gamida cell

# Request for New ICD-10-PCS Codes for the Inpatient Administration of Omidubicel

ICD-10 Coordination & Maintenance Committee Meeting

March 2022

# Omidubicel, an investigational product with potential as a patient-specific donor source for individuals in need of bone marrow transplant

Upon FDA approval, omidubicel will be the first and only FDA-approved, patient-specific advanced cell therapy donor source used for the treatment of patients with hematologic malignancies in need of an allogeneic hematopoietic stem cell (bone marrow) transplant (HSCT)

- Regulatory status:
  - Biologics License Applications (BLA) submission to the US Food & Drug Administration (FDA) is anticipated in first half of 2022
  - Earlier regulatory designations for omidubicel:
    - Orphan drug designation for enhancement of cell engraftment and immune reconstitution in patients receiving HSCT
    - Breakthrough therapy designation for improvement of neutrophil engraftment in patients receiving umbilical cord blood transplantation for hematological malignancies (the primary endpoint in the omidubicel pivotal Phase 3 study)
- Peer-reviewed publication:
  - Results of the global, multi-center, randomized Phase 3 registration study (NCT02730299) were published by Horwitz, et al, *Blood,* October 2021[1]

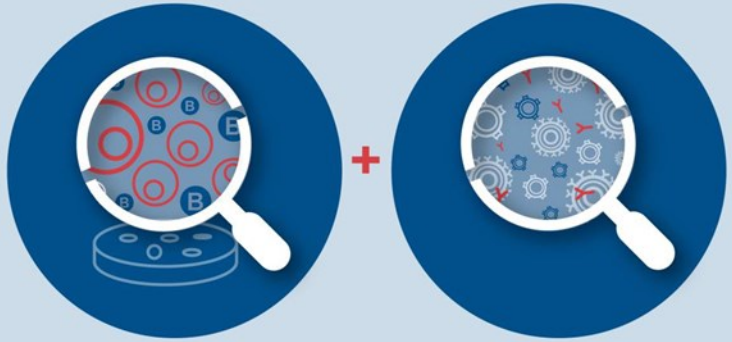
# Gamida Cell has pioneered a new approach with its proprietary nicotinamide (NAM) technology

NAM technology enables metabolic reprogramming of stem cells, allowing for regulated cell proliferation while preserving cell function and stemness which leads to improved *in vivo* homing and *in vivo* engraftment[2]

**Cord Blood Unit (CBU) Selected**

CBU selected by treating physician from public cord blood bank

**Omidubicel**



**Cultured Fraction**

NAM-expanded stem cells cultured using proprietary NAM technology

**Non-Cultured Fraction**

Immune cells, including T cells

**Omidubicel Infusion**

**Scalable manufacturing and delivery of omidubicel (~ 30 days)**

Omidubicel is investigational and safety and efficacy have not been established by any agency.
HSCT, NAM, nicotinamide

# Benefits of NAM technology addresses significant unmet needs with currently available donor sources for allogeneic HSCT

