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**Bureau of Infectious Disease and Laboratory Sciences**

**Hemovigilance Program Data Summary**

**January 1-December 31, 2022**

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**Executive Summary**

**Introduction**

This report includes data submitted by Massachusetts blood banks to the Hemovigilance Module of the Centers for Disease Control and Prevention’s National Healthcare Safety Network (NHSN) from January 1 through December 31, 2022. The purpose of this report is to provide information on transfusion activity in the state, as well as transfusion-associated adverse events. Blood banks in Massachusetts can examine their own facility metrics and use this report for comparison and context.

The members of the Massachusetts Hemovigilance Technical Advisory Group (TAG) appreciate the committed participation of Massachusetts blood banks and transfusion services in reporting hemovigilance data to NHSN for the past 9 years and hope that the availability of the metrics contained in this report will be useful to them for comparison, context, and quality improvement.

**Key Findings**

* Total volume of transfused products decreased by 7% in 2022, with whole blood being the only component to show an increase in transfusions from 2021 to 2022.
* 6% of products in 2022 were discarded, an increase from 5.6% in 2021, with plasma being the most frequent product discarded both years.
* The number of severe allergic reactions increased to 17 in 2022 after only four were reported in 2021.
* Platelets continue to be the blood product associated with both the highest and most variable rate of adverse reactions over time.
* The overall rate of adverse reactions increased from 16.6 per 10,000 products transfused in 2021, to 18.5 per 10,000 products transfused in 2022.
* There was a 2-fold increase in the volume of pathogen reduction technology (PRT) products transfused in 2022 compared to 2021. Nearly half of all platelets transfused in 2022 were PRT platelets.
* In 2022, there were 50 adverse reactions associated with PRT platelets for a rate of 24.3 per 10,000 PRT products transfused. One (2%) of these reactions was life-threatening. In comparison, there were 75 adverse reactions associated with non-PRT platelets for a rate of 32.5 per 10,000, 19 (25%) of these reactions were severe or life-threatening.

**Technical Notes**

The following are inclusion criteria for the adverse reactions included in this report:

* Case criteria – the reaction must either definitively or probably meet the NHSN case reporting criteria
* Imputability – the reaction must definitely, probably, or possibly meet NHSN imputability criteria
* Reaction type – the reaction must be one of twelve specified types in NHSN, excluding “Other” and “Unknown”
* Allergic reactions – *non-severe* allergic reactions are excluded from analysis and reporting is not required

Current reaction definitions and imputability criteria can be found at the following link: <https://www.cdc.gov/nhsn/PDFs/Biovigilance/BV-HV-protocol-current.pdf>.

**Data Summary**

This report includes data submitted by 65 blood banks licensed in Massachusetts. Submission of data through the NHSN Hemovigilance Module is a regulatory requirement under 105 CMR 135.120 for all blood banks and transfusion services in Massachusetts. Complete denominator and adverse reaction data were submitted by 63 facilities for all months covered. Two facilities did not submit an entire years’ worth of denominator or adverse reaction data due to administrative issues that have now been addressed. Facilities were stratified into three bed size groups for this report defined as those with less than 100 beds, those with 100-299 beds, and those with greater than or equal to 300 beds.

Updated responses to the NHSN annual facility survey, which describes facility characteristics, were provided by 58 blood banks. For the 7 facilities that did not submit a 2022 annual facility survey, the most recently submitted annual facility survey data were used. Bed size characteristics from the annual facility survey data can be found in Table 1. Eighty-six percent of facilities were College of American Pathologists (CAP) accredited, 51% were accredited by the Association for the Advancement of Blood and Biotherapies (AABB), and 42% indicated accreditation by the Joint Commission.

In 2022, 61 different facilities transfused over 21,000 pathogen reduced products (PRT), a substantial increase from the 11,319 units transfused in 2021. Pathogen reduced platelets make up more than half of total platelets transfused in the state. All but one of the 65 blood banks attempted to issue only leukocyte-reduced or leuko-poor cellular components. Ten (15%) blood banks collected blood at their facility.

