

Stem cells: Your future?



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Cryo-Save 
The Family Stem Cell Bank

www.cryo-save.com



Who we are...

Umbilical Cord Blood and umbilical cord tissue are rich sources of haematopoietic and mesenchymal stem cells. The importance of their current therapeutic applications and their huge future potential make cryo-preservation of these cells an option for future therapeutic use.

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No. 1 in Europe

260,000 samples stored

13 years of experience

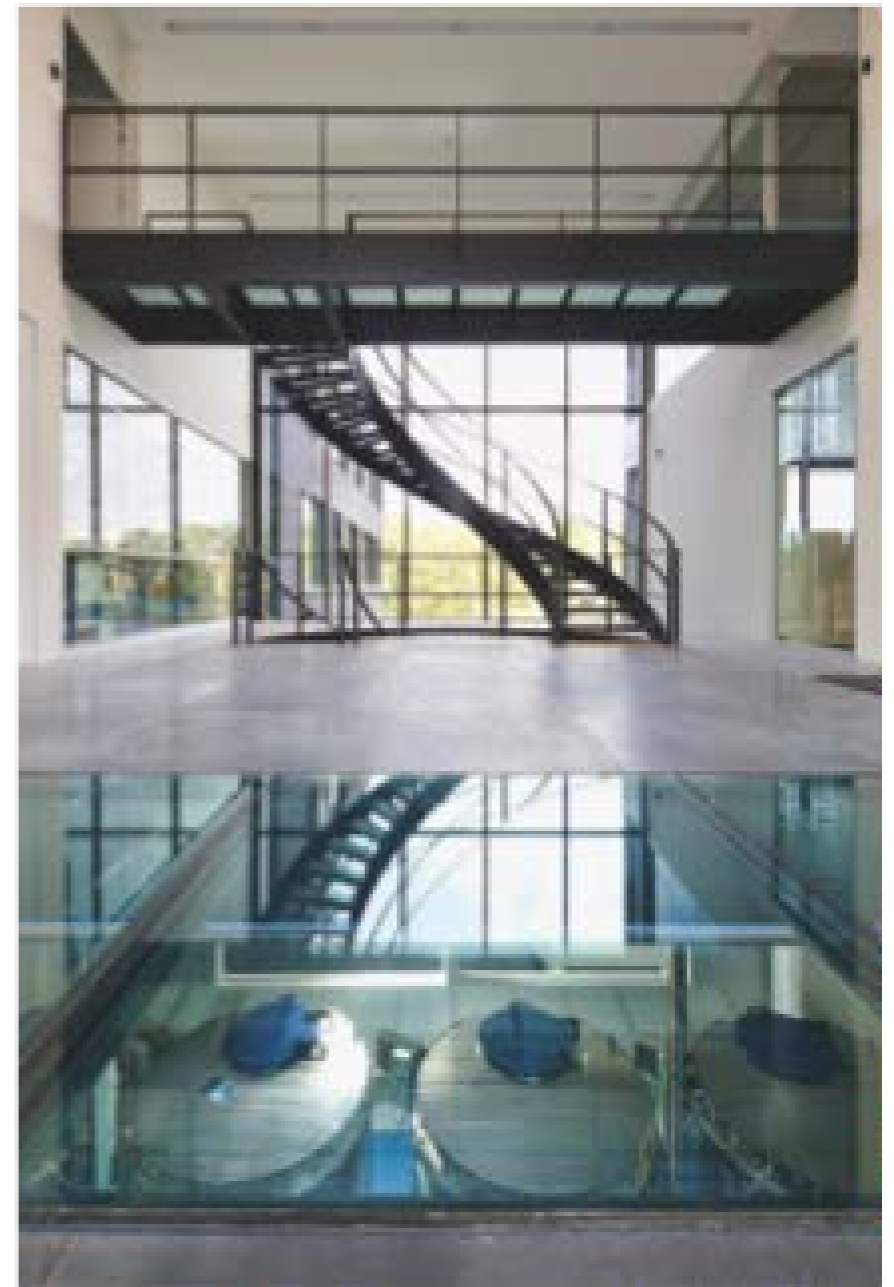
Cryo-Save

- An **International Group** that owns **5 facilities** and operates in over **40 countries**
- A completely transparent company **listed on the Amsterdam Stock Exchange.**

Cryo-Save

The **most trusted** family stem cell bank that in Europe:

260,000+ samples stored



Cryo-Save

The **flagship laboratory in Belgium** is one of the greatest values of this company.



Cryo-Save

The team consists of more than **260 professional experts**, with a dedicated **Medical Team** to address daily operational matters as well as release of stored samples which are to be used for therapeutic purposes.



Cryo-Save

Security is the basic fundamental on which all of our protocols are founded.

Not only in the storage of stem cells, but also in treating the information associated with them.



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Stem cell industry



Stem Cell Industry



Global Stem Cell Industry

- The global market for stem cell products was **\$3.8 billion in 2011**. This market was expected to reach nearly **\$4.3 billion in 2012** and **\$6.6 billion by 2016**, increasing at a compound annual growth rate (CAGR) of 11.7% from 2011 to 2016.
- The American market for stem cell products was **\$1.3 billion in 2011**. This sector is expected to rise at a CAGR of 11.5% and reach nearly **\$2.3 billion by 2016**.
- The European market for stem cell products was **\$872 million in 2011** and is expected to reach nearly **\$1.5 billion by 2016**, a CAGR of 10.9%.



Trials on offer “a-la-carte”

- Locomotor injuries: articular surface repair (knee, hip, neck...), tendon/ligament treatments, muscular therapy...
- Cardiovascular: post-AMI therapies, myocardial disorders, valvular replacements, aortic arch therapies...
- Immune disorders: Multiple Sclerosis, Diabetes mellitus type 1
- Neurological disorders: CP, HIE, acquired hearing loss, congenital malformations, Alzheimer's, other dementias.....

What is treatable now?

- Currently available stem cell therapies have been available for a number of years. There currently over 80 various conditions treatable, however they fall within narrow field of haematology.
- Most of therapies and protocols focus on allogeneic transplantations due to aetiology of disorder.
- Utilisation of autologous therapies as of yet limited.

What are the sources of SC material?

