Modular Program Report

The following report(s) provides findings from an FDA-initiated query using its Mini-Sentinel pilot. While Mini-Sentinel queries may be undertaken to assess potential medical product safety risks, they may also be initiated for various other reasons. Some examples include determining a rate or count of an identified health outcome of interest, examining medical product use, exploring the feasibility of future, more detailed analyses within Mini-Sentinel, and seeking to better understand the capabilities of the Mini-Sentinel pilot.

Data obtained through Mini-Sentinel are intended to complement other types of evidence such as preclinical studies, clinical trials, postmarket studies, and adverse event reports, all of which are used by FDA to inform regulatory decisions regarding medical product safety. The information contained in this report is provided as part of FDA's commitment to place knowledge acquired from the Mini-Sentinel pilot in the public domain as soon as possible. Any public health actions taken by FDA regarding products involved in Mini-Sentinel queries will continue to be communicated through existing channels.

FDA wants to emphasize that the fact that FDA has initiated a query involving a medical product and is reporting findings related to that query does <u>not</u> mean that FDA is suggesting health care practitioners should change their prescribing practices for the medical product or that patients taking the medical product should stop using it. Patients who have questions about the use of an identified medical product should contact their health care practitioners.

The following report contains a description of the request, request specifications, and results from the modular program run(s).

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Overview

Request Description   The FDA requested execution of Modular Program #6 (MP6), version 5.0.1, to investigate use of several immunoglobulin (Ig) product groups (subcutaneous Ig, other branded intravenous immunoglobulin (IVIg), other IVIg, and intramuscular Ig) and diagnosis of hemolysis events (see Appendix A for exposure and event codes) on the same day as (1 day risk window) and within 10 days (10 day risk window) of Ig injection. The query was run against the Mini-Sentinel Distributed Database (MSDD) for the time period of January 1, 2006 through December 31, 2012. The request was distributed to 18 Data Partners.

This report presents results for counts of prevalent Ig users, lookup periods, total lookup period duration (days), number of users with an event, eligible members, and member-years only. Results for incidence are presented in a separate report (MSY4_MPR48_V1 - Report 1).

Request ID   msy4_mpr48_v1 - Report 2 of 2

Specifications   Program parameter inputs and scenarios
Glossary   List of terms found in this report and their definitions
Table 1   Table of Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product and Risk Window
Table 2   Table of Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Age Group
Table 3   Table of Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Sex
Table 4   Table of Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Year
Appendix A   List of Ig Exposure and Hemolysis Event Codes

Notes: Please contact the Mini-Sentinel Operations Center (MSOC_Requests@harvardpilgrim.org) for questions and to provide comments/suggestions for future enhancements to this document.

Modular Program Specifications MSY4_MPR48_V1

Modular Program #6, version 5.0.1, was used to investigate use of Ig products and hemolysis. The query period was from January 1, 2006 to December 31, 2012, and the enrollment gap was set at 45 days. Age groups were split as follows: 0-17, 18-44, 45-64, and 65+ years. Enrollment gap was set at 45 days, the program considers Ig injections in all care settings, and minimum lookup period duration was set to zero. In total, 28 unique scenarios were examined in this request with differing exposures of interest and lookup period duration. See below for a description of each of these scenarios. An episode was excluded if the user switches to one of the listed products within 21 days of the index date of use of the product of interest (exclusion criteria).

	Exposure Criteria (Event file in MP6)					Exclusion Criteria					Outcome (Post-event treatment file in MP6)				
Scenario	Incident exposure	Incident w/ respect to:	Incidence Type	Washout Period (days)	Lookup Period Duration*	Exclusion Treatment	Lookback Period Start	Lookback Period End	Exclusion Treatment Care Setting	Exclusion Treatment Principal Dx	Event/ Outcome	Incident w/ respect to:	Incidence Type	Washout Period (days)	Care Setting PDx
1	Lyophilized Codes	Lyophilized Codes	MULTIPLE	21	1	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
2	Non-lyophilized intramuscular codes	Non-lyophilized intramuscular codes	MULTIPLE	21	1	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
3	Non-lyophilized intravenous codes	Non-lyophilized intravenous codes	MULTIPLE	21	1	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
4	Non-lyophilized unspecified route codes	Non-lyophilized unspecified route codes	MULTIPLE	21	1	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
5	Non-lyophilized subcutaneous codes	Non-lyophilized subcutaneous codes	MULTIPLE	21	1	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
6	Flebogamma	Flebogamma	MULTIPLE	21	1	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
7	Gammagard	Gammagard	MULTIPLE	21	1	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
8	Gammaplex	Gammaplex	MULTIPLE	21	1	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
9	Gamunex/Gamunex-C/Gammaked	Gamunex/Gamunex-C/Gammaked	MULTIPLE	21	1	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
10	Hizentra	Hizentra	MULTIPLE	21	1	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
11	Octagam	Octagam	MULTIPLE	21	1	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
12	Privigen	Privigen	MULTIPLE	21	1	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
13	Vivaglobin	Vivaglobin	MULTIPLE	21	1	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
14	All Ig Codes	All Ig Codes	MULTIPLE	21	1	None	NA	NA	NA	NA	Hemolysis	Hemolysis	MULTIPLE	90	All

15	Lyophilized Codes	Lyophilized Codes	MULTIPLE	21	10	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
16	Non-lyophilized intramuscular codes	Non-lyophilized intramuscular codes	MULTIPLE	21	10	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
17	Non-lyophilized intravenous codes	Non-lyophilized intravenous codes	MULTIPLE	21	10	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
18	Non-lyophilized unspecified route codes	Non-lyophilized unspecified route codes	MULTIPLE	21	10	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
19	Non-lyophilized subcutaneous codes	Non-lyophilized subcutaneous codes	MULTIPLE	21	10	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
20	Flebogamma	Flebogamma	MULTIPLE	21	10	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
21	Gammagard	Gammagard	MULTIPLE	21	10	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
22	Gammaplex	Gammaplex	MULTIPLE	21	10	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
23	Gamunex/Gamunex-C/Gammaked	Gamunex/Gamunex-C/Gammaked	MULTIPLE	21	10	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
24	Hizentra	Hizentra	MULTIPLE	21	10	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
25	Octagam	Octagam	MULTIPLE	21	10	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
26	Privigen	Privigen	MULTIPLE	21	10	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
27	Vivaglobin	Vivaglobin	MULTIPLE	21	10	All listed exposures except exposure of interest	-21	21	ALL	NO	Hemolysis	Hemolysis	MULTIPLE	90	All
28	All Ig Codes	All Ig Codes	MULTIPLE	21	10	None	NA	NA	NA	NA	Hemolysis	Hemolysis	MULTIPLE	90	All

* Lookup period duration of 1 day considers same day Ig and hemolysis only.

Glossary of Terms in Modular Program 6*

Care Setting - type of medical encounter or facility where the exposure, event, or condition code was recorded. Possible care settings include: Inpatient Hospital Stay (IP), Non-Acute Institutional Stay (IS), Emergency Department (ED), Ambulatory Visit (AV), and Other Ambulatory Visit (OA).

