

Impact of COVID-19 on cord blood donation, banking, and transplantation

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On behalf of the NMDP Cord Blood Advisory Group

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Background

- COVID-19 has emerged as the most important pandemic in our lifetime.
- Questions regarding risks to pregnant women and their fetuses, transmissibility during pregnancy (vertical transmission), and presence of the virus in cord blood have arisen.
- SARS-1 was vertically transmitted, while MERS was not.
- Limited evidence in pregnant women in their last month of pregnancy suggests very low if any transmission to their babies.
- The current public cord blood inventory is at extremely low risk of transmitting COVID-19 to a HSCT recipient
 - Most units collected before COVID-19 existed
 - Recent donors screened per FDA recommendations



Is COVID-19 transmitted transplacentally?

- 75 cases in 8 recent reports*
 - All term pregnancies (>36 weeks)
 - All mothers had documented and symptomatic infections
 - The majority of deliveries were via C-section
 - Babies were separated from their mothers at birth
- No infections documented in any baby
- In several cases, testing of blood, throat cultures, other body fluids on baby were negative.
- One case, breastmilk tested and negative

* Lancet Inf Dis, Lancet, J Infectious Dis, Frontiers Peds, Science Direct, Translational Peds, Infection Control, Frontiers in Medicine



Impact on CB donation

- Donor screening
- FDA recommendations for added questions

March 3 and April 5

- Additional clinical screening parameters
- Site operations

COMM-QA-081 FRM1
DONOR RISK QUESTIONNAIRE
Addendum - Coronavirus

Place Label Here

Please complete the 3 questions (labeled 1-3) below regarding COVID-19 (coronavirus):

Note: in the case of donors for thymus transplant, or pediatric donors, each question should be addressed as "have you or your child"

1. In the past 28 days, have you traveled to areas with COVID-19 outbreaks, as defined by the CDC?..... No Yes
2. In the past 28 days, have you cared for, lived with, or otherwise had close contact with individuals diagnosed with or suspected of having COVID-19 infection? No Yes
3. In the past 28 days, have you been diagnosed with or suspected of having COVID-19 infection? No Yes



Impact on CB bank operations

- Innovations to enable continued recruitment, consenting, collection
 - Preserve social distancing
 - Single collector in collection room
 - Creative shifts
 - Minimize physical contact with maternal donor
 - Have collector at home call mom for consent after collector on site waves at the door
 - Allow review of batch records at home
 - Maintain clean environments
 - IPA wipes to all counters, doorknobs, common surfaces
 - Masks for all employees
 - Increase awareness of hospital layouts
 - Avoid any mother suspected of having COVID



Impact on CB transplantation

- NMDP recommends back up cord blood unit for all unrelated HSCT recipients (April 2 Newsletter)



