

## Disclaimer

The following report(s) provides findings from an FDA-initiated query using Sentinel. While 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 Sentinel, and seeking to better understand Sentinel capabilities.

Data obtained through 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 Sentinel in the public domain as soon as possible. Any public health actions taken by FDA regarding products involved in 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 Query Builder analysis.

If you are using a web page screen reader and are unable to access this document, please contact the Sentinel Operations Center for assistance at [info@sentinelssystem.org](mailto:info@sentinelssystem.org).

## Overview

**Query Builder Report:** This report details the results of an analysis generated by the Sentinel Query Builder application. Query Builder enables FDA to visualize, draft, and create standardized medical product utilization queries examining dispensing patterns and cohort characteristics using a set of pre-defined parameters. This is a Type 5 (Medical Product Utilization) analysis as described in the Query Request Package (QRP) documentation.

**Request Description:** In this request, we investigated insulin billing code patterns in the IBM® MarketScan® Commercial Claims and Encounters Database and Medicare Supplemental Database.

**Sentinel Routine Querying Module:** Cohort Identification and Descriptive Analysis (CIDA) module, version 9.1.0.

**Data Source:** We executed this request on IBM® MarketScan® Commercial Claims and Encounters Database and Medicare Supplemental Database, which included 140 million members, on February 20, 2020. The study period included data from January 1, 2013 to December 31, 2018. Please see Appendix A for data availability dates.

**Limitations:** Algorithms used to define exposures and inclusion and exclusion criteria are imperfect; thus it is possible that there may be misclassification. Therefore, data should be interpreted with these limitations in mind.

**Notes:** Please contact the Sentinel Operations Center ([info@sentinelssystem.org](mailto:info@sentinelssystem.org)) for questions and to provide comments/suggestions for future enhancements to this document. For more information on Sentinel Query Builder, please refer to the documentation (<https://dev.sentinelssystem.org/projects/QB/repos/querybuilder/browse>).

Table of contents	
<b>Table 1a</b>	Descriptive statistics of cumulative exposure duration, all episodes, in days
<b>Table 1b</b>	Descriptive statistics of cumulative exposure duration, all episodes, in days, by sex
<b>Table 1c</b>	Descriptive statistics of cumulative exposure duration, all episodes, in days, by age group (years)
<b>Table 2a</b>	Descriptive statistics of first exposure episode duration, in days
<b>Table 2b</b>	Descriptive statistics of first exposure episode duration, in days, by sex
<b>Table 2c</b>	Descriptive statistics of first exposure episode duration, in days, by age group (years)
<b>Table 3a</b>	Descriptive statistics of all episode durations, in days
<b>Table 3b</b>	Descriptive statistics of all episode durations, in days, by sex
<b>Table 3c</b>	Descriptive statistics of all episode durations, in days, by age group (years)
<b>Table 4a</b>	Descriptive statistics of days supplied per dispensing
<b>Table 4b</b>	Descriptive statistics of days supplied per dispensing, by sex
<b>Table 4c</b>	Descriptive statistics of days supplied per dispensing, by age group (years)
<b>Table 5a</b>	Descriptive statistics of the length of all gaps between treatment episodes, in days
<b>Table 5b</b>	Descriptive statistics of the length of all gaps between treatment episodes, in days, by sex
<b>Table 5c</b>	Descriptive statistics of the length of all gaps between treatment episodes, in days, by age group (years)
<b>Table 6</b>	Counts of reason for censoring, all episodes and first episode
<b>Table 7</b>	Cohort Attrition table
<b>Appendix A</b>	Dates of Available Data for Each Data Partner (DP) up to Request End Date (12/31/2018) as of Query Distribution Date
<b>Appendix B</b>	Specifications Used to Define Parameters in this Query
<b>Appendix C</b>	List of Generic and Brand Names of Medical Products Used to Define Index Exposures in this Query
<b>Appendix D</b>	List of Healthcare Common Procedure Coding System (HCPCS) Codes Used to Define Index Exposures in this Request



<b>Table 1a. Descriptive statistics of cumulative exposure duration, all episodes, in days</b>								
<b>Exposures</b>	<b>Total Patients</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Q1</b>	<b>Median</b>	<b>Q3</b>	<b>Maximum</b>
Insulin HCPCS, Intermediate Acting (S5552)	89	5.30	4.83	1	1	4	9	19
Insulin NDC, All	1,165,082	456.65	460.15	1	112	289	648	2,191
Insulin NDC, Lantus Solostar	476,797	370.94	387.34	1	90	235	523	2,190
Insulin NDC, Lantus U-100	207,014	313.38	371.39	1	56	172	426	2,190
Insulin NDC, Novolog Flexpen	270,386	278.85	320.70	1	60	162	360	2,190
Insulin NDC, Novolog U-100	161,187	357.18	398.84	1	72	210	495	2,190
Insulin NDC, Humalog U-100	151,569	327.39	370.73	1	64	194	444	2,189
Insulin HCPCS, Injection (J1815)	132,801	1.58	2.03	1	1	1	2	362
Insulin HCPCS, Administration through Insulin Pump (J1817)	6,057	1.89	3.04	1	1	1	2	80
Insulin HCPCS, All	137,749	1.61	2.11	1	1	1	2	362

Table 1b. Descriptive statistics of cumulative exposure duration, all episodes, in days, by sex								
Exposures	Total Patients	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
<b>Insulin HCPCS, Intermediate Acting (S5552)</b>	<b>89</b>	<b>5.30</b>	<b>4.83</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>9</b>	<b>19</b>
Female	54	4.93	4.05	1	1	5	8	17
Male	35	5.89	5.84	1	1	2	10	19
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, All</b>	<b>1,165,082</b>	<b>456.65</b>	<b>460.15</b>	<b>1</b>	<b>112</b>	<b>289</b>	<b>648</b>	<b>2,191</b>
Female	550,884	442.94	451.81	1	103	276	630	2,190
Male	614,198	468.95	467.17	1	120	300	664	2,191
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Lantus Solostar</b>	<b>476,797</b>	<b>370.94</b>	<b>387.34</b>	<b>1</b>	<b>90</b>	<b>235</b>	<b>523</b>	<b>2,190</b>
Female	218,204	361.87	379.96	1	90	225	510	2,190
Male	258,593	378.59	393.29	1	90	240	537	2,190
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Lantus U-100</b>	<b>207,014</b>	<b>313.38</b>	<b>371.39</b>	<b>1</b>	<b>56</b>	<b>172</b>	<b>426</b>	<b>2,190</b>
Female	93,710	294.36	355.60	1	56	153	390	2,190
Male	113,304	329.11	383.25	1	60	180	450	2,190
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Novolog Flexpen</b>	<b>270,386</b>	<b>278.85</b>	<b>320.70</b>	<b>1</b>	<b>60</b>	<b>162</b>	<b>360</b>	<b>2,190</b>
Female	126,445	259.92	303.43	1	60	150	339	2,181
Male	143,941	295.48	334.25	1	63	180	390	2,190
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Novolog U-100</b>	<b>161,187</b>	<b>357.18</b>	<b>398.84</b>	<b>1</b>	<b>72</b>	<b>210</b>	<b>495</b>	<b>2,190</b>
Female	81,134	346.91	388.84	1	68	203	478	2,188
Male	80,053	367.60	408.46	1	76	218	511	2,190
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Humalog U-100</b>	<b>151,569</b>	<b>327.39</b>	<b>370.73</b>	<b>1</b>	<b>64</b>	<b>194</b>	<b>444</b>	<b>2,189</b>
Female	75,572	316.86	360.57	1	60	182	425	2,188
Male	75,997	337.87	380.29	1	68	204	452	2,189
Other	0	-	-	-	-	-	-	-
<b>Insulin HCPCS, Injection (J1815)</b>	<b>132,801</b>	<b>1.58</b>	<b>2.03</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>362</b>
Female	65,651	1.61	2.31	1	1	1	2	362
Male	67,150	1.55	1.71	1	1	1	2	103
Other	0	-	-	-	-	-	-	-
<b>Insulin HCPCS, Administration through Insulin Pump (J1817)</b>	<b>6,057</b>	<b>1.89</b>	<b>3.04</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>80</b>
Female	2,965	1.91	2.92	1	1	1	2	50
Male	3,092	1.86	3.15	1	1	1	2	80
Other	0	-	-	-	-	-	-	-
<b>Insulin HCPCS, All</b>	<b>137,749</b>	<b>1.61</b>	<b>2.11</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>362</b>
Female	68,020	1.64	2.36	1	1	1	2	362



<b>Table 1b. Descriptive statistics of cumulative exposure duration, all episodes, in days, by sex</b>									
<b>Exposures</b>	<b>Total Patients</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Q1</b>	<b>Median</b>	<b>Q3</b>	<b>Maximum</b>	
Male	69,729	1.58	1.82	1	1	1	2	103	
Other	0	-	-	-	-	-	-	-	

Table 1c. Descriptive statistics of cumulative exposure duration, all episodes, in days, by age group (years)								
Exposures	Total Patients	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
<b>Insulin HCPCS, Intermediate Acting (S5552)</b>	<b>89</b>	<b>5.30</b>	<b>4.83</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>9</b>	<b>19</b>
00-01	0	-	-	-	-	-	-	-
02-04	0	-	-	-	-	-	-	-
05-09	0	-	-	-	-	-	-	-
10-14	1	3.00	-	3	3	3	3	3
15-18	1	1.00	-	1	1	1	1	1
19-21	5	6.80	2.77	4	5	6	8	11
22-44	35	6.20	5.62	1	1	5	10	18
45-64	43	4.56	4.36	1	1	2	7	19
65-74	4	5.25	4.35	1	2	6	9	9
75+	0	-	-	-	-	-	-	-
<b>Insulin NDC, All</b>	<b>1,165,082</b>	<b>456.65</b>	<b>460.15</b>	<b>1</b>	<b>112</b>	<b>289</b>	<b>648</b>	<b>2,191</b>
00-01	298	462.57	476.36	2	90	306	660	2,159
02-04	1,888	504.07	469.84	1	143	349	714	2,182
05-09	8,319	563.35	512.79	1	170	375	827	2,191
10-14	18,128	605.96	528.16	1	193	427	913	2,190
15-18	18,997	551.92	492.15	1	180	368	810	2,186
19-21	16,306	472.07	441.21	1	137	316	674	2,178
22-44	251,447	370.89	418.11	1	83	212	502	2,190
45-64	629,933	468.24	463.96	1	120	300	661	2,191
65-74	127,419	521.19	485.72	1	142	348	764	2,190
75+	92,347	459.87	446.77	1	109	300	679	2,186
<b>Insulin NDC, Lantus Solostar</b>	<b>476,797</b>	<b>370.94</b>	<b>387.34</b>	<b>1</b>	<b>90</b>	<b>235</b>	<b>523</b>	<b>2,190</b>
00-01	68	148.38	147.13	1	52	90	200	846
02-04	612	185.12	195.12	2	57	120	245	1,261
05-09	3,250	233.09	270.12	1	60	137	292	1,906
10-14	8,192	293.11	322.15	1	75	180	390	2,181
15-18	8,611	296.47	327.94	1	66	180	390	2,132
19-21	6,201	276.20	302.73	1	60	170	365	2,026
22-44	81,358	272.72	315.89	1	60	151	360	2,187
45-64	266,746	384.72	391.76	1	90	250	540	2,190
65-74	61,353	458.80	438.82	1	118	303	665	2,182
75+	40,406	404.76	399.89	1	90	270	586	2,189
<b>Insulin NDC, Lantus U-100</b>	<b>207,014</b>	<b>313.38</b>	<b>371.39</b>	<b>1</b>	<b>56</b>	<b>172</b>	<b>426</b>	<b>2,190</b>
00-01	136	242.12	239.51	2	64	147	353	1,034
02-04	825	264.55	302.23	1	60	161	338	1,901
05-09	2,581	231.16	280.81	1	46	125	298	2,006
10-14	4,414	207.84	281.12	1	30	90	264	2,183