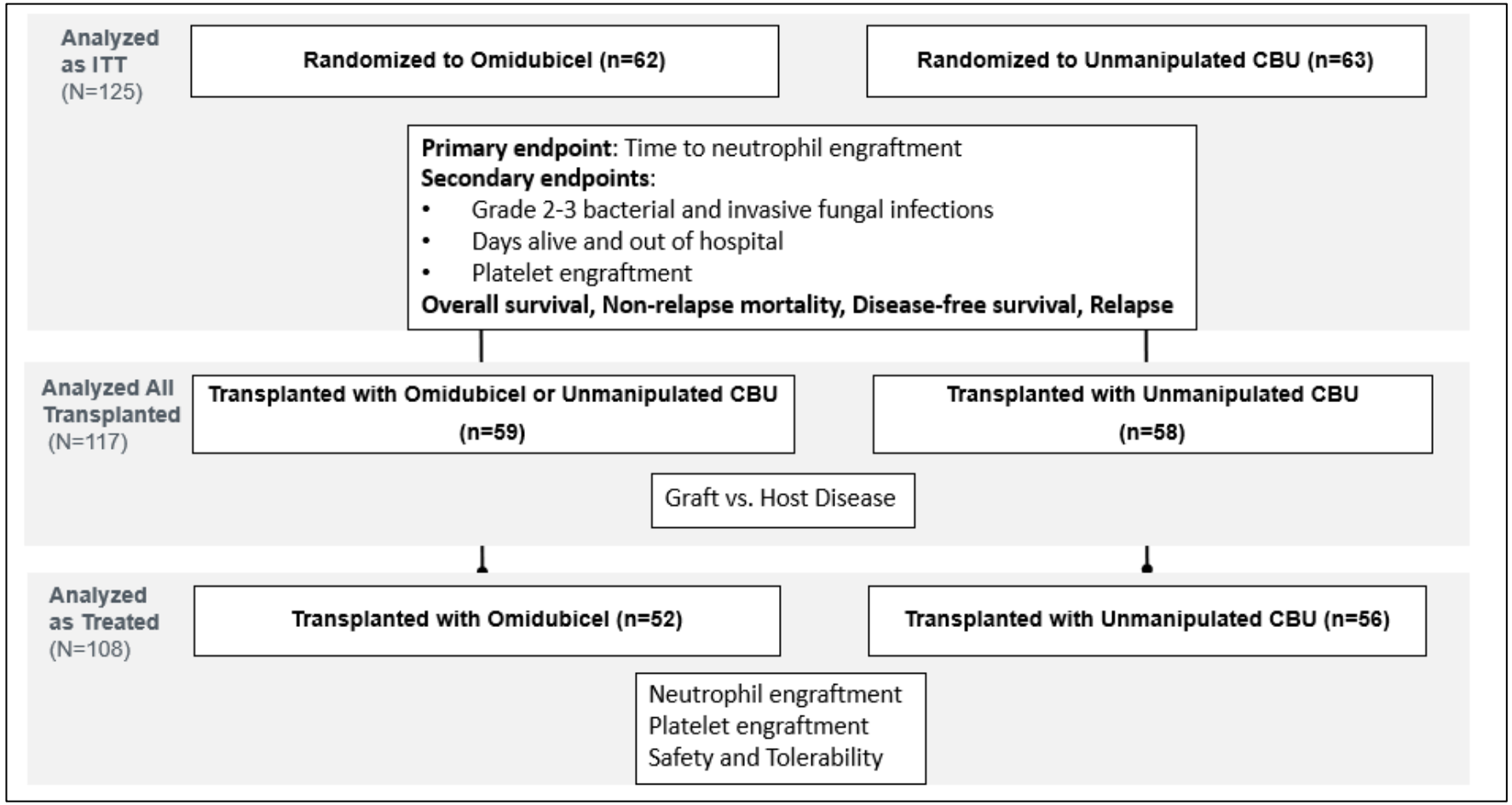
**Omidubicel, a patient-specific, advanced cell therapy donor source, holds the promise to improve access, timing and clinical outcomes**

**Today's Allogeneic HSCT Donor Sources**

- Umbilical Cord Blood (UCB)
- Matched Related Donor (MRD)
- Matched Unrelated Donor (MUD)
- Mismatched Unrelated Donor (mMUD)
- Haploidentical Donor

- **Improve the quality of cells** with high homing potential and ability to repopulate and increase numbers of progenitor cells[2,3]
- **Address key barriers** to the widespread use of umbilical cord blood as a donor source, including **limited or inadequate cell dose for adults and adolescents**[3-5]
- **Lower the donor age of stem cells to favor improved outcomes**[6-9]
  - In an analysis of Center for International Blood & Marrow Transplant Research (CIBMTR) data, donors 30 years of age or less resulted in a statistically significant greater survival outcomes for the patient recipient
- Broaden the **accessibility of unrelated donor** HSCT in a timely manner to patients who lack a matched sibling or related donor option and who would otherwise not be eligible for the curative approach of HSCT[10-13]
  - **Allow for less stringent human leukocyte antigens (HLA) matching** requirement
  - **Increase accessibility** for patients to find a match
  - **Address health disparities** associated with donor availability in the racial and ethnic minority population

# Omidubicel was evaluated in a global, randomized Phase 3 study across 33 sites




CBU, cord blood unit; ITT, intent to treat

Phase 3 demographics and baseline characteristics were well-balanced in the two study arms