- Three major sources of haematopoietic stem cells are:
 - Umbilical cord blood
 - Bone marrow
 - Peripheral blood

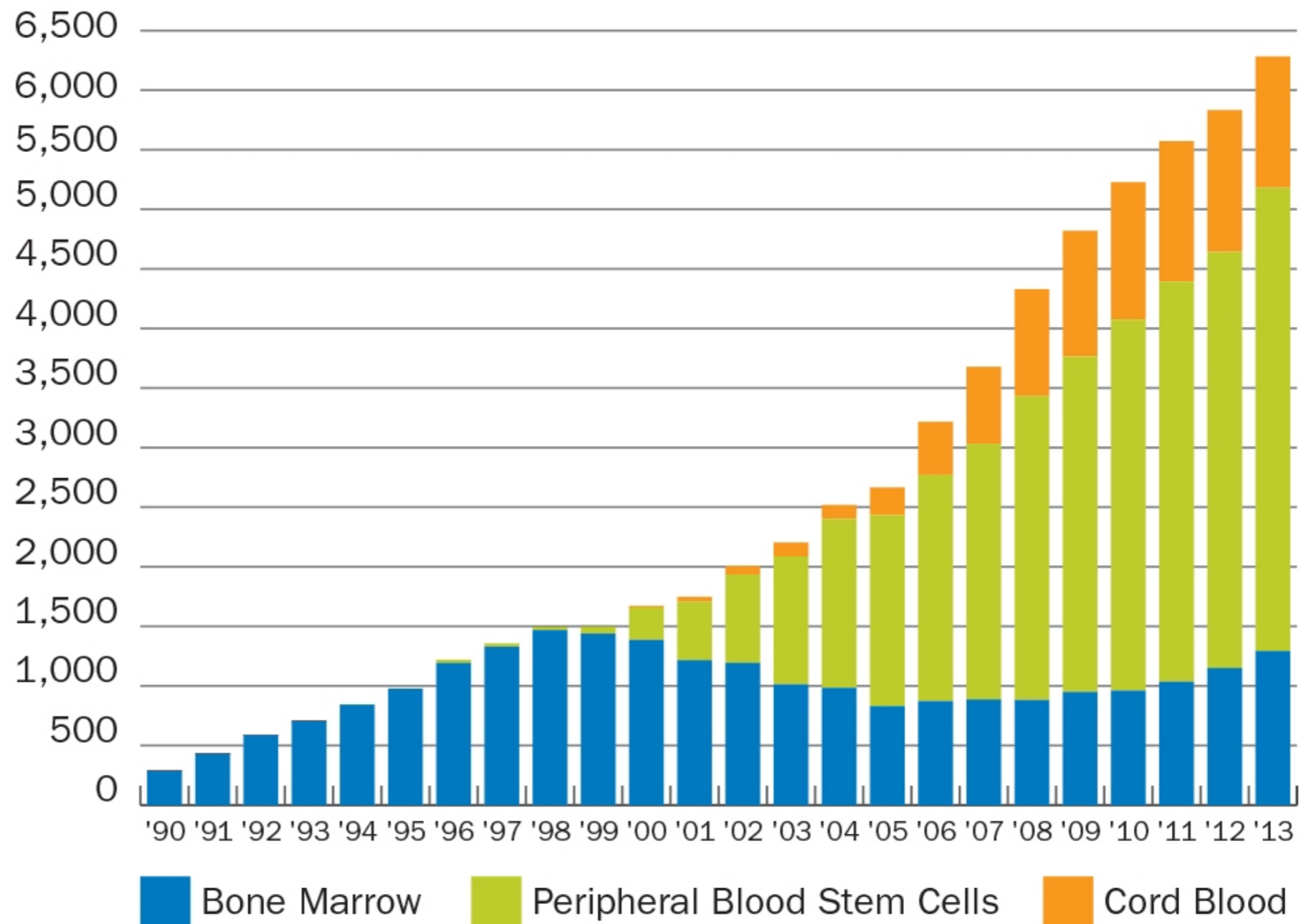
What are the sources of SC material?

- **Umbilical cord blood** limited in application due to limited dosage of the cellular material available. These issues are currently being overcome by cellular expansion, and clinical trials using such manipulated material are underway around the world.
- **Bone marrow** is a traditional source of stem cells. Collection is unpleasant and carries inherent risk with it. Broxmeyer et al. have stated that umbilical cord blood can serve as a viable alternative to bone marrow in all current therapeutic applications, once dosage limitations are overcome.
- **Peripheral blood** is still considered as a major adult source of haematopoietic stem cells, and is widely being used.

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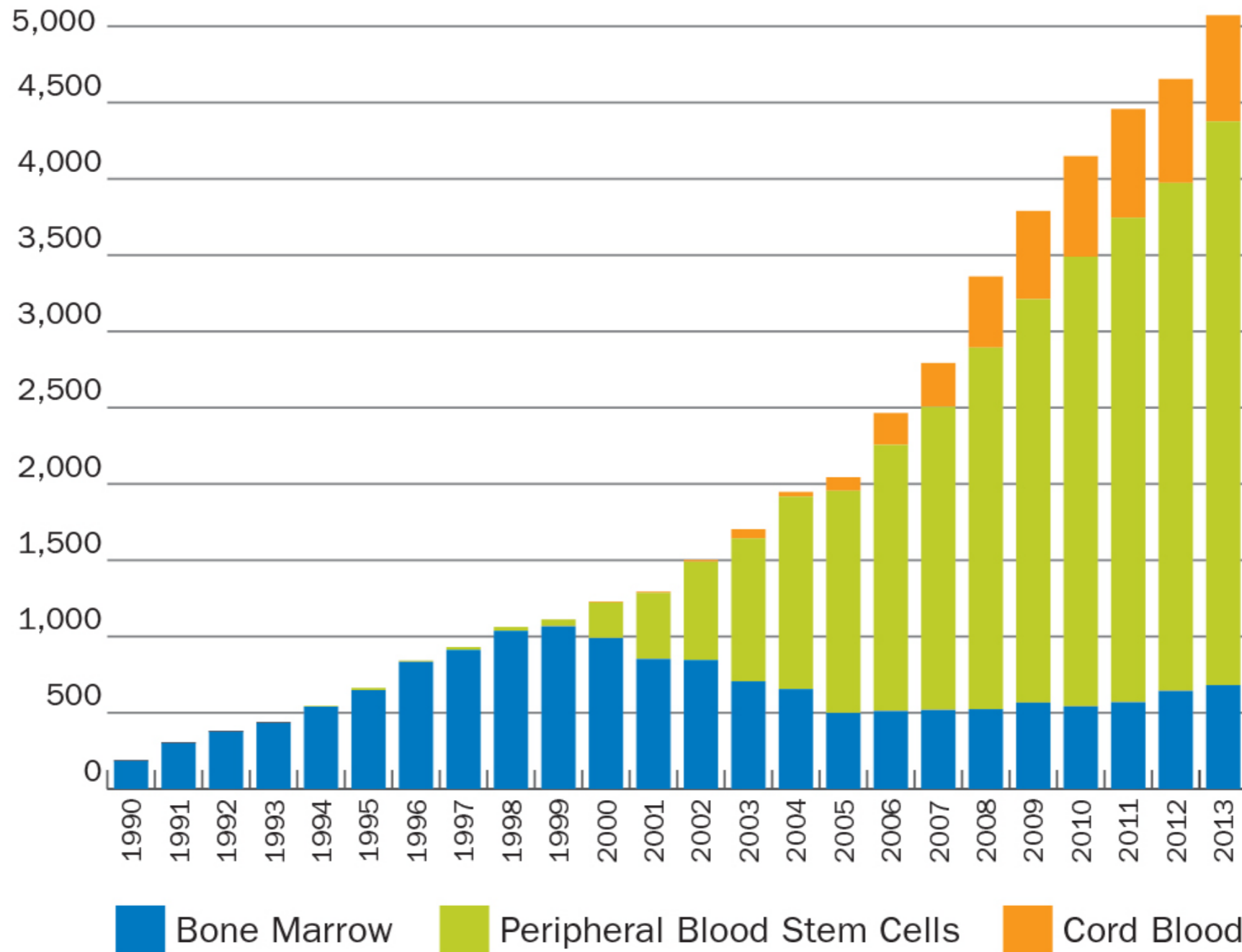
Transplants by Cell Source