Eligible Members - Number of members eligible for an incident exposure/lookup period (defined by the exposure and event washout periods) with drug and medical coverage during the query period.

Enrollment Gap - number of days allowed between two consecutive enrollment periods without breaking a "continuously enrolled" sequence.

Incidence Type (drug/exposure)- *Minimum incidence type* will consider the first exposure/lookup period in the query period as long as it is the first exposure/lookup period in the user's entire available history. *Single* and *Multiple incidence types* will use the washout period to establish incidence; however, *Single* will only consider the first exposure/lookup period whereas *Multiple* will consider all qualifying exposures/lookup periods.

Incidence Type (event/outcome)- *Minimum incidence type* considers the first event in a valid episode as long as it is the first event in the user's entire available history. *Multiple incidence type* uses the washout period to establish incidence and considers all qualifying incident exposures/lookup periods.

Inclusion/Exclusion Indicator - indicates whether condition(s) of interest are used for inclusion or exclusion criteria. A value of 1 instructs the program that members must have the condition of interest (inclusion criteria); a value of 0 instructs the program that members must not have the condition of interest (exclusion criteria).

Lookback Period Start and End - range of days relative to index that the program looks for inclusion/exclusion conditions of interest. For example, if the Inclusion/Exclusion Indicator =1, Lookback Period Start = -183 and Lookback Period End = 0, the cohort will only include members with the condition of interest present in the 183 days prior to and including the index date (the index date is day 0).

Lookup Period - fixed period of time following an incident exposure that the MP6 program searches for events of interest.

Member-Days - sum of all days a member is eligible for an incident exposure/lookup period (i.e., days that the member meets all inclusion criteria such a incidence, pre-existing condition, and enrollment requirements).

Minimum Lookup Period Duration - minimum number of enrollment days required after an incident exposure/lookup period start. For example, if the minimum duration =10, a member must have 10 or more days of continuous enrollment in drug and medical benefit coverage following the exposure/lookup period start in order for the lookup period to be included in output metrics.

New Users - number of members with incident exposure/lookup period during the query period. A user may only be counted once in a query period.

Principal Diagnosis - diagnosis or condition established to be chiefly responsible for admission of the patient to the hospital. YES will only consider diagnoses flagged as Principal.

Query Period - period in which the modular program evaluates exposures of interest.

Washout Period (drug/exposure) -** number of days a user is required to have no evidence of prior exposure (drug dispensing/procedure) and continuous drug and medical coverage prior to an incident exposure/lookup period.

Washout Period (event/outcome) -** number of days a user is required to have no evidence of a prior event (procedure/diagnosis) and continuous drug and medical coverage prior to an incident exposure/lookup period.

*all terms may not be used in this report

Table 1. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product and Risk Window

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Lyophilized								
1 day risk window	7,877	76,052	76,052	98	98,412,255	228,364,437	8.00	1.24
10 day risk window	7,865	64,423	644,230	117	98,412,255	228,364,437	7.99	1.49
Non-lyophilized intramuscular								
1 day risk window	3,383	11,150	11,150	1	98,411,748	228,366,194	3.44	0.03
10 day risk window	3,378	10,168	101,680	1	98,411,748	228,366,194	3.43	0.03
Non-lyophilized intravenous								
1 day risk window	3,809	29,242	29,242	29	98,411,981	228,362,339	3.87	0.76
10 day risk window	3,807	24,846	248,460	44	98,411,981	228,362,339	3.87	1.16
Non-lyophilized unspecified route								
1 day risk window	13,320	20,345	20,345	302	98,411,757	228,379,609	13.53	2.27
10 day risk window	13,315	19,699	196,990	317	98,411,757	228,379,609	13.53	2.38
Non-lyophilized subcutaneous								
1 day risk window	0	0	0	0	98,411,715	228,360,239	0.00	---
10 day risk window	0	0	0	0	98,411,715	228,360,239	0.00	---
Flebogamma								
1 day risk window	2,547	19,808	19,808	47	98,411,821	228,361,269	2.59	1.85
10 day risk window	2,540	15,946	159,460	56	98,411,821	228,361,269	2.58	2.20
Gammagard								
1 day risk window	11,199	117,063	117,063	107	98,412,366	228,365,193	11.38	0.96
10 day risk window	11,182	100,690	1,006,900	153	98,412,366	228,365,193	11.36	1.37
Gammaplex								
1 day risk window	62	276	276	1	98,411,717	228,360,251	0.06	1.61
10 day risk window	62	221	2,210	1	98,411,717	228,360,251	0.06	1.61
Gamunex/Gamunex-C/Gammaked								
1 day risk window	8,140	88,104	88,104	73	98,412,207	228,363,336	8.27	0.90
10 day risk window	8,131	74,688	746,880	101	98,412,207	228,363,336	8.26	1.24

Table 1. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product and Risk Window

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Hizentra								
1 day risk window	1,424	29,166	29,166	4	98,411,841	228,360,069	1.45	0.28
10 day risk window	1,420	19,529	195,290	7	98,411,841	228,360,069	1.44	0.49
Octagam								
1 day risk window	2,765	22,677	22,677	29	98,411,893	228,361,587	2.81	1.05
10 day risk window	2,758	19,476	194,760	38	98,411,893	228,361,587	2.80	1.38
Privigen								
1 day risk window	3,857	33,265	33,265	46	98,411,891	228,361,319	3.92	1.19
10 day risk window	3,850	27,794	277,940	56	98,411,891	228,361,319	3.91	1.45
Vivaglobin								
1 day risk window	1,484	29,993	29,993	6	98,411,856	228,360,916	1.51	0.40
10 day risk window	1,483	22,108	221,080	12	98,411,856	228,360,916	1.51	0.81
All Ig								
1 day risk window	49,746	517,940	517,940	736	101,689,845	239,754,058	48.92	1.48
10 day risk window	49,746	429,878	4,282,891	891	101,689,845	239,754,058	48.92	1.79

