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Memorandum

To: North Carolina State Health Plan
From: Kenneth C Vieira, Senior Vice President
Date: September 18, 2023
Re: Actuarial Review of GLP-1 Medication Costs

The North Carolina State Health Plan (SHP) asked Segal to review the new GLP-1 medications and management opportunities available to the plan. The SHP has seen a tremendous spike in their spend related to Weight Loss Drugs, specifically the impact of the newer Anti-Obesity Medications (AOMs) like Wegovy and Saxenda. Segal conducted a clinical review by Eileen Pincay and delivered an initial memo to the SHP on August 28, 2023. As a follow-up to that memo, SHP asked Segal to prepare an actuarial analysis of these new/costly drugs, utilizing studies currently available and data reported from CVS. In our analysis we have included expected utilization and costs of the drugs, as well as a potential offset to their medical spend. We will detail each component and the key assumptions utilized. This memo will address costs as it relates to the category of Weight Loss Drugs and GLP-1 Medications, not focusing on those currently used in connection with diabetes.

Projection of the Pharmacy Cost

To project the total expenditures Segal needed to quantify how many people would utilize the drugs annually through 2030. The first step it to estimate the number of adults considered obese in the population and therefore covered by the AOMs. The CDC published the % obese by state¹, with details from 2011 (29.1%) through 2021 (36%). Segal fit this into a regression model and projected the percentages through 2030, ending at 41%. We applied the percentage to the adult population we have projected in the quarterly financials, utilizing those enrollment growth assumptions, resulting in number of obese adults in the SHP population.

In conjunction with the growth in obesity, there has been a growth in these members who take the AOMs. Utilization has grown from 4.1% in 2020, to 20.2% projected in 2023. Segal further projected this to increase to 30% in 2024 and ultimately to over 50% by 2030. Assuming a similar scripts per utilizer, noting that a high percentage of users stop taking the drugs, we expect the number of scripts to grow from 28k in 2020 and 145k in 2023, to nearly 424k by 2030. This annual growth rate of 16% is consistent with market research reports published by Fortune Business Insights² (26.1%) and Allied Market Research³ (10.7%).

Segal received from CVS the projected 2024 gross cost for Wegovy & Saxenda, \$1,351 per script. After rebates [REDACTED] and cost sharing [REDACTED], the SHP is projected to pay \$651 per script.

¹ <https://www.cdc.gov/obesity/index.html>

² <https://www.fortunebusinessinsights.com/anti-obesity-drugs-market-104783>

³ <https://www.alliedmarketresearch.com/press-release/anti-obesity-drugs-market.html>

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With gross costs assumed to trend slightly higher than rebates (5% vs. 7%), the SHP net cost per script is expected to grow to \$779 by 2030, approximately 3% per year. We made this assumption based on other high-priced drugs that eventually get competition and use rebate increases to control net prices.

With all these items considered, we are projecting that SHP net costs for GLP1s related to Weight Loss (AOMs), will grow from \$28M in 2020 and \$112M in total 2023, to over \$330M by 2030.

Year	Scripts	Total Cost			SHP
		Gross	Members	Rebate	
2020	28,494	\$37,544,957			\$28,048,186
2021	33,904	\$46,358,363			\$33,587,238
2022	59,269	\$80,499,297			\$60,713,781
2023	145,631	\$196,130,168			\$112,308,018
2024	220,182	\$297,463,076			\$143,396,644
2025	283,081	\$401,562,283			\$190,348,379
2026	325,075	\$484,188,158			\$225,502,826
2027	360,515	\$563,824,418			\$257,784,940
2028	389,028	\$638,837,886			\$286,480,971
2029	410,278	\$707,419,669			\$310,862,785
2030	423,933	\$767,512,117			\$330,168,487

Additional details can be found in **Exhibit 1**.

Medical Cost Savings

There are studies available showing the expected claims savings from reducing a member's weight. The most applicable study was published in 2021, "*Economic value of nonsurgical weight loss in adults with obesity*"⁴. This cohort study listed members cost reduction in the years after weight loss, quantifying it by percentage of bodyweight lost: 3-5%, 5-10% and 10%+. We compared the published numbers to other studies that detail the additional cost of obesity, including: "*Association of body mass index with health care expenditures in the US by age/sex*"⁵ and "*Direct medical costs of obesity in the United States and the most populous states*"⁶. Similar cost relationships were seen in these other studies.

