



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 not 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 6.0, to investigate use of several immunoglobulin (Ig) product groups and diagnosis of hemolysis events (see Appendix A for exposure and event groups/codes) within 3, 14, and 21 days 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. This request was distributed to 18 Mini-Sentinel Data Partners on October 14, 2013.

Results provide counts of new Ig users, new lookup periods, total lookup period duration (days), number of users with an event, eligible members, and member-years. New users must be new to all the immunoglobulin products specified in this request and could not have switched to another product within 21 days of the exposure of interest.

Request ID msy5_mpr03_v1, Report 1 of 1

Specifications Program parameter inputs and scenarios

Glossary List of terms found in this report and their definitions

Table 1 Table of Summary of Incident Immunoglobulin 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 Incident Immunoglobulin use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product, Risk Window, and Age Group

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Appendix A List of Immunoglobulin 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.

MSY5_MPR03_V1 Specifications

Modular Program #6, version 6.0, was used to investigate use of intravenous immunoglobulin (IVIg) products (see Appendix A) and subsequent diagnosis of hemolysis. The query period was from January 1, 2006 to December 31, 2012. Age groups were split as follows: 0-17, 18-44, 45-64, 65+. The program considers IVIg injections in all care settings. In total, 33 unique scenarios are 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 is 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).

Coverage Requirement	Drug and Medical Coverage
Query Period	January 1, 2006 to December 31, 2012
Enrollment Gap	45 Days
Enrollment Days	90
Age Stratifications	0-17, 18 - 44, 45-64, 65+
Minimum Lookup Period Duration	0 Days

Scenario	Exposure Criteria (Event file in MP6)					Exclusion Criteria				Outcome (Post-event treatment file in MP6)						
	Incident exposure	Incident w/ respect to:	Incidence Type	Washout Period (days)	Lookup Period Duration*	Exclusion Treatment	Lookback Period Start	Lookback Period End	Exclusion Care Setting	Exclusion Principal Dx	Event/ Outcome	Incident w/ respect to:	Incidence Type	Washout Period (days)	Care Setting	Principal Dx
1	Flebogamma	Flebogamma	Multiple	21	3	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
2	Gammagard liquid	Gammagard liquid	Multiple	21	3	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
3	Gammaplex	Gammaplex	Multiple	21	3	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
4	Gamunex	Gamunex	Multiple	21	3	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
5	Octagam	Octagam	Multiple	21	3	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
6	Privigen	Privigen	Multiple	21	3	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
7	Lyophilized product IV	Lyophilized product IV	Multiple	21	3	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO

Scenario	Exposure Criteria (Event file in MP6)					Exclusion Criteria					Outcome (Post-event treatment file in MP6)					
	Incident exposure	Incident w/ respect to:	Incidence Type	Washout Period (days)	Lookup Period Duration*	Exclusion Treatment	Lookback Period Start	Lookback Period End	Exclusion Care Setting	Exclusion Principal Dx	Event/ Outcome	Incident w/ respect to:	Incidence Type	Washout Period (days)	Care Setting	Principal Dx
8	Non-lyophilized intramuscular route	Non-lyophilized intramuscular route	Multiple	21	3	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
9	Non-lyophilized unspecified route	Non-lyophilized unspecified route	Multiple	21	3	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
10	Other IVIg, brand not specified	Other IVIg, brand not specified	Multiple	21	3	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
11	All Specified Ig	All Specified Ig	Multiple	21	3	None	NA	NA	NA	NA	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
12	Flebogamma	Flebogamma	Multiple	21	14	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
13	Gammagard liquid	Gammagard liquid	Multiple	21	14	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
14	Gammaplex	Gammaplex	Multiple	21	14	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
15	Gamunex	Gamunex	Multiple	21	14	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
16	Octagam	Octagam	Multiple	21	14	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
17	Privigen	Privigen	Multiple	21	14	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
18	Lyophilized product IV	Lyophilized product IV	Multiple	21	14	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO

Scenario	Exposure Criteria (Event file in MP6)					Exclusion Criteria					Outcome (Post-event treatment file in MP6)					
	Incident exposure	Incident w/ respect to:	Incidence Type	Washout Period (days)	Lookup Period Duration*	Exclusion Treatment	Lookback Period Start	Lookback Period End	Exclusion Care Setting	Exclusion Principal Dx	Event/ Outcome	Incident w/ respect to:	Incidence Type	Washout Period (days)	Care Setting	Principal Dx
19	Non-lyophilized intramuscular route	Non-lyophilized intramuscular route	Multiple	21	14	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
20	Non-lyophilized unspecified route	Non-lyophilized unspecified route	Multiple	21	14	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
21	Other IVIg, brand not specified	Other IVIg, brand not specified	Multiple	21	21	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
22	All Specified Ig	All Specified Ig	Multiple	21	21	None	NA	NA	NA	NA	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
23	Flebogamma	Flebogamma	Multiple	21	21	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
24	Gammagard liquid	Gammagard liquid	Multiple	21	21	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
25	Gammaplex	Gammaplex	Multiple	21	21	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
26	Gamunex	Gamunex	Multiple	21	21	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
27	Octagam	Octagam	Multiple	21	21	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
28	Privigen	Privigen	Multiple	21	21	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
29	Lyophilized product IV	Lyophilized product IV	Multiple	21	21	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO

Scenario	Exposure Criteria (Event file in MP6)					Exclusion Criteria					Outcome (Post-event treatment file in MP6)					
	Incident exposure	Incident w/ respect to:	Incidence Type	Washout Period (days)	Lookup Period Duration*	Exclusion Treatment	Lookback Period Start	Lookback Period End	Exclusion Care Setting	Exclusion Principal Dx	Event/ Outcome	Incident w/ respect to:	Incidence Type	Washout Period (days)	Care Setting	Principal Dx
30	Non-lyophilized intramuscular route	Non-lyophilized intramuscular route	Multiple	21	21	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
31	Non-lyophilized unspecified route	Non-lyophilized unspecified route	Multiple	21	21	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
32	Other IVIg, brand not specified	Other IVIg, brand not specified	Multiple	21	21	All listed exposures except exposure of interest	-21	21	IP, ED, OA, AV	NO	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO
33	All Specified Ig	All Specified Ig	Multiple	21	21	None	NA	NA	NA	NA	Hemolysis	Hemolysis	Multiple	90	IP, ED, OA, AV	NO

* Lookup period duration of 1 day considers same day IVIg 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 as 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.

Time-to-Event (tte)- number of days between the start of an event lookup period (index date) and the first treatment episode/procedure/diagnosis claim.

