

Commonwealth of Kentucky

Kentucky Employees' Health Plan

**Actuarial Reserve Study
March 31, 2023**

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May 2023

Commonwealth of Kentucky

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EXECUTIVE SUMMARY

Aon has conducted an actuarial valuation of the incurred, but not paid, claims as of March 31, 2022, for the medical and prescription drug benefits provided by Kentucky Employees' Health Plan (KEHP) and administered through Humana and Express Scripts (ESI) prior to 2015. Beginning from 2015, medical and prescription drug benefits are administered through Anthem and Caremark.

The results show a projected total reserve of approximately \$159.0 million. This figure includes \$7.6 million as an explicit provision for adverse experience. Claims that have been processed and paid, and invoiced to KEHP but not yet paid are excluded from these actuarial estimates, though this may represent an additional liability outside the scope of this actuarial review. The estimates provided also exclude unallocated amounts, which are believed to be immaterial to the Plan.

The details of the Unpaid Claim Reserve are shown in separate exhibits for Medical, Pharmacy, CDHP Health Reimbursement Arrangement (HRA) and the Waiver Credit HRA.

The traditional actuarial loss developmental method and Bornhuetter-Ferguson method were the basis of our calculation. The loss development uses historical paid claims information by incurred date. This method is consistent with reserve calculations within the industry, and best reflects the impact on claim payment patterns and accounts for the cyclical nature of the Plan's claims.

In accordance with GASB 10, to the extent that future billed premiums for the 2023 plan year are not sufficient to cover future incurred claims and administrative fees for the 2023 plan year, a "premium deficiency reserve" (PDR) in the amount of the difference should be estimated. As of March 31, 2023, due to the estimated revenue (\$1,597.0 million) being insufficient to cover the estimated program expenses (\$1,597.6 million), there is an additional premium deficiency reserve of \$0.6 million.

Also included in this report are the actual Rx rebates paid from January 1, 2020 to December 31, 2022 and the estimated Rx rebate from January 1, 2023 to March 31, 2023.

The results mentioned above are contingent upon future events. Consequently, actual results will differ from projected results. These deviations may be material. KEHP staff should monitor emerging experience and take appropriate actions as required.

**ACTUARIAL CERTIFICATION
STATEMENT OF OPINION**

Aon has been retained by the Commonwealth of Kentucky to study the actuarial reserves for incurred but not paid claims as of March 31, 2023, for the medical and prescription drug benefits provided by Kentucky Employees' Health Plan. I am employed by Aon. I am a Member of the Society of Actuaries and am qualified by education and experience to make the statements of actuarial opinion contained herein.

In performing our reserve study, we have relied upon reports and information provided by Merative, the carriers and The Commonwealth of Kentucky. We have not audited this data beyond general tests for reasonableness. The results are our best estimate of incurred but unpaid claims with explicit margins for adverse deviation. The techniques and methodology used are reasonable and in accordance with generally accepted actuarial principles and practice.



May 31, 2023

LinXia Xiong, FSA, MAAA
Vice President

Date



May 31, 2023

Colleen M. Huber, FSA, MAAA
Senior Vice President

Date

DATA AND ASSUMPTIONS

Commonwealth of Kentucky Medical and Pharmacy benefits are administered through Anthem and Caremark beginning from 2015. Below is all data source we have used:

- Monthly enrollment provided by Merative.
- Transactional and eligibility data was provided by KEHP.
- Medical and Pharmacy claims incurred and paid from April 1, 2020 to March 31, 2023 provided by Anthem and Caremark.

No adjustment for interest was used in this analysis. Anthem and Caremark don't charge administrative fees for processing run-out claims so no administrative fee reserve is required.

METHODOLOGY

The unpaid claim liability (UCL), also called the incurred but not reported (IBNR) reserve, at a specified date is essentially the estimated claims incurred up to that date less the claims that have been (incurred and) paid to that date. Since the incurred and paid claims are known, the UCL is easily determined once the incurred claims have been estimated.

The traditional loss development method uses historical claim payment patterns to develop completion factors that are used to estimate incurred claims. The claims incurred in a given month and paid by the end of the experience period are divided by the completion factor to estimate the incurred claims for that month. The UCL for that month is subsequently determined by subtracting the known incurred and paid claims from the estimated incurred claims. The total UCL is merely the sum of all the appropriate monthly UCL estimates.