Table 1c. Descriptive statistics of cumulative exposure duration, all episodes, in days, by age group (years)								
Exposures	Total Patients	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
15-18	4,073	206.29	289.54	1	30	90	244	2,105
19-21	2,969	205.73	283.47	1	30	90	256	2,047
22-44	37,487	234.07	307.65	1	30	110	295	2,182
45-64	103,533	334.29	383.01	1	60	185	457	2,190
65-74	26,607	386.63	423.12	1	83	228	546	2,183
75+	24,389	327.45	365.65	1	60	184	465	2,167
<b>Insulin NDC, Novolog Flexpen</b>	<b>270,386</b>	<b>278.85</b>	<b>320.70</b>	<b>1</b>	<b>60</b>	<b>162</b>	<b>360</b>	<b>2,190</b>
00-01	19	65.53	55.66	2	30	60	90	210
02-04	155	172.06	263.36	6	30	60	181	1,606
05-09	1,383	203.56	264.41	1	30	91	251	2,131
10-14	5,167	290.09	323.09	1	62	178	386	2,047
15-18	6,535	292.00	320.45	1	65	180	390	2,111
19-21	5,194	268.58	297.78	1	60	168	354	2,058
22-44	56,924	237.90	291.76	1	57	125	300	2,183
45-64	142,301	288.25	326.18	1	65	178	373	2,190
65-74	31,417	321.70	348.93	1	77	180	450	2,180
75+	21,291	263.91	309.31	1	54	146	360	2,139
<b>Insulin NDC, Novolog U-100</b>	<b>161,187</b>	<b>357.18</b>	<b>398.84</b>	<b>1</b>	<b>72</b>	<b>210</b>	<b>495</b>	<b>2,190</b>
00-01	72	430.19	485.41	10	60	294	544	2,158
02-04	621	422.72	425.84	6	97	280	594	2,124
05-09	3,119	459.41	450.27	1	117	306	653	2,176
10-14	7,496	509.78	474.01	1	150	344	720	2,185
15-18	6,994	470.65	438.90	1	149	321	661	2,182
19-21	5,855	405.58	386.70	1	120	271	572	2,166
22-44	49,944	353.61	386.73	1	84	214	482	2,189
45-64	64,118	360.53	403.95	1	71	210	499	2,188
65-74	11,198	296.72	365.16	1	47	150	397	2,190
75+	11,770	191.97	271.91	1	30	84	235	2,119
<b>Insulin NDC, Humalog U-100</b>	<b>151,569</b>	<b>327.39</b>	<b>370.73</b>	<b>1</b>	<b>64</b>	<b>194</b>	<b>444</b>	<b>2,189</b>
00-01	91	390.62	428.42	14	74	226	578	1,876
02-04	649	380.59	408.24	4	90	244	522	2,104
05-09	2,649	407.20	427.42	1	90	257	570	2,151
10-14	5,878	442.24	429.95	1	120	299	630	2,163
15-18	5,528	416.25	397.55	1	120	290	589	2,122
19-21	4,661	371.24	364.76	1	102	253	526	2,007
22-44	45,585	325.89	358.60	1	80	203	437	2,188
45-64	63,323	337.79	381.80	1	68	200	450	2,189
65-74	12,118	271.99	333.29	1	43	146	360	2,125



Table 1c. Descriptive statistics of cumulative exposure duration, all episodes, in days, by age group (years)								
Exposures	Total Patients	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
75+	11,087	188.39	268.26	1	30	84	236	2,160
<b>Insulin HCPCS, Injection (J1815)</b>	<b>132,801</b>	<b>1.58</b>	<b>2.03</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>362</b>
00-01	54	1.26	0.81	1	1	1	1	6
02-04	199	1.38	0.84	1	1	1	1	6
05-09	700	1.29	0.71	1	1	1	1	7
10-14	1,587	1.44	1.28	1	1	1	1	25
15-18	1,717	1.65	1.58	1	1	1	2	16
19-21	1,442	1.73	2.11	1	1	1	2	51
22-44	24,070	1.57	1.87	1	1	1	2	78
45-64	75,803	1.57	2.28	1	1	1	2	362
65-74	14,620	1.60	1.41	1	1	1	2	38
75+	12,609	1.63	1.40	1	1	1	2	57
<b>Insulin HCPCS, Administration through Insulin Pump (J1817)</b>	<b>6,057</b>	<b>1.89</b>	<b>3.04</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>80</b>
00-01	2	11.00	14.14	1	1	11	21	21
02-04	12	1.00	0.00	1	1	1	1	1
05-09	66	1.38	1.13	1	1	1	1	7
10-14	140	1.30	1.26	1	1	1	1	13
15-18	109	1.32	1.02	1	1	1	1	8
19-21	61	1.46	1.23	1	1	1	1	9
22-44	847	1.50	1.59	1	1	1	1	26
45-64	2,896	1.75	2.90	1	1	1	2	80
65-74	1,091	2.70	4.40	1	1	1	2	50
75+	833	1.94	2.80	1	1	1	2	34
<b>Insulin HCPCS, All</b>	<b>137,749</b>	<b>1.61</b>	<b>2.11</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>362</b>
00-01	55	1.62	2.78	1	1	1	1	21
02-04	205	1.37	0.83	1	1	1	1	6
05-09	749	1.32	0.81	1	1	1	1	9
10-14	1,693	1.45	1.33	1	1	1	1	25
15-18	1,786	1.65	1.58	1	1	1	2	16
19-21	1,489	1.76	2.13	1	1	1	2	51
22-44	24,854	1.58	1.90	1	1	1	2	78
45-64	78,326	1.59	2.32	1	1	1	2	362
65-74	15,433	1.69	1.85	1	1	1	2	50
75+	13,159	1.66	1.55	1	1	1	2	57

<b>Table 2a. Descriptive statistics of first exposure episode duration, in days</b>								
<b>Exposures</b>	<b>Total Episodes</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Q1</b>	<b>Median</b>	<b>Q3</b>	<b>Maximum</b>
Insulin HCPCS, Intermediate Acting (S5552)	89	1.11	0.44	1	1	1	1	4
Insulin NDC, All	1,165,082	108.71	182.19	1	30	50	90	2,191
Insulin NDC, Lantus Solostar	476,797	94.79	155.12	1	30	34	90	2,190
Insulin NDC, Lantus U-100	207,014	77.21	128.01	1	28	30	90	2,190
Insulin NDC, Novolog Flexpen	270,386	78.15	121.75	1	30	30	90	2,190
Insulin NDC, Novolog U-100	161,187	91.50	156.29	1	30	31	90	2,190
Insulin NDC, Humalog U-100	151,569	92.92	157.65	1	30	31	90	2,189
Insulin HCPCS, Injection (J1815)	132,801	1.17	0.57	1	1	1	1	61
Insulin HCPCS, Administration through Insulin Pump (J1817)	6,057	1.14	0.46	1	1	1	1	8
Insulin HCPCS, All	137,749	1.17	0.57	1	1	1	1	61

Table 2b. Descriptive statistics of first exposure episode duration, in days, by sex								
Exposures	Total Episodes	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
<b>Insulin HCPCS, Intermediate Acting (S5552)</b>	<b>89</b>	<b>1.11</b>	<b>0.44</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>4</b>
Female	54	1.15	0.53	1	1	1	1	4
Male	35	1.06	0.24	1	1	1	1	2
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, All</b>	<b>1,165,082</b>	<b>108.71</b>	<b>182.19</b>	<b>1</b>	<b>30</b>	<b>50</b>	<b>90</b>	<b>2,191</b>
Female	550,884	103.62	172.76	1	30	45	90	2,190
Male	614,198	113.28	190.14	1	30	51	90	2,191
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Lantus Solostar</b>	<b>476,797</b>	<b>94.79</b>	<b>155.12</b>	<b>1</b>	<b>30</b>	<b>34</b>	<b>90</b>	<b>2,190</b>
Female	218,204	92.16	149.59	1	30	34	90	2,190
Male	258,593	97.01	159.60	1	30	37	90	2,189
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Lantus U-100</b>	<b>207,014</b>	<b>77.21</b>	<b>128.01</b>	<b>1</b>	<b>28</b>	<b>30</b>	<b>90</b>	<b>2,190</b>
Female	93,710	73.15	120.77	1	28	30	86	2,190
Male	113,304	80.57	133.60	1	28	30	90	2,190
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Novolog Flexpen</b>	<b>270,386</b>	<b>78.15</b>	<b>121.75</b>	<b>1</b>	<b>30</b>	<b>30</b>	<b>90</b>	<b>2,190</b>
Female	126,445	73.67	110.50	1	30	30	90	2,168
Male	143,941	82.08	130.72	1	30	30	90	2,190
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Novolog U-100</b>	<b>161,187</b>	<b>91.50</b>	<b>156.29</b>	<b>1</b>	<b>30</b>	<b>31</b>	<b>90</b>	<b>2,190</b>
Female	81,134	88.03	148.75	1	30	30	90	2,188
Male	80,053	95.02	163.50	1	30	33	90	2,190
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Humalog U-100</b>	<b>151,569</b>	<b>92.92</b>	<b>157.65</b>	<b>1</b>	<b>30</b>	<b>31</b>	<b>90</b>	<b>2,189</b>
Female	75,572	89.08	150.36	1	30	30	90	2,188
Male	75,997	96.73	164.49	1	30	34	90	2,189
Other	0	-	-	-	-	-	-	-
<b>Insulin HCPCS, Injection (J1815)</b>	<b>132,801</b>	<b>1.17</b>	<b>0.57</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>61</b>
Female	65,651	1.18	0.61	1	1	1	1	61
Male	67,150	1.17	0.54	1	1	1	1	43
Other	0	-	-	-	-	-	-	-
<b>Insulin HCPCS, Administration through Insulin Pump (J1817)</b>	<b>6,057</b>	<b>1.14</b>	<b>0.46</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>8</b>
Female	2,965	1.15	0.47	1	1	1	1	7
Male	3,092	1.14	0.44	1	1	1	1	8
Other	0	-	-	-	-	-	-	-
<b>Insulin HCPCS, All</b>	<b>137,749</b>	<b>1.17</b>	<b>0.57</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>61</b>
Female	68,020	1.18	0.60	1	1	1	1	61



<b>Table 2b. Descriptive statistics of first exposure episode duration, in days, by sex</b>									
<b>Exposures</b>	<b>Total Episodes</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Q1</b>	<b>Median</b>	<b>Q3</b>	<b>Maximum</b>	
Male	69,729	1.17	0.54	1	1	1	1	43	
Other	0	-	-	-	-	-	-	-	-

Table 2c. Descriptive statistics of first exposure episode duration, in days, by age group (years)								
Exposures	Total Episodes	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
<b>Insulin HCPCS, Intermediate Acting (S5552)</b>	<b>89</b>	<b>1.11</b>	<b>0.44</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>4</b>
00-01	0	-	-	-	-	-	-	-
02-04	0	-	-	-	-	-	-	-
05-09	0	-	-	-	-	-	-	-
10-14	1	1.00	-	1	1	1	1	1
15-18	1	1.00	-	1	1	1	1	1
19-21	5	1.60	0.89	1	1	1	2	3
22-44	35	1.14	0.55	1	1	1	1	4
45-64	43	1.05	0.21	1	1	1	1	2
65-74	4	1.00	0.00	1	1	1	1	1
75+	0	-	-	-	-	-	-	-
<b>Insulin NDC, All</b>	<b>1,165,082</b>	<b>108.71</b>	<b>182.19</b>	<b>1</b>	<b>30</b>	<b>50</b>	<b>90</b>	<b>2,191</b>
00-01	298	142.60	270.72	2	30	32	124	2,159
02-04	1,888	129.06	226.88	1	30	51	118	2,182
05-09	8,319	122.87	211.93	1	30	50	104	2,191
10-14	18,128	129.37	227.66	1	30	58	111	2,190
15-18	18,997	110.75	186.68	1	30	52	90	2,186
19-21	16,306	93.74	152.56	1	30	37	90	2,178
22-44	251,447	87.28	146.01	1	30	31	90	2,190
45-64	629,933	109.20	183.70	1	30	47	90	2,191
65-74	127,419	137.53	217.73	1	30	84	120	2,190
75+	92,347	120.37	188.87	1	30	71	100	2,186
<b>Insulin NDC, Lantus Solostar</b>	<b>476,797</b>	<b>94.79</b>	<b>155.12</b>	<b>1</b>	<b>30</b>	<b>34</b>	<b>90</b>	<b>2,190</b>
00-01	68	61.81	74.48	1	30	30	90	450
02-04	612	58.73	60.41	2	30	30	90	840
05-09	3,250	66.01	91.03	1	30	30	90	1,727
10-14	8,192	70.24	105.19	1	30	30	90	2,181
15-18	8,611	68.09	101.16	1	30	30	90	2,132
19-21	6,201	65.12	88.83	1	30	30	90	1,565
22-44	81,358	69.24	109.00	1	30	30	89	2,187
45-64	266,746	94.44	155.47	1	30	31	90	2,190
65-74	61,353	127.28	197.68	1	30	84	100	2,182
75+	40,406	117.37	175.57	1	30	82	90	2,189
<b>Insulin NDC, Lantus U-100</b>	<b>207,014</b>	<b>77.21</b>	<b>128.01</b>	<b>1</b>	<b>28</b>	<b>30</b>	<b>90</b>	<b>2,190</b>
00-01	136	83.14	117.91	2	28	30	86	653
02-04	825	78.87	122.06	1	28	30	84	1,761
05-09	2,581	71.50	104.45	1	28	30	84	1,100
10-14	4,414	59.75	102.33	1	28	30	60	2,183