Source: National Marrow Donor Program/Be The Match FY 2013

Transplants by Cell Source

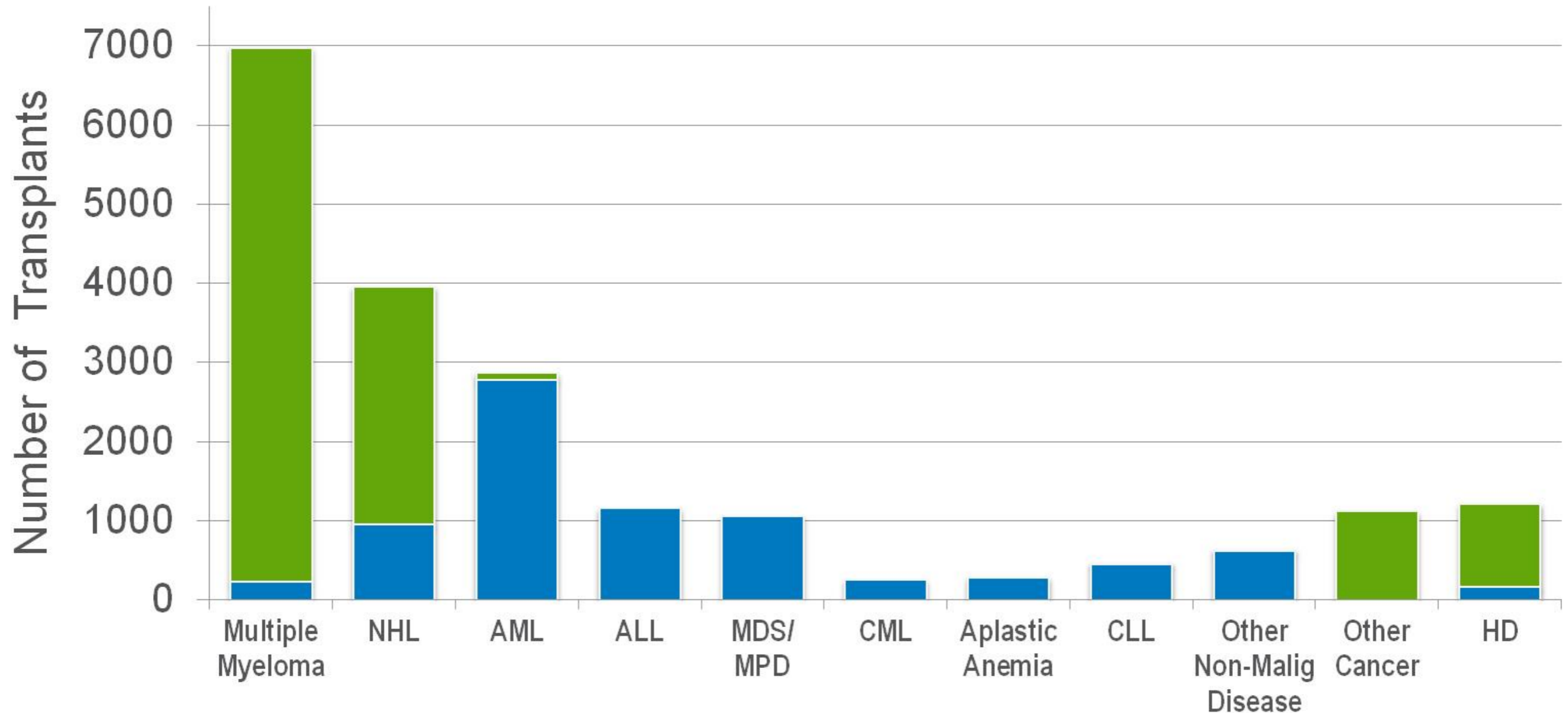
Adult Recipients (18 years and older)