*all terms may not be used in this report

Table 1. Summary of Incident Immunoglobulin use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product and Risk Window

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
Flebogamma								
3 day risk window	2,345	12,294	36,882	11	94,211,283	216,239,859	2.49	0.47
14 day risk window	2,345	12,294	172,116	17	94,211,283	216,239,859	2.49	0.72
21 day risk window	2,345	12,294	258,174	20	94,211,283	216,239,859	2.49	0.85
Gammagard liquid								
3 day risk window	10,568	72,949	218,847	40	94,211,897	216,240,148	11.22	0.38
14 day risk window	10,568	72,949	1,021,286	59	94,211,897	216,240,148	11.22	0.56
21 day risk window	10,568	72,949	1,531,929	70	94,211,897	216,240,148	11.22	0.66
Gammaplex								
3 day risk window	68	219	657	0	94,211,165	216,239,551	0.07	0.00
14 day risk window	68	219	3,066	0	94,211,165	216,239,551	0.07	0.00
21 day risk window	68	219	4,599	0	94,211,165	216,239,551	0.07	0.00
Gamunex								
3 day risk window	7,732	53,297	159,891	17	94,211,666	216,239,366	8.21	0.22
14 day risk window	7,732	53,297	746,158	30	94,211,666	216,239,366	8.21	0.39
21 day risk window	7,732	53,297	1,119,237	38	94,211,666	216,239,366	8.21	0.49
Octagam								
3 day risk window	2,585	15,244	45,732	11	94,211,364	216,239,934	2.74	0.43
14 day risk window	2,585	15,244	213,416	15	94,211,364	216,239,934	2.74	0.58
21 day risk window	2,585	15,244	320,124	18	94,211,364	216,239,934	2.74	0.70
Privigen								
3 day risk window	3,628	20,210	60,630	15	94,211,345	216,239,455	3.85	0.41
14 day risk window	3,628	20,210	282,940	23	94,211,345	216,239,455	3.85	0.63
21 day risk window	3,628	20,210	424,410	26	94,211,345	216,239,455	3.85	0.72
Lyophilized product IV								
3 day risk window	6,961	44,286	132,858	31	94,211,709	216,240,631	7.39	0.45
14 day risk window	6,961	44,286	620,004	45	94,211,709	216,240,631	7.39	0.65
21 day risk window	6,961	44,286	930,006	53	94,211,709	216,240,631	7.39	0.76
Non-lyophilized intramuscular								
3 day risk window	8,162	13,138	39,414	1	94,211,689	216,259,860	8.66	0.01
14 day risk window	8,162	13,138	183,932	2	94,211,689	216,259,860	8.66	0.02
21 day risk window	8,162	13,138	275,898	2	94,211,689	216,259,860	8.66	0.02

Table 1. Summary of Incident Immunoglobulin use and Hemolysis Events in the MSDD between January 1, 2006 and December 31, 2012, by Drug Product and Risk Window

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
Non-lyophilized unspecified route								
3 day risk window	12,693	17,895	53,685	195	94,211,958	216,258,884	13.47	1.54
14 day risk window	12,693	17,895	250,530	212	94,211,958	216,258,884	13.47	1.67
21 day risk window	12,693	17,895	375,795	225	94,211,958	216,258,884	13.47	1.77
Other IVIg, brand not specified								
3 day risk window	4,148	17,639	52,917	7	94,211,488	216,241,558	4.40	0.17
14 day risk window	4,148	17,639	246,946	18	94,211,488	216,241,558	4.40	0.43
21 day risk window	4,148	17,639	370,419	22	94,211,488	216,241,558	4.40	0.53
All Ig								
3 day risk window	49,652	277,750	832,653	345	96,309,853	221,042,864	51.55	0.69
14 day risk window	49,652	277,750	3,869,903	444	96,309,853	221,042,864	51.55	0.89
21 day risk window	49,652	277,750	5,789,181	499	96,309,853	221,042,864	51.55	1.00

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

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
Flebogamma								
3 day risk window								
0-17 years	177	755	2,265	0	23,237,260	49,541,719	0.76	0.00
18-44 years	461	2,224	6,672	2	43,547,395	80,445,212	1.06	0.43
45-64 years	1,002	4,996	14,988	4	26,912,860	63,395,801	3.72	0.40
65+ years	752	4,319	12,957	5	8,116,144	22,857,127	9.27	0.66
14 day risk window								
0-17 years	177	755	10,570	0	23,237,260	49,541,719	0.76	0.00
18-44 years	461	2,224	31,136	4	43,547,395	80,445,212	1.06	0.87
45-64 years	1,002	4,996	69,944	4	26,912,860	63,395,801	3.72	0.40
65+ years	752	4,319	60,466	9	8,116,144	22,857,127	9.27	1.20
21 day risk window								
0-17 years	177	755	15,855	0	23,237,260	49,541,719	0.76	0.00
18-44 years	461	2,224	46,704	5	43,547,395	80,445,212	1.06	1.08
45-64 years	1,002	4,996	104,916	5	26,912,860	63,395,801	3.72	0.50
65+ years	752	4,319	90,699	10	8,116,144	22,857,127	9.27	1.33
Gammagard liquid								
3 day risk window								
0-17 years	1,176	7,065	21,195	6	23,237,339	49,541,705	5.06	0.51
18-44 years	2,645	16,049	48,147	8	43,547,641	80,445,460	6.07	0.30
45-64 years	4,728	33,892	101,676	15	26,913,194	63,395,888	17.57	0.32
65+ years	2,315	15,943	47,829	11	8,116,270	22,857,096	28.52	0.48
14 day risk window								
0-17 years	1,176	7,065	98,910	6	23,237,339	49,541,705	5.06	0.51
18-44 years	2,645	16,049	224,686	12	43,547,641	80,445,460	6.07	0.45
45-64 years	4,728	33,892	474,488	23	26,913,194	63,395,888	17.57	0.49
65+ years	2,315	15,943	223,202	18	8,116,270	22,857,096	28.52	0.78
21 day risk window								
0-17 years	1,176	7,065	148,365	7	23,237,339	49,541,705	5.06	0.60
18-44 years	2,645	16,049	337,029	12	43,547,641	80,445,460	6.07	0.45
45-64 years	4,728	33,892	711,732	28	26,913,194	63,395,888	17.57	0.59
65+ years	2,315	15,943	334,803	23	8,116,270	22,857,096	28.52	0.99

