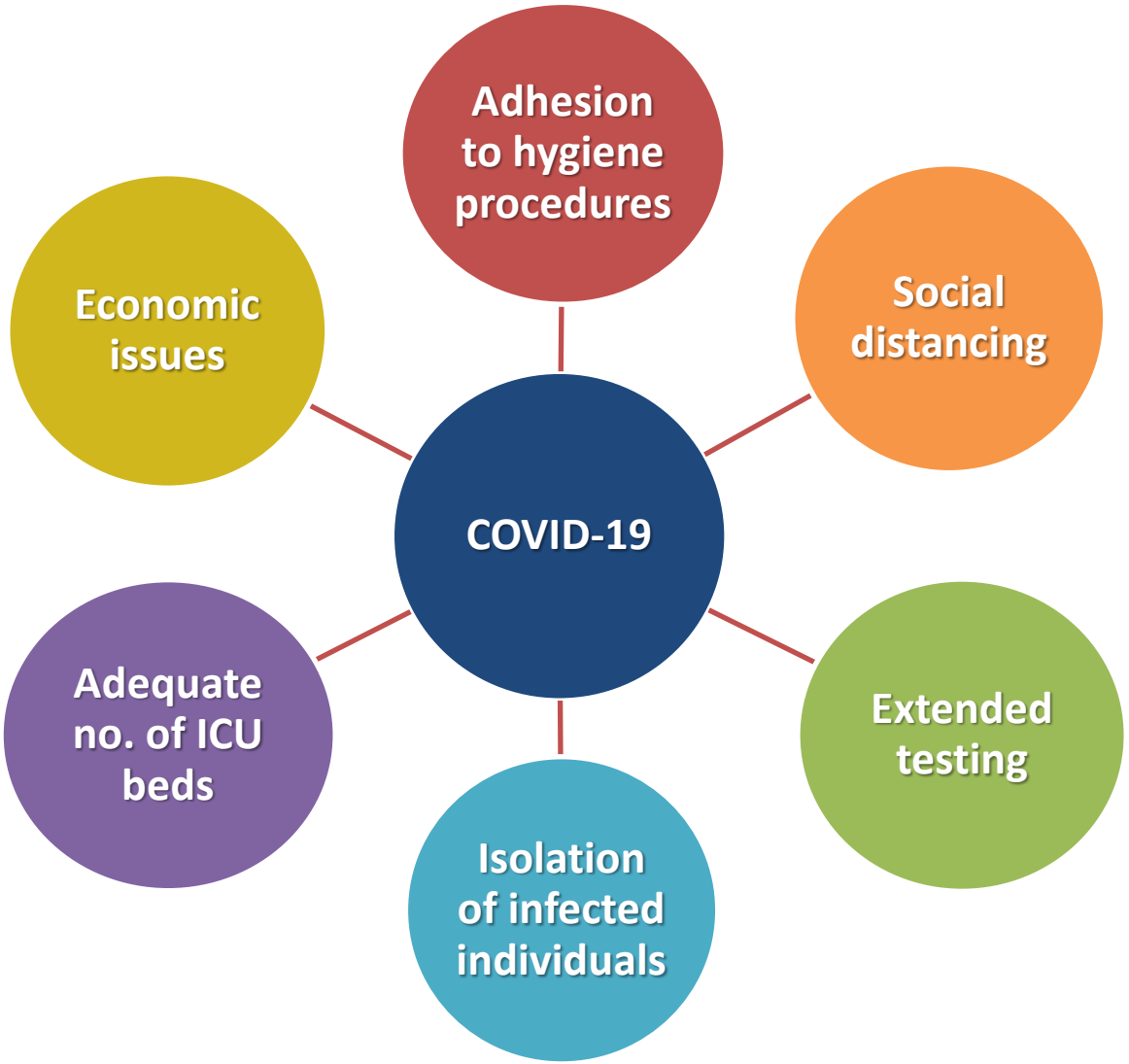
Thank You


WBMT
worldwide network for blood and marrow transplantation
WWW.WBMT.ORG

Transplant recipients COVID-19 guidelines and real-world

Clarisse M. Machado, MD, PhD

Facing SARS CoV-2 Pandemic in LA



Adhesion to hygiene procedures

- Rationing of clean water on the outskirts of large cities
- Homeless population

Social isolation

COVID-19 financial support

- Provided by local government for those who had lost income due to the pandemic
- Vary according to country: ~ USD 100 month
- The delay in releasing financial support has generated long lines at banks, resulting in poor compliance to social distancing

Social distancing

Government commitment

- Coordinate task force and empathy
- Among others, provide ICU beds and ventilators

Editorial

COVID-19 in Brazil: "So what?"

www.thelancet.com Vol 395 May 9, 2020

HSCT and COVID-19 guidelines

Obstacles to successful application of current recommendations in Latin America

HSCT recipients

Main Recommendations	Real World
HSCT recipients who tested positive for SARS-CoV-2 should be removed from rooms (HEPA) with positive pressure unless the ventilation can be reversed or turned off	✓
All patients positive for SARS-CoV-2 in an upper respiratory tract sample should undergo chest imaging, preferably by CT, and evaluation of oxygenation impairment	✓
No approved treatment, data are inconclusive so far. Consider including patients in clinical trials	✓
Consider anti-inflammatory therapy with tocilizumab and/or corticosteroids (of value in non-transplant patients)	✓
Keep immunosuppression. Anti-coagulants to prevent thromboembolic complications	✓
Treatment of co-pathogens should be optimized	✓

Donors

Main Recommendations	Real World
Stem cell product guaranteed by freezing before start of conditioning. If not possible, have an alternative donor	✓
Prefer peripheral blood as stem cell source unless there is a strong indication for bone marrow	✓
In case of diagnosis of COVID-19, donor must be excluded from donation for 3 months	✓
If close contact with a person with SARS-CoV-2 infection, the donor shall be excluded from donation for at least 28 days	✓
Donors should have been asymptomatic for at least 14 (preferably 21) days before donation	✓
Donors should be tested for COVID-19 prior to starting the mobilization procedure	✓ ✗

HSCT Centers

Main Recommendations	Real World
Follow guidelines, policies, and procedures decided by national authorities as well as local and institutional policies	✓
Non-urgent transplants should be deferred as much as possible, especially for non-malignant disorders	✓
Whenever possible, outpatient visits should be deferred or substituted with telemedicine visits	✓
Before starting the transplant procedure, availability of the stem cell product should be ensured	✓
Separate areas for positive and negative COVID patients	✓
Staff dedicated to each area	Lack of personnel ✗
No visitors in transplant units. In case of children, parents should be tested for SARS-CoV-2 before entering the ward	Lack of tests ✗