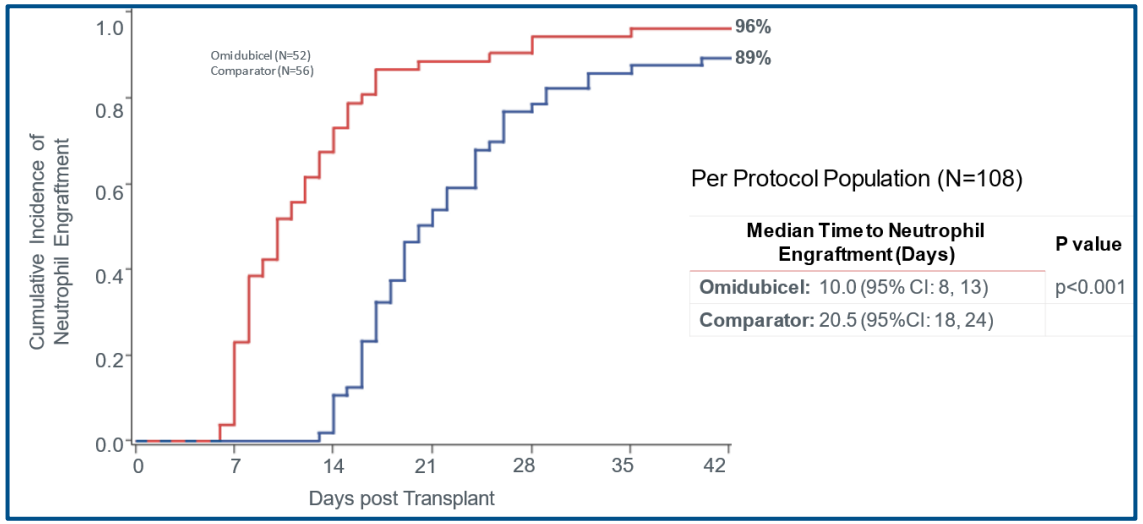
# Omidubicel demonstrated highly statistically significant and clinically meaningful faster recovery of neutrophils, key infection fighting white blood cells

**Omidubicel reduced the median time to neutrophil recovery by 10 days.**
**Faster neutrophil engraftment was robustly consistent across the different Phase 3 analysis populations.**

| Intent to Treat | Median Time to Neutrophil Engraftment (Days)* | 95% CI | |
|---|---|---|---|
| **Omidubicel (N = 62)** | 12.0 | (10.0, 14.0) | p<0.001** |
| **Control arm: unmanipulated CBU (N=63)** | 22.0 | (19.0, 25.0) | |

CBU, cord blood unit; CI, confidence interval; ITT, intent to treat
*Patients not transplanted or who do not engraft on/before Day 42 post-transplant were assigned to Day 43
**Mann-Whitney test
Source: Horwitz ME, et al. *Blood* 2021[1]

