

## Disclaimer

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

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

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

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

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## Overview for Request: to09y05\_mpr\_wp27\_v02

**Request ID:** to09y05\_mpr\_wp27\_v02

**Request Description:** This request investigated new diagnoses for a testosterone-related indication and those who received a testosterone product in the following six months. This is report 1 of 2. Report 2 analyzed acute myocardial infarction (AMI) and stroke among members overall and among those with a pre-existing condition of one of the specified testosterone indications.

**Modular Program Tool Used:** Modular Program #6 (MP6)

**Data Source:** Data from January 1, 2007 through May 31, 2013 from 18 Data Partners contributing to the Mini-Sentinel Distributed Database (MSDD) were included in this report. This request was distributed to 18 Data Partners on March 28, 2014. Please see Appendix A for a list of dates of available data in the MSDD for each Data Partner.

**Study Design:** This request was designed to investigate new diagnoses for a testosterone-related indication and those who received a testosterone product in the following six months. Results were reported overall, and stratified by age group, sex, and year.

**Events of Interest:** The events of interest in this request were incident diagnoses for a testosterone-related indication. These indications included: malignant neoplasm of pituitary gland, benign neoplasm of pituitary gland, other pituitary disorders, Klinefelter's syndrome, other testicular hypofunction, depressive disorder, muscular atrophy, malaise/fatigue, decreased libido, hypoactive sexual desire disorder, unspecified testicular dysfunction, and other testicular dysfunction. Testosterone-related indication diagnoses were defined using International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) diagnosis codes. Please see Appendix B for a list of diagnosis codes used to define the events of interest in this request.

**Outcomes of Interest:** The main outcome of interest in this request was testosterone product use in the six months following an incident testosterone-related indication diagnosis. Testosterone product use was defined using National Drug Codes (NDCs) and Healthcare Common Procedure Coding System (HCPCS) procedure codes. Please see Appendices C and D for a list of generic and brand drug names and a list of HCPCS procedure codes used to define testosterone product use in this request.

**Cohort Eligibility Criteria:** Patients were required to be continuously enrolled for 183 days in health plans with both drug and medical coverage, during which gaps in coverage of up to 45 days were allowed. Individuals were stratified into the following age groups: 0-39, 40-64, 65-74, and 75+ years.

**Please see Appendix F for the specifications for parameters for the analyses in this request.**

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

**Notes:** Please contact the Sentinel Operations Center Query Fulfillment Team ([qf@sentinelssystem.org](mailto:qf@sentinelssystem.org)) for questions and to provide comments/suggestions for future enhancements to this document.

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## Glossary of Terms in Modular Program 6\*

- Amount Supplied** - number of units (pills, tablets, vials) dispensed in qualifying post-event treatment episodes.
- 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).
- Claims** - number of exposure event claims experienced by new patients.
- Days Supplied** - number of days supplied for all dispensings in qualifying post-event treatment episodes.
- Dispensings** - number of dispensings in qualifying post-event treatment episodes.
- Eligible Members** - number of members eligible for an incident exposure/lookup period (defined by the exposure and event washout periods) with drug and medical coverage during the query period.
- Enrollment Gap** - number of days allowed between two consecutive enrollment periods without breaking a “continuously enrolled” sequence.
- Episode Duration** - number of days in qualifying post-event treatment episodes.
- Incidence Type (drug/exposure)**- *Minimum Incidence type* will consider the first exposure/lookup period in the query period as long as it is the first exposure/lookup period in the user's entire available history. *Single* and *Multiple Incidence types* will use the washout period to establish incidence; however, *Single* will only consider the first exposure/lookup period whereas *Multiple* will consider all qualifying exposures/lookup periods.
- Incidence Type (outcome)**- *Minimum Incidence type* considers the first event in a valid episode as long as it is the first event in the user's entire available history. *Multiple Incidence type* uses the washout period to establish incidence and considers all qualifying incident exposures/lookup periods.
- Inclusion/Exclusion Indicator** - indicates whether condition(s) of interest are used for inclusion or exclusion criteria. A value of 1 instructs the program that members must have the condition of interest (inclusion criteria); a value of 0 instructs the program that members must not have the condition of interest (exclusion criteria).
- Lookback Period Start and End** - range of days relative to index that the program looks for inclusion/exclusion conditions of interest. For example, if the Inclusion/Exclusion Indicator =1, Lookback Period Start = -183 and Lookback Period End = 0, the cohort will only include members with the condition of interest present in the 183 days prior to and including the index date (the index date is day 0).
- Lookup Period Duration** - fixed period of time following an incident exposure that the MP6 program searches for events of interest.
- Mean Post-event Treatment Intensity**- mean number of days of post-event treatment during a valid lookup period divided by the mean lookup period duration.
- Member-Years** - sum of all days a member is eligible for an incident exposure/lookup period (i.e., days that the member meets all inclusion criteria such a incidence, pre-existing condition, and enrollment requirements) divided by 365.23.
- Minimum Lookup Period Duration** - minimum number of enrollment days required after an incident exposure/lookup period start. For example, if the minimum duration =10, a member must have 10 or more days of continuous enrollment in drug and medical benefit coverage following the exposure/lookup period start in order for the lookup period to be included in output metrics.
- New Patients** - number of members with incident exposure/lookup period during the query period. A user may only be counted once in a query period.
- New Patients with Post-Event Treatment** - number of patients who have an incident claim for the post-event treatment of interest.
- Post-event Treatment Intensity** - sum of post-event treatment days across all members during a valid lookup period divided by the sum of all lookup period durations during the query period.
- Principal Diagnosis** - diagnosis or condition established to be chiefly responsible for admission of the patient to the hospital. YES will only consider diagnoses flagged as Principal.
- Query Period** - period in which the modular program evaluates exposures of interest.
- Time-to-Event (tte)/Time-to-Treatment** - number of days between the start of an event lookup period (index date) and the first treatment episode/procedure/diagnosis claim.

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

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

\*all terms may not be used in this report

\*\*incident treatment episodes must be incident to both the exposure and the event

**Table 1a. Summary of Incident Testosterone Indication Diagnoses in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013**

	<b>New Patients/ Lookup Periods*</b>	<b>Claims</b>	<b>Lookup Period Duration (Days)</b>	<b>Eligible Members</b>	<b>Member-Years</b>	<b>New Patients per 1,000 Eligible Members</b>
All Testosterone Indications	14,209,974	55,872,946	2,342,960,861	85,951,928	168,179,130	165.32
Malignant Neoplasm of Pituitary Gland	3,808	6,519	628,827	85,951,928	184,816,492	0.04
Benign Neoplasm of Pituitary Gland	55,977	149,589	9,327,473	85,951,928	184,769,701	0.65
Other Pituitary Disorders	32,130	58,014	5,299,518	85,951,928	184,792,564	0.37
Klinefelter's Syndrome	2,298	5,299	384,621	85,951,928	184,818,115	0.03
Other Testicular Hypofunction	486,091	1,142,333	79,469,688	85,951,928	184,500,680	5.66
Depressive Disorder	4,268,864	8,997,095	700,358,498	85,951,928	180,284,342	49.67
Muscular Atrophy	164,155	778,486	26,704,165	85,951,928	184,657,147	1.91
Malaise/Fatigue	10,479,961	17,221,892	1,729,345,684	85,951,928	172,422,402	121.93
Decreased Libido	251,663	360,672	41,528,540	85,951,928	184,563,071	2.93
Hypoactive Sexual Desire Disorder	25,899	37,920	4,291,328	85,951,928	184,792,478	0.30
Unspecified Testicular Dysfunction	10,356	15,113	1,695,958	85,951,928	184,810,857	0.12
Other Testicular Dysfunction	26,934	40,516	4,409,936	85,951,928	184,796,659	0.31

\* SING incidence type means the number of new patients = number of new lookup periods since this option only considers the first incident lookup period for each new patient

**Table 1b. Summary of Post-Diagnosis Testosterone Product Use Episodes in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013, by Testosterone Indication**