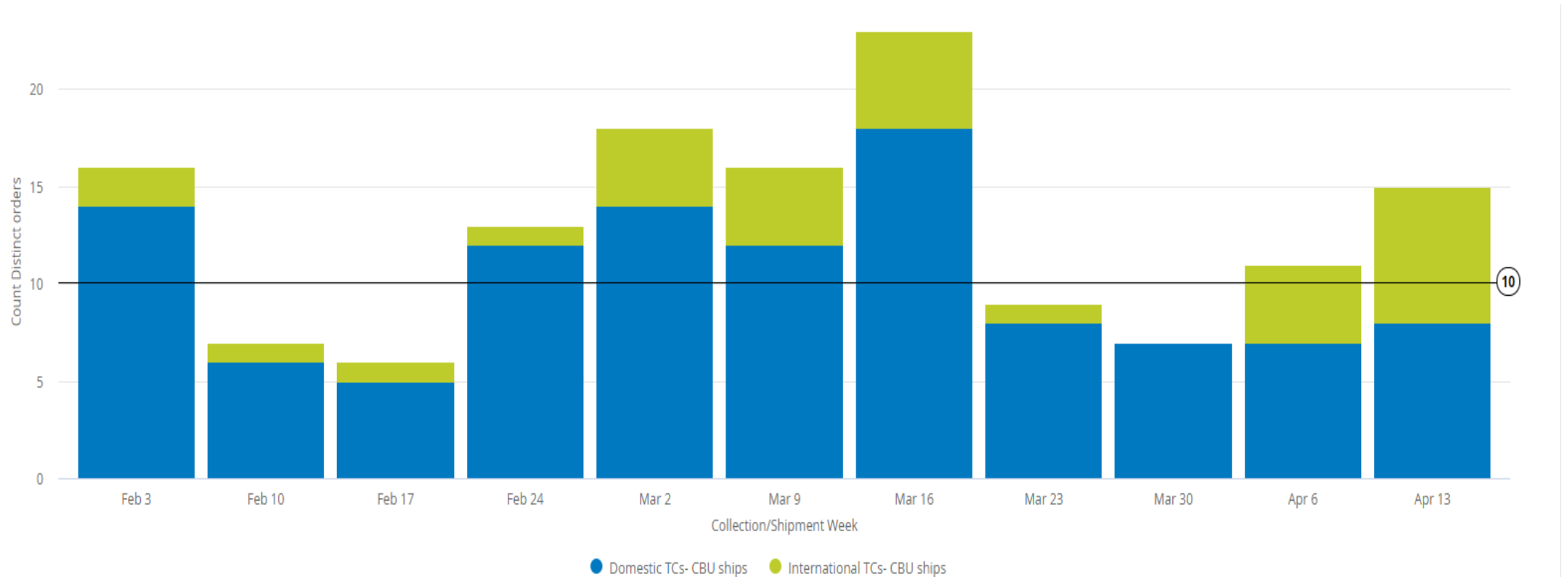
- **Reminder to Identify a Backup Option**

If your selected donor becomes unavailable to proceed with collection, it is important to have a backup plan that identifies the best option for your patient. In these cases, cord blood units (CBUs) could be a consideration. Request a subsequent Search Strategy Advice (SSA) for recommendations. If you would like assistance selecting a CBU or need clinical support, our Cord Blood Consultation Service can help.

- Increased use of CB donors in March, especially for international patients
- At CCBB, shipments in Jan, Feb, March were 6, 6, and 18 units, respectively



NMDP CB Shipments



NMDP CB shipments 2019/20

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Full Year
Cord Shipments													
2019 Actual	79	66	45	75	65	54	84	83	72	83	77	65	848
2020 Actual	64	44	63	49	44	69							333
Cord Transplants													
2019 Actual	55	49	37	53	47	45	67	61	54	58	59	48	633
2019 % of unrelated transplants	9%	9%	8%	10%	9%	9%	12%	11%	11%	10%	11%	9%	10%
2020 Actual	53	37	49	39	35	54							267
2020 % of unrelated transplants	9%	7%	10%	8%	7%	9%							8%
Unrelated Transplants													
2019 Actual	598	523	467	509	530	475	543	576	476	585	521	526	6,329
2020 Actual	587	505	484	507	500	578							3,161
Variances													
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Full Year
Cord Shipments													
2019 Actual	-15	-22	18	-26	-21	15							-51
Cord Transplants													
2019 Actual	-2	-12	12	-14	-12	9							-19



Using CB and birthing tissues to treat COVID-19

- Cord Blood
 - NK cells
 - CTLs
 - CAR-NK
- Cord Tissue
 - MSCs to treat COVID-ARDS
- Placental Tissue
 - MSCs to treat COVID-ARDS



In summary

- COVID-19 occurring in the last month of pregnancy has a low to negligible rate of vertical transmission with available data
- Infants born to mothers with active COVID-19 appear to do well
- Cord blood banks can screen donors through medical history questionnaires and onsite PCR testing if available at the collection site
- Testing of donors will likely be implemented in the future to assess COVID exposure earlier in pregnancy
- Safe practices at collection sites can continue to enable ongoing donations and collections
- Additional information is needed to determine the full impact of COVID-19 on cord blood donation and banking





? Questions?

Presented on behalf of the NMDP CBAG

Thanks to NMDP for providing data