DATA POINT

Update on Supply of Immune Globulin Intravenous (IGIV) Products

May 2019

Introduction

In February 2007, the Eastern Research Group (ERG) submitted to the Office of the Assistant Secretary for Planning and Evaluation (ASPE) Analysis of Supply, Distribution, Demand, and Access Issues Associated with Immune Globulin Intravenous (IGIV) (2007 report).[1] This report examined IGIV market dynamics and the potential health consequences of IGIV access problems. ASPE initiated the research in response to concerns from patients and physicians about difficulties in acquiring IGIV, switching from administration in physician offices to hospital outpatient facilities, and switching between IGIV products.

There were three primary areas of analysis in the 2007 report:

- IGIV supply and distribution
- IGIV demand and utilization, and
- IGIV access problems, including their nature, size, and scope.

IGIV market dynamics have continued to be of interest since 2007. The Strengthening Medicare and Repaying Taxpayers Act of 2011 mandated that the Centers for Medicare & Medicaid Services (CMS) implement a 3-year demonstration project and evaluation to determine the extent to which introducing a bundled payment for the items and services used for in-home administration of IGIV improves access to care for beneficiaries with primary immune deficiency disease (PIDD). Under the Act, CMS is required to:

- Evaluate the impact of the Medicare IGIV Access Demonstration project on Medicare beneficiary access to IGIV at home,
- Determine the appropriateness of implementing a new methodology for payment for IGIV in all settings under Part B, and
- Update the 2007 report.

This ASPE data point updates figures and tables from the 2007 report with recent data relevant to the analyses of IGIV supply and distribution and demand and utilization. These figures and tables can be found in the 2007 report at the following:

- Table 2-7: U.S. Market Share Estimates of IGIV Manufacturers, January 2003-June 2006 (% of Grams Sold)
- Table 2-10: Market Shares of IGIV Products (as % of Grams Sold), 2000-June 2006
- Figure 2-4: Total Amount of IGIV Available in the Unites States, January 1998-June 2006
- Table 2-12: Change in IGIV Supply by Brand, 1998-2005
- Figure 2-5: Sales of IGIV (% of Grams Sold), by Channel, January 1998-June 2006
- Figure 2-6: IGIV Product Sales, by Channel (% of Grams Sold), January 2005-June 2006

[1] https://aspe.hhs.gov/pdf-report/analysis-supply-distribution-demand-and-access-issues-associated-immune-globulin-intravenous-igiv

- Table 2-13: Comparisons of Medicare Part B Reimbursement Rates to IGIV Market Prices Across All Sales Channels, 2005-Second Quarter 2006
- Table 2-14: Comparison of Medicare Part B Reimbursement Rates to IGIV Market Prices for Non-Federal Hospitals, 2005-Second Quarter 2006
- Table 2-15: Comparison of Medicare Part B Reimbursement Rates to IGIV Market Prices for Clinics, 2005-Second Quarter 2006
- Table 2-16: Comparison of Medicare Part B Reimbursement Rates to IGIV Market Prices for Home Healthcare, 2005-Second Quarter 2006
- Table 2-17: Comparison of Medicare Part B Reimbursement Rates to IGIV Market Prices for Mail Service Pharmacies, 2005-Second Quarter 2006

The 2007 report only included IGIV products. This research brief includes IGIV and Subcutaneous Immune Globulin (SCIG) products. In 2007, SCIG was new and not widely used. Since SCIG now constitutes a significant portion of the Immune Globulin market, the updated data includes both IGIV and SCIG products. To reflect this change, data from the 2007 report is still referred to as "IGIV," while updated data is referred to as "IG products."

Data

This research brief updates the tables and figures in the 2007 report using IMS Health's *National Sales Perspective*™, a private sector database on pharmaceutical (including injectables) market prices with IQVIA's, *National Sales Perspectives*™ (NSP). IQVIA is the result of a 2016 merger between IMS Health and Quintiles. NSP measures sales volumes of dollars and units of pharmaceutical products purchased by retail and non-retail providers. It captures over 90 percent of the total pharmaceutical market in the United States.

Results

Table 2-10 presents the relative market shares of various IGIV products as a percentage of total grams sold during the January 2000 to June 2006 period. Some IGIV products (Gamimune N, Gammar-P I.V., Iveegam, Panglobulin, Sandoglobulin, and Venoglobulin) lose market share, while new IGIV products enter the market over the time period. Gamunex by Talecris Biotherapeutics was the market leader in 2005 (32 percent) followed by Carimune by ZLB Behring (19.0 percent), Polygam S/D by Baxter BioScience (12.5 percent) and Gammar-P I.V. also by ZLB Behring (12.1 percent).[2]

The updated Table 2-10 presents the relative market shares of various IG products as a percentage of total grams sold for the January 2013 to March 2018 period. Gammagard Liquid by Shire Pharmaceuticals was the market leader in March 2018 (26.2 percent) followed by Gamunex-C by Grifols Therapeutics, Inc. (24.6 percent), PrIGIVen by CSL Behring (21.6 percent), and Octagam by OCTAPHARMA Pharmazeutika Produktionsges.m.b.H (11.4 percent). All other products each had less than 6 percent of the market.

