S(P)EAR

ANNUAL REPORT

2019

WMDA

matching donors • serving patients

S(P)EAR COMMITTEE ANNUAL REPORT 2019

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INTRODUCTION

In this 2019 S(P)EAR annual report the World Marrow Donor Association (WMDA) presents an overview of all Serious (Product) Events and Adverse Reactions – S(P)EARs – in relation to blood stem cell donation by unrelated donors and blood stem cell collection/processing from unrelated donors that have been reported in 2019.

Every year, more than 21,000 volunteer donors are asked to donate blood stem cells to a patient they do not know. To ensure the continued viability of the global system using volunteer donors, donor health and safety are of critical importance. The WMDA collects and analyses information on SPEARs that affect donors and/or products from all WMDA stem cell donor registries and cord blood banks. By doing so, the WMDA aims to gain insight in the occurrence of serious events and adverse effects in relation to blood stem cell donation by unrelated donors and blood stem cell collection/processing from unrelated donors.

In July 2019, the WMDA introduced a new online central global reporting system for WMDA member organisations to report Serious (Product) Events and Adverse Reactions. With this system, WMDA can systematically collect and analyse information on recipient and donor S(P)EARs. In 2019, a total of 210 S(P)EAR reports were received.

A rapid alert system is used for rapid dissemination of information to members of the international community regarding critical cases. Two rapid alerts were sent out in 2019. In April the first rapid alert was sent regarding a fatal event in an unrelated bone marrow donor. The rapid alert outlined a summary of published data on the incidence of serious adverse events associated with bone marrow donation as to help registries in addressing questions. The second rapid alert was sent in December following a report of a bone marrow product loss due to incorrect use of transfer collection system bags. The rapid alert listed recommendations for use of those type of bags.

2019 highlights

- The committee received and considered 210 S(P)EAR incident reports in 2019, compared to 206 in 2018.
- The reports were received from 27 different registries, compared to 18 different registries in 2018.
- A new online central S(P)EAR reporting system was developed and deployed.
- Two rapid alert notifications were sent in 2019 to all members of the international community.

1. OVERVIEW

	HARM TO DONOR	HARM TO RECIPIENT	RISK OF HARM	TOTAL
TOTAL REPORTED	155	23	32	210
- Short term harm (<30 days)	88			88
- Long term harm (>= 30 days)	67			67
PHASE INCIDENT OCCURRED IN				
- Collection	5	3	5	13
- Distribution	-	1	2	3
- Donor aftercare	20	-	-	20
- Donor assessment	4	1	4	9
- Donor search and selection	1	-	1	2
- Mobilisation	3	-	4	7
- Processing	1	3	1	5
- Transplant	-	9	7	16
- Transport	-	1	5	6
- Other/unsure	1	-	1	2
- Unknown/not specified	121	5	2	128
TYPE OF (INTENDED) PRODUCT				
- DLI	2	1	-	3
- HPC-apheresis	119	11	19	149
- HPC-cord	-	3	5	8
- HPC-marrow	33	6	5	44
- Pre-collection samples	-	-	3	3
- Unknown/not specified	1	2	-	3
CRYOPRESERVATION				
- Yes	1	1	3	5
- No	-	2	7	9
DONOR DETAILS				
- Sex: male	88	1	17	106
- Sex: female	67	-	14	82
- Sex: not specified	-	22	1	23
- Average age [median(range)]	33,5 [32 (18-58)]	-	32,1 [31 (19-51)][1]	32,7 [32 (18-79)]

1. Excluding HPC-cord donations

2. HARM TO DONOR

A total of 155 harm to donor incidents were reported. Short term harm (less than or equal to six months after donation) was reported in 56,8% of the cases (n=88) and in 43,2% (n=67) of the reports harm to donor occurred more than six months after donation, which we classify as long term harm. The following type of harm to donor incidents were reported. In 119 harm to donor reports, the type of (intended) product was HPC-Apheresis (76,8%), 33 were HPC-marrow (21,3%), 2 reports of DLI (intended) products (1,3%), and in 1 case (0,6%) it was not specified or the product type was unknown.

