

Recommendations of ACBSCT Work Group
for Improving the Availability
of High TNC Cord Blood Units
for a Diverse Population

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Presentation Overview

- Review findings by the Work Group
- Present recommendation on contracting and funding for NCBI program
- Present recommendation on HRSA pilot projects to further collection activity

Findings – Cord Selection

- Larger units are being used more than smaller units
- Of the transplants conducted, a higher percentage of pediatrics use CBUs than the percentage of adults who use CBUs; overall, there are more transplants for adults than pediatrics
- Transplant centers use various combinations of match and TNC dose, with no universally accepted combination
- Patients using smaller units tend to be younger
- Few patients get 6 of 6 antigen matches

Findings – Use

- Minority patients do not find as close matches as Caucasian patients
- African American patients are more likely to find a suitable match from African American donors, which typically have lower TNC levels
- Minority patients receive smaller units to a greater extent than Caucasians
- More low TNC NCBI units have been banked for minorities than for Caucasians
- Adult cord blood use in transplant in the United States is static or declining; pediatric and non-malignant cord blood use is increasing in US
- Cord blood transplants in Europe are declining

Findings - HRSA

- HRSA funding is essential to continue the current growth of the inventory
- HRSA funding may influence decisions about what size units to bank
- HRSA funding does influence the diversity of the registry
- Most HRSA funded banks have maintained a TNC cutoff of 90×10^{-7} th
- HRSA funding has provided a larger inventory of diverse UCB units and likely has saved lives

Findings – Registry Characteristics

- The NCBI registry has more minority CBUs than non-NCBI banks
- The registry has many more smaller units than larger units
- Additions to registry have and will continue to incrementally improve matching options
- Due to growth of registry, past patients would now have a greater selection of CBUs
- Additions to registry will incrementally improve cell dose options
- Some banks have shifted to a higher TNC cutoff voluntarily
- European banks are shifting toward a higher TNC cut-off for cost-effectiveness and to match clinical interest in high TNC units

Findings – Bank Perspective

- Based on the survey conducted by NMDP, most banks support a shift to a higher TNC cut-off, but additional compensation would be required to account for the extra resources needed to bank larger units.
- Discussion at Cord Blood Advisory Group confirmed that HRSA funded banks and Transplant Physicians support a shift to an inventory of larger cord blood units
- Extra resources per unit banked are needed to significantly expand collection activity since fewer CBUs will be banked out of the collected units.

Findings – What We Don't Know

- The impact of haplo-identical transplants on demand for CBUs
- The impact of expansion technologies on demand for CBUs
- The impact of alternatives to transplant on demand for CBUs, e.g. CAR T cell therapies
- The impact of regenerative medicine on demand for CBUs
- How any individual bank is impacted by changes in TNC funding by HRSA
- Whether raising the TNC requirements (without any other action) will result in banks collecting and banking more CBUs with higher TNCs

Recommendation

- HRSA should adopt a funding framework that incentivizes the collection of high TNC units for a diverse population and that recognizes higher associated costs
 - Greater incentive to add units to the inventory that have higher TNC, including for minorities, which are associated with better outcomes
 - Recognizes growth and diversity of inventory since its inception and creates incentive to shift banking toward most-needed units
 - Recognizes that per unit reimbursement will need to reflect higher cost per unit banked for higher TNC, minority units
 - Need to expand collection activity
 - Fewer total units will be banked

Recommendation –Example 1

- Goals
 - incentivize collection of high TNC units for diverse populations
 - Increase the pace of adding large units to the inventory
- Use a higher TNC cutoff, e.g.:
 - Minority at 125×10^7
 - Caucasian at 150×10^7
- Recognize that per unit reimbursement will need to reflect
 - Higher cost per unit banked
 - Need to expand collection activity

Recommendation –Example 1 Impact

- Assumes one-third of current per unit subsidy supports collection
- Two-thirds of subsidy not used for processing smaller units will now support new collections or larger units
- Units that would have been banked at 90 TNC: 9,841
- Units that will be continue to be banked at higher cutoffs: 4,911
- Additional larger units collected (\$2,500 subsidy): 1,670
- Net units not banked (smaller units) compared to current: 3,260