This method is relatively easy to understand and is effective when the historical claim payment patterns are deemed to be stable enough to estimate current/future claim payment patterns and when several months of claim payments (run-out) after the incurred month are available. When the run-out for any month is limited, this month is called immature and the associated completion factor is significantly less than one. The resulting incurred claim estimate is unstable. Consequently, a secondary method has traditionally been used to estimate the immature months.

The secondary method for health claims is often an average of historical incurred claims adjusted for claim trend and enrollment between the historical period and the time of interest. One of the shortcomings of this secondary method is that the available claim payment information for the month being estimated is not used. Another problem is that the line of demarcation between mature months and immature months is as much art as science.

The Bornhuetter-Furgeson Method (BFM) addresses both of these issues by blending the loss development method and the secondary method. The BFM uses the available incurred and paid data and the expected UCL developed from the secondary method to estimate incurred claims. This method generally provides a more stable estimate than the pure loss development method, a more responsive estimate than the secondary method, and a reasonable technique for blending the results of both methods.

Using the BFM with claims paid through March 31, 2023, the resulting UCL for March 31, 2023 was approximately \$151.4 million. In addition, an explicit margin for adverse deviation of 5.0% of claims unpaid on March 31, 2023 has been used.

RESULTS

The result of our reserve analysis shows the following components of our March 31, 2023 reserve for the Kentucky Employees' Health Plan.

Exhibit 1

Kentucky Employees' Health Plan Terminal Liability Calculation as of March 31, 2022				
	Unpaid Claims Liability as of March 31, 2022	Margin (5%)	Administrative Fees for Processing Runout Claims	Total IBNR Reserve (Rounded to Nearest \$1,000)
Medical	\$148,607,925	\$7,430,396	\$0	\$156,038,000
Pharmacy	\$369,177	\$18,459	\$0	\$388,000
CDHP HRA	\$1,445,692	\$72,285	\$0	\$1,518,000
Waiver HRA	\$1,022,134	\$51,107	\$0	\$1,073,000
Grand Total	\$151,444,928	\$7,572,246	\$0	\$159,017,000

* Claims that have been processed and paid, and invoiced to KEHP but not yet paid are excluded from these actuarial estimates, though this may represent an additional liability outside the scope of this actuarial review. The estimates provided also exclude unallocated amounts, which are believed to be immaterial to the Plan.

**No administrative fees are required from Anthem or Caremark for processing runout claims.

Exhibit 2a

Kentucky Employees' Health Plan Medical and Pharmacy Terminal Liability Calculation as of March 31, 2023

Month	Enrollment	Estimated Incurred Claims	Completion Factor	Actual Paid	Total Unpaid Claim Reserve
Apr-20	143,150	\$96,006,788	1.000	\$96,006,788	\$0
May-20	143,032	\$116,507,251	1.000	\$116,507,251	\$0
Jun-20	142,742	\$140,163,546	1.000	\$140,163,546	\$0
Jul-20	141,962	\$144,823,709	1.000	\$144,823,709	\$0
Aug-20	140,842	\$141,494,823	1.000	\$141,494,823	\$0
Sep-20	140,163	\$145,692,248	1.000	\$145,692,248	\$0
Oct-20	141,430	\$149,908,683	1.000	\$149,908,683	\$0
Nov-20	141,248	\$142,936,079	1.000	\$142,936,079	\$0
Dec-20	140,996	\$165,684,985	1.000	\$165,684,985	\$0
Jan-21	140,547	\$122,994,463	1.000	\$122,994,463	\$0
Feb-21	140,166	\$118,007,246	1.000	\$118,007,246	\$0
Mar-21	140,054	\$139,502,370	1.000	\$139,502,370	\$0
Apr-21	139,665	\$139,280,724	1.000	\$139,280,724	\$0
May-21	139,369	\$137,287,513	1.000	\$137,279,650	\$7,864
Jun-21	139,022	\$155,830,142	1.000	\$155,810,936	\$19,206
Jul-21	138,284	\$152,931,164	1.000	\$152,918,794	\$12,370
Aug-21	137,179	\$156,807,140	1.000	\$156,756,936	\$50,204
Sep-21	136,596	\$151,181,975	0.999	\$151,090,466	\$91,509
Oct-21	138,675	\$157,903,966	0.999	\$157,791,404	\$112,562
Nov-21	138,498	\$163,998,320	0.999	\$163,835,869	\$162,451
Dec-21	138,422	\$182,572,322	0.998	\$182,263,461	\$308,861
Jan-22	139,271	\$118,946,472	0.998	\$118,710,003	\$236,469
Feb-22	138,919	\$120,394,186	0.997	\$120,090,364	\$303,821
Mar-22	138,935	\$145,258,945	0.996	\$144,738,215	\$520,729
Apr-22	138,732	\$138,859,729	0.996	\$138,234,955	\$624,774
May-22	138,533	\$145,836,875	0.993	\$144,839,817	\$997,057
Jun-22	138,120	\$157,125,029	0.991	\$155,746,370	\$1,378,659
Jul-22	137,350	\$148,569,029	0.988	\$146,830,284	\$1,738,745
Aug-22	136,362	\$158,029,368	0.985	\$155,685,011	\$2,344,356
Sep-22	135,557	\$154,585,812	0.979	\$151,315,183	\$3,270,629
Oct-22	137,962	\$160,208,192	0.970	\$155,333,522	\$4,874,671
Nov-22	138,038	\$172,403,770	0.952	\$164,132,576	\$8,271,194
Dec-22	138,200	\$185,226,983	0.922	\$170,694,849	\$14,532,134
Jan-23	138,657	\$137,641,645	0.889	\$122,408,638	\$15,233,007
Feb-23	138,390	\$148,882,660	0.796	\$118,559,353	\$30,323,308
Mar-23	138,646	\$171,501,796	0.629	\$107,939,274	\$63,562,522
Total		\$5,284,985,947		\$5,136,008,845	\$148,977,102

