

Commonwealth of Kentucky

Kentucky Employees' Health Plan

**Actuarial Reserve Study
June 30, 2022**

**Three Alliance Center
3550 Lenox Road NE
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August 2022

Commonwealth of Kentucky

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EXECUTIVE SUMMARY

Aon has conducted an actuarial valuation of the incurred, but not paid, claims as of June 30, 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 \$147.6 million. This figure includes \$7 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 2022 plan year are not sufficient to cover future incurred claims and administrative fees for the 2022 plan year, a "premium deficiency reserve" (PDR) in the amount of the difference should be estimated. As of June 30, 2022, due to the estimated revenue (\$966.7 million) being insufficient to cover the estimated program expenses (\$1,115.5 million), there is an additional premium deficiency reserve of \$148.8 million.

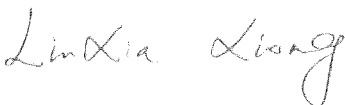
Also included in this report are the actual Rx rebates paid from January 1, 2019 to December 31, 2021 and the estimated Rx rebate from Jan 1, 2022 to June 30, 2022.

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 June 30, 2022, 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 Truven, 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.



LinXia Xiong, FSA, MAAA
Vice President

August 16, 2022
Date



Colleen M. Huber, FSA, MAAA
Senior Vice President

August 16, 2022
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 Truven.
- Transactional and eligibility data was provided by KEHP.
- Medical and Pharmacy claims incurred and paid from July 1, 2019 to June 30, 2022 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.

The COVID-19 pandemic has greatly impacted the American health care landscape over the last several months. While the number of cases in the United States has dropped in recent months due to vaccinations, the impact of COVID-19 on healthcare costs continues to remain volatile. In addition, data is continuing to emerge regarding expected testing, vaccination, and treatment costs, frequency of cases, etc. Elective procedures and nonemergency visits are being deferred as well, with minimal data on the frequencies and average costs of these deferred services.

Aon has developed a model to estimate COVID-19 impacts, and it reflects two cost drivers pointing in opposite directions. We continue to monitor the experience against the modeling results.

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-Ferguson 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 June 30, 2022, the resulting UCL for June 30, 2022 was approximately \$140.6 million. In addition, an explicit margin for adverse deviation of 5.0% of claims unpaid at June 30, 2022 has been used.

RESULTS

The result of our reserve analysis shows the following components of our June 30, 2022 reserve for the Kentucky Employees' Health Plan.

Exhibit 1

Kentucky Employees' Health Plan Terminal Liability Calculation as of June 30, 2022				
	Unpaid Claims Liability as of June 30, 2022	Margin (5%)	Administrative Fees for Processing Runout Claims	Total IBNR Reserve (Rounded to Nearest \$1,000)
Medical	\$137,583,293	\$6,879,165	\$0	\$144,462,000
Pharmacy	\$164,111	\$8,206	\$0	\$172,000
CDHP HRA	\$1,373,264	\$68,663	\$0	\$1,442,000
Waiver HRA	\$1,441,823	\$72,091	\$0	\$1,514,000
Grand Total	\$140,562,492	\$7,028,125	\$0	\$147,591,000