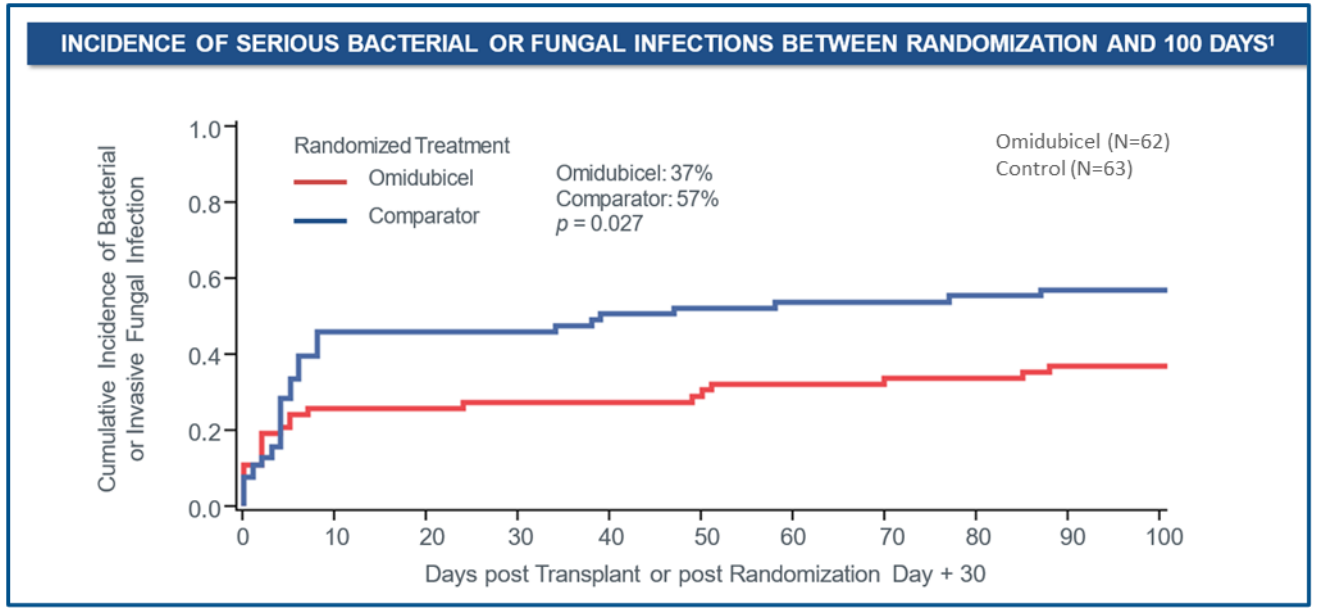
**Phase 3 Study Day 42 Neutrophil Engraftment (AT, N = 108)**




AT, as-treated; CI, confidence interval; Comparator, unmanipulated cord blood unit transplant
Source: Horwitz ME, et al. *Blood* 2021;[1] Horwitz ME, et al. TCT 2021[14]

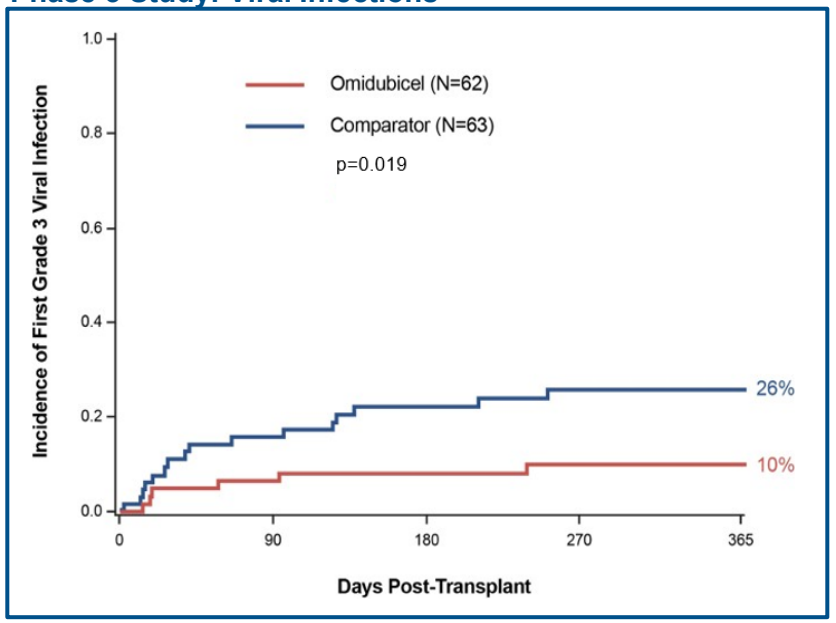
# Transplantation with omidubicel results in statistically significant lower incidence of Grade 2/3 bacterial or invasive fungal infections and a lower risk of viral infections

**These findings indicate a robust recovery of immune function following transplantation with omidubicel, supporting the biological link between neutrophil recovery and infections and further emphasizes the importance of rapid neutrophil recovery post-transplant.**




1. Proportion (%) of patients with any grade 2-3 bacterial infection or invasive fungal infection between randomization and 100 days following transplantation
Comparator / Control, unmanipulated cord blood unit transplant
Source: Horwitz ME, et al. *Blood* 2021[1]