Exhibit 2b
Kentucky Employees' Health Plan
Medical
Terminal Liability Calculation as of March 31, 2023

Month	Enrollment	Estimated Incurred Claims	Completion Factor	Actual Paid	Total Unpaid Claim Reserve
Apr-20	143,150	\$52,945,746	1.000	\$52,945,746	\$0
May-20	143,032	\$75,123,057	1.000	\$75,123,057	\$0
Jun-20	142,742	\$94,311,253	1.000	\$94,311,253	\$0
Jul-20	141,962	\$99,866,924	1.000	\$99,866,924	\$0
Aug-20	140,842	\$97,446,020	1.000	\$97,446,020	\$0
Sep-20	140,163	\$100,267,842	1.000	\$100,267,842	\$0
Oct-20	141,430	\$103,216,401	1.000	\$103,216,401	\$0
Nov-20	141,248	\$97,059,989	1.000	\$97,059,989	\$0
Dec-20	140,996	\$115,466,824	1.000	\$115,466,824	\$0
Jan-21	140,547	\$84,603,906	1.000	\$84,603,906	\$0
Feb-21	140,166	\$80,132,087	1.000	\$80,132,087	\$0
Mar-21	140,054	\$93,100,217	1.000	\$93,100,217	\$0
Apr-21	139,665	\$93,260,403	1.000	\$93,260,403	\$0
May-21	139,369	\$92,623,645	1.000	\$92,615,891	\$7,754
Jun-21	139,022	\$108,108,909	1.000	\$108,089,950	\$18,960
Jul-21	138,284	\$106,858,220	1.000	\$106,846,193	\$12,026
Aug-21	137,179	\$109,578,828	1.000	\$109,529,076	\$49,753
Sep-21	136,596	\$104,371,346	0.999	\$104,280,512	\$90,835
Oct-21	138,675	\$110,075,033	0.999	\$109,963,524	\$111,509
Nov-21	138,498	\$113,919,630	0.999	\$113,758,715	\$160,915
Dec-21	138,422	\$127,922,216	0.998	\$127,615,258	\$306,958
Jan-22	139,271	\$78,867,258	0.997	\$78,633,778	\$233,480
Feb-22	138,919	\$81,057,998	0.996	\$80,759,029	\$298,968
Mar-22	138,935	\$98,123,800	0.995	\$97,611,365	\$512,435
Apr-22	138,732	\$94,544,569	0.993	\$93,927,370	\$617,199
May-22	138,533	\$99,027,852	0.990	\$98,038,278	\$989,574
Jun-22	138,120	\$108,377,339	0.987	\$107,008,899	\$1,368,440
Jul-22	137,350	\$101,815,164	0.983	\$100,091,005	\$1,724,159
Aug-22	136,362	\$107,586,981	0.978	\$105,267,418	\$2,319,563
Sep-22	135,557	\$105,360,839	0.969	\$102,121,044	\$3,239,795
Oct-22	137,962	\$111,045,526	0.956	\$106,206,082	\$4,839,444
Nov-22	138,038	\$122,151,140	0.933	\$113,927,169	\$8,223,971
Dec-22	138,200	\$132,528,844	0.891	\$118,048,749	\$14,480,096
Jan-23	138,657	\$90,464,896	0.832	\$75,289,600	\$15,175,296
Feb-23	138,390	\$101,657,393	0.702	\$71,393,120	\$30,264,274
Mar-23	138,646	\$113,254,942	0.439	\$49,692,420	\$63,562,522
Total		\$3,606,123,037		\$3,457,515,112	\$148,607,925