Table 2c. Descriptive statistics of first exposure episode duration, in days, by age group (years)								
Exposures	Total Episodes	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
15-18	4,073	54.08	79.94	1	28	30	56	1,804
19-21	2,969	54.43	81.43	1	28	30	56	1,606
22-44	37,487	58.01	91.84	1	28	30	60	2,182
45-64	103,533	79.03	130.55	1	28	30	90	2,190
65-74	26,607	98.97	160.34	1	30	56	90	2,162
75+	24,389	85.61	137.24	1	28	32	90	2,157
<b>Insulin NDC, Novolog Flexpen</b>	<b>270,386</b>	<b>78.15</b>	<b>121.75</b>	<b>1</b>	<b>30</b>	<b>30</b>	<b>90</b>	<b>2,190</b>
00-01	19	43.16	30.75	2	30	30	66	120
02-04	155	43.72	42.38	6	30	30	34	450
05-09	1,383	57.91	87.14	1	30	30	60	1,260
10-14	5,167	67.76	106.95	1	30	30	85	1,848
15-18	6,535	67.68	104.57	1	30	30	90	1,575
19-21	5,194	64.17	94.88	1	30	30	89	1,839
22-44	56,924	66.85	103.27	1	30	30	88	2,141
45-64	142,301	79.90	125.09	1	30	30	90	2,190
65-74	31,417	95.51	145.02	1	30	60	90	2,177
75+	21,291	81.73	119.70	1	30	41	90	2,139
<b>Insulin NDC, Novolog U-100</b>	<b>161,187</b>	<b>91.50</b>	<b>156.29</b>	<b>1</b>	<b>30</b>	<b>31</b>	<b>90</b>	<b>2,190</b>
00-01	72	145.88	363.41	10	30	30	90	2,158
02-04	621	91.34	165.54	5	30	30	90	1,823
05-09	3,119	99.42	171.55	1	30	33	90	2,176
10-14	7,496	119.06	212.73	1	30	56	90	2,185
15-18	6,994	102.86	177.08	1	30	50	90	2,182
19-21	5,855	92.32	145.55	1	30	34	90	2,132
22-44	49,944	88.38	147.57	1	30	30	90	2,189
45-64	64,118	95.33	159.53	1	30	37	90	2,188
65-74	11,198	91.56	155.54	1	29	40	90	2,190
75+	11,770	56.70	102.45	1	20	30	60	2,052
<b>Insulin NDC, Humalog U-100</b>	<b>151,569</b>	<b>92.92</b>	<b>157.65</b>	<b>1</b>	<b>30</b>	<b>31</b>	<b>90</b>	<b>2,189</b>
00-01	91	147.32	279.94	4	30	30	120	1,805
02-04	649	109.85	201.18	4	30	30	90	1,819
05-09	2,649	107.07	194.79	1	30	30	90	1,985
10-14	5,878	114.93	198.85	1	30	54	90	2,149
15-18	5,528	111.25	183.50	1	30	59	90	2,118
19-21	4,661	93.18	155.33	1	30	33	90	1,993
22-44	45,585	88.90	146.45	1	30	30	90	2,188
45-64	63,323	97.40	164.86	1	30	40	90	2,189
65-74	12,118	90.06	145.69	1	30	41	90	1,845

Table 2c. Descriptive statistics of first exposure episode duration, in days, by age group (years)								
Exposures	Total Episodes	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
75+	11,087	61.19	107.11	1	20	30	76	1,820
<b>Insulin HCPCS, Injection (J1815)</b>	<b>132,801</b>	<b>1.17</b>	<b>0.57</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>61</b>
00-01	54	1.02	0.14	1	1	1	1	2
02-04	199	1.25	0.56	1	1	1	1	4
05-09	700	1.13	0.42	1	1	1	1	5
10-14	1,587	1.10	0.36	1	1	1	1	4
15-18	1,717	1.12	0.46	1	1	1	1	8
19-21	1,442	1.12	0.43	1	1	1	1	5
22-44	24,070	1.14	0.52	1	1	1	1	19
45-64	75,803	1.16	0.58	1	1	1	1	61
65-74	14,620	1.21	0.56	1	1	1	1	10
75+	12,609	1.28	0.68	1	1	1	1	10
<b>Insulin HCPCS, Administration through Insulin Pump (J1817)</b>	<b>6,057</b>	<b>1.14</b>	<b>0.46</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>8</b>
00-01	2	1.00	0.00	1	1	1	1	1
02-04	12	1.00	0.00	1	1	1	1	1
05-09	66	1.06	0.24	1	1	1	1	2
10-14	140	1.00	0.00	1	1	1	1	1
15-18	109	1.11	0.70	1	1	1	1	8
19-21	61	1.05	0.22	1	1	1	1	2
22-44	847	1.11	0.36	1	1	1	1	4
45-64	2,896	1.14	0.43	1	1	1	1	7
65-74	1,091	1.16	0.49	1	1	1	1	5
75+	833	1.22	0.60	1	1	1	1	6
<b>Insulin HCPCS, All</b>	<b>137,749</b>	<b>1.17</b>	<b>0.57</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>61</b>
00-01	55	1.02	0.13	1	1	1	1	2
02-04	205	1.24	0.56	1	1	1	1	4
05-09	749	1.14	0.43	1	1	1	1	5
10-14	1,693	1.10	0.36	1	1	1	1	4
15-18	1,786	1.12	0.47	1	1	1	1	9
19-21	1,489	1.13	0.43	1	1	1	1	5
22-44	24,854	1.14	0.51	1	1	1	1	19
45-64	78,326	1.16	0.58	1	1	1	1	61
65-74	15,433	1.21	0.56	1	1	1	1	10
75+	13,159	1.28	0.67	1	1	1	1	10

Table 3a. Descriptive statistics of all exposure episode durations, in days								
Exposures	Total Episodes	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
Insulin HCPCS, Intermediate Acting (S5552)	394	1.20	0.69	1	1	1	1	8
Insulin NDC, All	6,543,936	81.30	133.96	1	30	30	90	2,191
Insulin NDC, Lantus Solostar	2,379,339	74.33	116.57	1	30	30	90	2,190
Insulin NDC, Lantus U-100	1,006,484	64.46	101.07	1	28	30	84	2,190
Insulin NDC, Novolog Flexpen	1,134,146	66.48	100.08	1	30	30	90	2,190
Insulin NDC, Novolog U-100	801,427	71.84	116.99	1	29	30	90	2,190
Insulin NDC, Humalog U-100	681,743	72.79	120.98	1	28	30	90	2,189
Insulin HCPCS, Injection (J1815)	178,106	1.18	0.79	1	1	1	1	146
Insulin HCPCS, Administration through Insulin Pump (J1817)	10,332	1.11	0.41	1	1	1	1	8
Insulin HCPCS, All	188,262	1.18	0.77	1	1	1	1	146



Table 3b. Descriptive statistics of all exposure episode durations, in days, by sex								
Exposures	Total Episodes	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
<b>Insulin HCPCS, Intermediate Acting (S5552)</b>	<b>394</b>	<b>1.20</b>	<b>0.69</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>8</b>
Female	230	1.16	0.54	1	1	1	1	5
Male	164	1.26	0.86	1	1	1	1	8
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, All</b>	<b>6,543,936</b>	<b>81.30</b>	<b>133.96</b>	<b>1</b>	<b>30</b>	<b>30</b>	<b>90</b>	<b>2,191</b>
Female	3,103,014	78.64	128.05	1	30	30	90	2,190
Male	3,440,922	83.71	139.02	1	30	31	90	2,191
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Lantus Solostar</b>	<b>2,379,339</b>	<b>74.33</b>	<b>116.57</b>	<b>1</b>	<b>30</b>	<b>30</b>	<b>90</b>	<b>2,190</b>
Female	1,085,419	72.75	112.98	1	30	30	90	2,190
Male	1,293,920	75.66	119.48	1	30	30	90	2,189
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Lantus U-100</b>	<b>1,006,484</b>	<b>64.46</b>	<b>101.07</b>	<b>1</b>	<b>28</b>	<b>30</b>	<b>84</b>	<b>2,190</b>
Female	444,954	61.99	96.44	1	28	30	75	2,190
Male	561,530	66.41	104.56	1	28	30	84	2,190
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Novolog Flexpen</b>	<b>1,134,146</b>	<b>66.48</b>	<b>100.08</b>	<b>1</b>	<b>30</b>	<b>30</b>	<b>90</b>	<b>2,190</b>
Female	514,786	63.84	92.76	1	30	30	88	2,168
Male	619,360	68.67	105.74	1	30	30	90	2,190
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Novolog U-100</b>	<b>801,427</b>	<b>71.84</b>	<b>116.99</b>	<b>1</b>	<b>29</b>	<b>30</b>	<b>90</b>	<b>2,190</b>
Female	402,407	69.94	112.14	1	28	30	90	2,188
Male	399,020	73.75	121.66	1	29	30	90	2,190
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Humalog U-100</b>	<b>681,743</b>	<b>72.79</b>	<b>120.98</b>	<b>1</b>	<b>28</b>	<b>30</b>	<b>90</b>	<b>2,189</b>
Female	339,379	70.56	115.83	1	28	30	90	2,188
Male	342,364	75.00	125.84	1	28	30	90	2,189
Other	0	-	-	-	-	-	-	-
<b>Insulin HCPCS, Injection (J1815)</b>	<b>178,106</b>	<b>1.18</b>	<b>0.79</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>146</b>
Female	89,174	1.18	0.93	1	1	1	1	146
Male	88,932	1.17	0.61	1	1	1	1	52
Other	0	-	-	-	-	-	-	-
<b>Insulin HCPCS, Administration through Insulin Pump (J1817)</b>	<b>10,332</b>	<b>1.11</b>	<b>0.41</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>8</b>
Female	5,118	1.11	0.40	1	1	1	1	7
Male	5,214	1.11	0.41	1	1	1	1	8
Other	0	-	-	-	-	-	-	-
<b>Insulin HCPCS, All</b>	<b>188,262</b>	<b>1.18</b>	<b>0.77</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>146</b>
Female	94,199	1.18	0.91	1	1	1	1	146



Table 3b. Descriptive statistics of all exposure episode durations, in days, by sex								
Exposures	Total Episodes	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
Male	94,063	1.17	0.61	1	1	1	1	52
Other	0	-	-	-	-	-	-	-

Table 3c. Descriptive statistics of all exposure episode durations, in days, by age group (years)								
Exposures	Total Episodes	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
<b>Insulin HCPCS, Intermediate Acting (S5552)</b>	<b>394</b>	<b>1.20</b>	<b>0.69</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>8</b>
00-01	0	-	-	-	-	-	-	-
02-04	0	-	-	-	-	-	-	-
05-09	0	-	-	-	-	-	-	-
10-14	3	1.00	0.00	1	1	1	1	1
15-18	1	1.00	-	1	1	1	1	1
19-21	29	1.17	0.47	1	1	1	1	3
22-44	179	1.21	0.71	1	1	1	1	5
45-64	162	1.21	0.75	1	1	1	1	8
65-74	20	1.05	0.22	1	1	1	1	2
75+	0	-	-	-	-	-	-	-
<b>Insulin NDC, All</b>	<b>6,543,936</b>	<b>81.30</b>	<b>133.96</b>	<b>1</b>	<b>30</b>	<b>30</b>	<b>90</b>	<b>2,191</b>
00-01	1,373	100.40	182.04	1	30	34	90	2,159
02-04	10,749	88.54	156.62	1	30	30	90	2,182
05-09	53,303	87.92	156.30	1	30	30	90	2,191
10-14	124,218	88.43	155.91	1	30	31	90	2,190
15-18	133,711	78.41	128.36	1	30	30	90	2,186
19-21	105,962	72.64	115.61	1	30	30	90	2,178
22-44	1,298,012	71.85	115.71	1	30	30	88	2,190
45-64	3,622,498	81.42	134.45	1	30	30	90	2,191
65-74	699,386	94.95	154.44	1	30	50	90	2,190
75+	494,724	85.84	137.51	1	28	37	90	2,186
<b>Insulin NDC, Lantus Solostar</b>	<b>2,379,339</b>	<b>74.33</b>	<b>116.57</b>	<b>1</b>	<b>30</b>	<b>30</b>	<b>90</b>	<b>2,190</b>
00-01	176	57.33	56.23	1	30	30	90	450
02-04	1,882	60.20	60.64	1	30	30	90	840
05-09	11,940	63.45	86.66	1	30	30	90	1,727
10-14	38,793	61.90	89.24	1	30	30	75	2,181
15-18	42,036	60.73	83.72	1	30	30	74	2,132
19-21	28,898	59.27	80.03	1	30	30	69	1,681
22-44	364,772	60.83	89.52	1	30	30	68	2,187
45-64	1,392,139	73.72	116.53	1	30	30	90	2,190
65-74	309,785	90.87	141.56	1	30	50	90	2,182
75+	188,918	86.57	130.38	1	30	50	90	2,189
<b>Insulin NDC, Lantus U-100</b>	<b>1,006,484</b>	<b>64.46</b>	<b>101.07</b>	<b>1</b>	<b>28</b>	<b>30</b>	<b>84</b>	<b>2,190</b>
00-01	450	73.17	102.75	1	28	30	84	966
02-04	3,156	69.15	102.61	1	28	30	83	1,761
05-09	9,347	63.83	91.89	1	28	30	83	1,597
10-14	16,078	57.06	85.07	1	28	30	60	2,183