[2] Baxter BioScience discontinued Polygam S/D as of January 1, 2007.

Market Shares of IG Products (as % of Grams Sold)

Table 2-10: Market Shares of IGIV Products (as % of Grams Sold), 2000 – June 2006

Brand Name	2000	2001	2002	2003	2004	2005	2006
Carimune	NA	8.59%	13.49%	16.14%	16.72%	19.00%	26.01%
Flebogamma [a]	NA	NA	NA	NA	1.18%	6.04%	7.89%
Gamimune N	26.13%	NA	NA	NA	NA	NA	NA
Gammagard Liquid [b]	NA	NA	NA	NA	NA	0.09%	3.01%
Gammagard S/D	17.03%	24.86%	22.19%	23.89%	9.26%	7.05%	3.72%
Gammar-P I.V.	10.33%	17.42%	19.49%	21.21%	25.50%	12.09%	1.24%
Gamunex [c]	NA	NA	NA	1.08%	19.57%	31.99%	36.87%
Iveegam	4.70%	2.35%	2.19%	0.72%	0.29%	0.02%	NA
Octagam [d]	NA	NA	NA	0.00%	0.20%	8.68%	5.58%
Panglobulin	7.67%	9.31%	12.39%	13.59%	5.05%	2.49%	1.48%
Polygam S/D	7.18%	28.02%	21.07%	11.68%	20.36%	12.53%	14.20%
Sandoglobulin	26.72%	6.92%	0.51%	NA	NA	NA	NA
Venoglobulin	0.24%	2.52%	8.66%	11.68%	1.87%	NA	NA
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

Source: IMS Health, 2006; CBER, 2006
Note: Vivaglobin, a new ZLB Behring product, is not reported, as it did not appear in IMS Health data provided.
[a] FDA licensed in December 2003.
[b] FDA licensed in February 2005.
[c] FDA licensed in August 2003.
[d] FDA licensed in May 2004.

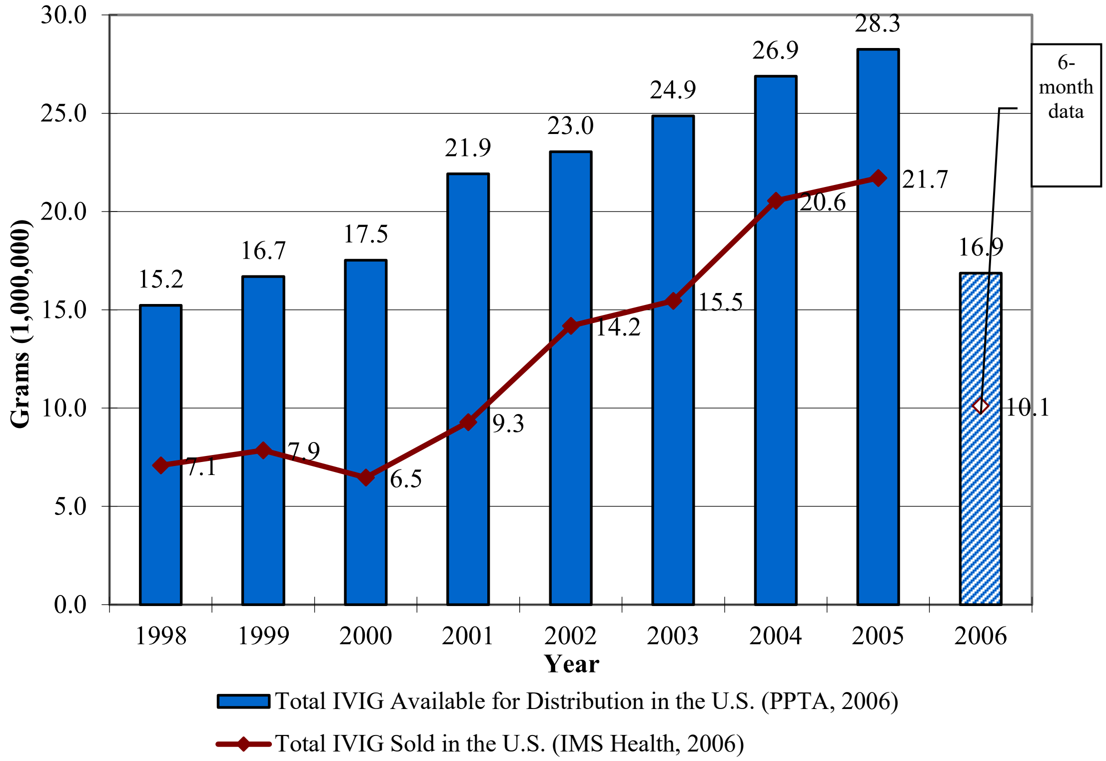
UPDATED Table 2-10: Market Shares of IG Products (as % of Grams Sold), January 2013 – March 2018