Exhibit 2c
Kentucky Employees' Health Plan
Pharmacy
Terminal Liability Calculation as of March 31, 2023

Month	Enrollment	Estimated Incurred Claims	Completion Factor	Actual Paid	Total Unpaid Claim Reserve
Apr-20	143,150	\$43,061,042	1.000	\$43,061,042	\$0
May-20	143,032	\$41,384,194	1.000	\$41,384,194	\$0
Jun-20	142,742	\$45,852,293	1.000	\$45,852,293	\$0
Jul-20	141,962	\$44,956,785	1.000	\$44,956,785	\$0
Aug-20	140,842	\$44,048,803	1.000	\$44,048,803	\$0
Sep-20	140,163	\$45,424,406	1.000	\$45,424,406	\$0
Oct-20	141,430	\$46,692,281	1.000	\$46,692,281	\$0
Nov-20	141,248	\$45,876,091	1.000	\$45,876,091	\$0
Dec-20	140,996	\$50,218,161	1.000	\$50,218,161	\$0
Jan-21	140,547	\$38,390,557	1.000	\$38,390,557	\$0
Feb-21	140,166	\$37,875,160	1.000	\$37,875,160	\$0
Mar-21	140,054	\$46,402,153	1.000	\$46,402,153	\$0
Apr-21	139,665	\$46,020,321	1.000	\$46,020,321	\$0
May-21	139,369	\$44,663,868	1.000	\$44,663,758	\$110
Jun-21	139,022	\$47,721,232	1.000	\$47,720,986	\$246
Jul-21	138,284	\$46,072,944	1.000	\$46,072,601	\$344
Aug-21	137,179	\$47,228,312	1.000	\$47,227,860	\$452
Sep-21	136,596	\$46,810,629	1.000	\$46,809,955	\$674
Oct-21	138,675	\$47,828,934	1.000	\$47,827,880	\$1,054
Nov-21	138,498	\$50,078,690	1.000	\$50,077,154	\$1,536
Dec-21	138,422	\$54,650,106	1.000	\$54,648,203	\$1,903
Jan-22	139,271	\$40,079,214	1.000	\$40,076,225	\$2,989
Feb-22	138,919	\$39,336,188	1.000	\$39,331,335	\$4,853
Mar-22	138,935	\$47,135,145	1.000	\$47,126,850	\$8,295
Apr-22	138,732	\$44,315,160	1.000	\$44,307,585	\$7,574
May-22	138,533	\$46,809,023	1.000	\$46,801,539	\$7,483
Jun-22	138,120	\$48,747,690	1.000	\$48,737,471	\$10,219
Jul-22	137,350	\$46,753,865	1.000	\$46,739,279	\$14,586
Aug-22	136,362	\$50,442,387	1.000	\$50,417,593	\$24,793
Sep-22	135,557	\$49,224,973	0.999	\$49,194,139	\$30,834
Oct-22	137,962	\$49,162,666	0.999	\$49,127,440	\$35,227
Nov-22	138,038	\$50,252,629	0.999	\$50,205,407	\$47,222
Dec-22	138,200	\$52,698,138	0.999	\$52,646,100	\$52,038
Jan-23	138,657	\$47,176,749	0.999	\$47,119,038	\$57,711
Feb-23	138,390	\$47,225,267	0.999	\$47,166,233	\$59,034
Mar-23	138,646	\$58,246,853	1.000	\$58,246,853	\$0
Total		\$1,678,862,910		\$1,678,493,732	\$369,177