The number of red blood cell (RBC) type and screen procedures performed by Massachusetts’ blood banks ranged from 182 to 88,920 (mean: 10,430) and RBC crossmatches ranged from 114 to 49,660 (mean: 5,214). The number of products transfused statewide decreased from an average of 29,862 products per month in 2021 to 27,802 in 2022. The only blood component to see an increase in overall transfusion volume from 2021 to 2022 was whole blood. While, overall, fewer products were discarded in 2022 (20,978 vs 21,404 in 2021), the percentage of products discarded rose from 5.6% in 2021 to 6% in 2022.

One transfusion transmitted infection, *Staphylococcus epidermidis*, was reported in 2022. This severe infection was associated with a red blood cell unit which was tested and implicated. This is the first TTI reported since 2020.

In 2022, there were 333,629 blood products transfused and a total of 616 adverse reactions classified as possibly, probably, or definitely related to transfusion, yielding an overall reaction rate of 18.5 reactions per 10,000 products transfused. Sixty-five (11%) of the reported reactions were considered serious or life-threatening, and one of the reactions was fatal (TACO). This is the third year in a row that the number and proportion of TACO reactions has increased, making up 7% of all reactions in 2020, 9% in 2021, and 11% in 2022.

The Technical Advisory Group (TAG) was established in June 2014 to provide guidance to the Massachusetts Department of Public Health (MDPH) in the analysis and use of statewide hemovigilance data.

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**List of Abbreviations**

* AABB – Association for the Advancement of Blood and Biotherapies
* AHTR – Acute hemolytic transfusion reaction
* ALLERG – Allergic reaction
* CAP – College of American Pathologists
* CCP- Covid Convalescent Plasma
* DHTR – Delayed hemolytic transfusion reaction
* DSTR – Delayed serologic transfusion reaction
* FNHTR – Febrile non-hemolytic transfusion reaction
* HTR – Hypotensive transfusion reaction
* PRT- Pathogen Reduction Technology
* PTP – Post-transfusion purpura
* TJC – The Joint Commission
* TACO – Transfusion-associated circulatory overload
* TAD – Transfusion-associated dyspnea
* TAGVHD – Transfusion-associated graft versus host disease
* TRALI – Transfusion-related acute lung injury
* TTI – Transfusion-transmitted infection

**Table 1: Bed Size Characteristics from the 2022 Annual Facility Survey[[1]](#footnote-2)**

|  |  |  |  |
| --- | --- | --- | --- |
|   | **BSG 1[[2]](#footnote-3) (1-99 Beds)** | **BSG 2[[3]](#footnote-4)(100-299 Beds)** | **BSG 3 (≥ 300 Beds)** |
| Number of Hospitals | 14 | 36 | 15 |
| Average Number of Beds Served by Transfusion Service (range) | 57 (14-95) | 185(100-290) | 511(302-1,021) |
| Average Number of Inpatient Surgeries (range) | 645 (0-3,594) | 1,642(0-3,541) | 7,057(1,736-19,891) |
| Average Number of Outpatient Surgeries (range) | 2,269(0-9,582) | 4,860(0-14,077) | 12,006(1,500-23,456) |
| Transfusion Service Serves Cancer Center (includes adult and pediatric) | 8 (57%) | 25 (69%) | 12 (80%) |
| Medical School Affiliation | Major Teaching Hospital | 3 (21%) | 10 (28%) | 14 (93%) |
| Graduate Teaching Hospital | 1 (7%) | 6 (17%) | 1 (7%) |
| Undergraduate Teaching Hospital | 1 (7%) | 10 (28%) | 0 |
| Trauma Level  | Level 1 | 0 | 0 | 9 (60%) |
| Level 2 | 0 | 1;2.8 | 2 (13%) |
| Level 3 | 1 (7%) | 9;25 | 1 (7%) |
| Level NA | 13 (93%) | 26 (72%) | 3 (20%) |
| Community Setting | Rural | 6 (43%) | 1 (3%) | 0 |
| Suburban | 7 (50%) | 24 (67%) | 4 (27%) |
| Urban | 1 (7%) | 11 (31%) | 11 (73%) |

**Figure 1: Volume of Blood Products Transfused in Massachusetts, 2020-2022**



 In 2020, 67 facilities reported NHSN Hemovigilance data. In 2021 and 2022, 65 facilities reported.