Brand Name	2013	2014	2015	2016	2017	2018 (Q1)
BIGIVam	0.5%	0.6%	0.6%	0.9%	0.1%	0.0%
Carimune ® NF, Nanofiltered	5.3%	6.7%	5.7%	4.6%	5.0%	2.9%
Cuvitru	NA	NA	NA	NA	0.3%	0.6%
Flebogamma DIF 5% & 10%	6.4%	6.4%	4.5%	3.3%	2.0%	3.0%
GamaSTAN S/D, Immune Globulin (Human)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gammagard Liquid	16.5%	18.2%	20.5%	21.2%	26.5%	26.2%
Gammagard S/D	0.8%	1.1%	1.5%	1.4%	1.4%	1.2%
Gammaplex 5% & 10%	0.5%	0.8%	1.1%	2.0%	2.7%	1.8%
Gamunex-C	28.1%	20.7%	18.6%	22.8%	20.5%	24.6%
Hizentra	4.3%	5.6%	5.9%	5.3%	5.0%	5.5%
Hyqvia	NA	0.0%	0.3%	0.6%	1.2%	1.1%
Octagam	13.0%	10.7%	13.1%	13.7%	11.8%	11.4%
PrIGIVen	24.4%	29.3%	28.3%	24.2%	23.5%	21.6%
Grand Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

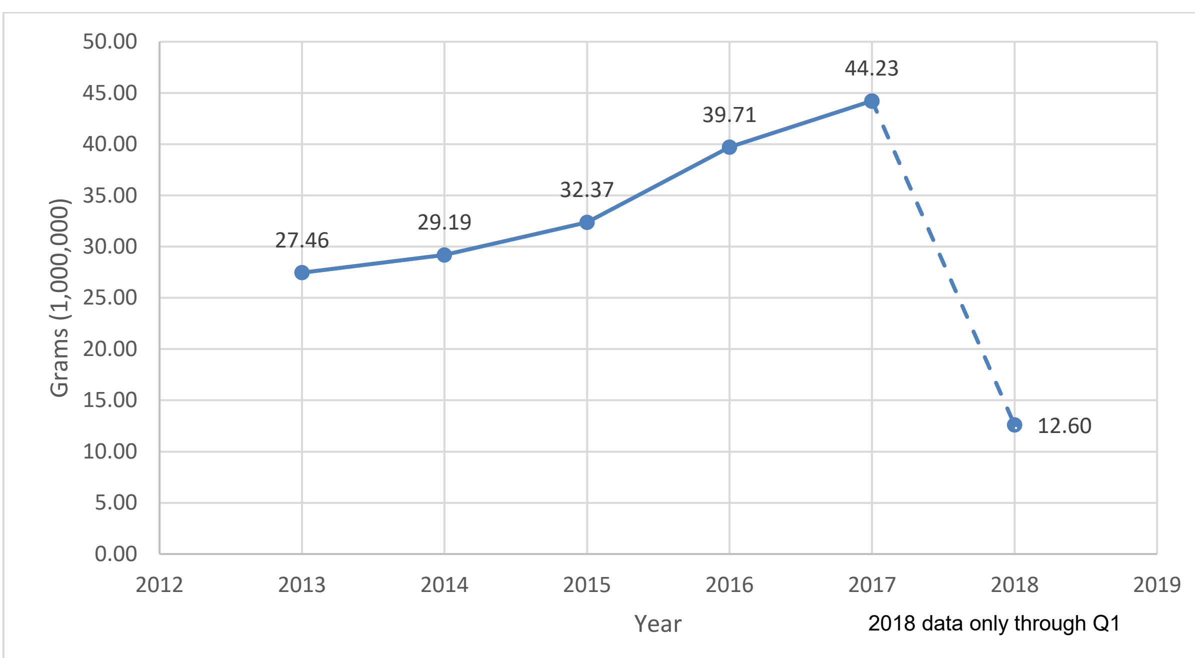
Source: IQVIA NSP, 2018

<u>Total Amount of IG Products Available in the United States</u>

Figure 2-4: Total Amount of IGIV Available in the United States, January 1998 – June 2006



UPDATED Figure 2-4: Total Amount of IG Products Available in the United States, January 2013 – March 2018



Source: IQVIA NSP, 2018

Figure 2-4 in the 2007 report showed an increase in the total amount of IGIV product available in the United States from 7,100,000 grams in 1998 to 21,700,000 grams in 2005.