Exhibit 3

Kentucky Employees' Health Plan Terminal Liability Calculation as of March 31, 2023

Health Reimbursement Arrangements

CDHP HRA				
Period	Paid To Date	Completion Factor	Total Incurred	Unpaid Claim Reserve
Jan-Mar 2020	\$18,208,673	100.0%	\$18,208,673	\$0
Apr-Jun 2020	\$13,050,038	100.0%	\$13,050,038	\$0
Jul-Sep 2020	\$11,579,884	100.0%	\$11,579,884	\$0
Oct-Dec 2020	\$11,004,319	100.0%	\$11,004,319	\$0
Jan-Mar 2021	\$16,398,432	100.0%	\$16,398,432	\$0
Apr-Jun 2021	\$15,463,454	100.0%	\$15,463,454	\$0
Jul-Sep 2021	\$12,037,884	100.0%	\$12,037,884	\$0
Oct-Dec 2021	\$11,004,055	100.0%	\$11,004,055	\$0
Jan-Mar 2022	\$17,798,488	99.9%	\$17,808,036	\$9,548
Apr-Jun 2022	\$16,158,952	99.7%	\$16,205,211	\$46,259
Jul-Sep 2022	\$11,799,957	99.3%	\$11,883,862	\$83,905
Oct-Dec 2022	\$10,819,298	98.3%	\$11,003,589	\$184,291
Jan-Mar 2023	\$17,370,798	93.9%	\$18,492,487	\$1,121,689
Total	\$182,694,233		\$184,139,925	\$1,445,692

Waiver HRA				
Plan Year	Paid To Date	Completion	Total Incurred	Unpaid Claim
2020	\$36,230,027	100.0%	\$36,230,027	\$0
2021	\$35,917,347	100.0%	\$35,917,347	\$0
2022	\$35,127,022	99.1%	\$35,446,215	\$319,193
2023	\$8,737,968	92.6%	\$9,440,909	\$702,941
Total	\$116,012,364		\$117,034,498	\$1,022,134

Exhibit 4
Kentucky Employees' Health Plan
Rx Rebates as of March 31, 2023

Plan Year	Rebate Amount		
	Accounting	Incurred	
Q1 2020	\$35,062,495	\$44,399,512	Actual/Estimate
Q2 2020	\$41,193,980	\$45,570,813	Actual/Estimate
Q3 2020	\$38,937,487	\$46,273,083	Actual/Estimate
Q4 2020	\$58,968,227	\$47,766,878	Actual/Estimate
Q1 2021	\$43,236,360	\$42,566,065	Actual/Estimate
Q2 2021	\$43,485,834	\$46,179,854	Actual/Estimate
Q3 2021	\$46,018,808	\$46,439,172	Actual/Estimate
Q4 2021	\$53,774,503	\$49,326,144	Actual/Estimate
Q1 2022	\$46,693,187	\$52,987,175	Actual/Estimate
Q2 2022	\$52,280,271	\$55,942,280	Actual/Estimate
Q3 2022	\$56,253,088	\$58,785,481	Actual/Estimate
Q4 2022	\$57,500,640	\$59,190,050	Actual/Estimate
Q1 2023	\$51,410,292	\$64,952,455	Estimate/Estimate

Exhibit 5
Kentucky Employees' Health Plan
Premium Deficiency Reserve as of March 31, 2023

Calculation of the Premium Deficiency Reserve	
(figures in \$millions)	
Revenue	
Medical and Pharmacy Premiums	\$1,381.3
HRA Waiver Premiums	\$37.4
Interest Income	\$2.6
Pharmacy Rebates	\$175.7
Total Revenue (a)	\$1,597.0
Expenses	
Medical and Pharmacy Claims	\$1,453.7
Administrative Fees (Medical & Pharmacy)	\$66.1
Operating Expenses/ERRP	\$11.8
HRA (waiver & select) Claims	\$66.0
Total Expenses (b)	\$1,597.6
Net Gain/(Loss) (a) - (b)	(\$0.6)

* As of March 31, 2023, due to the estimated revenue (\$1,597.0 million) being insufficient to cover the estimated program expenses (\$1,597.6 million), there is an additional premium deficiency reserve of \$0.6 million.