Table 3c. Descriptive statistics of all exposure episode durations, in days, by age group (years)								
Exposures	Total Episodes	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
15-18	15,249	55.10	77.51	1	28	30	60	1,804
19-21	11,558	52.85	75.16	1	28	30	58	1,615
22-44	163,186	53.77	79.59	1	28	30	58	2,182
45-64	531,426	65.13	102.28	1	28	30	84	2,190
65-74	136,207	75.52	120.88	1	28	30	90	2,162
75+	119,827	66.65	102.91	1	28	30	84	2,157
<b>Insulin NDC, Novolog Flexpen</b>	<b>1,134,146</b>	<b>66.48</b>	<b>100.08</b>	<b>1</b>	<b>30</b>	<b>30</b>	<b>90</b>	<b>2,190</b>
00-01	29	42.93	28.45	2	30	30	31	120
02-04	463	57.60	78.36	1	30	30	60	900
05-09	4,875	57.75	83.04	1	30	30	60	1,831
10-14	25,352	59.12	88.16	1	30	30	60	1,951
15-18	33,000	57.82	86.43	1	30	30	60	1,923
19-21	24,028	58.06	83.84	1	30	30	60	1,878
22-44	225,083	60.17	90.46	1	30	30	68	2,141
45-64	606,584	67.62	102.00	1	30	30	90	2,190
65-74	130,445	77.48	114.17	1	30	40	90	2,177
75+	84,287	66.66	99.01	1	25	30	90	2,139
<b>Insulin NDC, Novolog U-100</b>	<b>801,427</b>	<b>71.84</b>	<b>116.99</b>	<b>1</b>	<b>29</b>	<b>30</b>	<b>90</b>	<b>2,190</b>
00-01	345	89.78	185.65	1	30	50	90	2,158
02-04	3,514	74.70	123.85	1	28	30	88	1,823
05-09	18,810	76.18	130.58	1	30	30	90	2,176
10-14	46,920	81.44	142.25	1	30	30	90	2,185
15-18	45,881	71.74	115.14	1	30	30	90	2,182
19-21	35,195	67.47	103.16	1	30	30	90	2,132
22-44	252,462	69.95	111.17	1	30	30	90	2,189
45-64	305,213	75.74	121.90	1	30	30	90	2,188
65-74	45,673	72.75	119.15	1	28	30	90	2,190
75+	47,414	47.65	80.65	1	15	28	54	2,052
<b>Insulin NDC, Humalog U-100</b>	<b>681,743</b>	<b>72.79</b>	<b>120.98</b>	<b>1</b>	<b>28</b>	<b>30</b>	<b>90</b>	<b>2,189</b>
00-01	372	95.55	184.08	2	28	30	84	1,805
02-04	2,939	84.04	162.15	1	28	30	84	2,044
05-09	13,700	78.74	140.92	1	29	30	90	2,083
10-14	31,481	82.57	144.57	1	30	30	90	2,149
15-18	30,271	76.01	125.44	1	30	30	90	2,118
19-21	24,576	70.41	115.23	1	30	30	90	1,993
22-44	212,998	69.75	112.62	1	29	30	90	2,188
45-64	278,881	76.70	126.98	1	29	30	90	2,189
65-74	45,557	72.35	115.85	1	28	30	90	1,854



Table 3c. Descriptive statistics of all exposure episode durations, in days, by age group (years)								
Exposures	Total Episodes	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
75+	40,968	50.98	87.85	1	15	28	56	1,820
<b>Insulin HCPCS, Injection (J1815)</b>	<b>178,106</b>	<b>1.18</b>	<b>0.79</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>146</b>
00-01	65	1.05	0.21	1	1	1	1	2
02-04	220	1.25	0.56	1	1	1	1	4
05-09	805	1.12	0.40	1	1	1	1	5
10-14	2,076	1.10	0.35	1	1	1	1	4
15-18	2,553	1.11	0.43	1	1	1	1	8
19-21	2,219	1.13	0.42	1	1	1	1	5
22-44	32,919	1.15	0.69	1	1	1	1	63
45-64	102,049	1.17	0.89	1	1	1	1	146
65-74	19,155	1.22	0.58	1	1	1	1	10
75+	16,045	1.28	0.67	1	1	1	1	10
<b>Insulin HCPCS, Administration through Insulin Pump (J1817)</b>	<b>10,332</b>	<b>1.11</b>	<b>0.41</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>8</b>
00-01	22	1.00	0.00	1	1	1	1	1
02-04	12	1.00	0.00	1	1	1	1	1
05-09	87	1.05	0.21	1	1	1	1	2
10-14	182	1.00	0.00	1	1	1	1	1
15-18	130	1.11	0.65	1	1	1	1	8
19-21	83	1.07	0.26	1	1	1	1	2
22-44	1,148	1.11	0.40	1	1	1	1	8
45-64	4,541	1.11	0.41	1	1	1	1	8
65-74	2,732	1.08	0.35	1	1	1	1	5
75+	1,395	1.16	0.52	1	1	1	1	6
<b>Insulin HCPCS, All</b>	<b>188,262</b>	<b>1.18</b>	<b>0.77</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>146</b>
00-01	86	1.03	0.18	1	1	1	1	2
02-04	226	1.24	0.56	1	1	1	1	4
05-09	876	1.13	0.41	1	1	1	1	5
10-14	2,251	1.09	0.34	1	1	1	1	4
15-18	2,661	1.11	0.43	1	1	1	1	9
19-21	2,321	1.13	0.42	1	1	1	1	5
22-44	34,308	1.15	0.68	1	1	1	1	63
45-64	106,660	1.17	0.87	1	1	1	1	146
65-74	21,683	1.21	0.56	1	1	1	1	10
75+	17,190	1.27	0.66	1	1	1	1	10

<b>Table 4a. Descriptive statistics of days supplied per dispensing</b>								
<b>Exposures</b>	<b>Total Dispensings</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Q1</b>	<b>Median</b>	<b>Q3</b>	<b>Maximum</b>
Insulin HCPCS, Intermediate Acting (S5552)	472	1.00	0.00	1	1	1	1	1
Insulin NDC, All	24,398,717	44.31	27.95	1	28	30	75	1,189
Insulin NDC, Lantus Solostar	3,773,347	46.87	28.32	1	30	30	83	1,016
Insulin NDC, Lantus U-100	1,559,957	41.59	26.75	1	28	30	55	1,365
Insulin NDC, Novolog Flexpen	1,673,086	45.07	28.01	1	30	30	75	1,029
Insulin NDC, Novolog U-100	1,281,344	44.93	28.50	1	28	30	84	653
Insulin NDC, Humalog U-100	1,103,508	44.97	28.86	1	28	30	84	1,061
Insulin HCPCS, Injection (J1815)	210,555	1.00	0.00	1	1	1	1	1
Insulin HCPCS, Administration through Insulin Pump (J1817)	11,461	1.00	0.00	1	1	1	1	1
Insulin HCPCS, All	224,312	1.00	0.00	1	1	1	1	1

Table 4b. Descriptive statistics of days supplied per dispensing, by sex								
Exposures	Total Dispensings	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
<b>Insulin HCPCS, Intermediate Acting (S5552)</b>	<b>472</b>	<b>1.00</b>	<b>0.00</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
Female	266	1.00	0.00	1	1	1	1	1
Male	206	1.00	0.00	1	1	1	1	1
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, All</b>	<b>24,398,717</b>	<b>44.31</b>	<b>27.95</b>	<b>1</b>	<b>28</b>	<b>30</b>	<b>75</b>	<b>1,189</b>
Female	11,313,389	43.54	27.65	1	28	30	66	1,189
Male	13,085,328	44.97	28.19	1	28	30	77	1,076
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Lantus Solostar</b>	<b>3,773,347</b>	<b>46.87</b>	<b>28.32</b>	<b>1</b>	<b>30</b>	<b>30</b>	<b>83</b>	<b>1,016</b>
Female	1,702,705	46.37	28.16	1	30	30	78	1,000
Male	2,070,642	47.28	28.44	1	30	30	85	1,016
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Lantus U-100</b>	<b>1,559,957</b>	<b>41.59</b>	<b>26.75</b>	<b>1</b>	<b>28</b>	<b>30</b>	<b>55</b>	<b>1,365</b>
Female	683,880	40.34	26.06	1	28	30	43	1,365
Male	876,077	42.56	27.24	1	28	30	60	1,059
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Novolog Flexpen</b>	<b>1,673,086</b>	<b>45.07</b>	<b>28.01</b>	<b>1</b>	<b>30</b>	<b>30</b>	<b>75</b>	<b>1,029</b>
Female	742,312	44.27	27.78	1	30	30	71	1,029
Male	930,774	45.70	28.17	1	30	30	80	999
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Novolog U-100</b>	<b>1,281,344</b>	<b>44.93</b>	<b>28.50</b>	<b>1</b>	<b>28</b>	<b>30</b>	<b>84</b>	<b>653</b>
Female	633,735	44.41	28.33	1	28	30	83	653
Male	647,609	45.44	28.66	1	28	30	84	450
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Humalog U-100</b>	<b>1,103,508</b>	<b>44.97</b>	<b>28.86</b>	<b>1</b>	<b>28</b>	<b>30</b>	<b>84</b>	<b>1,061</b>
Female	539,981	44.34	28.66	1	28	30	83	1,061
Male	563,527	45.56	29.04	1	28	30	84	984
Other	0	-	-	-	-	-	-	-
<b>Insulin HCPCS, Injection (J1815)</b>	<b>210,555</b>	<b>1.00</b>	<b>0.00</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
Female	105,884	1.00	0.00	1	1	1	1	1
Male	104,671	1.00	0.00	1	1	1	1	1
Other	0	-	-	-	-	-	-	-
<b>Insulin HCPCS, Administration through Insulin Pump (J1817)</b>	<b>11,461</b>	<b>1.00</b>	<b>0.00</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
Female	5,685	1.00	0.00	1	1	1	1	1
Male	5,776	1.00	0.00	1	1	1	1	1
Other	0	-	-	-	-	-	-	-
<b>Insulin HCPCS, All</b>	<b>224,312</b>	<b>1.00</b>	<b>0.00</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
Female	112,717	1.00	0.00	1	1	1	1	1



**Table 4b. Descriptive statistics of days supplied per dispensing, by sex**

Exposures	Total Dispensings	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
Male	111,595	1.00	0.00	1	1	1	1	1
Other	0	-	-	-	-	-	-	-



Table 4c . Descriptive statistics of days supplied per dispensing, by age group (years)									
Exposures	Total Dispensings	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum	
<b>Insulin HCPCS, Intermediate Acting (S5552)</b>	<b>472</b>	<b>1.00</b>	<b>0.00</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
00-01	0	-	-	-	-	-	-	-	-
02-04	0	-	-	-	-	-	-	-	-
05-09	0	-	-	-	-	-	-	-	-
10-14	3	1.00	0.00	1	1	1	1	1	1
15-18	1	1.00	-	1	1	1	1	1	1
19-21	34	1.00	0.00	1	1	1	1	1	1
22-44	217	1.00	0.00	1	1	1	1	1	1
45-64	196	1.00	0.00	1	1	1	1	1	1
65-74	21	1.00	0.00	1	1	1	1	1	1
75+	0	-	-	-	-	-	-	-	-
<b>Insulin NDC, All</b>	<b>24,398,717</b>	<b>44.31</b>	<b>27.95</b>	<b>1</b>	<b>28</b>	<b>30</b>	<b>75</b>	<b>1,189</b>	
00-01	8,543	40.86	24.76	1	28	30	40	180	
02-04	58,617	41.30	25.46	1	28	30	38	300	
05-09	265,736	42.67	26.36	1	30	30	50	547	
10-14	611,635	42.37	26.22	1	30	30	47	510	
15-18	568,608	42.64	26.61	1	30	30	50	420	
19-21	414,915	42.27	26.57	1	29	30	50	500	
22-44	4,814,492	41.68	26.33	1	28	30	50	1,061	
45-64	13,198,112	44.43	27.70	1	28	30	75	1,189	
65-74	2,602,852	49.79	30.55	1	28	30	90	805	
75+	1,855,207	44.51	30.30	1	26	30	83	516	
<b>Insulin NDC, Lantus Solostar</b>	<b>3,773,347</b>	<b>46.87</b>	<b>28.32</b>	<b>1</b>	<b>30</b>	<b>30</b>	<b>83</b>	<b>1,016</b>	
00-01	202	49.95	29.45	1	30	30	90	150	
02-04	2,439	46.45	28.37	1	30	30	90	300	
05-09	16,310	46.45	27.73	1	30	30	83	360	
10-14	55,052	43.62	25.65	1	30	30	55	670	
15-18	58,581	43.58	25.57	1	30	30	54	346	
19-21	38,964	43.96	25.97	1	30	30	60	270	
22-44	525,969	42.19	25.61	1	30	30	50	999	
45-64	2,245,401	45.70	27.60	1	30	30	75	1,016	
65-74	520,052	54.13	30.85	1	30	42	90	805	
75+	310,377	52.69	31.40	1	30	37	90	500	
<b>Insulin NDC, Lantus U-100</b>	<b>1,559,957</b>	<b>41.59</b>	<b>26.75</b>	<b>1</b>	<b>28</b>	<b>30</b>	<b>55</b>	<b>1,365</b>	
00-01	906	36.34	20.19	1	28	30	30	114	
02-04	5,792	37.68	22.34	1	28	30	30	180	
05-09	15,243	39.14	23.71	1	28	30	30	547	
10-14	23,542	38.97	23.46	1	28	30	30	475	