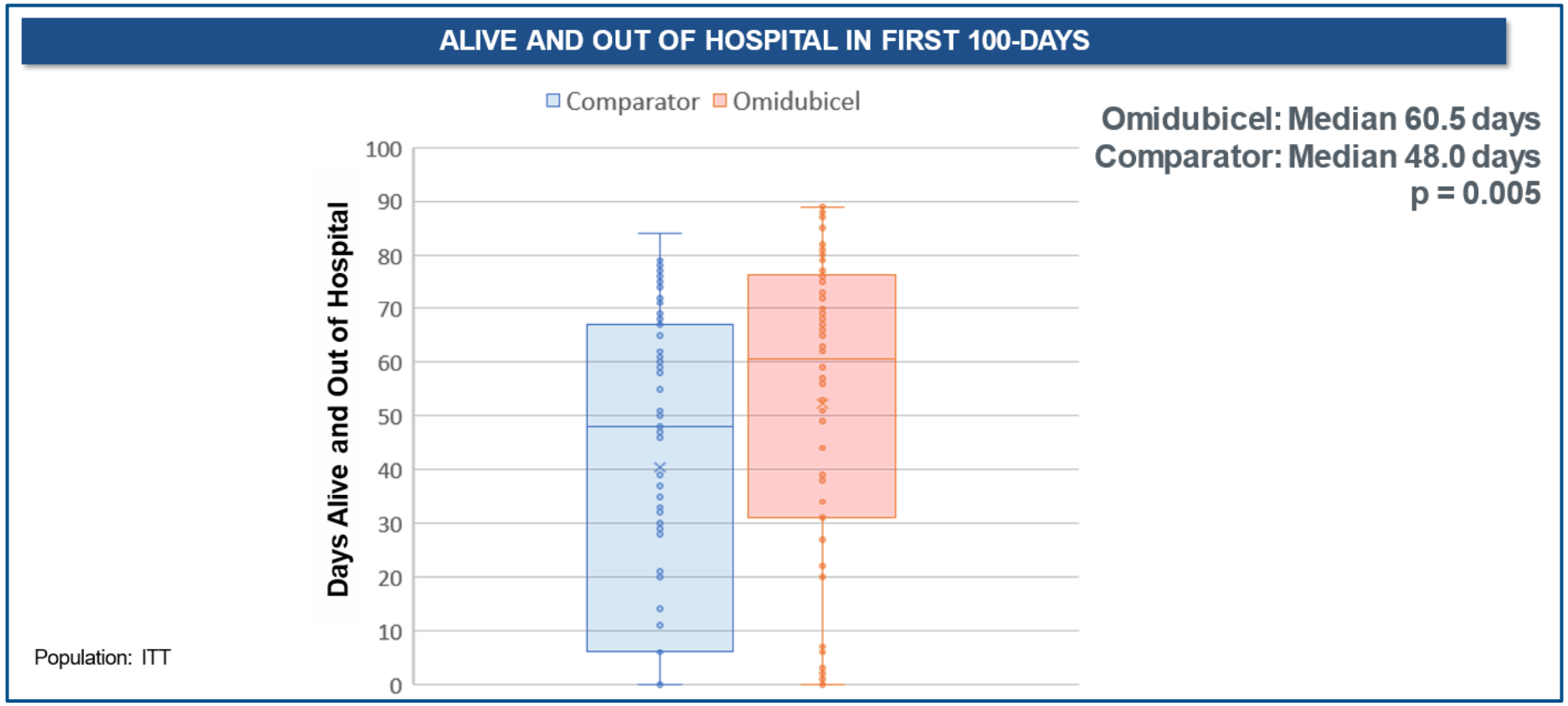
**Phase 3 Study: Viral Infections**




Comparator, unmanipulated cord blood unit transplant
Source: Horwitz ME, et al. *Blood* 2021;[1] Horwitz ME, et al. TCT 2021[15]

# Omidubicel provides a clinically meaningful advantage in improving the number of days patients spend alive and out of hospital in the first 100 days after transplant

**The first 100 days after transplant are critical to the patient's health and survival.**
**Improved days alive and out of hospital is reflective of the substantial clinical improvement demonstrated by rapid neutrophil engraftment and hematopoietic recovery, spanning both neutrophil and platelet engraftment, and is consistent with the decreased occurrence of infections.**