For the January 2013 to March 2018 period, NSP shows that the total amount of IG products available in the United States has continued to grow steadily increasing from 27,500,000 grams in 2013 to 44,200,000 grams in 2017.

Change in IG Product Supply by Brand

Table 2-12: Change in IGIV Supply by Brand, 1998–2005

	Period								
Brand Name	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**Change from 2003–2005**
Carimune	NA	NA	NA	1,883	3,109	4,013	4,494	5,368	1,355
Flebogamma [a]	NA	NA	NA	NA	NA	NA	317	1,707	1,707
Gamimune N	1,539	4,317	4,581	NA	NA	NA	NA	NA	NA
Gammagard Liquid	NA	NA	NA	NA	NA	NA	NA	26	26
Gammagard S/D	1,882	3,009	2,986	5,449	5,115	5,940	2,489	1,993	(3,947)
Gammar-P I.V.	1,936	483	1,811	3,818	4,493	5,274	6,855	3,417	(1,857)
Gamunex	NA	NA	NA	NA	NA	269	5,260	9,040	8,771
Iveegam	16	14	823	516	504	179	78	7	(172)
Octagam [a]	NA	NA	NA	NA	NA	NA	54	2,454	2,454
Panglobulin	387	1,200	1,345	2,041	2,856	3,379	1,357	703	(2,676)
Polygam S/D	2,435	1,541	1,258	6,142	4,857	2,904	5,473	3,541	637
Sandoglobulin	5,186	5,233	4,683	1,517	117	NA	NA	NA	NA
Venoglobulin	1,853	896	42	552	1,996	2,905	502	NA	(2,905)
Total [b]	15,234	16,693	17,530	21,916	23,046	24,861	26,879	28,257	**3,396**

Source: IMS Health, 2006
NA = not applicable
Note: The figures in parentheses denote negative values.
[a] Given the date of license for the product, the 2003–2005 change actually represents change from 2004 to 2005.
[b] The total grams sold reported by IMS Health are benchmarked to the total available for distribution figures reported by PPTA.

UPDATED Table 2-12: Change in IG Product Supply by Brand, January 2013 – March 2018 – Not Benchmarked to PPTA Numbers

	Year					
Brand Name	**2013**	**2014**	**2015**	**2016**	**2017**	**2018 (Q1)**
BIGIVam	148	162	190	361	33	
Carimune ® NF, Nanofiltered	1446	1965	1860	1830	2232	362
Cuvitru	NA	NA	NA	NA	143	74
Flebogamma DIF 5% & 10%	1759	1874	1449	1304	877	381
GamaSTAN S/D, Immune Globulin (Human)	9	5	4	6	7	2
Gammagard Liquid	4527	5306	6631	8425	11722	3308
Gammagard S/D	225	311	469	549	619	153
Gammaplex 5% & 10%	145	223	341	775	1177	230
Gamunex-C	7729	6028	6008	9054	9083	3099
Hizentra	1193	1640	1908	2117	2193	688
Hyqvia	NA	2	106	256	515	144
Octagam	3576	3116	4234	5423	5229	1437
PrIGIVen	6707	8557	9171	9610	10403	2726
Grand Total	**27,462**	**29,190**	**32,371**	**39,711**	**44,233**	**12,603**