HSCT candidates

Main Recommendations	Real World
HSCT candidates should try to minimize the risk by home isolation 14 days before the start of conditioning	✓ ✗ *
Candidates should test NEGATIVE for SARS-CoV-2 (even those asymptomatic) before start of the conditioning	Lack of tests ✗
Candidate with COVID-19 should be deferred from HSCT for 3 months.	✓
In case of high risk disease, HSCT deferral until the patient is asymptomatic and has 2 negative tests ($\Delta t \geq 24$ h). Minimum 14 days of deferral, preferably 21 days	Minimum 21 days due to lack of tests ✗
If close contact with a COVID-19 person, PBSC mobilization, BM harvest, and conditioning shall not be performed within at least 14, and preferably 21 days from the last contact	✓

(* Some HSCT candidates live far from the transplant center and use support homes)

Health Care Workers

Main Recommendations	Real World
HCW with any symptoms of infection should stay at home, and testing for SARS-CoV-2 is strongly recommended	Lack of tests ✗
HCW who have recovered from COVID-19 can return to work after resolution of symptoms and 2 negative PCR results	14 days at home; 1 NEG test, at best ✗
HCW should be trained in proper procedures and management of patients with suspected/confirmed infection	✓
Ensure adequate access to personal protective equipment (PPE) and planning for possible staff shortage	Shortage of PPE and staff ✗
Wear the correct type of masks to limit the spread and to reduce the risk for health care workers to become infected	Improvisation and reuse of masks ✗
Limiting exposure of HCW and mitigating the psychological consequences of stressful working conditions	Difficult due to shortage of staff ✗

Concluding remarks

- The capacity of HSCT centers to comply with recommendations is heterogeneous due to the social inequity in most Latin America countries.
- There is a delay in implementing approved measures and in the acquisition of essential goods.
- Health professionals have been most affected due to the lack of testing, PPE and shortage of staff to cover those who get infected.

Thank You

How to manage haploidentical transplants during the SARS-CoV-2 pandemic: Chinese experience

Strategies involving pre-, peri and post-HSCT

The authors have no potential conflicts of interest.

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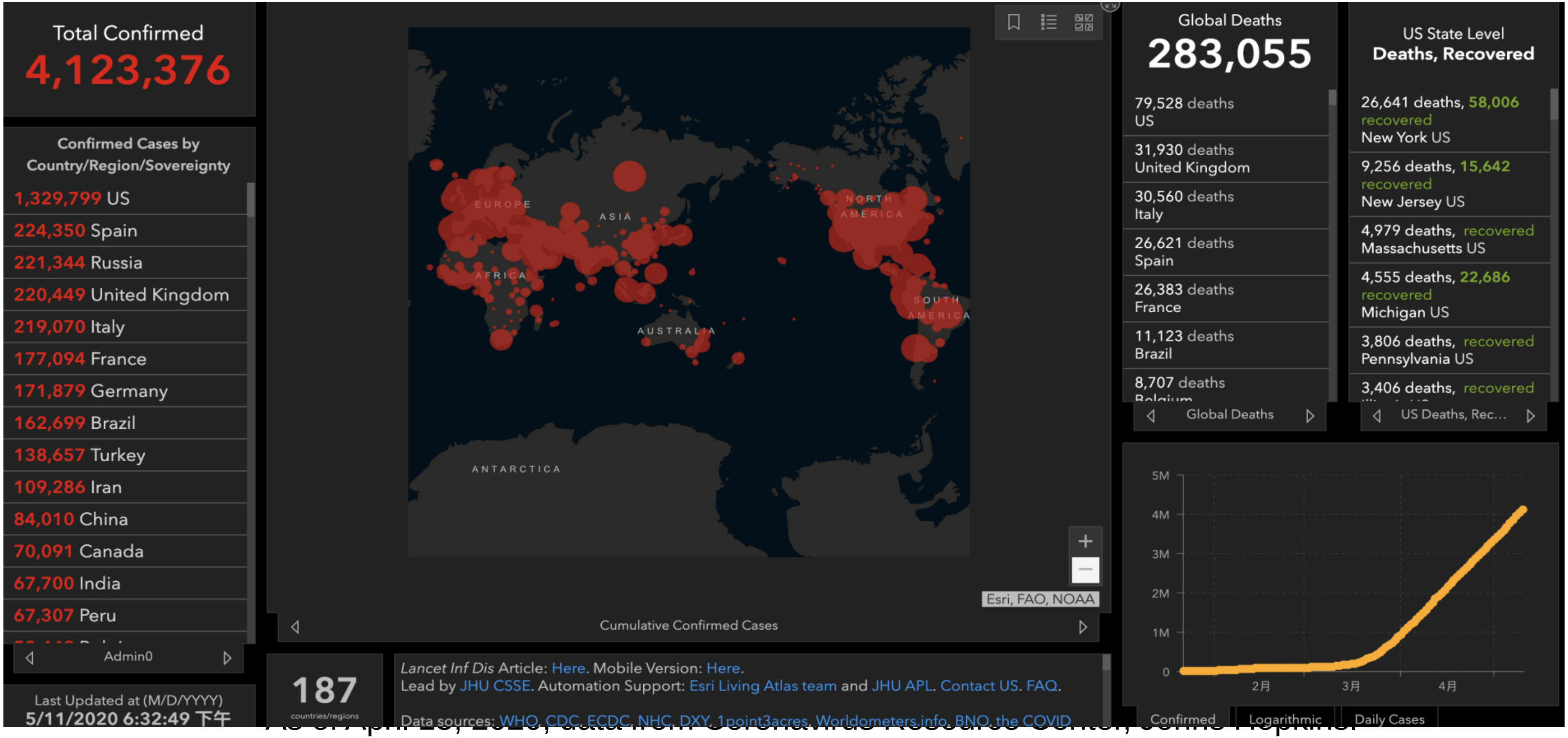
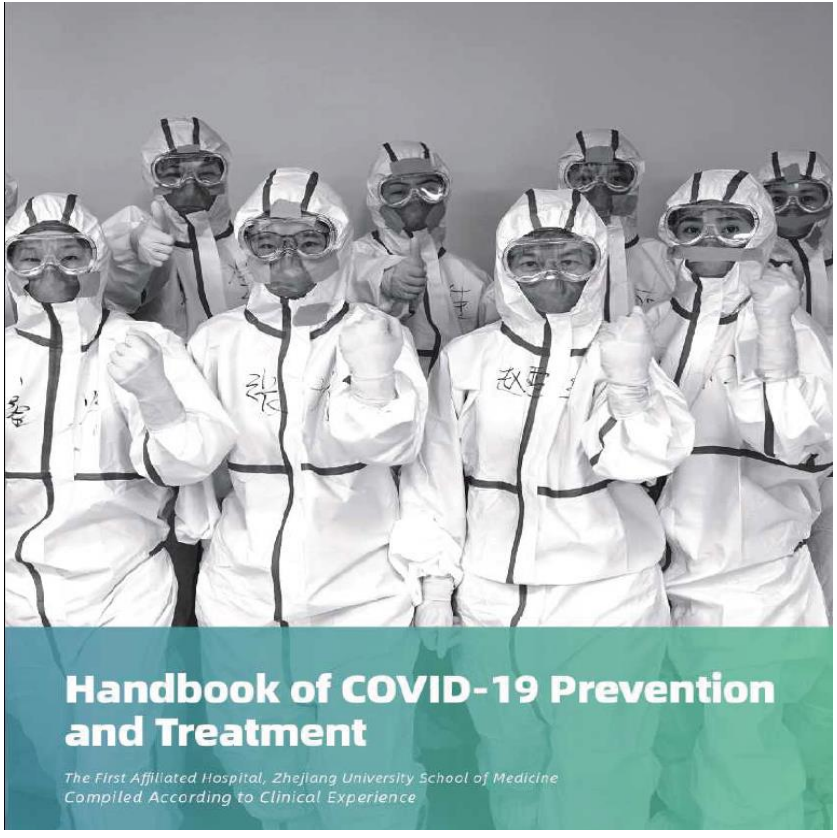
COVID-19 is a global pandemic disease