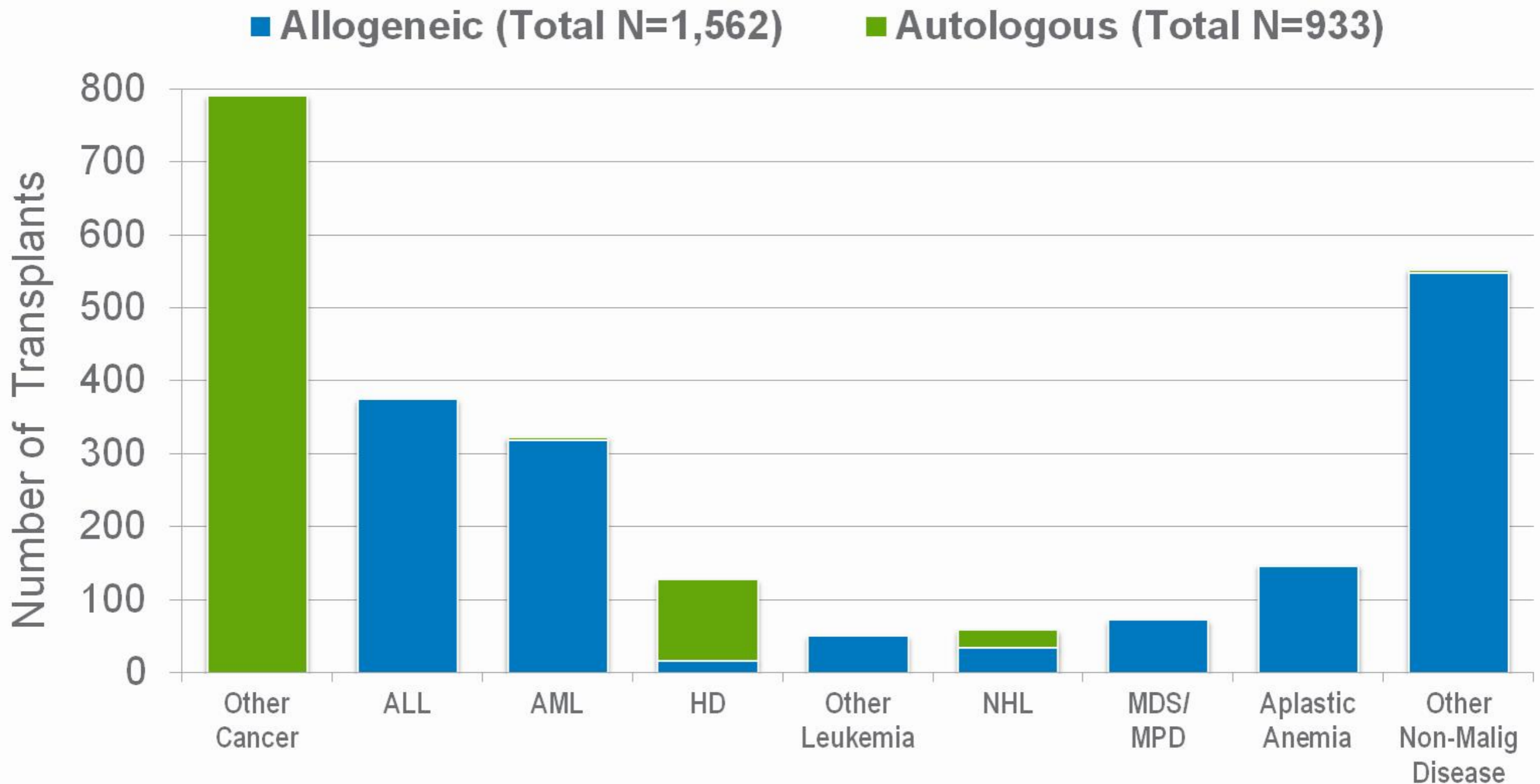
Indications for Hematopoietic Stem Cell Transplants in the US, 2011

■ Allogeneic (Total N=7,892)

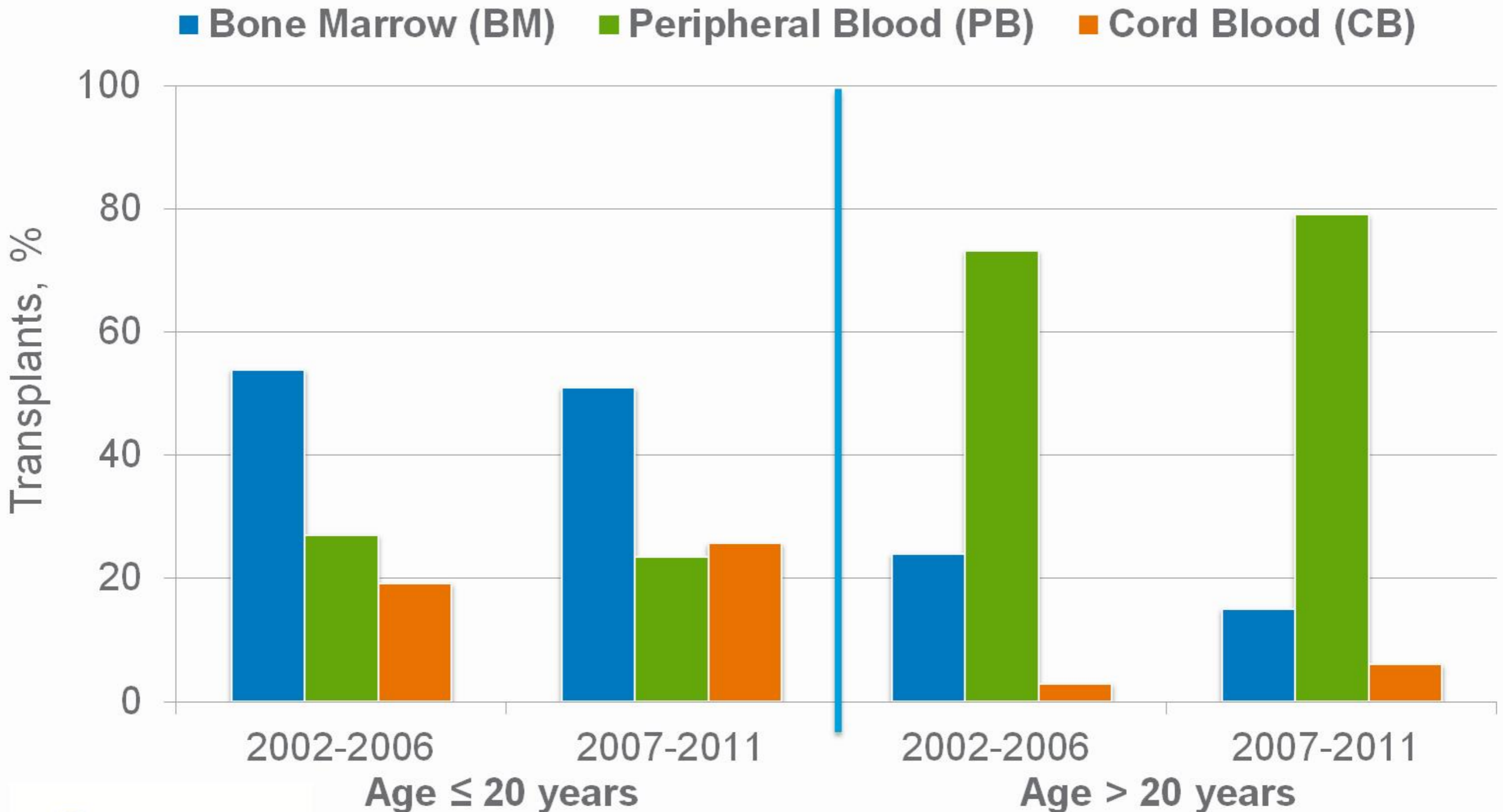
■ Autologous (Total N=12,047)