Table 4c . Descriptive statistics of days supplied per dispensing, by age group (years)									
Exposures	Total Dispensings	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum	
15-18	21,261	39.52	24.83	1	28	30	33	360	
19-21	15,704	38.90	23.89	1	28	30	31	180	
22-44	229,873	38.17	24.51	1	27	30	30	1,365	
45-64	827,372	41.83	26.78	1	28	30	55	1,059	
65-74	222,686	46.20	29.08	1	28	30	84	480	
75+	197,578	40.42	26.79	1	28	29	50	428	
<b>Insulin NDC, Novolog Flexpen</b>	<b>1,673,086</b>	<b>45.07</b>	<b>28.01</b>	<b>1</b>	<b>30</b>	<b>30</b>	<b>75</b>	<b>1,029</b>	
00-01	30	41.50	25.63	2	30	30	31	90	
02-04	626	42.60	24.93	1	30	30	40	120	
05-09	6,677	42.16	25.70	1	30	30	47	360	
10-14	37,534	39.93	24.69	1	30	30	31	510	
15-18	47,081	40.53	25.15	1	30	30	37	270	
19-21	33,915	41.13	25.28	1	30	30	42	320	
22-44	322,082	42.05	25.96	1	30	30	50	999	
45-64	908,841	45.13	27.50	1	30	30	75	1,029	
65-74	194,535	51.95	30.99	1	30	33	90	598	
75+	121,765	46.15	32.29	1	25	30	90	516	
<b>Insulin NDC, Novolog U-100</b>	<b>1,281,344</b>	<b>44.93</b>	<b>28.50</b>	<b>1</b>	<b>28</b>	<b>30</b>	<b>84</b>	<b>653</b>	
00-01	743	41.69	25.22	1	28	30	50	100	
02-04	6,256	41.96	25.91	1	28	30	45	256	
05-09	32,809	43.67	26.96	1	28	30	60	300	
10-14	85,077	44.92	27.87	1	30	30	84	450	
15-18	73,533	44.77	27.90	1	30	30	84	420	
19-21	53,541	44.35	28.25	1	29	30	83	489	
22-44	395,872	44.61	28.12	1	28	30	83	365	
45-64	493,065	46.88	28.89	1	29	30	87	653	
65-74	71,360	46.56	30.44	1	28	30	84	330	
75+	69,088	32.70	25.04	1	15	28	30	459	
<b>Insulin NDC, Humalog U-100</b>	<b>1,103,508</b>	<b>44.97</b>	<b>28.86</b>	<b>1</b>	<b>28</b>	<b>30</b>	<b>84</b>	<b>1,061</b>	
00-01	892	39.85	24.77	1	28	30	32	100	
02-04	6,138	40.24	24.99	1	28	30	34	300	
05-09	25,526	42.26	26.76	1	28	30	48	406	
10-14	59,025	44.04	27.38	1	30	30	73	270	
15-18	50,663	45.42	28.36	1	30	30	86	358	
19-21	39,071	44.29	28.16	1	28	30	83	270	
22-44	338,753	43.85	28.14	1	28	30	77	1,061	
45-64	453,819	47.13	29.40	1	28	30	86	750	
65-74	70,295	46.89	30.65	1	28	30	84	448	

Table 4c . Descriptive statistics of days supplied per dispensing, by age group (years)								
Exposures	Total Dispensings	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
75+	59,326	35.21	27.63	1	15	28	31	501
<b>Insulin HCPCS, Injection (J1815)</b>	<b>210,555</b>	<b>1.00</b>	<b>0.00</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
00-01	69	1.00	0.00	1	1	1	1	1
02-04	281	1.00	0.00	1	1	1	1	1
05-09	908	1.00	0.00	1	1	1	1	1
10-14	2,291	1.00	0.00	1	1	1	1	1
15-18	2,849	1.00	0.00	1	1	1	1	1
19-21	2,512	1.00	0.00	1	1	1	1	1
22-44	37,844	1.00	0.00	1	1	1	1	1
45-64	119,728	1.00	0.00	1	1	1	1	1
65-74	23,478	1.00	0.00	1	1	1	1	1
75+	20,595	1.00	0.00	1	1	1	1	1
<b>Insulin HCPCS, Administration through Insulin Pump (J1817)</b>	<b>11,461</b>	<b>1.00</b>	<b>0.00</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
00-01	22	1.00	0.00	1	1	1	1	1
02-04	12	1.00	0.00	1	1	1	1	1
05-09	91	1.00	0.00	1	1	1	1	1
10-14	182	1.00	0.00	1	1	1	1	1
15-18	144	1.00	0.00	1	1	1	1	1
19-21	89	1.00	0.00	1	1	1	1	1
22-44	1,269	1.00	0.00	1	1	1	1	1
45-64	5,075	1.00	0.00	1	1	1	1	1
65-74	2,951	1.00	0.00	1	1	1	1	1
75+	1,626	1.00	0.00	1	1	1	1	1
<b>Insulin HCPCS, All</b>	<b>224,312</b>	<b>1.00</b>	<b>0.00</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
00-01	91	1.00	0.00	1	1	1	1	1
02-04	300	1.00	0.00	1	1	1	1	1
05-09	1,030	1.00	0.00	1	1	1	1	1
10-14	2,564	1.00	0.00	1	1	1	1	1
15-18	3,064	1.00	0.00	1	1	1	1	1
19-21	2,658	1.00	0.00	1	1	1	1	1
22-44	39,730	1.00	0.00	1	1	1	1	1
45-64	126,156	1.00	0.00	1	1	1	1	1
65-74	26,507	1.00	0.00	1	1	1	1	1
75+	22,212	1.00	0.00	1	1	1	1	1



<b>Table 5a . Descriptive statistics of the length of all gaps between treatment episodes, in days</b>								
<b>Exposures</b>	<b>Total Gaps</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Q1</b>	<b>Median</b>	<b>Q3</b>	<b>Maximum</b>
Insulin HCPCS, Intermediate Acting (S5552)	394	118.04	173.73	1	4	82	185	1,299
Insulin NDC, All	6,543,936	50.34	132.09	0	4	16	42	2,175
Insulin NDC, Lantus Solostar	2,379,339	81.04	197.60	0	6	22	60	2,179
Insulin NDC, Lantus U-100	1,006,484	92.34	240.67	0	5	17	53	2,178
Insulin NDC, Novolog Flexpen	1,134,146	107.01	238.07	0	8	29	85	2,180
Insulin NDC, Novolog U-100	801,427	75.51	207.55	0	5	18	48	2,180
Insulin NDC, Humalog U-100	681,743	83.09	223.88	0	5	18	52	2,185
Insulin HCPCS, Injection (J1815)	178,106	410.93	441.43	0	79	254	599	2,189
Insulin HCPCS, Administration through Insulin Pump (J1817)	10,332	374.23	458.17	0	44	164	560	2,166
Insulin HCPCS, All	188,262	405.41	440.15	0	75	247	591	2,189

Table 5b . Descriptive statistics of the length of all gaps between treatment episodes, in days, by sex								
Exposures	Total Gaps	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
<b>Insulin HCPCS, Intermediate Acting (S5552)</b>	<b>394</b>	<b>118.04</b>	<b>173.73</b>	<b>1</b>	<b>4</b>	<b>82</b>	<b>185</b>	<b>1,299</b>
Female	230	130.33	184.60	1	5	86	187	1,299
Male	164	100.80	156.15	1	4	77	178	1,030
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, All</b>	<b>6,543,936</b>	<b>50.34</b>	<b>132.09</b>	<b>0</b>	<b>4</b>	<b>16</b>	<b>42</b>	<b>2,175</b>
Female	3,103,014	52.71	136.91	0	5	16	44	2,165
Male	3,440,922	48.21	127.55	0	4	15	41	2,175
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Lantus Solostar</b>	<b>2,379,339</b>	<b>81.04</b>	<b>197.60</b>	<b>0</b>	<b>6</b>	<b>22</b>	<b>60</b>	<b>2,179</b>
Female	1,085,419	83.35	200.80	0	6	23	63	2,165
Male	1,293,920	79.10	194.86	0	6	21	59	2,179
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Lantus U-100</b>	<b>1,006,484</b>	<b>92.34</b>	<b>240.67</b>	<b>0</b>	<b>5</b>	<b>17</b>	<b>53</b>	<b>2,178</b>
Female	444,954	98.34	250.17	0	5	18	57	2,174
Male	561,530	87.59	232.75	0	5	16	50	2,178
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Novolog Flexpen</b>	<b>1,134,146</b>	<b>107.01</b>	<b>238.07</b>	<b>0</b>	<b>8</b>	<b>29</b>	<b>85</b>	<b>2,180</b>
Female	514,786	114.19	247.35	0	9	31	92	2,180
Male	619,360	101.04	229.91	0	8	27	80	2,172
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Novolog U-100</b>	<b>801,427</b>	<b>75.51</b>	<b>207.55</b>	<b>0</b>	<b>5</b>	<b>18</b>	<b>48</b>	<b>2,180</b>
Female	402,407	77.67	209.11	0	6	19	51	2,174
Male	399,020	73.34	205.93	0	5	17	45	2,180
Other	0	-	-	-	-	-	-	-
<b>Insulin NDC, Humalog U-100</b>	<b>681,743</b>	<b>83.09</b>	<b>223.88</b>	<b>0</b>	<b>5</b>	<b>18</b>	<b>52</b>	<b>2,185</b>
Female	339,379	85.70	226.35	0	6	19	55	2,185
Male	342,364	80.50	221.37	0	5	17	49	2,171
Other	0	-	-	-	-	-	-	-
<b>Insulin HCPCS, Injection (J1815)</b>	<b>178,106</b>	<b>410.93</b>	<b>441.43</b>	<b>0</b>	<b>79</b>	<b>254</b>	<b>599</b>	<b>2,189</b>
Female	89,174	410.74	441.36	0	79	254	599	2,188
Male	88,932	411.11	441.51	0	78	254	598	2,189
Other	0	-	-	-	-	-	-	-
<b>Insulin HCPCS, Administration through Insulin Pump (J1817)</b>	<b>10,332</b>	<b>374.23</b>	<b>458.17</b>	<b>0</b>	<b>44</b>	<b>164</b>	<b>560</b>	<b>2,166</b>
Female	5,118	369.87	453.21	0	44	160	548	2,164
Male	5,214	378.51	462.99	0	45	168	574	2,166
Other	0	-	-	-	-	-	-	-
<b>Insulin HCPCS, All</b>	<b>188,262</b>	<b>405.41</b>	<b>440.15</b>	<b>0</b>	<b>75</b>	<b>247</b>	<b>591</b>	<b>2,189</b>
Female	94,199	404.99	439.80	0	75	247	591	2,188

Table 5b . Descriptive statistics of the length of all gaps between treatment episodes, in days, by sex								
Exposures	Total Gaps	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
Male	94,063	405.82	440.50	0	75	247	591	2,189
Other	0	-	-	-	-	-	-	-

Table 5c . Descriptive statistics of the length of all gaps between treatment episodes, in days, by age group (years)									
Exposures	Total Gaps	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum	
<b>Insulin HCPCS, Intermediate Acting (S5552)</b>	<b>394</b>	<b>118.04</b>	<b>173.73</b>	<b>1</b>	<b>4</b>	<b>82</b>	<b>185</b>	<b>1,299</b>	
00-01	0	-	-	-	-	-	-	-	
02-04	0	-	-	-	-	-	-	-	
05-09	0	-	-	-	-	-	-	-	
10-14	3	142.00	130.31	1	1	167	258	258	
15-18	1	913.00	-	913	913	913	913	913	
19-21	29	94.62	106.34	1	3	65	204	312	
22-44	179	100.11	154.13	1	4	77	142	1,209	
45-64	162	142.91	197.06	1	8	87	190	1,299	
65-74	20	67.75	95.29	4	4	19	86	379	
75+	0	-	-	-	-	-	-	-	
<b>Insulin NDC, All</b>	<b>6,543,936</b>	<b>50.34</b>	<b>132.09</b>	<b>0</b>	<b>4</b>	<b>16</b>	<b>42</b>	<b>2,175</b>	
00-01	1,373	38.54	99.91	0	3	13	36	1,690	
02-04	10,749	35.03	82.41	0	3	14	39	1,947	
05-09	53,303	32.46	75.23	0	4	15	35	1,998	
10-14	124,218	30.21	78.14	0	4	13	30	2,154	
15-18	133,711	36.17	91.02	0	5	15	35	2,099	
19-21	105,962	40.68	101.72	0	5	16	38	2,136	
22-44	1,298,012	56.21	151.92	0	5	16	43	2,161	
45-64	3,622,498	48.20	127.26	0	4	15	41	2,175	
65-74	699,386	54.75	134.15	0	5	18	50	2,163	
75+	494,724	57.68	137.87	0	5	19	53	2,158	
<b>Insulin NDC, Lantus Solostar</b>	<b>2,379,339</b>	<b>81.04</b>	<b>197.60</b>	<b>0</b>	<b>6</b>	<b>22</b>	<b>60</b>	<b>2,179</b>	
00-01	176	191.51	312.08	0	24	82	184	2,084	
02-04	1,882	171.09	285.81	0	15	68	165	2,148	
05-09	11,940	144.98	270.31	0	13	50	126	2,103	
10-14	38,793	106.60	229.33	0	9	29	79	2,158	
15-18	42,036	106.39	233.34	0	9	28	77	2,158	
19-21	28,898	105.17	227.76	0	10	28	78	2,158	
22-44	364,772	95.05	223.44	0	7	24	67	2,161	
45-64	1,392,139	76.85	194.78	0	6	20	55	2,175	
65-74	309,785	73.20	172.39	0	6	23	63	2,179	
75+	188,918	78.09	171.38	0	7	27	71	2,158	
<b>Insulin NDC, Lantus U-100</b>	<b>1,006,484</b>	<b>92.34</b>	<b>240.67</b>	<b>0</b>	<b>5</b>	<b>17</b>	<b>53</b>	<b>2,178</b>	
00-01	450	133.07	296.27	0	3	12	93	2,130	
02-04	3,156	119.88	277.65	0	3	13	63	2,104	
05-09	9,347	159.18	330.70	0	6	24	116	2,173	
10-14	16,078	175.97	349.87	0	7	28	138	2,155	