Comparator, unmanipulated cord blood unit transplant; ITT, intent to treat.
Source: Horwitz ME, et al. TCT 2021[14]

# The overall beneficial risk/benefit profile of omidubicel transplantation is further supported by assessments of safety, relapse and survival

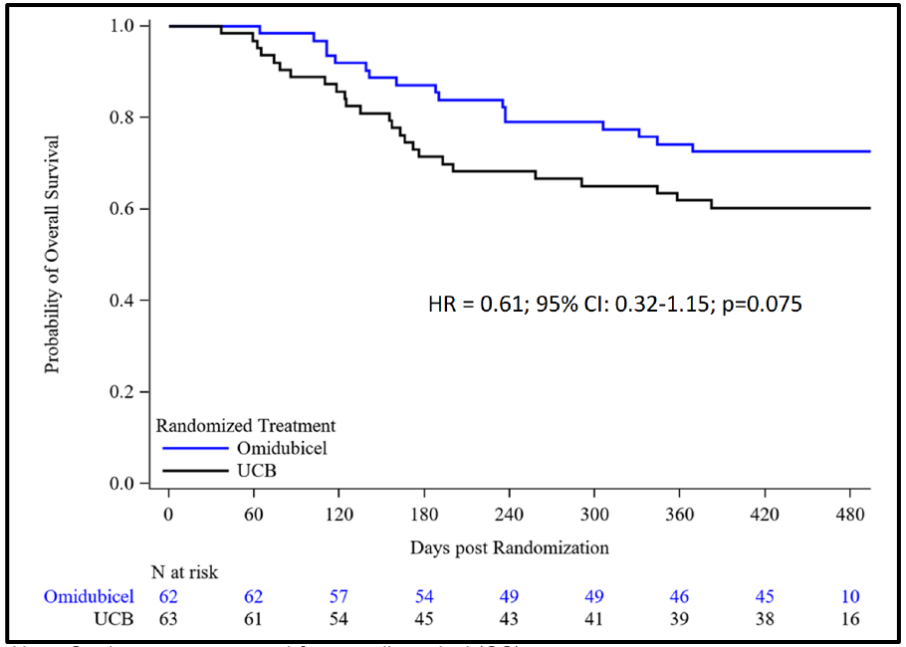
- Overall, the frequency of **Grade 3 or higher treatment-emergent adverse events (TEAEs)** was either similar or lower for omidubicel than for unmanipulated cord blood.

- **Serious adverse events (SAEs)** were reported in 88.5% (N=46) of omidubicel patients and 91.1% (N=51) of unmanipulated CBU patients and were consistent with events expected for patients receiving allogeneic HSCT from any donor source.[1]
  - Overall, 46.2% (N=24) and 51.8% (N=29) of patients had a TEAE related to omidubicel or unmanipulated CBU, respectively. In comparison, 21% (N=11) of omidubicel patients had a treatment-emergent death whereas 32% (N=18) of unmanipulated CBU patients had a treatment-emergent death.[1]

- The outcomes of **acute and chronic GvHD** demonstrated no statistically significant difference;[1] rates were similar to CBU control arm
  - Transplants with CBU have historically shown to result in low incidence of GvHD in relation to other graft sources.
  - Thus, while **NAM enhancement takes away some of the negative attributes** of unmanipulated cord blood donor source, i.e., delay in engraftment and long hospitalization, it **does not come at a cost of increase in GVHD**.