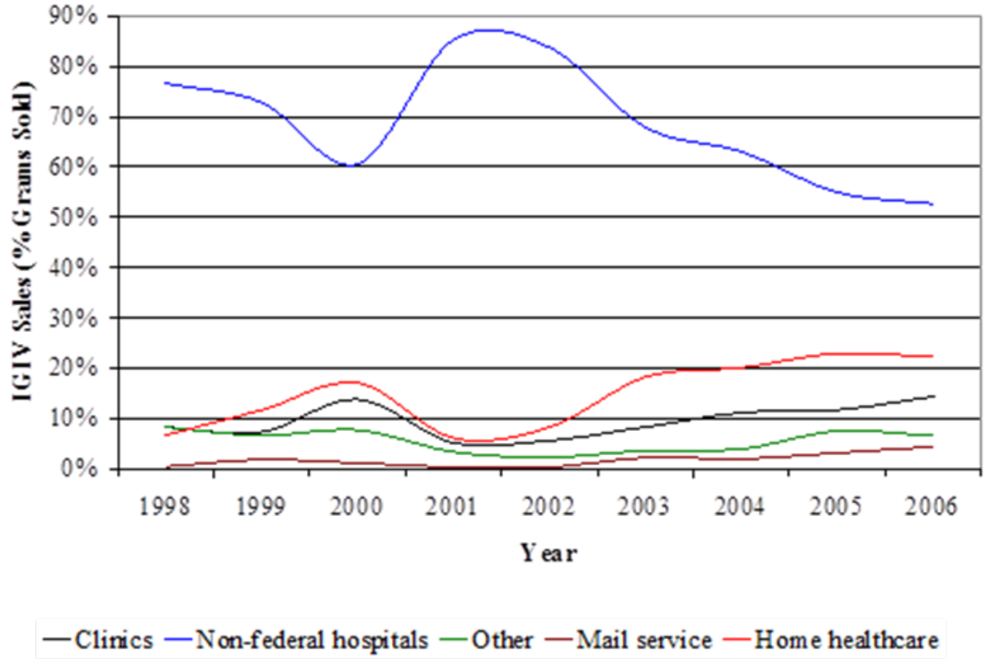
Source: IQVIA NSP, 2018

Table 2-12 shows that the supply increases have not been uniform across IGIV manufacturers or products. The overall increase in IGIV supply during the 2003 to 2005 period is mainly attributable to the new market entrants, Octagam (Octapharma) and Flebogamma (Grifols USA), as well as a substantial increase in Gamunex (Talecris Biotherapeutics) production. In fact, the total IGIV supply in 2005 would have been 10 percent lower than its 2004 level had Grifols USA and Octapharma USA been absent from the U.S. market. During the 2003 to 2005 period, there were also increases in the production of Carimune (ZLB Behring) and Polygam S/D (Baxter BioScience). There have also been substantial reductions in the production of other IGIV products, including Gammagard S/D, Iveegam EN, and Panglobulin by Baxter BioScience; Gammar-P I.V. by ZLB Behring; and Venoglobulin by Grifols USA, over the 2003 to 2005 period. Several of these products are either discontinued or in the process of being discontinued.

The updated Table 2-12 shows an overall increase in the IG product supply during the January 2013 to March 2018 period, with increases in the supply of Gammagard Liquid (Shire Pharmaceuticals); Gammagard S/D (Shire Pharmaceuticals); Octagam (OCTAPHARMA Pharmazeutika Produktionsges.m.b.H); Carimune ® NF, Nanofiltered (CSL Behring); Gammaplex 5% & 10% (Bio Products Laboratory); Gamunex-C (Grifols Therapeutics, Inc.); Hizentra (CSL Behring); Hyqvia (Shire Pharmaceuticals); and PrIGIVen (CSL Behring). During the January 2013 to March 2018 period, there were decreases in BIGIVam (Biotest Pharmaceuticals Corporation), Flebogamma DIF 5% and 10% (Grifols Therapeutics, Inc.), and GamaSTAN S/D, Immune Globulin (Human) (Grifols Therapeutics, Inc.).