Reconstruction of COVID-19 center

First Affiliated Hospital of Zhejiang University School of Medicine contributed to the grappling with COVID-19 in Hangzhou and Wuhan.



Diagnosis and Treatment for COVID-19

- Elderly COVID-19 lung transplant recipient;
- Caesarean birth child with negative result of nucleic acid of SARS-CoV-2 ;
- Bioartificial liver (BAL) support systems treat CRS of COVID-19 patients.

Prevalence of COVID-19 in persons with hematological disorders in China

- There are 29 cases of persons with hematological disorders with COVID-19 in Wuhan city.
  - Pediatric acute lymphoblastic leukemia (N=1)
  - Aplastic anemic (N=1)
  - CML (N=4)
  - MDS (N=2)
  - plasma cell myeloma (PCM; N=5)
  - acute leukemia (N=16) **including 2 post allo-HSCT patients**
- In low community prevalence areas only one case of COVID-19 with CLL.
- The case fatality rate in persons with hematological diseases infected with SARS-CoV-2 and COVID-19 seems high with 6 deaths in the 11 persons.
- A similar high case fatality rate is reported by others with 8 deaths amongst 13 persons with hematological cancers with COVID-19.

Zhonghua Xue Ye Xue Za Zhi.2020; Leukemia (in press)

Optimization of screening and admission process

- Fever Clinic:

1. Layout
   - independent area
   - standardized procedure
   - three zones and three passages

2. Zone arrangement
   - preview triage
   - patients classification
   - independent functional sections (e.g. exam/ lab/ observation etc)

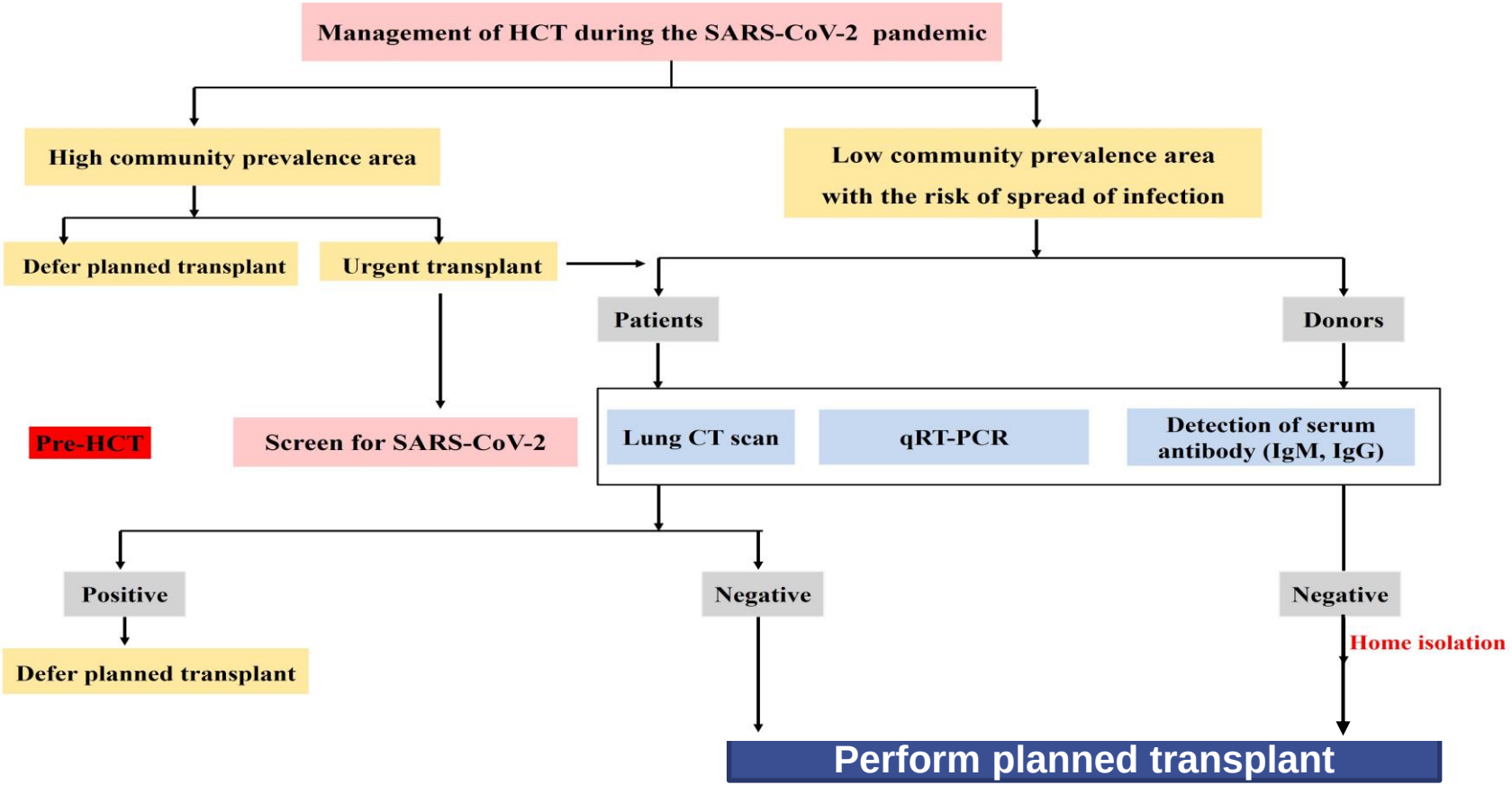
3. Patient management
   - patients to wear masks
   - no companion
   - minimize staying time