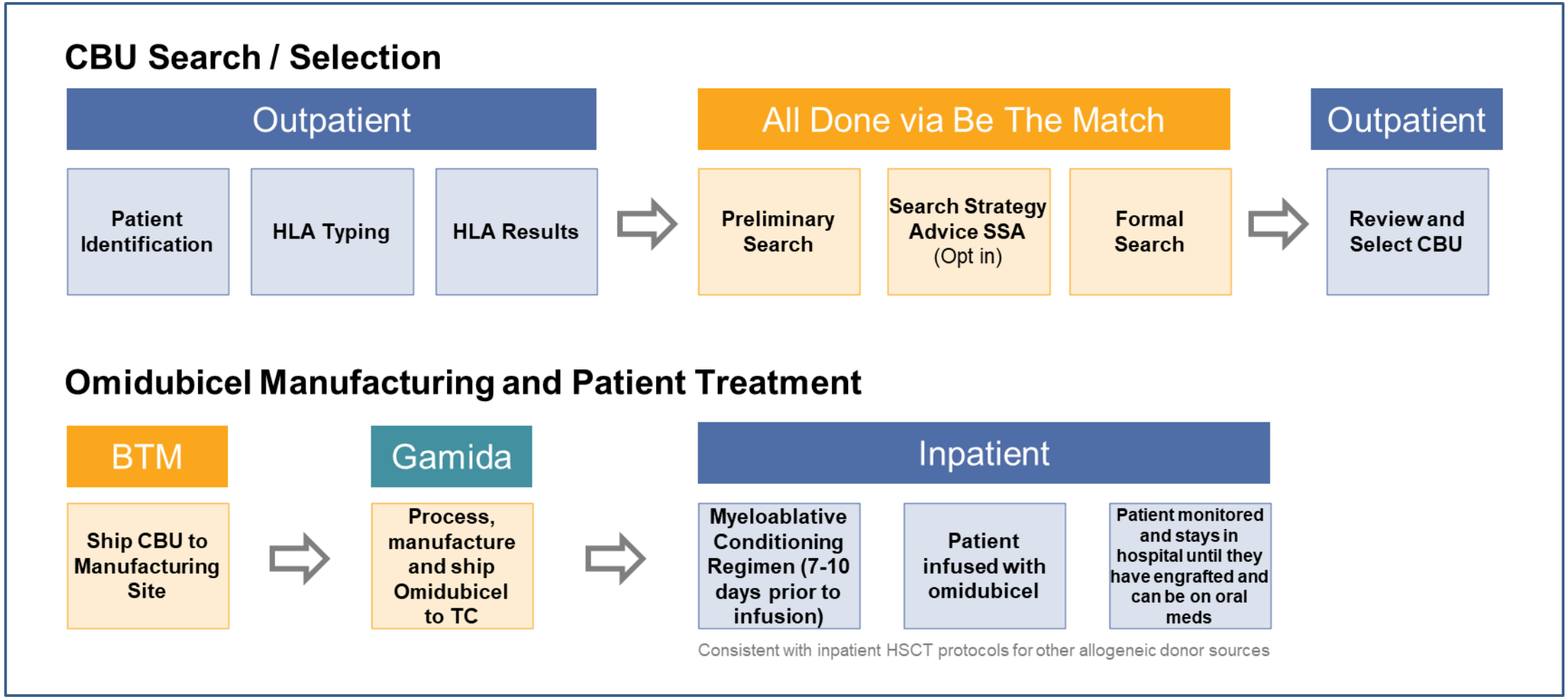
- Results from exploratory assessments support the **overall beneficial risk/benefit profile** for patients randomized to omidubicel, including
  - Non-relapse mortality
  - Relapse and relapse mortality
  - Overall survival

**Overall Survival by 15 Months following randomization (ITT population)**




Note: Study was not powered for overall survival (OS)
ITT, intent to treat; UCB, umbilical cord blood
Source: Horwitz ME, et al., accepted as oral presentation at TCT, Febuary 2022[15]

# Time for processing, manufacturing and shipment of omidubicel, a patient-specific, advanced cell therapy donor source, is ~ 30 days