* 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 June 30, 2022**

Month	Enrollment	Estimated Incurred Claims	Completion Factor	Actual Paid	Total Unpaid Claim Reserve
Jul-19	142,737	\$145,216,771	1.000	\$145,216,771	\$0
Aug-19	141,670	\$138,822,190	1.000	\$138,822,190	\$0
Sep-19	141,025	\$134,086,353	1.000	\$134,086,353	\$0
Oct-19	143,179	\$150,870,503	1.000	\$150,870,503	\$0
Nov-19	143,173	\$143,192,000	1.000	\$143,192,000	\$0
Dec-19	143,272	\$165,724,689	1.000	\$165,724,689	\$0
Jan-20	143,270	\$114,565,757	1.000	\$114,565,757	\$0
Feb-20	143,013	\$118,781,458	1.000	\$118,781,458	\$0
Mar-20	143,011	\$118,485,741	1.000	\$118,485,741	\$0
Apr-20	143,150	\$95,992,888	1.000	\$95,992,888	\$0
May-20	143,032	\$116,298,753	1.000	\$116,298,753	\$0
Jun-20	142,742	\$140,045,151	1.000	\$140,045,151	\$0
Jul-20	141,962	\$144,694,019	1.000	\$144,694,019	\$0
Aug-20	140,842	\$141,315,512	1.000	\$141,309,601	\$5,911
Sep-20	140,163	\$145,834,082	1.000	\$145,790,768	\$43,314
Oct-20	141,430	\$149,992,263	0.999	\$149,892,684	\$99,579
Nov-20	141,248	\$143,072,734	0.999	\$142,935,127	\$137,607
Dec-20	140,996	\$165,821,475	0.999	\$165,608,159	\$213,316
Jan-21	140,547	\$122,957,890	0.999	\$122,795,466	\$162,425
Feb-21	140,166	\$117,993,792	0.999	\$117,836,968	\$156,823
Mar-21	140,054	\$139,439,912	0.998	\$139,156,422	\$283,490
Apr-21	139,665	\$139,232,863	0.997	\$138,882,018	\$350,845
May-21	139,369	\$137,186,472	0.997	\$136,832,829	\$353,644
Jun-21	139,022	\$156,030,036	0.997	\$155,518,678	\$511,358
Jul-21	138,284	\$152,496,126	0.996	\$151,854,379	\$641,747
Aug-21	137,179	\$156,938,961	0.994	\$156,035,261	\$903,701
Sep-21	136,596	\$150,977,514	0.993	\$149,879,401	\$1,098,113
Oct-21	138,675	\$158,164,011	0.990	\$156,597,785	\$1,566,226
Nov-21	138,498	\$164,557,195	0.986	\$162,308,420	\$2,248,775
Dec-21	138,422	\$181,485,475	0.980	\$177,779,989	\$3,705,486
Jan-22	139,271	\$116,905,421	0.974	\$113,913,862	\$2,991,559
Feb-22	138,919	\$111,470,530	0.961	\$107,160,455	\$4,310,074
Mar-22	138,935	\$128,760,053	0.942	\$121,254,193	\$7,505,860
Apr-22	138,732	\$123,992,261	0.904	\$112,057,922	\$11,934,340
May-22	138,533	\$142,934,464	0.779	\$111,299,950	\$31,634,513
Jun-22	138,120	\$160,251,006	0.583	\$93,362,308	\$66,888,699
Total		\$5,034,586,321		\$4,896,838,917	\$137,747,405

**Kentucky Employees' Health Plan
 Medical
 Terminal Liability Calculation as of June 30, 2022**

Month	Enrollment	Estimated Incurred Claims	Completion Factor	Actual Paid	Total Unpaid Claim Reserve
Jul-19	142,737	\$102,808,345	1.000	\$102,808,345	\$0
Aug-19	141,670	\$97,959,683	1.000	\$97,959,683	\$0
Sep-19	141,025	\$93,237,050	1.000	\$93,237,050	\$0
Oct-19	143,179	\$106,554,340	1.000	\$106,554,340	\$0
Nov-19	143,173	\$101,386,137	1.000	\$101,386,137	\$0
Dec-19	143,272	\$119,171,656	1.000	\$119,171,656	\$0
Jan-20	143,270	\$75,921,634	1.000	\$75,921,634	\$0
Feb-20	143,013	\$80,518,613	1.000	\$80,518,613	\$0
Mar-20	143,011	\$71,960,931	1.000	\$71,960,931	\$0
Apr-20	143,150	\$52,935,019	1.000	\$52,935,019	\$0
May-20	143,032	\$74,917,853	1.000	\$74,917,853	\$0
Jun-20	142,742	\$94,197,182	1.000	\$94,197,182	\$0
Jul-20	141,962	\$99,738,671	1.000	\$99,738,671	\$0
Aug-20	140,842	\$97,268,098	1.000	\$97,262,264	\$5,834
Sep-20	140,163	\$100,408,878	1.000	\$100,365,780	\$43,098
Oct-20	141,430	\$103,299,212	0.999	\$103,199,761	\$99,452
Nov-20	141,248	\$97,202,568	0.999	\$97,064,961	\$137,607
Dec-20	140,996	\$115,602,731	0.998	\$115,389,634	\$213,096
Jan-21	140,547	\$84,570,033	0.998	\$84,408,190	\$161,843
Feb-21	140,166	\$80,118,029	0.998	\$79,962,263	\$155,766
Mar-21	140,054	\$93,028,331	0.997	\$92,746,538	\$281,792
Apr-21	139,665	\$93,211,408	0.996	\$92,862,646	\$348,762
May-21	139,369	\$92,564,116	0.996	\$92,212,919	\$351,197
Jun-21	139,022	\$108,331,169	0.995	\$107,822,325	\$508,844
Jul-21	138,284	\$106,487,475	0.994	\$105,848,129	\$639,346
Aug-21	137,179	\$109,780,522	0.992	\$108,878,163	\$902,359
Sep-21	136,596	\$104,199,107	0.989	\$103,100,994	\$1,098,113
Oct-21	138,675	\$110,411,114	0.986	\$108,844,888	\$1,566,226
Nov-21	138,498	\$114,554,353	0.980	\$112,306,433	\$2,247,920
Dec-21	138,422	\$126,931,393	0.971	\$123,226,791	\$3,704,601
Jan-22	139,271	\$76,747,050	0.961	\$73,770,129	\$2,976,921
Feb-22	138,919	\$72,125,353	0.941	\$67,840,984	\$4,284,369
Mar-22	138,935	\$81,593,724	0.908	\$74,122,250	\$7,471,474
Apr-22	138,732	\$79,730,293	0.851	\$67,831,384	\$11,898,910
May-22	138,533	\$96,245,892	0.672	\$64,648,828	\$31,597,065
Jun-22	138,120	\$109,781,572	0.391	\$42,892,873	\$66,888,699
Total		\$3,699,786,883		\$3,562,203,590	\$137,583,293