- Transportation of patients:
  - Negative-pressure ambulances and PPE for ambulance attendants
  - Ambulances would be disinfected after transportation by local CDC.

Transplant activities of our center continue

- Over the past 3 months, 49 people receive a transplant including 39 from an HLA haploidentical related donor , 4 from an HLA-identical sibling, one from an HLA-matched unrelated donor and 5, auto-transplants.
- However, from January 24th to the middle of March, all Chinese cities have faced the risk of an explosive spread of SARS-CoV-2, we therefore deferred planned HSCTs and only continue to perform them for patients who were already in the laminar airflow clean wards.
- No patient has been infected with SARS-CoV-2.

Pre-HSCT


Management of HCT during the SARS-CoV-2 pandemic
High community prevalence area
Low community prevalence area with the risk of spread of infection
Defer planned transplant
Urgent transplant
Patients
Donors
Pre-HCT
Screen for SARS-CoV-2
Lung CT scan
qRT-PCR
Detection of serum antibody (IgM, IgG)
Positive
Negative
Negative
Home isolation
Defer planned transplant
Perform planned transplant

Pre-transplant recommendations

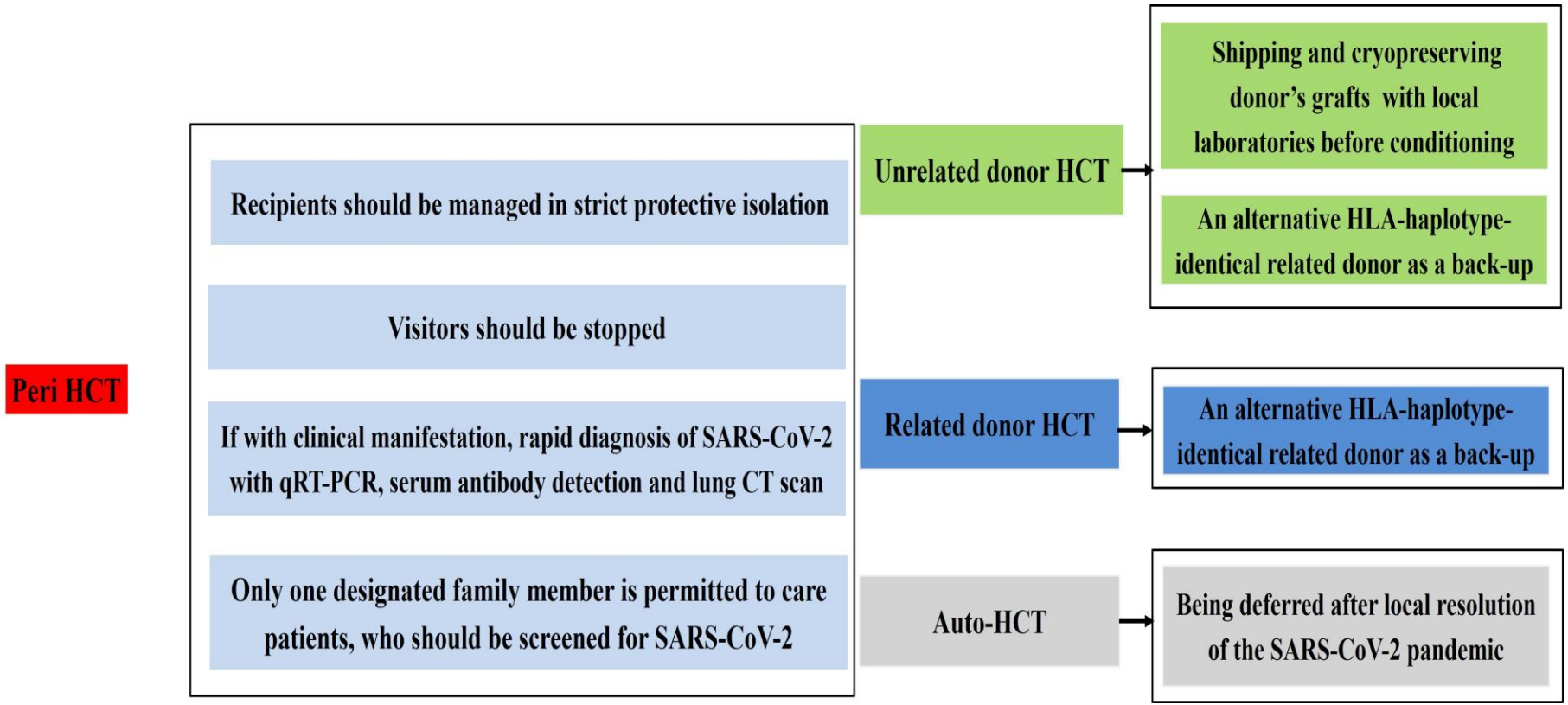
- Potential transplant recipients should home isolate for 14 days pre-transplant
- Recipients should be screened for SARS-CoV-2 by quantitative qRT-PCR and should have ≥ 2 consecutive negative tests ≥ 24 h apart 7-14 d before the transplant start.
- If transplant candidates close contact with infected persons or with a positive qRT-PCT test, transplant-related procedures be delayed 14-21 days from the last contact and potential recipients monitored for SARS-CoV-2-infection.
- In persons with advanced or high-risk disease and a positive qRT-PCR-test, a transplant should be deferred until ≥ 2 consecutive negative qRT-PCR-tests > 1 week apart.
- In persons with low-risk disease, a 3-month delay is recommended.