Implications of Example 1

- Higher Cell Count Threshold
- Collections will need to be Expanded
- Higher Cost and Reimbursement per Cord Blood Unit Banked
- Current estimates:
 - Approximately one-third of the per unit HRSA subsidy goes to collection
 - A higher threshold means funds not used for banking smaller units will be used to collect larger units
- Net effect
 - Smaller number of total units banked
 - Larger number of large units banked

Recommendation –Example 2

- Goals
 - Continue to bank CBUs with a variety of TNC levels, but incentivize collection of high TNC units for diverse populations
- Adopt a graduated reimbursement framework with higher reimbursement with each sequential group, such as:
 - Group 1: 90 TNC to <125 TNC (Minority) and 125 to <150 TNC (Caucasian) @\$750
 - Group 2: 125 to <150 TNC (Minority) and 150 TNC or more (Caucasian) @\$1,250
 - Group 3: 150 TNC or more (Minority) @\$2,500
- Recognize that per unit reimbursement will need to reflect
 - Higher cost per unit banked
 - Need to expand collection activity

Recommendation –Example 2 Impact

- All minority units above 90 TNC will receive a subsidy
- Units that would have been banked at 90 TNC: 9,841
- Units that will continue to be banked under this example: 8,642
- Additional larger units collected (\$2,500 subsidy): 274
- Net units not banked (smaller units) compared to current: 925

Implications of Example 2

- Higher Cell Count Threshold
- Collections will need to be Expanded
- Higher Cost and Reimbursement per Cord Blood Unit Banked
- Current estimates:
 - Approximately one-third of the per unit HRSA subsidy goes to collection
 - A higher threshold means funds not used for banking smaller units will be used to collect larger units
- Net effect
 - Smaller number of total units banked
 - Larger number of large units banked
 - Incremental growth in number of large units banked
- Less disruptive to some banks, depending on demographics
- May be difficult to administer given the number of ethnic and funding variations

Recommendation - Implementation

- Amend existing contracts within next year rather than rebid
- Increase per unit funding for higher TNC units and for diversity –
 - Continue to focus on diversity
 - Requires expanded collection activity
 - At least doubling of current collection activity depending on populations targeted
 - Recognize that per unit funding will need to increase to add more large minority units
- The HRSA contracts would need to be individualized to fit the accrual targets and patterns of each CB bank

Funding - Approach

- It is recommended that HRSA and cord blood banks commit to pricing that incentivizes the collection and banking of high TNC CBUs for a diverse population, and that provides for higher reimbursement based on increased associated costs for collection and banking. This reimbursement framework provides a greater opportunity for minority patients to have access to higher TNC CBUs, while continuing to support collection of CBUs that can be used by a diverse population. This is particularly important given that some minority patients (particularly African Americans) are more likely to find a suitable match from African American donors, whose CBUs typically have lower TNC levels.

Review of New Collection Practices

- One year to amend contracts
- Review outcomes of new collection practices at approximately 18 months and 3 years after implementation
- Review might include:
 - Inventory of Minority and Caucasian Cord Blood Units
 - Usage of NCBI and non NCBI Cord Units
 - Cord Transplant Outcomes
 - Implementation Issues at the Cord Blood Banks

Demonstration Projects

- HRSA-funded Demonstration Projects offer an important opportunity for cord blood banks to test innovative strategies for increasing their collection and banking of high TNC CBUs for a diverse population. Regardless of the TNC reimbursement threshold set by HRSA, HRSA should take immediate steps to make ample funds available through a Demonstration Project for innovative initiatives that will provide information to the field.

Demonstration Projects

- All cord blood banks be encouraged to participate
- Encourage a wide variety of proposed Demonstration Project models that are intended to improve the applicant bank's collection and banking of high TNC units for a diverse population
- Banks should be encouraged to partner and to submit larger scale projects
- Awards should be for a minimum of 2 years
- HRSA should use an expert review panel to review the projects and award appropriate funding, with opportunities available to suggest panel members with appropriate expertise