2.1 Type of harm to donor

	N	TIME AFTER DONATION IN DAYS [MEDIAN(RANGE)]
Acute systemic toxicity during mobilization or collection	12	0(-1-1)
Allergic reaction	11	0(-4-21)
Autoimmune disease	19	731 (2-2769)
- Long term	11	1096 (373 – 2769)
- Short term	8	43.5 (2-415)
Haematological malignancy / neoplasia	10	1078 (92-4687)
- Long term	8	1344 (547-4687)
- Short term	2	109 (92-126)
Infection	11	6 (0-364)
Mechanical damage	4	1 (0-5)
Non-haematological malignancy / neoplasia	43	1642 (16-4017)
- Long term	39	1461 (37-4017)
- Short term	4	54 (16-92)
Thrombotic / embolic	3	34 (34-62)
None of these categories are applicable	42	9 (-4 – 2542)
- Cardiovascular and cerebrovascular disease	2	-
- Psychiatric / psychogenic disorder	2	-
- Musculoskeletal / joint affection	2	-
- Neurological disease	4	-
- Unnecessary donor burden	2	-
- Other	30	-
TOTAL	155	

2.1.1 Malignancies

	N	TIME AFTER DONATION IN MONTHS/YEARS [MEDIAN(RANGE)]
Breast cancer	18	4.25 years (3 months – 7 years)
Colorectal cancer	3	5.3 years (5.3 – 10 years)
Haematological malignancy / neoplasia	10	3 years (3 months – 13 years)
Intracranial neoplasia	4	4.5 years (1.8 – 7 years)
Melanoma	3	3 months (3 months)
Nasopharynx cancer	4	3.3 years (1 month – 9.7 years)
Testicular cancer	4	5.5 years (1 month – 9.3 years)
Other	7	5.4 years (1 – 10 years)
TOTAL	53	

2.1.2 Haematological malignancy / neoplasia

	N	TYPE OF PRODUCT	TIME AFTER DONATION IN MONTHS/YEARS
Essential thrombocythemia	1	PBSC	3 months
Hodgkin's lymphoma	1	PBSC	4 months
Hodgkin's lymphoma	1	PBSC	2.5 years
Diffuse large B-cell lymphoma	1	BM	2.5 years
Polycythaemia vera	1	PBSC	4 years
Diffuse large B-cell lymphoma	1	PBSC	4 years
Mantel cell lymphoma	1	PBSC	5 years
Hodgkin's lymphoma	1	BM	5 years
Acute myeloblastic leukaemia (AML)	1	PBSC	8 years
Chronic myeloid leukaemia (CML)	*1*	*PBSC*	*13 years**
TOTAL	10		

* Technically not a SEAR (>10 years)

2.1.3 Autoimmune disorders

	N	TIME AFTER DONATION IN DAYS [MEDIAN(RANGE)]
Alopecia areata	3	53 (32-415)
Ankylosing spondylitis	1	2191
Crohn's disease	1	123
Multiple sclerosis	3	1461 (814-1836)
Rheumatoid arthritis	3	373 (60-730)
Sarcoidosis	1	2769
Other[1]	7	731 (2-1827)
TOTAL	19	

Other: diabetes, colitis ulcerosa, severe thrombocytopenia, hashimoto's thyroiditis, combined asthma/lymphocytic colitis/gastritis, reactive arthropathies, raynaud syndrome

2.1.3 Other type of harm

	N	TIME AFTER DONATION IN DAYS [MEDIAN(RANGE)]
Cardiovascular and cerebrovascular disease	2	1 (1)
Musculoskeletal / joint affection	2	204 (204)
Neurological disease	4	2 (0-254)
Psychiatric / psychogenic disorder	2	5(5)
Unnecessary donor burden	2	18.5 (14-23)
Other	30	2.5 (-121-2542)
TOTAL	42	

2.2 Assessment of imputability

The reporting registry makes an assessment of the causation for each harm to donor incident that occurs within 6 months. The committee then reviews the imputability and makes changes where necessary. Below, the final imputability scores for short term harm to donor reports are displayed (for long term harm imputability does not have to be reported).

REPORTED IMPUTABILITY	N
Definite/certain	37
Probable	13
Possible	12
Unlikely	21
Excluded	2
Not assessable	3
TOTAL	88

3. HARM TO RECIPIENT

A total of 23 harm to recipient incidents were reported. The majority of incidents followed after HPC-Apheresis (47,8% (n=11)) and after HPC-Marrow transplants (26% (n=6)). Three (3) reported on incidents of HPC-Cord transplant and 1 after DLI. In two cases graft type was not specified.