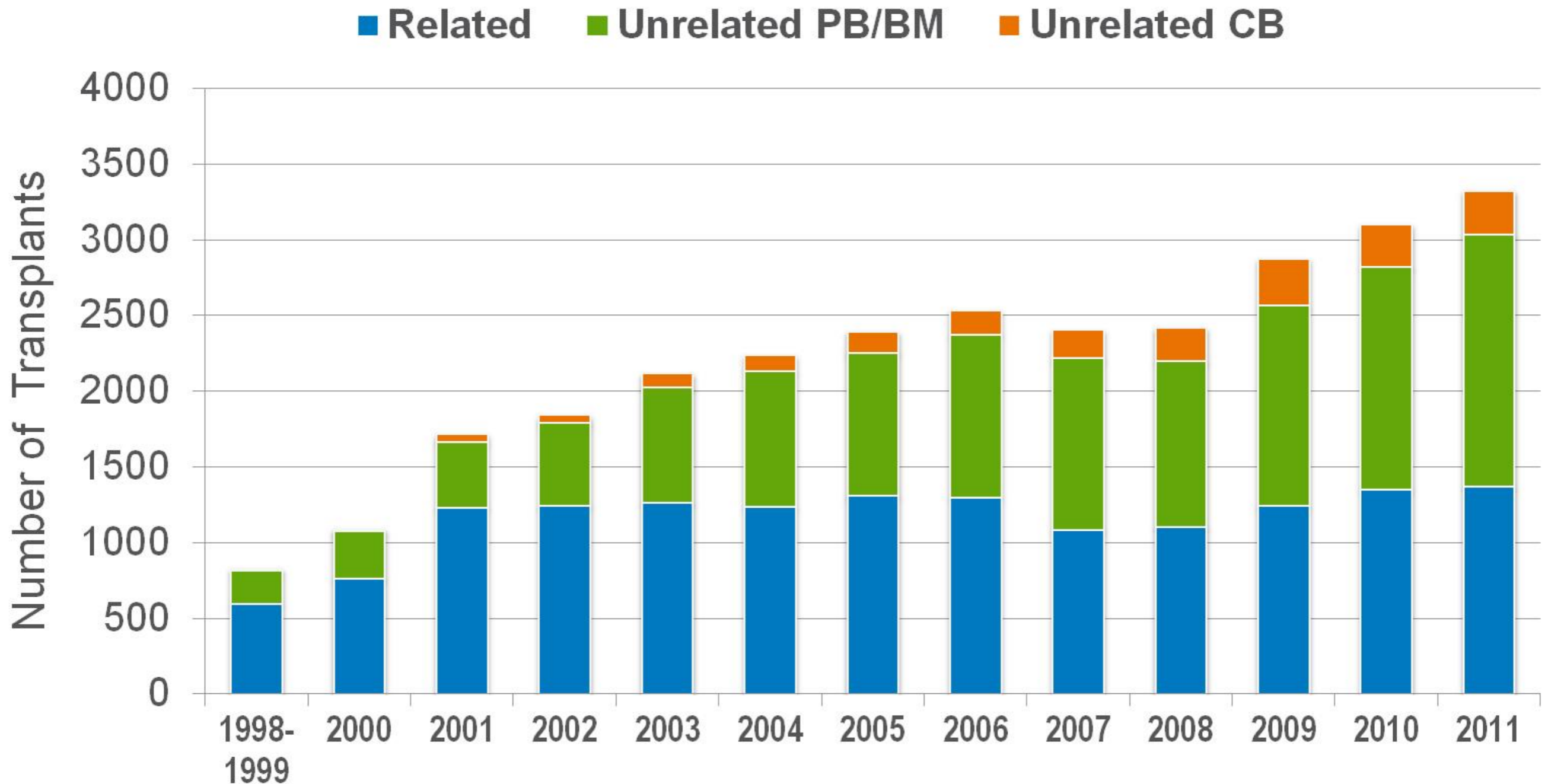
Indications for Hematopoietic Stem Cell Transplants for Age ≤ 20 years, in the US, 2011