	<b>New Patients/ Lookup Periods*</b>	<b>New Patients with Incident Post-Diagnosis Treatment</b>	<b>Number of Dispensings</b>	<b>Episode Duration (Days)</b>	<b>Days Supplied</b>	<b>Amount Supplied</b>	<b>Percent of New Patients with Post- Diagnosis Treatment Episode</b>
All Testosterone Indications	14,209,974	239,938	728,324	13,328,417	13,328,417	46,627,043	1.69%
Malignant Neoplasm of Pituitary Gland	3,808	107	274	6,225	6,225	24,115	2.81%
Benign Neoplasm of Pituitary Gland	55,977	1,476	3,694	90,052	90,052	335,576	2.64%
Other Pituitary Disorders	32,130	5,290	16,246	317,268	317,268	1,117,852	16.46%
Klinefelter's Syndrome	2,298	431	1,117	24,446	24,446	67,923	18.76%
Other Testicular Hypofunction	486,091	153,817	505,235	8,739,061	8,739,061	30,361,046	31.64%
Depressive Disorder	4,268,864	14,494	35,498	689,416	689,416	2,251,031	0.34%
Muscular Atrophy	164,155	536	1,329	23,455	23,455	70,518	0.33%
Malaise/Fatigue	10,479,961	106,079	313,399	5,726,685	5,726,685	19,276,130	1.01%
Decreased Libido	251,663	25,489	72,841	1,344,027	1,344,027	4,502,261	10.13%
Hypoactive Sexual Desire Disorder	25,899	2,273	6,015	114,521	114,521	399,665	8.78%
Unspecified Testicular Dysfunction	10,356	1,401	3,769	74,634	74,634	214,755	13.53%
Other Testicular Dysfunction	26,934	4,447	13,178	243,969	243,969	810,399	16.51%

\* SING incidence type means the number of new patients = number of new lookup periods since this option only considers the first incident lookup period for each new patient



**Table 2a. Summary of Incident Testosterone Indication Diagnoses in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013, by Age Group**

	New Patients/ Lookup Periods*	Claims	Lookup Period Duration (Days)	Eligible Members	Member-Years	New Patients per 1,000 Eligible Members
<b>All Testosterone Indications</b>						
0-39 years	5,038,155	19,500,114	822,354,794	50,609,148	92,607,991	99.55
40-64 years	6,666,962	25,427,281	1,106,674,201	31,176,323	59,860,408	213.85
65-74 years	1,300,129	5,251,626	216,608,569	5,198,635	9,560,442	250.09
75+ years	1,204,728	5,693,925	197,323,297	2,949,494	6,150,289	408.45
<b>Malignant Neoplasm of Pituitary Gland</b>						
0-39 years	1,069	1,771	178,858	50,609,148	97,676,026	0.02
40-64 years	1,934	3,254	320,339	31,629,223	68,004,107	0.06
65-74 years	412	837	67,701	5,486,683	11,243,892	0.08
75+ years	393	657	61,929	3,167,786	7,892,467	0.12
<b>Benign Neoplasm of Pituitary Gland</b>						
0-39 years	20,836	52,858	3,433,421	50,609,148	97,661,841	0.41
40-64 years	28,033	74,514	4,687,223	31,627,035	67,978,256	0.89
65-74 years	4,246	13,631	720,156	5,485,740	11,240,153	0.77
75+ years	2,862	8,586	486,673	3,167,139	7,889,452	0.90
<b>Other Pituitary Disorders</b>						
0-39 years	10,697	19,212	1,748,478	50,609,148	97,668,235	0.21
40-64 years	18,042	32,497	2,980,863	31,628,376	67,990,794	0.57
65-74 years	2,483	4,637	416,259	5,486,158	11,241,838	0.45
75+ years	908	1,668	153,918	3,167,597	7,891,697	0.29
<b>Klinefelter's Syndrome</b>						
0-39 years	1,709	4,154	285,637	50,609,148	97,675,498	0.03
40-64 years	492	974	82,637	31,629,275	68,005,552	0.02
65-74 years	61	103	10,112	5,486,733	11,244,226	0.01
75+ years	36	68	6,235	3,167,841	7,892,839	0.01

**Table 2a. Summary of Incident Testosterone Indication Diagnoses in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013, by Age Group**

	New Patients/ Lookup Periods*	Claims	Lookup Period Duration (Days)	Eligible Members	Member-Years	New Patients per 1,000 Eligible Members
<b>Other Testicular Hypofunction</b>						
0-39 years	77,179	191,716	12,441,587	50,609,148	97,634,808	1.53
40-64 years	327,971	771,314	53,630,489	31,620,541	67,800,680	10.37
65-74 years	59,657	133,577	9,818,542	5,475,816	11,196,354	10.89
75+ years	21,284	45,726	3,579,070	3,162,170	7,868,837	6.73
<b>Depressive Disorder</b>						
0-39 years	1,574,682	3,711,328	255,183,197	50,609,148	96,253,665	31.11
40-64 years	2,022,280	3,880,776	333,938,596	31,494,941	65,727,159	64.21
65-74 years	356,764	686,945	59,385,722	5,399,702	10,803,446	66.07
75+ years	315,138	718,046	51,850,983	3,111,545	7,500,072	101.28
<b>Muscular Atrophy</b>						
0-39 years	33,450	182,370	5,491,332	50,609,148	97,646,450	0.66
40-64 years	67,385	336,846	11,130,468	31,626,325	67,934,902	2.13
65-74 years	24,157	102,695	3,946,348	5,483,205	11,219,440	4.41
75+ years	39,163	156,575	6,136,017	3,164,174	7,856,356	12.38
<b>Malaise/Fatigue</b>						
0-39 years	3,639,247	5,627,087	595,532,752	50,609,148	93,927,791	71.91
40-64 years	4,825,546	7,751,665	802,022,379	31,299,538	62,051,986	154.17
65-74 years	1,003,846	1,765,065	166,933,528	5,280,432	9,975,984	190.11
75+ years	1,011,322	2,078,075	164,857,025	2,997,344	6,466,641	337.41
<b>Decreased Libido</b>						
0-39 years	64,326	90,304	10,472,939	50,609,148	97,623,851	1.27
40-64 years	170,447	246,262	28,242,468	31,620,656	67,825,690	5.39
65-74 years	14,211	20,302	2,364,820	5,481,764	11,224,992	2.59
75+ years	2,679	3,804	448,313	3,166,611	7,888,538	0.85

**Table 2a. Summary of Incident Testosterone Indication Diagnoses in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013, by Age Group**

	<b>New Patients/ Lookup Periods*</b>	<b>Claims</b>	<b>Lookup Period Duration (Days)</b>	<b>Eligible Members</b>	<b>Member-Years</b>	<b>New Patients per 1,000 Eligible Members</b>
<b>Hypoactive Sexual Desire Disorder</b>						
0-39 years	7,013	11,111	1,147,760	50,609,148	97,670,949	0.14
40-64 years	17,250	24,619	2,865,165	31,628,399	67,986,866	0.55
65-74 years	1,365	1,832	231,521	5,486,301	11,242,305	0.25
75+ years	271	358	46,882	3,167,726	7,892,358	0.09
<b>Unspecified Testicular Dysfunction</b>						
0-39 years	3,526	4,916	569,472	50,609,148	97,673,792	0.07
40-64 years	5,410	8,102	890,210	31,629,072	68,001,247	0.17
65-74 years	973	1,452	160,501	5,486,565	11,243,453	0.18
75+ years	447	643	75,775	3,167,724	7,892,365	0.14
<b>Other Testicular Dysfunction</b>						
0-39 years	8,239	11,690	1,340,509	50,609,148	97,669,655	0.16
40-64 years	15,436	23,673	2,533,302	31,628,610	67,993,210	0.49
65-74 years	2,428	3,883	397,233	5,486,215	11,241,938	0.44
75+ years	831	1,270	138,892	3,167,622	7,891,857	0.26

\* SING incidence type means the number of new patients = number of new lookup periods since this option only considers the first incident lookup period for each new patient

**Table 2b. Summary of Post-Diagnosis Testosterone Product Use Episodes in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013, by Testosterone Indication and Age Group**