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

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
Gammaplex								
3 day risk window								
0-17 years	3	12	36	0	23,237,246	49,541,682	0.01	0.00
18-44 years	16	40	120	0	43,547,366	80,445,096	0.04	0.00
45-64 years	36	116	348	0	26,912,797	63,395,731	0.13	0.00
65+ years	15	51	153	0	8,116,102	22,857,041	0.18	0.00
14 day risk window								
0-17 years	3	12	168	0	23,237,246	49,541,682	0.01	0.00
18-44 years	16	40	560	0	43,547,366	80,445,096	0.04	0.00
45-64 years	36	116	1,624	0	26,912,797	63,395,731	0.13	0.00
65+ years	15	51	714	0	8,116,102	22,857,041	0.18	0.00
21 day risk window								
0-17 years	3	12	252	0	23,237,246	49,541,682	0.01	0.00
18-44 years	16	40	840	0	43,547,366	80,445,096	0.04	0.00
45-64 years	36	116	2,436	0	26,912,797	63,395,731	0.13	0.00
65+ years	15	51	1,071	0	8,116,102	22,857,041	0.18	0.00
Gamunex								
3 day risk window								
0-17 years	1,301	8,048	24,144	5	23,237,331	49,541,877	5.60	0.38
18-44 years	1,808	11,306	33,918	3	43,547,530	80,445,121	4.15	0.17
45-64 years	3,357	24,278	72,834	6	26,913,062	63,395,377	12.47	0.18
65+ years	1,523	9,665	28,995	3	8,116,188	22,856,990	18.76	0.20
14 day risk window								
0-17 years	1,301	8,048	112,672	6	23,237,331	49,541,877	5.60	0.46
18-44 years	1,808	11,306	158,284	8	43,547,530	80,445,121	4.15	0.44
45-64 years	3,357	24,278	339,892	12	26,913,062	63,395,377	12.47	0.36
65+ years	1,523	9,665	135,310	5	8,116,188	22,856,990	18.76	0.33
21 day risk window								
0-17 years	1,301	8,048	169,008	6	23,237,331	49,541,877	5.60	0.46
18-44 years	1,808	11,306	237,426	9	43,547,530	80,445,121	4.15	0.50
45-64 years	3,357	24,278	509,838	17	26,913,062	63,395,377	12.47	0.51
65+ years	1,523	9,665	202,965	8	8,116,188	22,856,990	18.76	0.53

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

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
Octagam								
3 day risk window								
0-17 years	124	563	1,689	0	23,237,260	49,541,708	0.53	0.00
18-44 years	592	3,260	9,780	4	43,547,420	80,445,221	1.36	0.68
45-64 years	1,243	7,615	22,845	2	26,912,922	63,395,870	4.62	0.16
65+ years	683	3,806	11,418	5	8,116,147	22,857,134	8.42	0.73
14 day risk window								
0-17 years	124	563	7,882	0	23,237,260	49,541,708	0.53	0.00
18-44 years	592	3,260	45,640	5	43,547,420	80,445,221	1.36	0.84
45-64 years	1,243	7,615	106,610	5	26,912,922	63,395,870	4.62	0.40
65+ years	683	3,806	53,284	5	8,116,147	22,857,134	8.42	0.73
21 day risk window								
0-17 years	124	563	11,823	0	23,237,260	49,541,708	0.53	0.00
18-44 years	592	3,260	68,460	7	43,547,420	80,445,221	1.36	1.18
45-64 years	1,243	7,615	159,915	5	26,912,922	63,395,870	4.62	0.40
65+ years	683	3,806	79,926	6	8,116,147	22,857,134	8.42	0.88
Privigen								
3 day risk window								
0-17 years	324	1,725	5,175	3	23,237,271	49,541,692	1.39	0.93
18-44 years	876	4,361	13,083	1	43,547,418	80,445,143	2.01	0.11
45-64 years	1,585	8,770	26,310	6	26,912,895	63,395,679	5.89	0.38
65+ years	920	5,354	16,062	5	8,116,137	22,856,941	11.34	0.54
14 day risk window								
0-17 years	324	1,725	24,150	4	23,237,271	49,541,692	1.39	1.23
18-44 years	876	4,361	61,054	1	43,547,418	80,445,143	2.01	0.11
45-64 years	1,585	8,770	122,780	10	26,912,895	63,395,679	5.89	0.63
65+ years	920	5,354	74,956	8	8,116,137	22,856,941	11.34	0.87
21 day risk window								
0-17 years	324	1,725	36,225	5	23,237,271	49,541,692	1.39	1.54
18-44 years	876	4,361	91,581	1	43,547,418	80,445,143	2.01	0.11
45-64 years	1,585	8,770	184,170	12	26,912,895	63,395,679	5.89	0.76
65+ years	920	5,354	112,434	8	8,116,137	22,856,941	11.34	0.87

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

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
Lyophilized product IV								
3 day risk window								
0-17 years	689	3,791	11,373	3	23,237,299	49,541,791	2.97	0.44
18-44 years	1,710	10,233	30,699	5	43,547,543	80,445,226	3.93	0.29
45-64 years	3,048	19,576	58,728	8	26,913,100	63,395,977	11.33	0.26
65+ years	1,728	10,686	32,058	15	8,116,273	22,857,637	21.29	0.87
14 day risk window								
0-17 years	689	3,791	53,074	5	23,237,299	49,541,791	2.97	0.73
18-44 years	1,710	10,233	143,262	9	43,547,543	80,445,226	3.93	0.53
45-64 years	3,048	19,576	274,064	12	26,913,100	63,395,977	11.33	0.39
65+ years	1,728	10,686	149,604	19	8,116,273	22,857,637	21.29	1.10
21 day risk window								
0-17 years	689	3,791	79,611	6	23,237,299	49,541,791	2.97	0.87
18-44 years	1,710	10,233	214,893	9	43,547,543	80,445,226	3.93	0.53
45-64 years	3,048	19,576	411,096	14	26,913,100	63,395,977	11.33	0.46
65+ years	1,728	10,686	224,406	24	8,116,273	22,857,637	21.29	1.39
Non-lyophilized intramuscular								
3 day risk window								
0-17 years	1,770	2,159	6,477	0	23,237,441	49,545,259	7.62	0.00
18-44 years	2,706	3,869	11,607	1	43,547,690	80,451,120	6.21	0.04
45-64 years	2,966	5,504	16,512	0	26,913,302	63,403,853	11.02	0.00
65+ years	776	1,606	4,818	0	8,116,463	22,859,628	9.56	0.00
14 day risk window								
0-17 years	1,770	2,159	30,226	1	23,237,441	49,545,259	7.62	0.06
18-44 years	2,706	3,869	54,166	1	43,547,690	80,451,120	6.21	0.04
45-64 years	2,966	5,504	77,056	0	26,913,302	63,403,853	11.02	0.00
65+ years	776	1,606	22,484	0	8,116,463	22,859,628	9.56	0.00
21 day risk window								
0-17 years	1,770	2,159	45,339	1	23,237,441	49,545,259	7.62	0.06
18-44 years	2,706	3,869	81,249	1	43,547,690	80,451,120	6.21	0.04
45-64 years	2,966	5,504	115,584	0	26,913,302	63,403,853	11.02	0.00
65+ years	776	1,606	33,726	0	8,116,463	22,859,628	9.56	0.00