Harm to the recipient occurred during transplant in 9 cases, 3 during collection, 3 during processing, 1 during distribution, 1 during donor assessment, 1 during transport. For 5 incident reports it was unknown or not specified in which phase the incident occurred. Regardless of the incident that occurred, 13 transplants could still be performed as planned, 3 were performed on a later date than planned, 2 were performed using a different product and in 3 cases the transplant could not be performed. For 2 incidents this remains unknown or it is not specified.

3.1 Type of harm to recipient

	N
Cardiovascular	1
Cytogenic abnormalities	1
Donor cell derived malignancy	2
Infusion related non-specific symptoms	1
Transmitted bacterial infection	1
Other	14
- Delayed arrival of product	2
- Loss of product	1
- No product collected	1
- No problem or incident detected	1
- Product quality issue	5
- Other[1]	5
Unknown/unspecified	3
TOTAL	23

1. Extended delay to transplant (1); delayed HPC infusion (1); significant ABO mismatch (1); possible transmitted monoclonal gammopathy (1); possible exposure to cancer cells (1)

3.2 Assessment of imputability

The reporting registry makes an assessment of the causation for each harm to recipient. The committee then reviews the imputability and makes changes where necessary. Below, the final imputability scores for harm to recipient reports are displayed.

REPORTED IMPUTABILITY	N
Definite	10
Probable	3
Possible	2
Unlikely	1
Excluded	1
Not assessable	1
TOTAL	18

4. RISK OF HARM

Thirty-two (32) risk of harm incidents were reported. Nineteen (19) incidents took place after HPC-Apheresis, 5 following HPC-Cord, 5 following HPC-Marrow and 3 after pre-collection. Risk of harm incidents occurred during various phases of the procedure, but mainly during transplant (n=7), transport (n=5) and transport (n=5).

The majority of transplants (n=20) were performed as planned, 4 transplants were not performed, 2 were performed on a later date than planned, 2 transplants were performed using different product and for 4 incidents it was not specified or it was unknown.