	New Patients/ Lookup Periods*	New Patients with Incident Post Diagnosis Treatment	Number of Dispensings	Episode Duration (Days)	Days Supplied	Amount Supplied	Percent of New Patients with Post Diagnosis Treatment Episode
<b>All Testosterone Indications</b>							
0-39 years	5,038,155	38,711	122,016	2,053,963	2,053,963	6,744,843	0.77%
40-64 years	6,666,962	171,585	520,558	9,777,824	9,777,824	35,300,924	2.57%
65-74 years	1,300,129	22,896	66,810	1,201,794	1,201,794	3,804,008	1.76%
75+ years	1,204,728	6,746	18,940	294,836	294,836	777,268	0.56%
<b>Malignant Neoplasm of Pituitary Gland</b>							
0-39 years	1,069	29	69	1,388	1,388	4,293	2.71%
40-64 years	1,934	53	133	3,480	3,480	15,637	2.74%
65-74 years	412	20	55	1,228	1,228	3,600	4.85%
75+ years	393	5	17	129	129	585	1.27%
<b>Benign Neoplasm of Pituitary Gland</b>							
0-39 years	20,836	266	675	15,822	15,822	59,278	1.28%
40-64 years	28,033	956	2,362	59,176	59,176	227,335	3.41%
65-74 years	4,246	181	449	10,820	10,820	37,468	4.26%
75+ years	2,862	73	208	4,234	4,234	11,495	2.55%
<b>Other Pituitary Disorders</b>							
0-39 years	10,697	904	2,575	53,127	53,127	167,361	8.45%
40-64 years	18,042	3,676	11,361	228,154	228,154	830,722	20.37%
65-74 years	2,483	541	1,743	28,637	28,637	100,392	21.79%
75+ years	908	169	567	7,350	7,350	19,377	18.61%
<b>Klinefelter's Syndrome</b>							
0-39 years	1,709	281	695	15,549	15,549	39,959	16.44%
40-64 years	492	140	387	8,397	8,397	27,353	28.46%
65-74 years	61	7	21	363	363	462	11.48%
75+ years	36	3	14	137	137	149	8.33%

**Table 2b. Summary of Post-Diagnosis Testosterone Product Use Episodes in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013, by Testosterone Indication and Age Group**

	New Patients/ Lookup Periods*	New Patients with Incident Post Diagnosis Treatment	Number of Dispensings	Episode Duration (Days)	Days Supplied	Amount Supplied	Percent of New Patients with Post Diagnosis Treatment Episode
<b>Other Testicular Hypofunction</b>							
0-39 years	77,179	21,003	74,449	1,158,934	1,158,934	3,786,259	27.21%
40-64 years	327,971	110,518	361,706	6,441,831	6,441,831	23,152,699	33.70%
65-74 years	59,657	17,036	52,837	903,353	903,353	2,812,958	28.56%
75+ years	21,284	5,260	16,243	234,943	234,943	609,130	24.71%
<b>Depressive Disorder</b>							
0-39 years	1,574,682	2,688	6,937	126,609	126,609	397,864	0.17%
40-64 years	2,022,280	10,218	25,059	497,617	497,617	1,681,175	0.51%
65-74 years	356,764	1,216	2,692	50,789	50,789	137,099	0.34%
75+ years	315,138	372	810	14,401	14,401	34,893	0.12%
<b>Muscular Atrophy</b>							
0-39 years	33,450	68	214	2,989	2,989	8,824	0.20%
40-64 years	67,385	343	839	15,410	15,410	50,929	0.51%
65-74 years	24,157	80	190	3,470	3,470	6,895	0.33%
75+ years	39,163	45	86	1,586	1,586	3,870	0.11%
<b>Malaise/Fatigue</b>							
0-39 years	3,639,247	19,748	61,402	1,029,652	1,029,652	3,251,537	0.54%
40-64 years	4,825,546	74,908	222,120	4,145,613	4,145,613	14,413,914	1.55%
65-74 years	1,003,846	8,611	22,956	435,188	435,188	1,316,540	0.86%
75+ years	1,011,322	2,812	6,921	116,232	116,232	294,139	0.28%
<b>Decreased Libido</b>							
0-39 years	64,326	4,735	13,448	234,008	234,008	731,302	7.36%
40-64 years	170,447	18,923	54,122	1,011,481	1,011,481	3,461,575	11.10%
65-74 years	14,211	1,546	4,450	85,315	85,315	271,344	10.88%
75+ years	2,679	285	821	13,223	13,223	38,040	10.64%

**Table 2b. Summary of Post-Diagnosis Testosterone Product Use Episodes in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013, by Testosterone Indication and Age Group**

	<b>New Patients/ Lookup Periods*</b>	<b>New Patients with Incident Post Diagnosis Treatment</b>	<b>Number of Dispensings</b>	<b>Episode Duration (Days)</b>	<b>Days Supplied</b>	<b>Amount Supplied</b>	<b>Percent of New Patients with Post Diagnosis Treatment Episode</b>
<b>Hypoactive Sexual Desire Disorder</b>							
0-39 years	7,013	432	1,179	19,501	19,501	62,600	6.16%
40-64 years	17,250	1,668	4,405	85,601	85,601	302,331	9.67%
65-74 years	1,365	137	343	7,854	7,854	28,398	10.04%
75+ years	271	36	88	1,565	1,565	6,336	13.28%
<b>Unspecified Testicular Dysfunction</b>							
0-39 years	3,526	252	641	14,831	14,831	31,967	7.15%
40-64 years	5,410	969	2,597	51,779	51,779	159,542	17.91%
65-74 years	973	138	420	6,616	6,616	19,186	14.18%
75+ years	447	42	111	1,408	1,408	4,060	9.40%
<b>Other Testicular Dysfunction</b>							
0-39 years	8,239	640	1,853	35,367	35,367	115,955	7.77%
40-64 years	15,436	3,190	9,472	178,148	178,148	606,705	20.67%
65-74 years	2,428	479	1,467	25,113	25,113	74,473	19.73%
75+ years	831	138	386	5,341	5,341	13,266	16.61%

\* SING incidence type means the number of new patients = number of new lookup periods since this option only considers the first incident lookup period for each new patient

Table 3a. Summary of Incident Testosterone Indication Diagnoses in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013, by Sex

	New Patients/ Lookup Periods*	Claims	Lookup Period Duration (Days)	Eligible Members	Member-Years	New Patients per 1,000 Eligible Members
<b>All Testosterone Indications</b>						
Female	8,787,616	33,836,915	1,453,071,909	43,678,685	83,138,792	201.19
Male	5,417,924	22,018,483	889,177,945	42,253,759	85,012,273	128.22
Unknown	4,434	17,548	711,007	19,484	28,065	227.57
<b>Malignant Neoplasm of Pituitary Gland</b>						
Female	2,522	4,116	420,242	43,678,685	93,698,328	0.06
Male	1,286	2,403	208,585	42,253,759	91,086,592	0.03
Unknown	0	0	0	19,484	31,571	0.00
<b>Benign Neoplasm of Pituitary Gland</b>						
Female	41,176	102,979	6,860,257	43,678,685	93,662,320	0.94
Male	14,785	46,577	2,464,493	42,253,759	91,075,824	0.35
Unknown	16	33	2,723	19,484	31,556	0.82
<b>Other Pituitary Disorders</b>						
Female	14,822	22,881	2,440,782	43,678,685	93,685,452	0.34
Male	17,299	35,117	2,857,461	42,253,759	91,075,547	0.41
Unknown	9	16	1,275	19,484	31,566	0.46
<b>Klinefelter's Syndrome</b>						
Female	94	131	15,105	43,678,685	93,700,739	0.00
Male	2,204	5,168	369,516	42,253,759	91,085,804	0.05
Unknown	0	0	0	19,484	31,571	0.00
<b>Other Testicular Hypofunction</b>						
Female	8,567	10,726	1,403,863	43,678,685	93,692,892	0.20
Male	477,312	1,131,159	78,031,902	42,253,759	90,776,307	11.30
Unknown	212	448	33,923	19,484	31,481	10.88
<b>Depressive Disorder</b>						
Female	2,923,296	6,023,568	480,949,217	43,678,685	90,565,654	66.93
Male	1,343,928	2,970,334	219,147,194	42,253,759	89,688,295	31.81
Unknown	1,640	3,193	262,087	19,484	30,393	84.17