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

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
Non-lyophilized unspecified route								
3 day risk window								
0-17 years	4,105	6,360	19,080	46	23,237,583	49,548,316	17.67	1.12
18-44 years	3,246	4,159	12,477	50	43,547,856	80,449,890	7.45	1.54
45-64 years	3,264	4,443	13,329	53	26,913,148	63,400,234	12.13	1.62
65+ years	2,126	2,933	8,799	46	8,116,351	22,860,444	26.19	2.16
14 day risk window								
0-17 years	4,105	6,360	89,040	52	23,237,583	49,548,316	17.67	1.27
18-44 years	3,246	4,159	58,226	54	43,547,856	80,449,890	7.45	1.66
45-64 years	3,264	4,443	62,202	58	26,913,148	63,400,234	12.13	1.78
65+ years	2,126	2,933	41,062	48	8,116,351	22,860,444	26.19	2.26
21 day risk window								
0-17 years	4,105	6,360	133,560	55	23,237,583	49,548,316	17.67	1.34
18-44 years	3,246	4,159	87,339	58	43,547,856	80,449,890	7.45	1.79
45-64 years	3,264	4,443	93,303	61	26,913,148	63,400,234	12.13	1.87
65+ years	2,126	2,933	61,593	51	8,116,351	22,860,444	26.19	2.40
Other IVIg, brand not specified								
3 day risk window								
0-17 years	556	2,466	7,398	1	23,237,302	49,541,854	2.39	0.18
18-44 years	1,126	4,359	13,077	0	43,547,494	80,445,791	2.59	0.00
45-64 years	1,774	7,640	22,920	4	26,912,985	63,396,489	6.59	0.23
65+ years	777	3,174	9,522	2	8,116,197	22,857,424	9.57	0.26
14 day risk window								
0-17 years	556	2,466	34,524	2	23,237,302	49,541,854	2.39	0.36
18-44 years	1,126	4,359	61,026	3	43,547,494	80,445,791	2.59	0.27
45-64 years	1,774	7,640	106,960	7	26,912,985	63,396,489	6.59	0.39
65+ years	777	3,174	44,436	6	8,116,197	22,857,424	9.57	0.77
21 day risk window								
0-17 years	556	2,466	51,786	2	23,237,302	49,541,854	2.39	0.36
18-44 years	1,126	4,359	91,539	5	43,547,494	80,445,791	2.59	0.44
45-64 years	1,774	7,640	160,440	8	26,912,985	63,396,489	6.59	0.45
65+ years	777	3,174	66,654	7	8,116,197	22,857,424	9.57	0.90

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

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
All Ig								
3 day risk window								
0-17 years	9,403	34,714	104,058	69	23,744,693	50,636,509	39.60	0.73
18-44 years	13,463	62,405	187,023	83	44,708,948	82,605,925	30.11	0.62
45-64 years	18,838	121,338	363,779	101	27,388,281	64,635,922	68.78	0.54
65+ years	9,250	59,293	177,793	93	8,252,244	23,164,507	112.09	1.01
14 day risk window								
0-17 years	9,403	34,714	483,582	83	23,744,693	50,636,509	39.60	0.88
18-44 years	13,463	62,405	868,185	109	44,708,948	82,605,925	30.11	0.81
45-64 years	18,838	121,338	1,690,717	137	27,388,281	64,635,922	68.78	0.73
65+ years	9,250	59,293	827,419	119	8,252,244	23,164,507	112.09	1.29
21 day risk window								
0-17 years	9,403	34,714	723,179	90	23,744,693	50,636,509	39.60	0.96
18-44 years	13,463	62,405	1,297,934	119	44,708,948	82,605,925	30.11	0.88
45-64 years	18,838	121,338	2,529,375	156	27,388,281	64,635,922	68.78	0.83
65+ years	9,250	59,293	1,238,693	138	8,252,244	23,164,507	112.09	1.49

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

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
Flebogamma								
3 day risk window								
Female	1,205	6,436	19,308	5	47,848,169	111,215,137	2.52	0.41
Male	1,140	5,858	17,574	6	46,357,946	105,015,832	2.46	0.53
Unknown	0	0	0	0	5,168	8,890	0.00	---
14 day risk window								
Female	1,205	6,436	90,104	7	47,848,169	111,215,137	2.52	0.58
Male	1,140	5,858	82,012	10	46,357,946	105,015,832	2.46	0.88
Unknown	0	0	0	0	5,168	8,890	0.00	---
21 day risk window								
Female	1,205	6,436	135,156	9	47,848,169	111,215,137	2.52	0.75
Male	1,140	5,858	123,018	11	46,357,946	105,015,832	2.46	0.96
Unknown	0	0	0	0	5,168	8,890	0.00	---
Gammagard liquid								
3 day risk window								
Female	5,903	42,261	126,783	20	47,848,510	111,215,220	12.34	0.34
Male	4,664	30,687	92,061	20	46,358,219	105,016,038	10.06	0.43
Unknown	1	1	3	0	5,168	8,890	19.35	0.00
14 day risk window								
Female	5,903	42,261	591,654	28	47,848,510	111,215,220	12.34	0.47
Male	4,664	30,687	429,618	31	46,358,219	105,016,038	10.06	0.66
Unknown	1	1	14	0	5,168	8,890	19.35	0.00
21 day risk window								
Female	5,903	42,261	887,481	31	47,848,510	111,215,220	12.34	0.53
Male	4,664	30,687	644,427	39	46,358,219	105,016,038	10.06	0.84
Unknown	1	1	21	0	5,168	8,890	19.35	0.00
Gammaplex								
3 day risk window								
Female	45	149	447	0	47,848,105	111,215,013	0.09	0.00
Male	23	70	210	0	46,357,892	105,015,648	0.05	0.00
Unknown	0	0	0	0	5,168	8,890	0.00	---
14 day risk window								
Female	45	149	2,086	0	47,848,105	111,215,013	0.09	0.00
Male	23	70	980	0	46,357,892	105,015,648	0.05	0.00
Unknown	0	0	0	0	5,168	8,890	0.00	---

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

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
Gammaplex (continued)								
21 day risk window								
Female	45	149	3,129	0	47,848,105	111,215,013	0.09	0.00
Male	23	70	1,470	0	46,357,892	105,015,648	0.05	0.00
Unknown	0	0	0	0	5,168	8,890	0.00	---
Gamunex								
3 day risk window								
Female	4,080	29,160	87,480	9	47,848,380	111,214,820	8.53	0.22
Male	3,652	24,137	72,411	8	46,358,118	105,015,655	7.88	0.22
Unknown	0	0	0	0	5,168	8,890	0.00	---
14 day risk window								
Female	4,080	29,160	408,240	12	47,848,380	111,214,820	8.53	0.29
Male	3,652	24,137	337,918	18	46,358,118	105,015,655	7.88	0.49
Unknown	0	0	0	0	5,168	8,890	0.00	---
21 day risk window								
Female	4,080	29,160	612,360	17	47,848,380	111,214,820	8.53	0.42
Male	3,652	24,137	506,877	21	46,358,118	105,015,655	7.88	0.58
Unknown	0	0	0	0	5,168	8,890	0.00	---
Octagam								
3 day risk window								
Female	1,505	9,367	28,101	6	47,848,223	111,215,232	3.15	0.40
Male	1,080	5,877	17,631	5	46,357,973	105,015,811	2.33	0.46
Unknown	0	0	0	0	5,168	8,890	0.00	---
14 day risk window								
Female	1,505	9,367	131,138	7	47,848,223	111,215,232	3.15	0.47
Male	1,080	5,877	82,278	8	46,357,973	105,015,811	2.33	0.74
Unknown	0	0	0	0	5,168	8,890	0.00	---
21 day risk window								
Female	1,505	9,367	196,707	8	47,848,223	111,215,232	3.15	0.53
Male	1,080	5,877	123,417	10	46,357,973	105,015,811	2.33	0.93
Unknown	0	0	0	0	5,168	8,890	0.00	---
Privigen								
3 day risk window								
Female	2,013	11,715	35,145	5	47,848,216	111,214,912	4.21	0.25
Male	1,615	8,495	25,485	10	46,357,961	105,015,653	3.48	0.62
Unknown	0	0	0	0	5,168	8,890	0.00	---