Screen recipients and donors for SARS-CoV-2 infection

- Lung CT scan was reported to have a diagnostic sensitivity of 97%, positive predictive value of 65%, and negative predictive value of 83%, respectively.
- Although qRT-PCR for SARS-CoV-2 is widely used and recommended, it has limitations such as a short detection window from naso-pharyngeal swabs, cross-contamination and false-negatives. The positive rate of qRT-PCR assay for naso- or oro-pharyngeal swabs is about 50-70%.
- Antibody tests may be helpful for the diagnosis of suspected patients with negative RT–PCR results and for the identification of asymptomatic infections.
- Chinese data suggested that within 19 days after symptom onset, 100% of patients tested positive for antiviral IgG. Seroconversion for IgG and IgM occurred simultaneously or sequentially. Both IgG and IgM titers plateaued within 6 days after seroconversion.

Nat Med. 2020. PMID: 32350462; *Radiology* 2020: 200642. *medRxiv*.2020.doi: https://doi.org/10.1101/2020.02.11. 20021493.

Peri HSCT


Peri HCT
Recipients should be managed in strict protective isolation
Visitors should be stopped
If with clinical manifestation, rapid diagnosis of SARS-CoV-2 with qRT-PCR, serum antibody detection and lung CT scan
Only one designated family member is permitted to care patients, who should be screened for SARS-CoV-2
Unrelated donor HCT
Shipping and cryopreserving donor's grafts with local laboratories before conditioning
An alternative HLA-haplotype-identical related donor as a back-up
Related donor HCT
An alternative HLA-haplotype-identical related donor as a back-up
Auto-HCT
Being deferred after local resolution of the SARS-CoV-2 pandemic

Post-HSCT

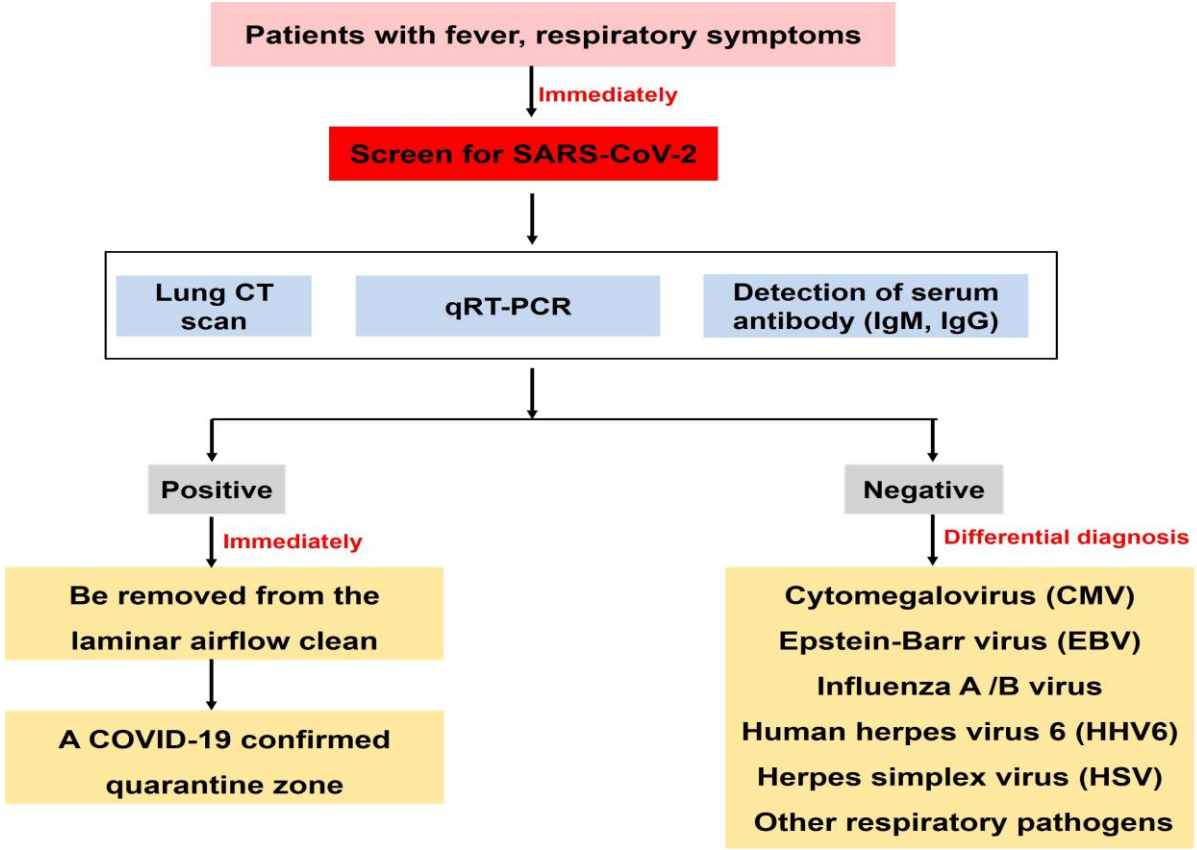
Educate patients and all family members on instructions regarding isolation and preventative measures

Self-isolation at home and minimize the number of family members to visit

Telemedicine visits or online visits

Explore ways for patients to have blood tests away from busy areas in hospitals

How to treat HSCT recipients infected with SARS-CoV-2



Diagnosis and clinical classification

Clinical classification

Mild	Moderate	Severe	Critically severe
• Mild symptoms • without pneumonia at CT	• Fever and respiratory symptoms • Pneumonia at CT	• Respiratory rate ≥ 30 • oxygen saturation ≤ 93% • oxygenation index ≤ 300 • 50% enlargement in CT within 48 hours	• Respiratory failure with mechanical ventilation • Shock • Other organ failure

The seventh version of the guidance for diagnosis and treatments for COVID-19 issued by the National Health Commission of China. kjfy.meetingchina.org/msite/news/show/cn/3337.html (assessed March 16,2020)

Antiviral treatment

Basic regimen: lopinavir/ritonavir (LPV/r) (400/100 mg, po q12h) combined with arbidol (200 mg po tid)

Other alternative candidates:

✓Chloroquine phosphate (weight ≥ 50 kg: 500 mg bid; weight ≤50 kg: 500 mg bid for first two days, 500 mg qd for following five days)

✓Interferon nebulization

✓Darunavir/cobicistat (DRV/c) (800/150mg po qd)

✓Favipiravir (starting dose of 1600 mg followed by 600 mg tid)

Combination of three or more medications is not recommended

Course of treatment: around 2 weeks

Timing of stop antiviral treatment

✓Nucleic acid test results from sputum specimens remain negative for more than 3 times

Dysfunction of coagulation

- There are reports indicating that COVID-19 patients have dysfunction of coagulation:
  - 4% of patients experience reactive thrombocytosis
  - disseminated intravascular coagulation (DIC)
  - acro-ischemia
  - cerebral infarction
- There is a particularl concern that HSCT patients with COVID-19 may have a higher risk of dysfunction of coagulation than common COVID-19 patients.
  - SOS
  - TMA

Thanks!