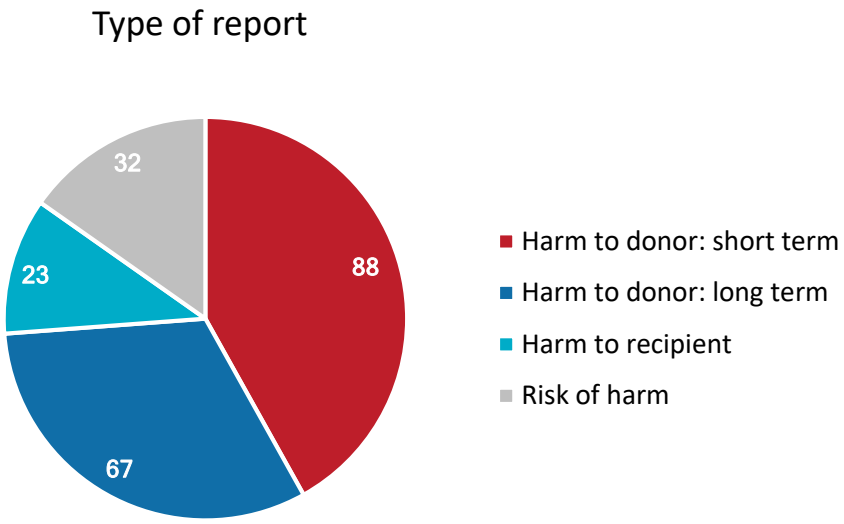
4.1 Type of risk of harm

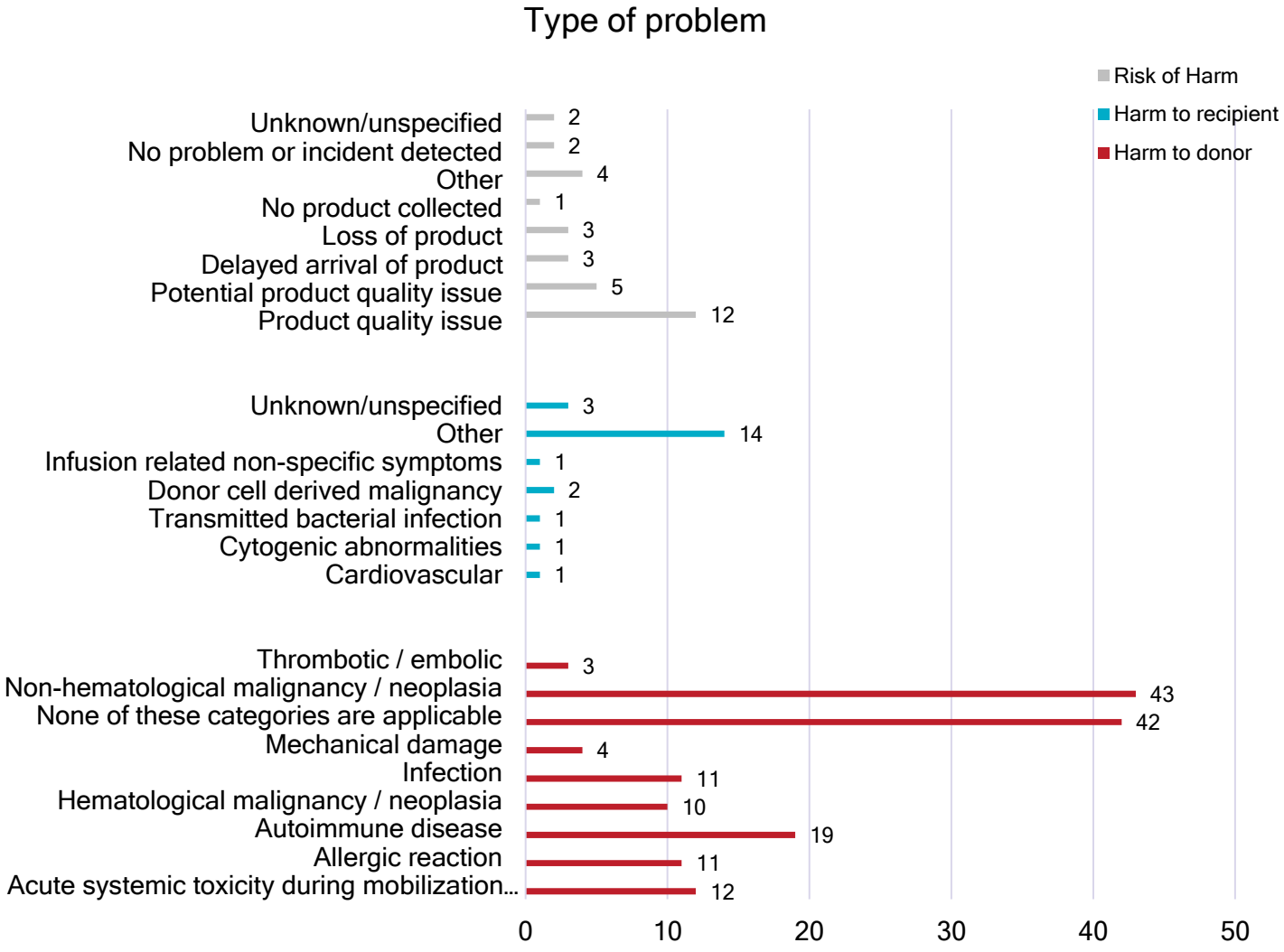
	N	TIME AFTER DONATION IN DAYS [MEDIAN(RANGE)]
Delayed arrival of product	3	1 (1-2001)
Loss of product	3	4321 (4-7001)
No problem or incident detected	2	2 (1-3)
No product collected	1	-4 (-4)
Potential product quality issue[2]	5	2 (0-1840)
Product quality issue[1]	12	1.5 (0-35)
Other	4	1.5 (-4-36)
Unknown/unspecified	2	n.a.