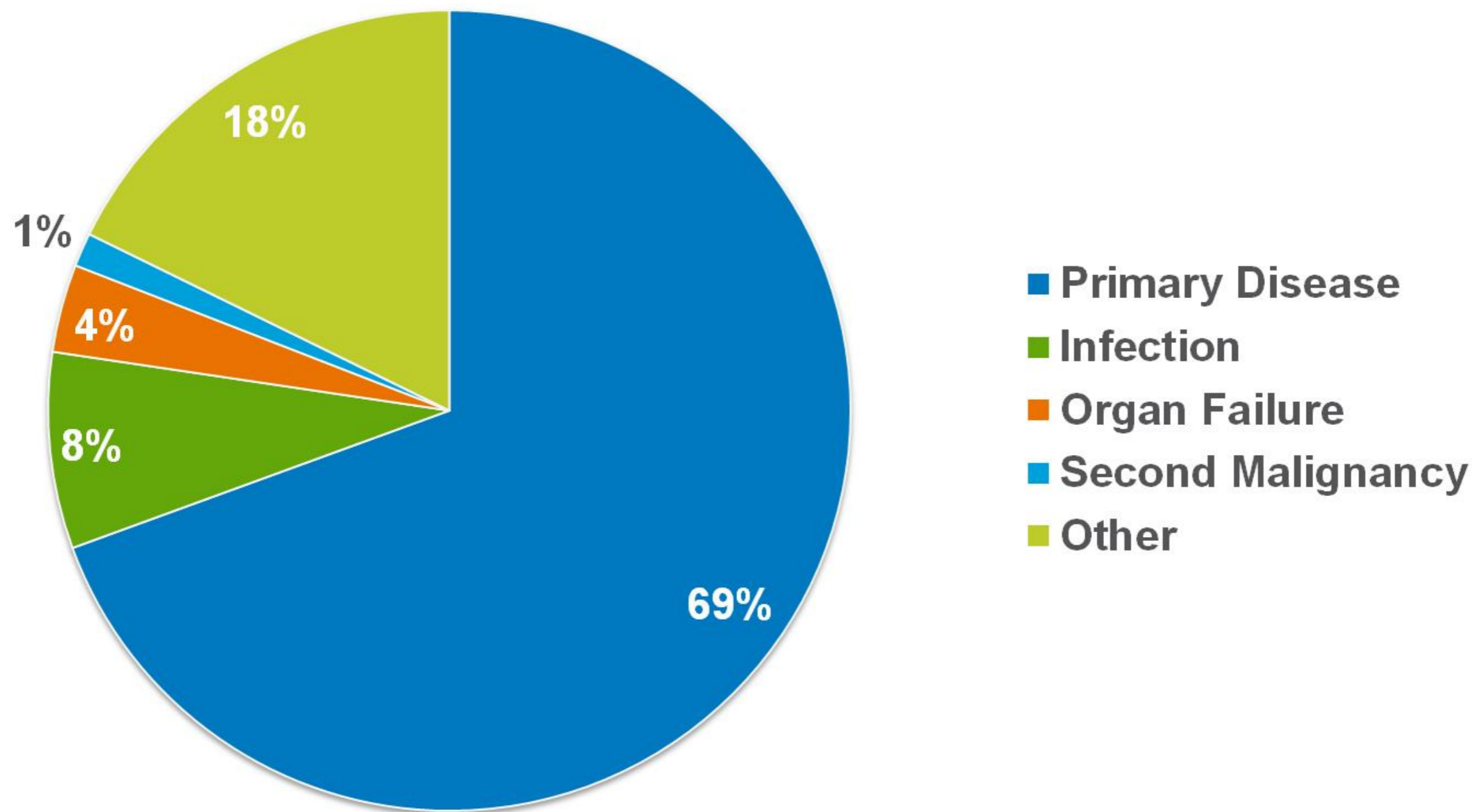
Allogeneic Stem Cell Sources by Recipient Age



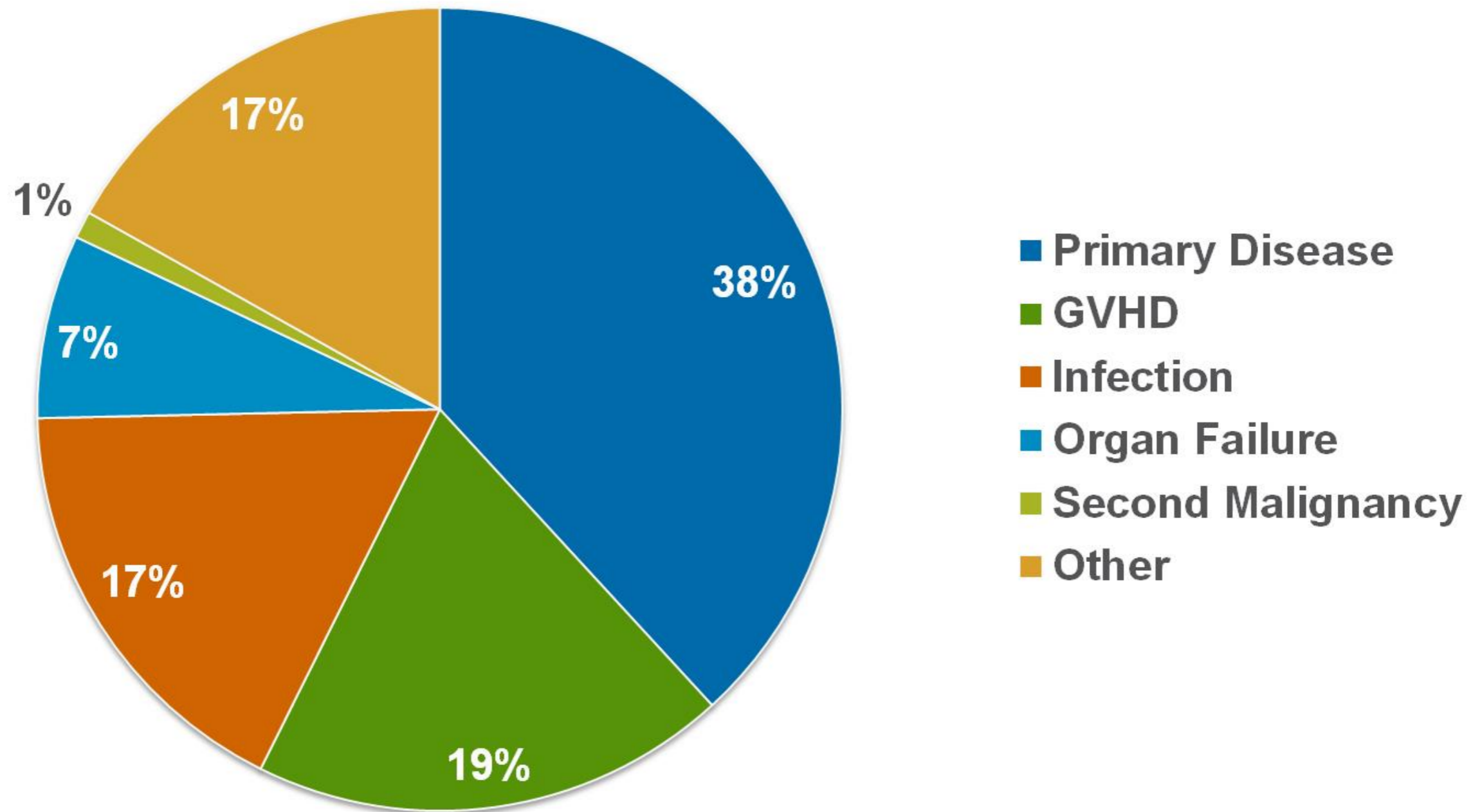
Allogeneic Transplants after Reduced Intensity Conditioning, by Donor Type, Registered with CIBMTR