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

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
Privigen (continued)								
14 day risk window								
Female	2,013	11,715	164,010	10	47,848,216	111,214,912	4.21	0.50
Male	1,615	8,495	118,930	13	46,357,961	105,015,653	3.48	0.80
Unknown	0	0	0	0	5,168	8,890	0.00	---
21 day risk window								
Female	2,013	11,715	246,015	12	47,848,216	111,214,912	4.21	0.60
Male	1,615	8,495	178,395	14	46,357,961	105,015,653	3.48	0.87
Unknown	0	0	0	0	5,168	8,890	0.00	---
Lyophilized product IV								
3 day risk window								
Female	3,817	24,964	74,892	11	47,848,398	111,215,481	7.98	0.29
Male	3,144	19,322	57,966	20	46,358,143	105,016,260	6.78	0.64
Unknown	0	0	0	0	5,168	8,890	0.00	---
14 day risk window								
Female	3,817	24,964	349,496	16	47,848,398	111,215,481	7.98	0.42
Male	3,144	19,322	270,508	29	46,358,143	105,016,260	6.78	0.92
Unknown	0	0	0	0	5,168	8,890	0.00	---
21 day risk window								
Female	3,817	24,964	524,244	17	47,848,398	111,215,481	7.98	0.45
Male	3,144	19,322	405,762	36	46,358,143	105,016,260	6.78	1.15
Unknown	0	0	0	0	5,168	8,890	0.00	---
Non-lyophilized intramuscular								
3 day risk window								
Female	4,678	8,167	24,501	1	47,848,390	111,226,283	9.78	0.02
Male	3,484	4,971	14,913	0	46,358,131	105,024,687	7.52	0.00
Unknown	0	0	0	0	5,168	8,890	0.00	---
14 day risk window								
Female	4,678	8,167	114,338	1	47,848,390	111,226,283	9.78	0.02
Male	3,484	4,971	69,594	1	46,358,131	105,024,687	7.52	0.03
Unknown	0	0	0	0	5,168	8,890	0.00	---
21 day risk window								
Female	4,678	8,167	171,507	1	47,848,390	111,226,283	9.78	0.02
Male	3,484	4,971	104,391	1	46,358,131	105,024,687	7.52	0.03
Unknown	0	0	0	0	5,168	8,890	0.00	---

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

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
Non-lyophilized unspecified route								
3 day risk window								
Female	6,743	9,413	28,239	107	47,848,538	111,225,337	14.09	1.59
Male	5,949	8,481	25,443	88	46,358,252	105,024,658	12.83	1.48
Unknown	1	1	3	0	5,168	8,890	19.35	0.00
14 day risk window								
Female	6,743	9,413	131,782	116	47,848,538	111,225,337	14.09	1.72
Male	5,949	8,481	118,734	96	46,358,252	105,024,658	12.83	1.61
Unknown	1	1	14	0	5,168	8,890	19.35	0.00
21 day risk window								
Female	6,743	9,413	197,673	122	47,848,538	111,225,337	14.09	1.81
Male	5,949	8,481	178,101	103	46,358,252	105,024,658	12.83	1.73
Unknown	1	1	21	0	5,168	8,890	19.35	0.00
Other IVIg, brand not specified								
3 day risk window								
Female	2,266	9,499	28,497	5	47,848,293	111,216,186	4.74	0.22
Male	1,882	8,140	24,420	2	46,358,027	105,016,482	4.06	0.11
Unknown	0	0	0	0	5,168	8,890	0.00	---
14 day risk window								
Female	2,266	9,499	132,986	13	47,848,293	111,216,186	4.74	0.57
Male	1,882	8,140	113,960	5	46,358,027	105,016,482	4.06	0.27
Unknown	0	0	0	0	5,168	8,890	0.00	---
21 day risk window								
Female	2,266	9,499	199,479	13	47,848,293	111,216,186	4.74	0.57
Male	1,882	8,140	170,940	9	46,358,027	105,016,482	4.06	0.48
Unknown	0	0	0	0	5,168	8,890	0.00	---
All Ig								
3 day risk window								
Female	27,093	156,779	469,978	181	48,885,739	113,651,792	55.42	0.67
Male	22,558	120,969	362,669	164	47,418,606	107,381,888	47.57	0.73
Unknown	1	2	6	0	5,508	9,184	18.16	0.00
14 day risk window								
Female	27,093	156,779	2,184,098	228	48,885,739	113,651,792	55.42	0.84
Male	22,558	120,969	1,685,777	216	47,418,606	107,381,888	47.57	0.96
Unknown	1	2	28	0	5,508	9,184	18.16	0.00

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

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
All Ig (continued)								
21 day risk window								
Female	27,093	156,779	3,267,345	253	48,885,739	113,651,792	55.42	0.93
Male	22,558	120,969	2,521,794	246	47,418,606	107,381,888	47.57	1.09
Unknown	1	2	42	0	5,508	9,184	18.16	0.00

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

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
Flebogamma								
3 day risk window								
2006	0	0	0	0	21,647,774	15,336,010	0.00	---
2007	176	387	1,161	0	25,201,671	18,831,501	0.70	0.00
2008	523	1,725	5,175	3	49,422,977	34,862,215	1.06	0.57
2009	690	2,452	7,356	1	49,522,336	38,798,225	1.39	0.14
2010	716	2,574	7,722	0	47,736,245	37,474,390	1.50	0.00
2011	782	2,846	8,538	6	46,596,348	36,805,615	1.68	0.77
2012	650	2,310	6,930	1	44,360,143	34,131,904	1.47	0.15
14 day risk window								
2006	0	0	0	0	21,647,774	15,336,010	0.00	---
2007	176	387	5,418	0	25,201,671	18,831,501	0.70	0.00
2008	523	1,725	24,150	3	49,422,977	34,862,215	1.06	0.57
2009	690	2,452	34,328	2	49,522,336	38,798,225	1.39	0.29
2010	716	2,574	36,036	2	47,736,245	37,474,390	1.50	0.28
2011	782	2,846	39,844	9	46,596,348	36,805,615	1.68	1.15
2012	650	2,310	32,340	1	44,360,143	34,131,904	1.47	0.15
21 day risk window								
2006	0	0	0	0	21,647,774	15,336,010	0.00	---
2007	176	387	8,127	0	25,201,671	18,831,501	0.70	0.00
2008	523	1,725	36,225	3	49,422,977	34,862,215	1.06	0.57
2009	690	2,452	51,492	3	49,522,336	38,798,225	1.39	0.43
2010	716	2,574	54,054	3	47,736,245	37,474,390	1.50	0.42
2011	782	2,846	59,766	10	46,596,348	36,805,615	1.68	1.28
2012	650	2,310	48,510	1	44,360,143	34,131,904	1.47	0.15
Gammagard liquid								
3 day risk window								
2006	5	17	51	0	21,647,753	15,335,987	0.02	0.00
2007	527	1,334	4,002	1	25,201,674	18,831,385	2.09	0.19
2008	2,822	11,016	33,048	6	49,423,249	34,861,930	5.71	0.21
2009	3,256	13,701	41,103	12	49,522,858	38,798,128	6.57	0.37
2010	3,367	14,289	42,867	8	47,736,938	37,474,411	7.05	0.24
2011	3,790	16,859	50,577	8	46,597,215	36,805,798	8.13	0.21
2012	3,569	15,733	47,199	6	44,361,395	34,132,509	8.05	0.17