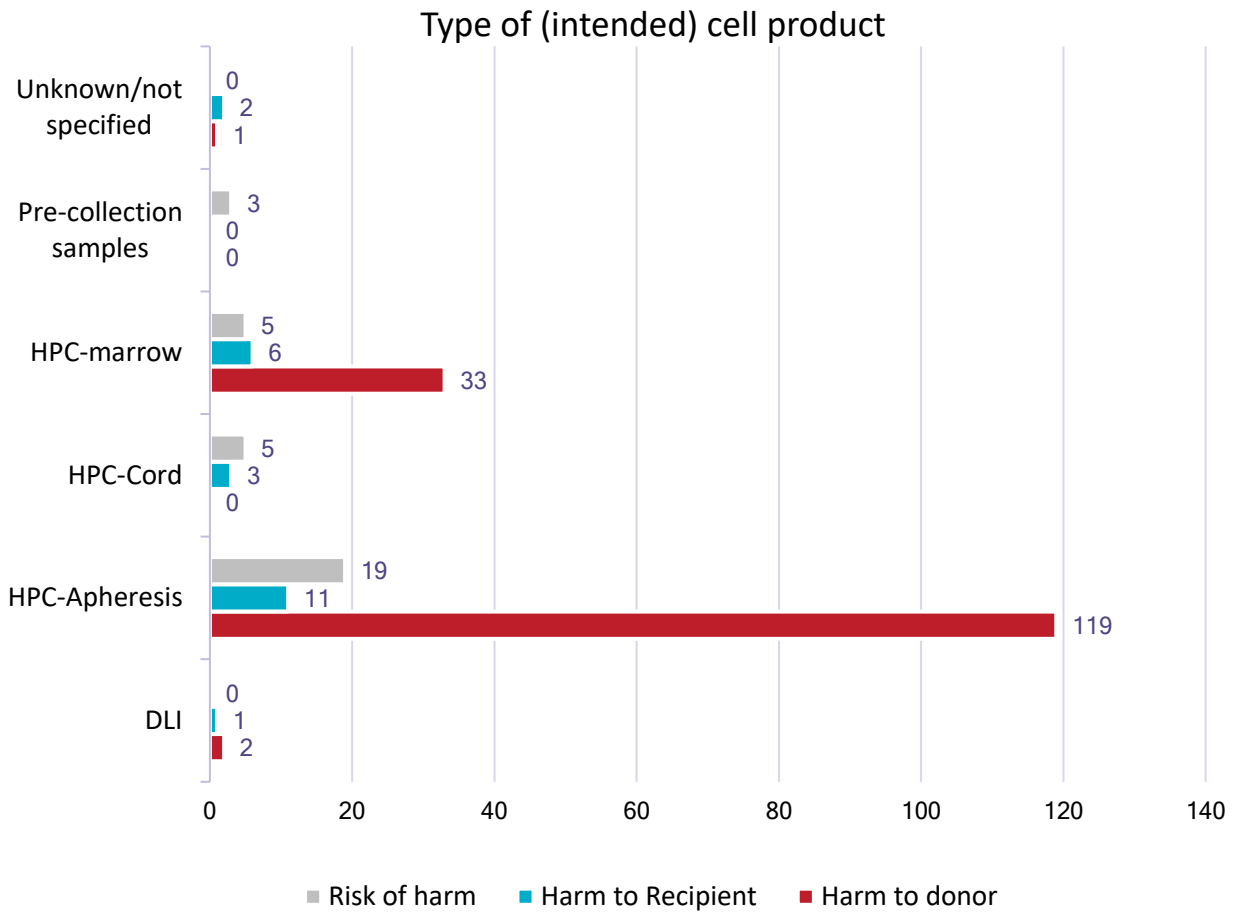
1. Product quality issue: e.g. bacterially contaminated, virally infected or other infection of product, incorrect labelling, incorrect samples, incorrect cell counts, low viability, wrong product supplied