Table 5c . Descriptive statistics of the length of all gaps between treatment episodes, in days, by age group (years)								
Exposures	Total Gaps	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
15-18	15,249	167.60	335.00	0	8	29	128	2,149
19-21	11,558	139.76	298.76	0	8	25	94	2,153
22-44	163,186	103.52	258.69	0	6	18	57	2,178
45-64	531,426	87.11	236.33	0	5	16	48	2,173
65-74	136,207	83.20	218.14	0	5	17	54	2,165
75+	119,827	79.25	201.44	0	5	18	54	2,174
<b>Insulin NDC, Novolog Flexpen</b>	<b>1,134,146</b>	<b>107.01</b>	<b>238.07</b>	<b>0</b>	<b>8</b>	<b>29</b>	<b>85</b>	<b>2,180</b>
00-01	29	447.69	607.86	0	28	113	662	2,084
02-04	463	181.26	330.39	0	11	54	162	2,073
05-09	4,875	145.43	303.46	0	11	35	106	2,133
10-14	25,352	97.50	234.37	0	7	24	66	2,159
15-18	33,000	97.47	231.69	0	9	26	71	2,147
19-21	24,028	99.71	229.03	0	9	27	75	2,157
22-44	225,083	105.39	242.18	0	8	27	80	2,159
45-64	606,584	104.52	237.34	0	8	28	83	2,180
65-74	130,445	117.66	236.90	0	10	35	102	2,163
75+	84,287	118.71	233.79	0	11	36	105	2,157
<b>Insulin NDC, Novolog U-100</b>	<b>801,427</b>	<b>75.51</b>	<b>207.55</b>	<b>0</b>	<b>5</b>	<b>18</b>	<b>48</b>	<b>2,180</b>
00-01	345	53.40	144.96	0	3	14	34	1,654
02-04	3,514	56.77	161.44	0	4	16	40	1,850
05-09	18,810	57.53	174.99	0	4	16	39	2,100
10-14	46,920	55.63	181.39	0	4	14	34	2,158
15-18	45,881	57.45	176.97	0	5	17	38	2,154
19-21	35,195	58.38	164.90	0	6	18	42	2,092
22-44	252,462	64.09	182.95	0	5	17	43	2,180
45-64	305,213	83.81	224.40	0	5	19	54	2,169
65-74	45,673	111.88	257.72	0	7	25	76	2,153
75+	47,414	106.45	245.03	0	8	22	67	2,174
<b>Insulin NDC, Humalog U-100</b>	<b>681,743</b>	<b>83.09</b>	<b>223.88</b>	<b>0</b>	<b>5</b>	<b>18</b>	<b>52</b>	<b>2,185</b>
00-01	372	84.04	247.99	0	4	13	38	2,130
02-04	2,939	69.71	219.77	0	3	11	35	2,052
05-09	13,700	66.31	198.98	0	4	15	40	2,117
10-14	31,481	63.39	201.42	0	4	13	34	2,152
15-18	30,271	65.72	200.01	0	5	16	40	2,154
19-21	24,576	63.53	178.35	0	6	18	43	2,103
22-44	212,998	68.75	196.40	0	5	16	44	2,164
45-64	278,881	90.62	238.00	0	5	19	57	2,185
65-74	45,557	120.83	275.23	0	7	27	86	2,151





Table 5c . Descriptive statistics of the length of all gaps between treatment episodes, in days, by age group (years)								
Exposures	Total Gaps	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
75+	40,968	110.69	248.85	0	8	24	78	2,157
<b>Insulin HCPCS, Injection (J1815)</b>	<b>178,106</b>	<b>410.93</b>	<b>441.43</b>	<b>0</b>	<b>79</b>	<b>254</b>	<b>599</b>	<b>2,189</b>
00-01	65	408.89	472.75	0	45	218	598	2,181
02-04	220	535.05	500.75	1	152	369	810	2,160
05-09	805	510.41	483.30	0	137	353	696	2,180
10-14	2,076	462.39	461.48	0	107	300	670	2,148
15-18	2,553	410.44	455.24	0	67	245	593	2,189
19-21	2,219	364.38	412.33	0	64	216	512	2,174
22-44	32,919	372.13	424.77	0	68	217	522	2,189
45-64	102,049	408.13	444.00	0	77	249	590	2,188
65-74	19,155	453.67	452.08	0	93	297	683	2,189
75+	16,045	450.45	432.21	0	103	311	683	2,166
<b>Insulin HCPCS, Administration through Insulin Pump (J1817)</b>	<b>10,332</b>	<b>374.23</b>	<b>458.17</b>	<b>0</b>	<b>44</b>	<b>164</b>	<b>560</b>	<b>2,166</b>
00-01	22	22.32	27.23	1	6	17	27	131
02-04	12	533.33	644.23	0	86	302	830	2,153
05-09	87	408.48	387.61	0	111	293	612	1,678
10-14	182	396.89	429.31	2	110	245	535	2,028
15-18	130	502.41	496.96	8	130	292	790	2,069
19-21	83	418.28	429.88	1	103	279	548	1,840
22-44	1,148	446.62	467.63	0	85	299	669	2,166
45-64	4,541	404.43	472.83	0	43	208	628	2,163
65-74	2,732	278.96	415.44	0	34	89	320	2,153
75+	1,395	387.46	458.40	0	58	171	584	2,162
<b>Insulin HCPCS, All</b>	<b>188,262</b>	<b>405.41</b>	<b>440.15</b>	<b>0</b>	<b>75</b>	<b>247</b>	<b>591</b>	<b>2,189</b>
00-01	86	313.23	443.82	0	27	87	431	2,181
02-04	226	542.09	504.56	0	148	376	849	2,160
05-09	876	498.64	476.21	0	126	346	692	2,180
10-14	2,251	452.48	456.83	0	103	286	660	2,148
15-18	2,661	409.46	453.98	0	69	244	587	2,189
19-21	2,321	361.26	410.83	0	63	215	502	2,174
22-44	34,308	370.70	423.91	0	67	215	520	2,189
45-64	106,660	405.02	443.13	0	74	246	586	2,188
65-74	21,683	427.50	448.96	0	76	260	649	2,189
75+	17,190	442.32	432.40	0	95	300	670	2,166

Table 6 . Counts of reason for censoring, all episodes and first episode								
	Total		Disenrollment		Evidence of death		Episode end	
	N	%	N	%	N	%	N	%
<b>Exposures</b>								
Insulin HCPCS, Intermediate Acting (S5552)	394	100.0	0	0.0	0	0.0	394	100.0
Insulin NDC, All	6,543,936	100.0	720,819	11.0	3,073	0.0	6,541,001	100.0
Insulin NDC, Lantus Solostar	2,379,339	100.0	209,161	8.8	1,059	0.0	2,378,333	100.0
Insulin NDC, Lantus U-100	1,006,484	100.0	72,548	7.2	654	0.1	1,005,858	99.9
Insulin NDC, Novolog Flexpen	1,134,146	100.0	101,842	9.0	460	0.0	1,133,708	100.0
Insulin NDC, Novolog U-100	801,427	100.0	76,266	9.5	236	0.0	801,202	100.0
Insulin NDC, Humalog U-100	681,743	100.0	69,405	10.2	222	0.0	681,534	100.0
Insulin HCPCS, Injection (J1815)	178,106	100.0	258	0.1	16	0.0	178,106	100.0
Insulin HCPCS, Administration through Insulin Pump (J1817)	10,332	100.0	4	0.0	0	0.0	10,332	100.0
Insulin HCPCS, All	188,262	100.0	263	0.1	16	0.0	188,262	100.0
<b>Patients' First Episode</b>								
Insulin HCPCS, Intermediate Acting (S5552)	89	100.0	0	0.0	0	0.0	89	100.0
Insulin NDC, All	1,165,082	100.0	143,908	12.4	1,090	0.1	1,164,040	99.9
Insulin NDC, Lantus Solostar	476,797	100.0	44,892	9.4	368	0.1	476,448	99.9
Insulin NDC, Lantus U-100	207,014	100.0	15,107	7.3	240	0.1	206,789	99.9
Insulin NDC, Novolog Flexpen	270,386	100.0	23,645	8.7	214	0.1	270,184	99.9
Insulin NDC, Novolog U-100	161,187	100.0	16,471	10.2	103	0.1	161,089	99.9
Insulin NDC, Humalog U-100	151,569	100.0	16,264	10.7	97	0.1	151,479	99.9
Insulin HCPCS, Injection (J1815)	132,801	100.0	183	0.1	11	0.0	132,801	100.0
Insulin HCPCS, Administration through Insulin Pump (J1817)	6,057	100.0	3	0.0	0	0.0	6,057	100.0
Insulin HCPCS, All	137,749	100.0	187	0.1	11	0.0	137,749	100.0

Table 7. Cohort Attrition Table	Attrition Criteria	Members
<b>Insulin HCPCS, Intermediate Acting (S5552)</b>		
Initial Member Count - Members with a non-missing birth date/sex at any enrollment episode overlapping the query period		91,013,796 (100.0%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=N and MedCov=Y during the query period		75,189,273 (82.6%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=Y and MedCov=N during the query period		75,189,273 (82.6%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=Y and MedCov=N and DrugCov=N and MedCov=Y during the query period		75,189,273 (82.6%)
Exclusion - Members must satisfy the age range condition within the query period		75,188,995 (82.6%)
Exclusion - Members must meet chart availability criterion within the query period		75,188,995 (82.6%)
Exclusion - Members must satisfy the demographic (sex, race and hispanic) condition		75,188,995 (82.6%)
Exclusion - Members must have at least one claim with cohort-identifying codes within the query period		89 (0.0%)
Exclusion - Members must have at least one cohort episode beginning within the age range condition		89 (0.0%)
Exclusion - Members must have at least one episode defining index claim during the query period		89 (0.0%)
Exclusion - Members must have at least one cohort episode incident with respect to other criteria		89 (0.0%)
Exclusion - Members must have at least one cohort episode satisfying the pre-index enrollment criterion		89 (0.0%)
Exclusion - Members must have at least one cohort episode satisfying the exclusion conditions		89 (0.0%)
Exclusion - Members must have at least one cohort episode satisfying the inclusion conditions		89 (0.0%)
Exclusion - Members must have at least one cohort episode satisfying the post-index enrollment criterion		89 (0.0%)
<b>Insulin NDC, All</b>		
Initial Member Count - Members with a non-missing birth date/sex at any enrollment episode overlapping the query period		91,013,796 (100.0%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=N and MedCov=Y during the query period		75,189,273 (82.6%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=Y and MedCov=N during the query period		75,189,273 (82.6%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=Y and MedCov=N and DrugCov=N and MedCov=Y during the query period		75,189,273 (82.6%)
Exclusion - Members must satisfy the age range condition within the query period		75,188,995 (82.6%)
Exclusion - Members must meet chart availability criterion within the query period		75,188,995 (82.6%)
Exclusion - Members must satisfy the demographic (sex, race and hispanic) condition		75,188,995 (82.6%)
Exclusion - Members must have at least one claim with cohort-identifying codes within the query period		1,212,651 (1.3%)
Exclusion - Members must have at least one cohort episode beginning within the age range condition		1,212,651 (1.3%)
Exclusion - Members must have at least one episode defining index claim during the query period		1,165,082 (1.3%)
Exclusion - Members must have at least one cohort episode incident with respect to other criteria		1,165,082 (1.3%)
Exclusion - Members must have at least one cohort episode satisfying the pre-index enrollment criterion		1,165,082 (1.3%)
Exclusion - Members must have at least one cohort episode satisfying the exclusion conditions		1,165,082 (1.3%)
Exclusion - Members must have at least one cohort episode satisfying the inclusion conditions		1,165,082 (1.3%)
Exclusion - Members must have at least one cohort episode satisfying the post-index enrollment criterion		1,165,082 (1.3%)
<b>Insulin NDC, Lantus Solostar</b>		
Initial Member Count - Members with a non-missing birth date/sex at any enrollment episode overlapping the query period		91,013,796 (100.0%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=N and MedCov=Y during the query period		75,189,273 (82.6%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=Y and MedCov=N during the query period		75,189,273 (82.6%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=Y and MedCov=N and DrugCov=N and MedCov=Y during the query period		75,189,273 (82.6%)
Exclusion - Members must satisfy the age range condition within the query period		75,188,995 (82.6%)