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

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
Gammagard liquid (continued)								
14 day risk window								
2006	5	17	238	0	21,647,753	15,335,987	0.02	0.00
2007	527	1,334	18,676	1	25,201,674	18,831,385	2.09	0.19
2008	2,822	11,016	154,224	11	49,423,249	34,861,930	5.71	0.39
2009	3,256	13,701	191,814	17	49,522,858	38,798,128	6.57	0.52
2010	3,367	14,289	200,046	12	47,736,938	37,474,411	7.05	0.36
2011	3,790	16,859	236,026	14	46,597,215	36,805,798	8.13	0.37
2012	3,569	15,733	220,262	7	44,361,395	34,132,509	8.05	0.20
21 day risk window								
2006	5	17	357	0	21,647,753	15,335,987	0.02	0.00
2007	527	1,334	28,014	1	25,201,674	18,831,385	2.09	0.19
2008	2,822	11,016	231,336	14	49,423,249	34,861,930	5.71	0.50
2009	3,256	13,701	287,721	19	49,522,858	38,798,128	6.57	0.58
2010	3,367	14,289	300,069	15	47,736,938	37,474,411	7.05	0.45
2011	3,790	16,859	354,039	20	46,597,215	36,805,798	8.13	0.53
2012	3,569	15,733	330,393	7	44,361,395	34,132,509	8.05	0.20
Gammaplex								
3 day risk window								
2006	0	0	0	0	21,647,769	15,336,017	0.00	---
2007	0	0	0	0	25,201,650	18,831,532	0.00	---
2008	0	0	0	0	49,422,928	34,862,265	0.00	---
2009	0	0	0	0	49,522,219	38,798,235	0.00	---
2010	1	2	6	0	47,736,048	37,474,326	0.00	0.00
2011	6	9	27	0	46,596,077	36,805,502	0.01	0.00
2012	62	208	624	0	44,359,829	34,131,674	0.14	0.00
14 day risk window								
2006	0	0	0	0	21,647,769	15,336,017	0.00	---
2007	0	0	0	0	25,201,650	18,831,532	0.00	---
2008	0	0	0	0	49,422,928	34,862,265	0.00	---
2009	0	0	0	0	49,522,219	38,798,235	0.00	---
2010	1	2	28	0	47,736,048	37,474,326	0.00	0.00
2011	6	9	126	0	46,596,077	36,805,502	0.01	0.00
2012	62	208	2,912	0	44,359,829	34,131,674	0.14	0.00

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

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
Gammaplex (continued)								
21 day risk window								
2006	0	0	0	0	21,647,769	15,336,017	0.00	---
2007	0	0	0	0	25,201,650	18,831,532	0.00	---
2008	0	0	0	0	49,422,928	34,862,265	0.00	---
2009	0	0	0	0	49,522,219	38,798,235	0.00	---
2010	1	2	42	0	47,736,048	37,474,326	0.00	0.00
2011	6	9	189	0	46,596,077	36,805,502	0.01	0.00
2012	62	208	4,368	0	44,359,829	34,131,674	0.14	0.00
Gamunex								
3 day risk window								
2006	1	1	3	0	21,647,755	15,335,978	0.00	0.00
2007	582	1,617	4,851	1	25,201,654	18,831,354	2.31	0.17
2008	2,175	8,985	26,955	5	49,423,084	34,861,895	4.40	0.23
2009	2,493	10,907	32,721	6	49,522,588	38,798,005	5.03	0.24
2010	2,594	10,488	31,464	2	47,736,630	37,474,309	5.43	0.08
2011	2,511	10,987	32,961	5	46,596,849	36,805,663	5.39	0.20
2012	2,434	10,312	30,936	1	44,360,811	34,132,161	5.49	0.04
14 day risk window								
2006	1	1	14	0	21,647,755	15,335,978	0.00	0.00
2007	582	1,617	22,638	1	25,201,654	18,831,354	2.31	0.17
2008	2,175	8,985	125,790	8	49,423,084	34,861,895	4.40	0.37
2009	2,493	10,907	152,698	9	49,522,588	38,798,005	5.03	0.36
2010	2,594	10,488	146,832	5	47,736,630	37,474,309	5.43	0.19
2011	2,511	10,987	153,818	10	46,596,849	36,805,663	5.39	0.40
2012	2,434	10,312	144,368	3	44,360,811	34,132,161	5.49	0.12
21 day risk window								
2006	1	1	21	0	21,647,755	15,335,978	0.00	0.00
2007	582	1,617	33,957	1	25,201,654	18,831,354	2.31	0.17
2008	2,175	8,985	188,685	12	49,423,084	34,861,895	4.40	0.55
2009	2,493	10,907	229,047	12	49,522,588	38,798,005	5.03	0.48
2010	2,594	10,488	220,248	6	47,736,630	37,474,309	5.43	0.23
2011	2,511	10,987	230,727	12	46,596,849	36,805,663	5.39	0.48
2012	2,434	10,312	216,552	5	44,360,811	34,132,161	5.49	0.21