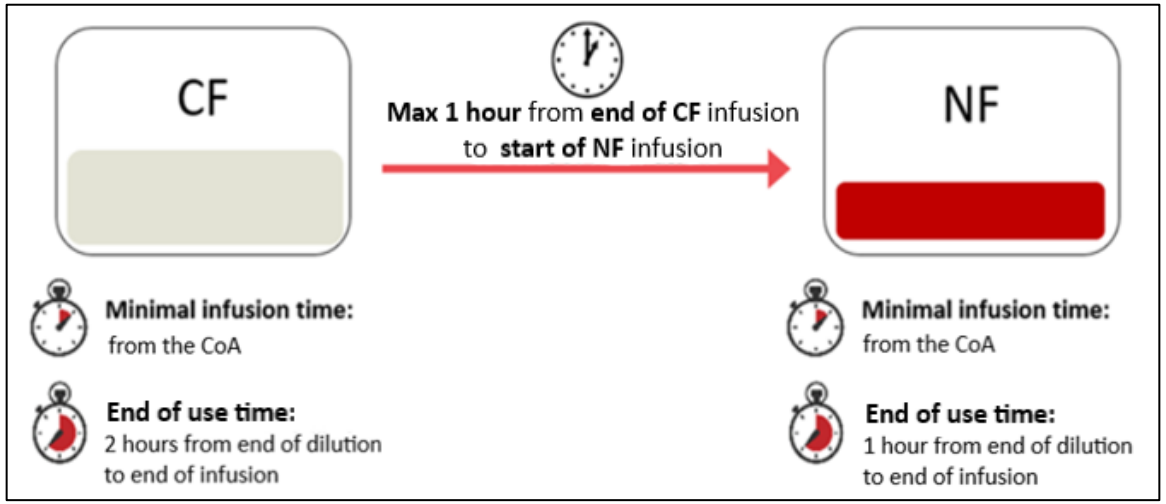

Note: Gamida Cell has a commercial agreement with Be The Match, including acquisition of the CBU
CBU, Cord Blood Unit; HLA, human leukocyte antigen; TC, treatment center

# There is no ICD-10-PCS code to identify omidubicel, an advanced cell therapy, when administered as an allogeneic HSCT donor source in the inpatient setting

**Omidubicel dosing:**

- A single dose of omidubicel contains:
  - Cultured Fraction (CF): a minimum of 8.0 x $10^8$ total viable cells with a minimum of 7.0% (5.6 x $10^7$) CD34+ progenitor cells suspended in approximately 10% DMSO at the time of cryopreservation
  - Non-cultured fraction (NF): a minimum of 4.0 x $10^8$ total viable cells with a minimum of 2.4 x $10^7$ CD3+ cells suspended in approximately 10% dimethyl sulfoxide DMSO at the time of cryopreservation

**Omidubicel Administration Instructions**




CF, cultured fraction; CoA, Certificate of Analysis; NF, non-cultured fraction

**Omidubicel administration:**

- Omidubicel is available as cell suspension for intravenous infusion. Central venous access is recommended. Infusion is to be given by gravity without infusion pump support.
- A single dose of omidubicel contains 2 separate infusions that must be prepared from 2 cryopreserved cell suspension bags that are thawed and diluted prior to infusion with their dedicated Infusion Solutions.
  1) Omidubicel cultured fraction (CF): a suspension of allogeneic, expanded, hematopoietic CD34+ progenitor cells
  2) Omidubicel non-cultured fraction (NF): a suspension of allogeneic non-expanded, hematopoietic mature myeloid and lymphoid cells from the same cord blood unit
- Both fractions must be kept frozen in the vapor phase of liquid nitrogen (LN) until the patient is ready for infusion. The fractions must be thawed and then infused in a consecutive manner: CF followed by the NF

**The omidubicel donor source infusion procedure will be documented in the transfusion medical record in the same manner as other allogeneic HSCT donor sources.**

# Omidubicel meets a high unmet treatment need for patients with serious, life-threatening hematologic malignancies in need of allogeneic HSCT

- The global, multi-center, randomized Phase 3 study demonstrated the **feasibility and safety of delivering a personalized, advanced cell therapy for use as an allogeneic HSCT donor source to transplant centers around the world.**

- Omidubicel provides **high quality stem cells, highly statistically significant clinical improvement, with a beneficial risk/benefit profile**: faster neutrophil engraftment and hematopoietic recovery, immune recovery and reduced early transplant-related complications.

- Importantly, omidubicel has the potential to provide **reliable access to a life-saving transplant for a diverse group of patients** with serious, life-threatening hematologic malignancies in need of allogeneic HSCT, including the currently underserved racial and ethnic minorities.

- **Omidubicel may be considered as a new standard of care for patients 12 years and older**.

# References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15. Horwitz ME, et al. Accepted as oral presentation at the Transplantation & Cellular Therapy (TCT) Meetings of the American Society of Transplantation and Cellular Therapy (ASTCT and Center for International Blood & Marrow Transplant Research (CIBMTR), February 2022.