Table 2. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Age Group

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Lyophilized								
1 day risk window								
0-17 years	762	6,167	6,167	9	24,512,103	52,777,782	3.11	1.18
18-44 years	1,980	18,672	18,672	25	46,019,885	86,329,118	4.30	1.26
45-64 years	3,461	34,434	34,434	33	27,724,405	65,905,522	12.48	0.95
65+ years	1,918	16,779	16,779	35	8,217,104	23,352,015	23.34	1.82
10 day risk window								
0-17 years	762	5,905	59,050	13	24,512,103	52,777,782	3.11	1.71
18-44 years	1,975	15,624	156,240	28	46,019,885	86,329,118	4.29	1.42
45-64 years	3,456	28,502	285,020	37	27,724,405	65,905,522	12.47	1.07
65+ years	1,916	14,392	143,920	44	8,217,104	23,352,015	23.32	2.30
Non-lyophilized intramuscular								
1 day risk window								
0-17 years	624	1,046	1,046	0	24,512,034	52,778,424	2.55	0.00
18-44 years	1,083	3,008	3,008	0	46,019,754	86,329,950	2.35	0.00
45-64 years	1,318	5,317	5,317	0	27,724,225	65,906,384	4.75	0.00
65+ years	407	1,779	1,779	1	8,217,019	23,351,436	4.95	0.25
10 day risk window								
0-17 years	623	1,016	10,160	0	24,512,034	52,778,424	2.54	0.00
18-44 years	1,081	2,772	27,720	0	46,019,754	86,329,950	2.35	0.00
45-64 years	1,316	4,763	47,630	0	27,724,225	65,906,384	4.75	0.00
65+ years	407	1,617	16,170	1	8,217,019	23,351,436	4.95	0.25
Non-lyophilized intravenous								
1 day risk window								
0-17 years	503	3,847	3,847	4	24,512,085	52,777,689	2.05	0.80
18-44 years	1,003	7,650	7,650	3	46,019,792	86,328,883	2.18	0.30
45-64 years	1,649	12,657	12,657	15	27,724,239	65,904,759	5.95	0.91
65+ years	748	5,088	5,088	8	8,217,018	23,351,008	9.10	1.07

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Non-lyophilized intravenous (Continued)								
10 day risk window								
0-17 years	503	3,652	36,520	6	24,512,085	52,777,689	2.05	1.19
18-44 years	1,001	6,432	64,320	6	46,019,792	86,328,883	2.18	0.60
45-64 years	1,649	10,471	104,710	22	27,724,239	65,904,759	5.95	1.33
65+ years	746	4,291	42,910	11	8,217,018	23,351,008	9.08	1.47
Non-lyophilized unspecified route								
1 day risk window								
0-17 years	4,199	6,734	6,734	75	24,512,054	52,783,747	17.13	1.79
18-44 years	3,498	4,861	4,861	69	46,019,979	86,333,093	7.60	1.97
45-64 years	3,443	5,403	5,403	90	27,724,277	65,908,624	12.42	2.61
65+ years	2,235	3,347	3,347	70	8,217,110	23,354,145	27.20	3.13
10 day risk window								
0-17 years	4,197	6,533	65,330	79	24,512,054	52,783,747	17.12	1.88
18-44 years	3,496	4,702	47,020	73	46,019,979	86,333,093	7.60	2.09
45-64 years	3,442	5,155	51,550	95	27,724,277	65,908,624	12.42	2.76
65+ years	2,235	3,309	33,090	72	8,217,110	23,354,145	27.20	3.22
Non-lyophilized subcutaneous								
1 day risk window								
0-17 years	0	0	0	0	24,512,032	52,777,404	0.00	---
18-44 years	0	0	0	0	46,019,699	86,328,221	0.00	---
45-64 years	0	0	0	0	27,724,089	65,903,958	0.00	---
65+ years	0	0	0	0	8,216,959	23,350,655	0.00	---
10 day risk window								
0-17 years	0	0	0	0	24,512,032	52,777,404	0.00	---
18-44 years	0	0	0	0	46,019,699	86,328,221	0.00	---
45-64 years	0	0	0	0	27,724,089	65,903,958	0.00	---
65+ years	0	0	0	0	8,216,959	23,350,655	0.00	---

Table 2. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Age Group

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Flebogamma								
1 day risk window								
0-17 years	181	1,021	1,021	1	24,512,044	52,777,476	0.74	0.55
18-44 years	503	3,688	3,688	11	46,019,725	86,328,453	1.09	2.19
45-64 years	1,082	8,561	8,561	16	27,724,152	65,904,331	3.90	1.48
65+ years	834	6,538	6,538	21	8,216,992	23,351,010	10.15	2.52
10 day risk window								
0-17 years	181	986	9,860	1	24,512,044	52,777,476	0.74	0.55
18-44 years	500	2,994	29,940	16	46,019,725	86,328,453	1.09	3.20
45-64 years	1,080	6,585	65,850	17	27,724,152	65,904,331	3.90	1.57
65+ years	832	5,381	53,810	24	8,216,992	23,351,010	10.13	2.88
Gammagard								
1 day risk window								
0-17 years	1,256	10,829	10,829	16	24,512,108	52,777,834	5.12	1.27
18-44 years	2,867	27,461	27,461	19	46,019,915	86,329,601	6.23	0.66
45-64 years	4,974	55,070	55,070	42	27,724,514	65,906,129	17.94	0.84
65+ years	2,441	23,703	23,703	35	8,217,107	23,351,628	29.71	1.43
10 day risk window								
0-17 years	1,256	9,956	99,560	20	24,512,108	52,777,834	5.12	1.59
18-44 years	2,862	23,695	236,950	28	46,019,915	86,329,601	6.22	0.98
45-64 years	4,962	47,000	470,000	62	27,724,514	65,906,129	17.90	1.25
65+ years	2,438	20,039	200,390	48	8,217,107	23,351,628	29.67	1.97
Gammaplex								
1 day risk window								
0-17 years	2	13	13	0	24,512,033	52,777,406	0.01	0.00
18-44 years	14	49	49	0	46,019,696	86,328,225	0.03	0.00
45-64 years	34	167	167	1	27,724,089	65,903,956	0.12	2.94
65+ years	14	47	47	0	8,216,958	23,350,664	0.17	0.00

Table 2. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Age Group

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Gammaplex (Continued)								
10 day risk window								
0-17 years	2	13	130	0	24,512,033	52,777,406	0.01	0.00
18-44 years	14	36	360	0	46,019,696	86,328,225	0.03	0.00
45-64 years	34	128	1,280	1	27,724,089	65,903,956	0.12	2.94
65+ years	14	44	440	0	8,216,958	23,350,664	0.17	0.00
Gamunex/Gamunex-C/Gammaked								
1 day risk window								
0-17 years	1,376	12,292	12,292	14	24,512,117	52,778,090	5.61	1.02
18-44 years	1,920	20,091	20,091	20	46,019,848	86,328,992	4.17	1.04
45-64 years	3,503	41,142	41,142	25	27,724,366	65,905,055	12.64	0.71
65+ years	1,614	14,579	14,579	15	8,217,047	23,351,199	19.64	0.93
10 day risk window								
0-17 years	1,375	11,452	114,520	22	24,512,117	52,778,090	5.61	1.60
18-44 years	1,917	16,699	166,990	28	46,019,848	86,328,992	4.17	1.46
45-64 years	3,499	34,407	344,070	33	27,724,366	65,905,055	12.62	0.94
65+ years	1,613	12,130	121,300	19	8,217,047	23,351,199	19.63	1.18
Hizentra								
1 day risk window								
0-17 years	325	6,701	6,701	1	24,512,062	52,777,345	1.33	0.31
18-44 years	413	8,040	8,040	2	46,019,738	86,328,192	0.90	0.48
45-64 years	590	12,546	12,546	1	27,724,138	65,903,897	2.13	0.17
65+ years	130	1,879	1,879	0	8,216,966	23,350,634	1.58	0.00
10 day risk window								
0-17 years	325	4,396	43,960	2	24,512,062	52,777,345	1.33	0.62
18-44 years	412	5,283	52,830	3	46,019,738	86,328,192	0.90	0.73
45-64 years	587	8,264	82,640	2	27,724,138	65,903,897	2.12	0.34
65+ years	130	1,586	15,860	0	8,216,966	23,350,634	1.58	0.00