**Table 3a. Summary of Incident Testosterone Indication Diagnoses in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013, by Sex**

	New Patients/ Lookup Periods*	Claims	Lookup Period Duration (Days)	Eligible Members	Member-Years	New Patients per 1,000 Eligible Members
<b>Muscular Atrophy</b>						
Female	95,663	462,523	15,630,095	43,678,685	93,605,838	2.19
Male	68,450	315,801	11,067,239	42,253,759	91,019,763	1.62
Unknown	42	162	6,831	19,484	31,547	2.16
<b>Malaise/Fatigue</b>						
Female	6,572,479	10,854,151	1,087,650,108	43,678,685	85,802,699	150.47
Male	3,904,569	6,362,982	641,229,487	42,253,759	86,590,541	92.41
Unknown	2,913	4,759	466,089	19,484	29,163	149.51
<b>Decreased Libido</b>						
Female	126,947	171,741	21,118,387	43,678,685	93,549,273	2.91
Male	124,641	188,816	20,397,755	42,253,759	90,982,282	2.95
Unknown	75	115	12,398	19,484	31,515	3.85
<b>Hypoactive Sexual Desire Disorder</b>						
Female	14,784	20,970	2,445,262	43,678,685	93,684,410	0.34
Male	11,110	16,920	1,845,151	42,253,759	91,076,498	0.26
Unknown	5	30	915	19,484	31,569	0.26
<b>Unspecified Testicular Dysfunction</b>						
Female	191	241	32,038	43,678,685	93,700,629	0.00
Male	10,161	14,868	1,663,262	42,253,759	91,078,660	0.24
Unknown	4	4	658	19,484	31,568	0.21
<b>Other Testicular Dysfunction</b>						
Female	383	452	62,803	43,678,685	93,700,517	0.01
Male	26,543	40,039	4,346,017	42,253,759	91,064,574	0.63
Unknown	8	25	1,116	19,484	31,568	0.41

\* SING incidence type means the number of new patients = number of new lookup periods since this option only considers the first incident lookup period for each new patient



**Table 3b. Summary of Post-Diagnosis Testosterone Product Use Episodes in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013, by Testosterone Indication and Sex**

	New Patients/ Lookup Periods*	New Patients with Incident Post Diagnosis Treatment	Number of Dispensings	Episode Duration (Days)	Days Supplied	Amount Supplied	Percent of New Patients with Post Diagnosis Treatment Episode
<b>All Testosterone Indications</b>							
Female	8,787,616	10,489	18,773	164,729	164,729	288,563	0.12%
Male	5,417,924	229,378	709,395	13,161,068	13,161,068	46,329,250	4.23%
Unknown	4,434	71	156	2,620	2,620	9,230	1.60%
<b>Malignant Neoplasm of Pituitary Gland</b>							
Female	2,522	0	0	0	0	0	0.00%
Male	1,286	107	274	6,225	6,225	24,115	8.32%
Unknown	0	0	0	0	0	0	---
<b>Benign Neoplasm of Pituitary Gland</b>							
Female	41,176	27	34	670	670	1,489	0.07%
Male	14,785	1,449	3,660	89,382	89,382	334,087	9.80%
Unknown	16	0	0	0	0	0	0.00%
<b>Other Pituitary Disorders</b>							
Female	14,822	52	84	1,108	1,108	2,546	0.35%
Male	17,299	5,238	16,162	316,160	316,160	1,115,306	30.28%
Unknown	9	0	0	0	0	0	0.00%
<b>Klinefelter's Syndrome</b>							
Female	94	1	1	1	1	1	1.06%
Male	2,204	430	1,116	24,445	24,445	67,922	19.51%
Unknown	0	0	0	0	0	0	---
<b>Other Testicular Hypofunction</b>							
Female	8,567	528	1,032	9,200	9,200	22,224	6.16%
Male	477,312	153,240	504,095	8,727,733	8,727,733	30,331,688	32.10%
Unknown	212	49	108	2,128	2,128	7,134	23.11%
<b>Depressive Disorder</b>							
Female	2,923,296	1,310	2,138	22,341	22,341	34,343	0.04%
Male	1,343,928	13,178	33,349	666,828	666,828	2,216,047	0.98%
Unknown	1,640	6	11	247	247	641	0.37%

**Table 3b. Summary of Post-Diagnosis Testosterone Product Use Episodes in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013, by Testosterone Indication and Sex**

	New Patients/ Lookup Periods*	New Patients with Incident Post Diagnosis Treatment	Number of Dispensings	Episode Duration (Days)	Days Supplied	Amount Supplied	Percent of New Patients with Post Diagnosis Treatment Episode
<b>Muscular Atrophy</b>							
Female	95,663	38	77	686	686	1,071	0.04%
Male	68,450	498	1,252	22,769	22,769	69,447	0.73%
Unknown	42	0	0	0	0	0	0.00%
<b>Malaise/Fatigue</b>							
Female	6,572,479	6,036	11,283	76,165	76,165	129,758	0.09%
Male	3,904,569	100,018	302,062	5,649,737	5,649,737	19,143,552	2.56%
Unknown	2,913	25	54	783	783	2,820	0.86%
<b>Decreased Libido</b>							
Female	126,947	4,990	9,397	87,488	87,488	143,593	3.93%
Male	124,641	20,495	63,436	1,256,471	1,256,471	4,358,600	16.44%
Unknown	75	4	8	68	68	68	5.33%
<b>Hypoactive Sexual Desire Disorder</b>							
Female	14,784	576	917	12,072	12,072	26,546	3.90%
Male	11,110	1,697	5,098	102,449	102,449	373,119	15.27%
Unknown	5	0	0	0	0	0	0.00%
<b>Unspecified Testicular Dysfunction</b>							
Female	191	5	7	7	7	7	2.62%
Male	10,161	1,396	3,762	74,627	74,627	214,748	13.74%
Unknown	4	0	0	0	0	0	0.00%
<b>Other Testicular Dysfunction</b>							
Female	383	17	34	517	517	1,657	4.44%
Male	26,543	4,427	13,130	243,409	243,409	808,579	16.68%
Unknown	8	3	14	43	43	163	37.50%

\* SING incidence type means the number of new patients = number of new lookup periods since this option only considers the first incident lookup period for each new patient

Table 4. Summary of Incident Testosterone Indication Diagnoses in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013, by Year

	New Patients/ Lookup Periods*	Claims	Lookup Period Duration (Days)	Eligible Members	Member-Years	New Patients per 1,000 Eligible Members
<b>All Testosterone Indications</b>						
2007	1,441,483	5,647,834	247,439,709	23,095,077	16,196,887	62.42
2008	2,385,018	9,230,747	400,411,625	42,922,347	25,831,000	55.57
2009	2,936,900	11,397,524	492,543,714	43,212,227	32,077,180	67.96
2010	2,420,778	9,600,859	405,970,532	39,776,921	29,670,999	60.86
2011	2,212,375	8,927,446	370,734,098	37,659,592	28,316,346	58.75
2012	2,074,457	8,551,818	344,209,349	35,902,577	26,683,737	57.78
2013	738,963	2,516,718	81,651,834	26,526,841	9,402,981	27.86
<b>Malignant Neoplasm of Pituitary Gland</b>						
2007	363	694	61,849	23,095,077	16,312,706	0.02
2008	757	1,358	127,557	44,080,421	26,711,660	0.02
2009	810	1,355	134,800	46,019,072	34,160,689	0.02
2010	671	1,185	111,285	44,225,567	32,949,413	0.02
2011	555	973	94,600	43,060,403	32,357,542	0.01
2012	491	727	80,847	41,917,583	31,172,215	0.01
2013	161	227	17,889	32,010,758	11,152,267	0.01
<b>Benign Neoplasm of Pituitary Gland</b>						
2007	6,124	14,524	1,068,688	23,095,077	16,312,350	0.27
2008	9,187	23,483	1,565,996	44,076,048	26,709,043	0.21
2009	11,022	29,694	1,870,056	46,009,249	34,154,878	0.24
2010	9,273	25,990	1,561,392	44,210,227	32,940,372	0.21
2011	8,751	24,376	1,481,371	43,041,762	32,346,316	0.20
2012	8,541	25,053	1,431,313	41,896,505	31,159,520	0.20
2013	3,079	6,469	348,657	31,992,743	11,147,222	0.10