Exhibit 2c
Kentucky Employees' Health Plan
Pharmacy
Terminal Liability Calculation as of June 30, 2022

Month	Enrollment	Estimated Incurred Claims	Completion Factor	Actual Paid	Total Unpaid Claim Reserve
Jul-19	142,737	\$42,408,426	1.000	\$42,408,426	\$0
Aug-19	141,670	\$40,862,507	1.000	\$40,862,507	\$0
Sep-19	141,025	\$40,849,304	1.000	\$40,849,304	\$0
Oct-19	143,179	\$44,316,163	1.000	\$44,316,163	\$0
Nov-19	143,173	\$41,805,863	1.000	\$41,805,863	\$0
Dec-19	143,272	\$46,553,033	1.000	\$46,553,033	\$0
Jan-20	143,270	\$38,644,123	1.000	\$38,644,123	\$0
Feb-20	143,013	\$38,262,845	1.000	\$38,262,845	\$0
Mar-20	143,011	\$46,524,810	1.000	\$46,524,810	\$0
Apr-20	143,150	\$43,057,869	1.000	\$43,057,869	\$0
May-20	143,032	\$41,380,900	1.000	\$41,380,900	\$0
Jun-20	142,742	\$45,847,968	1.000	\$45,847,968	\$0
Jul-20	141,962	\$44,955,347	1.000	\$44,955,347	\$0
Aug-20	140,842	\$44,047,413	1.000	\$44,047,337	\$77
Sep-20	140,163	\$45,425,204	1.000	\$45,424,988	\$215
Oct-20	141,430	\$46,693,051	1.000	\$46,692,923	\$127
Nov-20	141,248	\$45,870,166	1.000	\$45,870,166	\$0
Dec-20	140,996	\$50,218,744	1.000	\$50,218,525	\$219
Jan-21	140,547	\$38,387,858	1.000	\$38,387,275	\$582
Feb-21	140,166	\$37,875,763	1.000	\$37,874,705	\$1,058
Mar-21	140,054	\$46,411,581	1.000	\$46,409,884	\$1,698
Apr-21	139,665	\$46,021,456	1.000	\$46,019,372	\$2,083
May-21	139,369	\$44,622,357	1.000	\$44,619,910	\$2,447
Jun-21	139,022	\$47,698,867	1.000	\$47,696,353	\$2,514
Jul-21	138,284	\$46,008,652	1.000	\$46,006,250	\$2,402
Aug-21	137,179	\$47,158,439	1.000	\$47,157,098	\$1,342
Sep-21	136,596	\$46,778,407	1.000	\$46,778,407	\$0
Oct-21	138,675	\$47,752,897	1.000	\$47,752,897	\$0
Nov-21	138,498	\$50,002,842	1.000	\$50,001,987	\$855
Dec-21	138,422	\$54,554,082	1.000	\$54,553,197	\$885
Jan-22	139,271	\$40,158,371	1.000	\$40,143,733	\$14,638
Feb-22	138,919	\$39,345,177	0.999	\$39,319,472	\$25,705
Mar-22	138,935	\$47,166,329	0.999	\$47,131,943	\$34,386
Apr-22	138,732	\$44,261,968	0.999	\$44,226,538	\$35,430
May-22	138,533	\$46,688,572	0.999	\$46,651,123	\$37,449
Jun-22	138,120	\$50,469,434	1.000	\$50,469,434	\$0
Total		\$1,729,929,798		\$1,729,765,687	\$164,111

