



Impact of the SARS-CoV-2 Pandemic on HPC Donation and Transplantation

EC Tissue and Cell Competent Authority meeting on COVID-19

2020-05-19

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Impact of the SARS-CoV-2 Pandemic on HPC Donation and Transplantation

Situation report

- Registries and Donor Centres
- Transports
- Collection units
- Donor safety and availability
- Cryopreservation

Mitigation and potential actions on EU level

Situation Report

Status 2020-05-19



Situation in Donor Registries and Donor Centres

Donor Registries and Donor Centres are fully operational for unrelated HPC donor searches and requests and have been throughout the crisis even in heavily affected regions such as Northern Italy and the United Kingdom.

Prolonged restrictions could result in attrition of donor and financial base.

- Donor registry and donor centre staff is working from home since March 2020, with the exception of the medical staff and transport coordinators.
- No profound impact of COVID-19 infections on staff availability.

Pay attention to:

- Less effective donor recruitment: donor recruitment is limited to online registration; no public donor drives (essential for recruiting underrepresented groups such as young males, ethnic minorities)
- Financial situation for registries and donor centres: increasing costs (IT hardware and licenses, personal protective equipment, tests, higher donor travel and accommodation costs), while simultaneously facing a (moderate) drop of requests and a (sharp) drop in money donations

Transport between EU Member States and to EU Member States

Exceptional international cooperation between EU SoHO team, Competent Authorities, WMDA, donor registries/donor centres, transplant centres, as well as courier companies and airlines resulted in working solutions for transports worldwide.

New, alternative shipping options have been established in minimal time.

- Border closings
 - ⇒ Handover at airport hubs (Rome, London)
 - ⇒ Handover at the Polish-German border was established on March 16th to facilitate ground transport of hematopoietic stem cells to and from Poland, transit e.g. to Lithuania
 - ⇒ CDC travel waiver for European couriers travelling to United States
 - ⇒ EU travel waiver for couriers of SoHO, preceded by national waivers in European countries
- Passenger flight restrictions and widespread cancellations
 - ⇒ Products are handed over by freighter aircraft crews (current standard to transport hematopoietic stem cells from Europe to the United States)
- Cryopreservation at collection centre and unaccompanied shipping in dry shippers

Transport – challenges observed

Transport situation is generally stable, but far from optimal.

Products arrive as scheduled, but not always under required conditions.

- Damage to cryopreserved hematopoietic stem cells during shipment
 - ⇒ Ongoing investigation of 3 incidents



Ruptured cryobag



Partial thaw; -37° instead of -150°C on arrival

- Prolonged transport times due to drastically reduced flight connections
 - ⇒ Even in excess of 72 hours
- Unclear sustainability of courier operations if staff is placed under quarantine after return (many couriers are volunteers)

Collection Centres

Due to protective measures such as screening donors before admission, personal protection equipment, and contingency planning, PBSC collection capacities could be maintained.

Bone Marrow collections were locally not feasible during COVID pandemic.

- Bone Marrow Collection requires more staff and ICU care / ventilators. There is a limited capacity especially for collection centres at primary care hospitals. Bone marrow collections should be reserved for those donors or patients where bone marrow offers a clear benefit over PBSC.
- The percentage of bone marrow donations dropped >50% compared to Jan / Feb 2020 (DKMS 8% in April vs 17% on average 2019).
- Only moderate decrease of PBSC collections, *if at all* (DKMS +5% in March, -10% in April; Easter?)
- All collection centres screen donors for COVID-19 symptoms before admission; where required by local policies, healthy donors are tested for SARS-CoV-2.
- Some collection centres do not allow companions in the collection centre.
- WMDA has not received reports about SARS-CoV-2 transmission from donors to collection unit staff or vice versa.

Pay attention to:

- Many transplantations only *postponed*; unclear if capacities will suffice in the coming months, especially for bone marrow collections.

Donor safety and availability

Donors stay highly committed. Donor safety is ensured by consistent eligibility guidelines and minimizing risk exposure.

WMDA recommendation [Novel Coronavirus - SARS-CoV-2 & COVID-19](#)