Table 4. Summary of Incident Testosterone Indication Diagnoses in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013, by Year

	New Patients/ Lookup Periods*	Claims	Lookup Period Duration (Days)	Eligible Members	Member-Years	New Patients per 1,000 Eligible Members
<b>Other Pituitary Disorders</b>						
2007	2,269	3,918	397,521	23,095,077	16,312,574	0.10
2008	4,208	7,628	711,446	44,078,986	26,710,640	0.10
2009	5,740	10,538	966,721	46,015,418	34,158,154	0.12
2010	5,925	10,918	996,452	44,219,302	32,945,123	0.13
2011	5,801	10,583	979,878	43,051,934	32,351,686	0.13
2012	5,834	10,881	982,726	41,907,161	31,165,133	0.14
2013	2,353	3,548	264,774	32,000,885	11,149,254	0.07
<b>Klinefelter's Syndrome</b>						
2007	293	599	51,444	23,095,077	16,312,708	0.01
2008	372	896	62,850	44,080,472	26,711,706	0.01
2009	448	1,012	75,937	46,019,379	34,160,870	0.01
2010	378	916	64,446	44,226,086	32,949,751	0.01
2011	347	766	59,478	43,061,014	32,357,953	0.01
2012	338	849	56,990	41,918,272	31,172,667	0.01
2013	122	261	13,476	32,011,357	11,152,459	0.00
<b>Other Testicular Hypofunction</b>						
2007	20,750	44,196	3,603,031	23,095,077	16,311,536	0.90
2008	46,864	102,814	7,952,795	44,066,541	26,702,056	1.06
2009	74,218	169,122	12,556,315	45,977,531	34,132,614	1.61
2010	81,729	195,978	13,852,035	44,146,407	32,896,522	1.85
2011	94,280	230,741	15,945,885	42,946,012	32,280,837	2.20
2012	118,339	305,461	20,019,085	41,767,561	31,071,495	2.83
2013	49,911	94,021	5,540,542	31,852,748	11,105,619	1.57

Table 4. Summary of Incident Testosterone Indication Diagnoses in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013, by Year

	New Patients/ Lookup Periods*	Claims	Lookup Period Duration (Days)	Eligible Members	Member-Years	New Patients per 1,000 Eligible Members
<b>Depressive Disorder</b>						
2007	502,366	1,030,145	86,169,547	23,095,077	16,276,456	21.75
2008	695,650	1,426,459	116,595,065	43,688,205	26,437,908	15.92
2009	812,119	1,713,913	135,582,506	45,168,305	33,575,231	17.98
2010	712,814	1,541,443	119,069,597	42,946,760	32,068,022	16.60
2011	673,508	1,476,971	112,336,129	41,504,531	31,270,092	16.23
2012	641,071	1,407,226	105,561,566	40,171,847	29,959,955	15.96
2013	231,336	400,938	25,044,088	30,485,924	10,696,680	7.59
<b>Muscular Atrophy</b>						
2007	11,321	59,275	1,931,114	23,095,077	16,311,979	0.49
2008	21,587	108,281	3,626,834	44,071,864	26,705,108	0.49
2009	29,058	147,866	4,867,857	45,995,919	34,143,583	0.63
2010	29,234	144,879	4,898,851	44,186,267	32,920,016	0.66
2011	30,954	145,709	5,139,297	43,007,596	32,317,435	0.72
2012	30,429	131,616	5,031,500	41,853,624	31,126,110	0.73
2013	11,572	40,860	1,208,712	31,950,968	11,132,915	0.36
<b>Malaise/Fatigue</b>						
2007	917,616	1,498,722	157,410,689	23,095,077	16,235,475	39.73
2008	1,697,629	2,776,366	285,199,276	43,331,264	26,117,072	39.18
2009	2,192,300	3,580,056	368,234,136	44,068,387	32,671,033	49.75
2010	1,843,102	3,046,699	309,655,285	41,003,991	30,527,501	44.95
2011	1,691,481	2,822,734	284,208,346	39,067,243	29,319,201	43.30
2012	1,579,728	2,664,925	262,933,530	37,410,166	27,754,063	42.23
2013	558,105	832,390	61,704,422	27,820,397	9,798,057	20.06

Table 4. Summary of Incident Testosterone Indication Diagnoses in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013, by Year

	New Patients/ Lookup Periods*	Claims	Lookup Period Duration (Days)	Eligible Members	Member-Years	New Patients per 1,000 Eligible Members
<b>Decreased Libido</b>						
2007	14,190	18,267	2,473,137	23,095,077	16,311,472	0.61
2008	25,661	34,730	4,372,748	44,068,845	26,702,096	0.58
2009	42,547	60,376	7,257,627	45,989,397	34,136,590	0.93
2010	44,397	63,405	7,550,365	44,168,923	32,905,444	1.01
2011	48,601	71,602	8,249,270	42,979,853	32,294,898	1.13
2012	53,515	80,628	9,048,162	41,815,229	31,093,855	1.28
2013	22,752	31,664	2,577,231	31,903,052	11,118,717	0.71
<b>Hypoactive Sexual Desire Disorder</b>						
2007	1,675	2,368	289,324	23,095,077	16,312,595	0.07
2008	3,474	4,946	586,409	44,079,328	26,710,767	0.08
2009	5,366	7,636	907,217	46,016,016	34,158,258	0.12
2010	4,973	7,323	838,718	44,219,667	32,944,847	0.11
2011	4,475	6,748	756,612	43,052,459	32,351,464	0.10
2012	4,305	6,605	731,558	41,908,444	31,165,246	0.10
2013	1,631	2,294	181,490	32,001,689	11,149,301	0.05
<b>Unspecified Testicular Dysfunction</b>						
2007	532	684	92,289	23,095,077	16,312,684	0.02
2008	1,049	1,462	175,321	44,080,256	26,711,486	0.02
2009	1,574	2,225	265,423	46,018,683	34,160,281	0.03
2010	1,959	2,735	331,927	44,224,680	32,948,594	0.04
2011	2,036	2,975	343,933	43,058,720	32,356,145	0.05
2012	2,287	3,708	386,877	41,915,173	31,170,285	0.05
2013	919	1,324	100,188	32,008,008	11,151,383	0.03

**Table 4. Summary of Incident Testosterone Indication Diagnoses in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013, by Year**

	<b>New Patients/ Lookup Periods*</b>	<b>Claims</b>	<b>Lookup Period Duration (Days)</b>	<b>Eligible Members</b>	<b>Member-Years</b>	<b>New Patients per 1,000 Eligible Members</b>
<b>Other Testicular Dysfunction</b>						
2007	1,270	1,773	219,684	23,095,077	16,312,622	0.05
2008	2,961	4,287	501,271	44,079,690	26,711,026	0.07
2009	4,459	6,633	751,840	46,016,816	34,158,804	0.10
2010	4,692	6,946	797,133	44,221,209	32,945,998	0.11
2011	5,203	7,945	881,009	43,054,048	32,352,700	0.12
2012	5,875	9,455	986,282	41,909,407	31,165,996	0.14
2013	2,474	3,477	272,717	32,002,085	11,149,514	0.08

\* SING incidence type means the number of new patients = number of new lookup periods since this option only considers the first incident lookup period for each new patient

Table 5. Summary of Post-Diagnosis Testosterone Product Use Episodes in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013, by Testosterone Indication and Year