**Table 2: Transfusion Volume by Bed Size Group[[4]](#footnote-5), Product Type, and Year, 2020-2022**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Bed Size Group** | **Product** | **2020 Volume Transfused[[5]](#footnote-6)** | **2021 Volume Transfused[[6]](#footnote-7)** | **2022 Volume Transfused[[7]](#footnote-8)** | **Δ (2021-2022)** | **% Δ 2021-2022** |
| **BSG 1: 1-99 Beds** | RBCs | 7,609 | 7,992 | 7,016 | -976 | -12.2 |
| Plasma | 541 | 473 | 508 | 35 | 7.4 |
| Platelets | 632 | 359 | 406 | 47 | 13.1 |
| Cryoprecipitate | 22 | 21 | 26 | 5 | 23.8 |
| Whole Blood | 0 | 0 | 0 | 0 | 0.0 |
| **BSG 2: 100-299 Beds** | RBCs | 70,280 | 65,812 | 61,266 | -4,546 | -6.9 |
| Plasma | 7,928 | 6,089 | 5,111 | -978 | -16.1 |
| Platelets | 6,939 | 5,297 | 3,810 | -1,487 | -28.1 |
| Cryoprecipitate | 1,672 | 1,087 | 1,316 | 229 | 21.1 |
| Whole Blood | 1 | 1 | 0 | -1 | -100.0 |
| **BSG 3: ≥300 Beds** | RBCs | 155,932 | 165,393 | 156,588 | -8,805 | -5.3 |
| Plasma | 32,835 | 34,753 | 30,140 | -4,613 | -13.3 |
| Platelets | 41,752 | 42,890 | 39,613 | -3,277 | -7.6 |
| Cryoprecipitate | 25,310 | 27,253 | 26,826 | -427 | -1.6 |
| Whole Blood | 809 | 926 | 1,003 | 77 | 8.3 |
| **All Facilities** | RBCs | 233,821 | 239,197 | 224,870 | -14,327 | -6.0 |
| Plasma | 41,304 | 41,315 | 35,759 | -5,556 | -13.4 |
| Platelets | 49,323 | 48,546 | 43,829 | -4,717 | -9.7 |
| Cryoprecipitate | 27,004 | 28,361 | 28,168 | -193 | -0.7 |
| Whole Blood | 810 | 927 | 1,003 | 76 | 8.2 |

**Table 3: Volume of Pathogen Reduced Products Transfused in Massachusetts, 2020-2022**

|  |  |  |  |
| --- | --- | --- | --- |
| **Component Type** | **2020** | **2021** | **2022** |
| **Total** | **3,558** | **11,319** | **21,666** |
| **Platelets** |   |   |   |
| Psoralen Treated  |   |   |   |
| Apheresis Derived  | 3,409 | 11,090 | 20,571 |
| Whole Blood Derived  | 149 | 66 | 677 |
| Riboflavin Treated  |   |   |   |
| Apheresis Derived  | 0 | 9 | 25 |
| **Plasma** |   |   |   |
| Psoralen Treated  |   |   |   |
| Apheresis Derived  | 0 | 154 | 378 |
| Riboflavin Treated  |   |   |   |
| Apheresis Derived  | 0 | 0 | 15 |

**Figure 2****: Volume of Blood Products Discarded in Massachusetts, 2020-2022**



 In 2020, 67 facilities reported NHSN Hemovigilance data. In 2021 and 2022 65 facilities reported.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **2022 Bed Size Group** | **Product** | **Volume Transfused** | **Number of Products Discarded** | **Discard Ratio[[8]](#footnote-9)** |
| **BSG 1: 1-99 Beds(N=14)** | RBCs | 7,016 | 211 | 3.0 |
| Plasma | 508 | 172 | 33.9 |
| Platelets | 406 | 58 | 14.3 |
| Cryoprecipitate | 26 | 3 | 11.5 |
| Whole Blood | 0 | 0 | 0.0 |
| **BSG 2: 100-299 Beds(N=36)** | RBCs | 61,266 | 1,827 | 3.0 |
| Plasma | 5,111 | 1,830 | 35.8 |
| Platelets | 3,810 | 979 | 25.7 |
| Cryoprecipitate | 1,316 | 125 | 9.5 |
| Whole Blood | 0 | 0 | 0.0 |
| **BSG 3: ≥300 Beds(N=15)** | RBCs | 156,588 | 3,769 | 2.4 |
| Plasma | 30,140 | 5,566 | 18.5 |
| Platelets | 39,613 | 3,669 | 9.3 |
| Cryoprecipitate | 26,826 | 2,741 | 10.2 |
| Whole Blood | 1,003 | 28 | 2.8 |
| **All Facilities** | RBCs | 224,870 | 5,807 | 2.6 |
| Plasma | 35,759 | 7,568 | 21.2 |
| Platelets | 43,829 | 4,706 | 10.7 |
| Cryoprecipitate | 28,168 | 2,869 | 10.2 |
| Whole Blood | 1,003 | 28 | 2.8 |