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

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
Octagam								
3 day risk window								
2006	0	0	0	0	21,647,780	15,336,026	0.00	---
2007	211	596	1,788	2	25,201,675	18,831,520	0.84	0.95
2008	992	4,185	12,555	4	49,423,104	34,862,218	2.01	0.40
2009	1,013	4,875	14,625	3	49,522,519	38,798,280	2.05	0.30
2010	746	2,994	8,982	0	47,736,409	37,474,487	1.56	0.00
2011	94	255	765	1	46,596,326	36,805,680	0.20	1.06
2012	704	2,339	7,017	2	44,359,999	34,131,723	1.59	0.28
14 day risk window								
2006	0	0	0	0	21,647,780	15,336,026	0.00	---
2007	211	596	8,344	2	25,201,675	18,831,520	0.84	0.95
2008	992	4,185	58,590	4	49,423,104	34,862,218	2.01	0.40
2009	1,013	4,875	68,250	5	49,522,519	38,798,280	2.05	0.49
2010	746	2,994	41,916	1	47,736,409	37,474,487	1.56	0.13
2011	94	255	3,570	1	46,596,326	36,805,680	0.20	1.06
2012	704	2,339	32,746	3	44,359,999	34,131,723	1.59	0.43
21 day risk window								
2006	0	0	0	0	21,647,780	15,336,026	0.00	---
2007	211	596	12,516	2	25,201,675	18,831,520	0.84	0.95
2008	992	4,185	87,885	7	49,423,104	34,862,218	2.01	0.71
2009	1,013	4,875	102,375	5	49,522,519	38,798,280	2.05	0.49
2010	746	2,994	62,874	1	47,736,409	37,474,487	1.56	0.13
2011	94	255	5,355	1	46,596,326	36,805,680	0.20	1.06
2012	704	2,339	49,119	3	44,359,999	34,131,723	1.59	0.43
Privigen								
3 day risk window								
2006	0	0	0	0	21,647,766	15,336,007	0.00	---
2007	1	1	3	0	25,201,644	18,831,510	0.00	0.00
2008	337	1,087	3,261	1	49,422,935	34,862,194	0.68	0.30
2009	641	2,490	7,470	0	49,522,281	38,798,149	1.29	0.00
2010	1,145	4,376	13,128	1	47,736,146	37,474,192	2.40	0.09
2011	1,499	5,884	17,652	7	46,596,336	36,805,488	3.22	0.47
2012	1,656	6,372	19,116	6	44,360,297	34,131,915	3.73	0.36

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

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
Privigen (continued)								
14 day risk window								
2006	0	0	0	0	21,647,766	15,336,007	0.00	---
2007	1	1	14	0	25,201,644	18,831,510	0.00	0.00
2008	337	1,087	15,218	1	49,422,935	34,862,194	0.68	0.30
2009	641	2,490	34,860	0	49,522,281	38,798,149	1.29	0.00
2010	1,145	4,376	61,264	3	47,736,146	37,474,192	2.40	0.26
2011	1,499	5,884	82,376	10	46,596,336	36,805,488	3.22	0.67
2012	1,656	6,372	89,208	10	44,360,297	34,131,915	3.73	0.60
21 day risk window								
2006	0	0	0	0	21,647,766	15,336,007	0.00	---
2007	1	1	21	0	25,201,644	18,831,510	0.00	0.00
2008	337	1,087	22,827	1	49,422,935	34,862,194	0.68	0.30
2009	641	2,490	52,290	0	49,522,281	38,798,149	1.29	0.00
2010	1,145	4,376	91,896	6	47,736,146	37,474,192	2.40	0.52
2011	1,499	5,884	123,564	10	46,596,336	36,805,488	3.22	0.67
2012	1,656	6,372	133,812	10	44,360,297	34,131,915	3.73	0.60
Lyophilized product IV								
3 day risk window								
2006	1,468	5,024	15,072	1	21,647,969	15,335,860	6.78	0.07
2007	1,722	6,722	20,166	4	25,202,003	18,831,442	6.83	0.23
2008	2,628	10,044	30,132	11	49,423,627	34,862,281	5.32	0.42
2009	2,102	8,872	26,616	6	49,523,016	38,798,503	4.24	0.29
2010	1,399	5,627	16,881	7	47,736,853	37,474,685	2.93	0.50
2011	1,124	4,819	14,457	2	46,596,778	36,805,826	2.41	0.18
2012	836	3,178	9,534	1	44,360,479	34,132,033	1.88	0.12
14 day risk window								
2006	1,468	5,024	70,336	3	21,647,969	15,335,860	6.78	0.20
2007	1,722	6,722	94,108	8	25,202,003	18,831,442	6.83	0.46
2008	2,628	10,044	140,616	12	49,423,627	34,862,281	5.32	0.46
2009	2,102	8,872	124,208	10	49,523,016	38,798,503	4.24	0.48
2010	1,399	5,627	78,778	10	47,736,853	37,474,685	2.93	0.71
2011	1,124	4,819	67,466	3	46,596,778	36,805,826	2.41	0.27
2012	836	3,178	44,492	3	44,360,479	34,132,033	1.88	0.36

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

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
Lyophilized product IV (continued)								
21 day risk window								
2006	1,468	5,024	105,504	5	21,647,969	15,335,860	6.78	0.34
2007	1,722	6,722	141,162	10	25,202,003	18,831,442	6.83	0.58
2008	2,628	10,044	210,924	14	49,423,627	34,862,281	5.32	0.53
2009	2,102	8,872	186,312	11	49,523,016	38,798,503	4.24	0.52
2010	1,399	5,627	118,167	11	47,736,853	37,474,685	2.93	0.79
2011	1,124	4,819	101,199	3	46,596,778	36,805,826	2.41	0.27
2012	836	3,178	66,738	4	44,360,479	34,132,033	1.88	0.48
Non-lyophilized intramuscular								
3 day risk window								
2006	1,423	2,069	6,207	0	21,647,894	15,336,463	6.57	0.00
2007	1,605	2,018	6,054	0	25,202,929	18,833,266	6.37	0.00
2008	1,785	2,578	7,734	0	49,425,435	34,865,011	3.61	0.00
2009	1,436	2,262	6,786	0	49,525,650	38,801,829	2.90	0.00
2010	1,308	1,968	5,904	0	47,739,883	37,478,231	2.74	0.00
2011	849	1,280	3,840	0	46,600,244	36,809,590	1.82	0.00
2012	630	963	2,889	1	44,363,822	34,135,470	1.42	0.16
14 day risk window								
2006	1,423	2,069	28,966	0	21,647,894	15,336,463	6.57	0.00
2007	1,605	2,018	28,252	0	25,202,929	18,833,266	6.37	0.00
2008	1,785	2,578	36,092	1	49,425,435	34,865,011	3.61	0.06
2009	1,436	2,262	31,668	0	49,525,650	38,801,829	2.90	0.00
2010	1,308	1,968	27,552	0	47,739,883	37,478,231	2.74	0.00
2011	849	1,280	17,920	0	46,600,244	36,809,590	1.82	0.00
2012	630	963	13,482	1	44,363,822	34,135,470	1.42	0.16
21 day risk window								
2006	1,423	2,069	43,449	0	21,647,894	15,336,463	6.57	0.00
2007	1,605	2,018	42,378	0	25,202,929	18,833,266	6.37	0.00
2008	1,785	2,578	54,138	1	49,425,435	34,865,011	3.61	0.06
2009	1,436	2,262	47,502	0	49,525,650	38,801,829	2.90	0.00
2010	1,308	1,968	41,328	0	47,739,883	37,478,231	2.74	0.00
2011	849	1,280	26,880	0	46,600,244	36,809,590	1.82	0.00
2012	630	963	20,223	1	44,363,822	34,135,470	1.42	0.16