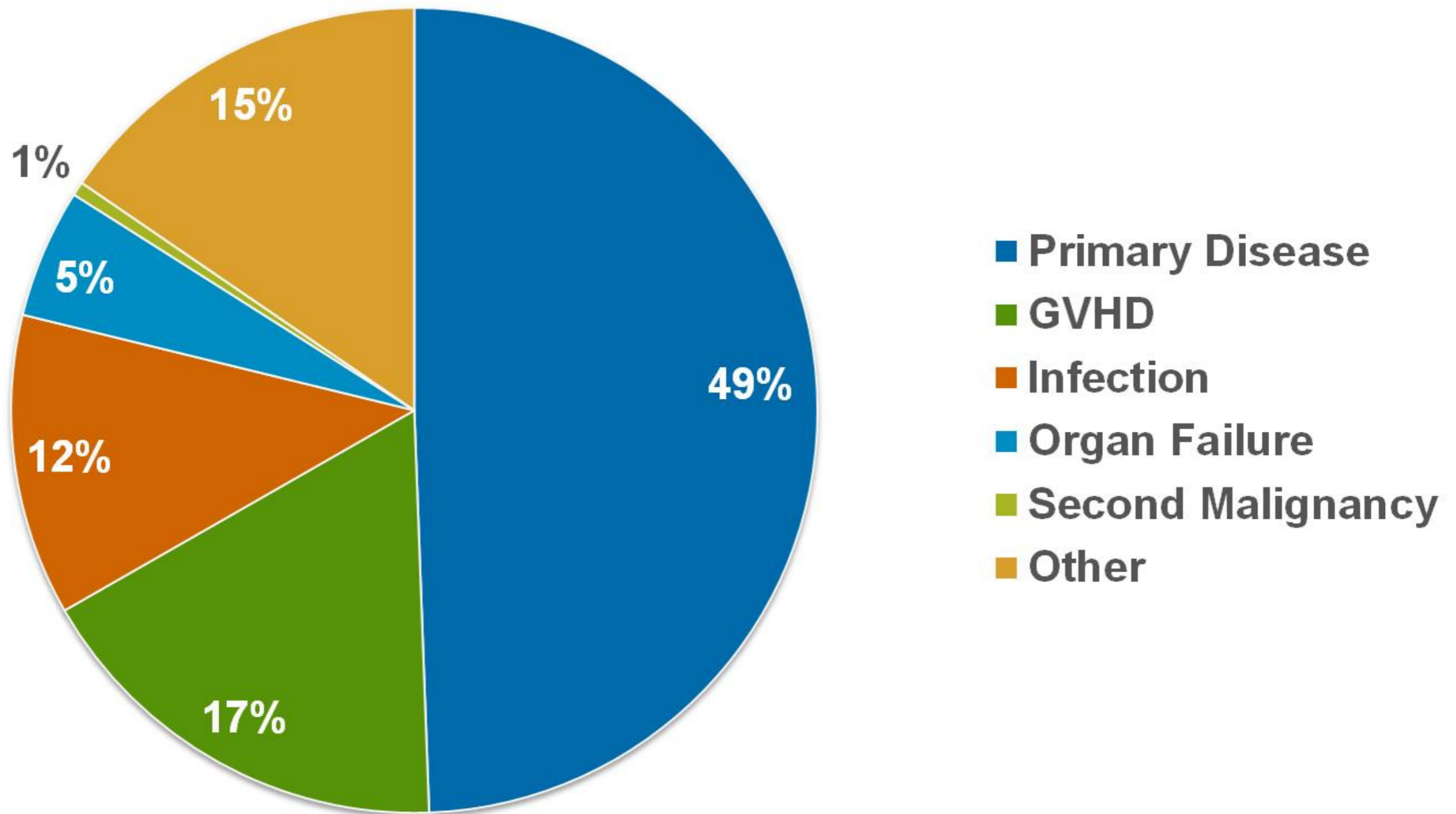
Causes of Death after Autologous Transplants done in 2010-2011



Causes of Death after Unrelated Donor Transplants done in 2010-2011

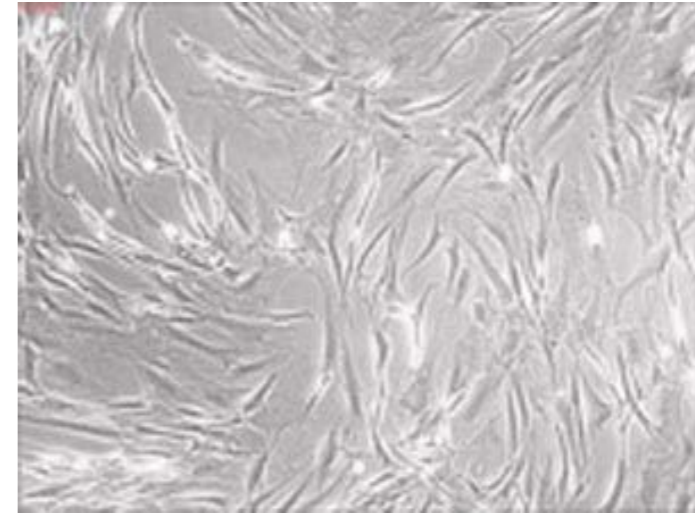


Causes of Death after HLA-identical Sibling Transplants done in 2010-2011

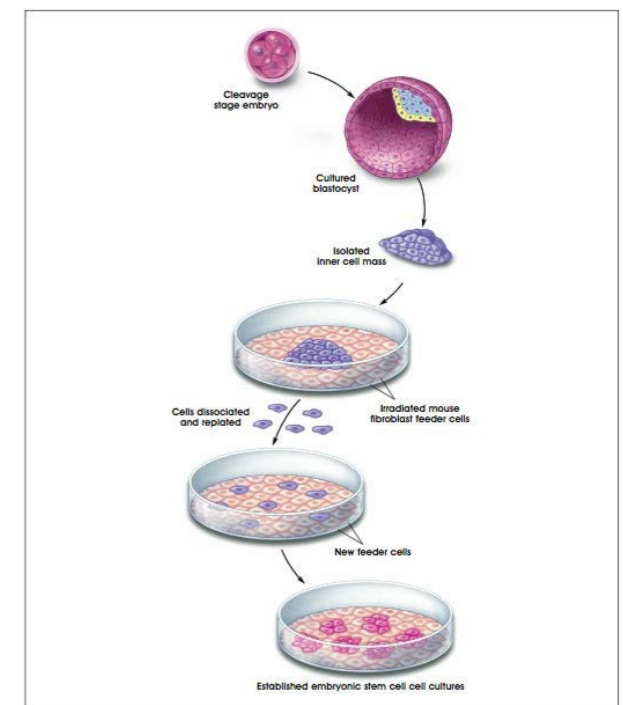
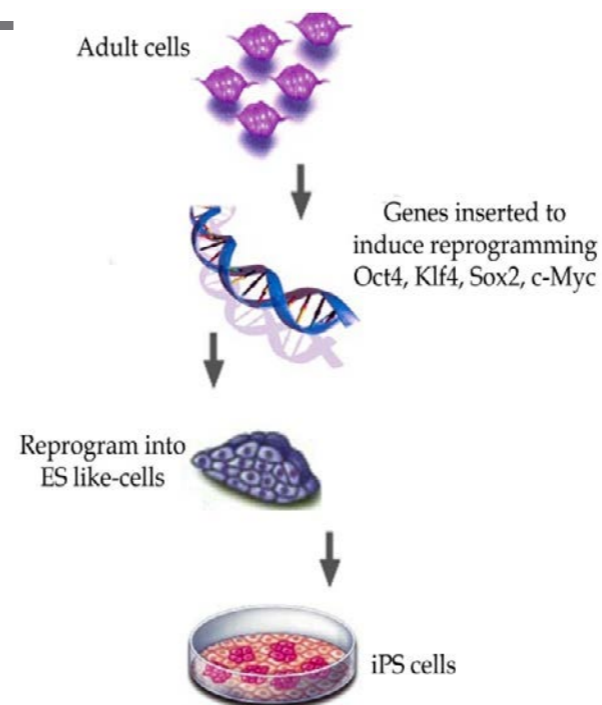