Table 2. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Age Group

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Octagam								
1 day risk window								
0-17 years	134	979	979	0	24,512,049	52,777,479	0.55	0.00
18-44 years	652	5,465	5,465	11	46,019,746	86,328,579	1.42	1.69
45-64 years	1,328	10,948	10,948	6	27,724,200	65,904,562	4.79	0.45
65+ years	712	5,285	5,285	13	8,217,004	23,350,967	8.66	1.83
10 day risk window								
0-17 years	134	952	9,520	0	24,512,049	52,777,479	0.55	0.00
18-44 years	651	4,400	44,000	12	46,019,746	86,328,579	1.41	1.84
45-64 years	1,323	9,631	96,310	11	27,724,200	65,904,562	4.77	0.83
65+ years	711	4,493	44,930	16	8,217,004	23,350,967	8.65	2.25
Privigen								
1 day risk window								
0-17 years	328	2,262	2,262	6	24,512,048	52,777,520	1.34	1.83
18-44 years	926	7,128	7,128	9	46,019,747	86,328,513	2.01	0.97
45-64 years	1,686	15,392	15,392	18	27,724,200	65,904,458	6.08	1.07
65+ years	1,005	8,483	8,483	15	8,216,990	23,350,827	12.23	1.49
10 day risk window								
0-17 years	328	2,211	22,110	6	24,512,048	52,777,520	1.34	1.83
18-44 years	923	5,988	59,880	9	46,019,747	86,328,513	2.01	0.98
45-64 years	1,683	12,417	124,170	26	27,724,200	65,904,458	6.07	1.54
65+ years	1,003	7,178	71,780	17	8,216,990	23,350,827	12.21	1.69
Vivaglobin								
1 day risk window								
0-17 years	381	7,303	7,303	2	24,512,074	52,777,537	1.55	0.52
18-44 years	481	9,343	9,343	2	46,019,764	86,328,471	1.05	0.42
45-64 years	541	10,928	10,928	1	27,724,137	65,904,192	1.95	0.18
65+ years	132	2,419	2,419	1	8,216,969	23,350,715	1.61	0.76

Table 2. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Age Group

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Vivaglobin (Continued)								
10 day risk window								
0-17 years	381	5,603	56,030	4	24,512,074	52,777,537	1.55	1.05
18-44 years	480	6,772	67,720	3	46,019,764	86,328,471	1.04	0.63
45-64 years	541	7,922	79,220	4	27,724,137	65,904,192	1.95	0.74
65+ years	132	1,811	18,110	1	8,216,969	23,350,715	1.61	0.76
All Ig								
1 day risk window								
0-17 years	9,828	65,290	65,290	134	25,496,483	55,489,452	38.55	1.36
18-44 years	13,085	126,050	126,050	176	47,794,754	91,460,390	27.38	1.35
45-64 years	18,848	229,987	229,987	235	28,677,496	68,685,207	65.72	1.25
65+ years	9,564	96,613	96,613	206	8,414,793	24,119,009	113.66	2.15
10 day risk window								
0-17 years	9,828	57,902	577,056	162	25,496,483	55,489,452	38.55	1.65
18-44 years	13,084	103,068	1,026,285	207	47,794,754	91,460,390	27.38	1.58
45-64 years	18,848	187,907	1,871,817	299	28,677,496	68,685,207	65.72	1.59
65+ years	9,563	81,001	807,733	241	8,414,793	24,119,009	113.65	2.52

Table 3. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Sex

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Lyophilized								
1 day risk window								
Female	4,334	42,558	42,558	39	49,905,111	117,335,623	8.68	0.90
Male	3,543	33,494	33,494	59	48,501,747	111,020,769	7.30	1.67
Unknown	0	0	0	0	5,397	8,046	0.00	---
10 day risk window								
Female	4,326	36,209	362,090	47	49,905,111	117,335,623	8.67	1.09
Male	3,539	28,214	282,140	70	48,501,747	111,020,769	7.30	1.98
Unknown	0	0	0	0	5,397	8,046	0.00	---
Non-lyophilized intramuscular								
1 day risk window								
Female	2,125	8,015	8,015	1	49,904,822	117,337,079	4.26	0.05
Male	1,258	3,135	3,135	0	48,501,529	111,021,069	2.59	0.00
Unknown	0	0	0	0	5,397	8,046	0.00	---
10 day risk window								
Female	2,123	7,199	71,990	1	49,904,822	117,337,079	4.25	0.05
Male	1,255	2,969	29,690	0	48,501,529	111,021,069	2.59	0.00
Unknown	0	0	0	0	5,397	8,046	0.00	---
Non-lyophilized intravenous								
1 day risk window								
Female	2,077	15,816	15,816	17	49,904,966	117,334,556	4.16	0.82
Male	1,732	13,426	13,426	12	48,501,618	111,019,737	3.57	0.69
Unknown	0	0	0	0	5,397	8,046	0.00	---
10 day risk window								
Female	2,076	13,440	134,400	27	49,904,966	117,334,556	4.16	1.30
Male	1,731	11,406	114,060	17	48,501,618	111,019,737	3.57	0.98
Unknown	0	0	0	0	5,397	8,046	0.00	---

Table 3. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Sex

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Non-lyophilized unspecified route								
1 day risk window								
Female	7,088	10,775	10,775	158	49,904,824	117,343,754	14.20	2.23
Male	6,230	9,568	9,568	144	48,501,536	111,027,807	12.84	2.31
Unknown	2	2	2	0	5,397	8,048	37.06	0.00
10 day risk window								
Female	7,088	10,487	104,870	168	49,904,824	117,343,754	14.20	2.37
Male	6,225	9,210	92,100	149	48,501,536	111,027,807	12.83	2.39
Unknown	2	2	20	0	5,397	8,048	37.06	0.00
Non-lyophilized subcutaneous								
1 day risk window								
Female	0	0	0	0	49,904,804	117,333,448	0.00	---
Male	0	0	0	0	48,501,514	111,018,745	0.00	---
Unknown	0	0	0	0	5,397	8,046	0.00	---
10 day risk window								
Female	0	0	0	0	49,904,804	117,333,448	0.00	---
Male	0	0	0	0	48,501,514	111,018,745	0.00	---
Unknown	0	0	0	0	5,397	8,046	0.00	---
Flebogamma								
1 day risk window								
Female	1,297	9,836	9,836	24	49,904,862	117,333,962	2.60	1.85
Male	1,250	9,972	9,972	23	48,501,562	111,019,261	2.58	1.84
Unknown	0	0	0	0	5,397	8,046	0.00	---
10 day risk window								
Female	1,295	8,247	82,470	28	49,904,862	117,333,962	2.59	2.16
Male	1,245	7,699	76,990	28	48,501,562	111,019,261	2.57	2.25
Unknown	0	0	0	0	5,397	8,046	0.00	---