Exhibit 3

Kentucky Employees' Health Plan Terminal Liability Calculation as of June 30, 2022

Health Reimbursement Arrangements

CDHIP HRA				
Period	Paid To Date	Completion Factor	Total Incurred	Unpaid Claim Reserve
Jan-Mar 2019	\$18,476,119	100.0%	\$18,476,119	\$0
Apr-Jun 2019	\$15,896,412	100.0%	\$15,896,412	\$0
Jul-Sep 2019	\$11,499,185	100.0%	\$11,499,185	\$0
Oct-Dec 2019	\$10,242,946	100.0%	\$10,242,946	\$0
Jan-Mar 2020	\$18,208,279	100.0%	\$18,208,279	\$0
Apr-Jun 2020	\$13,049,755	100.0%	\$13,049,755	\$0
Jul-Sep 2020	\$11,579,633	100.0%	\$11,579,633	\$0
Oct-Dec 2020	\$11,004,080	100.0%	\$11,004,110	\$30
Jan-Mar 2021	\$16,400,536	99.9%	\$16,410,398	\$9,862
Apr-Jun 2021	\$15,465,438	99.9%	\$15,486,255	\$20,817
Jul-Sep 2021	\$12,039,428	99.6%	\$12,086,711	\$47,282
Oct-Dec 2021	\$11,004,605	99.2%	\$11,097,315	\$92,710
Jan-Mar 2022	\$16,532,211	98.3%	\$16,810,627	\$278,416
Apr-Jun 2022	\$14,482,489	94.0%	\$15,406,636	\$924,147
Total	\$195,881,116		\$197,254,380	\$1,373,264

Waiver HRA				
		Completion		Unpaid Claim
2019	\$37,850,462	100.0%	\$37,850,462	\$0
2020	\$36,236,341	100.0%	\$36,236,341	\$0
2021	\$35,903,167	99.7%	\$36,029,171	\$126,004
2022	\$15,168,272	92.0%	\$16,484,091	\$1,315,819
Total	\$125,158,241		\$126,600,064	\$1,441,823

Exhibit 4
Kentucky Employees' Health Plan
Rx Rebates as of June 30, 2022

Plan Year	Rebate Amount		
	Accounting	Incurred	
Q1 2019	\$33,676,388	\$35,397,387	Actual/Actual
Q2 2019	\$34,082,416	\$38,069,489	Actual/Actual
Q3 2019	\$35,397,343	\$39,517,219	Actual/Actual
Q4 2019	\$49,949,036	\$41,032,286	Actual/Actual
Q1 2020	\$35,062,495	\$44,632,745	Actual/Estimate
Q2 2020	\$41,193,980	\$45,719,082	Actual/Estimate
Q3 2020	\$38,937,487	\$46,376,060	Actual/Estimate
Q4 2020	\$57,839,535	\$47,969,105	Actual/Estimate
Q1 2021	\$43,236,360	\$42,572,675	Actual/Estimate
Q2 2021	\$43,485,834	\$46,178,512	Actual/Estimate
Q3 2021	\$46,018,808	\$46,543,591	Actual/Estimate
Q4 2021	\$46,125,558	\$49,396,908	Actual/Estimate
Q1 2022	\$44,825,820	\$52,785,099	Estimate/Estimate
Q2 2022	\$45,084,465	\$55,828,429	Estimate/Estimate

Exhibit 5
Kentucky Employees' Health Plan
Premium Deficiency Reserve as of June 30, 2022

Calculation of the Premium Deficiency Reserve (figures in \$millions)	
Revenue	
Medical and Pharmacy Premiums	\$849.3
HRA Waiver Premiums	\$24.1
Interest Income	\$0.6
Pharmacy Rebates	\$92.7
Total Revenue (a)	\$966.7
Expenses	
Medical and Pharmacy Claims	\$1,024.6
Administrative Fees (Medical & Pharmacy)	\$40.5
Operating Expenses/ERRP	\$4.8
HRA (waiver & select) Claims	\$45.6
Total Expenses (b)	\$1,115.5
Net Gain/(Loss) (a) - (b)	(\$148.8)

* As of June 30, 2022, due to the estimated revenue (\$966.7 million) being insufficient to cover the estimated program expenses (\$1,115.5 million), there is an additional premium deficiency reserve of \$148.8 million.