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

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
Non-lyophilized unspecified route								
3 day risk window								
2006	868	1,408	4,224	11	21,647,845	15,336,199	4.01	1.27
2007	1,127	1,639	4,917	17	25,202,300	18,832,243	4.47	1.51
2008	2,395	3,281	9,843	43	49,424,417	34,863,989	4.85	1.80
2009	2,563	3,413	10,239	29	49,524,925	38,801,208	5.18	1.13
2010	2,375	2,860	8,580	32	47,739,798	37,478,234	4.97	1.35
2011	2,485	3,058	9,174	24	46,600,610	36,810,205	5.33	0.97
2012	2,056	2,236	6,708	40	44,365,096	34,136,806	4.63	1.95
14 day risk window								
2006	868	1,408	19,712	11	21,647,845	15,336,199	4.01	1.27
2007	1,127	1,639	22,946	18	25,202,300	18,832,243	4.47	1.60
2008	2,395	3,281	45,934	43	49,424,417	34,863,989	4.85	1.80
2009	2,563	3,413	47,782	32	49,524,925	38,801,208	5.18	1.25
2010	2,375	2,860	40,040	37	47,739,798	37,478,234	4.97	1.56
2011	2,485	3,058	42,812	27	46,600,610	36,810,205	5.33	1.09
2012	2,056	2,236	31,304	46	44,365,096	34,136,806	4.63	2.24
21 day risk window								
2006	868	1,408	29,568	11	21,647,845	15,336,199	4.01	1.27
2007	1,127	1,639	34,419	18	25,202,300	18,832,243	4.47	1.60
2008	2,395	3,281	68,901	43	49,424,417	34,863,989	4.85	1.80
2009	2,563	3,413	71,673	34	49,524,925	38,801,208	5.18	1.33
2010	2,375	2,860	60,060	39	47,739,798	37,478,234	4.97	1.64
2011	2,485	3,058	64,218	31	46,600,610	36,810,205	5.33	1.25
2012	2,056	2,236	46,956	51	44,365,096	34,136,806	4.63	2.48
Other IVIg, brand not specified								
3 day risk window								
2006	2,255	8,036	24,108	4	21,648,064	15,335,838	10.42	0.18
2007	2,250	7,929	23,787	4	25,202,331	18,831,674	8.93	0.18
2008	255	421	1,263	0	49,423,521	34,862,753	0.52	0.00
2009	183	338	1,014	0	49,522,734	38,798,707	0.37	0.00
2010	115	210	630	0	47,736,540	37,474,743	0.24	0.00
2011	228	496	1,488	0	46,596,503	36,805,860	0.49	0.00
2012	99	209	627	0	44,360,210	34,131,983	0.22	0.00

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

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
Other IVIg, brand not specified (continued)								
14 day risk window								
2006	2,255	8,036	112,504	11	21,648,064	15,335,838	10.42	0.49
2007	2,250	7,929	111,006	9	25,202,331	18,831,674	8.93	0.40
2008	255	421	5,894	0	49,423,521	34,862,753	0.52	0.00
2009	183	338	4,732	0	49,522,734	38,798,707	0.37	0.00
2010	115	210	2,940	0	47,736,540	37,474,743	0.24	0.00
2011	228	496	6,944	0	46,596,503	36,805,860	0.49	0.00
2012	99	209	2,926	0	44,360,210	34,131,983	0.22	0.00
21 day risk window								
2006	2,255	8,036	168,756	12	21,648,064	15,335,838	10.42	0.53
2007	2,250	7,929	166,509	12	25,202,331	18,831,674	8.93	0.53
2008	255	421	8,841	0	49,423,521	34,862,753	0.52	0.00
2009	183	338	7,098	0	49,522,734	38,798,707	0.37	0.00
2010	115	210	4,410	0	47,736,540	37,474,743	0.24	0.00
2011	228	496	10,416	0	46,596,503	36,805,860	0.49	0.00
2012	99	209	4,389	0	44,360,210	34,131,983	0.22	0.00
All Ig								
3 day risk window								
2006	5,716	17,241	51,689	18	21,811,632	15,569,598	26.21	0.31
2007	6,996	23,200	69,575	32	25,460,639	19,126,000	27.48	0.46
2008	12,862	45,104	135,219	80	50,345,595	35,539,620	25.55	0.62
2009	13,247	51,203	153,498	62	50,041,643	39,567,942	26.47	0.47
2010	12,542	46,958	140,780	52	48,227,713	38,180,564	26.01	0.41
2011	12,511	48,144	144,350	56	47,047,161	37,518,427	26.59	0.45
2012	11,675	45,900	137,542	61	45,074,136	35,540,713	25.90	0.52
14 day risk window								
2006	5,716	17,241	240,472	28	21,811,632	15,569,598	26.21	0.49
2007	6,996	23,200	323,875	43	25,460,639	19,126,000	27.48	0.61
2008	12,862	45,104	628,953	94	50,345,595	35,539,620	25.55	0.73
2009	13,247	51,203	713,626	81	50,041,643	39,567,942	26.47	0.61
2010	12,542	46,958	654,540	74	48,227,713	38,180,564	26.01	0.59
2011	12,511	48,144	670,923	79	47,047,161	37,518,427	26.59	0.63
2012	11,675	45,900	637,514	79	45,074,136	35,540,713	25.90	0.68

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

	New Users	New Lookup Periods	Lookup Period Duration	New Users with an Event	Eligible Members	Member-Days	New Users/ 100K Eligible Members	% New Users with an Event
All Ig (continued)								
21 day risk window								
2006	5,716	17,241	360,184	32	21,811,632	15,569,598	26.21	0.56
2007	6,996	23,200	485,018	48	25,460,639	19,126,000	27.48	0.69
2008	12,862	45,104	941,268	106	50,345,595	35,539,620	25.55	0.82
2009	13,247	51,203	1,067,746	93	50,041,643	39,567,942	26.47	0.70
2010	12,542	46,958	979,541	85	48,227,713	38,180,564	26.01	0.68
2011	12,511	48,144	1,003,651	92	47,047,161	37,518,427	26.59	0.74
2012	11,675	45,900	951,773	88	45,074,136	35,540,713	25.90	0.75

Appendix A. Exposure and Event Codes
Exposures

Immunoglobulin Product	Code	Code Type
Gammaplex	J1557, C9270	HCPCS
Privigen	J1549, Q4097	HCPCS
Gamunex	J1561, Q4092	HCPCS
Octagam	J1568, Q4087	HCPCS
Gammagard liquid	J1569, Q4088	HCPCS
Flebogamma	J1572, Q4091	HCPCS
Lyophilized product IV	J1566, Q9941, Q9942	HCPCS
Non-lyophilized intramuscular route	90281, J1460, J1470, J1480, J1490, J1500, J1510, J1520, J1530, J1540, J1550, J1560, P9014	CPT and HCPCS
Non-lyophilized unspecified route	90399, 99.14	CPT and ICD-9 Procedure
Other IVIg, brand not specified	J1563, J1564, J1567, J1599, Q9943, Q9944, S9545, 90283	HCPCS

Hemolysis Events

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