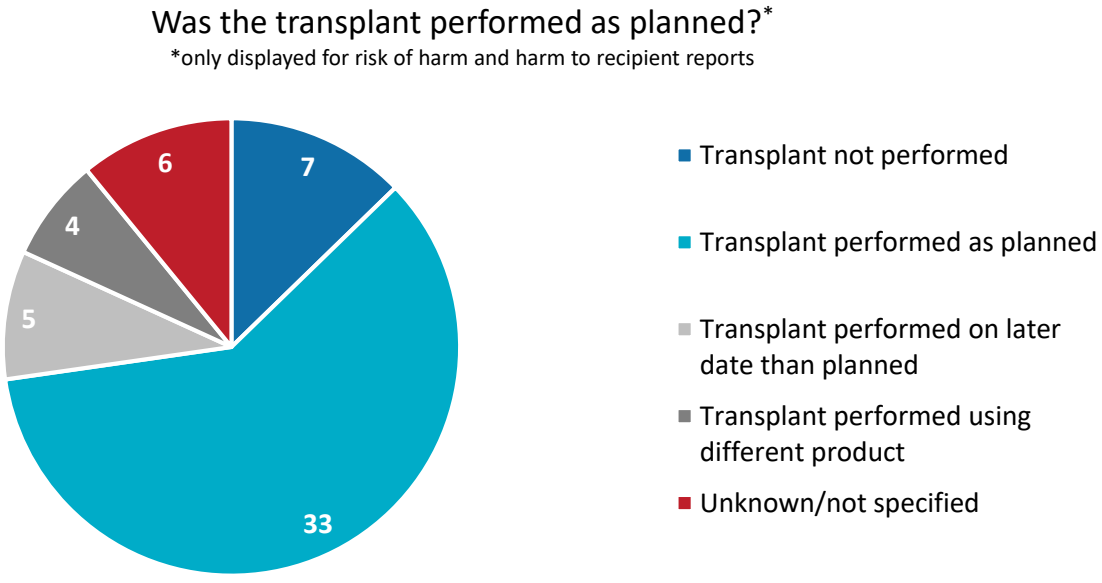
2. Potential product quality issues: e.g. positive donor testing, problem with storage temperature

5. GRAPHS


Type of report
32
23
88
67
Harm to donor: short term
Harm to donor: long term
Harm to recipient
Risk of harm