<b>Table 7. Cohort Attrition Table</b>	
<b>Attrition Criteria</b>	<b>Members</b>
Exclusion - Members must meet chart availability criterion within the query period	75,188,995 (82.6%)
Exclusion - Members must satisfy the demographic (sex, race and hispanic) condition	75,188,995 (82.6%)
Exclusion - Members must have at least one claim with cohort-identifying codes within the query period	488,766 (0.5%)
Exclusion - Members must have at least one cohort episode beginning within the age range condition	488,766 (0.5%)
Exclusion - Members must have at least one episode defining index claim during the query period	476,797 (0.5%)
Exclusion - Members must have at least one cohort episode incident with respect to other criteria	476,797 (0.5%)
Exclusion - Members must have at least one cohort episode satisfying the pre-index enrollment criterion	476,797 (0.5%)
Exclusion - Members must have at least one cohort episode satisfying the exclusion conditions	476,797 (0.5%)
Exclusion - Members must have at least one cohort episode satisfying the inclusion conditions	476,797 (0.5%)
Exclusion - Members must have at least one cohort episode satisfying the post-index enrollment criterion	476,797 (0.5%)
<b>Insulin NDC, Lantus U-100</b>	
Initial Member Count - Members with a non-missing birth date/sex at any enrollment episode overlapping the query period	91,013,796 (100.0%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=N and MedCov=Y during the query period	75,189,273 (82.6%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=Y and MedCov=N during the query period	75,189,273 (82.6%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=Y and MedCov=N and DrugCov=N and MedCov=Y during the query period	75,189,273 (82.6%)
Exclusion - Members must satisfy the age range condition within the query period	75,188,995 (82.6%)
Exclusion - Members must meet chart availability criterion within the query period	75,188,995 (82.6%)
Exclusion - Members must satisfy the demographic (sex, race and hispanic) condition	75,188,995 (82.6%)
Exclusion - Members must have at least one claim with cohort-identifying codes within the query period	216,200 (0.2%)
Exclusion - Members must have at least one cohort episode beginning within the age range condition	216,200 (0.2%)
Exclusion - Members must have at least one episode defining index claim during the query period	207,014 (0.2%)
Exclusion - Members must have at least one cohort episode incident with respect to other criteria	207,014 (0.2%)
Exclusion - Members must have at least one cohort episode satisfying the pre-index enrollment criterion	207,014 (0.2%)
Exclusion - Members must have at least one cohort episode satisfying the exclusion conditions	207,014 (0.2%)
Exclusion - Members must have at least one cohort episode satisfying the inclusion conditions	207,014 (0.2%)
Exclusion - Members must have at least one cohort episode satisfying the post-index enrollment criterion	207,014 (0.2%)
<b>Insulin NDC, Novolog Flexpen</b>	
Initial Member Count - Members with a non-missing birth date/sex at any enrollment episode overlapping the query period	91,013,796 (100.0%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=N and MedCov=Y during the query period	75,189,273 (82.6%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=Y and MedCov=N during the query period	75,189,273 (82.6%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=Y and MedCov=N and DrugCov=N and MedCov=Y during the query period	75,189,273 (82.6%)
Exclusion - Members must satisfy the age range condition within the query period	75,188,995 (82.6%)
Exclusion - Members must meet chart availability criterion within the query period	75,188,995 (82.6%)
Exclusion - Members must satisfy the demographic (sex, race and hispanic) condition	75,188,995 (82.6%)
Exclusion - Members must have at least one claim with cohort-identifying codes within the query period	275,283 (0.3%)
Exclusion - Members must have at least one cohort episode beginning within the age range condition	275,283 (0.3%)
Exclusion - Members must have at least one episode defining index claim during the query period	270,386 (0.3%)
Exclusion - Members must have at least one cohort episode incident with respect to other criteria	270,386 (0.3%)

<b>Table 7. Cohort Attrition Table</b>	
<b>Attrition Criteria</b>	<b>Members</b>
Exclusion - Members must have at least one cohort episode satisfying the pre-index enrollment criterion	270,386 (0.3%)
Exclusion - Members must have at least one cohort episode satisfying the exclusion conditions	270,386 (0.3%)
Exclusion - Members must have at least one cohort episode satisfying the inclusion conditions	270,386 (0.3%)
Exclusion - Members must have at least one cohort episode satisfying the post-index enrollment criterion	270,386 (0.3%)
<b>Insulin NDC, Novolog U-100</b>	
Initial Member Count - Members with a non-missing birth date/sex at any enrollment episode overlapping the query period	91,013,796 (100.0%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=N and MedCov=Y during the query period	75,189,273 (82.6%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=Y and MedCov=N during the query period	75,189,273 (82.6%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=Y and MedCov=N and DrugCov=N and MedCov=Y during the query period	75,189,273 (82.6%)
Exclusion - Members must satisfy the age range condition within the query period	75,188,995 (82.6%)
Exclusion - Members must meet chart availability criterion within the query period	75,188,995 (82.6%)
Exclusion - Members must satisfy the demographic (sex, race and hispanic) condition	75,188,995 (82.6%)
Exclusion - Members must have at least one claim with cohort-identifying codes within the query period	166,861 (0.2%)
Exclusion - Members must have at least one cohort episode beginning within the age range condition	166,861 (0.2%)
Exclusion - Members must have at least one episode defining index claim during the query period	161,187 (0.2%)
Exclusion - Members must have at least one cohort episode incident with respect to other criteria	161,187 (0.2%)
Exclusion - Members must have at least one cohort episode satisfying the pre-index enrollment criterion	161,187 (0.2%)
Exclusion - Members must have at least one cohort episode satisfying the exclusion conditions	161,187 (0.2%)
Exclusion - Members must have at least one cohort episode satisfying the inclusion conditions	161,187 (0.2%)
Exclusion - Members must have at least one cohort episode satisfying the post-index enrollment criterion	161,187 (0.2%)
<b>Insulin NDC, Humalog U-100</b>	
Initial Member Count - Members with a non-missing birth date/sex at any enrollment episode overlapping the query period	91,013,796 (100.0%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=N and MedCov=Y during the query period	75,189,273 (82.6%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=Y and MedCov=N during the query period	75,189,273 (82.6%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=Y and MedCov=N and DrugCov=N and MedCov=Y during the query period	75,189,273 (82.6%)
Exclusion - Members must satisfy the age range condition within the query period	75,188,995 (82.6%)
Exclusion - Members must meet chart availability criterion within the query period	75,188,995 (82.6%)
Exclusion - Members must satisfy the demographic (sex, race and hispanic) condition	75,188,995 (82.6%)
Exclusion - Members must have at least one claim with cohort-identifying codes within the query period	156,650 (0.2%)
Exclusion - Members must have at least one cohort episode beginning within the age range condition	156,650 (0.2%)
Exclusion - Members must have at least one episode defining index claim during the query period	151,569 (0.2%)
Exclusion - Members must have at least one cohort episode incident with respect to other criteria	151,569 (0.2%)
Exclusion - Members must have at least one cohort episode satisfying the pre-index enrollment criterion	151,569 (0.2%)
Exclusion - Members must have at least one cohort episode satisfying the exclusion conditions	151,569 (0.2%)
Exclusion - Members must have at least one cohort episode satisfying the inclusion conditions	151,569 (0.2%)
Exclusion - Members must have at least one cohort episode satisfying the post-index enrollment criterion	151,569 (0.2%)
<b>Insulin HCPCS, Injection (J1815)</b>	
Initial Member Count - Members with a non-missing birth date/sex at any enrollment episode overlapping the query period	91,013,796 (100.0%)

<b>Table 7. Cohort Attrition Table</b>	
<b>Attrition Criteria</b>	<b>Members</b>
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=N and MedCov=Y during the query period	75,189,273 (82.6%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=Y and MedCov=N during the query period	75,189,273 (82.6%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=Y and MedCov=N and DrugCov=N and MedCov=Y during the query period	75,189,273 (82.6%)
Exclusion - Members must satisfy the age range condition within the query period	75,188,995 (82.6%)
Exclusion - Members must meet chart availability criterion within the query period	75,188,995 (82.6%)
Exclusion - Members must satisfy the demographic (sex, race and hispanic) condition	75,188,995 (82.6%)
Exclusion - Members must have at least one claim with cohort-identifying codes within the query period	132,809 (0.1%)
Exclusion - Members must have at least one cohort episode beginning within the age range condition	132,809 (0.1%)
Exclusion - Members must have at least one episode defining index claim during the query period	132,801 (0.1%)
Exclusion - Members must have at least one cohort episode incident with respect to other criteria	132,801 (0.1%)
Exclusion - Members must have at least one cohort episode satisfying the pre-index enrollment criterion	132,801 (0.1%)
Exclusion - Members must have at least one cohort episode satisfying the exclusion conditions	132,801 (0.1%)
Exclusion - Members must have at least one cohort episode satisfying the inclusion conditions	132,801 (0.1%)
Exclusion - Members must have at least one cohort episode satisfying the post-index enrollment criterion	132,801 (0.1%)
<b>Insulin HCPCS, Administration through Insulin Pump (J1817)</b>	
Initial Member Count - Members with a non-missing birth date/sex at any enrollment episode overlapping the query period	91,013,796 (100.0%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=N and MedCov=Y during the query period	75,189,273 (82.6%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=Y and MedCov=N during the query period	75,189,273 (82.6%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=Y and MedCov=N and DrugCov=N and MedCov=Y during the query period	75,189,273 (82.6%)
Exclusion - Members must satisfy the age range condition within the query period	75,188,995 (82.6%)
Exclusion - Members must meet chart availability criterion within the query period	75,188,995 (82.6%)
Exclusion - Members must satisfy the demographic (sex, race and hispanic) condition	75,188,995 (82.6%)
Exclusion - Members must have at least one claim with cohort-identifying codes within the query period	6,057 (0.0%)
Exclusion - Members must have at least one cohort episode beginning within the age range condition	6,057 (0.0%)
Exclusion - Members must have at least one episode defining index claim during the query period	6,057 (0.0%)
Exclusion - Members must have at least one cohort episode incident with respect to other criteria	6,057 (0.0%)
Exclusion - Members must have at least one cohort episode satisfying the pre-index enrollment criterion	6,057 (0.0%)
Exclusion - Members must have at least one cohort episode satisfying the exclusion conditions	6,057 (0.0%)
Exclusion - Members must have at least one cohort episode satisfying the inclusion conditions	6,057 (0.0%)
Exclusion - Members must have at least one cohort episode satisfying the post-index enrollment criterion	6,057 (0.0%)
<b>Insulin HCPCS, All</b>	
Initial Member Count - Members with a non-missing birth date/sex at any enrollment episode overlapping the query period	91,013,796 (100.0%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=N and MedCov=Y during the query period	75,189,273 (82.6%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=Y and MedCov=N during the query period	75,189,273 (82.6%)
Exclusion - Members must be excluded if they only have enrollment episodes with DrugCov=Y and MedCov=N and DrugCov=N and MedCov=Y during the query period	75,189,273 (82.6%)
Exclusion - Members must satisfy the age range condition within the query period	75,188,995 (82.6%)
Exclusion - Members must meet chart availability criterion within the query period	75,188,995 (82.6%)
Exclusion - Members must satisfy the demographic (sex, race and hispanic) condition	75,188,995 (82.6%)

<b>Table 7. Cohort Attrition Table</b>	
<b>Attrition Criteria</b>	<b>Members</b>
Exclusion - Members must have at least one claim with cohort-identifying codes within the query period	137,757 (0.2%)
Exclusion - Members must have at least one cohort episode beginning within the age range condition	137,757 (0.2%)
Exclusion - Members must have at least one episode defining index claim during the query period	137,749 (0.2%)
Exclusion - Members must have at least one cohort episode incident with respect to other criteria	137,749 (0.2%)
Exclusion - Members must have at least one cohort episode satisfying the pre-index enrollment criterion	137,749 (0.2%)
Exclusion - Members must have at least one cohort episode satisfying the exclusion conditions	137,749 (0.2%)
Exclusion - Members must have at least one cohort episode satisfying the inclusion conditions	137,749 (0.2%)
Exclusion - Members must have at least one cohort episode satisfying the post-index enrollment criterion	137,749 (0.2%)