**Table 4: Number and Ratio of Discarded Products
by Type and Bed Size Group Massachusetts, 2022**

**Table 5: Number of Adverse Reactions in Massachusetts, 2020-2022**

|  |  |  |  |
| --- | --- | --- | --- |
| **Adverse Reaction Description** | **2020** | **2021** | **2022** |
| AHTR | 1 | 5 | 0 |
| ALLERG | 21 | 4 | 17 |
| DHTR | 9 | 12 | 5 |
| DSTR | 31 | 41 | 37 |
| FNHTR | 412 | 441 | 460 |
| HTR | 5 | 4 | 2 |
| INF | 2 | 0 | 1 |
| TACO | 37 | 55 | 68 |
| TAD | 28 | 29 | 25 |
| TRALI | 1 | 1 | 1 |
| **Total** | **547** | **592** | **616** |

**Figure 3: Adverse Reaction Rates Associated with PRT vs. Non-PRT Platelets, 2020-2022**



**Table 6: Number of Adverse Reactions
by Bed Size Group, 2020-2022**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Bed Size Group** | **Adverse Reaction** | **2020** | **2021** | **2022** |
| **BSG 1: 1-99 Beds[[9]](#footnote-10)** | AHTR | 0 | 0 | 0 |
| ALLERG | 0 | 0 | 1 |
| DHTR | 1 | 0 | 1 |
| DSTR | 0 | 0 | 0 |
| FNHTR | 10 | 13 | 10 |
| HTR | 0 | 0 | 0 |
| INF | 0 | 0 | 0 |
| TACO | 1 | 4 | 4 |
| TAD | 5 | 2 | 2 |
| TRALI | 0 | 0 | 0 |
| **BSG 2: 100-299 Beds[[10]](#footnote-11)** | AHTR | 0 | 0 | 0 |
| ALLERG | 1 | 0 | 0 |
| DHTR | 0 | 2 | 0 |
| DSTR | 3 | 4 | 0 |
| FNHTR | 91 | 81 | 62 |
| HTR | 2 | 0 | 0 |
| INF | 1 | 0 | 0 |
| TACO | 3 | 1 | 5 |
| TAD | 1 | 1 | 3 |
| TRALI | 1 | 0 | 0 |
| **BSG 3: ≥300 Beds[[11]](#footnote-12)** | AHTR | 1 | 5 | 0 |
| ALLERG | 20 | 4 | 16 |
| DHTR | 8 | 10 | 4 |
| DSTR | 28 | 37 | 37 |
| FNHTR | 308 | 347 | 388 |
| HTR | 3 | 4 | 2 |
| INF | 1 | 0 | 1 |
| TACO | 33 | 50 | 59 |
| TAD | 22 | 26 | 20 |
| TRALI | 0 | 1 | 1 |

**Table 7: Summary of Transfusion-transmitted infections in Massachusetts, 2022**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **AdverseReactionDate** | **Number of Days from Transfusion and Reaction** | **Age atAdverseReaction** | **Gender** | **Infection** | **CaseDefinition** | **Severity** | **Imputability** | **Outcome** | **AssociatedUnit** | **UnitTested** | **UnitTestedPositive** | **DonorTested** |
| 07/2022 | 0 | 61 | Male | Staphylococcus epidermidis | Definitely  | Severe | Possibly | Not Determined | Red BloodCells | Yes | Yes | No |

**Figure 4: Rates of Adverse Reactions per 10,000 Transfused Products
by Product Type in Massachusetts, 2020-2022[[12]](#footnote-13)**



In 2020, 67 facilities reported NHSN Hemovigilance data. In 2021 and 2022 65 facilities reported.