We mentioned earlier that a high percentage of members who start taking the drugs do not make it through a complete year. A study done by Prime Therapeutics⁷ showed that 27% of members who started taking Wegovy were compliant and still taking it a year later. We used this percentage in the projection since it is consistent with our script average of 4.3 scripts per utilizer, implying the remaining 73% use 1-2 scripts on average before quitting.

Reports indicate that once a utilizer stops taking the medicine, they will regain a large percentage of what was lost. A study published in 2022, "*Weight regain and cardiometabolic effects after withdrawal of semaglutide: The STEP 1 trial extension*"⁸, showed a 17.3% mean

⁴ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10394211/>

⁵ <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0247307>

⁶ <https://pubmed.ncbi.nlm.nih.gov/33470881/>

⁷ <https://www.primetherapeutics.com/news/real-world-analysis-of-glp-1a-drugs-for-weight-loss-finds-low-adherence-and-increased-cost-in-first-year/>

⁸ <https://pubmed.ncbi.nlm.nih.gov/35441470/>

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weight loss over 60 weeks. It then went on to say that those who go off the medicine gain back 11.6%, leaving a net weight loss of 5.7%. The study has the 5.7% decreasing over time and the trajectory would likely end with minimal weight loss after 2 years.

With the above in mind, we estimated that those who quit after taking the medicine for a year and losing a substantial amount of weight, would keep a moderate savings for the following two years. After that, they would revert back to their original state.

In order to project out the savings, we assumed that 27% of those who take the drug, finish out the year and achieve the weight loss savings. We then track people over the periods to give them savings associated with the timesince first taking the drugs. It can be somewhat confusing, but in general the savings is bracketed based on remaining weight loss:

- First year – savings 3-5% as they begin to achieve weight loss over the year
- 2nd year – savings 10%+ after 1 year
- 3rd year – savings 10%+ after 2+ years
- Quit – the 73% who quit after making it through the year are assumed to get 3-5% residual savings for two additional years

The amount above looks reasonable and were derived from the studies discussed earlier, with costs based on the applicable weight loss brackets.

Integrating all the assumptions above, we projected that medical cost savings will increase from \$13M in 2023 to over \$99M in 2030. Although this seems like a significant medical savings, the costs of the AOMs are much higher, \$330M in that same year.

Year	Total Utilizers	Utilizers Who Complete Year	Total Medical Claims Savings		
			Still on Rx	Quit After Year	Total
2020	6,532	1,764	\$1,487,139	\$0	\$1,487,139
2021	8,791	2,374	\$3,161,554	\$534,225	\$3,695,779
2022	13,783	3,721	\$5,043,929	\$1,340,928	\$6,384,857
2023	33,867	9,144	\$11,884,380	\$2,113,751	\$13,998,132
2024	51,203	13,825	\$21,716,576	\$4,774,059	\$26,490,634
2025	65,831	17,774	\$31,389,874	\$9,119,855	\$40,509,729
2026	75,596	20,411	\$40,066,201	\$13,424,801	\$53,491,002
2027	83,838	22,636	\$48,117,177	\$17,358,487	\$65,475,664
2028	90,469	24,427	\$56,106,315	\$20,938,475	\$77,044,790
2029	95,410	25,761	\$63,845,540	\$24,494,083	\$88,339,623
2030	98,586	26,618	\$71,124,870	\$27,948,684	\$99,073,554

Note that all the cost numbers were trended at 7% to be consistent with our SHP financial models. Additional details can be found in **Exhibit 2**.