Table 3. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Sex

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Gammagard								
1 day risk window								
Female	6,217	67,143	67,143	54	49,905,141	117,336,142	12.46	0.87
Male	4,981	49,919	49,919	53	48,501,828	111,021,005	10.27	1.06
Unknown	1	1	1	0	5,397	8,046	18.53	0.00
10 day risk window								
Female	6,215	58,186	581,860	75	49,905,141	117,336,142	12.45	1.21
Male	4,966	42,503	425,030	78	48,501,828	111,021,005	10.24	1.57
Unknown	1	1	10	0	5,397	8,046	18.53	0.00
Gammaplex								
1 day risk window								
Female	44	200	200	1	49,904,805	117,333,447	0.09	2.27
Male	18	76	76	0	48,501,515	111,018,758	0.04	0.00
Unknown	0	0	0	0	5,397	8,046	0.00	---
10 day risk window								
Female	44	156	1,560	1	49,904,805	117,333,447	0.09	2.27
Male	18	65	650	0	48,501,515	111,018,758	0.04	0.00
Unknown	0	0	0	0	5,397	8,046	0.00	---
Gamunex/Gamunex-C/Gammaked								
1 day risk window								
Female	4,287	47,838	47,838	41	49,905,073	117,335,034	8.59	0.96
Male	3,853	40,266	40,266	32	48,501,737	111,020,256	7.94	0.83
Unknown	0	0	0	0	5,397	8,046	0.00	---
10 day risk window								
Female	4,285	40,532	405,320	56	49,905,073	117,335,034	8.59	1.31
Male	3,846	34,156	341,560	45	48,501,737	111,020,256	7.93	1.17
Unknown	0	0	0	0	5,397	8,046	0.00	---

Table 3. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Sex

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Hizentra								
1 day risk window								
Female	888	18,089	18,089	1	49,904,879	117,333,321	1.78	0.11
Male	535	11,076	11,076	3	48,501,565	111,018,702	1.10	0.56
Unknown	1	1	1	0	5,397	8,045	18.53	0.00
10 day risk window								
Female	886	12,144	121,440	1	49,904,879	117,333,321	1.78	0.11
Male	533	7,384	73,840	6	48,501,565	111,018,702	1.10	1.13
Unknown	1	1	10	0	5,397	8,045	18.53	0.00
Octagam								
1 day risk window								
Female	1,598	13,989	13,989	15	49,904,896	117,334,239	3.20	0.94
Male	1,167	8,688	8,688	14	48,501,600	111,019,303	2.41	1.20
Unknown	0	0	0	0	5,397	8,046	0.00	---
10 day risk window								
Female	1,596	11,906	119,060	19	49,904,896	117,334,239	3.20	1.19
Male	1,162	7,570	75,700	19	48,501,600	111,019,303	2.40	1.64
Unknown	0	0	0	0	5,397	8,046	0.00	---
Privigen								
1 day risk window								
Female	2,116	18,344	18,344	23	49,904,911	117,334,013	4.24	1.09
Male	1,741	14,921	14,921	23	48,501,583	111,019,260	3.59	1.32
Unknown	0	0	0	0	5,397	8,046	0.00	---
10 day risk window								
Female	2,113	15,828	158,280	26	49,904,911	117,334,013	4.23	1.23
Male	1,737	11,966	119,660	30	48,501,583	111,019,260	3.58	1.73
Unknown	0	0	0	0	5,397	8,046	0.00	---

Table 3. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Sex

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Vivaglobin								
1 day risk window								
Female	894	18,283	18,283	1	49,904,894	117,333,861	1.79	0.11
Male	590	11,710	11,710	5	48,501,565	111,019,009	1.22	0.85
Unknown	0	0	0	0	5,397	8,046	0.00	---
10 day risk window								
Female	893	13,345	133,450	2	49,904,894	117,333,861	1.79	0.22
Male	590	8,763	87,630	10	48,501,565	111,019,009	1.22	1.69
Unknown	0	0	0	0	5,397	8,046	0.00	---
All Ig								
1 day risk window								
Female	27,146	293,020	293,020	384	51,495,634	123,094,990	52.72	1.41
Male	22,598	224,912	224,912	352	50,187,917	116,650,332	45.03	1.56
Unknown	2	8	8	0	6,294	8,736	31.78	0.00
10 day risk window								
Female	27,146	244,486	2,435,496	462	51,495,634	123,094,990	52.72	1.70
Male	22,598	185,384	1,847,315	429	50,187,917	116,650,332	45.03	1.90
Unknown	2	8	80	0	6,294	8,736	31.78	0.00

Table 4. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Year

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Lyophilized								
1 day risk window								
2006	1,772	10,174	10,174	10	22,622,442	17,863,150	7.83	0.56
2007	1,917	11,415	11,415	22	26,025,420	20,014,151	7.37	1.15
2008	3,119	18,520	18,520	35	52,156,032	40,261,542	5.98	1.12
2009	2,290	14,468	14,468	31	51,033,756	40,721,649	4.49	1.35
2010	1,520	9,025	9,025	19	49,261,596	39,363,494	3.09	1.25
2011	1,225	7,832	7,832	16	48,042,086	38,609,839	2.55	1.31
2012	871	4,618	4,618	4	44,786,964	31,530,613	1.94	0.46
10 day risk window								
2006	1,768	8,368	83,680	13	22,622,442	17,863,150	7.82	0.74
2007	1,914	9,704	97,040	27	26,025,420	20,014,151	7.35	1.41
2008	3,116	15,650	156,500	39	52,156,032	40,261,542	5.97	1.25
2009	2,287	12,349	123,490	39	51,033,756	40,721,649	4.48	1.71
2010	1,517	7,716	77,160	24	49,261,596	39,363,494	3.08	1.58
2011	1,223	6,683	66,830	18	48,042,086	38,609,839	2.55	1.47
2012	871	3,953	39,530	6	44,786,964	31,530,613	1.94	0.69
Non-lyophilized intramuscular								
1 day risk window								
2006	467	1,521	1,521	0	22,622,238	17,863,036	2.06	0.00
2007	519	1,230	1,230	0	26,025,286	20,014,133	1.99	0.00
2008	893	2,530	2,530	0	52,155,811	40,261,498	1.71	0.00
2009	749	1,927	1,927	0	51,033,822	40,721,843	1.47	0.00
2010	727	1,869	1,869	1	49,261,875	39,363,991	1.48	0.14
2011	392	1,220	1,220	0	48,042,687	38,610,506	0.82	0.00
2012	351	853	853	0	44,787,529	31,531,187	0.78	0.00