**Figure 5: Rates of Adverse Reactions per 10,000 Transfused Products
by Bed Size Group in Massachusetts, 2020-2022**



 In 2020, 67 facilities reported NHSN Hemovigilance data. In 2021 and 2022 65 facilities reported.

 Rates in BSG 1 tend to be unstable over time as a result of lower transfusion volume and fewer ARs reported overall.

**Table 8: Rates of Adverse Reactions per 10,000 Total Units (Full and Aliquot)
Transfused by Component Type, 2022\***

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | **Transfused** | **All Reactions** | **ALLERGIC** | **DHTR** | **DSTR** | **FNHTR** | **HTR** | **TTI** | **TACO** | **TAD** | **TRALI** |
| Component Type | N | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate |
| **All Components** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| All | 333,629 | 616 | 18.46 | 17 | 0.51 | 5 | 0.15 | 37 | 1.11 | 460 | 13.79 | 2 | 0.06 | 1 | 0.03 | 68 | 2.04 | 25 | 0.75 | 1 | 0.03 |
| Severe Adverse Reactions |   | 50 | 1.5 | 8 | 0.24 | 1 | 0.03 | 0 | 0 | 14 | 0.42 | 0 | 0 | 1 | 0.03 | 23 | 0.69 | 2 | 0.06 | 1 | 0.03 |
| Life Threatening Adverse Reactions |   | 14 | 0.42 | 8 | 0.24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0.15 | 1 | 0.03 | 0 | 0 |
| Fata Adverse Reactions |  | 1 | 0.03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0.03 | 0 | 0 | 0 | 0 |
| **RBCS** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| All | 224,870 | 461+ | 20.5 | 2 | 0.09 | 5 | 0.22 | 35 | 1.56 | 332 | 14.76 | 2 | 0.09 | 1 | 0.04 | 60 | 2.67 | 23 | 1.02 | 1 | 0.04 |
| Collection Method |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Apheresis | 36,500 | 76 | 20.82 | 0 | 0 | 2 | 0.55 | 4 | 1.1 | 52 | 14.25 | 2 | 0.55 | 0 | 0 | 12 | 3.29 | 3 | 0.82 | 1 | 0.27 |
| Whole blood-derived | 188,370 | 373 | 19.8 | 2 | 0.11 | 2 | 0.11 | 22 | 1.17 | 280 | 14.86 | 0 | 0 | 1 | 0.05 | 46 | 2.44 | 20 | 1.06 | 0 | 0 |
| Irradiation |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Irradiated | 107,572 | 244 | 22.68 | 1 | 0.09 | 4 | 0.37 | 8 | 0.74 | 201 | 18.69 | 1 | 0.09 | 1 | 0.09 | 19 | 1.77 | 9 | 0.84 | 0 | 0 |
| Not Irradiated | 117,320 | 205 | 17.47 | 1 | 0.09 | 0 | 0 | 18 | 1.53 | 131 | 11.17 | 1 | 0.09 | 0 | 0 | 39 | 3.32 | 14 | 1.19 | 1 | 0.09 |
| Leukoreduction |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Leukoreduced | 214,206 | 421 | 19.65 | 2 | 0.09 | 4 | 0.19 | 25 | 1.17 | 307 | 14.33 | 2 | 0.09 | 1 | 0.05 | 57 | 2.66 | 22 | 1.03 | 1 | 0.05 |
| Not Leukoreduced | 10,664 | 28 | 26.26 | 0 | 0 | 0 | 0 | 1 | 0.94 | 25 | 23.44 | 0 | 0 | 0 | 0 | 1 | 0.94 | 1 | 0.94 | 0 | 0 |
| **Platelets** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| All | 43,829 | 126^ | 28.75 | 11 | 2.51 | 0 | 0 | 0 | 0 | 112 | 25.55 | 0 | 0 | 0 | 0 | 2 | 0.46 | 1 | 0.23 | 0 | 0 |
| Collection Method |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Apheresis Derived | 43,671 | 125 | 28.62 | 11 | 2.52 | 0 | 0 | 0 | 0 | 112 | 25.65 | 0 | 0 | 0 | 0 | 1 | 0.23 | 1 | 0.23 | 0 | 0 |
| Whole blood-derived | 158 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Irradiation |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Irradiated | 34,570 | 69 | 19.96 | 7 | 2.02 | 0 | 0 | 0 | 0 | 62 | 17.93 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Not Irradiated | 9,259 | 56 | 60.48 | 4 | 4.32 | 0 | 0 | 0 | 0 | 50 | 54 | 0 | 0 | 0 | 0 | 1 | 1.08 | 1 | 1.08 | 0 | 0 |
| Leukoreduction |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Leukoreduced | 43,491 | 125 | 28.74 | 11 | 2.53 | 0 | 0 | 0 | 0 | 112 | 25.75 | 0 | 0 | 0 | 0 | 1 | 0.23 | 1 | 0.23 | 0 | 0 |
| Not Leukoreduced | 338 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Psoralen Treated |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Apheresis Derived | 20,571 | 50 | 24.31 | 3 | 1.46 | 0 | 0 | 0 | 0 | 44 | 21.39 | 0 | 0 | 0 | 0 | 2 | 0.97 | 1 | 0.49 | 0 | 0 |
| Whole blood-derived | 677 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Riboflavin Treated |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Apheresis Derived | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Plasma** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| All | 35,759 | 7 | 1.96 | 4 | 1.12 | 0 | 0 | 0 | 0 | 3 | 0.84 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Collection Method |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Apheresis | 8,481 | 1 | 1.18 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1.18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Whole blood-derived | 27,278 | 6 | 2.2 | 4 | 1.47 | 0 | 0 | 0 | 0 | 2 | 0.73 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Psoralen Treated |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Apheresis Derived | 378 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cryoprecipitate** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| All | 28,168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Whole blood** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| All | 1,003 | 2 | 19.94 | 0 | 0 | 0 | 0 | 2 | 19.94 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