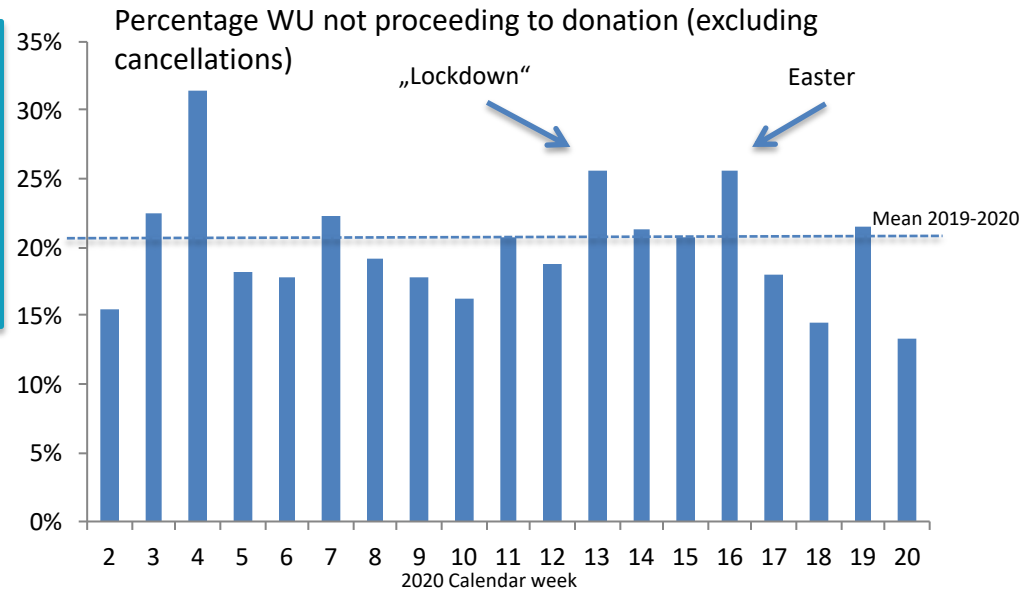
- Donors with confirmed SARS-CoV-2 infection must not donate and should be deferred for at least 28 days after full recovery.
- Donors with COVID-19 symptoms or risk exposure will be tested and/or deferred.
- To avoid unnecessary blood draws and contact to health providers, some donor registries and donor centres have implemented Health & Availability Check. In that case the donor donates blood for confirmatory typing at work-up stage instead of verification stage. In some countries the Health & Availability Check is the only option to proceed.
- Local collection or adapting travel and accommodation standards, e.g., issue personal protection equipment.
- WMDA has no reports of donor harm due to COVID-19.

Donor availability, work-up (WU) cancellations and postponements

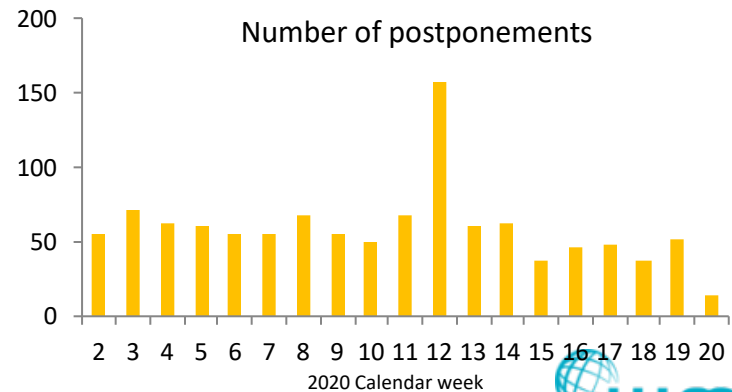
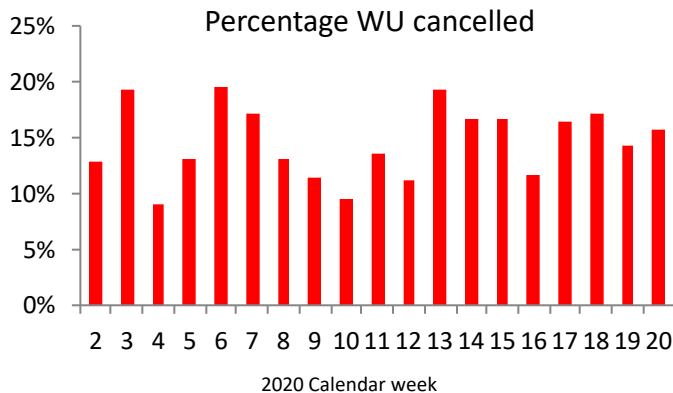
(all figures DKMS Germany) CA = Cancellation, NI = Not Interested (withdraw), TU = Temporally Unavailable, DD = Donor Deferred

Donor availability not significantly affected in Germany. Similar situation in Poland and UK, with a more pronounced impact in the week after lockdown.

- Increased not *interested/temporally unavailable* rates in week 13 („Lockdown“ in Germany)
- Moderate effect only; compared to Easter
- No significant increase in *medical temporarily unavailable or donor deferred*
- One (1) donor tested positive on day 3 G-CSF (no symptoms, tested after South Tyrol (Austria) was announced as risk area), donation aborted (back-up donation within days)