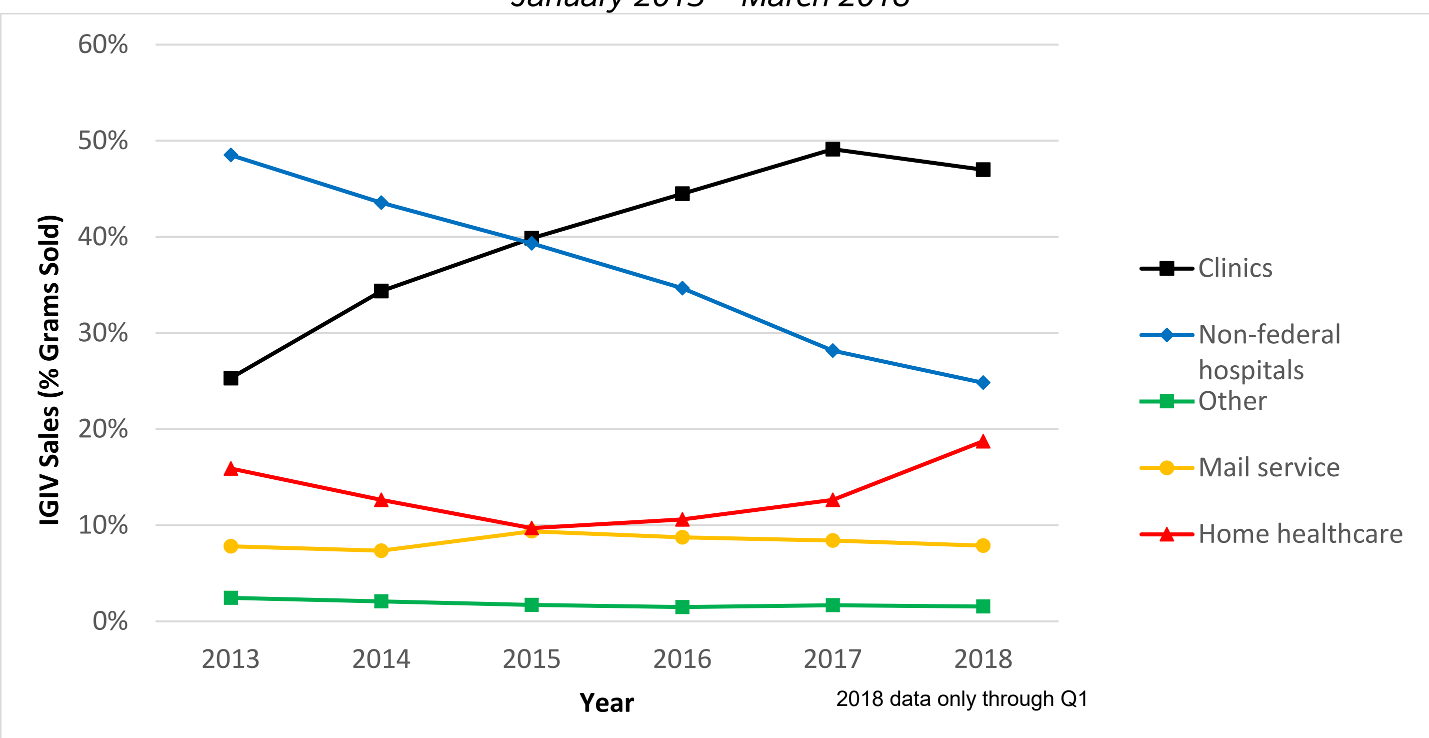
<u>Sales of IG Products (% of Grams Sold), by Channel</u>

Figure 2-5: Sales of IGIV (% of Grams Sold), by Channel, January 1998-June 2006



Source: IMS Health, 2006
Note: The other category includes Federal facilities, chain stores, food stores, HMOs, long-term care facilities, and miscellaneous other establishments.

UPDATED Figure 2-5: Sales of IG Products (% of Grams Sold), by Channel, January 2013 – March 2018



Source: IQVIA NSP, 2018

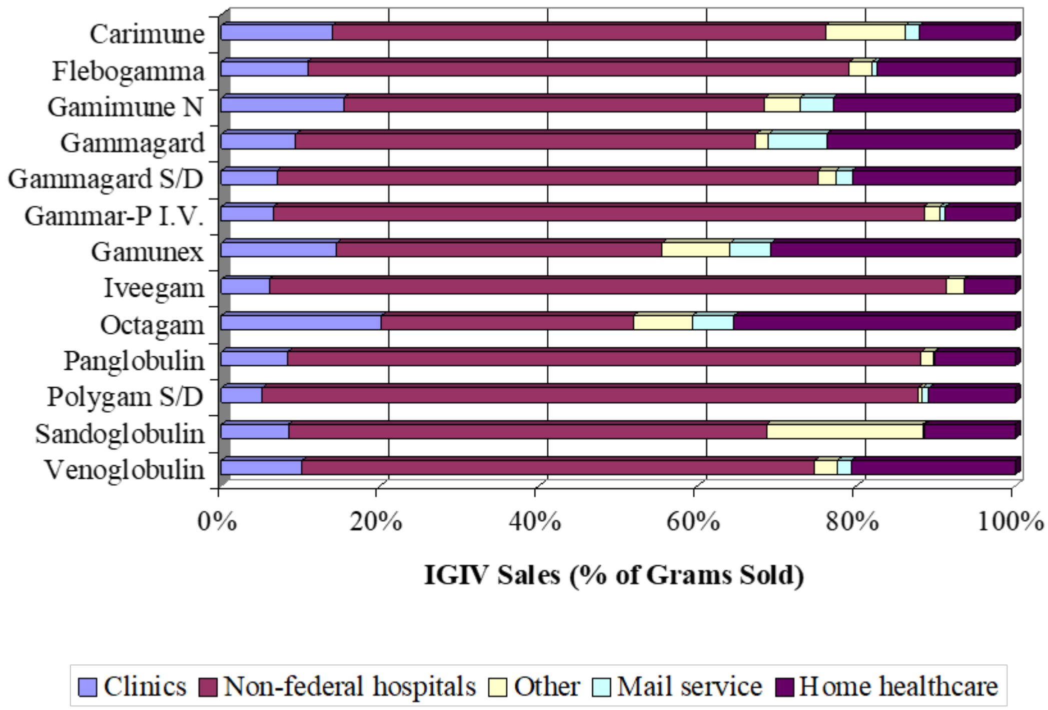
Figure 2-5 presents the distribution of IGIV among various retail and non-retail channels from January 1998 to June 2006.[3] In 2005, non-federal hospitals were the largest users of IGIV (55 percent), followed by home healthcare (23 percent), and clinics, which include physician's offices (12 percent). This distribution of IGIV use remained practically unchanged in the first half of 2006 (January through June).