Table 4. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Year

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Non-lyophilized intramuscular (Continued)								
10 day risk window								
2006	465	1,468	14,680	0	22,622,238	17,863,036	2.06	0.00
2007	519	1,135	11,350	0	26,025,286	20,014,133	1.99	0.00
2008	890	2,233	22,330	0	52,155,811	40,261,498	1.71	0.00
2009	749	1,783	17,830	0	51,033,822	40,721,843	1.47	0.00
2010	727	1,705	17,050	1	49,261,875	39,363,991	1.48	0.14
2011	392	1,063	10,630	0	48,042,687	38,610,506	0.82	0.00
2012	351	781	7,810	0	44,787,529	31,531,187	0.78	0.00
Non-lyophilized intravenous								
1 day risk window								
2006	2,483	15,543	15,543	19	22,622,495	17,863,361	10.98	0.77
2007	2,389	12,973	12,973	15	26,025,689	20,014,419	9.18	0.63
2008	53	124	124	0	52,155,767	40,261,119	0.10	0.00
2009	13	25	25	0	51,033,217	40,721,043	0.03	0.00
2010	0	0	0	0	49,260,995	39,362,938	0.00	---
2011	110	484	484	1	48,041,539	38,609,325	0.23	0.91
2012	20	93	93	0	44,786,405	31,530,133	0.04	0.00
10 day risk window								
2006	2,482	13,169	131,690	28	22,622,495	17,863,361	10.97	1.13
2007	2,386	11,068	110,680	24	26,025,689	20,014,419	9.17	1.01
2008	52	101	1,010	0	52,155,767	40,261,119	0.10	0.00
2009	13	25	250	0	51,033,217	40,721,043	0.03	0.00
2010	0	0	0	0	49,260,995	39,362,938	0.00	---
2011	110	390	3,900	1	48,041,539	38,609,325	0.23	0.91
2012	20	93	930	0	44,786,405	31,530,133	0.04	0.00

Table 4. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Year

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Non-lyophilized unspecified route								
1 day risk window								
2006	966	1,628	1,628	22	22,622,237	17,863,166	4.27	2.28
2007	1,189	1,819	1,819	31	26,025,576	20,014,537	4.57	2.61
2008	2,740	4,296	4,296	65	52,156,385	40,262,653	5.25	2.37
2009	2,649	3,828	3,828	45	51,035,434	40,723,901	5.19	1.70
2010	2,481	3,189	3,189	58	49,264,309	39,366,789	5.04	2.34
2011	2,594	3,464	3,464	48	48,045,738	38,614,046	5.40	1.85
2012	1,865	2,121	2,121	44	44,791,358	31,534,517	4.16	2.36
10 day risk window								
2006	964	1,563	15,630	23	22,622,237	17,863,166	4.26	2.39
2007	1,189	1,776	17,760	34	26,025,576	20,014,537	4.57	2.86
2008	2,738	4,110	41,100	65	52,156,385	40,262,653	5.25	2.37
2009	2,646	3,681	36,810	49	51,035,434	40,723,901	5.18	1.85
2010	2,479	3,108	31,080	59	49,264,309	39,366,789	5.03	2.38
2011	2,593	3,380	33,800	51	48,045,738	38,614,046	5.40	1.97
2012	1,864	2,081	20,810	49	44,791,358	31,534,517	4.16	2.63
Non-lyophilized subcutaneous								
1 day risk window								
2006	0	0	0	0	22,622,226	17,862,892	0.00	---
2007	0	0	0	0	26,025,035	20,013,745	0.00	---
2008	0	0	0	0	52,155,273	40,260,743	0.00	---
2009	0	0	0	0	51,032,917	40,720,780	0.00	---
2010	0	0	0	0	49,260,767	39,362,766	0.00	---
2011	0	0	0	0	48,041,387	38,609,213	0.00	---
2012	0	0	0	0	44,786,312	31,530,099	0.00	---

Table 4. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Year

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Non-lyophilized subcutaneous (Continued)								
10 day risk window								---
2006	0	0	0	0	22,622,226	17,862,892	0.00	---
2007	0	0	0	0	26,025,035	20,013,745	0.00	---
2008	0	0	0	0	52,155,273	40,260,743	0.00	---
2009	0	0	0	0	51,032,917	40,720,780	0.00	---
2010	0	0	0	0	49,260,767	39,362,766	0.00	---
2011	0	0	0	0	48,041,387	38,609,213	0.00	---
2012	0	0	0	0	44,786,312	31,530,099	0.00	---
Flebogamma								
1 day risk window								
2006	0	0	0	0	22,622,229	17,862,885	0.00	---
2007	194	581	581	3	26,025,049	20,013,735	0.75	1.55
2008	601	2,814	2,814	9	52,155,341	40,260,800	1.15	1.50
2009	745	3,959	3,959	11	51,033,032	40,720,911	1.46	1.48
2010	784	4,016	4,016	11	49,260,971	39,362,989	1.59	1.40
2011	854	5,036	5,036	15	48,041,654	38,609,503	1.78	1.76
2012	674	3,402	3,402	11	44,786,641	31,530,446	1.50	1.63
10 day risk window								
2006	0	0	0	0	22,622,229	17,862,885	0.00	---
2007	194	505	5,050	3	26,025,049	20,013,735	0.75	1.55
2008	598	2,367	23,670	12	52,155,341	40,260,800	1.15	2.01
2009	745	3,202	32,020	12	51,033,032	40,720,911	1.46	1.61
2010	782	3,254	32,540	12	49,260,971	39,362,989	1.59	1.53
2011	852	3,879	38,790	19	48,041,654	38,609,503	1.77	2.23
2012	673	2,739	27,390	15	44,786,641	31,530,446	1.50	2.23

Table 4. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Year

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Gammagard								
1 day risk window								
2006	5	54	54	0	22,622,223	17,862,866	0.02	0.00
2007	589	2,357	2,357	3	26,025,075	20,013,686	2.26	0.51
2008	3,223	19,646	19,646	27	52,155,595	40,261,195	6.18	0.84
2009	3,498	22,431	22,431	34	51,033,605	40,721,543	6.85	0.97
2010	3,643	22,989	22,989	33	49,261,686	39,363,703	7.40	0.91
2011	4,051	27,237	27,237	25	48,042,559	38,610,517	8.43	0.62
2012	3,630	22,349	22,349	23	44,787,901	31,531,683	8.10	0.63
10 day risk window								
2006	5	31	310	0	22,622,223	17,862,866	0.02	0.00
2007	588	1,974	19,740	4	26,025,075	20,013,686	2.26	0.68
2008	3,208	16,760	167,600	35	52,155,595	40,261,195	6.15	1.09
2009	3,494	19,404	194,040	47	51,033,605	40,721,543	6.85	1.35
2010	3,640	19,909	199,090	43	49,261,686	39,363,703	7.39	1.18
2011	4,045	23,502	235,020	39	48,042,559	38,610,517	8.42	0.96
2012	3,625	19,110	191,100	30	44,787,901	31,531,683	8.09	0.83
Gammaplex								
1 day risk window								
2006	0	0	0	0	22,622,226	17,862,892	0.00	---
2007	0	0	0	0	26,025,035	20,013,746	0.00	---
2008	0	0	0	0	52,155,273	40,260,743	0.00	---
2009	0	0	0	0	51,032,917	40,720,782	0.00	---
2010	1	2	2	0	49,260,767	39,362,769	0.00	0.00
2011	7	18	18	0	48,041,383	38,609,213	0.01	0.00
2012	56	256	256	1	44,786,309	31,530,106	0.13	1.79