	New Patients/ Lookup Periods*	New Patients with Incident Post Diagnosis Treatment	Number of Dispensings	Episode Duration (Days)	Days Supplied	Amount Supplied	Percentage of New Patients with Post Diagnosis Treatment Episode
<b>All Testosterone Indications</b>							
2007	1,441,483	11,294	33,422	619,153	619,153	2,260,720	0.78%
2008	2,385,018	27,157	77,199	1,523,751	1,523,751	6,349,923	1.14%
2009	2,936,900	42,556	123,624	2,446,698	2,446,698	10,082,363	1.45%
2010	2,420,778	42,744	133,111	2,456,540	2,456,540	9,554,384	1.77%
2011	2,212,375	45,013	142,147	2,528,725	2,528,725	8,230,988	2.03%
2012	2,074,457	54,462	181,895	3,131,361	3,131,361	8,607,041	2.63%
2013	738,963	16,712	36,926	622,189	622,189	1,541,624	2.26%
<b>Malignant Neoplasm of Pituitary Gland</b>							
2007	363	6	9	259	259	1,081	1.65%
2008	757	22	50	1,335	1,335	5,425	2.91%
2009	810	21	51	1,085	1,085	4,593	2.59%
2010	671	24	72	1,582	1,582	6,237	3.58%
2011	555	18	44	1,198	1,198	4,501	3.24%
2012	491	15	46	735	735	2,127	3.05%
2013	161	1	2	31	31	151	0.62%
<b>Benign Neoplasm of Pituitary Gland</b>							
2007	6,124	131	357	7,946	7,946	29,056	2.14%
2008	9,187	244	596	14,018	14,018	56,514	2.66%
2009	11,022	302	726	19,105	19,105	80,777	2.74%
2010	9,273	272	743	17,172	17,172	67,458	2.93%
2011	8,751	249	586	15,041	15,041	51,881	2.85%
2012	8,541	233	609	14,709	14,709	44,098	2.73%
2013	3,079	45	77	2,061	2,061	5,792	1.46%



**Table 5. Summary of Post-Diagnosis Testosterone Product Use Episodes in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013, by Testosterone Indication and Year**

	<b>New Patients/ Lookup Periods*</b>	<b>New Patients with Incident Post Diagnosis Treatment</b>	<b>Number of Dispensings</b>	<b>Episode Duration (Days)</b>	<b>Days Supplied</b>	<b>Amount Supplied</b>	<b>Percentage of New Patients with Post Diagnosis Treatment Episode</b>
<b>Other Pituitary Disorders</b>							
2007	2,269	309	1,095	15,898	15,898	51,326	13.62%
2008	4,208	626	1,891	36,613	36,613	148,207	14.88%
2009	5,740	969	2,973	58,568	58,568	235,871	16.88%
2010	5,925	1,098	3,436	68,346	68,346	259,167	18.53%
2011	5,801	1,010	3,068	62,881	62,881	212,017	17.41%
2012	5,834	986	3,218	62,238	62,238	180,560	16.90%
2013	2,353	292	565	12,724	12,724	30,704	12.41%
<b>Klinefelter's Syndrome</b>							
2007	293	47	98	2,146	2,146	4,851	16.04%
2008	372	62	184	3,356	3,356	9,940	16.67%
2009	448	83	204	4,536	4,536	14,537	18.53%
2010	378	80	200	4,028	4,028	12,112	21.16%
2011	347	69	177	4,555	4,555	13,334	19.88%
2012	338	78	232	5,132	5,132	10,897	23.08%
2013	122	12	22	693	693	2,252	9.84%
<b>Other Testicular Hypofunction</b>							
2007	20,750	5,827	18,964	344,669	344,669	1,283,876	28.08%
2008	46,864	14,720	45,827	886,908	886,908	3,721,885	31.41%
2009	74,218	24,444	76,761	1,459,331	1,459,331	6,051,420	32.94%
2010	81,729	26,984	92,353	1,588,662	1,588,662	6,215,218	33.02%
2011	94,280	30,405	103,674	1,739,200	1,739,200	5,721,234	32.25%
2012	118,339	38,182	136,993	2,230,424	2,230,424	6,131,539	32.26%
2013	49,911	13,255	30,663	489,867	489,867	1,235,874	26.56%

**Table 5. Summary of Post-Diagnosis Testosterone Product Use Episodes in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013, by Testosterone Indication and Year**

	<b>New Patients/ Lookup Periods*</b>	<b>New Patients with Incident Post Diagnosis Treatment</b>	<b>Number of Dispensings</b>	<b>Episode Duration (Days)</b>	<b>Days Supplied</b>	<b>Amount Supplied</b>	<b>Percentage of New Patients with Post Diagnosis Treatment Episode</b>
<b>Depressive Disorder</b>							
2007	502,366	836	2,064	37,938	37,938	117,425	0.17%
2008	695,650	1,834	4,339	84,362	84,362	314,977	0.26%
2009	812,119	2,603	6,123	127,012	127,012	489,515	0.32%
2010	712,814	2,664	6,469	129,351	129,351	458,900	0.37%
2011	673,508	2,799	7,158	133,021	133,021	411,241	0.42%
2012	641,071	3,024	7,881	150,419	150,419	390,922	0.47%
2013	231,336	734	1,464	27,313	27,313	68,051	0.32%
<b>Muscular Atrophy</b>							
2007	11,321	32	78	1,118	1,118	3,075	0.28%
2008	21,587	53	150	2,575	2,575	9,857	0.25%
2009	29,058	79	180	3,842	3,842	13,167	0.27%
2010	29,234	101	293	4,557	4,557	14,960	0.35%
2011	30,954	92	229	3,716	3,716	8,766	0.30%
2012	30,429	160	371	7,189	7,189	19,965	0.53%
2013	11,572	19	28	458	458	728	0.16%
<b>Malaise/Fatigue</b>							
2007	917,616	3,865	10,331	203,341	203,341	763,839	0.42%
2008	1,697,629	10,327	27,165	545,164	545,164	2,277,898	0.61%
2009	2,192,300	17,204	47,100	963,269	963,269	3,922,388	0.78%
2010	1,843,102	18,848	55,251	1,051,649	1,051,649	4,008,650	1.02%
2011	1,691,481	21,004	64,569	1,159,051	1,159,051	3,624,534	1.24%
2012	1,579,728	26,901	90,209	1,516,211	1,516,211	4,000,467	1.70%
2013	558,105	7,930	18,774	288,000	288,000	678,354	1.42%

**Table 5. Summary of Post-Diagnosis Testosterone Product Use Episodes in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013, by Testosterone Indication and Year**

	<b>New Patients/ Lookup Periods*</b>	<b>New Patients with Incident Post Diagnosis Treatment</b>	<b>Number of Dispensings</b>	<b>Episode Duration (Days)</b>	<b>Days Supplied</b>	<b>Amount Supplied</b>	<b>Percentage of New Patients with Post Diagnosis Treatment Episode</b>
<b>Decreased Libido</b>							
2007	14,190	979	2,719	50,598	50,598	161,665	6.90%
2008	25,661	2,271	5,990	112,795	112,795	449,716	8.85%
2009	42,547	4,363	11,980	226,266	226,266	889,880	10.25%
2010	44,397	4,601	13,248	249,731	249,731	936,959	10.36%
2011	48,601	5,156	15,512	277,983	277,983	891,801	10.61%
2012	53,515	6,067	18,984	350,009	350,009	974,880	11.34%
2013	22,752	2,052	4,408	76,645	76,645	197,360	9.02%
<b>Hypoactive Sexual Desire Disorder</b>							
2007	1,675	108	293	4,509	4,509	16,984	6.45%
2008	3,474	244	591	12,531	12,531	52,540	7.02%
2009	5,366	445	1,078	22,351	22,351	90,563	8.29%
2010	4,973	469	1,217	26,210	26,210	103,334	9.43%
2011	4,475	440	1,271	20,808	20,808	61,143	9.83%
2012	4,305	434	1,318	24,249	24,249	67,526	10.08%
2013	1,631	133	247	3,863	3,863	7,575	8.15%
<b>Unspecified Testicular Dysfunction</b>							
2007	532	48	121	2,350	2,350	6,905	9.02%
2008	1,049	129	335	8,028	8,028	31,638	12.30%
2009	1,574	207	538	10,575	10,575	32,871	13.15%
2010	1,959	221	662	12,290	12,290	46,373	11.28%
2011	2,036	257	661	14,209	14,209	40,217	12.62%
2012	2,287	398	1,154	22,503	22,503	50,532	17.40%
2013	919	141	298	4,679	4,679	6,219	15.34%