Updated Figure 2-5 presents the distribution of IG products among various retail and non-retail channels from January 2013 to March 2018. After 2015, clinics became the largest users of IG products. Clinics increased to 49 percent of the total share in 2017, followed by non-federal hospitals (28 percent), home healthcare (12 percent), mail service (9 percent), and other (2 percent).

[3] Not every manufacturer interviewed for the study provided its sales breakdown by channel. Further, it is not possible to estimate the exact distribution of the product by sales channel based on data provided by manufacturers given that a portion of the product made available to authorized distributors is unencumbered and can be sold to any channel, with some limitations (see Section 2.4 for further discussion). Thus, we think IMS Health data provide a more accurate estimate of IGIV sales by channel.

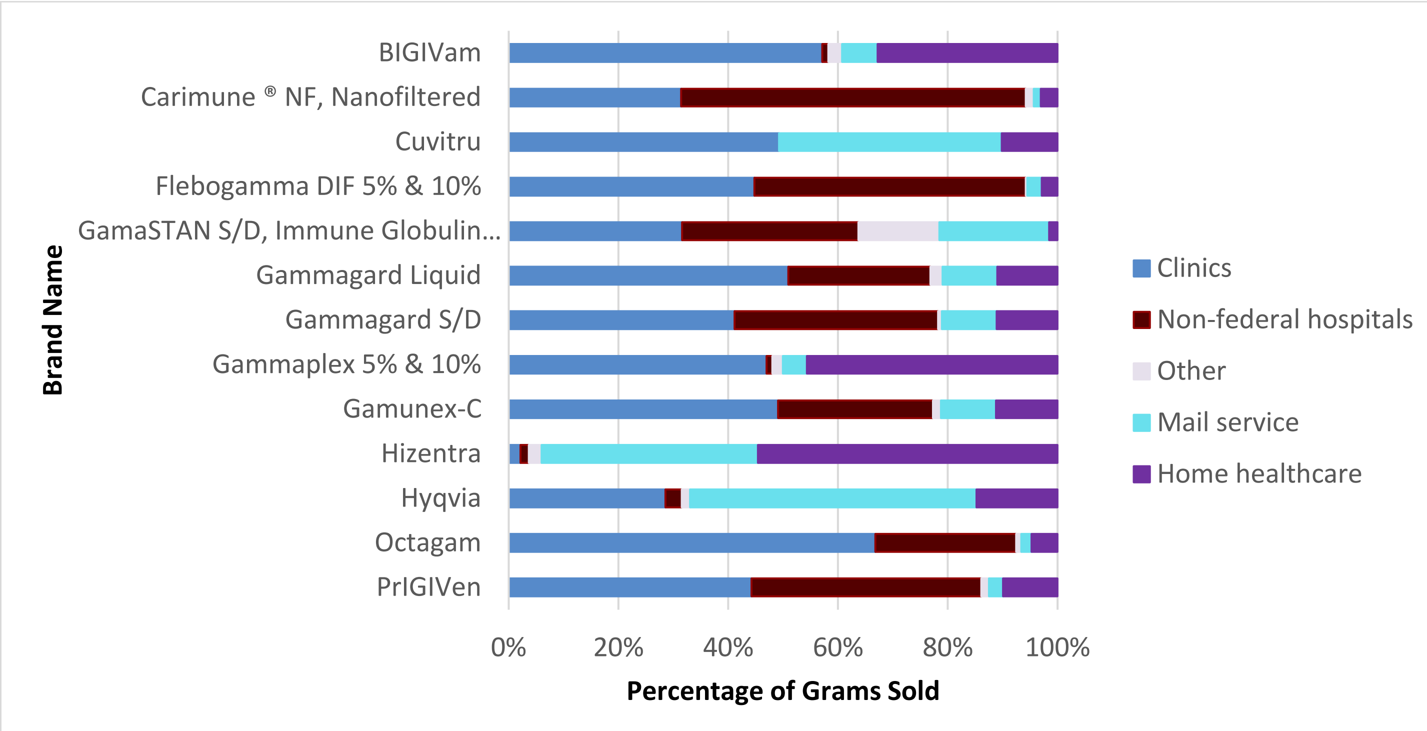
IG Product Sales, by Channel (% of Grams Sold)

Figure 2-6: IGIV Product Sales, by Channel (% of Grams Sold), January 2005-June 2006



Source: IMS Health, 2006
Notes:
[a]The other category includes Federal facilities, chain stores, food stores, HMOs, long-term care facilities, and miscellaneous other establishments.
[b] The graph compares the percentage each value contributes to the total across all IGIV products.