EBMT European Society for Blood and Marrow Transplantation

Covid-19 data in the EBMT registry;

Per Ljungman, MD, PhD

Chair, registry committee, EBMT

For the Infectious Diseases Working Party

e-learning

Disclosures

- None on this topic

Per Ljungman

Professor (em) of Hematology

Dept. of Cellular Therapy and Allogeneic Stem Cell Transplantation

Karolinska University Hospital and Karolinska Institutet

Stockholm, Sweden

EBMT registry data collection

- Initiated February 28, 2020
- Three steps:
  - A registration form,
  - An interim data form after 2 weeks
  - A follow-up form after the end of the episode.
- Performed in collaboration with the Spanish group (GETH).

EBMT COVID-19 registry; status May 11 - registration

- 216 patients registered
  - 155 allo
  - 57 auto
  - 4 CAR T

- An additional 47 cases have been reported to the GETH not included in this presentation.
- Total n = 262

Reporting countries

Italy	42	19.4
France	15	6.9
Belgium	16	7.4
Spain	57	26.4
Greece	1	.5
Sweden	10	4.6
Switzerland	5	2.3
United Kingdom	38	17.6
Iran	2	.9
Netherlands	8	3.7
Germany	9	4.2
Denmark	2	.9
Norway	1	.5
Poland	1	.5
Israel	4	1.9
Turkey	3	1.4
Ireland	2	.9

EBMT COVID-19 registry; status May 11 - registration

- Gender
  - Male 132
  - Female 83

- Age at COVID-19 diagnosis
  - Allo patients median 51.5 ys (0 – 79)
  - Auto patients median 58 ys (7 – 73)
  - 25 patients are children < 18 ys (23 allo; 2 auto); median age 11 ys (0 – 16)

EBMT COVID-19 registry; status May 11- registration

- Time from transplant
  - Allo patients median 10 months (0 – 241)
  - Auto patients median 13 months (0 – 403)

EBMT COVID-19 registry; status May 11- registration

Symptoms at COVID-19 diagnosis

▪ Asymptomatic	17/196 (8.7%)
▪ Upper respiratory tract symptoms	73/196 (37.7%)
▪ Lower respiratory tract disease	74/196 (37.7%)
▪ Other (mainly fever alone)	32/196 (16.3%)

EBMT COVID-19 registry; status May 11– follow-up

- Caveat: Still preliminary data
- At least two weeks follow-up on interim forms or follow-up forms at end of episode
- We have follow-up/outcome data on 138/216 patients
- It is possible that the way we collect data overestimates the risk for death since deaths might occur quicker than resolution of the episode in patients doing well.

EBMT COVID-19 registry; status May 11– follow-up

Outcome:

	Allo patients	Auto patients
Alive	72	25
Dead	28	11
% dead	28%	30%

One of 4 CAR T treated patients have died.

EBMT COVID-19 registry; status May 11– follow-up

Cause of death was reported as due to COVID-19 in 36/40 patients.

Median time to death was 14 days (1 – 49) in the allo patients

Median time to death was 21 days (4 – 47) in the auto patients

EBMT COVID-19 registry; status May 11– follow-up children

1/25 children is reported having died from covid-19

9/25 have resolved infections.

15/25 still ongoing (no follow-up form received)

Median follow-up 20 days (4 - 31)

EBMT COVID-19 registry; status May 11– conclusions

- 216 patients registered at this time
- 37.7% had lower respiratory tract disease at diagnosis
- The mortality at follow-up was 28% in allo and 30% in auto patients.
- It is possibly an overestimation since deaths are likely to be reported quicker than resolution of the covid-19 episode
- Although data is limited, children seem to do better than adults in covid-19 after SCT

- More follow-up data is being collected to allow assessment of risk factors..

Memorial Sloan Kettering Cancer Center™

Chimeric Antigen Receptor T Cell Therapy during COVID-19

Miguel-Angel Perales MD

Adult Bone Marrow Transplantation Service

Memorial Sloan Kettering Cancer Center

@DrMiguelPerales

ASTCT American Society for Transplantation and Cellular Therapy

Memorial Sloan Kettering Cancer Center™

Miguel Perales MD Disclosures

- Member, Scientific Advisory Board:
  - MolMed, NexImmune
- Ad hoc Advisory Board:
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  - Merck
- Research Funding (to Institution):
  - Incyte (clinical trial), Miltenyi (clinical trial), Kite/Gilead (clinical trial)
- Academic/Not-for-Profit:
  - Board Member: ASTCT, Be The Match (NMDP)
  - CIBMTR CIDR Executive Committee
  - Tufts Cancer Center DSMB, University of Barcelona CAR T trial DSMB

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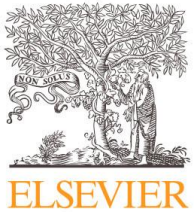


ELSEVIER

Biology of Blood and Marrow Transplantation

journal homepage: www.bbmt.org

ASTCT
American Society for Transplantation and Cellular Therapy

Chimeric Antigen Receptor T Cell Therapy During the COVID-19 Pandemic

Veronika Bachanova[1], Michael R. Bishop[2], Parastoo Dahi[3,4], Bhagirathbhai Dholaria[5], Stephan A. Grupp[6], Brandon Hayes-Lattin[7], Murali Janakiram[1], Richard T. Maziarz[7], Joseph P. McGuirk[8], Loretta J. Nastoupil[9], Olalekan O. Oluwole[5], Miguel-Angel Perales[3,4], David L. Porter[10,**], Peter A. Riedell[2,*] The CAR T-cell Consortium[†]