Net Cost To SHP

Overall, the cost of the AOMs are far greater than the offsetting medical savings. Below is a summary by year:

Year	Drug Cost	Medical Savings	Net Loss	Cummulative Loss
2020	\$28,048,186	\$1,487,139	\$26,561,047	\$26,561,047
2021	\$33,587,238	\$3,695,779	\$29,891,460	\$56,452,507
2022	\$60,713,781	\$6,384,857	\$54,328,924	\$110,781,431
2023	\$112,308,018	\$13,998,132	\$98,309,886	\$209,091,317
2024	\$143,396,644	\$26,490,634	\$116,906,010	\$325,997,327
2025	\$190,348,379	\$40,509,729	\$149,838,650	\$475,835,977
2026	\$225,502,826	\$53,491,002	\$172,011,823	\$647,847,800
2027	\$257,784,940	\$65,475,664	\$192,309,276	\$840,157,076
2028	\$286,480,971	\$77,044,790	\$209,436,181	\$1,049,593,257
2029	\$310,862,785	\$88,339,623	\$222,523,161	\$1,272,116,418
2030	\$330,168,487	\$99,073,554	\$231,094,933	\$1,503,211,351

Without any changes from SHP, losses will continue to grow and be over \$231M by 2030. Cumulatively, the total loss will reach \$1.5B by 2030.

At this point, the excessive cost of the drugs are not supported by the savings achieved by moderate weight loss. This is even more evident in the fact that, without behavior modifications, members tend to gain the majority of the weight back when they go off the medication.

AOMs Utilized by Diabetics

As we've discussed in our prior memo, there were GLP1's being used by Diabetics that have a side effect of weight loss. Some of these common drugs are Ozempic and Trulicity, as well as the newest drug, Monjourno. Note that these drugs are approved for anti-diabetic medications, not weight loss. They are typically an integral part of a diabetic's clinical approach. Note that Medicare also covers these drugs for diabetics.

Similar to the projection of the users for the AOMs, Segal utilized historical data and public information to project out the number of diabetics in the SHP adult population. The percentage of adult diabetics in North Carolina was found in a document from the American Diabetes Association⁹.

Segal utilized projected 2024 cost and rebate information received from CVS. Note that rebates have grown from █% in 2022 to █% in 2023. This has kept the net cost increase down for the SHP, but that rebate growth is not expected to continue.

SHP net costs are expected to grow from \$53M in 2020 to over \$173M by 2030. A summary of the result can be found on the following page, with details in **Exhibit 3**.

⁹ chrome-extension://efaidnbmnribpcajpcglclefindmkaj/https://diabetes.org/sites/default/files/2023-03/ADV_2023_State_Fact_sheets_all_rev_NC.pdf

Year	Scripts	Total Cost			SHP
		Gross	Members	Rebate	
2020	81,450	\$82,720,261			\$53,368,587
2021	103,037	\$109,923,588			\$71,259,608
2022	136,951	\$148,281,772			\$95,861,029
2023	215,913	\$232,436,472			\$82,997,212
2024	239,451	\$257,272,825			\$91,139,624
2025	259,859	\$293,160,812			\$104,453,451
2026	277,111	\$328,254,265			\$117,597,546
2027	292,910	\$364,317,414			\$131,193,989
2028	307,096	\$401,059,506			\$145,134,695
2029	319,541	\$438,179,031			\$159,305,744
2030	330,122	\$475,321,978			\$173,572,299

It is difficult to do a cost savings similar to what was done for the AOMs earlier. We anticipate most of these members being diabetics and it is an integral part of their overall treatment. Breaking out the GLP1 component specifically is not practical and minimal published information is available to support a projection.

Unfortunately, there are issues with these drugs being used “off label”, meaning members may try to use them for purposes that they were not approved for. In this case, weight loss. We would typically expect 10% of these to be used “off-label” when weight loss drugs are no longer covered. This could lead to additional spend of up to \$17M in 2030, but these are very rough estimates and will depend on the strictness of the PAs in place. Note that this leakage is much less than the projected costs for AOMs discussed earlier (\$330M in 2030).

Summary

The projected costs for covering AOMs are significant and demonstrate the excessive price of these drugs are not justified through medical cost savings. As time passes, we would expect the costs to drop, likely through enhanced rebates, much like Ozempic has done.