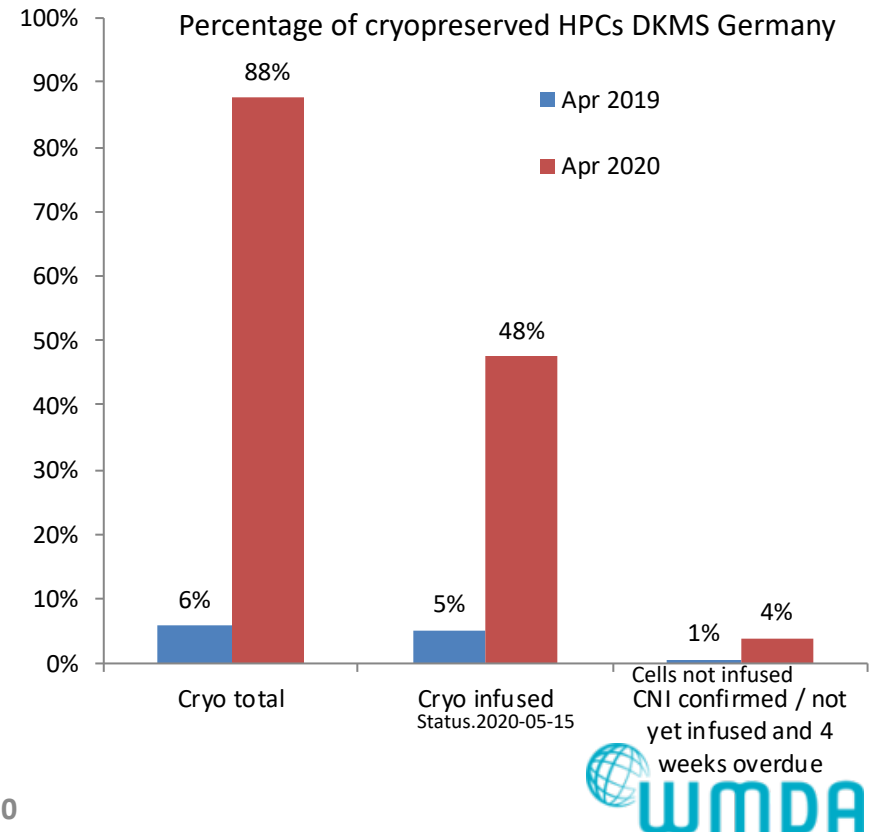
Few work-ups entirely cancelled, many postponements the week after border closings



Cryopreservation – benefits and potential risks

Pre-planned cryopreservation will allow patient conditioning to be withheld until successful donation and delivery are confirmed. Cryopreservation at the collection centre may have additional advantages in relation to transport delays and travel restrictions. „Cryo-quarantine“ of blood products is *not* generally recommended by transfusion / transplant societies and competent authorities, such as FDA or RKI.

Benefit	Disadvantage / Risk
Arrival ensured before conditioning	Delayed transplantation
Cell count / viability determined before conditioning	Cell count determination after thawing difficult, especially Total Nucleated Cell Count
	Cell count / viability losses, especially for Bone Marrow, after long shipping times, less experienced centres
	Collection before final assessment, if recipient can proceed to transplantation
	Reactions to DMSO during transfusion
	Bone Marrow and PBSC products are intended for <i>immediate</i> use by EU legislation, and if not they require a SEC
	Unnecessary donation (next slide)



Cryopreservation – ethical dimension

Hematopoietic stem cell donations are not a commercial, pharmaceutical product, but an altruistic gift. Willingness for volunteer donation is based on the general consensus a product will be used for transplantation into a patient unless something *unexpected* and *unavoidable* occurs.

Every donation, unrelated or related, means burdens such as pain, uncertainty, and organizational efforts for the donor.

Every unnecessary donation, unrelated or related, means unnecessary burdens such as pain, uncertainty, and organisational efforts for the donor.



“Unnecessary Donor Burden” is classified as *Harm to a Donor* by WMDA’s S(P)EAR Committee.

Cells not infused – reasons provided

- Product will not be used due to cell count as low as *anticipated* after thawing

⇒ **WMDA alert:** Assess the feasibility of the request of the transplant centre before collecting the product.

- Product will not be used due to cell count substantially lower than expected after thawing

⇒ **WMDA alert:** Repeat testing, check if it is feasible that the donor donates for a second time

- Product will not be used due recipient condition deteriorated

⇒ Prolonged interval from donation to scheduled transfusion, recipient only administered and examined *after* collection

- Product will not be used due to donor being tested positive for SARS-CoV-2 after donation / suspected COVID-19

⇒ No scientific evidence for transmission via blood products!

Mitigation, and potential actions on EU level

➤ **Re-assess recommendations on cryopreservation**

- ⇒ Should reflect actual situation, not worst case scenarios
- ⇒ If transport and donor availability is reasonably safe, ‚fresh‘ products could be considered as standard procedure again

➤ **Cryo-quarantine of hematopoietic stem cell products**

- ⇒ Not recommended by professional societies
- ⇒ Especially since / if other blood products are not to be quarantined / donors tested
- ⇒ No scientific evidence of Corona virus transmission via blood
- ⇒ First data suggests that transplant recipients are *not* a specific risk group

D'Antiga L. Coronaviruses and Immunosuppressed Patients: The Facts During the Third Epidemic [published online ahead of print, 2020 Mar 20]. Liver Transpl. 2020;10.1002/lt.25756. doi:10.1002/lt.25756

Working towards an updated ECDC/EU recommendation?

Cf. Directive 2014/110/EU on WNV

- More flight connections will mitigate shipping times
- Easier access to personal protection equipment



Thank you for your attention.

Questions:
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