\*18 adverse reactions were associated with an “unknown” transfused blood product. These reactions were included in the overall adverse reaction rate calculations, but were excluded from component-specific rate calculations. Eleven FNHTRs, 6 TACOs, and 1 TAD reported an “unknown” blood product implicated. 2 FNHTR reactions were associated with granulocytes.

+ 12 adverse reactions associated with red blood cells have an “unknown” product maniupulation- 1 DHTR, 9 DSTRs, 2 TACOs.

^ 1 adverse reaction associated with platelets had an “unknown” product maniupulation- 1 TACO

1. For those facilities that did not submit a 2022 annual facility survey (n=7), the most recent prior year submission was used. [↑](#footnote-ref-2)
2. One facility moved from BSG 2 to BSG 1 in 2022 [↑](#footnote-ref-3)
3. One facility moved from BSG 1 to BSG 2 in 2022 [↑](#footnote-ref-4)
4. Bed Size Group categorization was assigned based on the corresponding year’s annual facility survey. [↑](#footnote-ref-5)
5. In 2020, 14 facilities were in Bed Size Group 1, 40 in Bed Size Group 2, and 13 in Bed Size Group 3. [↑](#footnote-ref-6)
6. In 2021, 14 facilities were in Bed Size Group 1, 36 in Bed Size Group 2, and 15 in Bed Size Group 3. [↑](#footnote-ref-7)
7. In 2022, 14 facilities were in Bed Size Group 1, 36 in Bed Size Group 2, and 15 in Bed Size Group 3. [↑](#footnote-ref-8)
8. Discard ratio = the number of products discarded for every 100 products transfused. [↑](#footnote-ref-9)
9. In 2020, 14 facilities were in Bed Size Group 1, 40 in Bed Size Group 2, and 13 in Bed Size Group 3. [↑](#footnote-ref-10)
10. In 2021, 14 facilities were in Bed Size Group 1, 36 in Bed Size Group 2, and 15 in Bed Size Group 3. [↑](#footnote-ref-11)
11. In 2022, 14 facilities were in Bed Size Group 1, 36 in Bed Size Group 2, and 15 in Bed Size Group 3. [↑](#footnote-ref-12)
12. Unstable platelet rates are a result of decreasing platelet transfusion volume during this time with little change in the number of reactions associated with this product. [↑](#footnote-ref-13)