We believe the estimates are fair and represent a reasonable estimate of the cost/savings. The numbers and assumptions can be tweaked somewhat, but the overall results do not change significantly.

cc: Stuart Wohl, Segal
Eileen Pincay, Segal
Steve Kuhn, Segal

**North Carolina State Health Plan
Projection of Weight Loss Drug Costs*
Primarily Wegovy & Saxenda**

Year	Adult Members	% Obese	Adult Obese	% Take	Utilizers	Total Scripts	Scripts Per Utilizer	Gross Cost		Copay	Paid	7%			Net Cost	
								Total	Per Script			Rebate Per Script	% of Gross	Rebates	Total	Per Script
2020	476,415	33.6%	160,075	0	6,532	28,494	4.4	\$ 37,544,957	\$ 1,318			\$		\$	\$ 28,048,186	\$ 984
2021	477,132	36.0%	171,768	5.1%	8,791	33,904	3.9	\$ 46,358,363	\$ 1,367			\$		\$	\$ 33,587,238	\$ 991
2022	473,193	35.6%	168,689	8.2%	13,783	59,269	4.3	\$ 80,499,297	\$ 1,358			\$		\$	\$ 60,713,781	\$ 1,024
2023	462,522	36.3%	167,950	20.2%	33,867	145,631	4.3	\$ 196,130,168	\$ 1,347			\$		\$	\$ 112,308,018	\$ 771
2024	461,608	37.0%	170,677	30.0%	51,203	220,182	4.3	\$ 297,463,076	\$ 1,351			\$		\$	\$ 143,396,644	\$ 651
2025	460,284	37.6%	173,238	38.0%	65,831	283,081	4.3	\$ 401,562,283	\$ 1,419			\$		\$	\$ 190,348,379	\$ 672
2026	459,021	38.3%	175,805	43.0%	75,596	325,075	4.3	\$ 484,188,158	\$ 1,489			\$		\$	\$ 225,502,826	\$ 694
2027	457,818	39.0%	178,378	47.0%	83,838	360,515	4.3	\$ 563,824,418	\$ 1,564			\$		\$	\$ 257,784,940	\$ 715
2028	456,618	39.6%	180,937	50.0%	90,469	389,028	4.3	\$ 638,837,886	\$ 1,642			\$		\$	\$ 286,480,971	\$ 736
2029	455,422	40.3%	183,481	52.0%	95,410	410,278	4.3	\$ 707,419,669	\$ 1,724			\$		\$	\$ 310,862,785	\$ 758
2030	454,228	41.0%	186,011	53.0%	98,586	423,933	4.3	\$ 767,512,117	\$ 1,810			\$		\$	\$ 330,168,487	\$ 779

* Note this does not include drugs utilized by diabetics

**Redactions provided by CVS Caremark
at the request of Novo Nordisk**

**North Carolina State Health Plan
Projection of Weight Loss Drugs Medical Cost Savings
Primarily Wegovy & Saxenda**

Weight Loss	PMPM Savings - 2017	
	Afer 1 Year	After 2+ Years
3-5%	\$57.36	\$26.38
5%-10%	\$135.35	\$157.41
10%+	\$193.54	\$185.41