**Appendix A. Dates of Available Data for Each Data Partner (DP) up to Request End Date (12/31/2018) as of Query Distribution Date**

Data Partner (Masked)	Start Date	End Date
DP01	01/01/2010	12/31/2018



## Appendix B. Specifications Used to Define Parameters in this Query

### Global Values

Enrollment Criteria: **Medical and Drug Coverage**

Enrollment Gap (Days): **45**

Age Groups (Years): **00-01, 02-04, 05-09, 10-14, 15-18, 19-21, 22-44, 45-64, 65-74, 75+**

Query Period: **01/01/2013-12/31/2018**

Baseline Characteristics Table: **No**

Baseline Evaluation Window (Day):

#	Cohort Name	Index Exposure	Pre-Index Enrollment Period (Days)	Washout Period (Days)	Treatment Episode Gap (Days)	Treatment Episode Extension (Days)	Inclusion/Exclusion	Criteria	Criteria Definition	Evaluation Period Start (Day)	Evaluation Period End (Day)
1	Insulin HCPCS, Intermediate Acting (S5552)	Insulin <sup>[1]</sup>	0	0	0	0	--	--	--	--	--
2	Insulin NDC, All	Insulin NDCs <sup>[2]</sup>	0	0	0	0	--	--	--	--	--
3	Insulin NDC, Lantus Solostar	Insulin <sup>[3]</sup>	0	0	0	0	--	--	--	--	--
4	Insulin NDC, Lantus U-100	Insulin <sup>[4]</sup>	0	0	0	0	--	--	--	--	--
5	Insulin NDC, Novolog Flexpen	Insulin <sup>[5]</sup>	0	0	0	0	--	--	--	--	--
6	Insulin NDC, Novolog U-100	Insulin <sup>[6]</sup>	0	0	0	0	--	--	--	--	--
7	Insulin NDC, Humalog U-100	Insulin <sup>[7]</sup>	0	0	0	0	--	--	--	--	--
8	Insulin HCPCS, Injection (J1815)	Insulin <sup>[8]</sup>	0	0	0	0	--	--	--	--	--
9	Insulin HCPCS, Administration through Insulin Pump (J1817)	Insulin <sup>[9]</sup>	0	0	0	0	--	--	--	--	--
10	Insulin HCPCS, All	Insulin <sup>[10]</sup>	0	0	0	0	--	--	--	--	--

ICD-9, ICD-10, HCPCS AND CPT are provided by Optum360  
NDCs are checked against First Data Bank's MedKnowledge.

### Appendix of Generic Names and Chronic Conditions

[1] See Appendix D

[2] See Appendix C

[3] See Appendix C

[4] See Appendix C

[5] See Appendix C

[6] See Appendix C

[7] See Appendix C

[8] See Appendix D

[9] See Appendix D

[10] See Appendix D

### Glossary of Terms for Analyses Using Cohort Identification and Descriptive Analysis (CIDA) Module

**Age Groups** - Age groups of members included in the cohort. Strata also used for reporting purposes.

**Ambulatory Visit (AV)** - A care setting value including visits at outpatient clinics, same-day surgeries, urgent care visits, and other same-day ambulatory hospital encounters, but excludes emergency department encounters.

**Baseline Characteristics Table** - Optional table containing general characteristics of study population, including background rates of 27 chronic conditions from the CMS Chronic Condition Warehouse (see above if table requested). Users define an evaluation period for the presence of baseline characteristics.

**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). For laboratory results, possible care settings include: Emergency Department (E), Home (H), Inpatient (I), Outpatient (O), or Unknown or Missing (U). The Care Setting, along with the Principal Diagnosis Indicator (PDX), forms the Care Setting/PDX parameter.

**Charlson/Elixhauser Combined Comorbidity Score** - Calculated based on comorbidities observed during a requester-defined window around the exposure episode start date (e.g., in the 183 days prior to index).

**Cohort Definition** - Cohort includes all valid exposure episodes during the query period. Only the first valid episode's incidence is assessed using the washout period.

**Emergency Department (ED)** - A care setting value including ED encounters that become inpatient stays (in which case inpatient stays would be a separate encounter). Excludes urgent care visits.

**Enrollment Criteria** - Type of coverage required during enrollment period. By default, all patients must have medical and drug coverage.

**Enrollment Gap** - Allowed gap between coverage periods.

**Episodes** - Treatment episodes; length of episode is determined by days supplied in one dispensing or consecutive dispensings bridged by the episode gap.

**Inclusion/Exclusion** - Contains the comprehensive set of codes used to define additional cohort inclusion and/or exclusion criteria (e.g., restrict cohort to individuals with evidence of a pre-existing condition 183 days before the index date). Criteria could be defined with complex algorithms (e.g., diagnosis codes and drug codes) defined under Criteria Definition.

**Inpatient Hospital Stay (IP)** - A care setting value including all inpatient stays, same-day hospital discharges, hospital transfers, and acute hospital care where the discharge is after the admission date.

**Non-Acute Institutional Stay (IS)** - A care setting value including hospice, skilled nursing facility (SNF), rehab center, nursing home, residential, overnight non-hospital dialysis and other non-hospital stays.

**Other Ambulatory Visit (OA)** - A care setting value including other non-overnight AV encounters such as hospice visits, home health visits, skilled nursing facility visits, other non-hospital visits, as well as telemedicine, telephone and email consultations.

**Principal Diagnosis (PDX)** - Diagnosis or condition established to be chiefly responsible for admission of the patient to the hospital. 'P' = principal diagnosis, 'S' = secondary diagnosis, 'X' = unspecified diagnosis, '.' = blank. Along with the Care Setting values, forms the CareSetting/PDX parameter.

**Query Period** - The period of time which patients can contribute index-defining exposure/events. Data prior to the start date may be used to determine enrollment, washout, and other cohort inclusion criteria.

**Treatment Episode Extension** - The episode extension adds the selected number of days to the end of an episode to count as exposed time.

**Treatment Episode Gap** - The maximum number of days allowed between two dispensings to consider them part of the same episode.

**Washout Period** - The period before an exposure episode during which an individual cannot have evidence of incidence-defining criteria.



**Appendix C. List of Generic and Brand Names of Medical Products Used to Define Index Exposures in this Request**

Generic Name	Brand Name
<b>Insulin</b>	
<b>Insulin NDC, All</b>	
insulin aspart	Novolog U-100 Insulin aspart
insulin lispro	Humalog U-100 Insulin
insulin lispro protamine and insulin lispro	Humalog Mix 75-25(U-100)Insuln
insulin lispro protamine and insulin lispro	Humalog Mix 50-50 Insuln U-100
insulin lispro	Humalog KwikPen Insulin
insulin lispro	Humalog Junior KwikPen U-100
insulin glargine,human recombinant analog	Basaglar KwikPen U-100 Insulin
insulin regular, human	Humulin R Regular U-100 Insuln
insulin NPH human isophane	Humulin N NPH U-100 Insulin
insulin regular, human	Humulin R U-500 (Conc) Insulin
insulin NPH human isophane/insulin regular, human	Humulin 70/30 U-100 Insulin
insulin NPH human isophane	Humulin N Pen
insulin NPH human isophane/insulin regular, human	Humulin 70/30 Insulin Pen
insulin lispro protamine and insulin lispro	Humalog Mix 75-25 KwikPen
insulin lispro protamine and insulin lispro	Humalog Mix 50-50 KwikPen
insulin NPH human isophane/insulin regular, human	Humulin 70/30 U-100 KwikPen
insulin NPH human isophane	Humulin N NPH Insulin KwikPen
insulin regular, human	Humulin R U-500 (Conc) Kwikpen
insulin glargine,human recombinant analog/lixisenatide	Soliqua 100/33
insulin glargine,human recombinant analog	Toujeo SoloStar U-300 Insulin
insulin glargine,human recombinant analog	Toujeo Max U-300 SoloStar
insulin regular, human	Afrezza
insulin lispro	Admelog U-100 Insulin lispro
insulin lispro	Admelog SoloStar U-100 Insulin
insulin glargine,human recombinant analog	Lantus Solostar U-100 Insulin
insulin glargine,human recombinant analog	Lantus U-100 Insulin
insulin glulisine	Apidra U-100 Insulin
insulin glulisine	Apidra SoloStar U-100 Insulin
insulin regular, human	Novolin R Regular U-100 Insuln
insulin NPH human isophane	Novolin N NPH U-100 Insulin
insulin NPH human isophane/insulin regular, human	Novolin 70/30 U-100 Insulin
insulin degludec	Tresiba FlexTouch U-200
insulin degludec	Tresiba FlexTouch U-100
insulin degludec	Tresiba U-100 Insulin
insulin degludec/liraglutide	Xultophy 100/3.6
insulin regular, human	Novolin R Flexpen
insulin NPH human isophane	Novolin N Flexpen
insulin NPH human isophane/insulin regular, human	Novolin 70-30 FlexPen U-100
insulin aspart (niacinamide)	Fiasp U-100 Insulin
insulin aspart (niacinamide)	Fiasp FlexTouch U-100 Insulin

**Appendix C. List of Generic and Brand Names of Medical Products Used to Define Index Exposures in this Request**

<b>Generic Name</b>	<b>Brand Name</b>
insulin aspart (niacinamide)	Fiasp Penfill U-100 Insulin
insulin aspart	Novolog PenFill U-100 Insulin
insulin aspart protamine human/insulin aspart	Novolog Mix 70-30 U-100 Insulin
insulin detemir	Levemir U-100 Insulin
insulin aspart protamine human/insulin aspart	Novolog Mix 70-30FlexPen U-100
insulin aspart	Novolog Flexpen U-100 Insulin
insulin detemir	Levemir FlexTouch U-100 Insulin
insulin detemir	Levemir Flexpen
insulin regular, human in 0.9 % sodium chloride	Myxredlin
insulin lispro protamine and insulin lispro	Humalog Mix 75-25(U-100)Insulin
insulin lispro	insulin lispro
insulin aspart	insulin aspart U-100
insulin aspart protamine human/insulin aspart	insulin asp prt-insulin aspart
insulin lispro	Humalog
insulin glargine	Basaglar Tempo Pen
insulin, human	Novolin N
insulin glargine	Lantus
insulin detemir	Levemir
insulin detemir	Levemir FlexTouch
insulin lispro	Humalog KwikPen
insulin aspart	Novolog FlexPen
insulin, human	Novolin
insulin aspart	Novolog
<b>Insulin NDC, Lantus Solostar</b>	
insulin glargine,human recombinant analog	Lantus Solostar U-100 Insulin
<b>Insulin NDC, Lantus U-100</b>	
insulin glargine,human recombinant analog	Lantus U-100 Insulin
<b>Insulin NDC, Novolog Flexpen</b>	
insulin aspart	Novolog Flexpen U-100 Insulin
<b>Insulin NDC, Novolog U-100</b>	
insulin aspart	Novolog U-100 Insulin aspart
<b>Insulin NDC, Humalog U-100</b>	
insulin lispro	Humalog U-100 Insulin

**Appendix D. List of Healthcare Common Procedure Coding System (HCPCS) Codes Used to Define Index Exposures in this Request**

Code	Description	Code Category	Code Type
<b>Insulin HCPCS, All</b>			
J1815	Injection, insulin, per 5 units	Procedure	HCPCS
J1817	Insulin for administration through DME (i.e., insulin pump) per 50 units	Procedure	HCPCS
J1820	Injection, insulin, up to 100 units	Procedure	HCPCS
K0548	Injection, insulin lispro, up to 50 units	Procedure	HCPCS
S5550	Insulin, rapid onset, 5 units	Procedure	HCPCS
S5551	Insulin, most rapid onset (Lispro or Aspart); 5 units	Procedure	HCPCS
S5552	Insulin, intermediate acting (NPH or LENTE); 5 units	Procedure	HCPCS
S5553	Insulin, long acting; 5 units	Procedure	HCPCS
S5560	Insulin delivery device, reusable pen; 1.5 ml size	Procedure	HCPCS
S5561	Insulin delivery device, reusable pen; 3 ml size	Procedure	HCPCS
S5565	Insulin cartridge for use in insulin delivery device other than pump; 150 units	Procedure	HCPCS
S5566	Insulin cartridge for use in insulin delivery device other than pump; 300 units	Procedure	HCPCS
S5570	Insulin delivery device, disposable pen (including insulin); 1.5 ml size	Procedure	HCPCS
S5571	Insulin delivery device, disposable pen (including insulin); 3 ml size	Procedure	HCPCS
<b>Insulin HCPCS, Injection (J1815)</b>			
J1815	Injection, insulin, per 5 units	Procedure	HCPCS
<b>Insulin HCPCS, Administration through Insulin Pump (J1817)</b>			
J1817	Insulin for administration through DME (i.e., insulin pump) per 50 units	Procedure	HCPCS
<b>Insulin HCPCS, Intermediate Acting (S5552)</b>			
S5552	Insulin, intermediate acting (NPH or LENTE); 5 units	Procedure	HCPCS