UPDATED Figure 2-6: IG Product Sales, by Channel (% of Grams Sold), January 2016 – March 2018



Source: IQVIA NSP, 2018

As shown in Figure 2-6, from June 2005 to June 2006, non-Federal hospitals were the dominant purchasers of IGIV. Consistent with the updated Figure 2-5, updated Figure 2-6 shows a shift from non-Federal hospitals to clinics as dominant purchasers of IG products, although there is considerable variability by product.

IG Product Market Prices by Channel,
First Quarter 2005 - Second Quarter 2006 / First Quarter 2016 - First Quarter 2018

		All Sales Channels		Non-Federal Hospitals		Clinics		Home Healthcare		Mail Order Pharmacies	
		Liquid IG Products	Lyophilized IG Products	Liquid IG Products	Lyophilized IG Products	Liquid IG Products	Lyophilized IG Products	Liquid IG Products	Lyophilized IG Products	Liquid IG Products	Lyophilized IG Products
2005	Q1	$ 52.50	$ 42.50	$ 52.50	$ 41.00	$ 53.20	$ 45.30	$ 53.80	$ 46.10	$ 43.30	$ 37.40
	Q2	$ 54.60	$ 43.90	$ 54.90	$ 42.40	$ 55.90	$ 42.30	$ 55.90	$ 46.80	$ 44.50	$ 34.70
	Q3	$ 54.70	$ 44.30	$ 55.00	$ 43.30	$ 56.60	$ 44.00	$ 56.70	$ 46.10	$ 44.10	$ 33.90
	Q4	$ 55.90	$ 44.90	$ 56.10	$ 44.30	$ 59.60	$ 42.90	$ 58.40	$ 48.10	$ 45.90	$ 38.10
2006	Q1	$ 58.60	$ 49.30	$ 59.10	$ 48.30	$ 62.10	$ 50.90	$ 60.50	$ 52.90	$ 48.50	$ 34.30
	Q2	$ 59.00	$ 49.80	$ 59.30	$ 49.90	$ 63.70	$ 48.60	$ 61.20	$ 52.20	$ 49.10	$ 38.20
2016	Q1	$ 66.36	$ 43.71	$ 64.27	$ 42.93	$ 63.08	$ 44.39	$ 82.30	$ 50.08	$ 71.02	$ 35.98
	Q2	$ 65.12	$ 43.18	$ 63.42	$ 42.54	$ 62.46	$ 43.56	$ 80.97	$ 49.23	$ 64.22	$ 29.79
	Q3	$ 64.75	$ 43.71	$ 62.39	$ 43.52	$ 62.41	$ 42.73	$ 81.19	$ 48.58	$ 62.57	$ 28.70
	Q4	$ 66.86	$ 44.35	$ 64.31	$ 44.77	$ 63.84	$ 43.72	$ 82.26	$ 48.29	$ 67.96	$ 28.62
2017	Q1	$ 65.14	$ 46.38	$ 65.21	$ 46.89	$ 60.05	$ 45.34	$ 81.82	$ 50.79	$ 66.85	$ 29.13
	Q2	$ 64.54	$ 47.98	$ 59.32	$ 49.42	$ 61.84	$ 44.51	$ 82.71	$ 51.53	$ 68.02	$ 30.38
	Q3	$ 66.20	$ 46.01	$ 61.86	$ 46.21	$ 62.85	$ 44.54	$ 81.64	$ 51.46	$ 70.57	$ 31.71
	Q4	$ 70.40	$ 45.15	$ 70.16	$ 44.66	$ 66.98	$ 46.02	$ 81.81	$ 50.33	$ 70.30	$ 32.15
2018	Q1	$ 70.95	$ 45.81	$ 72.01	$ 44.86	$ 66.01	$ 46.62	$ 80.78	$ 49.90	$ 70.55	$ 35.29

Source: IQVIA NSP, 2018

Tables 2-13 to 2-17 from the 2007 report have been updated to only include the IMS prices. The price of Lyophilized IG products has been relatively flat from 2016 to the first quarter of 2018. Prices in the first quarter in 2018 were lower for lyophilized IG products in all channels than in the first quarter of 2006. Liquid IG products prices rose significantly in the non-Federal channel, but were flat in all other channels. Prices for liquid IG products were higher in all channels in the first quarter of 2018 than in the first quarter of 2006.