[1] Division of Hematology, Oncology, and Transplantation, Department of Medicine, University of Minnesota, Minneapolis, MN

CAR T Cell Resources and Potential Disruptions During a Pandemic

Resources	Potential Disruptions
Apheresis & cell processing	Staff shortages
Shipping/logistics	Air travel restrictions
Manufacturing	Staff shortages, site closures, limited capacity
Hospital capacity	Lack of availability
ICU capacity	Lack of availability
Blood bank	Blood and platelet shortages
Laboratory testing	Staff and reagent shortages
Radiology	Staff shortages, lack of availability, need for additional visits
Pathology	Staff shortages, sample processing
Caregiver	Caregivers unavailable; restrictive hospital visitor policy
Housing	Local housing closures

Practical considerations for safe administration of CAR T cell therapy in light of these disruptions

- Establish triage algorithm to delay and/or cancel as many CAR T-cell activities as possible. Preferentially select patients who are most likely to benefit, who have no effective alternative treatment options, and in whom the risk of CAR T-cell toxicities is lower.
- Ensure dedicated and adequate cell lab staff for product receipt, processing, and infusion.
- Prioritize products that can be given on an outpatient basis.
- Initiate lymphodepleting chemotherapy only following CAR T cell product receipt.
- Inpatient resources: encourage virtual team rounding and perform one examination per patient per day, if appropriate.

Practical considerations for safe administration of CAR T cell therapy in light of these disruptions

- Housing: Ensure a clear plan as to where patients will be housed during the immediate 4 weeks surrounding their CAR T cell therapy.
- Outpatient follow-up care: telemedicine when feasible.
- Minimize all nonessential lab work and radiology appointments.
- Preferentially use oral over parenteral administration when appropriate.
- Pandemic-specific considerations
  - Ensure the continuous availability of a cellular therapy team member with the capacity to respond to COVID-19 issues.
  - Establish a center-specific workflow for COVID-19-positive patients.
  - Consider creating COVID-19-specific inpatient units with dedicated rounding teams.

Measures to Mitigate the risk of COVID-19 or Its Complications – Pre CAR T

Screening measures	Assess for signs/symptoms of COVID-19, pre apheresis, LD chemo, and CAR T cell infusion
	Consider PCR testing for COVID-19 for all patients (including asymptomatic) within 48-72 hs before apheresis
	PCR testing for COVID-19 on all patients (including asymptomatic) within 48-72 hours of LD chemo and within 7 days of CAR T cell infusion
	Consider PCR testing for COVID-19 within 72 hours of CAR T cell infusion
	Consider serologic testing for COVID-19 seroconversion
	Multiplex PCR to r/o other viruses for symptomatic pts
Preventive measures	Limit in-person visits and substitute with telemedicine
	Ensure patient access to thermometer and other vital sign monitoring equipment
	Patients to use facemasks in public, including at healthcare facilities

Measures to Mitigate the risk of COVID-19 or Its Complications – Post CAR T	
Care delivery	Limit in-person visits after day +7, close monitoring via telemedicine
	Encourage caregiver participation
Education	Education to caregivers about VS monitoring and ICANS questionnaires
	Contingency plan for CAR T cell recipients with fever and/or COVID-19
Supportive care	Consider G-CSF for prolonged neutropenia
	Consider thrombopoietin mimetics for severe prolonged thrombocytopenia
Infection prophylaxis	Antimicrobial prophylaxis during periods of neutropenia
	Antiviral prophylaxis for HSV and VZV
	Antifungal prophylaxis with mold-active agent for >7 days of high-dose steroids or neutropenia >14 days
	PJP prophylaxis
IVIG	Prophylactic IVIG not currently recommended to prevent COVID-19
	Consider IVIG to prevent other infections if IgG <400 mg/dL
PUI/COVID-19-positive	Delay apheresis, LD chemo, CAR T infusion $\geq$ 14 days from symptom resolution
	Consider repeat laboratory PCR for COVID-19

Frequently Asked Questions

FAQS

Question 1: What are the resources required for the safe administration of cellular therapy during the COVID-19 pandemic?

Question 2: Should the current COVID-19 pandemic determine cellular therapy utilization?

Question 3: How do you approach patient selection for cellular therapy in R/R aggressive B-NHL in the era of COVID-19?

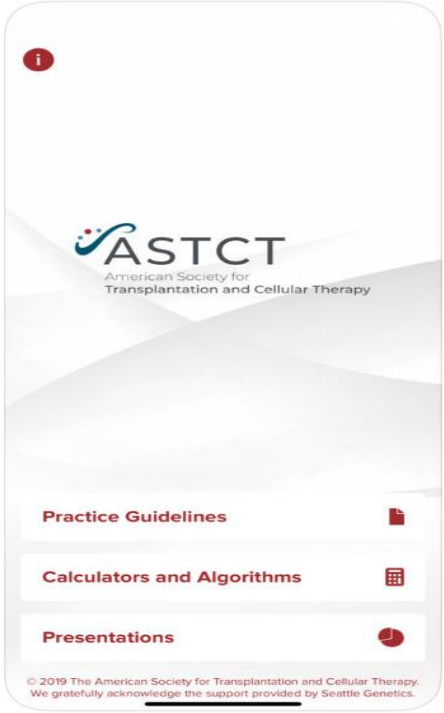
Question 4: How do you approach patient selection for cellular therapy in R/R ALL in the era of COVID-19?

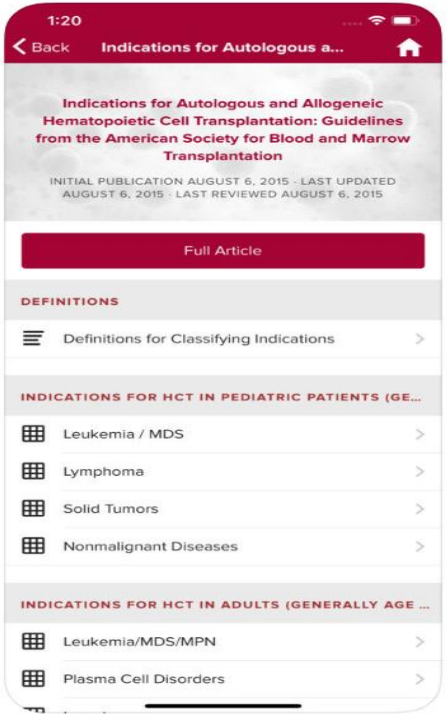
Question 5: How do certified treatment centers support cellular therapy patients during the COVID-19 pandemic?