**Table 5. Summary of Post-Diagnosis Testosterone Product Use Episodes in the Mini-Sentinel Distributed Database (MSDD) between January 1, 2007 and May 31, 2013, by Testosterone Indication and Year**

	<b>New Patients/ Lookup Periods*</b>	<b>New Patients with Incident Post Diagnosis Treatment</b>	<b>Number of Dispensings</b>	<b>Episode Duration (Days)</b>	<b>Days Supplied</b>	<b>Amount Supplied</b>	<b>Percentage of New Patients with Post Diagnosis Treatment Episode</b>
<b>Other Testicular Dysfunction</b>							
2007	1,270	128	411	6,721	6,721	29,415	10.08%
2008	2,961	389	1,239	24,166	24,166	105,587	13.14%
2009	4,459	672	1,955	38,421	38,421	158,505	15.07%
2010	4,692	767	2,255	43,452	43,452	159,260	16.35%
2011	5,203	936	2,901	52,443	52,443	154,766	17.99%
2012	5,875	1,151	3,602	64,673	64,673	171,438	19.59%
2013	2,474	404	815	14,093	14,093	31,428	16.33%

\* SING incidence type means the number of new patients = number of new lookup periods since this option only considers the first incident lookup period for each new patient

**Appendix A. Dates of Available Data for Each Data Partner in the Mini-Sentinel Distributed Database (MSDD) as of Request Distribution Date (March 28, 2014)**

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<b>DP ID</b>	<b>Start Date</b>	<b>End Date</b>
DP001	1/1/2008	5/31/2013
DP002	1/1/2007	5/31/2013
DP003	1/1/2007	6/30/2012
DP004	1/1/2007	5/31/2013
DP005	1/1/2007	4/30/2012
DP006	6/1/2007	4/30/2013
DP007	1/1/2007	3/31/2013
DP008	1/1/2008	5/31/2013
DP009	1/1/2007	12/31/2012
DP010	1/1/2007	5/31/2013
DP011	1/1/2007	12/31/2012
DP012	1/1/2007	5/31/2013
DP013	1/1/2007	6/30/2012
DP014	1/1/2007	5/31/2013
DP015	1/1/2007	5/31/2013
DP016	1/1/2007	12/31/2011
DP017	1/1/2007	5/30/2013
DP018	1/1/2007	5/31/2013

**Appendix B. List of International Classification of Diseases, Ninth Edition, Clinical Modification (ICD-9-CM) Diagnosis Codes used to Define Events of Interest in this Request**

Diagnosis Code	Description	Code Type
194.3*	Malignant neoplasm of pituitary gland and craniopharyngeal duct	ICD-9-CM
227.3*	Benign neoplasm of pituitary gland and craniopharyngeal duct	ICD-9-CM
253.4*	Other anterior pituitary disorders	ICD-9-CM
758.7*	Klinefelter's syndrome	ICD-9-CM
257.2*	Other testicular hypofunction	ICD-9-CM
311*	Depressive disorder, not elsewhere classified	ICD-9-CM
728.2*	Muscular wasting and disuse atrophy, not elsewhere classified	ICD-9-CM
780.79	Other malaise and fatigue	ICD-9-CM
799.81	Decreased libido	ICD-9-CM
302.71	Hypoactive sexual desire disorder	ICD-9-CM
257.8*	Other testicular dysfunction	ICD-9-CM
257.9*	Unspecified testicular dysfunction	ICD-9-CM

\*signifies "starts with." For example, 194.3\* will consider 194.3, 194.30, 194.31, 194.32, and so on.

**Appendix C. List of Generic and Brand Drug Names Used to Define Testosterone Product Use in this Request**

<b>Generic Name</b>	<b>Brand Name</b>
	<b>Androgel</b>
TESTOSTERONE	ANDROGEL
	<b>Testosterone Cypionate</b>
TESTOSTERONE CYPIONATE	DEPO-TESTOSTERONE
TESTOSTERONE CYPIONATE	ANDRO-CYP 100
TESTOSTERONE CYPIONATE	ANDRO-CYP 200
TESTOSTERONE CYPIONATE	ANDRO-CYPIONATE
TESTOSTERONE CYPIONATE	ANDRONAQ-LA
TESTOSTERONE CYPIONATE	DEP ANDRO 200
TESTOSTERONE CYPIONATE	DEP-ANDRO 100
TESTOSTERONE CYPIONATE	DEPATESONE-100
TESTOSTERONE CYPIONATE	DEPATESONE-200
TESTOSTERONE CYPIONATE	DEPO-ARTEST 100
TESTOSTERONE CYPIONATE	DEPO-ARTEST 200
TESTOSTERONE CYPIONATE	DEPOTEST
TESTOSTERONE CYPIONATE	D-TES 100
TESTOSTERONE CYPIONATE	D-TES 200
TESTOSTERONE CYPIONATE	DURATEST-100
TESTOSTERONE CYPIONATE	DURATEST-200
TESTOSTERONE CYPIONATE	ED-TEST 200
TESTOSTERONE CYPIONATE	MALOGEN CYP
TESTOSTERONE CYPIONATE	MEDITEST
TESTOSTERONE CYPIONATE	RU-ANDROSPAN
TESTOSTERONE CYPIONATE	SHOTEST LA
TESTOSTERONE CYPIONATE	TESIONATE
TESTOSTERONE CYPIONATE	TESTA C
TESTOSTERONE CYPIONATE	TESTA SPAN
TESTOSTERONE CYPIONATE	TESTO NATE 100 LA
TESTOSTERONE CYPIONATE	TESTOJECT-LA
TESTOSTERONE CYPIONATE	TESTOSTERONE CYPIONATE
TESTOSTERONE CYPIONATE	TESTRA-D 100
TESTOSTERONE CYPIONATE	TESTRA-D 200
TESTOSTERONE CYPIONATE	THERANATE
TESTOSTERONE CYPIONATE	TESTRED CYPIONATE 200
TESTOSTERONE CYPIONATE	VIRILON-IM
	<b>Axiron</b>
TESTOSTERONE	AXIRON
	<b>Fortesta</b>
TESTOSTERONE	FORTESTA
	<b>Testim</b>
TESTOSTERONE	TESTIM
	<b>Striant</b>
TESTOSTERONE	STRIANT

**Appendix C. List of Generic and Brand Drug Names Used to Define Testosterone Product Use in this Request**

<b>Generic Name</b>	<b>Brand Name</b>
<b>Testosterone Transdermal Other</b>	
TESTOSTERONE	ANDRODERM
TESTOSTERONE	TESTODERM
TESTOSTERONE	TESTODERM TTS
<b>Testopel</b>	
TESTOSTERONE	TESTOPEL
<b>Methyltestosterone Oral</b>	
METHYLTESTOSTERONE	ANDROID
METHYLTESTOSTERONE	ANDROID-10
METHYLTESTOSTERONE	ANDROID-25
METHYLTESTOSTERONE	METANDREN
METHYLTESTOSTERONE	METESTONE
METHYLTESTOSTERONE	METHITEST
METHYLTESTOSTERONE	PRIMOTEST
METHYLTESTOSTERONE	VIGOREX
METHYLTESTOSTERONE	METHYLTESTOSTERONE
METHYLTESTOSTERONE	ORETON METHYL
METHYLTESTOSTERONE	TESTRED
METHYLTESTOSTERONE	VIRILON
<b>Testosterone Intramuscular Other</b>	
TESTOSTERONE ENANTHATE	DELATESTRYL
TESTOSTERONE PROPIONATE	ANDO
TESTOSTERONE PROPIONATE	ANDROLAN
TESTOSTERONE PROPIONATE	TESTOSTERONE PROPIONATE
TESTOSTERONE	ANDO
TESTOSTERONE	ANDRO 100
TESTOSTERONE	ANDROLAN
TESTOSTERONE	ED-TEST
TESTOSTERONE	HISTERONE-100
TESTOSTERONE	HOMOGENE-S
TESTOSTERONE	SHOTEST
TESTOSTERONE	TESONE-100
TESTOSTERONE	TESTAQUA
TESTOSTERONE	TESTOSTERONE
TESTOSTERONE	TESTRO
TESTOSTERONE	TESTRON 100
TESTOSTERONE ENANTHATE	ANDO LONG LASTING
TESTOSTERONE ENANTHATE	ANDRO LA 200
TESTOSTERONE ENANTHATE	ANDRYL
TESTOSTERONE ENANTHATE	ANTHATEST
TESTOSTERONE ENANTHATE	DURATHATE-200
TESTOSTERONE ENANTHATE	EVERONE
TESTOSTERONE ENANTHATE	MALOGEN LA
TESTOSTERONE ENANTHATE	PRIMOTEST DEPOT 200