Table 4. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Year

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Gammaplex (Continued)								
10 day risk window								
2006	0	0	0	0	22,622,226	17,862,892	0.00	---
2007	0	0	0	0	26,025,035	20,013,746	0.00	---
2008	0	0	0	0	52,155,273	40,260,743	0.00	---
2009	0	0	0	0	51,032,917	40,720,782	0.00	---
2010	1	2	20	0	49,260,767	39,362,769	0.00	0.00
2011	7	16	160	0	48,041,383	38,609,213	0.01	0.00
2012	56	203	2,030	1	44,786,309	31,530,106	0.13	1.79
Gamunex/Gamunex-C/Gammaked								
1 day risk window								
2006	2	2	2	0	22,622,224	17,862,854	0.01	0.00
2007	642	2,588	2,588	2	26,025,062	20,013,670	2.47	0.31
2008	2,434	15,506	15,506	16	52,155,493	40,260,986	4.67	0.66
2009	2,660	17,733	17,733	20	51,033,331	40,721,223	5.21	0.75
2010	2,781	17,827	17,827	17	49,261,356	39,363,409	5.65	0.61
2011	2,679	18,950	18,950	19	48,042,184	38,610,060	5.58	0.71
2012	2,450	15,498	15,498	11	44,787,324	31,531,133	5.47	0.45
10 day risk window								
2006	2	2	20	0	22,622,224	17,862,854	0.01	0.00
2007	641	2,214	22,140	5	26,025,062	20,013,670	2.46	0.78
2008	2,428	13,447	134,470	25	52,155,493	40,260,986	4.66	1.03
2009	2,657	15,081	150,810	26	51,033,331	40,721,223	5.21	0.98
2010	2,777	15,017	150,170	23	49,261,356	39,363,409	5.64	0.83
2011	2,678	15,978	159,780	26	48,042,184	38,610,060	5.57	0.97
2012	2,450	12,949	129,490	15	44,787,324	31,531,133	5.47	0.61

Table 4. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Year

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Hizentra								
1 day risk window								
2006	0	0	0	0	22,622,224	17,862,889	0.00	---
2007	0	0	0	0	26,025,021	20,013,725	0.00	---
2008	0	0	0	0	52,155,226	40,260,683	0.00	---
2009	0	0	0	0	51,032,839	40,720,670	0.00	---
2010	5	8	8	0	49,260,650	39,362,569	0.01	0.00
2011	1,062	16,399	16,399	3	48,041,390	38,609,247	2.21	0.28
2012	1,014	12,759	12,759	2	44,786,459	31,530,286	2.26	0.20
10 day risk window								
2006	0	0	0	0	22,622,224	17,862,889	0.00	---
2007	0	0	0	0	26,025,021	20,013,725	0.00	---
2008	0	0	0	0	52,155,226	40,260,683	0.00	---
2009	0	0	0	0	51,032,839	40,720,670	0.00	---
2010	5	7	70	0	49,260,650	39,362,569	0.01	0.00
2011	1,060	10,721	107,210	5	48,041,390	38,609,247	2.21	0.47
2012	1,008	8,801	88,010	3	44,786,459	31,530,286	2.25	0.30
Octagam								
1 day risk window								
2006	0	0	0	0	22,622,238	17,862,903	0.00	---
2007	230	777	777	3	26,025,063	20,013,768	0.88	1.30
2008	1,140	6,903	6,903	9	52,155,427	40,260,983	2.19	0.79
2009	1,098	7,385	7,385	5	51,033,247	40,721,138	2.15	0.46
2010	804	4,248	4,248	5	49,261,133	39,363,138	1.63	0.62
2011	105	354	354	2	48,041,646	38,609,416	0.22	1.90
2012	653	3,010	3,010	10	44,786,489	31,530,241	1.46	1.53

Table 4. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Year

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Octagam (Continued)								
10 day risk window								
2006	0	0	0	0	22,622,238	17,862,903	0.00	---
2007	230	700	7,000	4	26,025,063	20,013,768	0.88	1.74
2008	1,134	5,855	58,550	12	52,155,427	40,260,983	2.17	1.06
2009	1,097	6,350	63,500	7	51,033,247	40,721,138	2.15	0.64
2010	804	3,808	38,080	7	49,261,133	39,363,138	1.63	0.87
2011	105	331	3,310	2	48,041,646	38,609,416	0.22	1.90
2012	652	2,432	24,320	11	44,786,489	31,530,241	1.46	1.69
Privigen								
1 day risk window								
2006	0	0	0	0	22,622,225	17,862,881	0.00	---
2007	1	1	1	0	26,025,027	20,013,725	0.00	0.00
2008	373	2,004	2,004	5	52,155,295	40,260,738	0.72	1.34
2009	698	4,314	4,314	3	51,032,990	40,720,845	1.37	0.43
2010	1,261	7,532	7,532	11	49,260,878	39,362,884	2.56	0.87
2011	1,659	10,155	10,155	16	48,041,655	38,609,556	3.45	0.96
2012	1,720	9,259	9,259	20	44,786,817	31,530,689	3.84	1.16
10 day risk window								
2006	0	0	0	0	22,622,225	17,862,881	0.00	---
2007	1	1	10	0	26,025,027	20,013,725	0.00	0.00
2008	370	1,556	15,560	5	52,155,295	40,260,738	0.71	1.35
2009	697	3,559	35,590	4	51,032,990	40,720,845	1.37	0.57
2010	1,261	6,207	62,070	13	49,260,878	39,362,884	2.56	1.03
2011	1,655	8,581	85,810	21	48,041,655	38,609,556	3.44	1.27
2012	1,719	7,890	78,900	25	44,786,817	31,530,689	3.84	1.45