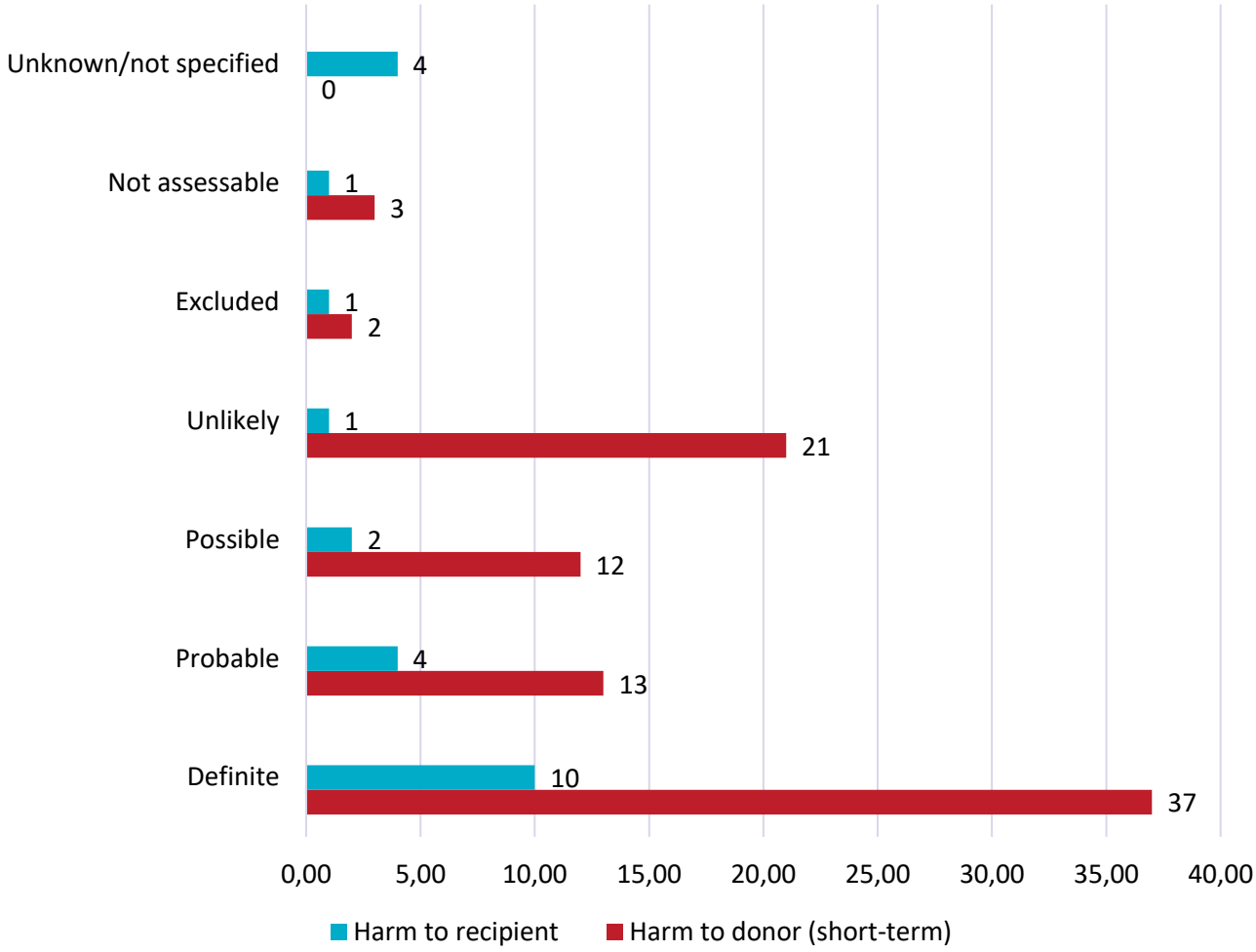

Type of problem
Risk of Harm
Harm to recipient
Harm to donor
Unknown/unspecified
No problem or incident detected
Other
No product collected
Loss of product
Delayed arrival of product
Potential product quality issue
Product quality issue
2
2
4
1
3
3
5
12
Unknown/unspecified
Other
Infusion related non-specific symptoms
Donor cell derived malignancy
Transmitted bacterial infection
Cytogenic abnormalities
Cardiovascular
3
14
1
2
1
1
1
Thrombotic / embolic
Non-hematological malignancy / neoplasia
None of these categories are applicable
Mechanical damage
Infection
Hematological malignancy / neoplasia
Autoimmune disease
Allergic reaction
Acute systemic toxicity during mobilization...
3
43
42
4
11
10
19
11
12
0
10
20
30
40
50


Type of (intended) cell product
Unknown/not specified
0
2
1
Pre-collection samples
3
0
0
HPC-marrow
5
6
33
HPC-Cord
5
3
0
HPC-Apheresis
19
11
119
DLI
0
1
2
0
20
40
60
80
100
120
140
Risk of harm
Harm to Recipient
Harm to donor


Was the transplant performed as planned?*
*only displayed for risk of harm and harm to recipient reports
7
33
5
4
6
Transplant not performed
Transplant performed as planned
Transplant performed on later date than planned
Transplant performed using different product
Unknown/not specified

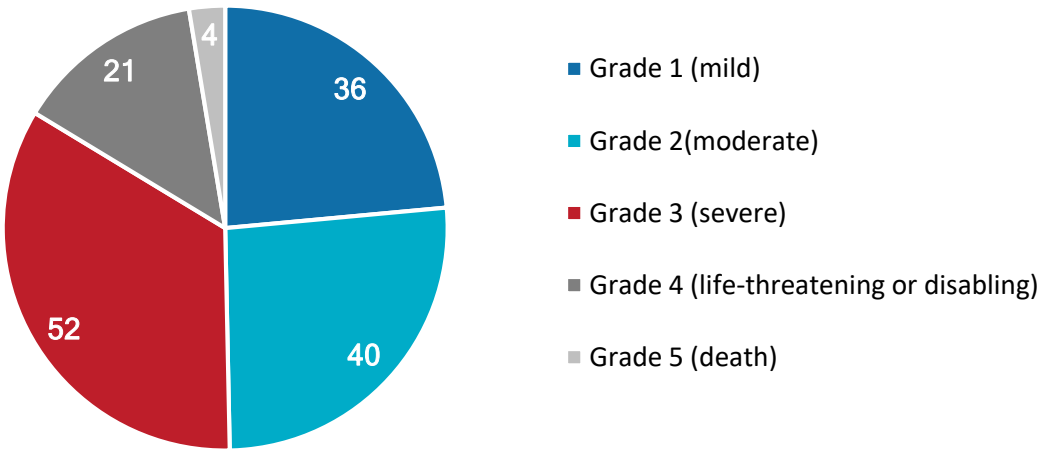
Imputability*

*only mandatory for harm donor (<6 months) and harm to recipient reports



Severity of reaction*

only mandatory for harm to honor (<6 months) and harm to recipient reports



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