Alternative stem cell sources

- Adipose Tissue (MSC)
- Umbilical cord tissue (MSC)



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- Induced Pluripotent SC
 - Embryo (ESC)



Physician Dilemma

- Primum non nocere!
- Therapies are questionable
- Location
- Outcome implications



What do I do now?!?!?!?!?

Patient Dilemma

- Finally! A solution!
- My doctor will surely know.....
- I found great references, so why is he/she denying me this opportunity?
- Securing the funds
- Outcome



What do I do now?!?!?!?!?

Authorities Dilemma

- Following of current and advanced therapeutic applications
- Adequate regulation/accreditation
- Diligent monitoring of activities
- Maintaining the wellbeing of population

What do WE do now?!?!?!?!?

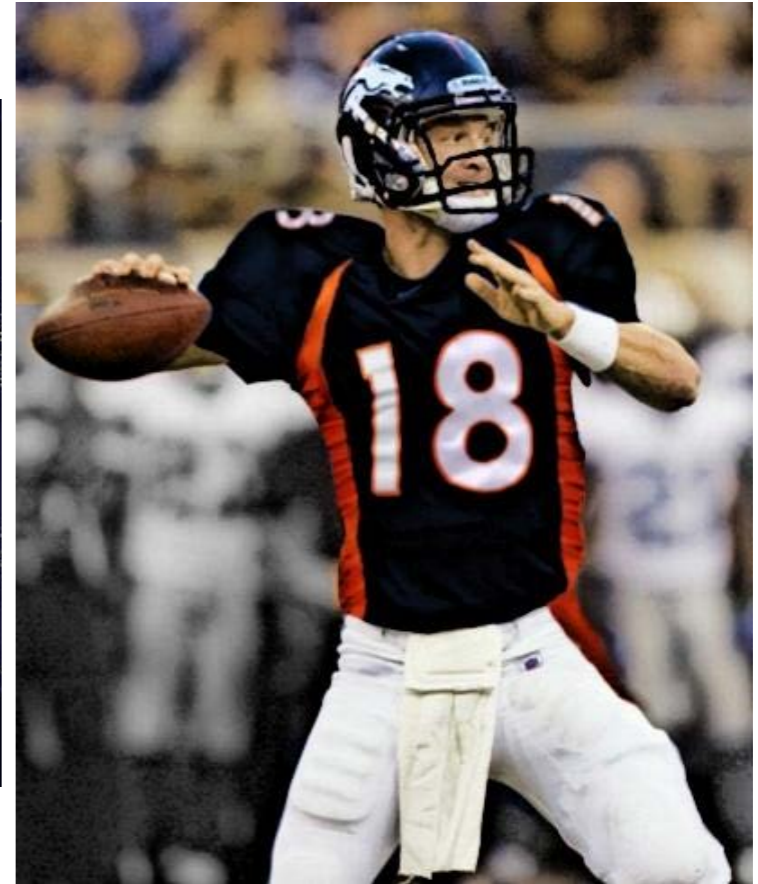
Real life



Example - MLB




Example NFL



Example NBA



- 
- Even in the most advanced medical systems, **overregulation** is hampering the growth of therapeutic options
 - Patients seeking advanced therapy could be faced with a set of **unsurmountable hurdles**, not only from a **regulatory** but also **medical** point of view
 - Patient choice: seek therapy abroad!



Patient Activity

Patients for Stem Cells

It is our right to access our own stem cells for potential life saving therapies

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Forbes

One Man's Reluctant Tour For Adult Stem Cells

Michael Phelan is the CEO of [SevOne](#). My Forbes colleague Tomio Geron recently [wrote](#) about his fast-growing IT company and Phelan contributed a guest post earlier this year at [Eric Savitz's CIO Network](#).

Phelan also has multiple sclerosis. Frustrated by the limited effectiveness of standard drugs for MS, he decided to try something more radical.

He traveled to a clinic in Panama and had infusions of adult stem cells generated from his own body fat.

It worked so well, he's going back for another treatment.

After my [last post](#), highlighting some research on the potential adverse consequences of adult stem cell treatments, some readers, including Phelan, protested that such studies represented but a small fraction of the thousands of successful treatments people were getting offshore, and that I was overlooking the patient's perspective.



Acceptable solutions

- Therapies at recognised University/Clinical centres - *unfortunately, most in various stages of fully registered clinical trials* (www.clinicaltrials.gov)
- Therapies at privately run, renowned clinics

Advanced therapies



What are the possible solutions?

Restrictive

Prevent therapies until fully proven

Fully/heavily regulate the SC field

Pursue MDs/Clinics legally

Use media to explain the restrictive nature of actions

Liberal

De-regulate the market

Allow for unrestricted patient influx

Allow for all therapeutic options

Support it through as another touristic venture



SOLUTION

What is the way forward?

- Private and public sector begin to talk
- A common ground found around which regulation can be constructed and implemented
- Globally universal accreditation/registration
- A proper oversight of therapies and activities

Until then



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THANK
YOU!

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