% Who Take for entire year	27%
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Savings Trend	7%
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Year	Obese Adults	Utilizers	Utilizers who Complete Year	Duration since completion of a year				Projected Monthly Savings				Projected Medical Savings		
				First Year	2nd Year	3rd Year+	Quit	3-5%	10%+	10%+	3-5%	Taking Medicine	Quit Medicine	Total
								First Year	2nd Year	3rd Year+	Quit			
2020	160,075	6,532	1,764	1,764	-	-	-	\$ 70	\$ 237	\$ 227	\$ 32	\$ 1,487,139	\$ -	\$ 1,487,139
2021	171,768	8,791	2,374	1,897	476	-	1,287	\$ 75	\$ 254	\$ 243	\$ 35	\$ 3,161,554	\$ 534,225	\$ 3,695,779
2022	168,689	13,783	3,721	3,081	512	129	3,020	\$ 80	\$ 271	\$ 260	\$ 37	\$ 5,043,929	\$ 1,340,928	\$ 6,384,857
2023	167,950	33,867	9,144	8,139	832	173	4,449	\$ 86	\$ 290	\$ 278	\$ 40	\$ 11,884,380	\$ 2,113,751	\$ 13,998,132
2024	170,677	51,203	13,825	11,356	2,198	271	9,392	\$ 92	\$ 311	\$ 298	\$ 42	\$ 21,716,576	\$ 4,774,059	\$ 26,490,634
2025	173,238	65,831	17,774	14,042	3,066	667	16,767	\$ 99	\$ 333	\$ 319	\$ 45	\$ 31,389,874	\$ 9,119,855	\$ 40,509,729
2026	175,805	75,596	20,411	15,612	3,791	1,008	23,067	\$ 105	\$ 356	\$ 341	\$ 48	\$ 40,066,201	\$ 13,424,801	\$ 53,491,002
2027	178,378	83,838	22,636	17,125	4,215	1,296	27,875	\$ 113	\$ 381	\$ 365	\$ 52	\$ 48,117,177	\$ 17,358,487	\$ 65,475,664
2028	180,937	90,469	24,427	18,315	4,624	1,488	31,424	\$ 121	\$ 407	\$ 390	\$ 56	\$ 56,106,315	\$ 20,938,475	\$ 77,044,790
2029	183,481	95,410	25,761	19,166	4,945	1,650	34,356	\$ 129	\$ 436	\$ 418	\$ 59	\$ 63,845,540	\$ 24,494,083	\$ 88,339,623
2030	186,011	98,586	26,618	19,663	5,175	1,781	36,637	\$ 138	\$ 466	\$ 447	\$ 64	\$ 71,124,870	\$ 27,948,684	\$ 99,073,554

**North Carolina State Health Plan
Projection of GLP1s for Diabetics
Primarily Ozempic, Trulicity & Monjourno**

Year	Adult Members	% Diabetic	Adult Diabetics		Utilizers	Total Scripts	Scripts Per Utilizer	Gross Cost		Copay	Paid	5%		Net Cost		
			Diabetics	% Take				Total	Per Script			Rebate Per Script	% of Gross	Rebates	Total	Per Script
2020	476,415	10.5%	50,086	0	14,188	81,450	5.7	\$ 82,720,261	\$ 1,016	\$	\$	\$	\$	\$	\$ 53,368,587	\$ 655
2021	477,132	10.8%	51,330	36.6%	18,788	103,037	5.5	\$ 109,923,588	\$ 1,067	\$	\$	\$	\$	\$	\$ 71,259,608	\$ 692
2022	473,193	11.1%	52,326	50.3%	26,324	136,951	5.2	\$ 148,281,772	\$ 1,083	\$	\$	\$	\$	\$	\$ 95,861,029	\$ 700
2023	462,522	11.4%	52,533	60.5%	31,794	215,913	6.8	\$ 232,436,472	\$ 1,077	\$	\$	\$	\$	\$	\$ 82,997,212	\$ 384
2024	461,608	11.7%	53,814	65.5%	35,260	239,451	6.8	\$ 257,272,825	\$ 1,074	\$	\$	\$	\$	\$	\$ 91,139,624	\$ 381
2025	460,284	12.0%	55,041	69.5%	38,265	259,859	6.8	\$ 293,160,812	\$ 1,128	\$	\$	\$	\$	\$	\$ 104,453,451	\$ 402
2026	459,021	12.3%	56,267	72.5%	40,806	277,111	6.8	\$ 328,254,265	\$ 1,185	\$	\$	\$	\$	\$	\$ 117,597,546	\$ 424
2027	457,818	12.6%	57,493	75.0%	43,132	292,910	6.8	\$ 364,317,414	\$ 1,244	\$	\$	\$	\$	\$	\$ 131,193,989	\$ 448
2028	456,618	12.9%	58,712	77.0%	45,221	307,096	6.8	\$ 401,059,506	\$ 1,306	\$	\$	\$	\$	\$	\$ 145,134,695	\$ 473
2029	455,422	13.2%	59,925	78.5%	47,054	319,541	6.8	\$ 438,179,031	\$ 1,371	\$	\$	\$	\$	\$	\$ 159,305,744	\$ 499
2030	454,228	13.5%	61,130	79.5%	48,612	330,122	6.8	\$ 475,321,978	\$ 1,440	\$	\$	\$	\$	\$	\$ 173,572,299	\$ 526

* Note this does not include drugs utilized by diabetics

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