Table 4. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Year

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
Vivaglobin								
1 day risk window								
2006	2	4	4	0	22,622,224	17,862,885	0.01	0.00
2007	181	1,363	1,363	0	26,025,044	20,013,753	0.70	0.00
2008	687	6,957	6,957	3	52,155,415	40,260,880	1.32	0.44
2009	858	9,790	9,790	1	51,033,114	40,720,994	1.68	0.12
2010	772	10,656	10,656	4	49,260,996	39,363,006	1.57	0.52
2011	263	1,193	1,193	0	48,041,564	38,609,281	0.55	0.00
2012	13	30	30	0	44,786,340	31,530,116	0.03	0.00
10 day risk window								
2006	2	3	30	0	22,622,224	17,862,885	0.01	0.00
2007	179	1,118	11,180	0	26,025,044	20,013,753	0.69	0.00
2008	686	5,288	52,880	5	52,155,415	40,260,880	1.32	0.73
2009	857	7,588	75,880	4	51,033,114	40,720,994	1.68	0.47
2010	772	7,255	72,550	7	49,260,996	39,363,006	1.57	0.91
2011	260	832	8,320	2	48,041,564	38,609,281	0.54	0.77
2012	13	24	240	0	44,786,340	31,530,116	0.03	0.00
All Ig								
1 day risk window								
2006	5,376	32,795	32,795	57	23,130,373	19,040,059	23.24	1.06
2007	6,503	38,849	38,849	79	26,459,890	20,827,375	24.58	1.21
2008	14,208	88,978	88,978	182	53,526,417	42,949,237	26.54	1.28
2009	14,053	91,665	91,665	152	51,853,789	42,278,924	27.10	1.08
2010	13,538	86,511	86,511	154	50,009,654	40,839,796	27.07	1.14
2011	13,897	98,416	98,416	146	48,712,339	40,062,525	28.53	1.05
2012	12,384	80,726	80,726	132	45,752,584	33,756,141	27.07	1.07

Table 4. Summary of Prevalent Ig Use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Year

	Users	Lookup Periods	Lookup Period Duration	Users with an Event	Eligible Members	Member-Days	Users/ 100K Eligible Members	% Users with an Event
All Ig (Continued)								
10 day risk window								
2006	5,376	27,622	275,527	76	23,130,373	19,040,059	23.24	1.41
2007	6,499	33,052	329,814	102	26,459,890	20,827,375	24.56	1.57
2008	14,207	74,311	741,021	213	53,526,417	42,949,237	26.54	1.50
2009	14,045	77,440	771,827	192	51,853,789	42,278,924	27.09	1.37
2010	13,531	71,814	716,081	181	50,009,654	40,839,796	27.06	1.34
2011	13,890	79,728	794,623	184	48,712,339	40,062,525	28.51	1.32
2012	12,376	65,911	653,998	162	45,752,584	33,756,141	27.05	1.31

Appendix A. Exposure and Event Codes

Exposures

Code	Code Type	Description
Lyophilized Codes		
J1566	HCPCS	Injection, immune globulin, intravenous, lyophilized (e.g., powder), 500 mg
Q9941	HCPCS	Injection, immune globulin, intravenous, lyophilized, 1g
Q9942	HCPCS	Injection, immune globulin, intravenous, lyophilized, 10 mg
Non-lyophilized intramuscular codes		
90281	HCPCS	Immune globulin (Ig), human, for intramuscular use
J1460	HCPCS	Injection, gamma globulin, intramuscular, 1 cc
J1470	HCPCS	Injection, gamma globulin, intramuscular, 2 cc
J1480	HCPCS	Injection, gamma globulin, intramuscular, 3 cc
J1490	HCPCS	Injection, gamma globulin, intramuscular, 4 cc
J1500	HCPCS	Injection, gamma globulin, intramuscular, 5 cc
J1510	HCPCS	Injection, gamma globulin, intramuscular, 6 cc
J1520	HCPCS	Injection, gamma globulin, intramuscular, 7 cc
J1530	HCPCS	Injection, gamma globulin, intramuscular, 8 cc
J1540	HCPCS	Injection, gamma globulin, intramuscular, 9 cc
J1550	HCPCS	Injection, gamma globulin, intramuscular, 10 cc
J1560	HCPCS	Injection, gamma globulin, intramuscular, over 10 cc
P9014	HCPCS	Globulin, gamma, 1 mL
Non-lyophilized intravenous codes		
90283	HCPCS	Immune globulin (IgIV), human, for intravenous use
J1563	HCPCS	Injection, immune globulin, intravenous, 1g
J1564	HCPCS	Injection, immune globulin, 10 mg
J1567	HCPCS	Injection, immune globulin, intravenous, non-lyophilized (e.g., liquid), 500 mg
J1599	HCPCS	Injection, immune globulin, intravenous, non-lyophilized (e.g., liquid), not otherwise specified, 500 mg
Q9943	HCPCS	Injection, immune globulin, intravenous, non-lyophilized, 1g
Q9944	HCPCS	Injection, immune globulin, intravenous, non-lyophilized, 10 mg
S9545	HCPCS	Administration of immune globulin, intravenously, in the home setting, including all nursing care, equipment, and supplies; per diem
Non-lyophilized subcutaneous codes		
90284	HCPCS	Immune globulin (SCIg), human, for use in subcutaneous infusions, 100 mg, each
Non-lyophilized unspecified route codes		
90399	HCPCS	Unlisted immune globulin
9914	ICD-9-CM	Injection or infusion of immunoglobulin
Flebogamma		
J1572	HCPCS	Injection, immune globulin (Flebogamma), intravenous, non-lyophilized (e.g., liquid), 500 mg
Q4091	HCPCS	Injection, immune globulin (Flebogamma), intravenous, non-lyophilized, (e.g., liquid), 500 mg

Gammagard

J1569	HCPCS	Injection, immune globulin (Gammagard Liquid), intravenous, non-lyophilized, (e.g., liquid), 500 mg
Q4088	HCPCS	Injection, immune globulin (Gammagard Liquid), intravenous, non-lyophilized, (e.g., liquid), 500 mg

Gammaplex

C9270	HCPCS	Injection, immune globulin (Gammaplex), intravenous, non-lyophilized (e.g., liquid), 500 mg
J1557	HCPCS	Injection, immune globulin (Gammaplex), intravenous, non-lyophilized (e.g., liquid), 500 mg

Gamunex/Gamunex-C/Gammaked

Q4092	HCPCS	Injection, immune globulin (Gamunex), intravenous, non-lyophilized (e.g., liquid), 500 mg
J1561	HCPCS	Injection, immune globulin (Gamunex/Gamunex-C/Gammaked), non-lyophilized (e.g., liquid), 500 mg

Hizentra

J1559	HCPCS	Injection, immune globulin (Hizentra), 100 mg

Octagam

J1568	HCPCS	Injection, immune globulin (Octagam), intravenous, non-lyophilized (e.g., liquid), 500 mg
Q4087	HCPCS	Injection, immune globulin (Octagam), intravenous, non-lyophilized (e.g., liquid), 500 mg

Privigen

J1459	HCPCS	Injection, immune globulin (Privigen), intravenous, non-lyophilized (e.g., liquid), 500 mg
Q4097	HCPCS	Injection, immune globulin (Privigen), intravenous, non-lyophilized (e.g., liquid), 500 mg

Vivaglobin

J1562	HCPCS	Injection, immune globulin (Vivaglobin), 100 mg. [Code effective date: 20080101]

Hemolysis Events

Code	Code Type	Description
283*	ICD-9	Acquired hemolytic anemias
999.6	ICD-9	ABO incompatibility reaction
999.7	ICD-9	Rh incompatibility reaction
999.83	ICD-9	Hemolytic transfusion reaction, incompatibility unspecified
999.84	ICD-9	Acute hemolytic transfusion reaction, incompatibility unspecified
999.85	ICD-9	Delayed hemolytic transfusion reaction, incompatibility unspecified