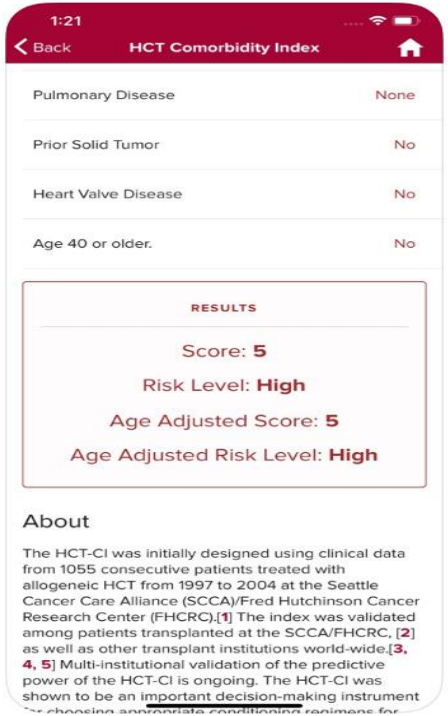
Question 6: How do you use and prioritize tocilizumab in the era of COVID-19?

Question 7: How can certified treatment centers collaborate with referring oncologists to facilitate care in the era of COVID-19?

The ASTCT Mobile App







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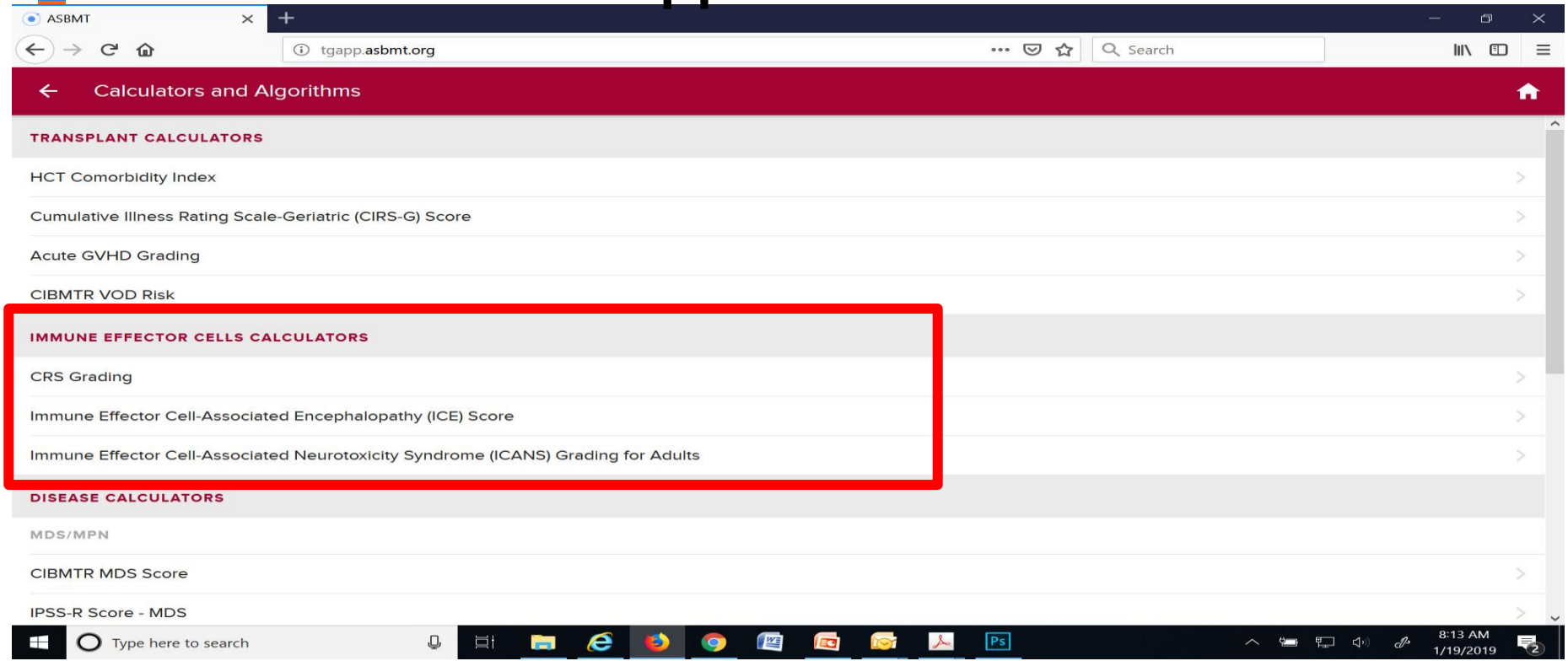

Tocilizumab not associated with increased infection risk after CAR T – Implications for COVID-19?

Characteristic	No Tocilizumab for CRS	Tocilizumab for CRS	P Value[1]
No. of patients	225	166	
Age at infusion, by category - no. (%)			
>= 65	67 (29.8)	58 (34.9)	
Gender - no. (%)			
Male	153 (68)	112 (67.5)	
Karnofsky performance score prior to treatment 90-100%	109 (48.4)	66 (39.8)	
Neurotoxicity/ICANS of any stage – no. (%)	92 (40.9)	100 (60.2)	<0.001
Corticosteroids for ICANS or CRS	39 (17.3)	88 (53)	<0.001
Infections[2]			
Clinically significant infections within 100 days - no. of patients (%)	67 (29.8)	52 (31.3)	0.85
Bacterial	38 (16.9)	37 (22.3)	
Fungal	6 (2.7)	7 (4.2)	
Yeast	4 (1.8)	5 (3)	
Mold	3 (1.3)	2 (1.2)	
Viral[3]	32 (14.2)	19 (11.4)	
Respiratory Virus	22 (9.8)	8(4.8)	
Herpes Family Virus	6 (2.7)	12 (7.2)	
GI/Liver	4 (1.8)	0	
GU	4 (1.8)	4 (2.4)	
Other viral infections	2 (0.9)	0	
Other	1 (0.4)	0	

[1] Pearson chi-square test. [2] Number of patients reported infections, types of infections are not

Frigault et al, Blood - accepted

Panel Discussion

Sharing experiences from different world regions

Thank You for joining us today

Stay safe