**Appendix C. List of Generic and Brand Drug Names Used to Define Testosterone Product Use in this Request**

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<b>Generic Name</b>	<b>Brand Name</b>
TESTOSTERONE ENANTHATE	REPOSTERONE
TESTOSTERONE ENANTHATE	RUSS-TEST
TESTOSTERONE ENANTHATE	TES 200
TESTOSTERONE ENANTHATE	TESTONE LA
TESTOSTERONE ENANTHATE	TESTOSTERONE ENANTHATE
TESTOSTERONE ENANTHATE	TESTRO LA
TESTOSTERONE ENANTHATE	TESTRONATE
TESTOSTERONE	ANDROID-T

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

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<b>Code</b>	<b>Description</b>	<b>Code Type</b>
J1070	Injection, testosterone cypionate, up to 100 mg	HCPCS
J1080	Injection, testosterone cypionate, 1 cc, 200 mg	HCPCS
J3140	Injection, testosterone suspension, up to 50 mg	HCPCS
J3120	Injection, testosterone enanthate, up to 100 mg	HCPCS
J3130	Injection, testosterone enanthate, up to 200 mg	HCPCS
J3150	Injection, testosterone propionate, up to 100 mg	HCPCS
S0189	Testosterone pellet, 75mg	HCPCS

**Appendix E. Specifications for Parameters for this Request**

Modular Program #6 (MP6) was used to investigate the number of individuals with incident and prevalent diagnosis for a testosterone-related indication and the number of those individuals who received a testosterone product in the following 6 months (scenarios 1-13). It also investigated acute myocardial infarction (AMI) and stroke among members overall and those with a pre-existing condition of one of the specified testosterone indications (scenarios 14-17). In total, 17 different scenarios are examined in this report with differing exposures of interest and pre-existing condition criteria. See below for a description of each of these scenarios.

**Coverage Requirement** Drug and Medical Coverage  
**Query Period** January 1, 2007 to May 31, 2013  
**Enrollment Gap** 45 Days  
**Enrollment Days** 183  
**Age Stratifications** 0-39, 40-64, 65-74, 75+ years  
**Minimum Lookup** 0 Days

Scenario	Exposure Criteria (Event file in MP6)						Exclusion/Inclusion Criteria						Outcome (Post-event treatment file in MP6)					
	Incident exposure	Incident with respect to:	Incidence Type	Washout Period (days)	Lookup Period (Days)	Care Setting	Condition	Exclude/Include	Lookback Period Start	Lookback Period End	Care Setting	Principal Diagnosis	Event/ Outcome	Incident with respect to:	Incidence Type	Washout Period (days)	Care Setting	Principal Diagnosis
1	Malignant neoplasm of pituitary gland	All testosterone indications	SING	183	183	Any	None	n/a	n/a	n/a	n/a	n/a	Any testosterone use (NDCs and Procedure codes)	Any testosterone use (NDCs and Procedure codes)	MULT	183	Any	Any
2	Benign neoplasm of pituitary gland	All testosterone indications	SING	183	183	Any	None	n/a	n/a	n/a	n/a	n/a	Any testosterone use (NDCs and Procedure codes)	Any testosterone use (NDCs and Procedure codes)	MULT	183	Any	Any
3	Other pituitary disorders	All testosterone indications	SING	183	183	Any	None	n/a	n/a	n/a	n/a	n/a	Any testosterone use (NDCs and Procedure codes)	Any testosterone use (NDCs and Procedure codes)	MULT	183	Any	Any
4	Klinefelter's syndrome	All testosterone indications	SING	183	183	Any	None	n/a	n/a	n/a	n/a	n/a	Any testosterone use (NDCs and Procedure codes)	Any testosterone use (NDCs and Procedure codes)	MULT	183	Any	Any
5	Other testicular hypofunction	All testosterone indications	SING	183	183	Any	None	n/a	n/a	n/a	n/a	n/a	Any testosterone use (NDCs and Procedure codes)	Any testosterone use (NDCs and Procedure codes)	MULT	183	Any	Any
6	Depressive Disorder	All testosterone indications	SING	183	183	Any	None	n/a	n/a	n/a	n/a	n/a	Any testosterone use (NDCs and Procedure codes)	Any testosterone use (NDCs and Procedure codes)	MULT	183	Any	Any
7	Muscular atrophy	All testosterone indications	SING	183	183	Any	None	n/a	n/a	n/a	n/a	n/a	Any testosterone use (NDCs and Procedure codes)	Any testosterone use (NDCs and Procedure codes)	MULT	183	Any	Any

Scenario	Exposure Criteria (Event file in MP6)						Exclusion/Inclusion Criteria						Outcome (Post-event treatment file in MP6)					
	Incident exposure	Incident with respect to:	Incidence Type	Washout Period (days)	Lookup Period (Days)	Care Setting	Condition	Exclude/Include	Lookback Period Start	Lookback Period End	Care Setting	Principal Diagnosis	Event/ Outcome	Incident with respect to:	Incidence Type	Washout Period (days)	Care Setting	Principal Diagnosis
8	Malaise/fatigue	All testosterone indications	SING	183	183	Any	None	n/a	n/a	n/a	n/a	n/a	Any testosterone use (NDCs and Procedure codes)	Any testosterone use (NDCs and Procedure codes)	MULT	183	Any	Any
9	Decreased libido	All testosterone indications	SING	183	183	Any	None	n/a	n/a	n/a	n/a	n/a	Any testosterone use (NDCs and Procedure codes)	Any testosterone use (NDCs and Procedure codes)	MULT	183	Any	Any
10	Hypoactive sexual desire disorder	All testosterone indications	SING	183	183	Any	None	n/a	n/a	n/a	n/a	n/a	Any testosterone use (NDCs and Procedure codes)	Any testosterone use (NDCs and Procedure codes)	MULT	183	Any	Any
11	Other testicular dysfunction	All testosterone indications	SING	183	183	Any	None	n/a	n/a	n/a	n/a	n/a	Any testosterone use (NDCs and Procedure codes)	Any testosterone use (NDCs and Procedure codes)	MULT	183	Any	Any
12	Unspecified testicular dysfunction	All testosterone indications	SING	183	183	Any	None	n/a	n/a	n/a	n/a	n/a	Any testosterone use (NDCs and Procedure codes)	Any testosterone use (NDCs and Procedure codes)	MULT	183	Any	Any
13	All testosterone indications	All testosterone indications	SING	183	183	Any	None	n/a	n/a	n/a	n/a	n/a	Any testosterone use (NDCs and Procedure codes)	Any testosterone use (NDCs and Procedure codes)	MULT	183	Any	Any

National Drug Codes (NDCs) checked against First Data Bank's "National Drug Data File (NDDF®) Plus"

International Classification of Diseases, Ninth Edition, Clinical Modification (ICD-9-CM) diagnosis and procedure codes checked against "Ingenix 2012 ICD-9-CM Data File" provided by OptumInsight

Healthcare Common Procedure Coding System (HCPCS) codes checked against "Optum 2012 HCPCS Level II Data File" provided by OptumInsight

Current Procedural Terminology, Fourth Revision (CPT-4) codes checked against "Optum 2012 Current Procedure Codes & Relative Values Data File" provided by OptumInsight